FISCAL ANALYSIS OF THE CITY OF DELAWARE

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Summary of Key Findings

This study was commissioned by the City of Delaware as a supplement to the recently released Comprehensive Plan Update, *Delaware Together*. The study's objective is to assess the City's long-term fiscal sustainability, and to estimate the impact of primary development types on net revenues. The study includes demographic and employment projections, which are needed to project revenues and expenditures.

Demographics and Employment

Delaware population is projected to reach 46,300 within the current city boundaries by 2035, a 12% increase from 2020 and an 84% increase from 2000. The number of households is equal by definition to the number of occupied housing units. Households totaled 15,759 in 2020. Household size is expected to decline both nationally and locally, so households will increase at a faster rate than population. These are projected to total 17,800 in 2035, up 13% from 2020. More new residential units will be needed than this because of units lost from the inventory during these years.

Municipal-level employment estimates are less reliable than those for larger geographies from other sources, but these show employment within Delaware of 15,948 in 2019. City employment growth between 2002 and 2019 may have been less than half the employment growth in Delaware County. Commuters from elsewhere filled 12,496 (78%) of the jobs in Delaware in 2019. Meanwhile, 15,267 residents commuted out of the city for employment. This net export of workers may benefit the city as employers make remote work permanent, but the scale of this benefit is unknown at this point.

Employment projections are developed for the long-run fiscal projections, so they do not include economic fluctuations, including impacts of the current pandemic. Employment is projected to total 20,500 in 2035. While onset of the COVID-19 pandemic caused a larger-than-average Delaware County employment decline in March and April 2020, employment recovered to a greater extent than Ohio and the U.S. through December 2020. The city may have fared even better than the county because of the smaller concentration of leisure and hospitality employment, which bore the brunt of the pandemic's economic impact. Delaware inflation-adjusted income tax revenues in 2020 fell 1.5% from 2019, much worse than the 4.2% average annual inflation-adjusted increase between 2014 and 2019.

Financial Sustainability of the Budget

Evaluating the fiscal sustainability of the Delaware budget seeks to answer the question whether revenues exceed expenses over the long term. If this is not true, either expenditures must be reduced – whether through increasing efficiencies or curtailing services – revenues must be increased, or some combination of the two. The strategy is to relate the growth of all revenues and expenditures, except for large capital expenditures and bond and note proceeds, to Delaware's growth. The resulting projections show the ability of general fund revenues to accommodate this growth.

There is currently a structural excess of revenues over net expenditures. This continues over the current decade, but the more rapid projected growth of expenditures causes a steady decrease in the excess. As early as 2021, the excess is only $1.7 million, and it vanishes altogether before the end of the forecast period. A structural imbalance could develop within the projection period under the assumption that revenue and expense trends continue as they have. The projections show excess revenues disappearing in 2032, but this could occur sooner given the city's capital investment needs.

The city has an array of "business-type activities" that rely on user fees to be fully self-supporting. These include water, sewer, and storm sewer services; refuse services; and the Hidden Valley Golf Course. Two other activities could also be classified in this category because they also depend on user fees: Delaware Municipal Airport and Oak Grove Cemetery. Water and sewer, refuse and recycling, and the golf course both enjoy an excess of revenues over expenses. This excess is not sufficient to meet future capital needs, however, making rate increases a necessity. The airport has a very modest revenue excess, but the cemetery's expenses far exceed its revenues. The financial status of the airport could be improved if fees could be increased and/or expenses reduced, but the size of the deficit of the cemetery's operations makes it unlikely that its operations could feasibly be brought into balance. Thus, the cemetery is likely to remain a city-subsidized service to the community. Efforts to increase revenues and/or decrease costs would be helpful to narrow the growing gap between expenditures and revenues.

Street maintenance is a particular concern and need. Nearly 42% of Delaware roadways are in poor condition; the ideal is only 4%. Judging from street maintenance expenditures over time, current road conditions are the result of as many of 20 years of deferred maintenance. It is vital to address this shortcoming. Traditional sources of funding, vehicle license fees and gasoline taxes, fall far short of the need, even with the recent increase in the state gasoline tax. Fully funding ongoing maintenance would cost $3.8 million annually, $1.6 million more than the amount currently budgeted. In addition, nearly $25 million in 2021 dollars is needed to address the current backlog of deferred maintenance.

Addressing the General Fund Shortfall

In addition to increasing fees at the airport and cemetery to mitigate the potential and current drain on the general fund, self-insurance premiums can be increased. These currently cover projected claims, but not other fund expenditures. Other operations could be examined to identify and address inefficiencies.

But by far the most productive way to address the narrowing excess of revenues over expenses is to increase the income tax rate. A limitation on the credit for income taxes paid to other municipalities should be maintained. A rate increase to 2.25% produces an additional $6.37 million in revenue. Reasonable voters will vote for a tax increase if the need is presented clearly and compellingly. The City of Columbus conducted a successful campaign to increase the income tax rate immediately after the 2007-2009 recession ended. The campaign included a citizens' Economic Advisory Committee, along with a campaign highlighting the cuts that had already been made and discussing further cuts that would be necessary.

This income tax rate increase may be enough to cure the developing structural imbalance and sustain the debt service on bonds to address the current street deficiencies. Fully funding the ongoing street maintenance program would require additional revenue, though. Diverting at least some of the income earmarked for the Fire/EMS Fund to a street repair fund is reasonable, given the healthy balance in the Fire/EMS Fund. However, the increase in construction costs and forecast increases in long-term interest

rates have already increased the cost of the project and may soon increase the cost of financing it. Thus, time is of the essence.

Tax increment financing (TIF) and property tax abatements also have an impact on general fund revenues. TIF agreements divert property taxes to a fund to provide for infrastructure. However, some of Delaware's agreements have terms of 20 years or more. These might divert funding from other needs with a higher priority, especially in later years when the initial need for project infrastructure is satisfied.

Tax abatements, unlike TIF, reduce the property taxes due for a period of perhaps 10 or 15 years. It is argued that the revenue "lost" in an abatement is not really lost. It is only the incremental post-development revenue that is affected by the abatement. Even with a 100% abatement, tax revenues would equal those that would have been paid had no development occurred. However, this is true only if the incentive is truly needed for the development to occur; otherwise, the abatement represents a deadweight cost. However, whether the abatement is truly necessary is unknowable. Abatements matter much more within regions than among them. Given that most municipalities in central Ohio use abatements to at least some degree, eliminating these could result in Delaware losing lucrative projects to other municipalities. It is crucial to conduct a serious analysis of the project before the fact to assess the likelihood that the project will not occur or will go elsewhere without the abatement. Employment, payroll, and investment targets should be monitored after operations commence to ensure that promises are being fulfilled. Using an incentive to encourage development of a blighted or underused parcel can be an especially productive use of abatements.

Fiscal Impacts of Specific Development Alternatives

The study analyzes a variety of alternative development types to determine their marginal impact on the Delaware budget. These include high value housing, moderate value housing, moderate value dense housing, low value dense housing, apartment complexes, restaurants, small retail structures, large retail structures, general offices, medical offices, manufacturing plants, and warehouse/distribution facilities. Restrictive assumptions make the results conservative: tax rates are assumed constant over the next 15 years and household wages and property values are assumed to increase only at the rate of inflation.

Recognizing the fact that the impact of a development does not stop at its property line, estimates are developed of the budget impacts of the purchases made by the occupants of these dwellings and businesses within the 43015 ZIP code area to sustain operations. However, the housing impacts cannot include the favorable impacts on businesses that can improve their efficiency by hiring from the larger and more diverse local labor pool.

In all cases, the marginal revenue net of costs declines over time, consistent with the finding of the weakening projected financial status of the general fund. The high value and moderate value housing both make positive marginal contributions to the budget, with the dense development performing better than the traditional development. The low value development and the apartment complex both have negative impacts. All commercial properties make a positive total contribution to the budget throughout the 15-year projection period. Industrial and office properties provide much greater benefits than any of the other types. Thanks to higher wages, the decline in their positive contribution over time is less steep than the restaurant and retail projects.

