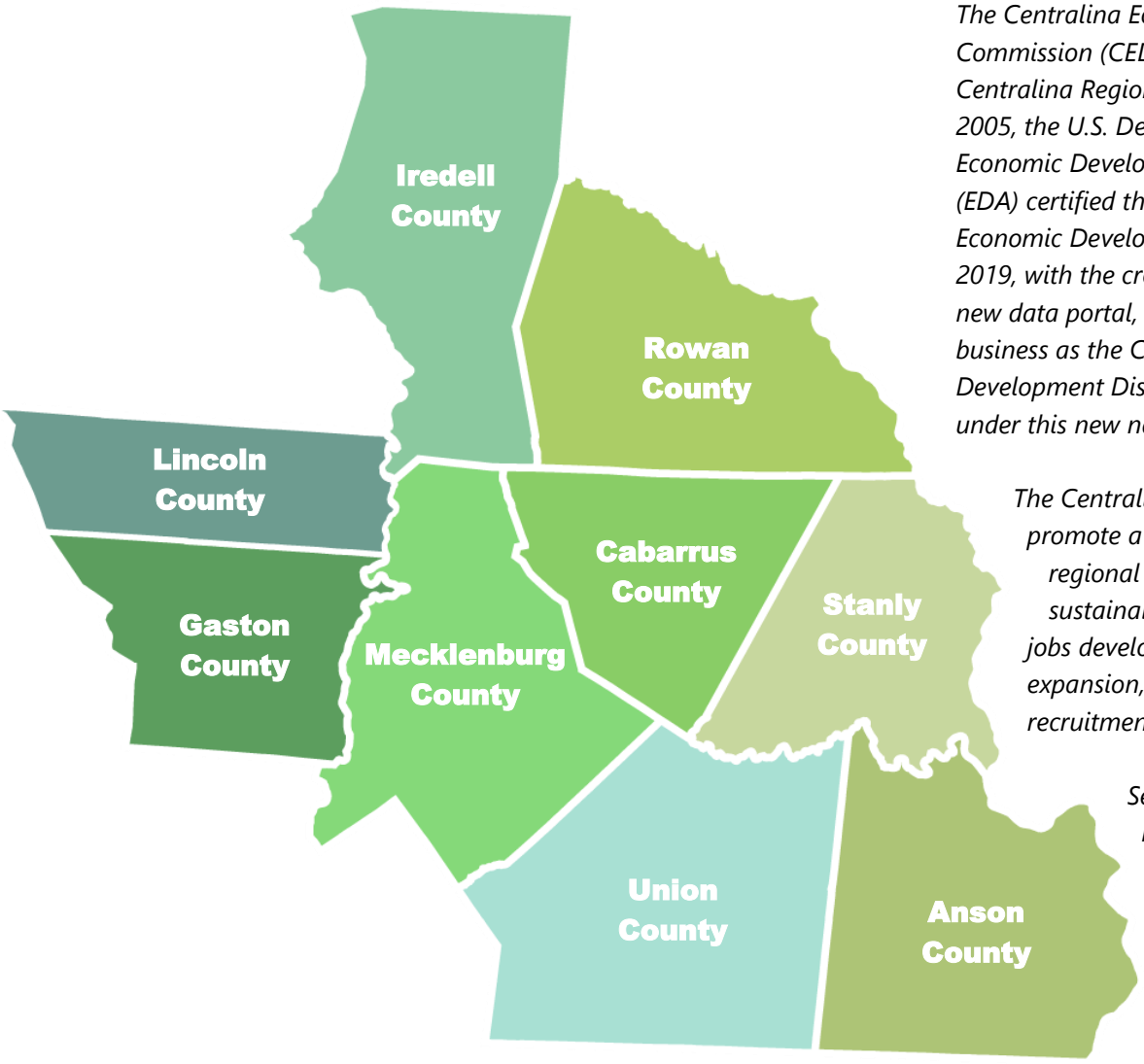
The Centralina Economic Development District (CEDD) coordinates different economic development programs and initiatives in the nine-county Charlotte region. One of their primary responsibilities is to develop and implement a Comprehensive Economic Development Strategy (CEDS), which provides a framework for 1) improved regional economic development, 2) important partnerships and collaboration opportunities, and 3) multi-tiered economic outcomes that benefit local partners. The CEDS report is updated every five years, and the new CEDS report for the Charlotte region will be adopted in 2022.

