Final Report

Fiscal Impact Analysis Methodology and Findings

The Economics of Land Use

Prepared for:
City of Charlotte

Prepared by:
Economic & Planning Systems, Inc.

EPS #193159

January 21, 2021

Economic & Planning Systems, Inc.
730 17th Street, Suite 630
Denver, CO 80202-3511
303 623 3557 tel
303 623 9049 fax

Denver
Los Angeles
Oakland
Sacramento

www.epsys.com

Table of Contents

List of Tables

List of Figures

1. Introduction and Summary of Findings

Introduction

The City of Charlotte was interested in understanding the fiscal impact of future land use and development patterns as a component of the Charlotte Future 2040 Comprehensive Plan. This report provides a summary of the fiscal impact analysis of the desired land use pattern supported by the Comprehensive Plan. Growth forecasts for residential and commercial development in the City of Charlotte over the next 20 years were used to assess the differing impacts various land uses and Place Type designations (as outlined in the Charlotte Future 2040 Plan) have on the City and Mecklenburg County. The analysis provides an additional layer of understanding and analyses as to what benefits various development patterns bring and what the cost to serve different patterns of growth might be.

This report presents the findings of Economic & Planning Systems' (EPS) fiscal impact analysis of the desired Future Growth Strategy on the City of Charlotte. In this report we:

- Summarize our understanding of how new development affects the City's ongoing costs and revenues.
- Describe the approach for estimating and modeling the fiscal impacts of land use changes.
- Outline the results of the Fiscal Impact Model and the impact of different land use and development patterns on the net fiscal impact.

EPS reviewed the major governmental and special revenue funds in the budget and assessed how they are affected by new development, land use changes, or patterns of growth. The major revenues and expenditures that are affected by new development for each fund were identified, and the impact of growth on these revenues and expenditures was modeled. Using the growth forecasts of the comprehensive planning effort, the net fiscal impact of two scenarios – that is, the balance of revenues versus expenditures resulting from the growth – were compared to gauge the impact of land use and development patterns on the City's fiscal condition. The two scenarios are: 1) the Business as Usual scenario, which is a continuation of development patterns and existing land use designations, and 2) the Future Place Types scenario, which is based on the Growth Strategy laid out in the Comprehensive Plan and the likely Place Type designations needed to support the Growth Strategy.

The outcome of this analysis is an understanding of the impacts and benefits of various growth patterns. This work will provide guidance for land use policy in the Comprehensive Plan and Place Types mapping in the future for the City.

Summary of Findings

1. ***The Comprehensive Plan's growth strategy generates a more fiscally beneficial growth pattern for ongoing operations for the City.***

   Growth forecasts developed for the Future 2040 Comprehensive Plan, CONNECT Our Future, and other regional agencies were used to evaluate the net fiscal impact of new development on the City of Charlotte's General Fund. EPS evaluated a "Business as Usual" growth pattern based on development trends over the past 20 years and a "Future Place Types" growth pattern based on the growth strategy developed for the Comprehensive Plan. The evaluation of the fiscal impact of these growth patterns (using the regional forecast for new households and jobs in the City's Sphere of Influence between 2020 and 2040) revealed that the desired "Future Place Types" pattern generates a 43 percent greater net positive fiscal impact on the City's General Fund annually than the Business as Usual pattern. The Future Place Types scenario generates a net fiscal benefit that is greater by $7 annually per new resident added to the city. The greater net fiscal impact is due to the lower number of expenditures generated from the more compact and coordinated growth pattern. Specifically, expenditures needed to provide fire services and street/highway operations and maintenance, which are major expenditure items in the City's General Fund, would be lower.

2. ***Transportation and fire services are the General Fund expenditures that are most impacted by land use patterns and generate the major differences in net fiscal impact of differing growth patterns.***

   Transportation, police services, and fire services have the most significant impact on General Fund expenditures, but only transportation and fire services are significantly impacted by land use patterns.

   - **Transportation** – Street and highway maintenance is provided by the Charlotte Department of Transportation (CDOT) and is a major cost item in the General Fund, accounting for 5 percent of total expenditures (net all transfers, plus transfers to CIP and Street Aid Fund from the General Fund). The City of Charlotte's expenditures on street and highway maintenance are accounted for through two major funds – the General Fund/CIP and the Powell Bill/Street Aid Fund. The General Fund expenditures are determined annually through citywide budgeting and can increase/decrease dependent on competing needs of the community. The Powell Bill (or State Street Aid) Fund is funded primarily from the state gas tax revenue that is distributed to the City based on population and lane miles maintained, and as a result allocation from the state may not keep pace with increased maintenance costs or even the rate of growth of the city. For streets, the direction of maintenance and repair dollars is driven largely by the condition of the pavement/roadway – streets that have a lower pavement rating will be resurfaced sooner. Impacts on pavement quality are related to the level of travel, the types of vehicles on

the road, and construction impacts on roadways. While all development generates increased maintenance demands, the addition of new lane miles from new development is most impactful (long term). Generally, infill development (vs. greenfield development) produces less additional new pavement to maintain. However, infill development has varying impact on pavement quality. Large infill projects will require reconstruction of major portions of roads, but the developer is required to pay for this cost. However, for smaller, by-right infill development this is not required and likely not feasible, and projects are not subject to the same level of review and regulation. Lastly, as more areas in the city become more mixed-use in nature and denser, the transportation/mobility network needs are more complex and may generate higher demand for costs than a typical street, which is not currently reflected.

- **Fire Service** – Fire service and police service are the largest expenditures in the General Fund, with fire service accounting for 20 percent of the General Fund total expenditures (net transfers). Unlike police service, fire service costs are related to several factors, not just the amount of people. The location of fire stations, the density of development served by a fire station, the type of development, street pattern, and apparatus needed all impact the cost of fire service. The fire department typically relies on measures of response time, call volume, and apparatus team performance to justify increases in staffing, equipment, and stations. The most predictive factor is the utilization rate of a fire unit (personnel related to one apparatus); however, utilization is difficult to measure. Using calls for service data, EPS utilized personnel hours expended by Place Type category to indicate the cost to serve per place type. The density of development (population plus employment) in each place types was used to derive per person served factors by each place type. The analysis found that residential and retail/commercial oriented place types (Neighborhoods 1 and 2, Commercial, Neighborhood Activity Centers) had higher than average personnel hour needs per 1,000 per person served.

3. Some major expenditures/departments lack dedicated and/or reliable funding sources to support the community's desired future vision.

Two specific expenditure areas under the City of Charlotte were identified as lacking funding tools to support new development: mobility and community amenities.

- **Mobility** – New development projects in the city are generally responsible for providing the infrastructure and improvements needed for streets that directly access and serve the development. However, the impacts of new development on collector, arterial, and regional roads are not accounted for. Increased traffic volume caused by new development creates additional need for maintenance on the overall city network as well as enhancements and new street systems to address more modern mobility

challenges. The City currently does not have a mechanism to fund the impacts of new development on streets beyond the existing funding sources used for existing street maintenance. This can result in a disproportionate amount of funding going to areas that are attracting new development either to address impacts of infill and/or to ensure the regional network can support growth. A cost recovery mechanism can help address lack of funding for network growth and enhancement needed from new development. Tools, such as Impact Fees or Improvement Districts, applied to new development should be explored to generate additional revenue to address the impact of new development.

- **Community Amenities** – The Comprehensive Plan policies call for a variety of community amenities to be built to support the major plan goals such as 10-Minute Neighborhoods. The community amenities identified in the plan include day cares, healthy food stores/vendors, health clinics, banks, affordable housing units, and green infrastructure (note that there are likely additional amenities desired by the communities that are not mentioned). These amenities are often provided by the private sector and can become scarce or non-existent in lower income neighborhoods due to market dynamics. Furthermore, the capital hurdles to building amenities in areas where they are currently lacking can be too high for a private business operator to overcome, even if there is demand from the community. The City and County in many cases do not provide or have control over the availability of these amenities. Many of these amenities have been identified in the plan and by the community as essential elements to complete neighborhoods or well-rounded employment areas. Creative solutions to leverage investment from the private sector to create desired community amenities are needed to help support the private and non-profit sectors in building and supporting these essential community assets. The City should explore new development impact mitigation tools and community benefit partnerships to provide support.

2. Fiscal Modeling Approach

Fiscal Impact Analysis Overview

The purpose of a fiscal impact analysis is to estimate the cost and revenue impacts from new development on annual operating budgets and departments in a variety of contexts. The analysis compares the estimated revenues generated by new development to the estimated costs of public services required to serve that development and determines the net fiscal impact (revenues minus expenditures).

Revenues and costs are estimated based on the budgets for each fund and department, and an assessment of potential effects of different types of development on each department or budget category. The revenue sources and expenditures that have the largest impact on the budget and are most directly tied to growth have a specific "case study" developed for them; these case study approaches use specific calculations to determine impact. For example, property tax is based on estimated assessed values multiplied by the applicable tax rates. Other items, such as administrative costs related to residential development, are based on average cost factors (such as "per capita" estimates).

The fiscal impact analysis is based on three main factors:

- **Amount and Type of Growth**: The amount of residential type (single family detached, single family attached, and multifamily) and employment type (retail, office, and industrial) based on forecasts of new jobs and households.
- **Location of Growth**: For this analysis, location was summarized by Place Types as well as by greenfield/infill. The difference in development patterns between place types, as well as the different impacts of greenfield and infill development, will both have fiscal implications.
- **Revenue and Cost**: Based on current revenue and expenditure patterns, estimate the anticipated revenues and expenditures that will be generated because of new development.

EPS utilized the outputs from the Community Viz model (specifically new non-residential development/jobs by type and new housing units by type) to estimate increased service needs (and resulting expenditures) and revenues generated as a result of growth. This was done based on two growth scenarios, which specified the level and type of growth by location:

- **Business as Usual**: This scenario reflects the Development Trends option from the Charlotte 2040 growth choices effort during the Comprehensive Plan process. This scenario utilizes growth patterns from the past 20 years with the City's current land use/place type designations.
- **Desired Future Place Types**: This scenario reflects the City's direction for the Regional Metrolina transportation demand model that is based on the desired Growth Strategy laid out in the Comprehensive Plan.

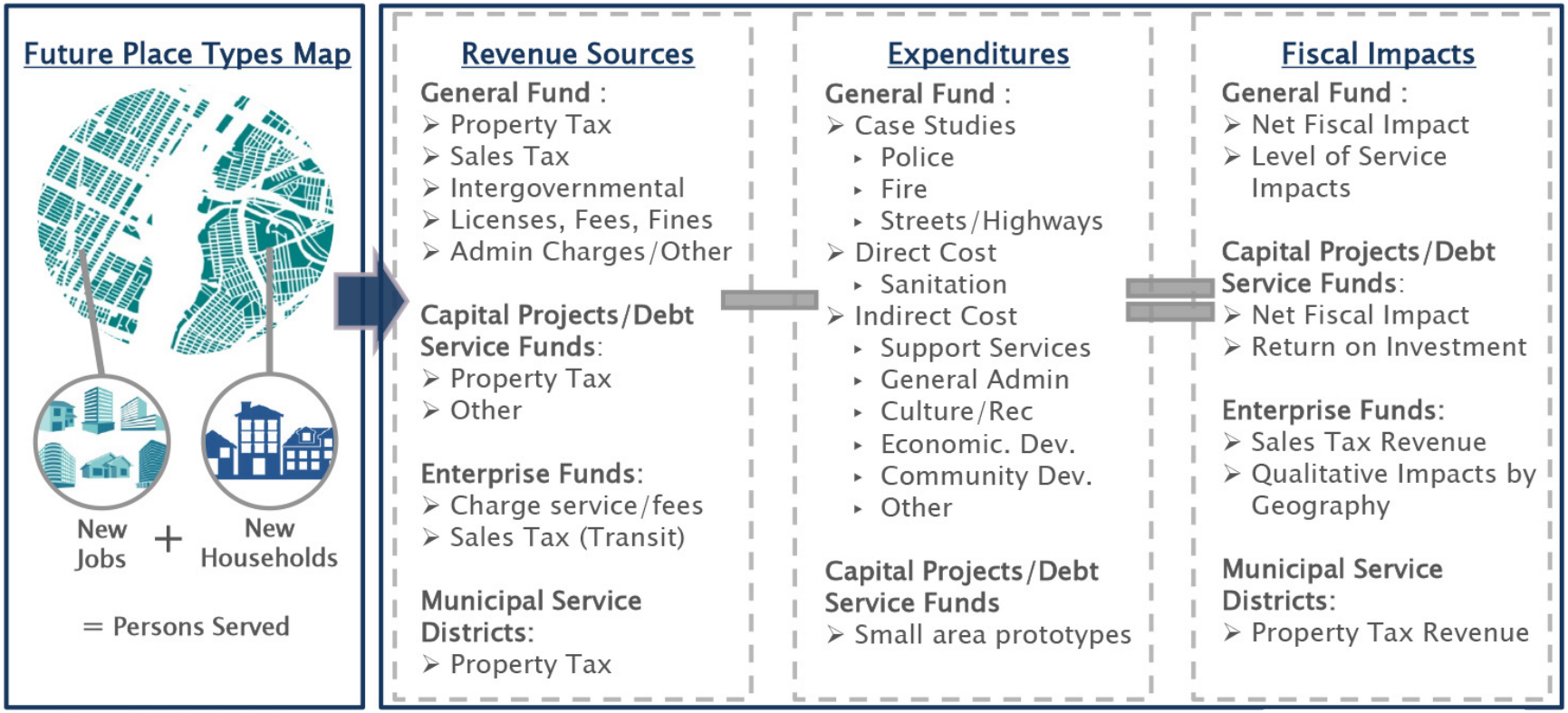
Our approach to identifying the fiscal impacts of the amount of growth forecast varied depending on the governmental fund being analyzed. Through evaluation of the City of Charlotte and Mecklenburg County's budgets, EPS developed the following approach to modeling fiscal impacts.

The City of Charlotte budget has several governmental and non-governmental funds. EPS identified the funds that are most directly impacted by new development, where a tangible connection could be made between land use decisions and the revenues and costs within each fund. Our methodology for evaluating the fiscal impact on the City of Charlotte is summarized in **Figure 1**.

EPS developed a Fiscal Impact Model (City FIM) for the City of Charlotte's General Fund, which is used to make a net fiscal impact calculation (revenues minus expenditures) for the two growth scenarios. In addition to the net fiscal impact calculation, outputs from the Community Viz model can be used to identify other impacts, including:

- Level of service impacts on major departments
- Increased property or sales tax revenues to specific funds (summarized below)
- A geographic analysis of qualitative impacts on enterprise fund services

Figure 1. City of Charlotte Fiscal Impact Analysis Methodology



Growth and Development Inputs

In order to estimate the revenues and expenditures associated with future development, EPS utilized demographic and economic inputs for residential and commercial development product types. These inputs came from the Community Viz growth model, as well as market research and City data. Future residential development includes three product types (single family detached, single family attached, and multifamily), along with corresponding household size and average market value. Commercial development was considered in three categories: retail, office, and industrial, with corresponding assumptions regarding average market value and employees per square foot.

The magnitude of growth was delineated by time period (2020 to 2030, and 2030 to 2040) where relevant, and by place types (as outlined in the Charlotte Future 2040 Comprehensive Plan). The place types fit into three general categories:

- **Live:** Neighborhood 1, Neighborhood 2
- **Work:** Campus, Commercial, General Industrial, Light Industrial Mixed Use
- **Play:** Regional Activity Center, Community Activity Center, Neighborhood Center

As an additional layer of analysis, growth type was categorized into "Greenfield" (taking place in a previously undeveloped area) and "Infill" (taking place within an area already developed). This designation, based on the development status of areas within the Community Viz model, allows for a more nuanced estimation of expenditures required to serve new development.

Data was analyzed at the 10-acre grid cell level (from the Community Viz model); many data points can be evaluated at the parcel level if and where necessary in the future.

Average Cost Nexus Factors

EPS developed nexus factors that relate the budget item being estimated to the service population or other metric that is best associated with the impact. These factors are outlined below.

- **Per Person (Residents) –** This factor applies to total residents or population of the city or a given area (e.g., Place Types).
- **Persons Served (Residents and Employees) –** Many services are affected by growth in both residents and employees. The purpose of this factor is to derive a population of persons served within the City of Charlotte's Sphere of Influence. The number of people each use generates is estimated using an average person generation factor by use (e.g., average residents per household for single family and multifamily, and the average number of employees per square foot for retail, office, and industrial). Using the persons served approach means each new use will generate a number of people (i.e., one new single family housing unit will generate 2.5 people) that will be used to estimate costs and revenues based on the average cost per person. This factor is used in cases where the maximum amount of people in one place needs to be accounted for. In this case, the possible residents (based on persons per household) and employees (based on employees per square feet) are added together and not reduced to account for residents employed in the city.
- **Peak Persons Served (Residents and Non-Resident Employees) –** The peak persons served factor differs from persons served in that it accounts for residents that are also employed in the city to not double count. The calculation of peak persons served equals residents plus non-resident employees (i.e., people employed in Charlotte but living outside the city).
- **Per Unit Measure of Infrastructure –** Impacts to the infrastructure networks and systems are sometimes estimated based on a unit measure of that type of infrastructure (e.g., "per centerline mile" or "per streetlight") for portions of those fund's expenditures related to maintenance and capital improvements. A new development's impact will be judged based on the amount of new infrastructure needed to serve the development and the average cost per unit of measure.

Fixed and Variable Cost Adjustments

Directly applying the factors described above to new growth would be equivalent to using the average cost for each item, which can overstate cost impacts. For local governments, whose services are at or near capacity, the average cost method is a generally accepted technique for estimating fiscal impacts. However, many functions still need to be adjusted to account for higher levels of fixed cost and/or a less direct relation to growth. To account for this, "Percent Variable" adjustments were applied to average costs in order to more accurately capture the cost associated with growth and development. These adjustments range from 0 to 100 percent variability, depending on the category/type of revenue or cost.

A 0 percent variability factors implies that there is no relationship between the cost/revenue category and growth, while 100 percent variability implies a 1 to 1 relationship (i.e., the full cost/revenue increase is a result of growth). Most categories fall somewhere between, and for these a variability factor of between 25%, 50%, or 75% is applied. For example, a department that serves new development but also has significant administrative costs that are not directly related to growth may be modeled as 50% variable. In this case, if average cost factors are $20.00 per person, the model would apply a cost of $10.00 per person (applying the 50% variability) to population growth in order to calculate the cost of growth to this department.

The following process and assumptions were used in developing the "Percent Variable" adjustments to average costs.

- **Direct Service Categories –** These include departments that provide a service that is directly impacted by the rate and amount of new development in the city, such as development services (solid waste, police, fire, etc.). These types of services are estimated to be closely related to growth and increased population and are modeled using the average cost methodology (where costs are 100% variable). For the most impactful and directly related expenditure categories, specific case studies are developed that utilize alternative nexus factors and/or variable cost assumptions. These case study approaches are outlined below.
- **Indirect Cost Categories** – Some expenditure categories/departments, such as the City Manager and City Clerk, have a high level of fixed costs regardless of the size of a city. Costs in these types of departments and functions are estimated to be between 25 and 75% variable.
- **Functions with No Nexus or Relevance –** Some City functions were determined not to have any relationship to real estate development projects and have a 0 percent variability factor, which means they are not estimated or included in the model.

The variability rates used in this analysis (including for those categories analyzed with a case study) are summarized in **Table 1**.

Table 1. Percent Variability by Category

Description	Variability
Revenue	
Property Taxes	100%
Sales Taxes	100%
Other Taxes	100%
Intergovernmental - State	25%
Licenses, Fees, Fines	100%
Administrative Fees	25%
Charges for Current Services	25%
Expenditures	
Support Services	50%
General Administration	75%
Public Safety - Police	100%
Public Safety - Fire	100%
Streets and Highways	100%
Sanitation	100%
Economic Development	50%
Community Planning & Development	50%
Engineering and Property Management	50%

Source: City of Charlotte; Economic & Planning Systems

Static Model Approach

For this analysis, EPS utilized a static approach to modeling future revenues and costs. This means that we did not use growth or escalation rates for revenues or costs, and estimated impacts in constant dollars. The static model approach is preferred for several reasons. First, identifying reliable and accurate growth or escalation numbers for major revenue sources and expenditure items is difficult and may not accurately project likely future conditions. Second, variations in growth or escalations - even minor ones - can cause major differences in costs and revenues that may misrepresent fiscal impacts. Third, cities and counties plan for the long term. Development that is built and at stabilized occupancy has long term fiscal impacts best modeled, in our opinion, in the static end state.

THIS PAGE INTENTIONALLY LEFT BLANK

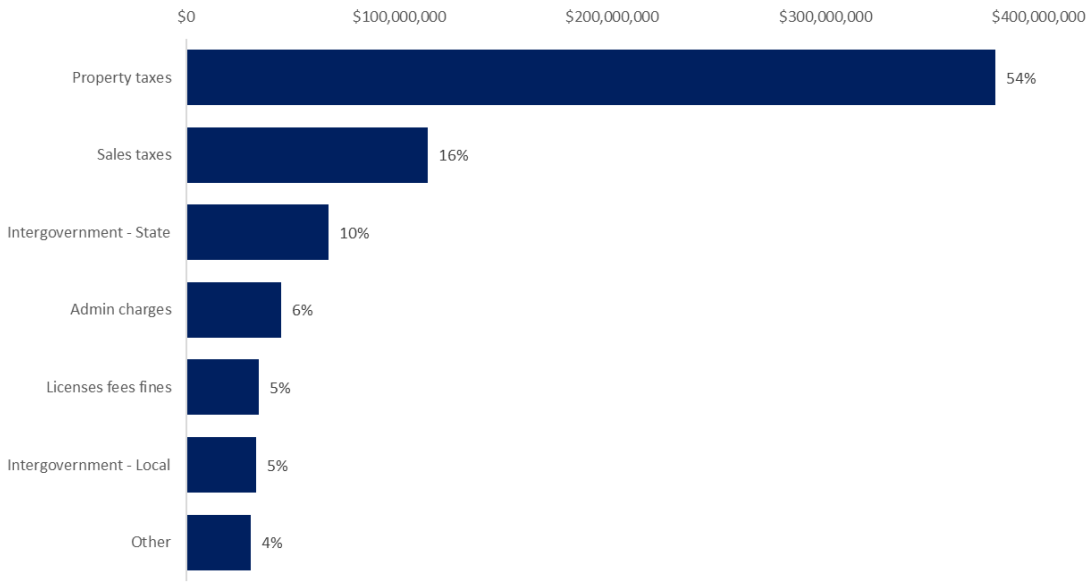
3. General Fund Impacts

This chapter details the approach and results of modeling the fiscal impact of residential and commercial growth on the General Fund for the City of Charlotte. It provides an overview of the components of the General Fund that are impacted by new development, outlines the approach to modeling the impact of growth, and reports on findings of the fiscal impact analysis.