Although some property types are more beneficial to the budget than others, it would be a mistake to focus on only those that generate high levels of excess revenue. Housing at all income levels provides

the nearby workforce that helps employers recruit workforce and that enhances population diversity. Retail and restaurants improve the quality of life and reinforce the uniqueness of the community. The success of one property type depends upon the success of all.

Housing prices and affordability are rapidly becoming a regional concern, partly because of inadequate new housing supply. Roughly 1,100 Delaware households (21%) pay at least half their income on rent. This is equivalent to the Columbus MSA average, and only marginally less than the national average. A lack of low-income housing increases the risk of household instability and homelessness, and makes it harder to fill entry-level positions.

The amount and types of housing needed in coming years will change significantly. The *Insight 2050* study of the Mid-Ohio Regional Planning Commission, One Columbus, and the Urban Land Institute projects that regional population will increase to 3 million by 2050. Average age will increase, the share of households with children will decrease, and a higher percentage of households will be singles and empty nesters. The demand for dense development served by public transit will increase, while the need for large lot suburban development will decrease. A continuing focus on large lot development runs the risk of generating housing supply exceeding future demand.

Locally owned, locally serving retail and restaurants trap dollars that would otherwise leave the local economy, which makes the fostering of retail and restaurant entrepreneurship particularly important. Trapping dollars that would otherwise leave the local economy has the same economic impact as bringing dollars into the economy. Additionally, a broad array of unique shopping and dining experiences attracts people and their dollars to the community.

Introduction

This study was commissioned by the City of Delaware as a supplement to the recently released Comprehensive Plan Update, *Delaware Together*. The objective is to assess the City's fiscal health over the long term, and to estimate the impact of the primary development types proposed in the plan on the City's fiscal position.

Chapter 3 of the Comprehensive Plan summarizes the demographic and financial conditions and trends affecting Delaware, and Chapter 6 outlines the City's fiscal sustainability. This study delves deeper into each of these issues. A demographic breakdown and careful projection of population and employment – beyond what is available in *Delaware Together* – is needed for a projection of finances. The paper begins with this demographic and employment analysis. A general assessment of the City's long-term fiscal sustainability follows, along with an analysis of the budget impact of various property types.

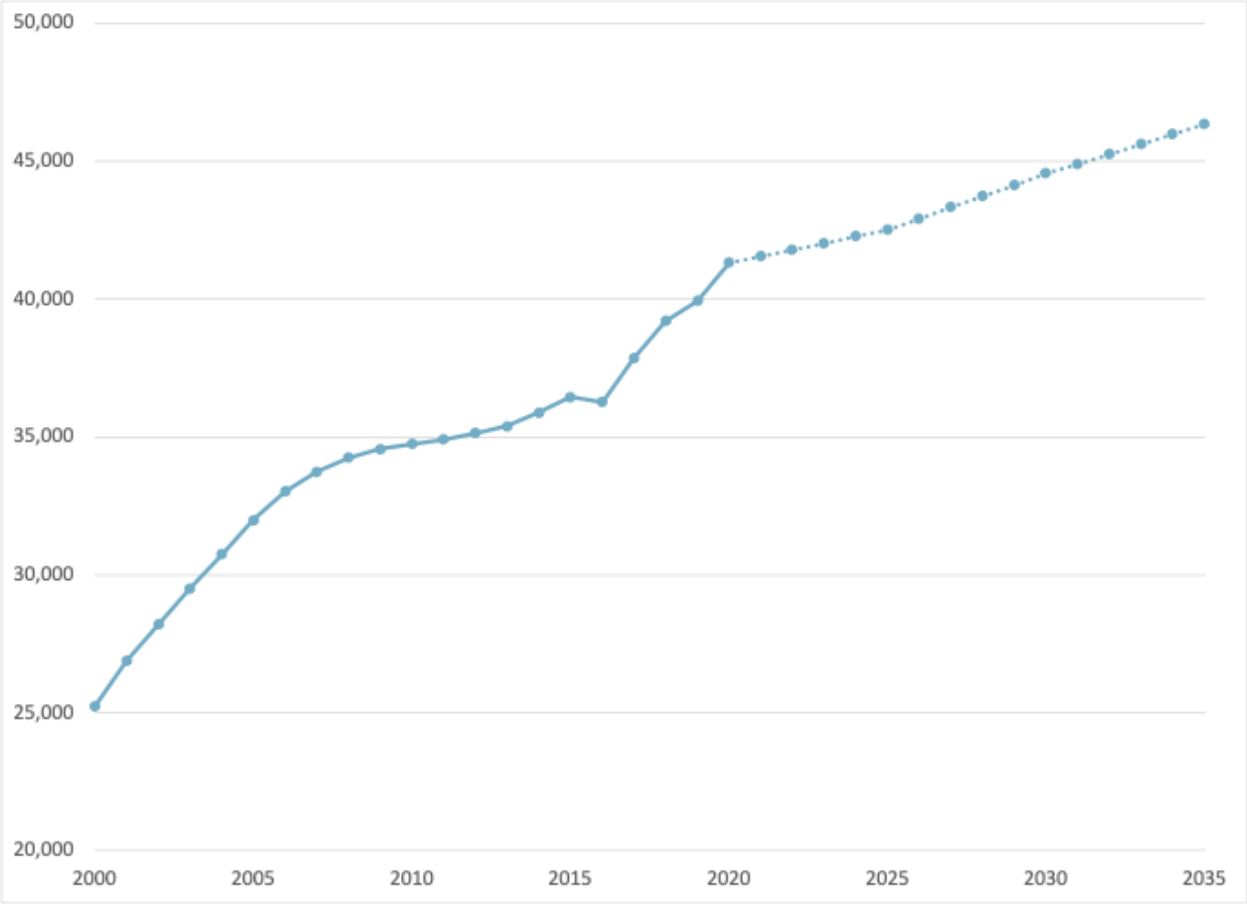
Demographic and Employment Estimates and Projections

The fiscal analysis begins in 2001 with projections through 2035, so the demographic analysis must cover the same period. Accordingly, Figure 1 charts historical and projected population totals from 2000 through 2035. The projections are from the Mid-Ohio Regional Planning Commission (MORPC) and are aggregated by MORPC from grid derivatives of transportation analysis zones. These correspond to Delaware's current city boundaries. Because of this, the projections assume that no future annexation occurs. As suggested by the map on page 21 of *Delaware Together*, the city's sharp population increase between 2000 and 2010 was driven at least partially by the substantial annexations during those years., In addition, Delaware County's population increased 58% during that decade. This made Delaware one of the fastest-growing counties in the U.S. during the early years of the decade. Much of this growth was centered in the southern part of the county, however. Even with the no-annexation restriction, Delaware population is projected to reach 46,300 by 2035, a 12% increase from the 2020 census, and 84% higher than the 2000 census.[1]

Most of the fiscal projections are based on population rather than households, so a household projection is unnecessary for the fiscal analysis. However, projected household totals are important for development planning: the number of households is equal by definition to the number of occupied housing units. The household projection is based on past and projected estimates of average household size. Note that average household size is not equal to total population divided by households. The relevant population total is population in households, which excludes those in institutions and group quarters, such as nursing homes and Ohio Wesleyan dormitories. Population in households in Delaware as a percentage of total city population has increased over the years. It was 92.4% in 2000, 94.1% in 2010, and 96.4% in 2020.

[1] The 2010 through 2019 population estimates in Figure 1 are preliminary, derived from projections based on the 2010 census. Neither these nor the MORPC projections include information from the recently released 2020 total, which is included in Figure 1. The Census Bureau will at some point issue revised 2010-2019 population estimates called "intercensal estimates," which will be informed by both 2010 and 2020 censuses. The result could be higher measured growth in the first part of the decade and lower measured growth in the second.