City Explained, Inc. (CEI) was hired by the CEDD to complete an industrial audit for the nine-county region. Information from the audit was made available to the CEDD, and their CEDS working group, to inform the planning process, and influence different goals, targets, and recommends in the forthcoming CEDS report. Specific objectives identified for the audit include:

1. enumerate the amount of industrial land in the region today and the number of employees the land supports;
2. approximate demand for industrial land in the future (2040) to support an expanding economy and industrial base for the region;
3. estimate the current supply of industrial land in the region, including land currently used for industrial uses and land identified through policy to support industrial uses sometime in the future; and
4. calculate a surplus or deficit of industrial land for each county to meet projected demand through 2040.



The Centralina Economic Development Commission (CEDC) was established by Centralina Regional Council in 2004. In 2005, the U.S. Department of Commerce, Economic Development Administration (EDA) certified the CEDC as the Centralina Economic Development District (EDD). In 2019, with the creation of this website and new data portal, the CEDC started doing business as the Centralina Economic Development District and now operates under this new name as an organization.

The Centralina EDD mission s to promote a diversified and innovative regional economic base, advocate sustainable growth, and support jobs development through expansion, retention, and recruitment of business and industry.

See the CEDC website for more information, www.centralinaedd.org.

Information for the industrial audit is reported for the region and the nine counties within it: Anson, Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly, and Union.

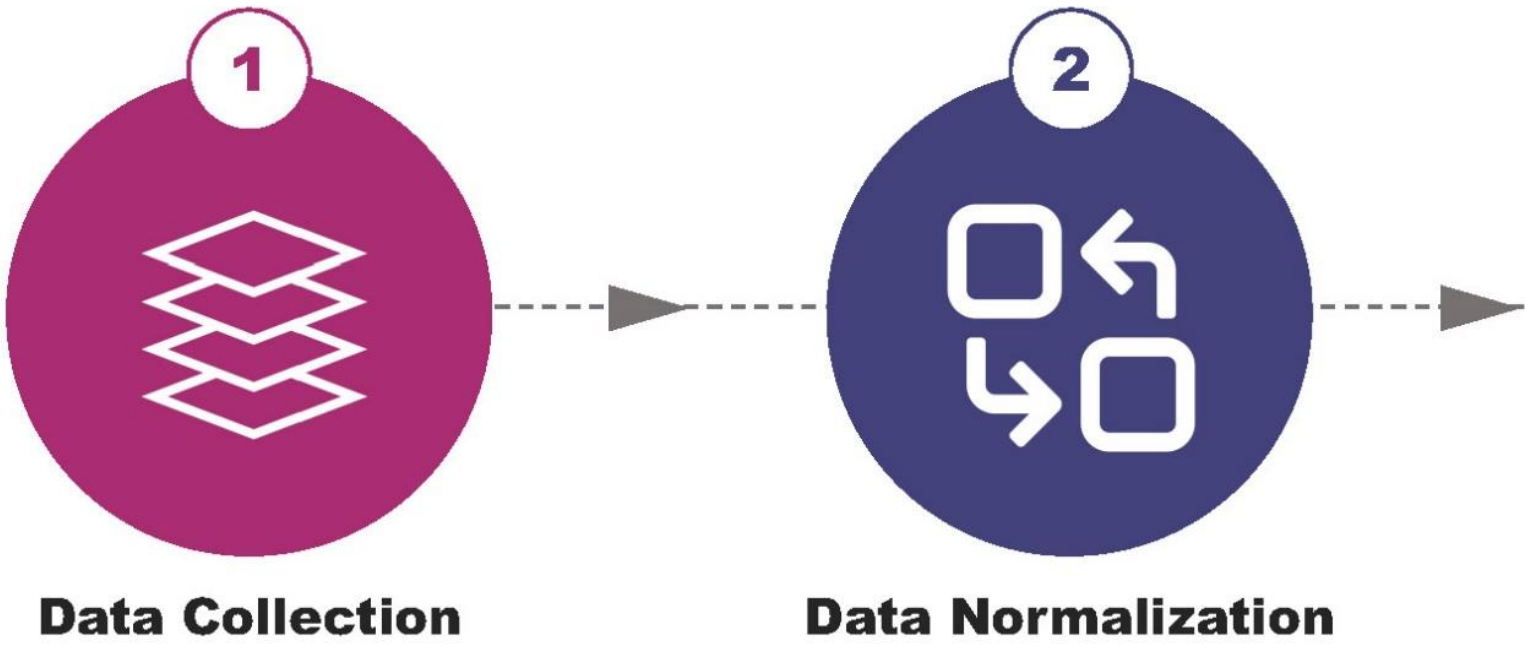
The *Centralina Economic Development District Industrial Audit Report* summarizes data, outcomes, and conclusions from the assessment. The document is organized into three main sections:

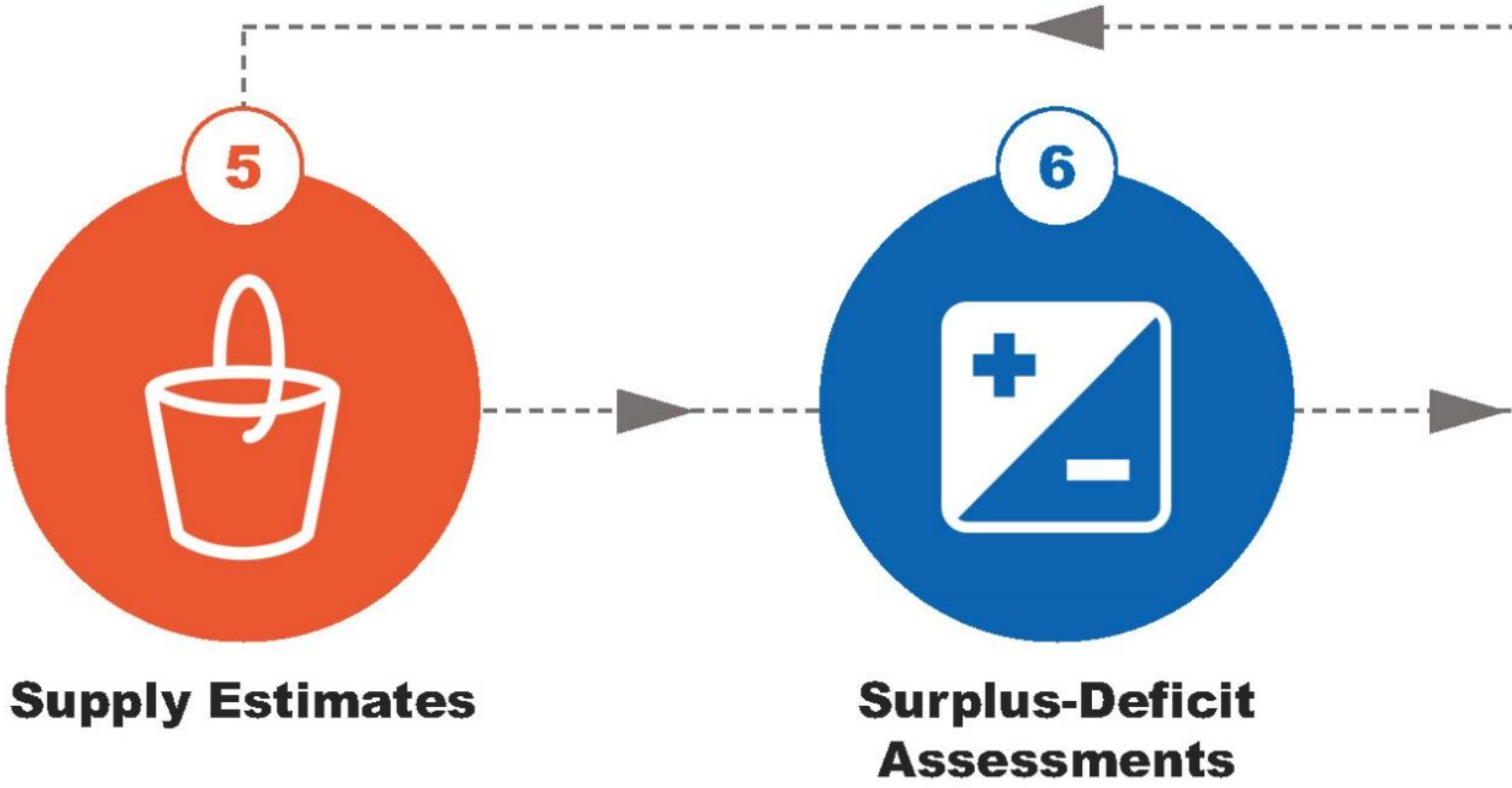
General Overview — a brief overview of the general methodology, data sources, important assumptions, and region-wide summary statistics for the industrial audit.