Revenues

This section summarizes the major revenue sources for the General Fund and outlines the approach to modeling the fiscal impact of growth on each revenue source. There are six major categories of revenues within the General Fund, as shown in **Figure 2**. Property Tax is the largest revenue category, accounting for 54 percent of General Fund revenue in 2019 ($379.8 million). Sales Tax is the second largest revenue category, at $113.3 million or 16 percent of General Fund revenue. As the two largest revenue categories, and with direct connections to growth in the city, these two revenue streams were modeled using the case study approach. The remaining revenue categories were modeled using average revenue factors.

Figure 2. General Fund Revenues, 2019



Property Tax

The primary source of revenue for the General Fund is property tax, comprising approximately 54 percent of total revenue in fiscal year 2019. Property tax revenue grew at an annual rate of 5.7 percent between 2015 and 2019, which reflects the growing tax base in Charlotte (i.e., new buildings and businesses). The total property tax rate for Charlotte is $0.3481 per $100 of assessed value, as shown in **Table 2**.

In 2019 Mecklenburg County conducted a real property revaluation, which occurs every eight years. Because of Charlotte's booming economy over the past decade, property values had significantly increased between the 2011 and 2019 assessments. Over this time residential property values grew by 47.5 percent, while commercial property values grew by 81.8 percent. State law stipulates that the City consider and report a revenue-neutral tax rate in revaluation years. For fiscal year 2020, the City of Charlotte reduced its property tax rate to $0.3481 per $100 of assessed value, down 28.8 percent from the previous year's rate of $0.4887.

Table 2. Property Tax Rates, Charlotte, 2009-2012

Fiscal Year	General	Debt Service	Capital Projects	Total
2009	$0.3698	$0.0737	$0.0151	$0.4586
2010	$0.3758	$0.0687	$0.0141	$0.4586
2011	$0.3773	$0.0687	$0.0126	$0.4586
2012	$0.3600	$0.0650	$0.0120	$0.4370
2013	$0.3600	$0.0650	$0.0120	$0.4370
2014	$0.3600	$0.0967	$0.0120	$0.4687
2015	$0.3600	$0.0967	$0.0120	$0.4687
2016	$0.3741	$0.0926	$0.0120	$0.4787
2017	$0.3741	$0.0926	$0.0120	$0.4787
2018	$0.3741	$0.0926	$0.0120	$0.4787
2019	$0.3816	$0.0951	$0.0120	$0.4887
2020	$0.2731	$0.0677	$0.0073	$0.3481

Source: City of Charlotte; Economic & Planning Systems

Property tax revenues are directed into three different categories: the general fund, debt service, and capital projects. Most property tax revenue—78 percent, or $0.2731 of the $0.3481 per $100 of assessed value—goes to the general fund, while 19 percent goes to debt service and a smaller portion (2.5 percent) goes to capital projects.

Model Methodology

Property tax revenue generated from new development is affected by the State of North Carolina's property revaluation approach and Revenue Neutral statutes. As discussed previously, EPS's approach is to not use growth rates or escalation factors within the fiscal model. Under this approach, EPS utilized the $0.3481 tax rate set for 2020 for all years in the model.

Property tax was estimated utilizing estimates of the average value of new development by each major land use category (single family detached, single family attached, multifamily, office, retail, and industrial). These values are estimated based on average values for new development, as summarized in **Table 3**. The City FIM applies the property tax rate for the City's General Fund to the property value to estimate the property tax revenue per unit. Based on the growth forecast utilized in the model, the per unit revenue is applied to the number of units, by type, to calculate the total property tax revenue generated from new development.

Table 3. Market Value Model Inputs

Development Type	Average Market Value of New Development
Residential	
Single Family Detached	$350,000 per unit
Single Family Attached	$250,000 per unit
Multifamily	$167,000 per unit
Commercial	
Retail	$216 per square foot
Office	$259 per square foot
Industrial	$80 per square foot

Source: CoStar; Zillow ; Economic & Planning Systems

Impact of Growth

The per unit property tax revenues generated are summarized in **Table 4**. As shown, for residential uses single family detached housing generates the highest per unit revenue, generating more than twice as much per unit as multifamily housing, and 40 percent more than single family attached units. For commercial development, office space generates the greatest amount of property tax on a square footage basis, at $0.71 per square foot, while industrial uses generate only $0.22. However, industrial uses will tend to be larger, and thus may generate a similar amount of tax revenue on a per property basis.

Based on these tax generation factors, a growth scenario with more single family detached housing will generate more property tax revenue, as this housing type has the highest property value and thus generates the highest level of property taxes. However, as the rest of the model will show, it is important to consider the costs to serve various types of growth as well in order to get a comprehensive picture of the net fiscal impact on the City of new development.

Table 4. Property Tax Revenue per Unit

Description	Market Value	Mill Levy	Revenue Per Unit *Annual*
RESIDENTIAL			
Single Family Detached	$350,000	$0.2731	$956
Single Family Attached	$250,000	$0.2731	$683
Multifamily	$167,000	$0.2731	$456
COMMERCIAL			
Retail	$216 /sq.ft.	$0.2731	$0.59
Office	$259 /sq.ft.	$0.2731	$0.71
Industrial	$80 /sq.ft.	$0.2731	$0.22

Source: Zillow ; CoStar; Economic & Planning Systems

Sales Tax

The City of Charlotte assesses a 2.0 percent local sales tax. The 2.0 percent rate is composed of four separate state of authorized levies, Article 39 (1%), Article 40 (0.5%), Article 42 (0.5%), and Article 43 (0.5%). The sales tax revenue is allocated to different funds within the City's overall budget and all do not have the same approach to assessment and allocation.

- **Article 39 –** The full 1.0% Article 39 sales tax is dedicated to the General Fund and is distributed based on point of delivery or sale (i.e., the sales tax revenues is allocated to the municipality or county where the sale occurred).
- **Article 40 –** The 0.5% Article 40 sales tax is dedicated to the Debt Service Fund. Article 40 sales tax revenues are distributed by each county based on a per capita formula.
- **Article 42 –** The 0.5% Article 42 sales tax is unique to the other sales tax levies in terms of their distribution and dedication within the City's budget. Article 42 was originally to be distributed in the state based on a per capita approach. However, the approach was amended and now is done on a point-of-sale basis. The City of Charlotte allocates annually the amount equal to the Article 40 revenue from Article 42 to the PAYGO Fund. The remaining amount is directed to the General Fund.
- **Article 43 –** The 0.5% Article 43 sales tax is dedicated to the Charlotte Area Transit System (CATS) based on a per capita distribution formula.

Sales tax revenue is sensitive to changes in commercial development as well as population growth depending on the sales tax levy. Generally, more commercial activity induced by growth in residents and visitors leads to more consumer spending and higher sales tax revenue for Article 39. Growth of the City's population impacts the growth of the rest of the sales tax levies. The focus of this fiscal impact model is on the General Fund and therefore the estimate revenues from sales tax come from the Article 39 sales tax and a portion of Article 42.

Model Methodology

Sales tax revenue from Article 39 is estimated using both per person and per employee approaches, in which total taxable sales are used to estimate total sales tax revenue. EPS developed a retail sales flow model to estimate the portion of retail sales generated by residents, non-resident employees, and visitors. As shown in **Table 5**, using sales estimates per person and per employee, sales generation factors were calculated by dividing the retail sales attributed to a group – either residents or non-resident employees (people who work in the City of Charlotte but do not live in the city) – by the population of that group. These factors were then applied to growth in those groups over the plan horizon to estimate new retail sales generated by growth. Sales attributed to visitors to the city (accounting for 22 percent of sales) are not estimated within the model.

Table 5. Resident and Employee Retail Sales Factors

Description	Residents		Non-Resident Employees	
	Sales	Sales per Capita	Sales	Sales per Capita
Total	**859,052**		**285,571**	
Convenience Goods				
Grocery Stores	$1,627,687,902	$1,895	$164,283,020	$575
Specialty Food Stores	$62,523,318	$73	$0	$0
Beer, Wine, & Liquor Stores	$79,580,455	$93	$0	$0
Health and Personal Care	$548,477,082	$638	$176,002,835	$616
Total Convenience Goods	**$2,318,268,757**	**$2,699**	**$340,285,855**	**$1,192**
Shopper's Goods				
General Merchandise				
Department Stores Excluding Leased Depts.	$824,297,208	$960	$50,408,912	$177
Other General Merchandise Stores	$369,474,145	$430	$26,729,403	$94
Subtotal - General Merchandise	**$1,193,771,353**	**$1,390**	**$77,138,314**	**$270**
Other Shopper's Goods				
Clothing & Accessories	$536,466,132	$624	$19,464,488	$68
Furniture & Home Furnishings	$495,194,199	$576	$0	$0
Electronics & Appliances	$308,763,506	$359	$49,963,422	$175
Sporting Goods, Hobby, Book, & Music Stores	$282,981,985	$329	$20,835,227	$73
Miscellaneous Retail	$478,888,636	$557	$77,583,804	$272
Subtotal - Other Shopper's Goods	**$1,565,828,327**	**$1,823**	**$148,382,453**	**$520**
Total Shopper's Goods	**$2,759,599,680**	**$3,212**	**$225,520,767**	**$790**
Eating and Drinking	**$1,149,740,569**	**$1,338**	**$270,275,382**	**$946**
Building Material & Garden	**$749,207,680**	**$872**	**$0**	**$0**
Total Retail Goods	**$6,976,816,686**	**$8,122**	**$836,082,004**	**$2,928**

Source: US Census; ESRI; ICSC; Economic & Planning Systems

The portion of the Article 42 sales tax revenue directed to the General Fund is based on the growth in population, so a per capital approach is used based on the average revenue generated per person currently in the city applied to estimated new residents.

Impact of Growth

Because sales tax revenue is modeled on a per person and per employee basis, the revenue generated citywide does not vary based on land use/development patterns. As shown in **Table 6**, residents are expected to generate over three times the amount of sales tax revenue as non-resident employees, at $94 per year compared to $29.

Table 6. Sales Tax Generation Rates

Description	Retail Sales *Per Capita*	Article 39 Tax Rate	Article 39 Sales Tax *Per Capita*	Article 40 Sales Tax *Per Capita*	Total Sales Tax *Per Capita*
Resident (New Population)	$8,122	1.00%	$81.22	$12.81	$94.02
Non-Resident Employee	$2,928	1.00%	$29.28	$0.00	$29.28

Source: US Census; ESRI; ICSC; Economic & Planning Systems

Other General Fund Revenue Sources

Most other revenue sources are estimated using average revenue factors based on the relevant nexus factor. Factors are calculated based on FY19 General Fund actuals and 2019 (or the most recent) demographic data, and then applied to scenario growth to determine total revenue. Calculations are as follows:

Intergovernmental—State

Utility franchises (intergovernmental state transfers) comprised 8 percent of General Fund revenues in 2019, and CATV (cable television) franchises comprised 1 percent. Growth has a marginal impact on this revenue source, as this type of infrastructure is relatively fixed. Therefore, only 25 percent of revenue is attributed to new development. Intergovernmental – State revenue was estimated using a per person nexus factor; applying the 25 percent variability, each new resident is expected to generate $19 in additional revenue for the City's General Fund.

Intergovernmental—Local

About 4 percent of General Fund revenues come from local intergovernmental transfers, which consist primarily of law enforcement transfers, school board revenue, and liquor store sales revenue. These revenues are deemed to have limited relation to new development/growth and are not included in the fiscal impact model.

Licenses, Fees, Fines

This category comprises about 4 percent of General Fund revenues. The main drivers are refuge fees (50 percent), motor vehicle licenses, and regulatory service fees. These revenues are impacted by population growth, as a larger

population expands the base of refuse fee payers and motor vehicle sales and registrations. This revenue is modeled on a per person factor, and 100% variable with growth. Based on these factors, each new resident is expected to generate $39 in additional revenue for the City's General Fund.

Administrative Fees

This category comprises about 6 percent of General Fund revenues, coming primarily from police service fees, airport, fire, and utility allocations, and w/s allocations. These revenues are likely not sensitive to growth and will remain relatively constant in the face of development. They are modeled using a per person nexus factor, and 25% variable with growth. Based on these factors, each new resident is expected to generate $13 in additional revenue for the City's General Fund.

Charges for Current Services

This category comprises about 14 percent of the General Fund revenues, coming from a variety of charges for service. The direct impact of new development varies depending on the charge. Therefore, the revenue was modeled using a per person nexus factor and a 25 percent variability factor. The increased revenue per new resident is estimated to be $3.

COVID-19 Impacts

The COVID-19 Pandemic has had a dramatic impact on everyday life for Charlotte residents. The pandemic has shifted spending patterns and typical behaviors. The pandemic has also exposed unseen vulnerabilities in the economic health of the community and has also extenuated trends that were already present.

The service sectors in the economy have been the most impacted as a result of social distancing guidelines and lockdowns. Approximately 70 percent of US GDP is directly tied to consumer spending, of which 20 percent is discretionary spending. Local economies highly dependent on sales tax from visitors or neighboring communities have experienced the greatest impacts if visitation and travel patterns have reduced. The impact of the pandemic has been unequal in terms of the businesses most impacted and the workers/residents that have been impacted. Some of the notable impacts are listed below:

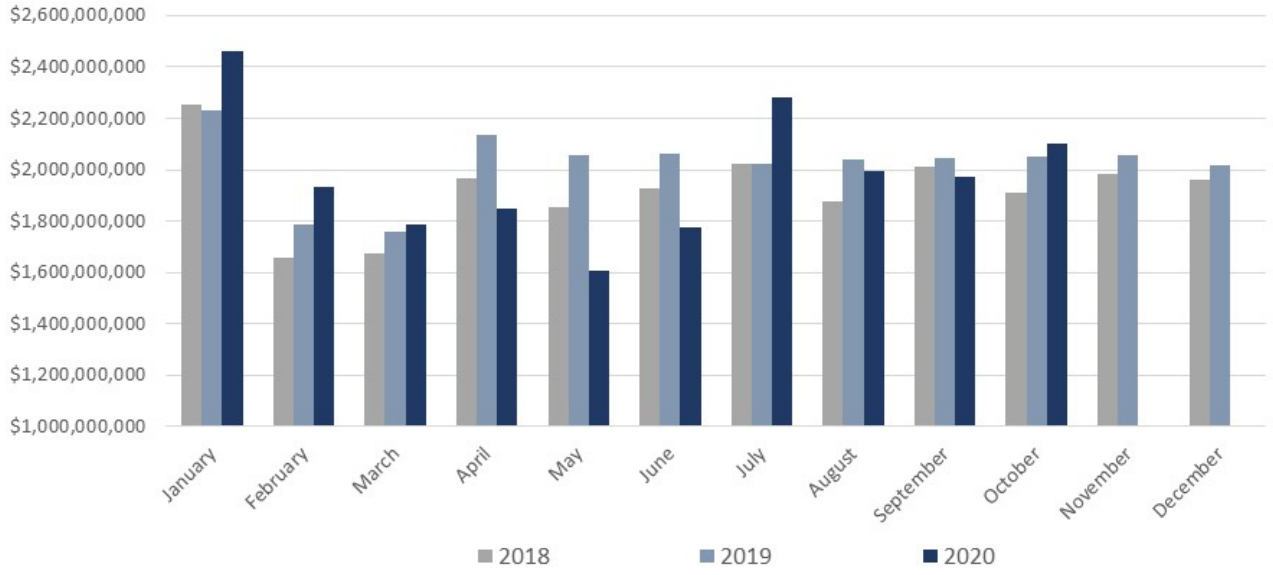
- The contraction of brick-and-mortar retail and growth of e-commerce has accelerated. The ability of communities to recoup sales tax from internet sales has mitigated the fiscal impacts of this trend to some degree for communities with a large or affluent resident base.
- The shift of retail/consumer patterns has spurred significant changes in goods and service distribution patterns. This in turn has spurred rapid growth and demand for logistics centers in the US.

- The stress on vulnerable households has increased and the ability to obtain and maintain safe, secure, and affordable housing has becoming more challenging for lower income residents/workers. The pandemic related recession has been most impactful on workers in the retail and service sectors, especially workers with limited skills, those that work in jobs that have frequent face to face interaction with customers, and/or jobs that cannot be done virtually or under social distancing guidelines. Many of these types of jobs are among the lower paying jobs in the workforce, which heightens household financial stresses for these residents.
- The largest impacts have been on leisure and hospitality, retail trade, and selected services (e.g., childcare, personal services, certain transportation services). Businesses in areas such as Uptown are often highly dependent on visitors and business traffic.

In terms of fiscal impact, the governmental revenues raised by the City and County have been the most impacted (as opposed to expenditure costs). In general, Charlotte's fiscal structure has made it relatively resilient to the impacts that this pandemic has caused on municipal budgets. As described above, the City of Charlotte has three major revenues types for its General Fund and other special revenue and enterprise funds, which are property tax, sales tax and charges/fees for service. Property tax is the General Fund's largest revenue source.

- **Property Tax –** Property tax is the General Fund's largest revenue source and changes to the value of property and/or rate of assessment are the most impactful. The pandemic has not had significant impact on property values, as home prices have increased in many communities that are growing. Certain asset types, such as office and hotels, have experienced impacts on achievable rental rates/room rates and on occupancy levels. These impacts are causing short term stress but are not likely to have a sizeable impact on valuation for these properties.
- **Sales Tax –** Sales and occupancy tax collections have the most exposure to impacts from COVID and recessions. The initial stay at home orders throughout the US had major impacts on retail sales from April to June of 2020. However, taxable sales rebounded in Mecklenburg County in July and were near 2019 sales levels from August to September, as shown in **Figure 3**. Occupancy tax collections have likely been significantly impacted. Mecklenburg County assess a 6 percent occupancy tax that goes to the County's General Fund. The revenue source is important but drops in this revenue source will not create major fiscal strains on the County as compared to changes in property tax collections.

Figure 3 Mecklenburg County Taxable Sales by Month, 2018-2020



- **Fees for Service –** Fees for service are major revenues for the City's enterprise funds such as Charlotte Water and storm water. Reductions in employment and loss of revenue for Charlotte residents can create issues for vulnerable residents being able to afford to pay their utility bills. Many of the federal funding programs provided within COVID related stimulus packages have been aimed at addressing housing instability. As well, many communities have put moratoriums on collections for delinquent bills. It is likely Charlotte will have some revenue reductions in some enterprise type funds due to the financial stress on residents.

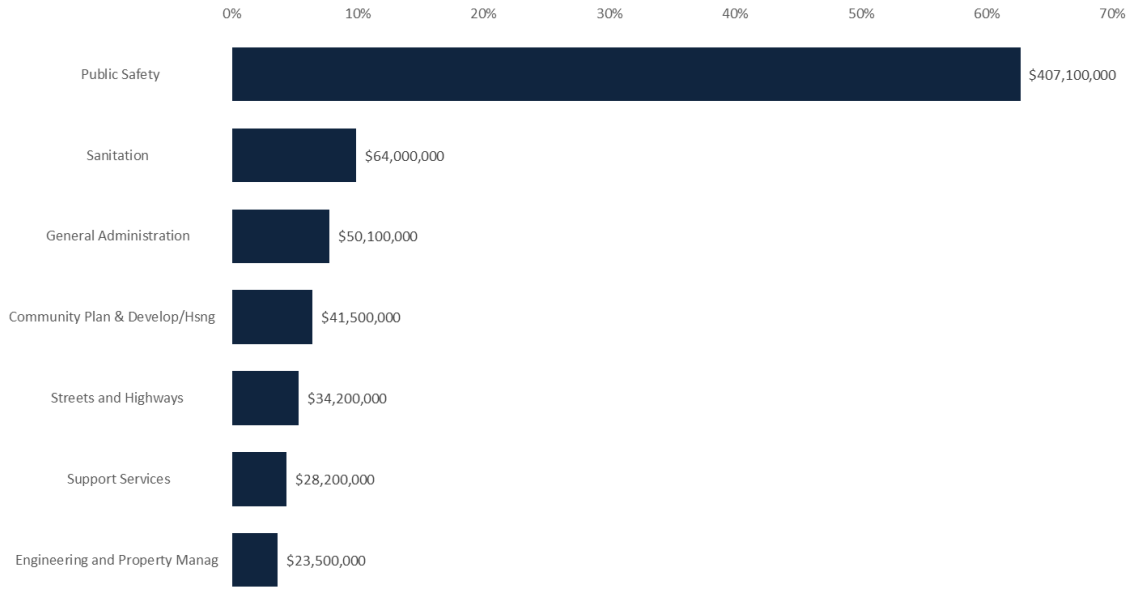
Expenditures

This section summarizes the major expenditure sources for the City of Charlotte's General Fund, outlines the approach to modeling the fiscal impact of growth on each expenditure source, and reports the results of the fiscal impact modeling.

There are seven major categories of expenditures within the General Fund, as shown in **Figure 4**. Public Safety is the largest expenditure category, accounting for 63 percent of General Fund expenditures in 2019 ($407.1 million). Within Public Safety, the Police Department accounts for 67 percent of expenditures, or $274.3 million, and the Fire Department 33 percent, or $132.9 million; this ratio has remained consistent since 2015. Sanitation is the second largest expenditure category, at $64.0 million or 10 percent of General Fund expenditures.

For major expenditure categories – Police, Fire, and Streets and Highways – a case study approach is used to estimate the impact of growth on expenditures. For remaining expenditure categories, average cost factors are used based on a nexus to growth and a variable cost adjustment.

Figure 4. General Fund Expenditures, 2019



Police Services

Charlotte-Mecklenburg Police Department (CMPD) expenditures in 2019 totaled $274.3 million, as shown in **Table 7**. Of this, 26 percent ($71.6 million) was for the Administrative Services Group, while 53 percent ($143.9 million) was for the Field Services Group (combined South and North).