Figure 1: Historical and Projected Population, City of Delaware



Source: U.S. Census Bureau and Mid-Ohio Regional Planning Commission.

There are two sources of average household size: the decennial census and, in recent years, the American Community Survey (ACS). The census total is the count as of April 1, but the ACS estimate is based on an ongoing random survey of the population. While single-year averages are available for geographies with population of 65,000 or more, only five-year averages are available for those with fewer residents, such as the city of Delaware. *Delaware Together* refers to an average household size of 2.47 on page 19, which was the 2013-2017 ACS average. It is incorrectly referred to as a 2017 estimate, however. Table 1 provides average household size in total and for owner and renter housing from the 2000 and 2010 censuses, two non-overlapping releases of the ACS, and the 2020 census.

Table 1: Average Household Size, Delaware, Delaware County, and U.S.

	2000 census	2010 census	2009-2014 ACS	2015-2019 ACS	2020 census
Delaware city	**2.45**	**2.47**	**2.44**	**2.65**	**2.53**
Owner	2.63	2.65	2.60	2.94	n/a
Renter	2.17	2.18	2.17	2.16	n/a
Delaware County	**2.70**	**2.74**	**2.75**	**2.84**	**2.73**
Owner	2.83	2.85	2.83	2.97	n/a
Renter	2.17	2.25	2.39	2.27	n/a
United States	**2.59**	**2.58**	**2.63**	**2.62**	**2.55**
Owner	2.70	2.74	2.70	2.70	n/a
Renter	2.45	2.47	2.52	2.49	n/a

Source: Decennial Census and American Community Survey, U.S. Census Bureau.

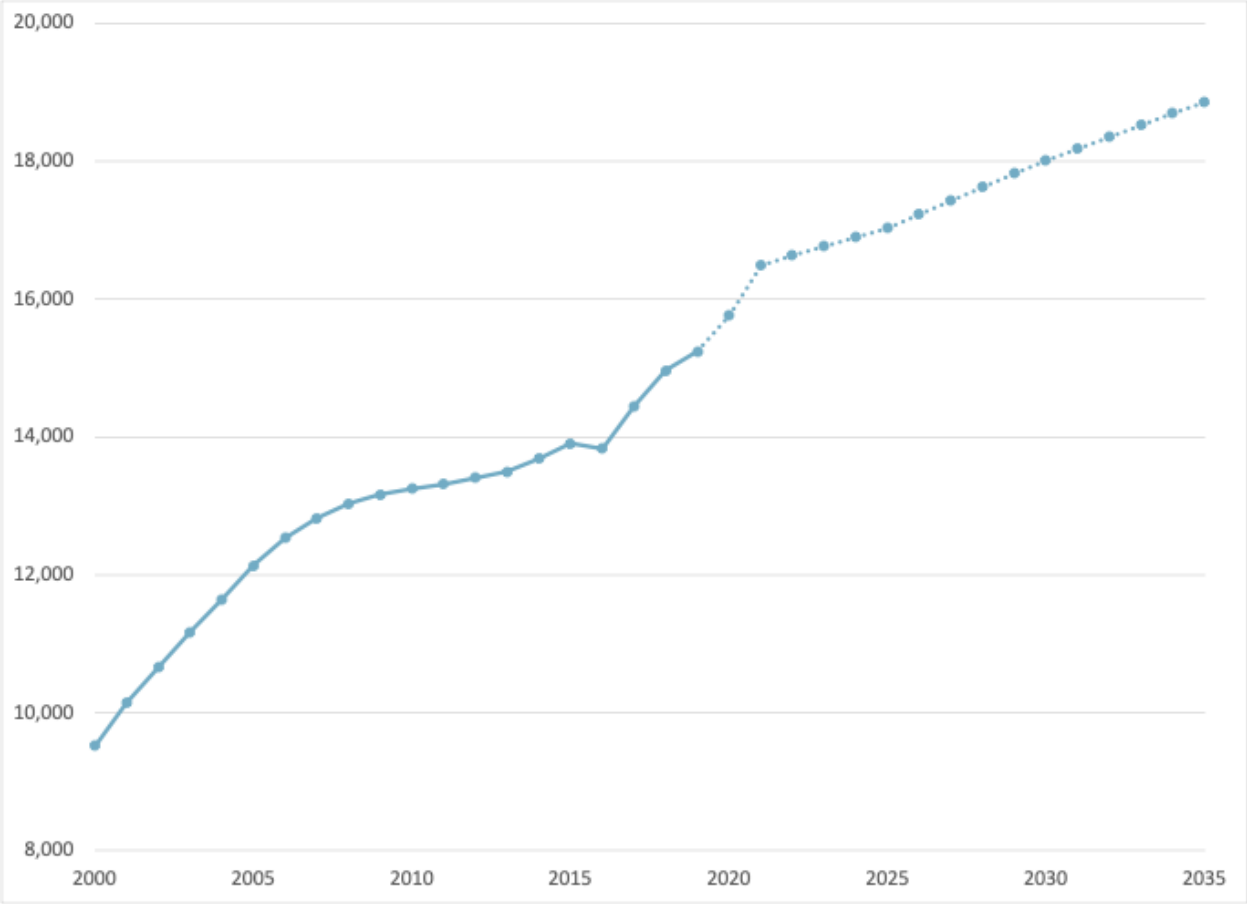
As the table reveals, the 2015-2019 average household size was even higher than the 2013-2017 average: 2.65. An increase in average household size of that magnitude is unusual, suggesting misestimation of population, population in households, and/or the number of households. The entire increase occurred in owner-occupied housing; the household size of renter households has been stable since 2000. The reported margin of error on total household size is plus or minus 0.07, meaning that the actual household size over the five-year period could reasonably have been as low as 2.58 or as high as 2.72. The 2020 census results suggest that household size was indeed overestimated in the 2015-2019 estimates for both the city and the county.

The misestimation of household size in the 2015-2019 ACS means that it cannot be used to project the number of future households. Rather, the percentage of total population in households is projected through 2035 with a continuing – but somewhat slower – increase. This projected share of population in households will reach 97.1% of total population by 2035; the share is multiplied by MORPC's total population projections to project household population. The other necessary component is projected household size. Despite the recent increases in household size in Delaware, the projection of both national demographic analysts and the *Insight 2050* study of the Mid-Ohio Regional Planning Commission, Columbus 2020 (now One Columbus), and the Urban Land Institute Columbus is for a long-term demographic-driven decline in average household size both nationally and locally. Researchers at Harvard University's Joint Center for Housing Studies project a decline of U.S. average household size from 2.57 in 2018 to 2.48 in 2038.[2] Projecting household size in Delaware to decline proportionally to this national projection is conservative in the sense that it produces a greater future need for housing. The result is 18,400 households in 2035, an increase of 3,100 (20%) from 2020. More new dwellings will be needed than this because of units that will be lost from the inventory during these years.

Recall that MORPC's population projection is based on the current city boundaries, so these new households will occupy the same land area. This means that population density will increase. Delaware should plan to respond to this demand with review of city zoning and infrastructure to accommodate the larger population. Developers should plan housing appropriate for these smaller households, along with the walkable communities that these households will prefer.