County-Level Profiles — summary statistics, findings, and conclusions reported for all nine counties in the CEDD region.

Technical Appendix — a compilation of specific data, tables, maps, processes, or assumptions used to complete the industrial audit. Information in the appendix may be useful to members of the CEDS working group, or other economic development organizations and local governments in the region, that want to complete other industrial studies or assessments in the future.

The industrial audit for the CEDD region followed the general eight-step process presented below. Specific steps in the process are described in Section A of the report.

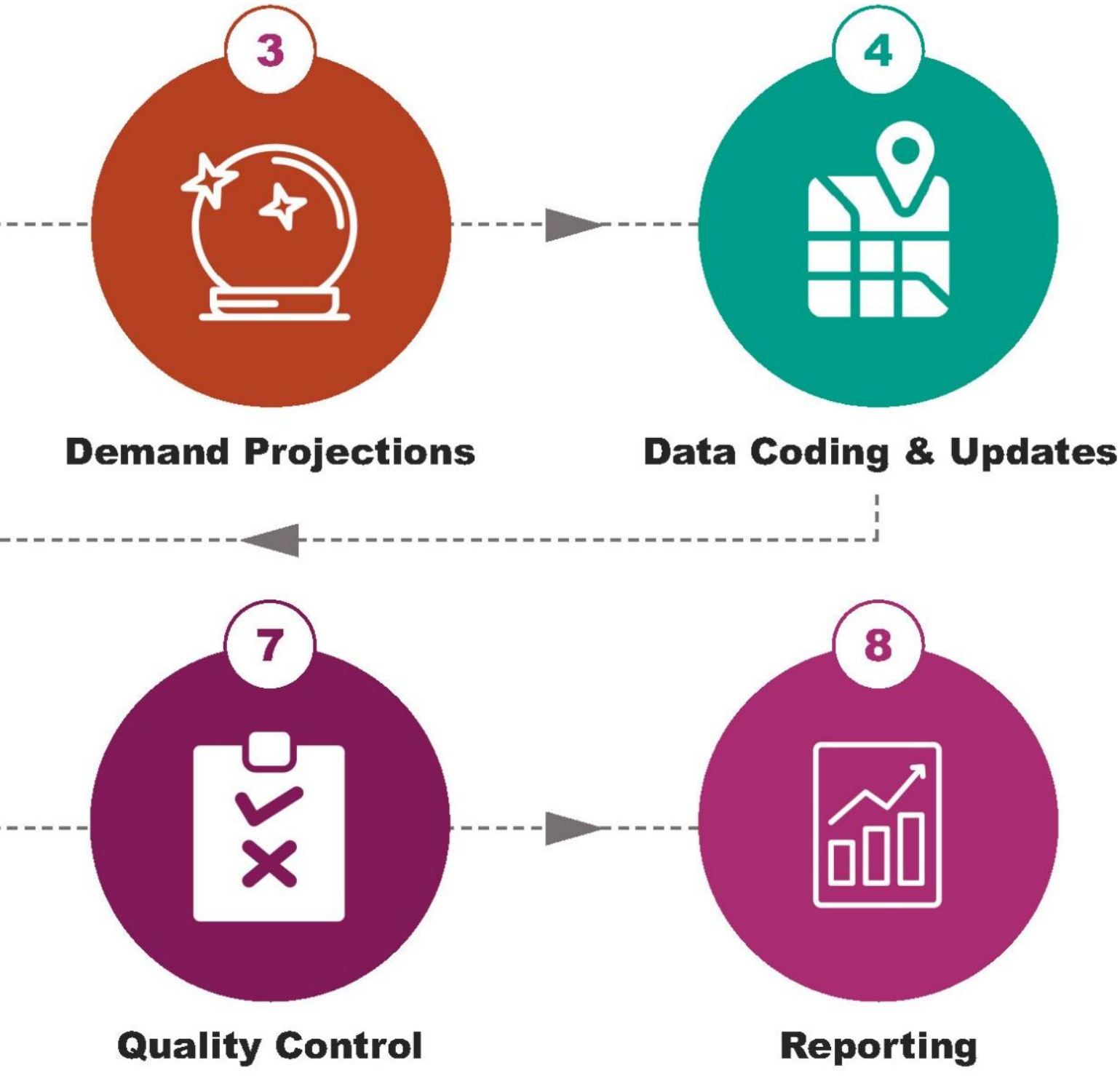




General Overview

The General Overview section of the report summarizes the general methodology, data sources, important assumptions, and region-wide summary statistics for the industrial audit with the intent of answering a fundamental question for the CEDS update:

Is there enough industrial land available in the region to accommodate projected growth in 2040?



Data Sources

Data for the industrial audit was collected from multiple sources, including:

Employment Data

- Emsi Industrial Employee Estimates and Projections, Licensed Data
- Statewide Industrial Employment Estimates and Projections, North Carolina Department of Commerce
- Industrial Employee Estimates, US Census Bureau, One the Map
- Industrial Employee Projections, Metrolina CommunityViz Model, v. 2

Industrial Land Use Data

- Local Tax Assessor Data, Industrial Land Use Codes, Parcel Level
- Local Tax Assessor Data, Heated Square Feet in Buildings, Parcel Level

Industrial Development Policy Areas

- Community Type Assignments, CONNECT Our Future
- Place Type Assignments, Metrolina CommunityViz Model, v. 1
- Place Type Assignments, Metrolina CommunityViz Model, v. 2
- Place Type Assignments, Charlotte 2040 Comprehensive Plan

Building Footprint Data