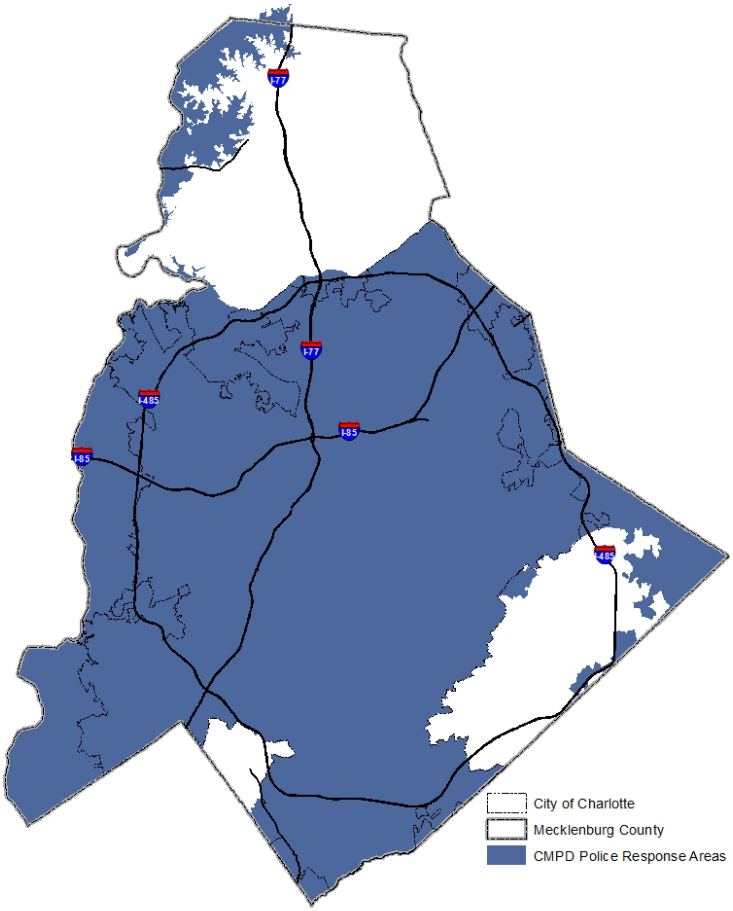
Table 7. CMPD Expenditures

Description	FY 2015 *Actuals*	FY 2016 *Actuals*	FY 2017 *Actuals*	FY 2018 *Actuals*	FY 2019 *Actuals*	2015-2019 *Average*	% of Total 2019 Budget
Expenditures							
3010 - CMPD Office of the Chief	$22,445,401	$15,578,268	$12,387,366	$14,806,169	$16,590,292	$16,361,499	6%
3020 - CMPD Administrative Serv Group	$36,626,854	$46,360,539	$53,116,948	$60,239,984	$71,567,001	$53,582,265	26%
3030 - CMPD Investigative Serv Group	$20,270,850	$23,969,203	$28,257,756	$26,551,241	$24,688,212	$24,747,452	9%
3040 - CMPD Support Serv Group	$23,821,785	$24,855,160	$28,131,382	$23,885,964	$17,542,778	$23,647,414	6%
3050 - CMPD Field Serv Group South	$63,096,363	$63,089,953	$64,901,345	$72,898,659	$122,882,446	$77,373,753	45%
3060 - CMPD Field Serv Group North	$55,873,774	$59,174,983	$61,690,977	$56,697,384	$21,000,961	$50,887,616	8%
Subtotal - Police	**$222,135,027**	**$233,028,107**	**$248,485,773**	**$255,079,401**	**$274,271,690**	**$246,600,000**	**100%**

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

As shown in **Figure 5**, the CMPD service area is larger than the City of Charlotte boundary. For the purposes of this analysis, however, growth inputs (i.e., new residential and commercial development) are constant within scenarios for all departments, and so the growth area utilized for CMPD demand aligns with the Community Viz model area for the city (including the Sphere of Influence).

Figure 5. CMPD Service Area



Model Methodology

CMPD costs associated with growth are estimated using a peak person served approach, as shown in **Table 8**. In general, demand for police service (and thus police expenditures) are directly related to growth/new development.

Given the service characteristics of the Police Department and the impact of growth on service needs, a peak person served factor works to incorporate the impacts of increased demand for service from both new residents and new employees/businesses in the city. For the purposes of modeling the impacts of growth on service needs and cost to provide service, almost all budget categories within CMPD are modeled as 100% variable with growth – that is, there is a direct impact to the department for every new resident and non-resident employee to the city. The Office of the Chief, with more administrative functions, is modeled as 25% variable with growth.

Table 8. CMPD Cost Allocation Method

Description	Nexus Factor	Variability
Expenditures		
3010 - CMPD Office of the Chief	Peak Person Served (PPS)	25%
3020 - CMPD Administrative Serv Group	Peak Person Served (PPS)	100%
3030 - CMPD Investigative Serv Group	Peak Person Served (PPS)	100%
3040 - CMPD Support Serv Group	Peak Person Served (PPS)	100%
3050/3060 - CMPD Field Serv Group (South and North)	Peak Person Served (PPS)	100%
Public Safety - Police		

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

Impact of Growth

Table 9 summarizes the cost factors associated with each budget line/group within CMPD, utilizing the factors outlined above. As shown, the Field Services Group and the Administrative Services group are most impacted by growth in the city. On average, every new "Peak Person Served" in Charlotte will cost CMPD an additional $140 in Field Services and $70 in Administrative Services. Overall, it costs CMPD nearly $255 per Peak Person Served per year to serve additional growth.

Table 9. CMPD Expenditures and Nexus Factors

Description	FY 2019 *Actuals*	Nexus Factor	Nexus Factor Detail		Gross Factor	Variability	Net Factor
Expenditures							
3010 - CMPD Office of the Chief	$16,590,292	Peak Person Served (PPS)	1,028,970	$	16.12	25%	$ 4.03
3020 - CMPD Administrative Serv Group	$71,567,001	Peak Person Served (PPS)	1,028,970	$	69.55	100%	$ 69.55
3030 - CMPD Investigative Serv Group	$24,688,212	Peak Person Served (PPS)	1,028,970	$	23.99	100%	$ 23.99
3040 - CMPD Support Serv Group	$17,542,778	Peak Person Served (PPS)	1,028,970	$	17.05	100%	$ 17.05
3050/3060 - CMPD Field Serv Group (South and North)	$143,883,407	Peak Person Served (PPS)	1,028,970	$	139.83	100%	$ 139.83
Public Safety - Police	**$274,271,690**						**$ 254.46**

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

Fire and Emergency Services

The Charlotte Fire Department (CFD) provides rapid emergency response, code enforcement, education, and planning to the City of Charlotte. CFD's expenditures in 2019 totaled $132.8 million, as shown in **Table 10**. Of this, 79 percent ($105.4 million) was for Operations.

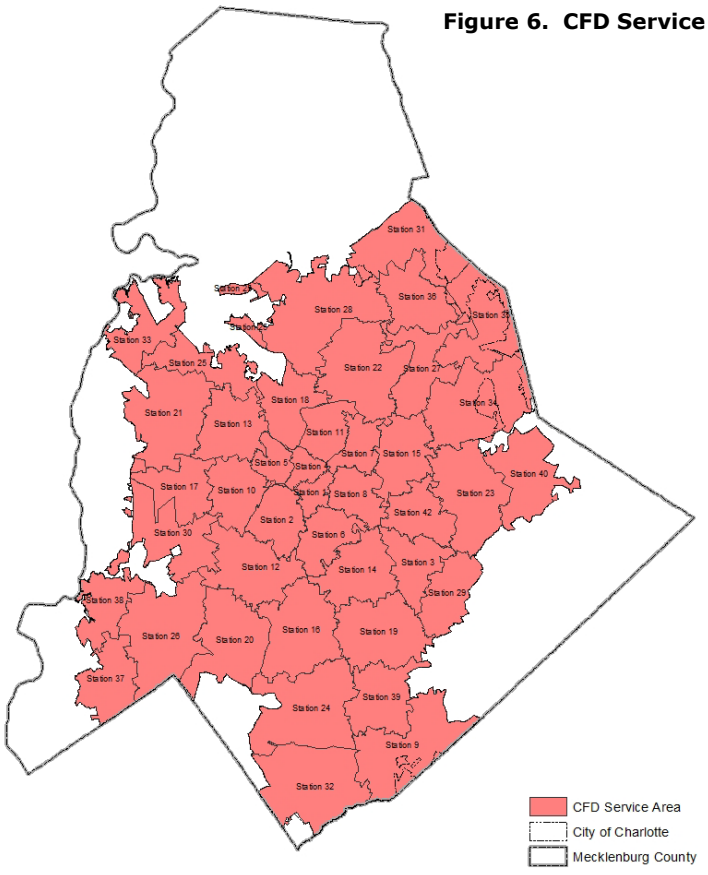
Table 10. CFD Expenditures

Description	FY 2019 Actual	% of Total 2019 Budget
Expenditures (General Fund)		
3110 - CFD Administration	$8,470,978	6%
3120 - CFD Prevention	$3,660,260	3%
3130 - CFD Communications	$3,230,588	2%
3140 - CFD Emergency Management	$1,265,552	1%
3150 - CFD Investigations/Education	$1,274,371	1%
3160 - CFD Operations	$105,399,066	79%
3170 - CFD Training	$1,890,660	1%
3180 - CFD Logistics	$1,150,424	1%
3190 - CFD Aviation	$6,485,007	5%
Subtotal - Fire	**$132,826,906**	**100%**

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

As shown in **Figure 6**, while the CFD service area generally aligns with the City of Charlotte boundary, the department serves some areas outside of the city. For the purposes of this analysis, growth inputs (i.e., new residential and commercial development) are constant within scenarios for all departments, and so the growth area utilized for CFD demand aligns with the Community Viz model area for the city (including the Sphere of Influence).

Figure 6. CFD Service Area



Model Methodology

CFD is required to meet certain "level of service" standards, based on call response time; these standards influence station location decisions. Call volume is not uniform across stations, but instead station location is dependent on the surrounding population and employment density, and the ability of the apparatus at that station to respond within the given level of service standard. Because of this service nature, the impact of new development on CFD varies depending on the location and type of growth. The Charlotte Fire Department has found that fire unit (crew associated with a fire engine or latter truck) utilization is the best indicator of need.

While station locations/areas are important for the siting of new capital facilities, service areas overlap when considering call responses (i.e., apparatus are not limited to their "home" station area in responding to calls). Because of this, the model examines growth by place types and the nature of CFD demand based on the characteristics of growth, rather than the location relative to stations.

CFD costs associated with growth are estimated using two strategies, dependent on expenditure category, as shown in **Table 11**. Expenditures not directly tied to growth were estimated using a Peak Persons Served factor and assumed to be 25% variable with growth. Operations, the largest expenditure category, is assumed to be 100% variable with growth and is estimated using a case study analysis, detailed below.

Table 11. CFD Cost Allocation Method

Description	Nexus Factor	Variability
Expenditures (General Fund)		
3110 - CFD Administration	Peak Person Served (PPS)	25%
3120 - CFD Prevention	Peak Person Served (PPS)	100%
3130 - CFD Communications	Peak Person Served (PPS)	25%
3140 - CFD Emergency Management	Peak Person Served (PPS)	25%
3150 - CFD Investigations/Education	Peak Person Served (PPS)	25%
3160 - CFD Operations	Case Study	100%
3170 - CFD Training	Peak Person Served (PPS)	25%
3180 - CFD Logistics	Peak Person Served (PPS)	25%
3190 - CFD Aviation	Peak Person Served (PPS)	25%
Subtotal - Fire		

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

To model the fiscal impact on CFD operations, the impact of growth on fire service is estimated based on two factors: the personnel hours required to serve additional demand for service resulting from new development, and the nature (i.e., place type) of that development. While other factors, such as training, affect demand on the department, and other measures, such as unit utilization, may be used to estimate demand for other purposes, for the purposes of comparing land use growth scenarios personnel hours was found as the best measure and was used to gauge differential impacts by place type.

Estimating the cost of growth for CFD operations is based on the following analysis:

Demand for CFD Service: Demand for fire service (personnel hours) is assumed to come from two groups – residents and employees. The magnitude of this demand is measured through a "Persons Served" factor, which accounts for the combined residents and employees in an area. For this analysis demand factors were generated by place type, calculated based on existing development patterns and CFD spatial data on personnel hours (FY19). As shown in **Table 12**, in FY19 there were a total of 157,766 personnel hours. Over 60 percent of this demand for service came from primarily residential areas – 45 percent from the Neighborhood 1 place type, and 16 percent from Neighborhood 2.

Table 12. CFD Personnel Hours by Place Type, FY19

Description	Total Personnel Hours	Pct. Of Personnel Hours
Campus	6,569	4.2%
Commercial	12,783	8.1%
Community Activity Center	12,589	8.0%
General Industrial	6,867	4.4%
Light Industrial Mixed-Use	5,516	3.5%
Neighborhood 1	71,090	45.1%
Neighborhood 2	25,851	16.4%
Neighborhood Center	1,476	0.9%
Regional Activity Center	12,275	7.8%
Total	**157,766**	**100%**

Source: Charlotte Fire Department; Economic & Planning Systems

This level of demand was translated into a demand factor by place type. As shown in **Table 13**, the demand for fire service (measured as personnel hours per 1,000 persons served) ranges from a low of 53 in General Industrial areas to a high of 250 in Neighborhood 1 areas.

Table 13. CFD Demand Factors by Place Type

Description	Total Personnel Hours	Existing Development Factors			Demand Factor
		Total HU	Total Emp	Total HU+Emp	PH per 1,000 HU+Emp
Campus	6,569	3,052	50,858	53,910	122
Commercial	12,783	7,905	58,661	66,566	192
Community Activity Center	12,589	17,030	68,378	85,408	147
General Industrial	6,867	1,569	129,025	130,594	53
Light Industrial Mixed-Use	5,516	3,161	71,533	74,694	74
Neighborhood 1	71,090	239,451	45,186	284,637	250
Neighborhood 2	25,851	92,001	28,975	120,976	214
Neighborhood Center	1,476	1,198	5,116	6,314	234
Regional Activity Center	12,275	19,102	193,341	212,443	58
Total	**157,766**	**384,469**	**651,074**	**1,035,543**	**152**

Source: Charlotte Fire Department; Economic & Planning Systems

Cost to Provide CFD Service: The cost associated with increased demand for service is estimated based on the department's operations costs, using an average cost per personnel hour factor. In FY19, CFD Operations expended an average of $668 per personnel hour. As shown in **Table 14**, this translates into a cost per 1,000 persons served by place type, using the personnel hour factors outlined previously.

Table 14. CFD Operations Costs by Place Type, FY19

Description	Cost per 1,000 PS
CFD Operations	
Campus	$81,400
Commercial	$128,295
Community Activity Center	$98,472
General Industrial	$35,131
Light Industrial Mixed-Use	$49,339
Neighborhood 1	$166,856
Neighborhood 2	$142,757
Neighborhood Center	$156,156
Parks and Preserves	$0
Regional Activity Center	$38,600
Overall/Average	**$101,781**

Source: Charlotte Fire Department; Economic & Planning Systems

Utilizing these factors, the cost to serve new growth is determined by estimating the increased personnel hours based on additional persons served (by place type) and applying the cost per personnel factor to calculate the total cost to serve new growth.

Impact of Growth

The location of fire stations, the density of development served by a fire station, the type of development, street pattern, and apparatus needed all impact the cost of fire service. The Fire Department typically relies on measures of response time, call volume, and apparatus team performance to justify increases in staffing, equipment, and stations. The most predictive factor is the utilization rate of a fire unit (personnel related to one apparatus); however, utilization is difficult to measure. Using call for service data, EPS utilized personnel hours expended by place type category to indicate the cost to serve per place type.

The analysis found that residential and retail/commercial oriented Place Types (Neighborhoods 1 and 2, Commercial, Neighborhood Activity Centers) had higher than average personnel hour needs per 1,000 per person served. As shown in **Table 14** above, CFD costs to serve growth are highest in Neighborhood 1 place type areas, with a cost to the department of nearly $167,000 per 1,000 persons served. Neighborhood 2 and Neighborhood Center place types also have high-cost factors, at $156,000 (Neighborhood Center) and $143,000 (Neighborhood 2). Commercial place types are the only other area with a cost factor over $100,000.

Streets and Highways

Street and highway maintenance in the city is provided by the Charlotte Department of Transportation (CDOT). The City of Charlotte's expenditures on street and highway maintenance are accounted for through two major funds – the General Fund and the Powell Bill/State Street Aid Fund. In total, the City expended $59.4 million between the two funds in 2019, as shown in **Table 15**.

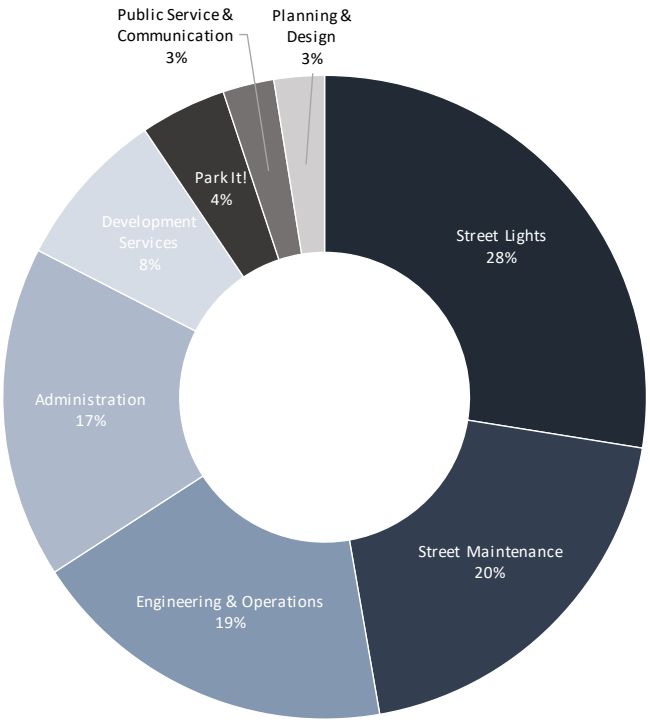
Table 15. Street and Highway Expenditures

Expenditures	FY 2015 Actual	FY 2016 Actual	FY 2017 Actual	FY 2018 Actual	FY 2019 Actual	2015-2019 *Average*	% of Total 2019 Budget
General Fund							
4210 - CDOT Administrative	$5,720,626	$4,983,554	$5,452,260	$5,420,774	$5,700,049	$5,455,453	17%
4220 - CDOT Development Services	$1,541,536	$1,987,870	$2,661,329	$2,592,417	$2,742,007	$2,305,032	8%
4230 - CDOT Engineering & Operations	$5,333,446	$5,952,989	$6,504,716	$6,141,460	$6,353,543	$6,057,231	19%
4240 - CDOT Park It!	$1,438,498	$1,199,315	$1,373,001	$1,322,871	$1,480,948	$1,362,927	4%
4250 - CDOT Planning & Design	$795,378	$1,014,161	$882,124	$958,246	$863,401	$902,662	3%
4260 - CDOT Public Service & Communic	$900,202	$947,442	$945,432	$995,157	$879,264	$933,499	3%
4270 - CDOT Street Maintenance	$5,817,686	$5,846,481	$5,590,283	$7,062,867	$6,741,077	$6,211,679	20%
4280 - CDOT Street Lighting	$0	$0	$0	$0	$0	$0	0%
4287 - IT Mgd Transportation	$0	$0	$0	$0	$0	$0	0%
9040 - NonDept Other Accounts	$10,636,478	$8,692	$98	$275	$366	$2,129,182	0%
9042 - Non Dept-CDOT Street Lights	$0	$10,917,882	$10,885,784	$10,885,138	$9,405,085	$8,418,778	28%
Total Streets and Highways	**$32,183,849**	**$32,858,387**	**$34,295,027**	**$35,379,204**	**$34,165,741**	**$33,776,442**	**100%**
Powell Bill Fund							
Contracted Resurfacing	---	$16,454,931	$13,653,999	$13,504,445	$10,285,203	$13,474,645	
Repairs by City Staff	---	$7,523,765	$8,764,434	$6,657,787	$7,572,944	$7,629,733	
Equipment Rental/Purchase	---	$1,018,448	$1,132,074	$1,056,003	$1,010,518	$1,054,261	
Other	---	$4,197,343	$5,874,101	$4,247,394	$6,399,283	$5,179,530	
Powell Bill-State Street Aid Fund	**---**	**$29,194,487**	**$29,424,608**	**$25,465,629**	**$25,267,948**	**$27,338,168**	

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

General Fund expenditures on streets and highways totaled $34.2 million in 2019, including $24.8 million within the CDOT budget and an additional $9.4 million of non-departmental expenditures, primarily to pay for the cost of the City's street lighting program. As shown in **Figure 7**, of the $34.2 million in General Fund expenditures, the largest expenditure category was streetlights (28 percent, or $8.4 million), followed by street maintenance (20 percent, or $6.7 million), engineering and operations (19 percent), and administration (17 percent). The revenue for these expenditures comes from departmental revenues (e.g., fees, licenses, and fines, and charges for services) and non-dedicated General Fund revenue sources (e.g., property tax, sales tax, etc.)

Figure 7. CDOT 2019 Expenditures by Category



The Powell Bill (or State Street Aid) Fund is funded primarily from the state gas tax revenue that is distributed to the City, based on population and lane miles maintained. The State Street Aid funds are expended only for the "purposes of maintaining, repairing, (re)construction or widening of any street or public thoroughfare within the municipal limits or for planning, construction, and maintenance of bikeways, greenways, or sidewalks." The City of Charlotte also transfers $4.3 million from the General Fund to support expenditures in this fund; however, starting in 2021 this revenue will come directly from the City's Pay-As-You-Go Fund and Capital Investment Plan. Expenditures from the State Street Aid Fund totaled $25.3 million in 2019.

Funding for the City's ongoing and capital maintenance of streets and highways is split between discretionary General Fund dollars and the Powell Bill funding that is dedicated to streets. While new development directly impacts the costs to maintain the city's streets and highways, the impact (i.e., increase) on revenue is not similarly directly related. This differential impact on expenditures and revenues creates challenges for CDOT to keep up with needed maintenance.

The Powell Bill funding is dedicated but based on the city's population and lane miles, which should mean that growth of the city would result in funding growth. However, because Powell Bill funding is generated from the gas tax, which is dependent on vehicle travel, revenue amounts can vary due to shifts in travel patterns and gasoline efficiency of cars, regardless of the population growth. In addition to its sensitivity to travel patterns and efficiency, because this funding is shared throughout the state as other communities in North Carolina grow, additional sharing of funding can impact Charlotte's share. General Fund revenues are not entirely tied to growth; these revenues can be significantly impacted by budgeting decisions of the City Council and revenue generation to the General and Pay-Go Funds.

Model Methodology

The Fiscal Impact Model focuses on the impacts on the General Fund expenditures by CDOT and the non-departmental street light expenditures. However, it is important to understand that these expenditures are only a portion of funds spent on streets by the City.

CDOT's General Fund streets and highways expenditures are a function of the level of street infrastructure in the city, specifically new streets, traffic signals, and streetlights. In 2019, the city had 5,415 lane miles of streets and 75,472 streetlights (an average of 13.9 streetlights per lane mile). The major ongoing cost impact of growth related to transportation is the maintenance of roadway and the streetlight system as a result of new development in previously undeveloped areas. However, infill and redevelopment have impacts as well, as areas densify, and the transportation network requires change.

CDOT expenditures associated with growth are estimated using two strategies based on expenditure category, as shown in **Table 16**. Expenditures not directly related to growth, including Administrative, Park It, Planning and Design, and Public Service and Communication, are estimated using a per person factor and assumed to be 25% variable with growth. Expenditures more directly related to street maintenance, including Development Services, Engineering and Operations, Street Maintenance, and Street Lighting are assumed to be 100% variable with growth and are estimated using a case study analysis, detailed below.