[2] D. McCue. (2018, Dec.). Updated household growth projections: 2018-2028 and 2028-2038. Joint Center for Housing Studies of Harvard University. Retrieved from https://www.jchs.harvard.edu/sites/default/files/media/imp/Harvard_JCHS_McCue_Household_Projections_Rev010319.pdf

Figure 2: Historical and Projected Households, City of Delaware



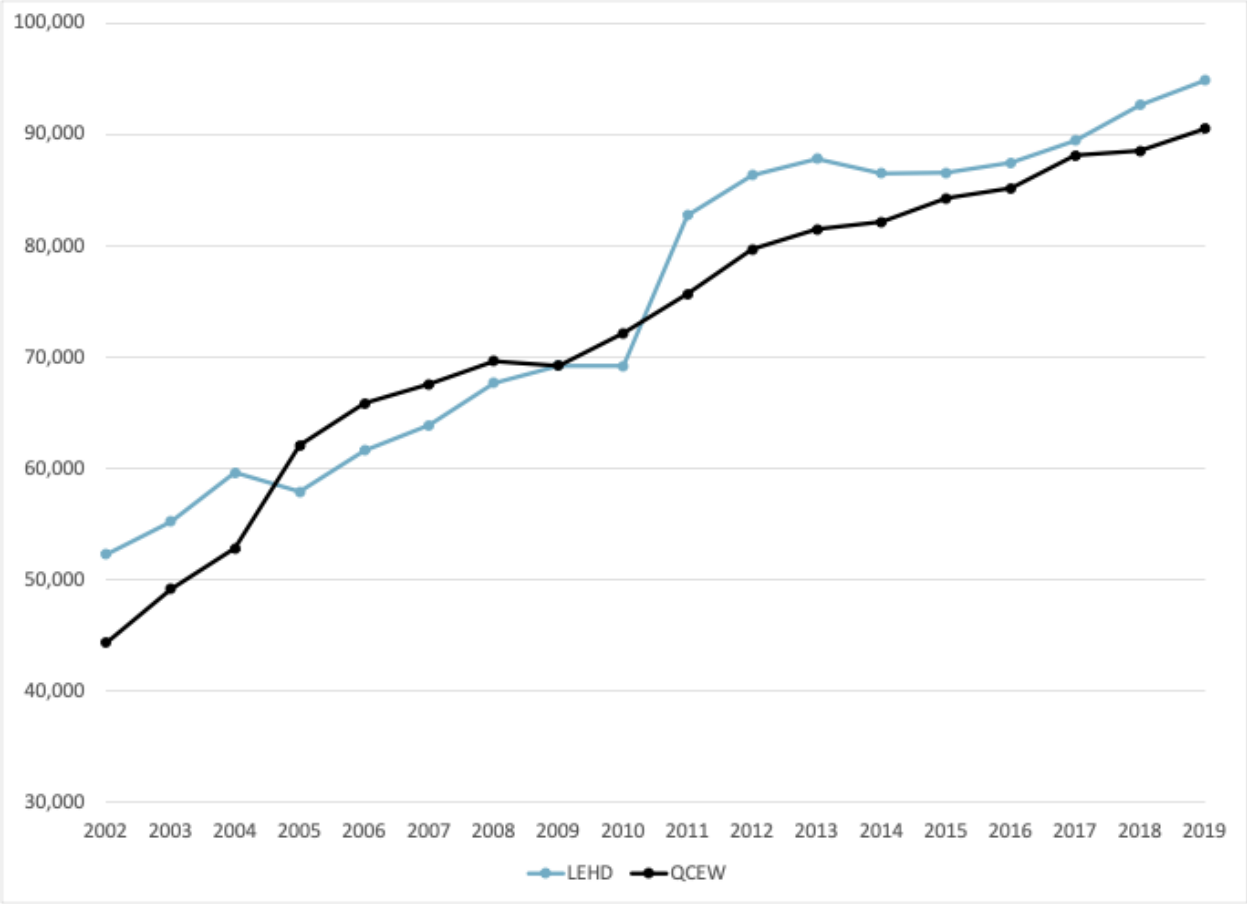
Source: U.S. Census Bureau, Mid-Ohio Regional Planning Commission, and Regionomics calculations (see text).

Employment Growth and Commuting

Employment projections are needed for the fiscal analysis. Employment information for municipalities in total and the number of workers commuting in and out is available beginning in 2002 from the Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) database. Employment and commuting data have gained increased relevance because of the greater number of individuals working from home, and the possibility of tax revenue shifting if working from home continues over the long term and workers are taxed at home rather than at the office where they worked prior to the pandemic.

The LEHD shows employment within Delaware of 15,948 in 2019. Because the LEHD relies on a survey, this total is an estimate subject to error. It is important to understand the scale of this potential error. Figure 3 compares Delaware County employment as measured by the LEHD for with county employment from the highly reliable Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Statistics. The QCEW is available for counties, but not municipalities. It is not error-free, but its totals are close to unobservable actual employment. In the early years, LEHD employment was much higher than QCEW employment, with an 18% difference in 2002. Differences have grown smaller more recently: since 2014, the difference has varied between 2% and 5%.

Figure 3: LEHD Employment Compared to QCEW Employment, 2002-2019

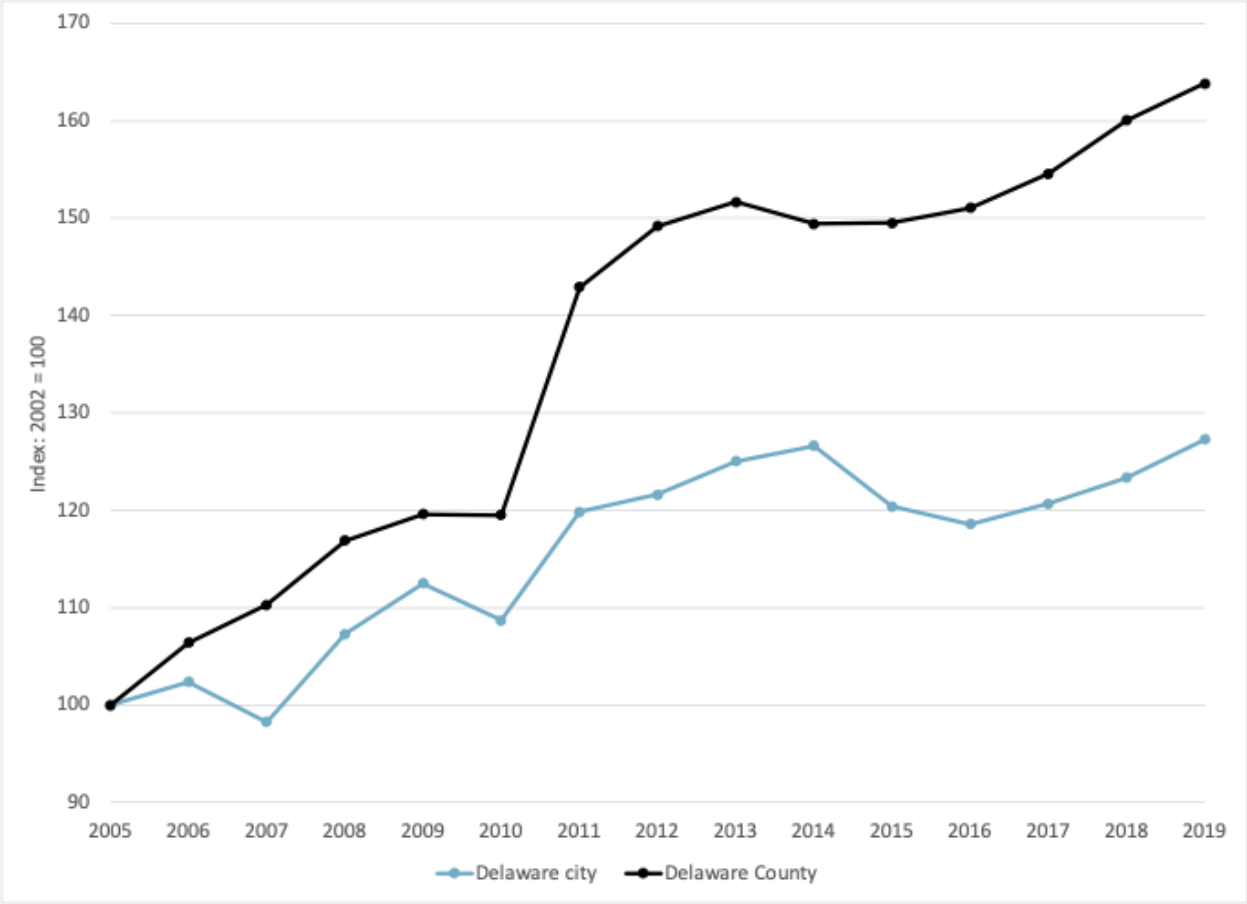


Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau, and Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

Figure 4 compares employment growth in the city of Delaware and Delaware County between 2005 and 2019. This comparison omits the first three years of data, which seem to have overstated county employment at least. County employment increased 64% over this period, while city employment increased 27%. Although both estimates are subject to error, the difference in growth is large enough to conclude that much of the county's employment growth occurred outside of the city.