- Building Footprints, Local Government GIS Departments
- Building Footprints, Microsoft Corporation

Development Status

- Aerial Photography, October 2021, ArcGIS Desktop
- Industrial Land Use Codes, Local Tax Assessor Data, Parcel Level

The quality and quantity of data varied by county, and sometimes the industrial audit defaulted to more generalized reporting categories to ensure consistency across the region.

More detailed assessments and reporting may be possible for some counties if the need or interest for a region-wide assessment was removed. In limited cases, data was not available for a specific topic or geography. The audit assumed "next best available information" to complete the inventories and calculations in these situations.

Industrial Employees

Base Year (2022)

Base year industrial employee estimates for the region were collected from a database maintained by a private company, Emsi. Their data is proprietary and combines information from four different sources: traditional labor market information from government agencies and organizations, public job postings and announcements, public and self-reported information for companies and local governments, and compensation data from public job postings. The data is updated on a monthly basis.

The Emsi data was accessed in August 2022 using a license maintained by the CEDD. NAICS Codes 22 (Utilities), 23 (Construction),

31 (Manufacturing), 42 (Wholesale Trade), and 48 (Transportation and Warehousing) were identified in the database to represent industrial employees (more generalized category) for the audit.

More information about Emsi data is available on the company's website: www.economicmodeling.com

Future Year (2040)

Future year industrial employees were projected for the region assuming an eighteen-year horizon period, 2022 to 2040. The projection considered data from three published sources: Emsi, the North Carolina Department of Commerce, and the Metrolina CommunityViz Model v. 2.