Table 16. CDOT Cost Allocation Method

Expenditures	Nexus Factor	Variability
General Fund		
4210 - CDOT Administrative	Per Person	25%
4220 - CDOT Development Services	Public Works: Lane Miles Maintained	100%
4230 - CDOT Engineering & Operations	Public Works: Lane Miles Maintained	100%
4240 - CDOT Park It!	Per Person	25%
4250 - CDOT Planning & Design	Per Person	25%
4260 - CDOT Public Service & Communic	Per Person	25%
4270 - CDOT Street Maintenance	Public Works: Lane Miles Maintained	100%
4280 - CDOT Street Lighting	Public Works: Street Lights Maintained	100%
4287 - IT Mgd Transportation	---	---
9040 - NonDept Other Accounts	Per Person	25%
9042 - Non Dept-CDOT Street Lights	Public Works: Street Lights Maintained	100%
Total Streets and Highways		

Source: City of Charlotte 2020 Budget; Economic & Planning Systems

These expenditures for street maintenance that are not modeled on a per person basis are estimated based on the current average annual expenditure per lane mile maintained or per streetlight (per lane mile). The City of Charlotte currently spends an average of $2,949 per lane mile maintained and $127 per streetlight (per lane mile). These cost factors form the basis of the expenditure case study.

Cost of Growth - Costs associated with growth are based on the additional streets required to serve new development; cost factors developed for CDOT are shown in **Table 17**. Additional lane miles of road are estimated based on the location of new development (greenfield or infill/redevelopment) and the Place Type designation where the growth occurs. A lane mile generation (demand) factor by Place Types was developed based on existing conditions in the city. A cost per additional 1,000 persons served (housing units plus jobs) was then developed for each Place Type, based on the department's current expenditure patterns. The total cost per 1,000 persons served is applied to development in greenfield areas, while half (50 percent) of the cost is applied to development in infill or redevelopment areas.

The estimated number of new streetlights that are generated by new development is based on the typical number of streetlights needed per lane mile in each place type. The total cost per 1,000 persons served is applied to all new development in greenfield areas, and half (50 percent) of the cost is applied to development in infill or redevelopment areas.

Table 17. Cost per Lane Mile and Street Light by Place Type

Function/Program	Housing Units Plus Jobs	Density (HU + Job per Acre)	Lane Miles	Lane mile per Job+HU (per 1,000 ps)	Street Maint. Cost per PS		Street Light per Job+HU (per 1,000 ps)	Streetlight Maint. Cost per PS	
					Greenfield (per 1,000 ps)	Infill / Redevelopment (per 1,000 ps)		Greenfield (per 1,000 ps)	Infill / Redevelopment (per 1,000 ps)
Place Type									
Campus	53,910	8.8	121	2.24	$6,595	$3,297	31.2	$3,946	$1,973
Commercial	66,566	9.7	210	3.15	$9,302	$4,651	44.0	$5,565	$2,783
Community Activity Center	85,408	10.6	284	3.32	$9,790	$4,895	46.3	$5,857	$2,928
General Industrial	130,594	5.8	200	1.53	$4,524	$2,262	21.4	$2,707	$1,353
Light Industrial Mixed-Use	74,694	5.7	225	3.02	$8,892	$4,446	42.0	$5,320	$2,660
Neighborhood 1	284,637	2.0	4,013	14.10	$41,573	$20,787	196.5	$24,872	$12,436
Neighborhood 2	120,976	7.3	533	4.40	$12,982	$6,491	61.4	$7,767	$3,883
Neighborhood Center	6,314	4.4	66	10.51	$30,995	$15,498	146.5	$18,544	$9,272
Regional Activity Center	212,443	51.1	204	0.96	$2,832	$1,416	13.4	$1,694	$847
Total[1]	**1,035,543**	**4.8**	**5,856**						
Average				**5.66**	**$16,674**	**$8,337**	**78.8**	**$9,976**	**$4,988**

1 Totals may exceed actual due to allocation of housing units, jobs, and/or lane miles to more than one placetype due to data availability/limitations

Source: City of Charlotte; City Explained; Economic & Planning Systems

Impact of Growth

Development in greenfield/undeveloped areas generates new streets and streetlights for the City to maintain, while infill development that does not necessarily generate the need for new streets has lower cost impacts. Ideally the rate of growth of the City's street infrastructure (e.g., new lane miles or streetlights) should be lower than the rate of growth of new households and commercial/industrial development. This has been the case in the past decade as the growth of lane miles and streetlights has been under 1 percent annually, which is significantly lower than the rate of growth of households and jobs in the city.

The density of development greatly impacts the cost to serve new development. Lower density development results in higher costs as more lane miles are needed per person served (e.g., a road that serves only a few households). Generally, denser areas result in more efficiency in addressing roadway maintenance, which is true in Charlotte. However, greater density also results in greater street infrastructure (streetlights, signals, sidewalks, bike lanes) which results in greater costs due to additional infrastructure. As a result, the desired conditions in each Place Types will impact the costs differently.

Maintenance of streets is performed based on the condition of the pavement/ roadway. Streets that have a lower pavement rating will be resurfaced sooner. Impacts on pavement quality are related to the level of travel, the types of vehicles, and construction impacts on roadways. Infill development has varying impact on pavement quality but is correlated with lower pavement scores generally. Large infill projects will require reconstruction of portions of roads, but the developer is required to pay for this cost. However, for smaller, by-right infill development this is not required and likely not feasible, and projects are not subject to the same level of review and regulation. A street with multiple small infill projects can result in multiple cuts of the pavement and individual/piecemeal repairs. Conversations with CDOT staff indicated that this has been resulting in pavement quality in these areas degrading more quickly and focusing more resources to these areas.

New development in the city is generally responsible for providing the infrastructure and improvements needed for streets that directly access and serve the development. However, the impacts of new development on collector, arterial, and regional roads are not accounted for. Increased traffic volume caused by new development creates additional need for maintenance on the overall city network and enhancements and new street systems to address more modern mobility challenges. The City currently does not have a mechanism to fund the impacts of new development on streets beyond the existing funding sources used for existing street maintenance. This results in a disproportionate amount of funding going to areas that are attracting new development. A cost recovery mechanism can help address lack of funding for network growth and enhancement needed from new development. Tools, such as Impact Fees or Improvement Districts, applied to new development should be explored to generate additional revenue to address the impact of new development.

Other Expenditure Categories

Sanitation

Sanitation services are provided by Solid Waste Services. The impact of growth on sanitation services is directly tied to residential and commercial development, as all new development requires additional service. Expenditures are estimated on a Peak Person Served basis and assumed to be 100 percent related to growth. In 2019, department expenditures totaled $64 million; based on these expenditures, sanitation service costs $62 per peak person served.

Other General Fund Expenditures

The remainder of General Fund expenditures generally increase alongside both population and employment growth as additional services and capacity are needed. These expenditures are estimated using a per person served average cost factor and are assumed to be 50 or 75% variable, as shown in **Table 18**.

Table 18. Charlotte General Fund Expenditures – Nexus to Growth and Variability

Object	Nexus Factor	Variability	Net Factor
Support Services	Per Person	50%	$ 16
General Administration	Per Person	75%	$ 43
Culture and Recreation	---	---	---
Public Safety - Police	Case Study	100%	$ -
Public Safety - Fire	Case Study	100%	$ -
Streets and Highways	Case Study	100%	$ -
Sanitation	Peak Person Served (PPS)	100%	$ 62
Economic Development	Per Person	50%	$ 0.61
Community Planning & Development	Per Person	50%	$ 24
Engineering and Property Management	Per Person	50%	$ 13
Transfers	---	---	---

Source: City of Charlotte; Economic & Planning Systems

Net Fiscal Impact – General Fund

The net fiscal impact is the measurement of revenues generated by new development, less the expenditures created by the new development. This impact was estimated based on revenues and expenditures calculated as outlined above.

To estimate the impact of the growth scenarios, the forecast number of new households and jobs were translated into estimated new housing units by type and non-residential development by type. For both forecasts, the City of Charlotte is estimated to grow by 161,721 households and 271,043 jobs over the next 20 years, as shown in **Table 19**. The breakdown of residential unit types and non-residential uses are based on the forecasts developed by City Explained using the Community Viz model. The Business as Usual scenario is from the Growth Choices effort during the Comprehensive Plan process. The Future Place Types scenario reflects the desired growth strategy that was utilized within the Community Viz model for the regional transportation model.

Table 19. Growth Scenarios Summary

Description	Business As Usual		Future Place Types	
	Factor	Growth	Factor	Growth
GROWTH LEVEL				
FPT Model				
TOTAL				
RESIDENTIAL				
Single Family Detached	45%	72,758	35%	56,183
Single Family Attached	17%	27,493	15%	23,713
Multifamily	38%	61,470	51%	81,825
Total Residential	**100%**	**161,721**	**100%**	**161,721**
EMPLOYMENT				
Retail	20%	52,926	38%	103,241
Office	58%	157,624	40%	107,915
Industrial	22%	60,492	22%	59,886
Total Employment	**100%**	**271,043**	**100%**	**271,043**

Source: Economic & Planning Systems

Using the growth forecasts by development type, the net fiscal impact of both scenarios was estimated. The Business as Usual scenario is estimated to generate $240.9 million in revenue annually (in year 2040) and create $230.5 million in expenditures annually. This results in a positive net fiscal impact of $10.4 million annually.

The Future Place Types scenario is estimated to generate $232.7 million in annual revenue in 2040, which is less than the Business as Usual scenario. However, the Future Place Types scenario is estimated to generate expenditure costs of $217.8 million, which is also lower than the Business as Usual scenario. The net fiscal impact is a positive $14.9 million. The Future Place Types scenario generates a net positive fiscal impact annually that is 43 percent greater than the Business as Usual scenario.

Table 20. General Fund Net Fiscal Impact by Scenario

Description	Business As Usual				Future Place Types			
	Nexus Factor	Nexus Factor Detail	Net Factor	Scenario Growth	Nexus Factor	Nexus Factor Detail	Net Factor	Scenario Growth
GENERAL FUND REVENUES								
Property Tax	Case Study	---		$170,668,210	Case Study	---		$164,221,996
Sales Tax	Case Study	---		$39,726,386	Case Study	---		$38,769,489
Other taxes	Per Person	373,566	$8.08	$3,017,045	Per Person	363,389	$8.08	$2,934,850
Intergovernmental - State	Per Person	373,566	$19.15	$7,152,298	Per Person	363,389	$19.15	$6,957,444
Licenses, Fees, Fines	Per Person	373,566	$38.79	$14,490,479	Per Person	363,389	$38.79	$14,095,707
Administrative Charges	Per Person	373,566	$12.81	$4,786,301	Per Person	363,389	$12.81	$4,655,905
Charges for Services	Per Person	373,566	$2.82	$1,052,449	Per Person	363,389	$2.82	$1,023,776
Total Estimated Revenues				**$240,893,169**				**$232,659,168**
GENERAL FUND EXPENDITURES								
Support Services	Per Person	373,566	$16.15	$6,033,097	Per Person	363,389	$16.15	$5,868,734
General Administration	Per Person	373,566	$43.03	$16,073,636	Per Person	363,389	$43.03	$15,635,733
Public Safety - Police	Case Study	---		$114,137,596	Case Study	---		$111,547,916
Public Safety - Fire	Case Study	---		$45,081,441	Case Study	---		$38,281,405
Streets and Highways	Case Study	---		$7,095,244	Case Study	---		$5,415,883
Sanitation	Peak Person Served (PPS)	448,553	$62.23	$27,912,997	Peak Person Served (PPS)	438,376	$62.23	$27,279,676
Economic Development	Per Person	373,566	$0.61	$228,787	Per Person	363,389	$0.61	$222,554
Community Planning & Developmen	Per Person	373,566	$23.76	$8,876,539	Per Person	363,389	$23.76	$8,634,710
Engeering and Property Managemer	Per Person	373,566	$13.49	$5,040,621	Per Person	363,389	$13.49	$4,903,297
Total Expenditures				**$230,479,959**				**$217,789,909**
Net Balance				**$10,413,210**				**$14,869,259**

Source: Economic & Planning Systems

The breakdown of the revenues and expenditures to a per population (or per employee) basis, as shown in **Table 21**, is helpful to illustrate the differences in the fiscal impact of the two scenarios. The Business as Usual generates $7 more per new resident in revenues to the General Fund annually. This greater revenue is due primarily to a greater proportion of housing being single family detached, which generates more property tax revenue than an attached or multifamily unit (on average). The Future Place Types scenario generates $14 less expenditures per new resident. This reduction is due to a lower cost to provide fire service and maintain streets. The desired growth pattern illustrated by the Future Place Types scenario has a greater share of development in mixed-use areas than the Business as Usual, which are on average less costly to serve.

Table 21. Per Population Net Fiscal Impact by Scenario

Description	Business As Usual Per Pop (A)	Future Place Types Per Pop (B)	Difference (A-B)
GENERAL FUND REVENUES			
Property Tax	$265	$259	$6
Sales Tax	$62	$61	$1
Other taxes	$5	$5	$0
Intergovernmental - State	$11	$11	$0
Licenses, Fees, Fines	$22	$22	$0
Administrative Charges	$7	$7	$0
Charges for Services	$2	$2	$0
Total Estimated Revenues	**$374**	**$367**	**$7**
GENERAL FUND EXPENDITURES			
Support Services	$9	$9	$0
General Administration	$25	$25	$0
Public Safety - Police	$177	$176	$1
Public Safety - Fire	$70	$60	$10
Streets and Highways	$11	$9	$2
Sanitation	$43	$43	$0
Economic Development	$0	$0	$0
Community Planning & Developmen	$14	$14	$0
Engeering and Property Managemer	$8	$8	$0
Total Expenditures	**$358**	**$343**	**$14**
Net Balance	**$16**	**$23**	**-$7**

Source: Economic & Planning Systems

THIS PAGE INTENTIONALLY LEFT BLANK

4. Other City of Charlotte Funds

This section provides an overview of the other major funds in the City of Charlotte budget that are impacted by new development. The capital improvement related funds and Special Revenue funds that are impacted by new development are described and future annual revenues are estimated. Major enterprise funds are also described. Lastly, a questionnaire and associated growth maps are provided to help guide efforts to identify impacts of forecast growth as the City begins its effort to develop a Future Place Types Map.

Capital and Special Revenue Funds

Debt Service Fund

The City of Charlotte's Debt Service Fund is used for the collection of revenue and use of money related to the payment of principal, interest, and debt costs for all long-term debt issued for "business-type" activities for the City. The Debt Service Fund generates revenue through property and sales tax (described previously). The revenues and expenditures within this fund are based on the issuance of debt (and thus not directly tied to growth), including General-Obligation Bonds that are approved by voters.

Capital Projects Fund

The City of Charlotte's Capital Projects Fund maintains the financial resources used for the acquisition, construction, and/or improvement of capital assets. There are many sources of funds for Capital Projects. Funds are transferred and used by governmental, special revenue, and non-governmental funds. Capital improvements are managed by the City's Community Investment Program (CIP), a multi-year plan that manages the investments made into the community. The major revenue sources for capital improvements include property tax through issuance of debt (typically GO Bonds) or through the City's CIP and Pay Go program for capital improvements.

The estimated increase in property tax revenues traditionally generated for Capital Project was estimated. EPS is also completing a small area capital return on investment analysis that will utilize estimates of capital revenues from the growth scenarios. The results of this analysis are summarized in a separate report.

Special Revenue Funds

The City of Charlotte has 15 Special Revenue Funds that were created to manage the collection and use of revenue generated for special purposes. The special revenue funds include convention center, tourism, cultural facilities, NASCAR Hall of Fame, housing and neighborhood services (funded through Federal CBDG funds), municipal service districts, and others. In general, the expenditures of these funds are based on the revenue that is generated via their dedicated funding source. The special revenue fund that is most directly impacted by the amount and location of new development is the Municipal Service Districts Fund.

Municipal Service Districts

The City of Charlotte has five Municipal Service Districts. Three of the districts cover the Uptown/City Center area, and the other two cover the South End area and University City area. Municipal Service Districts are created to provide an enhanced level of service for certain areas within the city, including funding enhanced streetscape, public amenities, capital improvements, and area promoting and planning.

EPS used outputs from the Community Viz model to summarize the estimated new development expected in the City's existing Municipal Service Districts. The increased revenue to these districts was then estimated based on new development projections using the same property tax methodology used for the General Fund fiscal impact model.

Impact of Growth

The estimated annual revenue generated by property taxes from new development for the Debt Service Fund, Capital Projects Fund, and the five Municipal Service Districts are shown below in **Table 22**. For the Debt Service and Capital Projects Funds two phases are shown. Phase 1 is the annual revenue in 2030 from new development forecast from 2020 to 2030. Phase 2 is the revenue from new development forecast between 2030 and 2040. Two phases added together equal the total annual revenue in 2040 from new development in the city. The estimates for the MSDs are the 2040 total additional revenue for each district.

Table 22 shows a comparison between revenues under the Business as Usual and Future Place Types Scenario. The Business as Usual scenario is estimated to generate more annual revenue for the Debt Service and Capital Projects Funds, and the MSDs 1 and 2. The greater total in the Debt Service and Capital Projects Funds for the Business as Usual scenario is due largely to a greater proportion of housing being single family detached in that scenario, which have a higher average market value than the other scenario. For the MSDs, the differences are due to the amount of development estimated to be captured in each district.

The Business as Usual scenario has more development in MSDs 1 and 2 than the Future Place Types scenario. The Future Place Types scenario creates a greater amount of annual revenue for MSDs 3, 4, and 5, due to a greater capture of revenues in these districts under this scenario.

Table 22. Capital and MSD Funds Estimated Annual Revenue

Description	Business As Usual		Future Place Types	
	Total Revenue	Pct. Of Revenue	Total Revenue	Pct. Of Revenue
Debt Service Fund				
Property Tax				
Phase 1	$23,794,724	56%	$22,266,108	55%
Phase 2	$18,512,994	44%	$18,443,629	45%
Scenario Total	**$42,307,718**	**100%**	**$40,709,737**	**100%**
Capital Projects Fund				
Property Tax				
Phase 1	$2,565,753	56%	$2,400,924	55%
Phase 2	$1,996,231	44%	$1,988,752	45%
Scenario Total	**$4,561,984**	**100%**	**$4,389,676**	**100%**
Municipal Service Districts				
District 1				
Residential	$270,852	27%	$146,189	16%
Commercial	$747,611	73%	$787,735	84%
Total	**$1,018,463**	**100%**	**$933,924**	**100%**
District 2				
Residential	$556,210	22%	$407,858	17%
Commercial	$1,988,024	78%	$2,044,677	83%
Total	**$2,544,234**	**100%**	**$2,452,535**	**100%**
District 3				
Residential	$71,343	100%	$155,348	17%
Commercial	$0	0%	$762,511	83%
Total	**$71,343**	**100%**	**$917,859**	**100%**
District 4				
Residential	$44,979	39%	$248,726	68%
Commercial	$69,377	61%	$115,434	32%
Total	**$114,356**	**100%**	**$364,160**	**100%**
District 5				
Residential	$194,042	93%	$274,196	79%
Commercial	$13,528	7%	$74,941	21%
Total	**$207,569**	**100%**	**$349,137**	**100%**

Source: Economic & Planning Systems

Enterprise Funds

For Enterprise Funds that operate under a cost recovery model, EPS did not perform a quantitative analysis. An overview of these funds is provided below. Additionally, a questionnaire and related growth maps are provided to help guide discussions with representatives from these Enterprise Funds/Departments during the development of the Future Place Types map.

Charlotte Water

Charlotte Water is an enterprise fund and department tasked with the treatment and distribution of water and the collection and treatment of wastewater for the City of Charlotte and other areas within its service boundary. As an enterprise fund, the revenues it charges for services are designed to match the expenditures needed to provide services.

Charlotte Water has two major, ongoing revenue sources: 1) volumetric user charges for water and sewer service, and 2) fixed user charges for water and sewer. The volumetric user charges account for most of the fund's revenue. Charlotte Water also has three fees (for each of water and sewer) that recoup the costs of providing and expanding service for new users. The three fees are a service availability fee, system connection fee, and a system development fee. These fees are sized (in terms of total fee amount) to recover the capital costs related to serving new development.

In practice, the impact of new development on Charlotte Water is accounted for within the availability, connection, and development fees. However, there are areas within Charlotte's service area that may exceed the costs of serving an average development. The two contexts that were identified that may be more costly than typical areas are: 1) infill areas where existing trunk infrastructure may need to be replaced and/or upsized to support higher density, and 2) areas where water or sewer service requires additional capital facilities, such as pump stations, to provide service in the area.

Storm Water

The City of Charlotte has an enterprise fund for storm water service. The Storm Water enterprise fund is tasked with repairing the storm drainage system to reduce flood risks, protect public health and safety, and assure runoff is clean to protect natural waterways/bodies. Storm water charges property owners a fee for service, which accounts for almost all the fund's revenue. The fee covers ongoing maintenance of infrastructure and funds needed for capital improvements.

Charlotte Area Transit Services (CATS)

Charlotte Area Transit Services (CATS) provides public transportation services to the city, Mecklenburg County, and areas beyond including the cities of Concord and Gastonia and Union County (North Carolina) and York County (South Carolina). The CATS system includes bus, light rail, streetcar, van pool, and ADA paratransit services. CATS is an enterprise fund within the City of Charlotte and is funded through a variety of revenue sources, including four primary sources; Article 43 sales tax, state grants, passenger fees, and Transit Pay-Go transfers. Article 43 sales tax is a state enabled 0.5 percent sales tax that funds the CATS system. Pay-Go transfers are Capital Improvement Plan funds transferred from the General Fund to support the growth of the CATS system.

Measuring the net fiscal impact of new development on CATS is a robust effort that is impacted heavily by the agency's system plan and assessing/including future service additions and expansions. This analysis is beyond the scope of this effort.

Impact of Growth Questionnaire

To assist with evaluation of fiscal impacts of the preferred Place Types Map that will be developed after adoption of the Comprehensive Plan, EPS has developed a questionnaire to facilitate the review of potential growth areas and issues related to funds not analyzed in the City or County Fiscal Impact Model analysis. For certain departments, EPS documented "qualitative" potential impacts on service provision and/or capital infrastructure needs. EPS has developed "Growth Maps" reflecting the potential locations where growth may occur based on the initial direction provided within the plan process. The City of Charlotte will be developing a parcel based Future Place Types Map after the adoption of the Comprehensive Plan. The feedback from responses to the questionnaire will inform the Future Place Types mapping and will ensure potential issues will be addressed during that process and during any subsequent subarea planning efforts.

The Comprehensive Plan will not include an adopted Future Place Types Map. A Future Place Types Map will be developed by the City following the guidance and direction provided in the Comprehensive Plan and through additional outreach/ interaction with the community. The Comprehensive Plan process, however, has provided direction on the desired growth pattern the community would like to see. This direction has been reflected in land use (Place Types) designations provided within the Centralina Regional Council's regional growth modeling effort.

The Place Type designations for City of Charlotte were applied to 10-acre grid geographies, as parcel specific designations have not been made. This 10-acre grid approach allowed for the overall growth pattern direction desired by the community to be reflected, temporarily, until a Future Place Types map has been adopted by the City.