One feature of these employment trends that is confirmed by the QCEW is the minimal employment decline both in the city and the county during the 2007-2009 recession. Employment in Delaware County fell only in 2009 and only by 0.6%. Delaware city employment fell only in 2010, by 2.5%. In contrast, the Columbus MSA, Ohio, and the U.S. suffered three consecutive years of decline – in 2008, 2009, and 2010. As measured by the QCEW, the MSA lost 5%, Ohio lost 7.5%, and the U.S. lost 5.6%.

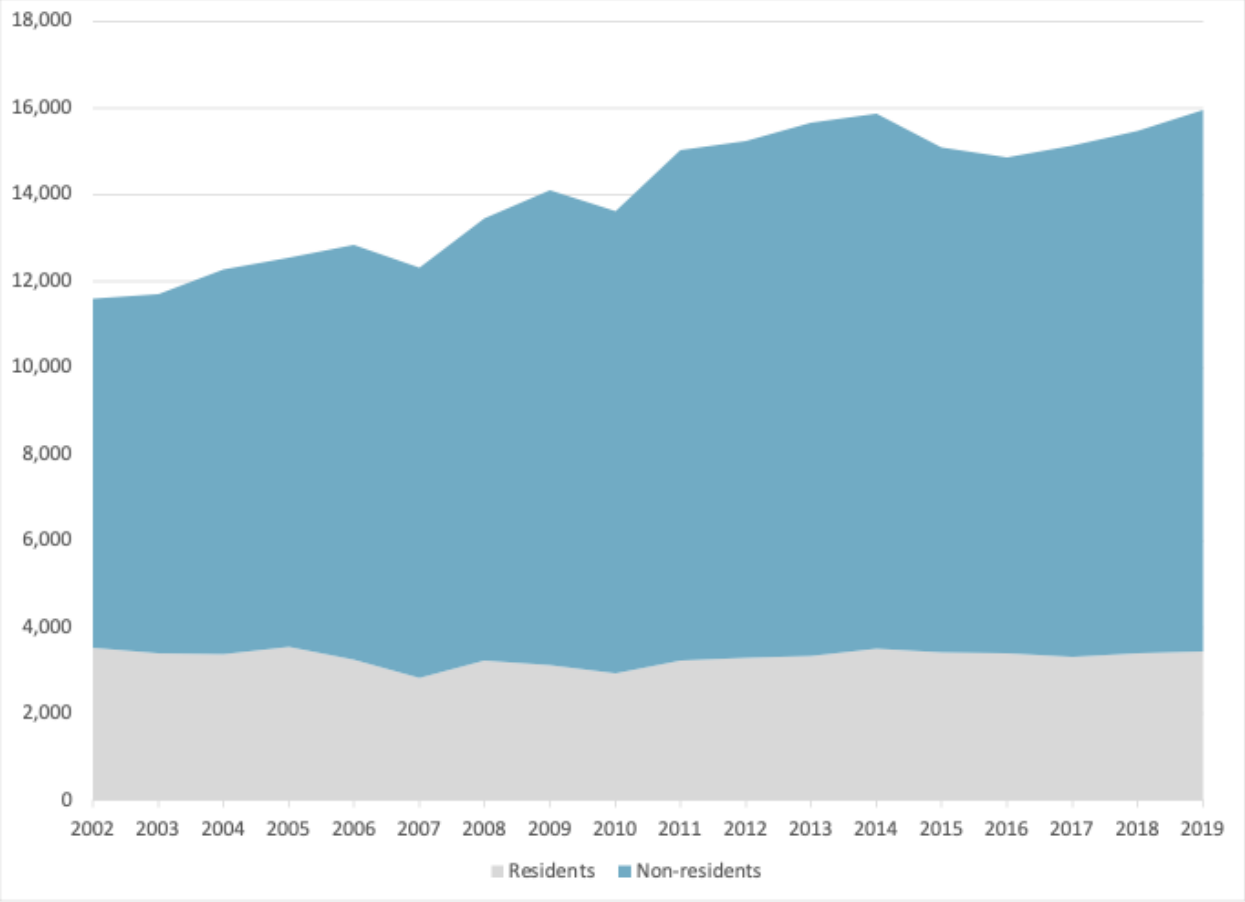
Figure 4: Delaware City and County Employment Growth, 2005-2019



Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau.

Figure 5 shows the number of jobs within the city that are filled by residents and non-residents. Of the 15,948 jobs in the city in 2019, 12,496 (78%) were filled by workers commuting in from elsewhere, while 3,452 (22%) were filled by Delaware residents. The figure makes clear that all the growth in city employment between 2002 and 2019 was accommodated by workers who lived outside of the city. The share of jobs filled by in-commuters was 70% in 2002.

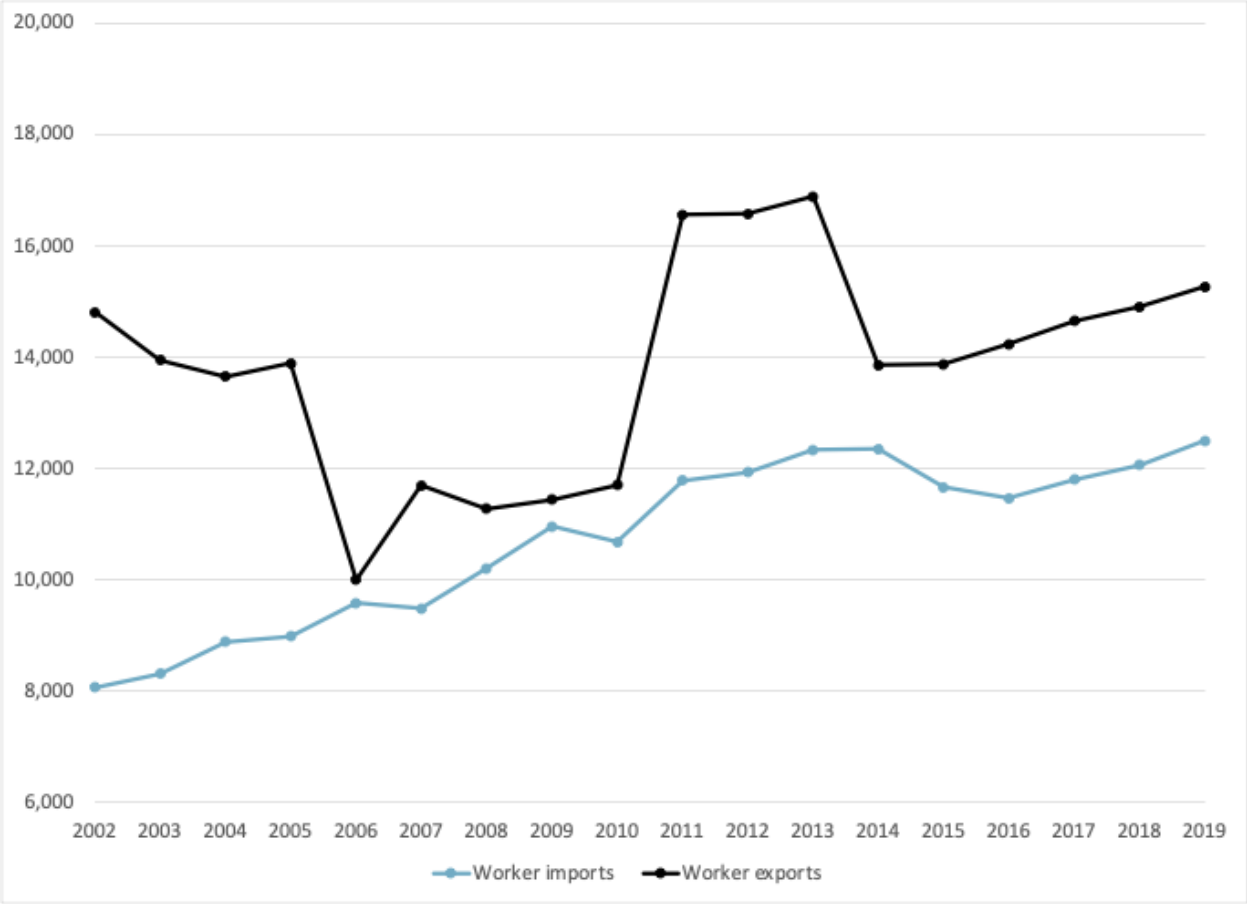
Figure 5: Jobs in Delaware Filled by Residents and Non-Residents



Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau.