Industrial employee projections were created for three different scenarios: conservative, moderate, and aggressive. The conservative scenario was based on Emsi growth rates in totality, which assumed declining employment in manufacturing and increasing employment in transportation and warehousing. The aggressive scenario was based on North Carolina Department of Commerce statewide projections that are more optimistic about a growing manufacturing base (and employment) in the state. The moderate scenario assumed growth rates that were between the conservative and aggressive scenarios.

The aggressive scenario was selected for the industrial audit based on input from economic development directors in the region. Existing market trends, project announcements, and expanding opportunities for manufacturing observed in the region supported the more aggressive scenario assumed by the North Carolina Department of Commerce (compared to the Emsi forecast data).

Future year industrial employee projections for the aggressive scenario were calculated using a three-step process:

1. Started with base year industrial employee estimates (2022) for the region and each of the nine counties summarized from Emsi data.

2. Calculated annual growth rates for the region and each of the nine counties using Emsi projections for 2022 to 2025, and statewide projections from the North Carolina Department of Commerce for 2026 to 2040.

3. Applied annual growth rates to base year industrial employee estimates for the region and each of the individual counties.

More details on the data, methodology, and assumptions to support the industrial employee projections for the industrial audit are summarized in the technical appendix of this report.

Industrial Land Inventory

Tax Assessor Data Sets

Land used for industrial activities in the region was identified using information collected from the tax assessor office in the nine counties. The data was provided by the counties at the parcel-level in geographic information system (GIS) format. In most cases, the tax assessor data distinguished

between industrial, active and industrial, vacant conditions.

Steps followed to collect tax assessor data and prepare it for the industrial audit varied slightly by county. Specific actions taken. by county, to prepare the industrial land inventory data sets are summarized in the technical appendix of this report.

Industrial Land Policy Areas

Additional land not yet identified by the different tax assessor offices for industrial uses is reserved for future industrial activities via adopted local government comprehensive plans or zoning ordinances. This land increases the supply of industrial land available to meet projected demands.

Land reserved for future industrial activities — focusing on those parcels not already identified in the tax assessor data — was collected from previous land use data sets available in the region. The four land use data sets considered for the industrial audit include: CONNECT Our Future (2013), the Metrolina CommunityViz Model v. 1 (2015), the Metrolina CommunityViz Model v. 2 (2019), and the Charlotte 2040 Future Comprehensive Plan (2022). All four data sets used similar land use codes to represent conditions in the region. The most current data set available for each county was used for the audit.

Steps followed to identify industrial development policy areas and isolate parcels for the industrial audit varied slightly by county. Specific actions taken by county to prepare the industrial development policy areas data sets are summarized in the technical appendix of this report.

Development Status

Development status was assigned in the region for parcels with industrial uses now (tax assessor data) or reserved for the future (policy area data). Development status categories used for the industrial audit include: developed, undeveloped, under-developed, and mine. A brief description of each category follows:

Developed — land largely built-out with permanent buildings or structures. Developed status was also assigned to surface parking lots that serve adjoining buildings, or to sliver lots adjacent to developed parcels (appearing to be part of the same development) where size, shape, or access limitations would generally keep them from developing in the future.

Undeveloped — vacant, unprotected land without permanent buildings or structures.

Under-Developed — land with permanent buildings or structures that occupy only a portion of the property; leaving areas available for additional buildings of similar size on the same parcel in the future. The test was limited to space efficiency. The condition of buildings or structures on the property was not considered for assigning under-developed status.

Mine — land excavated for stone or mineral substances, including small buildings and large outdoor equipment associated with mining operations.

Development status was assigned to industrial parcels in the region using aerial photography (October 2021) and topic-specific GIS data

(developed or undeveloped industrial land use codes). Emphasis on one or more of the data sets varied by county in the region. Coding development status for the audit was completed by City Explained, Inc.

Highly-Constrained Areas for Industrial Development

Some portions of an industrial parcel should not be developed in the future because of physical conditions on the site. These areas — referred to as highly-constrained for development — were removed from the industrial audit to more accurately approximate buildable area. Features in the region used to represent highly-constrained areas for development included steep slope areas (greater than fifteen percent) and flood prone areas.