Five maps have been provided to help illustrate the amount and type of growth that is likely to occur in the city based on the preferred growth scenario. The five maps are described below:

1. **Future Place Types Map by 10-acre Grid:** This map illustrates the Future Place Types designations by each 10-acre grid that was used to model the preferred growth scenario for the Centralina regional modeling effort. (**Appendix Figure 2**)

2. **Place Types Change Map:** This map illustrates where changes in future place types are being considered within the preferred growth scenario. This map helps direct attention for major changes in use and/or density/ intensity. (**Appendix Figure 3**)

3. **Forecast New Housing Units by 10-acre Grid:** The forecast number of new housing units within each 10-acre grid from 2020 to 2040 is illustrated within this map. This map helps illustrate where housing development is estimated to occur over the next 20 years. (**Appendix Figure 4**)

4. **Forecast New Jobs by 10-acre Grid:** The forecast number of new jobs within each 10-acre grid from 2020 to 2040 is illustrated within this map. This map along with the Future Place Types Map helps illustrate where new jobs are estimated to locate over the next 20 years. (**Appendix Figure 1**)

5. **Forecast New Jobs and Housing Units by 10-acre Grid:** The forecast number of new jobs plus new housing units within each 10-acre grid from 2020 to 2040 is illustrated within this map. This map helps illustrate the total amount/density of new development estimated throughout the city. (**Appendix Figure 5**)

Growth Maps Questionnaire

The following questions are meant to solicit information that will help inform efforts to create a Future Place Types Map. They are also meant to serve as a reminder of potential conflicts related to new development that need to be analyzed and/or addressed within future subarea planning efforts.

1. ***Are there any areas identified for changes in the Future Place Types that may result in significant reduction in service levels, inability to provide service, or major capital improvements that would be required to facilitate the type of new development envisioned in this area?***

   Please identify areas on the map where place type changes may have major impacts or where the future place types deviate from your current expectation for future development in that area. Provide narrative of the anticipated impacts and issues that should be considered within future planning efforts.

2. ***Are there any areas where the amount of new housing development (i.e., forecast new housing units) may result in significant reduction in service levels, inability to provide service, or major capital improvements that would be required to facilitate the amount of new housing in this area?***

   Please identify areas on the map where the amount of new housing development may have major impacts or where the amount of growth forecast deviates from your current expectation for future housing development in that area. Provide narrative of the anticipated impacts and issues that should be considered within future planning efforts.

3. ***Are there any areas where the amount of new employment growth (i.e., forecast new jobs) may result in significant reduction in service levels, inability to provide service, or major capital improvements that would be required to facilitate the amount of new employment in this area?***

   Please identify areas on the map where the amount of new non-residential development may have major impacts or where the amount of growth forecast deviates from your current expectation for future non-residential development in that area. Provide narrative of the anticipated impacts and issues that should be considered within future planning efforts.

4. ***Are there any areas where your organization assumed, expected, or have planned for significant new development activity to occur but are not shown within the growth maps as forecast to capture new development?***

   Please identify areas on the map where growth is not forecast to occur, but your organization has made efforts, plans, or have expectations for future development in that area that needs to be served.

THIS PAGE INTENTIONALLY LEFT BLANK

5. Policy Recommendations

This section provides the recommendations that were incorporated into the Comprehensive Plan based on the findings of the Fiscal Impact Analysis. The direction related to objectives and supporting policies for Goal 10: Fiscally Responsible of the Comprehensive Plan is summarized, and the implementation strategy components are detailed.

Supporting Policies

Goal 10 of the Comprehensive Plan is entitled "Fiscally Responsible". This fiscal impact analysis provides significant input into the development of this goal. The objectives are measures of growth patterns that are more efficient or fiscally beneficial. Specific direction includes directing growth to activity centers, growing in a pattern that is more cost efficient and attracting development that is more diverse and in a denser pattern.

The supporting policies include direction for ensuring a fiscally beneficial growth pattern. The policies include supporting infill development and direction for connecting the plan with the CIP (direction provided below), leveraging development in high growth areas/activity centers to help generate benefits for the whole community, identifying new tools to mitigate fiscal impacts (direction provided below), and using growth forecasting to support planning for all departments in the City and County. The growth area questionnaire is designed to help start the discussion in efforts to integrate planning efforts.

Implementation Strategy

Direction for major actions related to fiscal responsibility developed for the Comprehensive Plan based on the Fiscal Impact Analysis are provided below related to new funding tools and tying the Comprehensive Plan to the Community Investment Program.

New Funding Tools/Approaches

Certain major expenditures/departments lack dedicated and/or reliable funding sources to support the community's desired future vision. Two specific expenditure areas under the City of Charlotte were identified as lacking funding tools to support new development: mobility/transportation and community amenities.

Transportation/Mobility

New development in the city is generally responsible for providing the infrastructure and improvements needed for streets that directly access and serve the development. However, the impacts of new development on collector, arterial, and regional roads are not accounted for. Increased traffic volume caused by new development creates additional need for maintenance on the overall city network and enhancements and new street systems to address more modern mobility challenges. The City currently does not have a mechanism to fund the impacts of new development on streets beyond the existing funding sources used for existing street maintenance. This can result in a disproportionate amount of funding going to areas that are attracting new development either to address impacts of infill and/or to ensure the regional network can support growth. A cost recovery mechanism can help address lack of funding for network growth and enhancement needed from new development. Tools, such as Impact Fees or Improvement Districts, applied to new development should be explored to generate additional revenue to address the impact of new development.

Community Amenities

The plan policies call for a variety of community amenities to be built to support the major plan goals such as 10-Minute Neighborhoods. The community amenities identified in the plan include day cares, healthy food stores/vendors, health clinics, banks, affordable housing units, and green infrastructure. There are likely additional amenities desired by the communities that are not mentioned. These amenities are often provided by the private sector and can become scarce or non-existent in lower income neighborhoods due to market dynamics. Furthermore, the capital hurdles to building amenities in areas lacking them currently can be too high to overcome by a private business operator even if there is demand from the community. The City and County in many cases do not provide or have control in the availability of these amenities. Many of these amenities have been identified in the plan and by the community as essential elements to complete neighborhoods or well-rounded employment areas. Creative solutions to leverage investment from the private sector to create desired community amenities are needed to help support the private and non-profit sectors in building and supporting these essential community assets. The plan has identified the desire to explore new development impact mitigation tools and community benefit partnerships to provide support.

Shared Prosperity Funding Approach

The outreach to the community and fiscal impact analysis has helped generate the consensus that for Charlotte to achieve the goals in this plan, a collective approach to funding infrastructure and amenities is needed. As well, a greater partnership with citizens and businesses in identifying and maintaining improvements over time is needed. A “Shared Prosperity” approach to creating new funding tools in partnerships with the private business sector and overall community should be implemented. This shared prosperity approach looks to

utilize tools to share the collective cost and responsibility for achieving the communities' visions. Tools under three categories of funding strategies should be expanded and added. These three categories are Cost Recovery Programs, Value Capture Programs, and Community Investment Programs.

Cost Recovery Programs

The City should implement cost recovery funding programs that can mitigate the increased cost of infrastructure and services cause by new development. Programs focused on funding growth of the regional mobility network and community amenities should be explored and implemented. Potential tools to consider include impact fees and land dedications.

Value Capture Programs

Value capture is the use of funding tools to redirect the increased tax value/ revenue generated in an area from new development to fund improvements in that area. The increased tax value is spent locally to support and mitigate impacts of new development instead of going to the City's general fund or funds. The use of tax increment (the increased tax revenue from the value of new development generated by new development in an area/project) is a common value capture technique. The City of Charlotte currently uses the Tax Increment Grant Program (TIG) to provide repayment of costs for public improvements provided by a private development project. The expanded use of tax increment should be considered to help fund improvements from new development. Other value capture techniques include the use of sales tax sharing and improvement districts (additional property or sales tax) that can support improvements on a district/ small area scale. The City should expand its use of value capture tools in conjunction with new development in Regional Activity Centers, Connected Corridors, and Neighborhood Centers, or to support developments providing priority community needs (i.e., affordable housing).

Community Investment Programs

Community investment programs are created to integrate the residents and the business community directly into the identification and funding of infrastructure and amenities that benefit their community. These types of programs are most typically used in a partnership between a business area and a local municipality. Business improvement districts are the common example, where a collection of business and property owners in a non-residential area choose to assess additional fees or taxes in order to fund services and capital improvements. In some communities, neighborhoods have decided to create similar programs to help fund desired community amenities. A neighborhood improvement district is not too dissimilar to a homeowner's association often used for suburban subdivisions. Beyond improvement districts, there are wide variety of programs that can allow for a specified area (neighborhood or commercial area) to increase their participation and advocacy in identification of and funding of desired improvements. One of the two "Big Ideas" within the 10-Minute Neighborhood

Goal is to create a culture of developer-community collaboration through community benefit agreements. Community benefit agreements are a newer type of community investment programs that cities are using to directly tie improvements funded or built by new development projects directly with input and direction from the community that the new development will impact. Charlotte should create new community investment programs to increase participation and influence of local neighborhoods and districts into the growth of their areas.

Charlotte's 5-Year Community Investment Program

The City of Charlotte currently develops a 5-year community investment program (CIP) that funds capital investments into the community via large bonds (repaid with dedicated CIP revenues), a PAYGO (pay as you go) program that funds annual capital improvements, and dedicated capital improvement revenues in non-governmental funds (e.g., Charlotte Water). The City's CIP plan is developed annually through the budgeting process. The CIP process starts with City departments identifying projects for consideration from a wide variety of sources including (but not limited to) master plans, small area plans, community outreach, City Council recommendations, and others. Prioritized projects are vetted through a community outreach process. City Council and City Staff then hold budget workshops to refine the CIP project list. Lastly, the CIP plan is posted for public comment and goes through a formal adoption process by City Council.

The City uses a set of loosely defined, high-level criteria to review and prioritize projects for the CIP. Identified projects must support or further guiding principles for the CIP including address one of three City Council priority areas; support neighborhoods, street network, and/or housing opportunities; preserve and enhance the tax base; and retain the City's credit rating. Projects are also organized based on how they fit within fund strategies (bond program or PAYGO). General CIP "projects" fit within two groups; large/high-cost major investments or investments that fit within a package/group of investments addressing a major initiative (e.g., ADA investments or Opportunity Corridors program).

Charlotte Future 2040 provides substantial direction for the future development of the CIP. As well, the plan lays out an updated and comprehensive set of goals the community wants to achieve over the plan horizon. The plan also introduces new frameworks for considering where and how investments should be made in the community to achieve desired land use patterns and to address systemic racial and demographic inequities through the plan's Big Ideas and Equitable Growth Framework.

The City's approach to the CIP should change to:

- Reflect the vision for the community identified within the 10 plan goals.
- Prioritize the implementation of the plan's Big Ideas.
- Use the Equitable Growth Framework to direct investment into areas that lack in access or are vulnerable to displacement.

Changes to the CIP to integrate the Comprehensive Plan should be made in two ways to achieve the plans goals and objectives. First, the approach to identifying projects can be modified to align with the plan's direction. Second, the approach to prioritizing projects and building the CIP can be modified to align with framework of the plan.

Project Identification

The following recommended changes should be considered to modify the City's process for CIP project identification:

- Create a process for cross-departmental efforts to identify and promote projects for the CIP.
- Use the Equitable Growth Framework to promote projects that address access to job opportunities, access to housing opportunities, access to essential amenities, goods and services, and environmental justice issues.
- Use the Implementation Committee to develop CIP programs/project lists to implement the plan's Big Ideas.
- Integrate the Comprehensive Plan Goals into the community engagement process to organize projects by goal and illustrate how potential projects align with the plan.
- Require promoted projects to include estimates for ongoing operational cost impacts and identification of a funding/management plan to address these impacts.

Project Prioritization

The following recommended changes should be considered to modify the City's project prioritization process for the CIP:

- Develop a more formal scoring process for evaluation of priority projects that aligns with the Comprehensive Plan.
- Align City Council Priority Areas with the plan's goals to develop evaluation criteria for the prioritization projects.
- Prioritize projects that address multiple plan goals.
- Prioritize projects that implement the plan's Big Ideas.

- Prioritize projects that serve and/or benefit the vulnerable areas identified in the Equitable Growth Framework in order to direct at least half of public infrastructure spending over next 20 years to the most vulnerable communities.
- Prioritize projects that are promoted by multiple departments or have financial support/partnerships with Mecklenburg County or other project partners.
- Prioritize projects that have a plan to address ongoing funding and maintenance of investments.

MEMORANDUM

To: City of Charlotte; Charlotte Water; Charlotte Mecklenburg Schools

From: Economic & Planning Systems, Inc.

Subject: Growth Areas Qualitative Analysis Questionnaire

Date: August 14, 2020

Economic & Planning Systems (EPS) is completing a fiscal impact analysis to support the Charlotte Future 2040 Comprehensive Plan effort. EPS has developed fiscal impact models for the City of Charlotte's General Fund and Mecklenburg County's General Fund. These models are being used to estimate the potential net fiscal impact on these funds of the preferred growth plan. To assist this effort, EPS is also reaching out to various departments in the city and county to discuss potential impacts of growth.

This memorandum is a questionnaire to facilitate the review of potential growth areas and issues related to your organization. For certain departments, EPS is documenting "qualitative" potential impacts on service provision and/or capital infrastructure needs. To complete this qualitative assessment, EPS has developed "Growth Maps" reflecting the potential locations where growth may occur based on the initial direction provided within the plan process. The input and feedback that you provide will be documented in EPS's final report and will help inform future city and county efforts. Specifically, the City of Charlotte will be developing a parcel based Future Place Type Map after the adoption of the Comprehensive Plan. The feedback you provide will inform the Future Place Type mapping and will ensure potential issues will be addressed during that process and during any subsequent subarea planning efforts.

The Comprehensive Plan will not include an adopted Future Place Type Map. A Future Place Type Map will be developed by the City following the guidance and direction provided in the Comprehensive Plan and through additional outreach/interaction with the community. The Comprehensive Plan process, however, has provided direction on the desired growth pattern the community would like to see. This direction has been reflected in land use (Place Type) designations provided within the Centralina Regional Council's regional growth modeling effort.

The Economics of Land Use

Economic & Planning Systems, Inc.
730 17th Street, Suite 630
Denver, CO 80202-3511
303 623 3557 tel
303 623 9049 fax

Denver
Los Angeles
Oakland
Sacramento

www.epsys.com

The Place Type designations for City of Charlotte were applied to 10-acre grid geographies, as parcel specific designations have not been made. This 10-acre grid approach allowed for the overall growth pattern direction desired by the community to be reflected, temporarily, until a Future Place Type map has been adopted by the City.

EPS is using this preferred growth direction to estimate fiscal impacts on the community utilizing outputs (new jobs and housing units by type) from the Community Viz model. This preferred growth direction is being compared to a "Business as Usual" recent growth trends scenario that was developed by City Explained during the Comprehensive Plan process. The goal is to understand how the desired future growth pattern differs from the Business as Usual scenario.

Five maps have been provided in conjunction with this memorandum to help illustrate the amount and type of growth that is likely to occur in the city based on the preferred growth scenario. The five maps are described below:

1. Future Place Type Map by 10-acre Grid: This map illustrates the Future Place Type designations by each 10-acre grid that was used to model the preferred growth scenario for the Centralina regional modeling effort.
2. Place Type Change Map: This map illustrates where changes in future place types are being considered based within the preferred growth scenario. This map helps direct attention for major changes in use and/or density/intensity.
3. Forecast New Housing Units by 10-acre Grid: The forecast number of new housing units within each 10-acre grid from 2020 to 2040 is illustrated within this map. This map helps illustrate where housing development is estimated to occur over the next 20 years.
4. Forecast New Jobs by 10-acre Grid: The forecast number of new jobs within each 10-acre grid from 2020 to 2040 is illustrated within this map. This map along with the Future Place Type Map helps illustrate where new jobs are estimated to locate over the next 20 years.
5. Forecast New Jobs and Housing Units by 10-acre Grid: The forecast number of new jobs plus new housing units within each 10-acre grid from 2020 to 2040 is illustrated within this map. This map helps illustrate the total amount/density of new development estimated throughout the City.

Growth Maps Questionnaire

The following questions are meant to solicit information that will help inform the fiscal impact analysis and the City of Charlotte's subsequent efforts to create a Future Place Type Map. They are also meant to serve as a reminder of potential conflicts related to new development that need to be analyzed and/or addressed within future subarea planning efforts.

1. ***Are there any areas identified for changes in the future place type that may result in significant reduction in service levels, inability to provide service, or major capital improvements that would be required to facilitate the type of new development envisioned in this area?***

   Please identify areas on the map where place type changes may have major impacts or where the future place type deviates from your current expectation for future development in that area. Provide narrative of the anticipated impacts and issues that should be considered within future planning efforts.

2. ***Are there any areas where the amount of new housing development (i.e. forecast new housing units) may result in significant reduction in service levels, inability to provide service, or major capital improvements that would be required to facilitate the amount of new housing in this area?***

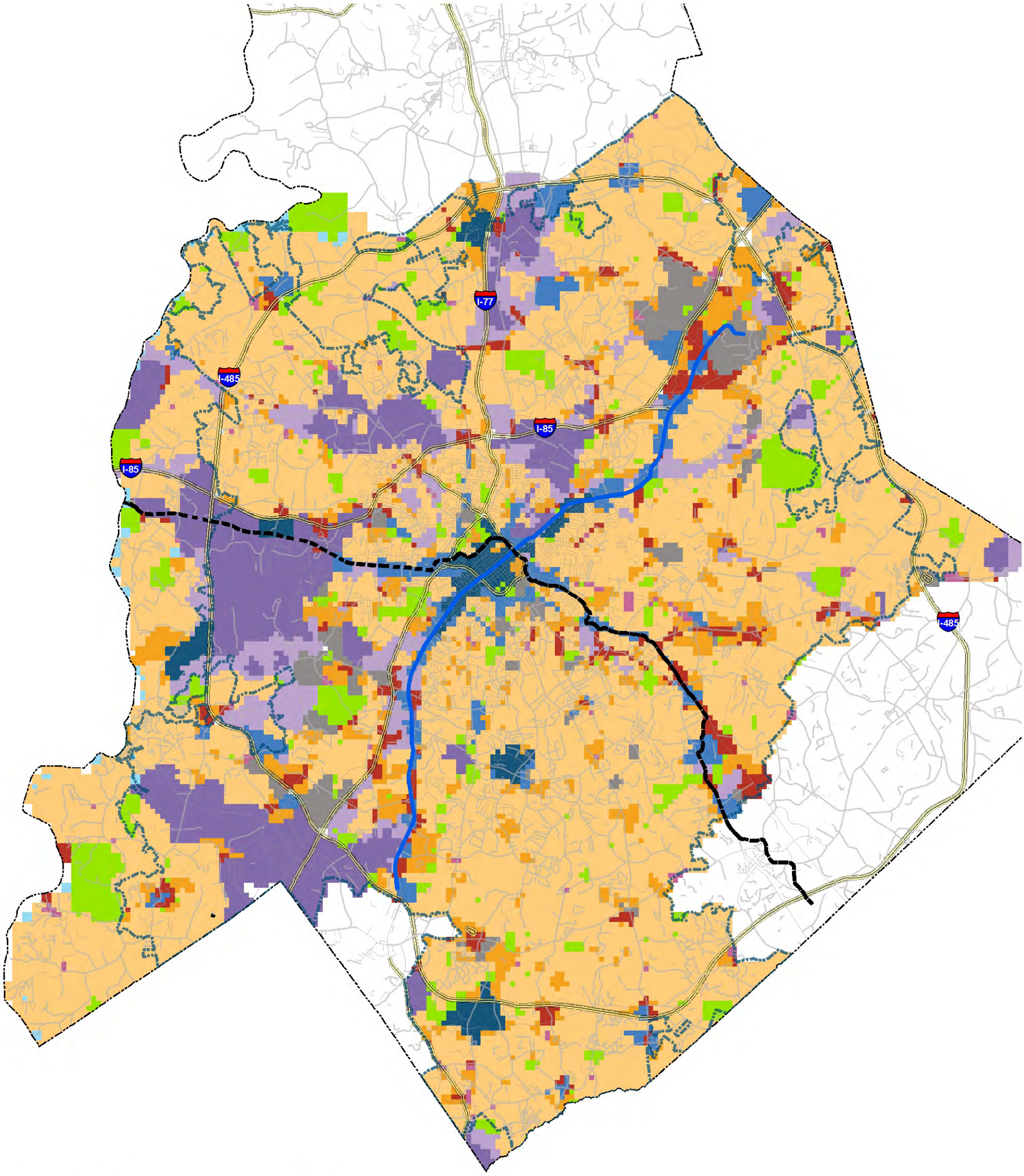
   Please identify areas on the map where the amount of new housing development may have major impacts or where the amount of growth forecast deviates from your current expectation for future housing development in that area. Provide narrative of the anticipated impacts and issues that should be considered within future planning efforts.

3. ***Are there any areas where the amount of new employment growth (i.e. forecast new jobs) may result in significant reduction in service levels, inability to provide service, or major capital improvements that would be required to facilitate the amount of new employment in this area?***

   Please identify areas on the map where the amount of new non-residential development may have major impacts or where the amount of growth forecast deviates from your current expectation for future non-residential development in that area. Provide narrative of the anticipated impacts and issues that should be considered within future planning efforts.

4. ***Are there any areas where your organization assumed, expected, or have planned for significant new development activity to occur but are not shown within the growth maps as forecast to capture new development?***

   Please identify areas on the map where growth is not forecast to occur but your organization has made efforts, plans, or have expectations for future development in that area that needs to be served.