Figure 6 compares the number of Delaware residents commuting out of the city to jobs elsewhere (worker exports, in black) to the number of non-residents commuting into the city for jobs (worker imports, in blue). Although the number of worker exports is probably affected by estimation errors because of its variability, worker exports consistently exceed imports.

**Figure 6: Workers Commuting in for Jobs in Delaware (Imports)
and Delaware Residents Commuting out for Jobs Elsewhere (Exports)**



Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau.

As noted above, this disparity has implications for Delaware income tax revenue. Some of these workers are currently working from home – whether in Delaware or elsewhere – and may continue to do so over the long term. Traditionally, anyone working in a municipality for 20 days or more was subject to tax by that municipality. This rule was suspended at the beginning of the pandemic by a provision in Ohio House Bill (HB) 197, signed into law by Governor DeWine March 27, 2020. This provision directed employers who had sent workers home to continue to tax them at their former worksite.

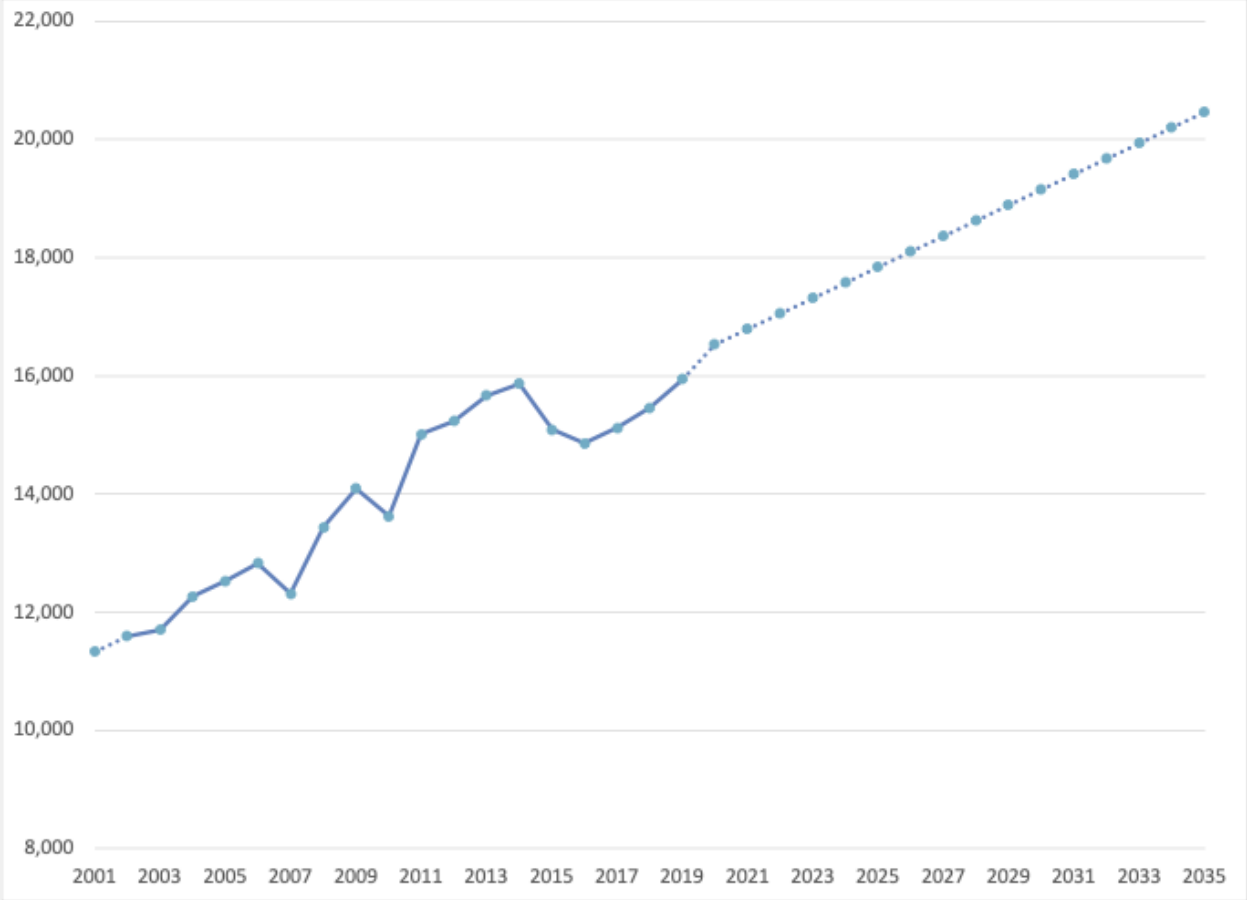
This provision has been updated by a stipulation in the state's Biennial Budget Bill (HB 110, signed into law July 1, 2021). Through the end of 2021, employers with employees working from home can withhold taxes based either on the employer's place of business or on the employee's home. However, the law provides that after January 1, 2022, the 20-day rule will be reinstated. As a result, employees working from home permanently would be taxed there rather than at the employer's place of business. HB 110 also states that employees working remotely whose 2021 income taxes were directed to their employer's municipality can request a refund of those taxes. Because the employee would then owe taxes to her/his home municipality, this provision is more likely to be a concern for high tax rate municipalities such as Columbus than it would be for Delaware. The most likely applicants for refunds from Delaware are residents of unincorporated areas of townships, where the income tax rate is zero. The economic implication of remote work for Delaware and other municipalities is still unknown. It is unclear how many employers will retain remote work policies after the pandemic, and to what degree.

Recent opinion polls have found a split, with employers much more favorable toward a return to the office than many employees. Further, some occupations, such as clerical and information technology occupations, are more adaptable to a permanent shift to working from home than others. The net impact on Delaware of working from home depends on the occupations of those commuting in versus the occupations of those commuting out, but the LEHD data do not include any industry or occupational detail. The consistently greater number of out-commuters, though, suggests that Delaware might be a net beneficiary of the remote work trend.

Employment Projections

As will be discussed, employment projections are necessary for many of the financial projections contributing to the sustainability analysis. These projections are based on the LEHD data analyzed in the previous section. A least-squares regression analysis is used to project employment back to 2001 and forward to 2035. The results are graphed in Figure 7; these show projected 2035 employment of 20,500. Note that the projections do not include the impacts of the pandemic. Because these are long-run projections, no attempt is made to introduce this or project the timing of economic cycles during the forecast period. The typical assumption is that economic downturns are corrected by above-average growth that returns the economy to its long-run trend. That is the assumption here, although the short-run impacts of the pandemic are discussed next.