Internal scripts in CommunityViz were used to remove highly-constrained areas for development using an overlap area function in the software. The remaining area for development was used for the supply-side calculations in the audit.

Industrial Building Square Feet, Base Year Conditions (2022)

Existing industrial space in the region — reported as building square feet — was estimated using tax assessor data for the individual counties. In most cases, a column for "heated square feet" (or something similar) was summed for the counties, and the region, to report base year conditions.

Internal scripts in CommunityViz were used to estimate industrial building square feet for a limited number of counties where tax assessor data for "heated square feet" was not available. Building footprint data from local governments for three counties —: Rowan, Stanly, and Union — were used in a series of overlap area calculations in the software to estimate industrial space in these three cases.

Industrial Employee Space Ratios

Industrial employee space ratios for individual counties in the region were calculated using existing employees estimates and existing building square feet statistics collected (created) earlier in the industrial audit process.

Industrial Building Square Feet, Future Year Conditions (2040)

Future year industrial space needed in the region — reported as building square feet — was calculated using future year employee projections and the industrial employee space ratios calculated earlier in the industrial audit process.

Industrial Land Utilization, Calculated Floor Area Ratios (2022)

Floor area ratio (FAR) is the measurement of a building's floor area in relation to the size of the parcel where the building is located. FAR is expressed as a decimal number, and is calculated by dividing the total area of the building by the total area of the parcel. FAR is an effective way to calculate the bulk or mass of building volume on a development site (Source: Metropolitan Council, Saint Paul, Minneapolis).

Land and industrial building square feet statistics reported for the region in 2022 were used to calculate FARs for the individual

counties. This information was used in the audit to change the unit of analysis from building square feet to land (in acres) for evaluating future year conditions.

Industrial Building Square Feet, Future Year Conditions (2040)

Future year industrial space needed in the region — reported as land in acres — was calculated using future industrial building square feet projections and the floor area ratios calculated earlier in the industrial audit process.

Industrial Land Surplus-Deficit Calculations

Demand for industrial land in the future was compared to available supply for undeveloped industrial parcels available now (tax assessor data) or reserved in the future (policy area data). A surplus or deficit for individual counties and the region were reported for the audit.

Industrial Land Portfolio, General Characteristics

General characteristics for undeveloped industrial parcels available now (tax assessor data) or reserved in the future (policy area data) were summarized for the individual counties and the region. Information for the parcels was collected from GIS data used (or created) for the audit, including: number of parcels, total area in acres, smallest parcel in acres, largest parcel in acres, and average parcel size in acres.

Industrial Land Portfolio, SiteSize Portfolio

Economic development organizations strive to maintain a portfolio of land and buildings that match the type and size needs for the industries they are recruiting for their communities. A site development portfolio for undeveloped industrial parcels available now (tax assessor data) or reserved in the future (policy area data) was created for the industrial audit to summarize the size and number of industrial parcels available for future development in the individual counties and the region.

The number of parcels by size available was collected from GIS data used (or created) for the audit. Six size categories were used for reporting: less than ten acres, ten to forty acres, forty to one hundred acres, one hundred to two hundred and fifty acres, two hundred and fifty acres to five hundred acres, and over five hundred acres.

Region-Wide Summary Statistics

Statistics reported from the industrial audit for the nine-county region are presented on pages XX and XX of the report. County-level statistics are presented in Section B.

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County-Level Profiles

The pages that follow summarize statistics reported for all nine counties in the CEDD region — presented by individual county in alphabetical order. This information may be useful to members of the CEDS working group, or other economic development organizations and local governments, that want to complete other industrial studies or assessments in the future.

[INSERT COUNTY-LEVEL STATISTICS IN THE SECTION B FOLDER ON DROPBOX, INFO-GRAPHICS]

Technical Appendix

The technical appendix for the industrial audit provides a compilation of specific data, tables, maps, processes, or assumptions used to complete the project. Information in the appendix may be useful to members of the CEDS working group, or other economic development organizations and local governments in the region, that want to complete other industrial studies or assessments in the future.

[SEE LIST OF DOCUMENTS IN THE SECTION C FOLDER ON DROPBOX.]