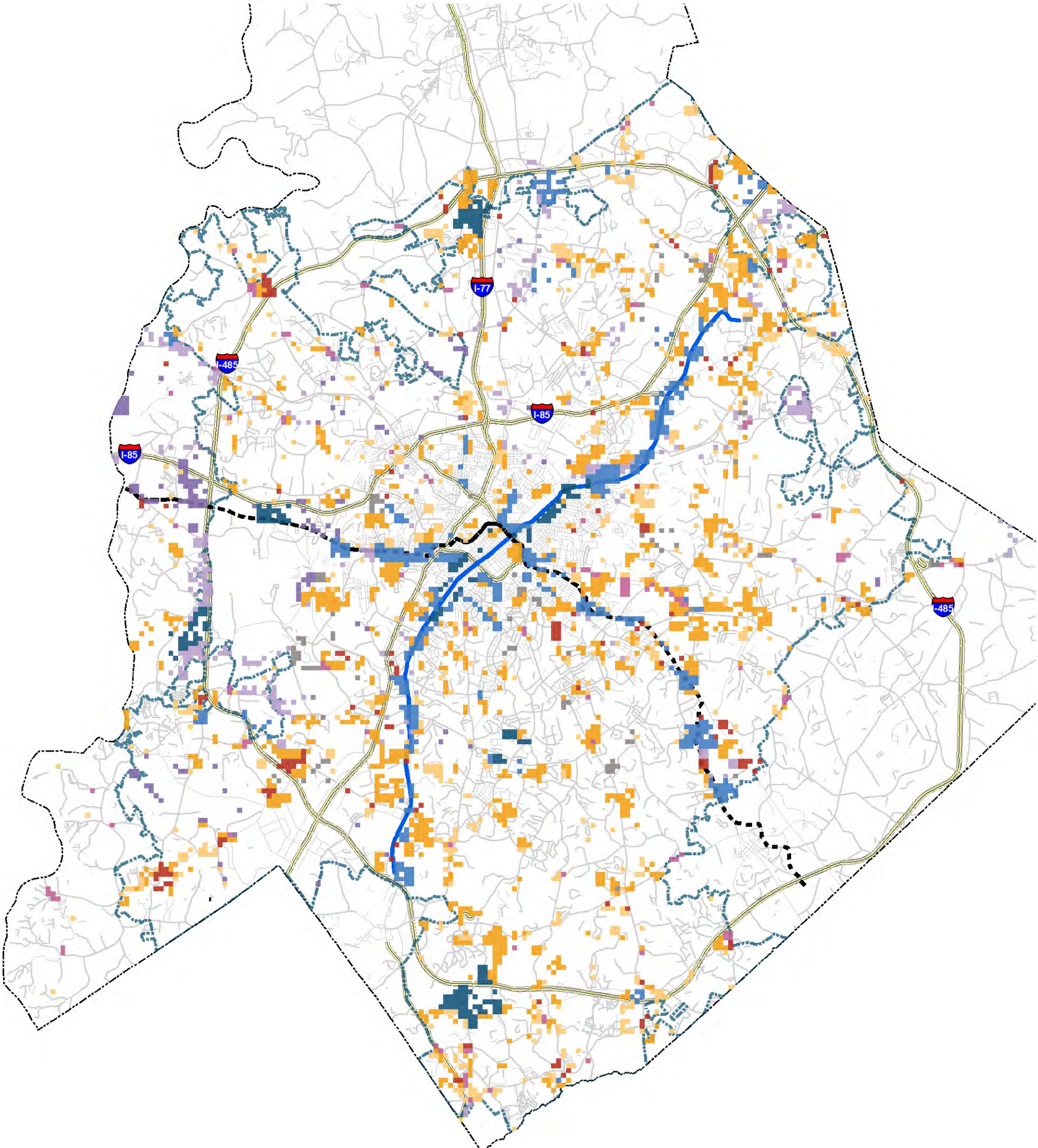


Future Place Types

- Regional Activity Center
- Community Activity Center
- Campus
- Commercial
- General Industrial
- Light Industrial Mixed-Use
- Neighborhood Center
- Neighborhood 2
- Neighborhood 1
- Parks and Preserves
- Water

- City of Charlotte
- Mecklenburg County
- LYNX Potential Silver Line Route
- LYNX Blue Line

5 Miles

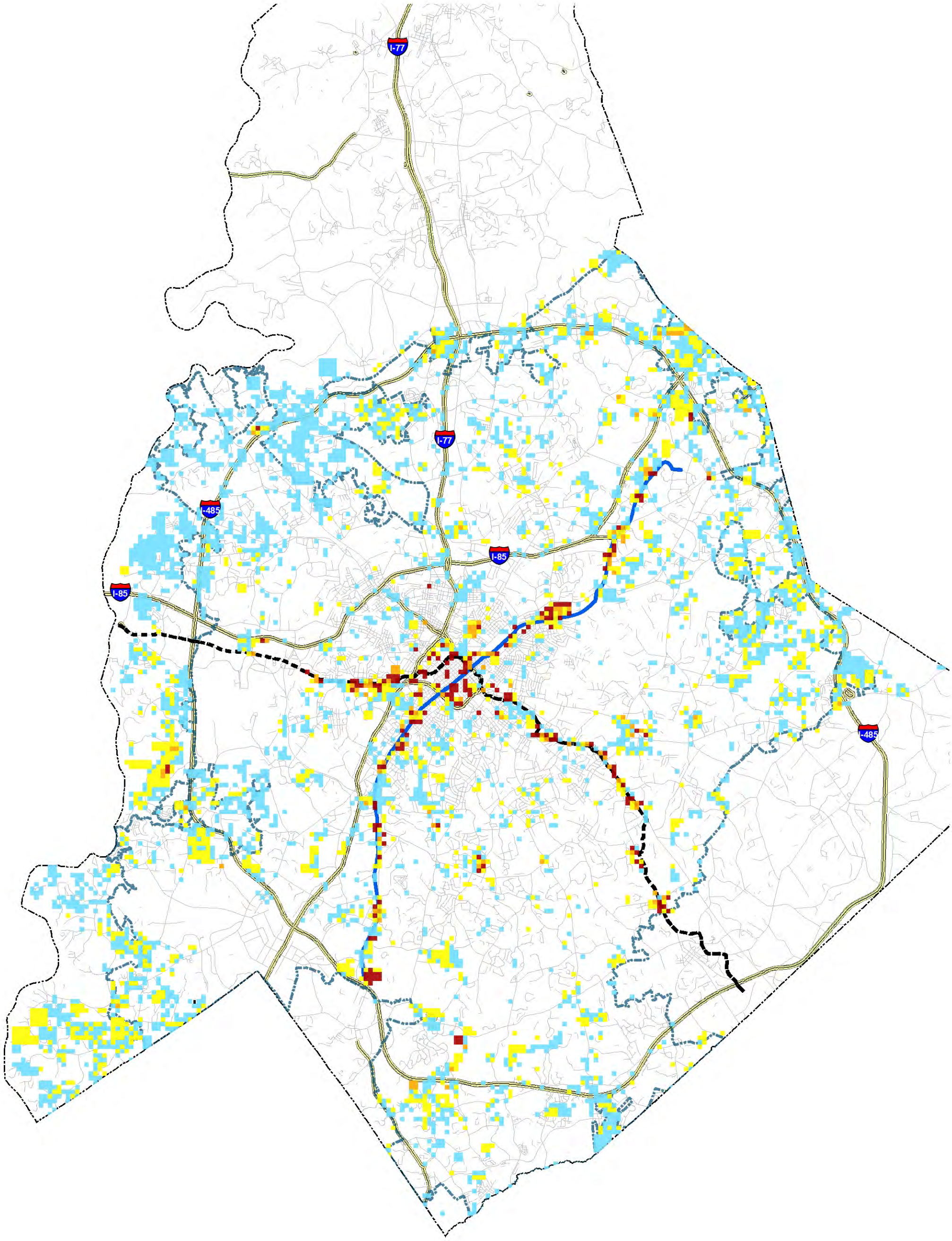


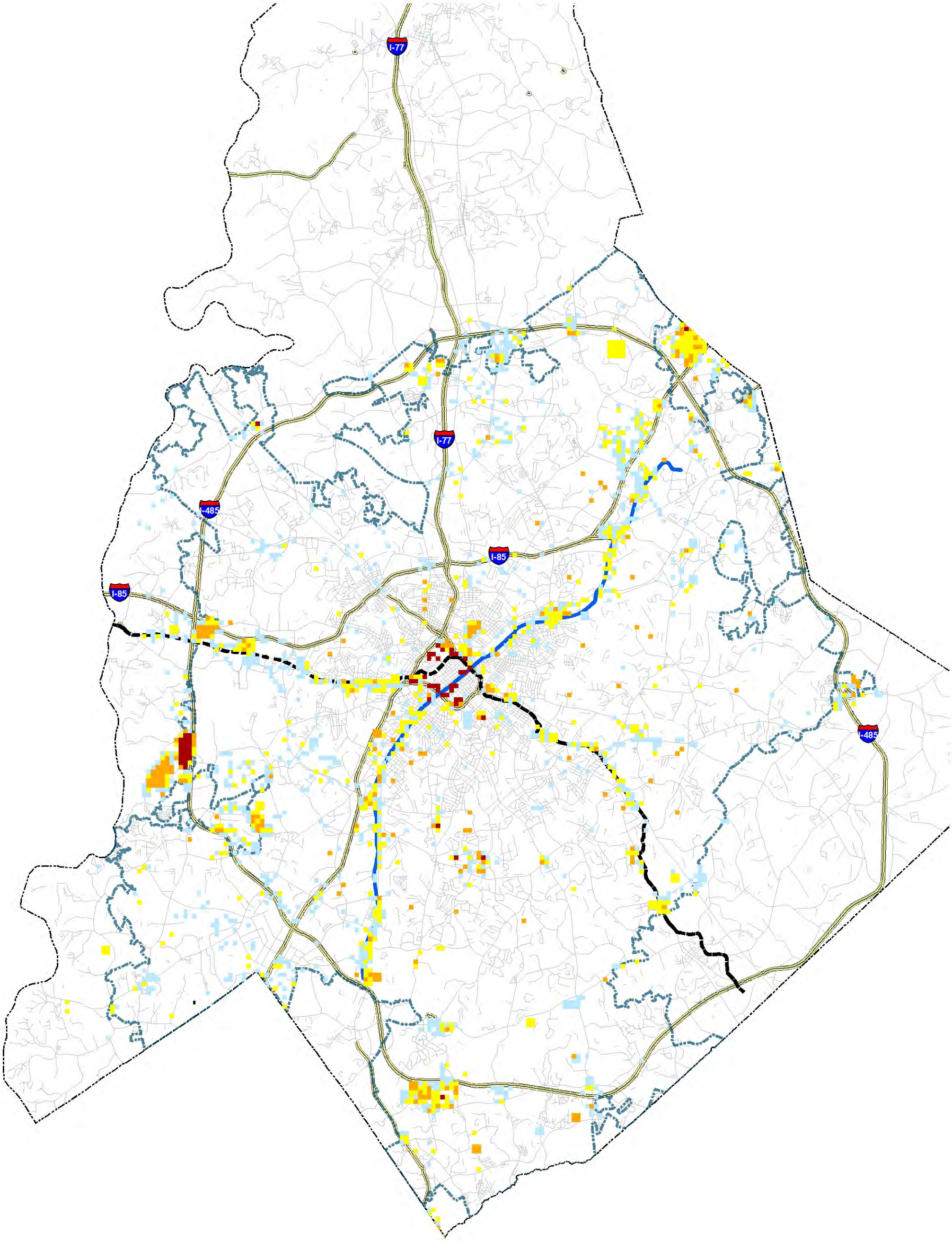
Future Place Types

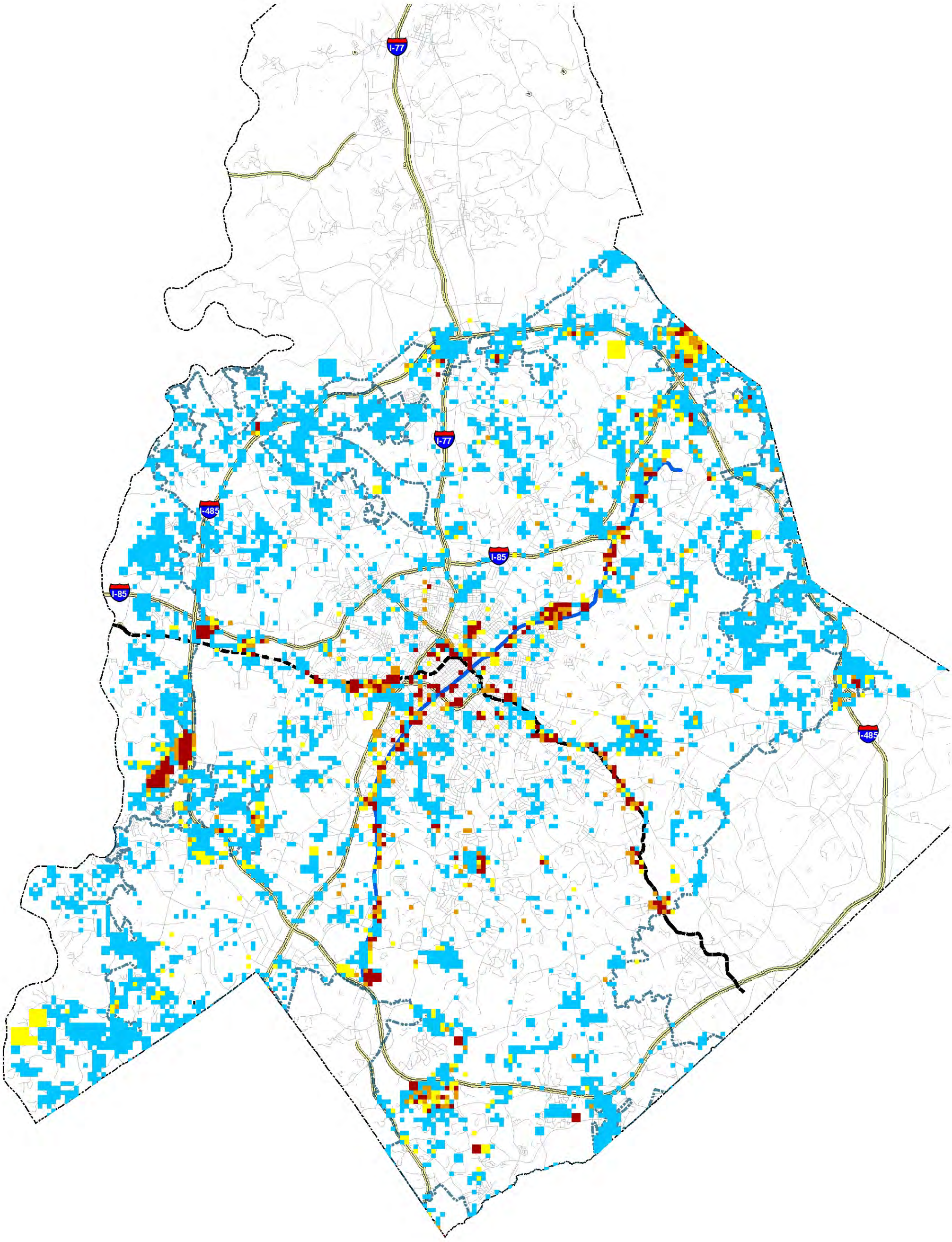
- Regional Activity Center
- Community Activity Center
- Campus
- Commercial
- General Industrial
- Light Industrial Mixed-Use
- Neighborhood Center
- Neighborhood 2
- Neighborhood 1
- Parks and Preserves
- Water

- City of Charlotte
- Mecklenburg County
- LYNX Potential Silver Line Route
- LYNX Blue Line

5.5 Miles


I-77
I-485
I-85
I-85
I-77
I-485
LYNX Potential Silver Line Route
LYNX Blue Line
City of Charlotte
Mecklenburg County
Total New Housing Units
No new units
1 to 25
26 to 100
101 to 200
Greater than 200
5
Miles


I-77
I-77
I-485
I-85
I-85
I-485
LYNX Potential Silver Line Route
LYNX Blue Line
City of Charlotte
Mecklenburg County
Total New Jobs
No New Jobs
1 to 25
26 to 100
101 to 500
Greater than 500
5
Miles


I-77
I-485
I-85
I-77
I-85
I-485
LYNX Potential Silver Line Route
LYNX Blue Line
City of Charlotte
Mecklenburg County
Total New Jobs Plus Housing Units
No New Jobs or Housing Units
1 to 50
51 to 100
101 to 200
Greater than 200
5
Miles

Final Report

Mecklenburg County Fiscal Impact Analysis Methodology and Findings

The Economics of Land Use

Prepared for:
City of Charlotte
Mecklenburg County

Prepared by:
Economic & Planning Systems, Inc.

EPS #193159

January 21, 2021

Economic & Planning Systems, Inc.
730 17th Street, Suite 630
Denver, CO 80202-3511
303 623 3557 tel
303 623 9049 fax

Denver
Los Angeles
Oakland
Sacramento

www.epsys.com

Table of Contents

List of Tables

List of Figures

1. Introduction and Summary of Findings

The City of Charlotte and Mecklenburg County were interested in understanding the fiscal impact of future land use and development patterns as a component of the Charlotte Future 2040 Comprehensive Plan (Plan). This report provides a summary of the fiscal impact analysis of the desired land use pattern supported by the Comprehensive Plan. Growth forecasts for residential and commercial development in the City of Charlotte over the next 20 years were used to assess the differing impacts of various land uses and place type designations (as outlined in the Plan) have on the City and County. The analysis provides an additional layer of understanding and analyses as to what benefits various development patterns bring and what the cost to serve different patterns of growth might be.

This report presents the findings of Economic & Planning Systems' (EPS) fiscal impact analysis of the desired Future Growth Strategy on Mecklenburg County. In this report we:

- Summarize our understanding of how new development affects County ongoing costs and revenues;
- Describe the approach for estimating and modeling the fiscal impacts of land use changes;
- Outline the results of the Fiscal Impact Model and the impact of different land use and development patterns on the net fiscal impact.

EPS reviewed the major governmental funds in the County's budget and assessed how they are affected by new development, land use changes, or patterns of growth. The major revenues and expenditures that are affected by new development for each fund were identified, and the impact of growth on these revenues and expenditures was modeled. Using the growth forecasts of the comprehensive planning effort, the net fiscal impact of two scenarios—the balance of revenues versus expenditures resulting from the growth—were compared to gauge the impact of land use and development patterns on the County's fiscal condition. The two scenarios are: 1) the Business as Usual scenario, which is a continuation of current development patterns and existing land use designations, and 2) the Future Place Types scenario, which is based on the Growth Strategy laid out in the Plan and the likely place type designations needed to support the Growth Strategy.

The outcome of this analysis is an understanding of the impacts and benefits of various growth patterns. This work will provide guidance for land use policy in the Charlotte Future 2040 Comprehensive Plan and Place Types mapping in the future.

Summary of Findings

1. ***The Comprehensive Plan's Future Place Types growth strategy generates slightly less net positive fiscal impact for ongoing operations for the County.***

   The evaluation of the fiscal impact of growth patterns (using the regional forecast for new households and jobs in the City of Charlotte's Sphere of Influence between 2020 and 2040) revealed that both the "Business as Usual" and "Future Place Types" scenarios generate an ongoing annual net fiscal positive impact on the County. The desired "Future Place Types" pattern, however, generates 12 percent less than the Business as Usual pattern on the County's General Fund. The lower net fiscal impact is due to the lower amount of revenues generated in the scenario; this is a result of the more compact growth pattern that results in more attached and multifamily housing units, which have lower average value than a single family detached home. The lower amount of revenue is offset somewhat by a lower cost to serve the forecast growth.

2. ***Charlotte Mecklenburg Schools (CMS) and the Park and Recreation Department are the major County expenditures that are most impacted by land use patterns.***

   Funding for schools in North Carolina is complicated, with funds from federal, state, and local (county General Fund) revenue sources. Historically, there has been an inability for school districts to obtain funding outside of these traditional sources. CMS has no dedicated funding source and does not have taxing authority. Development throughout the City of Charlotte impacts the education services and facility needs of CMS, but the impacts vary geographically depending on existing facilities, capacity levels, and other factors. Ongoing coordination between the City of Charlotte and CMS is needed to work with CMS to proactively identify service and facility impacts of major development projects and of land use decisions made during the development of the Future Place Types Map and community planning efforts.

   Capital improvements needed to keep pace with a growing city/county are a major challenge for CMS. Traditionally, CMS has been able to rely on private sector support through land dedications and other contributions as new neighborhoods need school facilities to attract buyers/renters. As the City reaches buildout and new housing is being built in smaller and more infill oriented developments, CMS is challenged with obtaining locations and funding to build (or enhance) schools to support new students. Furthermore, the school facility models needed to support the community are more diverse and different in scale than the traditional models (e.g., large schools serving several neighborhoods). A mechanism for obtaining land and/or funding to offset the impacts of new development is needed to support CMS. Tools such as land dedication requirements and/or impact fees should be explored.

Traditional parks, trails, and open spaces in Charlotte are built, operated, and managed by the Mecklenburg County Park and Recreation Department. The Park and Recreation Department has its own Master Plan (Meck Playbook) that guides the policies, programs, and investments for the department to serve the community. However, as the City attracts more mixed-use and denser development, there is a growing need and demand for more public open spaces (e.g., pocket parks, urban plazas, off-street bike/pedestrian ways, and trail connections) that are not within Park and Recreation's purview and outside of its financial ability to support. As well, the City and County lack tools or a cohesive strategy for the capital funding and long-term management of these public spaces. These types of places in some cases can be provided and managed by the private sector (e.g., plaza next to an office building or a pocket park maintained by an HOA), however with more piecemeal and infill development occurring, the ability to ensure the private or the public sectors' ability to provide amenities is becoming more challenging. A collective approach to the funding, construction, and long-term maintenance (and activation where necessary) of these open spaces is needed to guide the private sector and ensure the public sector has the resources necessary to provide these non-traditional public open spaces.

THIS PAGE INTENTIONALLY LEFT BLANK

2. Fiscal Modeling Approach

Fiscal Impact Analysis Overview

The purpose of a fiscal impact analysis is to estimate the cost and revenue impacts from new development on annual operating budgets and departments in a variety of contexts. The analysis compares the estimated revenues generated by new development to the estimated costs of public services required to serve that development to determine the net fiscal impact (revenues minus expenditures).

Revenues and costs are estimated based on the budgets for each fund and department, and an assessment of potential effects of different types of development on each department or budget category. The revenue sources and expenditures that have the largest impact on the budget and are most directly tied to growth have a specific "case study" developed for them; these case study approaches use specific calculations to determine impact. For example, property tax is based on estimated assessed values multiplied by the applicable tax rates. Other items, such as administrative costs related to residential development, are based on average cost factors (e.g., "per capita" estimates).

The fiscal impact analysis is based on three main factors:

- **Amount and Type of Growth**: The amount of residential type (single family detached, single family attached, and multifamily) and employment type (retail, office, and industrial) based on forecasts of new jobs and households.
- **Location of Growth**: For this analysis, location was summarized by place type as well as by greenfield/infill. The difference in development patterns between place types, as well as the different impacts of greenfield and infill development, both have fiscal implications.
- **Revenue and Cost**: Based on current revenue and expenditure patterns, revenues and expenditures that will be generated as a result of new development are estimated.