Figure 7: Projected Delaware Employment



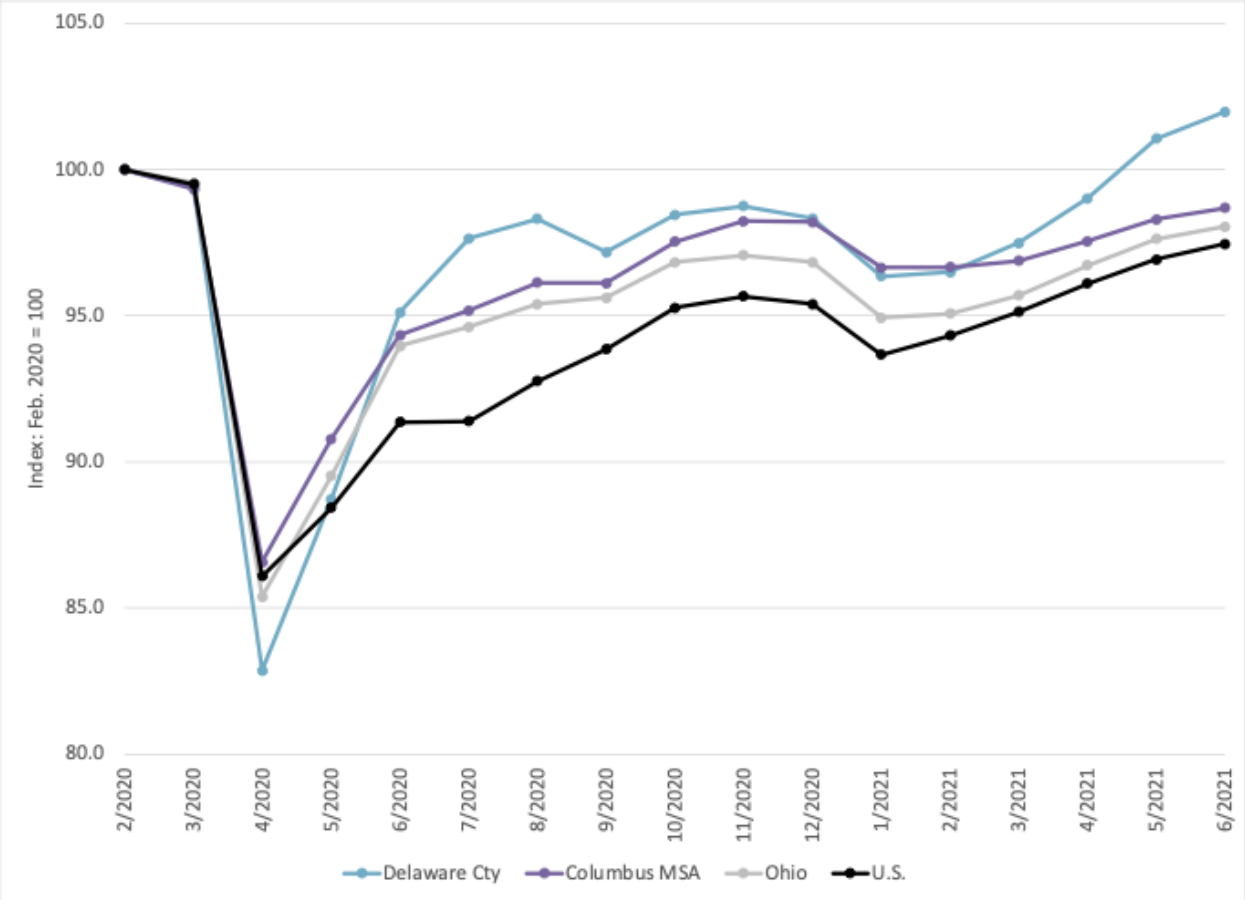
Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau, and Regionomics Projections.

Pandemic Impacts on Employment

The COVID-19 pandemic and the public health response have had significant impacts on the national and local economies. No city-level employment estimates are available, but Quarterly Census of Employment and Wages (QCEW) employment counts for the second quarter of 2021 for counties, states, and the U.S. were released in November 2021, allowing an analysis of employment impacts of the initial stage of the pandemic. As noted earlier, the QCEW is a highly reliable count of total and industry employment, covering more than 95% of employment.[3]

Figure 8 graphs monthly employment from the QCEW for Delaware County, the Columbus MSA, Ohio, and the U.S. from February 2020, the final month before employment declines began, through June 2021. Employment is graphed on an index basis, with all employment set to 100 in February 2020.

Figure 8: Total Employment, Delaware County, Columbus MSA, Ohio, and U.S.
February 2020-June 2021



Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

Delaware County's employment declines were worse than average in March and April 2020, with a two-month loss of 15,100 jobs (17.1%). This compares to the losses of 13.4% for the Columbus MSA, 14.6% for Ohio, and 13.9% for the U.S. But Delaware County's recovery has been better than average: the

[3] QCEW employment totals omit the proprietors of unincorporated businesses, some farm and domestic workers, and railroad employees.

county's employment rose above its pre-pandemic level in May 2021 and stood 1,741 (2%) above that level in June. June employment in the MSA remained 1.3% below its February 2020 level, while Ohio employment was 2% below and U.S. employment was 2.5% below.

There is an important caveat to this finding: QCEW employment totals are not seasonally adjusted. June employment is typically higher than in February, so incorporating seasonality would increase the February total and reduce the June total. Seasonal factors are also behind the January employment declines visible in the chart. These include the ending of seasonal jobs in retail, transportation, and other industries. But the same forces apply to employment elsewhere, so it is likely that a seasonally adjusted employment trend would be better than average in Delaware County.

As stated previously, the QCEW does not report employment for municipalities, but other evidence suggests that the employment impact of the pandemic initially and to date may have been less on the city than on Delaware County. By far the hardest-hit sector has been leisure and hospitality, including arts, entertainment, recreation, hotels, restaurants, and other food services. This sector lost nearly half of its employment in Delaware County and elsewhere in March and April 2020. On a seasonally adjusted basis, this loss accounted for one-third of the Columbus MSA's total initial loss. Despite a partial recovery, leisure and hospitality's remaining net loss through November 2021 comprises 57% of the net loss in all sectors. Consequently, to the extent that leisure and hospitality is a smaller share of city employment than county employment, the overall employment decline should be less. Analysis of data from the Census Bureau's 2017 ZIP Code Business Patterns suggests that leisure and hospitality employment was approximately 10.5% of private-sector employment in Delaware's 43015 ZIP, but an above-average 16.1% of Delaware County's private-sector employment. That above-average share of leisure employment is a likely explanation for Delaware County's larger-than average decline in March and April 2020, while the lower share in the 43015 ZIP implies that the city's employment decline was likely less than Delaware County's, and its recovery greater.

However, the economic disruptions from the pandemic did impact City revenues, particularly income tax revenues. Table 2 compares 2019 income tax revenues, the original 2020 budget, and actual 2020 revenues. Nominal dollar income tax revenues increased marginally in 2020 but suffered a 1.5% decline after inflation. This change was far less than the 5.9% average annual increase between 2014 and 2019 (4.2% adjusted for inflation).

Table 2: City of Delaware Income Tax Revenues and Budgeted Totals

Category	2019 revenues	2020 budget	2020 revenues	2020 revenues vs. 2020 budget	2020 revenues vs. 2019 revenues
General fund: 1%	15,572,613	16,510,750	15,591,586	-5.6%	0.1%
Fire/EMS: 0.7%	10,896,589	11,500,000	10,898,746	-5.2%	0.0%
Recreation facilities: 0.15%	2,335,384	2,427,500	2,335,859	-3.8%	0.0%
Total income tax	**28,804,586**	**30,438,250**	**28,826,191**	**-5.3%**	**0.1%**

Source: Delaware City Finance Department.

The impact of the pandemic on municipal income tax collections has varied widely among cities in central Ohio. Some fared worse than Delaware, but others fared better. Table 3 documents these changes in both nominal and inflation-adjusted terms for 12 of the 25 largest Columbus MSA municipalities for which 2020 financial data were available.