EPS utilized the outputs from the Community Viz model (specifically new non-residential development/jobs by type and new housing units by type) to estimate increased service needs (and resulting expenditures) and revenues generated as a result of growth. This was done based on two growth scenarios, which specified the level and type of growth by location:

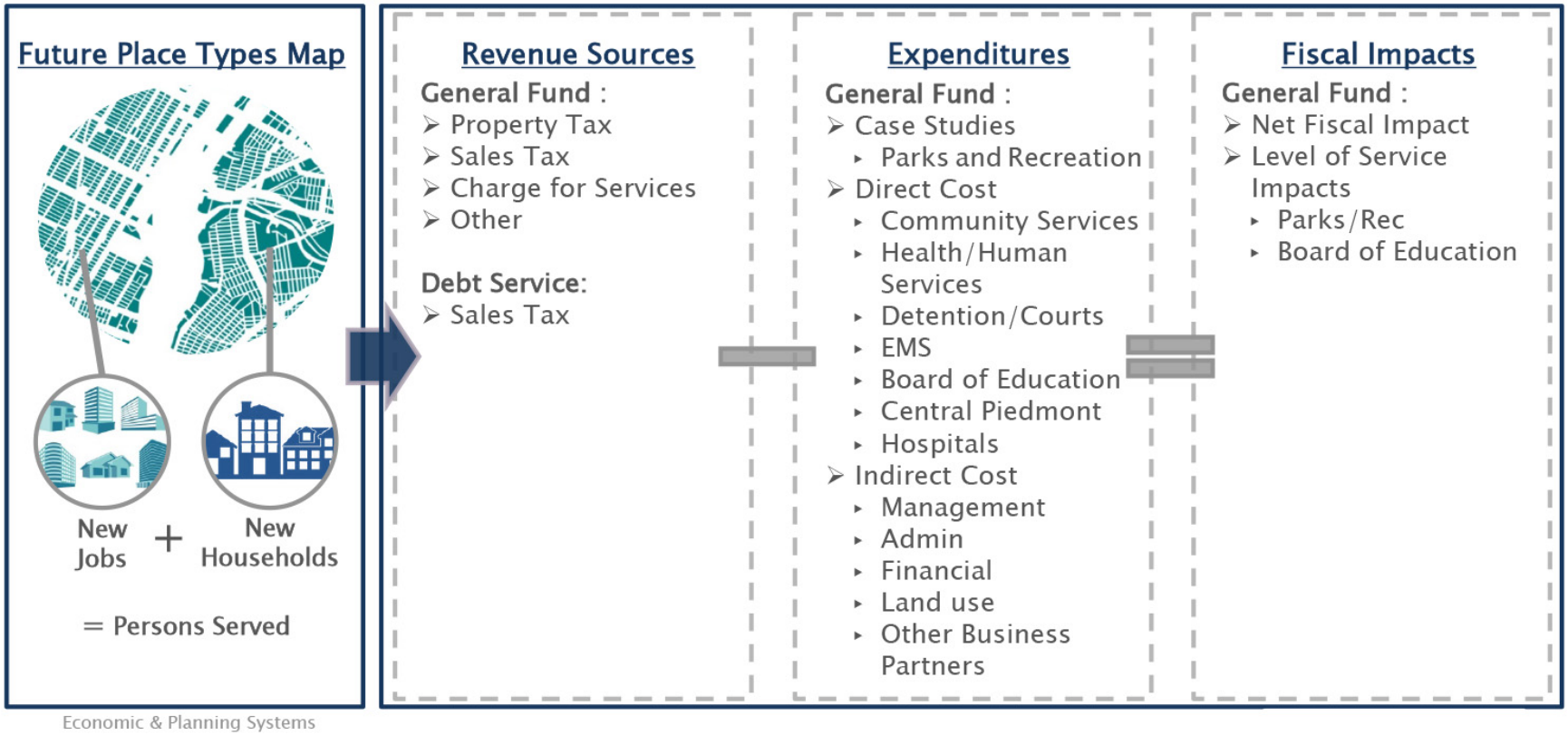
- **Business as Usual**: This scenario reflects the Development Trends option from the Charlotte 2040 growth choices effort during the Comprehensive Plan process. This scenario utilizes growth patterns from the past 20 years with the City's current land use/place type designations.
- **Desired Future Place Types**: This scenario reflects the City's direction for the Regional Metrolina transportation demand model that is based on the desired Growth Strategy put forth in the Comprehensive Plan.

Our approach to identifying the fiscal impacts of the amount of growth forecast varied depending on the governmental fund being analyzed. Through evaluation of the City of Charlotte and Mecklenburg County's budgets, EPS developed the following approach to modeling fiscal impacts.

The Mecklenburg County budget has several governmental and non-governmental funds. EPS identified the funds that are most directly impacted by new development, where a tangible connection could be made between land use decisions and the revenues and costs within each fund. Our methodology for evaluating the fiscal impact of growth on Mecklenburg County is summarized in **Figure 1**.

EPS developed a Fiscal Impact Model (County FIM) for Mecklenburg County's General Fund, which is used to make a net fiscal impact calculation (revenues minus expenditures) for the two growth scenarios.

Figure 1. Mecklenburg County Fiscal Impact Analysis Methodology



Growth and Development Inputs

In order to estimate the revenues and expenditures associated with future development, EPS utilized demographic and economic inputs for residential and commercial development product types. These inputs came from the Community Viz growth model, as well as market research and City and County data. Future residential development includes three product types (single family detached, single family attached, and multifamily), along with corresponding household size and average market value. Commercial development was considered in three categories – retail, office, and industrial, with corresponding assumptions regarding average market value and employees per square foot.

The magnitude of growth was delineated by time period (2020 to 2030, and 2030 to 2040) where relevant, and by place type (as outlined in the Charlotte 2040 Comprehensive Plan). The place types are considered in three general categories:

- **Live:** Neighborhood 1, Neighborhood 2
- **Work:** Campus, Commercial, General Industrial, Light Industrial Mixed Use
- **Play:** Regional Activity Center, Community Activity Center, Neighborhood Center

As an additional layer of analysis, growth type was categorized into "Greenfield" (taking place in a previously undeveloped area) and "Infill" (taking place within an area already developed). This designation, based on the development status of areas within the Community Viz model, allows for a more nuanced estimation of expenditures required to serve new development.

Data was analyzed at the 10-acre grid cell level (from the Community Viz model); for many data points there is the ability to evaluate the parcel level if and where necessary in the future.

Average Cost Nexus Factors

EPS developed nexus factors that relate the budget item being estimated to the service population or other metric that is best associated with the impact. These factors are outlined below.

- **Per Person (Residents)** – This factor applies to total residents or population of the county or a given area (e.g., Place Types).
- **Persons Served (Residents and Employees)** – Many services are affected by growth of residents and employees. The purpose of this factor is to derive a population of persons served within Mecklenburg County. The number of people each use generates is estimated using average person generation factor by use (e.g., average residents per household for single family and multifamily, and the average number of employees per square foot for retail, office, and industrial). Using the persons served approach means each new use will generate a number of people (i.e., one new single family housing unit will generate 2.5 people) that will be used to estimate costs and revenues based on the average cost per person. This factor is used in cases where the maximum amount of people in one place needs to be accounted for. In this case, the possible residents (based on persons per household) and employees (based on employees per square feet) are added together and not reduced to account for residents employed in the county.
- **Peak Persons Served (Residents and Non-Resident Employees)** – The peak persons served factor differs from persons served in that it accounts for residents that are also employed in the county to not double count. The calculation of peak persons served equals residents plus non-resident employees (i.e., people employed in Mecklenburg County but living outside the county).
- **Per Unit Measure of Infrastructure** – Impacts to infrastructure networks and systems are sometimes estimated on the basis of a unit measure of that type of infrastructure (e.g., "per centerline mile" or "per park acre") for portions of those fund's expenditures related to maintenance and capital improvements. A new development's impact will be judged based on the amount of new infrastructure needed to serve the development and the average cost per unit of measure.

Fixed and Variable Cost Adjustments

Directly applying the factors described above to new growth would be equivalent to using the average cost for each item, which can overstate cost impacts. For local governments whose services are at or near capacity, the average cost method is a generally accepted technique for estimating fiscal impacts. However, many functions still need to be adjusted to account for higher levels of fixed cost and/or a less direct relation to growth. The following process and assumptions were used in developing the "Percent Variable" adjustments to average costs.

- **Direct Service Categories** – These include departments that provide a service that is directly impacted by the rate and amount of new development in the county, such as development services (code administration, etc.). These types of services are estimated to be closely related to growth and increased population and are modeled using the average cost methodology (where costs are 100 percent variable). For the most impactful and directly related expenditure categories, specific case studies are developed that utilize alternative nexus factors and/or variable cost assumptions. These case study approaches are outlined below.
- **Indirect Cost Categories** – Some expenditure categories/departments, such as Administrative Services, have a high level of fixed costs regardless of the size of the county. Costs in these types of departments and functions are estimated to be 25 percent variable.
- **Functions with No Nexus or Relevance** – Some County functions were determined not to have any relationship to real estate development projects and have a 0 percent variability factor, which means they are not estimated or included in the model.

Static Model Approach

For this analysis, EPS utilized a static approach to modeling future revenues and costs. This means that we did not use growth or escalation rates for revenues or costs, and estimated impacts in constant dollars. The static model approach is preferred for a number of reasons. First, identifying reliable and accurate growth or escalation numbers for major revenue sources and expenditure items is difficult and may not accurately project likely future conditions. Second, variations in growth or escalations — even minor ones — can cause major differences in costs and revenues that may misrepresent fiscal impacts. Third, cities and counties plan for the long term. For these reasons, fiscal impacts are best modeled, in our opinion, in the static end state.

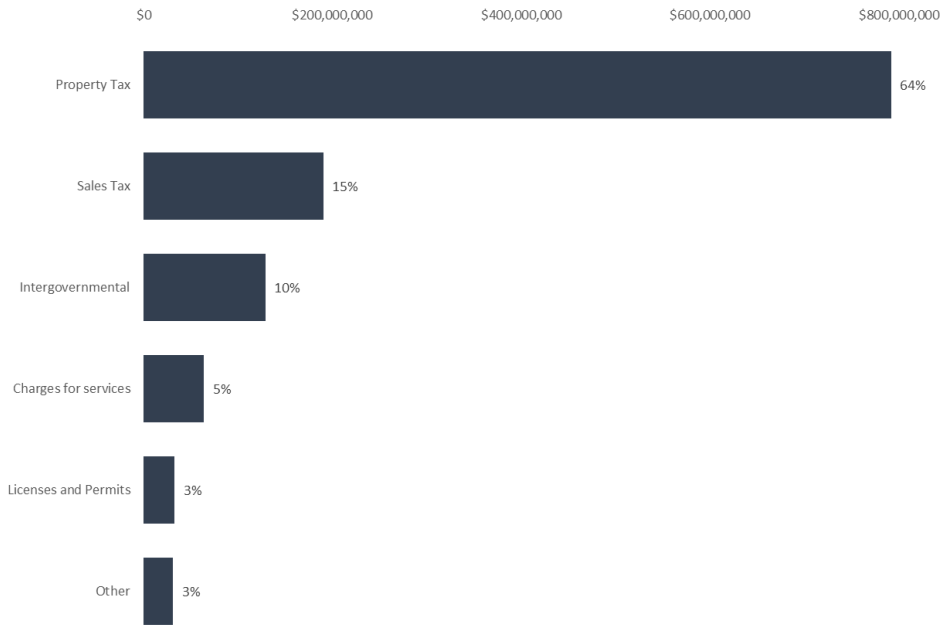
3. General Fund Impacts

This chapter details the approach and results of modeling the fiscal impact of residential and commercial growth on the General Fund for Mecklenburg County. It provides an overview of the components of the General Fund that are impacted by new development, outlines the approach to modeling the impact of growth, and reports on findings of the fiscal impact analysis.

Revenues

This section summarizes the major revenue sources for the General Fund and outlines the approach to modeling the fiscal impact of growth on each revenue source. There are five major categories of revenues within the General Fund, as shown in **Figure 2**. Property tax is the largest revenue category, accounting for 64 percent of General Fund revenue in 2018 ($791.6 million). Because property tax is the largest revenue category and is directly connected to growth in the city, this revenue stream was modeled using the case study approach. Sales tax is the second largest revenue category, at $190.3 million or 15 percent of General Fund revenue. The remaining revenue categories were modeled using average revenue factors. While sales tax is a major revenue category, this analysis is focused on growth within the City of Charlotte; because the County does not generate sales tax revenue from sales occurring within the city, the impact of city growth on County revenues is not estimated within this model.

Figure 2. General Fund Revenues, 2018



Property Tax

The primary source of revenue for the General Fund is property tax, comprising 64 percent of 2018 revenues. Property tax is sensitive to growth, as new development will lead to a larger property tax base.

Mecklenburg County conducts a real property revaluation every eight years; the most recent revaluation was in 2019 and calculated significantly higher assessed values for real property. State law stipulates that the County consider and report a revenue-neutral tax rate in revaluation years. To generate the same revenue while accounting for this growth, Mecklenburg County lowered its property tax rate from $0.8232 per $100 of assessed value to $0.6169.

Model Methodology

Property tax revenue generated from new development is affected by the State of North Carolina's property revaluation approach and Revenue Neutral statutes. As discussed previously, EPS's approach is to not use growth rates or escalation factors within the fiscal model. Under this approach, EPS utilized the $0.6169 tax rate set for 2020 for all years in the model.

Property tax was estimated utilizing estimates of the average value of new development by each major land use category (single family detached, single family attached, multifamily, office, retail, and industrial). These values are estimated based on average values for new development in the City of Charlotte (where the forecast growth will occur), as summarized in **Table 1**. The County FIM applies the property tax rate for the County's General Fund to the property value to estimate the property tax revenue per unit. Based on the growth forecast utilized in the model, the per unit revenue is applied to the number of units, by type, to calculate the total property tax revenue generated from new development.

Table 1. Market Value Model Inputs

Development Type	Average Market Value of New Development
Residential	
Single Family Detached	$350,000 per unit
Single Family Attached	$250,000 per unit
Multifamily	$167,000 per unit
Commercial	
Retail	$216 per square foot
Office	$259 per square foot
Industrial	$80 per square foot

Source: CoStar; Zillow ; Economic & Planning Systems

Impact of Growth

The per unit property tax revenues generated are summarized in **Table 2**. As shown, residential single family detached housing generates the highest per unit revenue, generating more than twice as much per unit as multifamily housing, and 40 percent more than single family attached units. For commercial development, office space generates the greatest amount of property tax on a square footage basis, at $1.60 per square foot, while industrial uses generate only $0.49. However, industrial uses will tend to be larger, and thus may generate a similar amount of tax revenue on a per property basis.

Based on these tax generation factors, a growth scenario with more single family detached housing will generate more property tax revenue, as this housing type has the highest property value and thus generates the highest level of property taxes. However, as the rest of the model will show, it is important to also consider the costs to serve various types of growth in order to get a comprehensive picture of the net fiscal impact of new development on the County.

Table 2. Property Tax Revenue per Unit

Description	Market Value	Mill Levy	Revenue Per Unit
RESIDENTIAL			
Single Family Detached	$350,000	$0.6169	$2,159
Single Family Attached	$250,000	$0.6169	$1,542
Multifamily	$167,000	$0.6169	$1,030
COMMERCIAL			
Retail	$216 /sq.ft.	$0.6169	$1.33
Office	$259 /sq.ft.	$0.6169	$1.60
Industrial	$80 /sq.ft.	$0.6169	$0.49

Source: Zillow ; CoStar; Economic & Planning Systems

Sales Tax

Mecklenburg County assesses the 2.0 percent local sales tax rate on qualifying taxable sales per state statute. Sales tax revenue to the County's General Fund comes from a 1 percent tax levy and portions of two additional 0.5 percent sales taxes levies, which are split between the General Fund, the Debt Service Fund, and Transit.

Model Methodology

Sales tax revenue is estimated to not have an impact that can be calculated based on growth in the City of Charlotte. Taxable sales made by new residents of the City of Charlotte will likely be made primarily within the city boundaries. The County does not generate sales tax revenue from sales that occur within the city, only sales made in the unincorporated portion of the county.

Other General Fund Revenue Sources

The majority of other revenue sources are estimated using average revenue factors based on the relevant nexus factor. Factors are calculated based on FY18 General Fund actuals and 2019 (or the most recent available) demographic data, and then applied to scenario growth to determine total revenue. Calculations are as follows:

Other Taxes

In addition to property and sales tax, the County levies room occupancy, vehicle rental, and other taxes. Revenues from these taxes comprised less than 1 percent of General Fund revenues in 2018. Growth in the City of Charlotte has a marginal impact on room occupancy and vehicle rental tax revenue and on other revenue. Revenue is modeled on a per person basis for "other taxes" and is modeled with 25 percent variability. Combining these sources, each new resident is expected to generate $0.40 in tax revenue for the County's General Fund.

Licenses and Permits

The County collects fees for licenses and permits, which account for 2.6 percent of General Fund revenues. These include inspection permits and marriage licenses. This revenue was modeled on a per person basis and assumed to be 25 variable with growth. Each new resident is expected to generate $7.45 in additional license and permit revenue to the General Fund.

Charges for Services

Charges for services account for 5.1 percent of General Fund revenues; the two largest sources of revenue are charges for land use and environmental services, and detention and court support services, each comprising 2 percent of General Fund revenue. Charges for services are modeled on a per person basis and assumed to be 25 percent variable with growth. Based on these factors, each new resident is expected to generate $14.48 in additional revenue for the County's General Fund.

Administrative Charges

Administrative charges account for 0.2 percent of total General Fund revenue. This revenue is not very sensitive to growth and is modeled using a per person nexus factor and 25 percent variability. Based on these factors, each new resident is expected to generate $0.57 in additional revenue to the County General Fund.

Revenues Not Modeled

Revenue sources without a nexus to growth were not modeled as part of this effort. These include intergovernmental revenue (from federal, state, and local sources), which comprises 10.4 percent of General Fund revenue but is primarily from federal sources, as well as interest earned on investments, rental revenue, and sale of properties.

COVID-19 Impacts

The COVID-19 Pandemic has had a dramatic impact on everyday life for Charlotte residents. The pandemic has shifted spending patterns and typical behaviors. The pandemic has also exposed unseen vulnerabilities in the economic health of the community and has also extenuated trends that were already present.

The service sectors in the economy have been the most impacted as a result of social distancing guidelines and lockdowns. Approximately 70 percent of US GDP is directly tied to consumer spending, of which 20 percent is discretionary spending. Local economies highly dependent on sales tax from visitors or neighboring communities have experienced the greatest impacts if visitation and travel patterns have reduced.

The impact of the pandemic has been unequal in terms of the businesses most impacted and the workers/residents that have been impacted. Some of the notable impacts are listed below:

- The contraction of brick-and-mortar retail and growth of e-commerce has accelerated. The ability of communities to recoup sales tax from internet sales has mitigate the fiscal impacts of this trend to some degree for communities with a large or affluent resident base.
- The shift of retail/consumer patterns has spurred significant changes in goods and service distribution patterns. This in turn has spurred rapid growth and demand for logistics centers in the US.
- The stress on vulnerable households has increased and the ability to obtain and maintain safe, secure, and affordable housing has becoming more challenging for lower income residents/workers. The pandemic related recession has been most impactful on workers in the retail and service sectors, especially workers with limited skills, those who work in jobs that have frequent face to face interaction with customers, and/or jobs that cannot be done virtually or under social distancing guidelines. Many of these types of jobs are among the lower paying jobs in the workforce, which heightens household financial stresses for these residents.
- The largest impacts have been on leisure and hospitality, retail trade, and selected services (Child Care, Personal Services, Certain Transportation Services). Areas, such as Uptown, are often highly dependent on visitors and business traffic, and workers in these areas dependent on the services that have been impacted.

In terms of fiscal impact, the governmental revenues raised by the City and County have been the most impacted (as opposed to expenditure costs). In general, Mecklenburg County's fiscal structure has made it relatively resilient to the impacts that this pandemic has caused on municipal budgets. As described above, the Mecklenburg County has three major revenues types for its General Fund, which are property tax, sales tax (sales tax, room occupancy tax and vehicle rental tax) and charges/fees for service. Property tax is the General Fund's largest revenue source.

- **Property Tax –** Property tax is the General Funds largest revenue source and changes to the value of property and/or rate of assessment are the most impactful. The pandemic has not had significant impact on property values, as home prices have increased in many communities that are growing. Certain asset types, such as office and hotels, have experienced impacts on achievable rental rates/room rates and on occupancy levels. These impacts are causing short term stress but are not likely to have a sizeable impact on valuation for these properties.
- **Fees for Service –** Fees for service are major revenues for enterprise type funds, but not the County's General Fund. Reductions in employment and loss of revenue for Charlotte residents can create issues for vulnerable residents being able to afford to pay their utility bills. Many of the federal funding programs provided within COVID related stimulus packages have been aimed at addressing housing instability. As well, many communities have put moratoriums on collections for delinquent bills.
- **Sales Tax –** Sales and occupancy tax collections have the most exposure to impacts from COVID and recessions. The initial stay at home orders throughout the US had major impacts on retail sales from April to June of 2020. However, taxable sales rebounded in Mecklenburg County in July and were near 2019 sales levels from August to September. Occupancy tax collections have likely been significantly impacted. Mecklenburg County assess a 6 percent occupancy tax that goes to the County's General Fund. The revenue source is important but drops in this revenue source will not create major fiscal strains on the County as compared to changes in property tax collections.

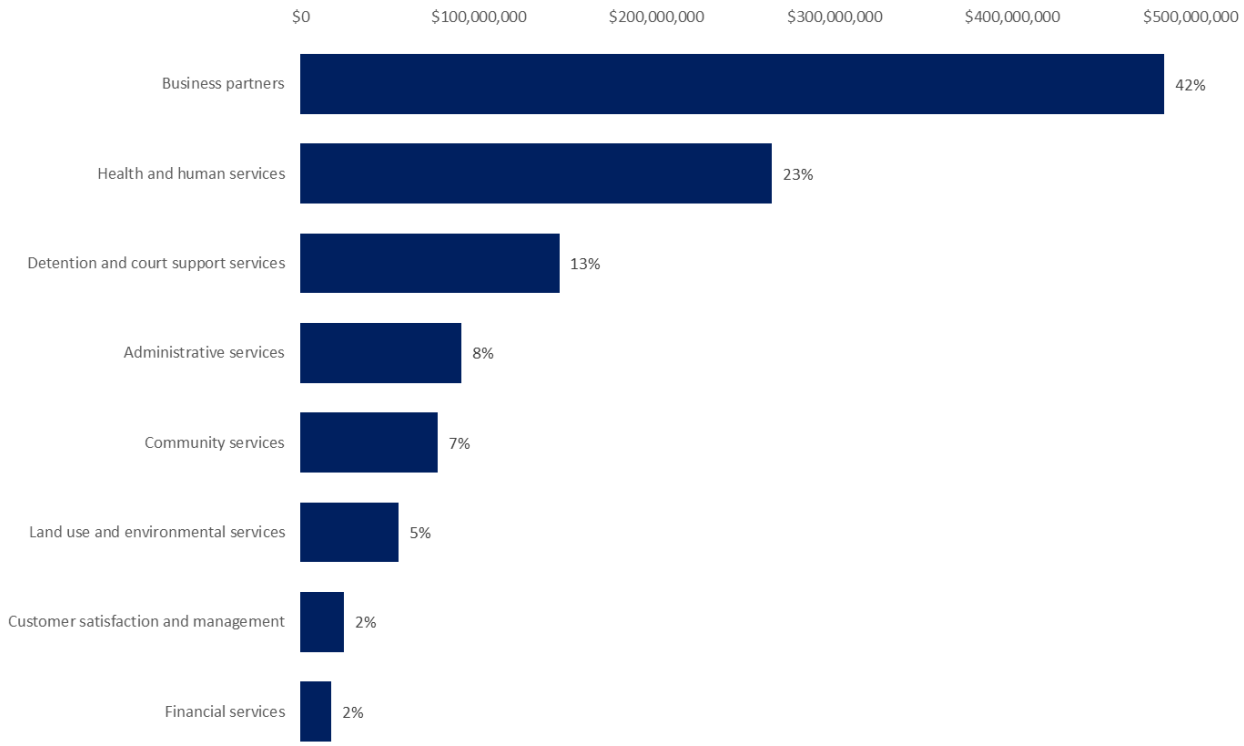
Expenditures

This section summarizes the major expenditure sources for Mecklenburg County's General Fund, outlines the approach to modeling the fiscal impact of growth on each expenditure source, and reports the results of the fiscal impact modeling.

There are eight categories of expenditures within the General Fund, as shown in **Figure 3**. Business Partners is the largest expenditure category, accounting for 42 percent of General Fund expenditures in 2018 ($485.3 million). The Board of Education accounts for 88 percent of Business Partners expenditures, or $428.7 million. Health and Human Services is the second largest expenditure category at $264.8 million or 23 percent of General Fund expenditures.

The impact of growth on most expenditure categories can be estimated using average cost factors based on a nexus to growth and variable cost adjustment. Park and Recreation expenditures, because of their direct relationship to growth and new development, are estimated using a case study approach. Board of Education (Charlotte Mecklenburg Schools) expenditures are not estimated as part of this model; the complexities of student generation and school funding are outside the scope of this study.

Figure 3. General Fund Expenditures, 2018



Park and Recreation

The Park and Recreation Department manages the County's parks, greenways, golf courses, recreation centers, swimming pools, special facilities, and nature preserves. The department manages 270 parks and greenways, totaling 20,932 acres (in 2018), along with five golf courses. In 2019, expenditures totaled $34.4 million, with 30 percent of expenditures ($10.2 million) for park operations and 20 percent ($7.0 million) for recreation programming, as shown in **Table 3**.

Table 3. Park and Recreation Expenditures, 2019

Description	2019 Actual	Percent Actual
Athletic Services (PRK)	$123,465	0%
Cooperative Extension Services (PRK)	$222,071	1%
Fiscal Administration (PRK)	$960,898	3%
IT Resource Management (PRK)	$207,362	1%
Nature Preserves & Natural Resources (PRK)	$3,692,972	11%
Park Facility Planning Service (PRK)	$714,714	2%
Park Operations (PRK)	$10,212,677	30%
Park Repair And Maintenance (PRK)	$6,456,915	19%
Pools (PRK)	$2,048,595	6%
Recreation Programming (PRK)	$7,028,173	20%
Senior Activities And Services (CSG)	$95,000	0%
Senior Management & Administration (PRK)	$1,039,113	3%
Therapeutic Recreation (PRK)	$885,627	3%
Volunteer Coordination (PRK)	$725,618	2%
Total	**$34,413,200**	**100%**

Source: Mecklenburg County; Economic & Planning Systems

Model Methodology

Park and Recreation costs associated with growth are estimated using two strategies based on the nexus to growth of various expenditures, as shown in **Table 4.** Park and Recreation Cost Allocation Method

Description	Nexus Factor	Variability	Factor
Athletic Services (PRK)	Per Person	25%	$0.03
Cooperative Extension Services (PRK)	Per Person	25%	$0.05
Fiscal Administration (PRK)	Per Person	25%	$0.22
IT Resource Management (PRK)	Per Person	25%	$0.05
Nature Preserves & Natural Resources (PRK)	Per Person	25%	$0.84
Park Facility Planning Service (PRK)	Per Person	100%	$0.65
Park Operations (PRK)	Case Study	100%	
Park Repair And Maintenance (PRK)	Case Study	100%	
Pools (PRK)	Per Person	100%	$1.87
Recreation Programming (PRK)	Per Person	100%	$6.42
Senior Activities And Services (CSG)	Per Person	25%	$0.02
Senior Management & Administration (PRK)	Per Person	25%	$0.24
Therapeutic Recreation (PRK)	Per Person	25%	$0.20
Volunteer Coordination (PRK)	Per Person	25%	$0.17
Total			

Source: Mecklenburg County; Economic & Planning Systems

EPS used the existing amount of park acreage and the existing household base in Mecklenburg County to develop a factor for acres of park land demand per 1,000 households. Mecklenburg County currently manages 20,932 acres of park land, which equates to 19.4 acres per 1,000 households in the county, as shown in **Table 5.** Based on the 2019 expenditures for park operations, repair and maintenance, the cost per acre to the County in 2019 was $796. The forecast growth in the City of Charlotte will add 161,721 new households to the County that will generate a demand for 3,137 acres of park land. The County will likely not increase its acreage by 3,137 acres as a result of new growth, but this estimated growth in acreage is used as a proxy to estimate increased costs for maintaining facilities needed to serve new development.

Table 5. Expenditures not directly related to the need for additional parks/ facilities were estimated using a per person factor and assumed to be 25 percent variable with growth. Expenditures directly related to growth – park operations and park repair and maintenance – are assumed to be 100 percent variable and are estimated using a case study analysis, detailed below.

Table 4. Park and Recreation Cost Allocation Method

Description	Nexus Factor	Variability	Factor
Athletic Services (PRK)	Per Person	25%	$0.03
Cooperative Extension Services (PRK)	Per Person	25%	$0.05
Fiscal Administration (PRK)	Per Person	25%	$0.22
IT Resource Management (PRK)	Per Person	25%	$0.05
Nature Preserves & Natural Resources (PRK)	Per Person	25%	$0.84
Park Facility Planning Service (PRK)	Per Person	100%	$0.65
Park Operations (PRK)	Case Study	100%	
Park Repair And Maintenance (PRK)	Case Study	100%	
Pools (PRK)	Per Person	100%	$1.87
Recreation Programming (PRK)	Per Person	100%	$6.42
Senior Activities And Services (CSG)	Per Person	25%	$0.02
Senior Management & Administration (PRK)	Per Person	25%	$0.24
Therapeutic Recreation (PRK)	Per Person	25%	$0.20
Volunteer Coordination (PRK)	Per Person	25%	$0.17
Total			

Source: Mecklenburg County; Economic & Planning Systems

EPS used the existing amount of park acreage and the existing household base in Mecklenburg County to develop a factor for acres of park land demand per 1,000 households. Mecklenburg County currently manages 20,932 acres of park land, which equates to 19.4 acres per 1,000 households in the county, as shown in **Table 5**. Based on the 2019 expenditures for park operations, repair and maintenance, the cost per acre to the County in 2019 was $796. The forecast growth in the City of Charlotte will add 161,721 new households to the County that will generate a demand for 3,137 acres of park land. The County will likely not increase its acreage by 3,137 acres as a result of new growth, but this estimated growth in acreage is used as a proxy to estimate increased costs for maintaining facilities needed to serve new development.

Table 5. Park Operations and Maintenance Cost Factors

Description	Nexus Factor *Type*	Nexus Factor *Detail*	2019 Actual	Cost Per Acre
Park Operations (PRK)	Park Acreage	20,932	$10,212,677	$488
Park Repair And Maintenance (PRK)	Park Acreage	20,932	$6,456,915	$308
Total Parks Operations and Maintenance			**$16,669,592**	**$796**
2019 Households			1,079,210	
Acres per 1,000 Households			**19.4**	

Scenario	New Households	New Acre Demand
Scenarios		
Business-as-Usual	161,721	3,137
Future Place Types	161,721	3,137

Source: Mecklenburg County; Economic & Planning Systems

The forecast growth in the City of Charlotte is estimated to result in approximately $7 million in additional annual expenditures for the Park and Recreation Department, based on the estimated increase in park facilities and park land requiring increased operations, repair, and maintenance expenditures, as shown in **Table 6.**

Table 6. Park and Recreation Estimated On-going Expenditures

Description	Business as Usual			Future Place Types		
	Change	Factor	Cost	Change	Factor	Cost
Park Operations (PRK)	3,137	$488	$1,530,378	3,137	$488	$1,530,378
Park Repair And Maintenance (PRK)	3,137	$308	$967,574	3,137	$308	$967,574
Rest of Park and Recreation Expenditures	373,566	$12.31	$4,600,423	363,389	$12.31	$4,475,091
Total Cost			**$7,098,375**			**$6,973,043**

Source: Mecklenburg County; Economic & Planning Systems

Impact of Growth

Traditional parks, trails, and open spaces in Charlotte are built, operated, and managed by the Mecklenburg County Park and Recreation Department. The Park and Recreation Department's Meck Playbook Master Plan guides the policies, programs, and investments for the department in order to serve the community. However, as the City attracts more mixed use and denser development, there is a growing need and demand for more public open spaces (e.g., pocket parks, urban plazas, off-street bike/pedestrian ways, and trail connections) that are not within Park and Recreation's purview and outside of its financial ability to support. As well, the City and County lack tools or a cohesive strategy for the capital funding and long-term management of these public spaces. These types of places in some cases can be provided and managed by the private sector (e.g., plaza next to an office building or a pocket park maintained by an HOA); however, with more piecemeal and infill development occurring, the ability to ensure the private or the public sectors' ability to provide amenities is becoming more challenging. A collective approach to the funding, construction, and long-term maintenance (and activation where necessary) of these open spaces is needed to guide the private sector and ensure the public sector has the resources necessary to provide these non-traditional public open spaces.

Charlotte-Mecklenburg Schools

The County provides funding to Charlotte-Mecklenburg Schools (CMS) for both operating needs and debt service costs associated with capital projects. Total funding for the Board of Education comes from State (59.3 percent in 2017-18), County (30.8 percent), Federal (8.7 percent), and other (1.2 percent) sources. Most local funds are used to supplement regular State salaries, to hire extra teachers not provided for by the State, and for operation and maintenance of school buildings.

In addition to public schools run by CMS, there are 27 charter schools in the county. A portion of local funds are required to be redirected by the Board of Education to charter schools; for the 2017-18 school year, this funding totaled $49.6 million.

Enrolment in CMS was 146,117 across 176 schools in 2017-18 and has increased an average of 0.8 percent annually since 2013-2014, which is slower than the rate of population growth for the city and county. CMS has added 16 schools over this time, growing from 160 in 2013-14 to 176 in 2017-18.

Model Methodology

While new development inevitably affects the demand for schools, the funding relationship is complex and heavily influenced by state funding. The impacts of growth thus cannot be modeled within the scope of this effort. An initial estimate of impact on student generation was performed by City Explained through the regional modeling effort and scenario evaluations. As a result of the complicated nature, EPS chose to use a per person average cost factor, 100 percent variable with growth, to estimate the increase in County General Fund expenditures for the Board of Education. In 2018, Board of Education expenditures totaled $434 million; based on these expenditures, growth in the county will result in additional costs of $396.48 per person.

Impact of Growth

Funding for schools in North Carolina is complicated with funds coming from federal, state, and local (County General Fund) revenue sources. Historically, there has been an inability for school districts to obtain funding outside of these traditional sources. CMS has no dedicated funding source and does not have taxing authority. Capital improvements needed to keep pace with a growing city/county are a major challenge for CMS. Traditionally, CMS has been able to rely on the private sector support through land dedications and other contributions as new neighborhoods need school facilities to attract buyers/renters.

As the city reaches buildout and new housing is being built in smaller, more infill oriented developments, CMS is challenged with obtaining locations and funding to build (or enhance) schools to support new students. Furthermore, the school facility models needed to support the community are more diverse and different in scale than the traditional models (e.g., large schools serving several neighborhoods). The

development review process provides CMS opportunity to highlight facility needs to developers and the City of Charlotte. More proactive planning between the City and CMS can help identify needs before development applications come in, but school facilities may need to become a priority community need that can be obtained through discretionary approval processes or capital investments. Even with more proactive efforts, a mechanism for obtaining land and/or funding to offset the impacts of new development is needed to support CMS.

Other Expenditure Categories

Code Administration

Code administration accounts for 2.8 percent of General Fund expenditures. The impact of growth on code administration is directly tied to development, as all new development requires additional service. Expenditures are estimated on a per person served basis and assumed to be 100 percent related to growth. In 2018, code administration expenditures totaled $30.1 million; based on these expenditures, growth will cost $18.36 per additional person or worker.

Public Libraries

The Charlotte Mecklenburg Library has 20 locations, providing services and programs to all residents. The impact of growth on the library is directly tied to residential growth, as all new residents will be served by the library system. Expenditures are estimated on a per person basis and assumed to be 100 percent related to growth. In 2018, library expenditures totaled $33.3 million; based on these expenditures, growth will result in additional costs of $30.42 per person.

Detention and Court Support Services

Detention and court support services include the Mecklenburg County Sheriff's Office, the Criminal Justice Services Department, the Medical Examiner, and Child Support Enforcement. The impact of growth is directly tied to residential growth, as these are direct-service departments. Expenditures are estimated on a per person basis and assumed to be 100 percent related to growth. In 2018, Detention and Court Support Services expenditures totaled $145.4 million; based on these expenditures, growth in the county will result in additional costs of $132.93 per person.

Health and Human Services

Health and Human Services includes public health and social services, along with other community services. The impact of growth on this department is directly related to residential development. Expenditures are estimated on a per person basis and assumed to be 100 percent related to growth. In 2018, Health and Human Services expenditures totaled $264.8 million; based on these expenditures, growth in the county will result in additional costs of $242.11 per person.

Other General Fund Expenditures

The remainder of General Fund expenditures generally increase alongside both population and employment growth as additional services and capacity are needed. These expenditures are estimated using a per person served average cost factor and are assumed to be 25 percent variable, as shown in **Table 7**.

Business Partners

Business Partners are organizations in the region that collaborate with the County to achieve community goals. Expenditures of these organizations have varying relationships to growth, and are estimated as follows.

Emergency Medical Services

Emergency Medical Services provides pre-hospital emergency and non-emergency paramedic services within the unincorporated portion of the county. Growth inside the City of Charlotte does not directly impact the cost or level of service for County EMS.

Central Piedmont Community College

Mecklenburg County partners with Central Piedmont Community College to provide education and literacy services to residents, and financially supports capital needs through funding for construction and maintenance. Expenditures are estimated on a per person basis and assumed to be 100 percent related to growth. In 2018, Central Piedmont Community College expenditures totaled $35.1 million; based on these expenditures, growth in the county will result in additional costs of $32.13 per person.

Hospitals

County support for hospitals accounts for 0.1 percent of General Fund expenditures. These expenditures were modeled on a per person basis and assumed to be 100 percent variable with growth. Based on these assumptions, each additional person will result in a cost of $1.15 to the County.

Other Business Partners

City-County Joint Programs, the Historic Landmark Commission, and Community Service Grants together comprise 0.4 percent of General Fund expenditures. These have a moderate relationship to growth and are modeled on a per person basis at 25 percent variable. Based on these assumptions, each additional resident will result in a cost of $2.41 to the County.

Table 7. Mecklenburg County General Fund Expenditures – Nexus to Growth and Variability

Object	Amount 2018 Budget	2018 % of Total Net of Transfers	Nexus Factor	Nexus Factor Detail	Gross Factor	Variability	Net Factor
Customer satisfaction and management	$24,626,613	2.3%	Per Person	1,093,901	$ 23	25%	$ 5.63
Administrative services	$90,355,707	8.3%	Per Person	1,093,901	$ 83	25%	$ 20.65
Financial services	$17,458,897	1.6%	Per Person	1,093,901	$ 16	25%	$ 3.99
Land use and environmental services*	$24,029,759	2.2%	Per Person	1,093,901	$ 22	25%	$ 5.49
Code Administration	$30,999,947	2.8%	Persons Served (PS)	1,688,731	$ 18	100%	$ 18.36
Community services							
Public Libraries	$33,279,650	3.1%	Per Person	1,093,901	$ 30	100%	$ 30.42
Park and Recreation	$38,439,380	3.5%	Case Study	---	$ -	---	---
Elections	$5,226,516	0.5%	Per Person	1,093,901	$ 5	25%	$ 1.19
Total community services	$76,945,546	7.1%	---	---	$ -	---	---
Detention and court support services	$145,417,680	13.3%	Per Person	1,093,901	$ 133	100%	$ 132.93
Health and human services	$264,849,818	24.3%	Per Person	1,093,901	$ 242	100%	$ 242.11
Business partners							
Emergency Medical Services	$10,959,729	1.0%	Per Person	1,093,901	$ 10	0%	$ -
City County Joint Programs	$2,091,560	0.2%	Per Person	1,093,901	$ 2	100%	$ 1.91
Board of Education:	$433,704,699	39.8%	Per Person	1,093,901	$ 396	100%	$ 396.48
Current	$428,744,699	39.3%	Per Person	1,093,901	$ 392	100%	$ 391.94
Capital Outlay	$4,960,000	0.5%	Per Person	1,093,901	$ 5	100%	$ 4.53
Central Piedmont Community College	$35,149,940	3.2%	Per Person	1,093,901	$ 32	100%	$ 32.13
Hospitals	$1,261,332	0.1%	Per Person	1,093,901	$ 1	100%	$ 1.15
Historic Landmark Commission	$297,811	0.0%	Per Person	1,093,901	$ 0	25%	$ 0.07
Community Service Grants	$1,884,416	0.2%	Per Person	1,093,901	$ 2	25%	$ 0.43
Total - Net of Transfers	**$1,091,018,346**	**100.0%**					

*Excluding Code Administration

Source: Mecklenburg County; Economic & Planning Systems

Net Fiscal Impact – General Fund

The net fiscal impact is the measurement of revenues generated by new development less the expenditures created by the new development. This impact was estimated based on revenues and expenditures calculated as outlined above.

To estimate the impact of the growth scenarios, the forecast amount of new households and jobs were translated into estimated new housing units by type and non-residential development by type. For both forecasts, the City of Charlotte is estimated to grow by 161,721 households and 271,043 jobs over the next 20 years, as shown in **Table 8**.

Table 8. Growth Scenarios Summary

Description	Business As Usual		Future Place Types	
	Factor	Growth	Factor	Growth
GROWTH LEVEL				
FPT Model				
TOTAL				
RESIDENTIAL				
Single Family Detached	45%	72,758	35%	56,183
Single Family Attached	17%	27,493	15%	23,713
Multifamily	38%	61,470	51%	81,825
Total Residential	**100%**	**161,721**	**100%**	**161,721**
EMPLOYMENT				
Retail	20%	52,926	38%	103,241
Office	58%	157,624	40%	107,915
Industrial	22%	60,492	22%	59,886
Total Employment	**100%**	**271,043**	**100%**	**271,043**

Source: Economic & Planning Systems

Using the growth forecasts by development type, the net fiscal impact of both scenarios was estimated. The Business as Usual scenario is estimated to generate $396 million in revenue annually (in year 2040) and create $346 million in expenditures annually. This results in a positive net fiscal impact of $50 million annually.

The Future Place Types scenario is estimated to generate $381 million in annual revenue in 2040, $15 million less than the Business as Usual scenario. However, the Future Place Types scenario is estimated to generate expenditure costs of $336 million, $9 million less than the Business as Usual scenario. The net fiscal impact is a positive $44.7 million. The Future Place Types scenario generates a net positive fiscal impact annually that is 12 percent less than the Business as Usual scenario.

Table 9. General Fund Net Fiscal Impact by Scenario

Description	Business As Usual				Future Place Types			
	Nexus Factor	Nexus Factor Detail	Net Factor	Scenario Growth	Nexus Factor	Nexus Factor Detail	Net Factor	Scenario Growth
GENERAL FUND REVENUES								
Property Tax	Case Study	---		$385,518,927	Case Study	---		$370,957,705
Sales Tax	Case Study	---		$0	Case Study	---		$0
Room occupancy tax	Per Person	373,566	$1.37	$510,068	Per Person	363,389	$1.37	$496,172
Vehicle rental tax	Per Person	373,566	$3.71	$1,386,784	Per Person	363,389	$3.71	$1,349,003
Other tax	Per Person	373,566	$0.39	$144,477	Per Person	363,389	$0.39	$140,541
Inspection permits	Per Person	373,566	$7.41	$2,768,051	Per Person	363,389	$7.41	$2,692,640
Marriage licenses	Per Person	373,566	$0.04	$13,833	Per Person	363,389	$0.04	$13,456
Administrative Charges	Per Person	373,566	$0.57	$213,333	Per Person	363,389	$0.57	$207,521
Charges for Services	Per Person	373,566	$14.48	$5,409,467	Per Person	363,389	$14.48	$5,262,094
Total Estimated Revenues				**$395,964,939**				**$381,119,130**
GENERAL FUND EXPENDITURES								
Customer satisfaction and management	Per Person	373,566	$5.63	$2,102,492	Per Person	363,389	$5.63	$2,045,213
Administrative services	Per Person	373,566	$20.65	$7,714,099	Per Person	363,389	$20.65	$7,503,940
Financial services	Per Person	373,566	$3.99	$1,490,550	Per Person	363,389	$3.99	$1,449,942
Land use and environmental services	Per Person	373,566	$5.49	$2,051,536	Per Person	363,389	$5.49	$1,995,645
Code Administration	Persons Served (PS)	644,609	$18.36	$11,833,061	Persons Served (PS)	634,432	$18.36	$11,646,238
Detention and court support services	Per Person	373,566	$132.93	$49,660,015	Per Person	363,389	$132.93	$48,307,100
Health and human services	Per Person	373,566	$242.11	$90,445,990	Per Person	363,389	$242.11	$87,981,920
Community Services								
Public Libraries	Per Person	373,566	$30.42	$11,364,972	Per Person	363,389	$30.42	$11,055,350
Park and Recreation	Case Study	---	---	$7,098,375	Case Study	---	---	$6,973,043
Elections	Per Person	373,566	$1.19	$446,213	Per Person	363,389	$1.19	$434,056
Business Partners								
Emergency Medical Services	Per Person	373,566	$0.00	$0	Per Person	363,389	$0.00	$0
City County Joint Programs	Per Person	373,566	$1.91	$714,266	Per Person	363,389	$1.91	$694,807
Board of Education:	Per Person	373,566	$396.48	$148,109,789	Per Person	363,389	$396.48	$144,074,753
Central Piedmont Community College	Per Person	373,566	$32.13	$12,003,675	Per Person	363,389	$32.13	$11,676,652
Hospitals	Per Person	373,566	$1.15	$430,744	Per Person	363,389	$1.15	$419,009
Historic Landmark Commission	Per Person	373,566	$0.07	$25,426	Per Person	363,389	$0.07	$24,733
Community Service Grants	Per Person	373,566	$0.43	$160,882	Per Person	363,389	$0.43	$156,499
Total Expenditures				**$345,652,083**				**$336,438,899**
Net Balance				**$50,312,856**				**$44,680,231**

Source: Economic & Planning Systems