Table 3: Income Tax Revenues, Large Columbus MSA Municipalities, 2019 and 2020

In order of population

City	2019 as given	2019 inflation adjusted	2020	Nominal change	Inflation-adj. change
Columbus	948,106,000	963,304,526	947,016,000	-0.1%	-1.7%
Newark	24,146,929	24,534,014	23,273,642	-3.6%	-5.1%
Dublin	91,709,730	93,179,874	90,714,675	-1.1%	-2.6%
Grove City	26,443,162	26,867,057	28,354,354	7.2%	5.5%
Westerville	42,547,481	43,229,534	43,517,158	2.3%	0.7%
Gahanna*	23,727,439	24,107,800	29,550,669	24.5%	22.6%
Pickerington	7,942,803	8,070,129	8,086,394	1.8%	0.2%
Pataskala	5,899,011	5,993,575	6,073,123	3.0%	1.3%
Bexley	12,702,274	12,905,897	13,009,446	2.4%	0.8%
Powell**	6,591,293	6,696,954	6,521,991	-1.1%	-2.6%
Grandview Hts.	16,212,561	16,472,455	17,596,520	8.5%	6.8%
Groveport	17,822,855	18,108,563	15,864,542	-11.0%	-12.4%

*Tax rate increased from 1.5% to 2.5% and the credit of taxes paid to another municipality increased from 83.33% to 100%, July 1, 2019. **Tax rate increased from 0.75% to 2%, and the credit for taxes paid to other municipalities increased from 33.3% to 100%, effective January 1, 2022. This change does not affect the comparison here.
Source: Comprehensive Annual Financial Reports. Inflation adjustment by Gross Domestic Product Implicit Price Deflator for Government Spending.

Financial Sustainability of the Delaware City Budget

Delaware provides both general government services and a variety of "business-type activities." These include water, sewer, and refuse services and the Hidden Valley Golf Course; user fees are intended to cover the operating costs of providing the service and generate a surplus that supports capital expenditures within that activity.[4] An overview of the City's financial structure and an introductory analysis of the sustainability of the budget is in the *Delaware Together* Comprehensive Plan (pages 91-106). The purpose of this analysis is to examine Delaware's fiscal sustainability more formally and, in the following section, to estimate the financial impacts of specific types of development proposed in *Delaware Together*.

Evaluating the fiscal sustainability of the Delaware budget seeks to answer the question whether revenues exceed expenses over the long term. This must be true to allow expenditures for large capital items, which are not part of the analysis, and to ensure that funds are available to maintain government services in economic downturns. If long-term revenues do not exceed long-term expenses, there is a structural imbalance. To address this, expenditures must be reduced, whether through increasing efficiencies or curtailing services, revenues must be increased, or some combination of the two.

The implicit assumption of this stage of the analysis is that growth in the future continues as it has in the past, both in the rate and type of growth. This assumption will be relaxed in assessing the fiscal impact of future development proposed in *Delaware Together*. Further, as noted above, no attempt is made to project economic conditions, including the impact of the COVID-19 pandemic. If projections had

[4] As discussed below, the Delaware Airport and Oak Grove Cemetery are owned by the City and also rely on user fee revenue, so these are analyzed as business-type activities as well.

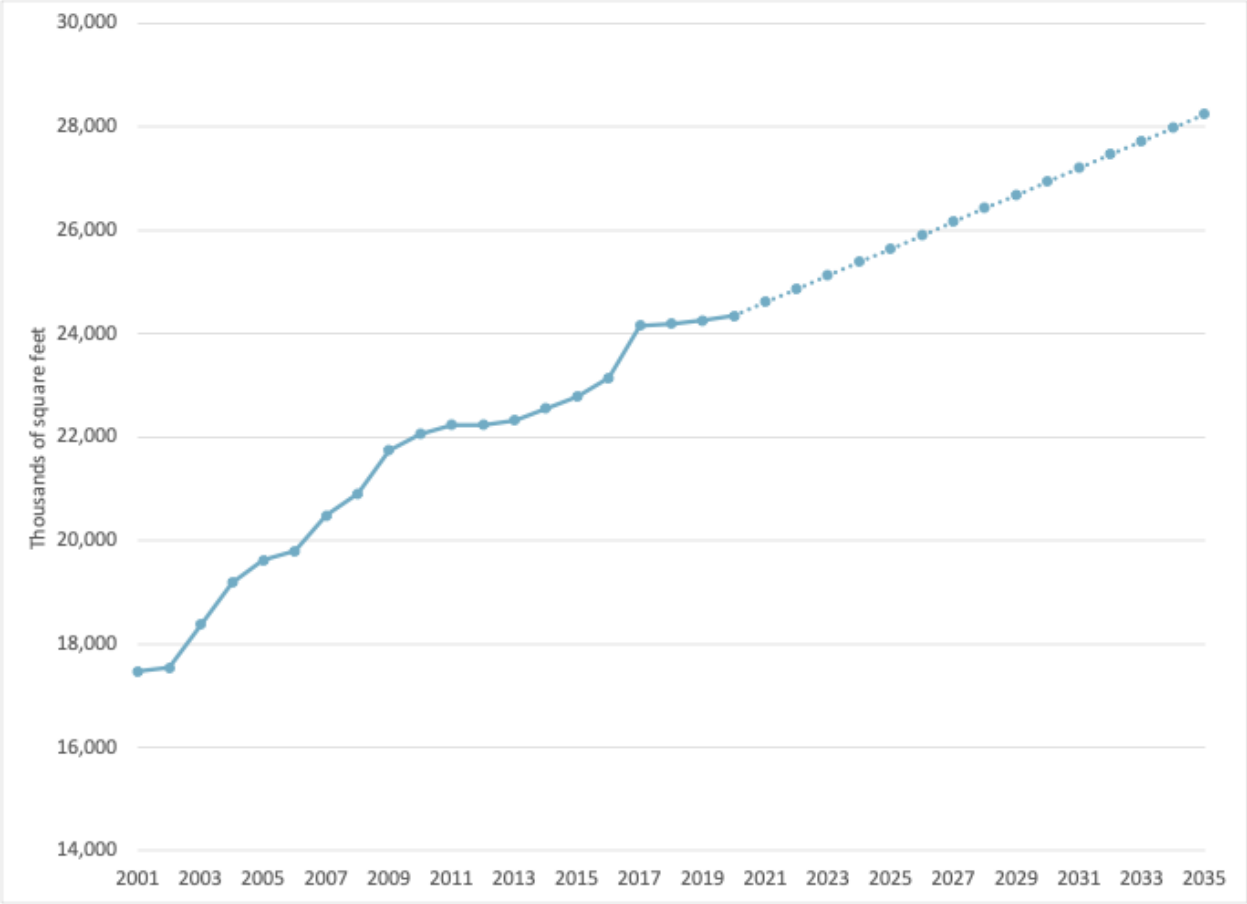
included actual 2020 totals, the implicit assumption would be that the pandemic impact would have continued 15 years into the future.

Growth in income and expenditures is driven both by inflationary impacts and growth in population or businesses. Inflation distorts the analysis, so all revenues and expenditures must first be adjusted to constant-dollar terms. This is accomplished using the Gross Domestic Product (GDP) Implicit Price Deflator for Government Purchases from the U.S. Bureau of Economic Analysis. The 2020 forecasts and later years' projections (where these are used) are adjusted using the February 2021 projections of the GDP Deflator from the Congressional Budget Office.

The strategy relates all revenues and expenditures (except for large capital expenditures and bond and note proceeds) to Delaware's growth. The Delaware City Finance Department supplied historical revenues and expenses dating as far back as 2001 for some items. In most cases, the inflation-adjusted historical expenditures were divided by the estimated population discussed in the previous section and graphed in Figure 1. This produced a time series of the revenue or expense per capita. The slopes of the time series of per capita revenues and expenditures were calculated; these were used to project the per capita values forward to 2035. The projected per capita totals were multiplied by the projected population totals from MORPC to derive projected total revenues and expenditures.

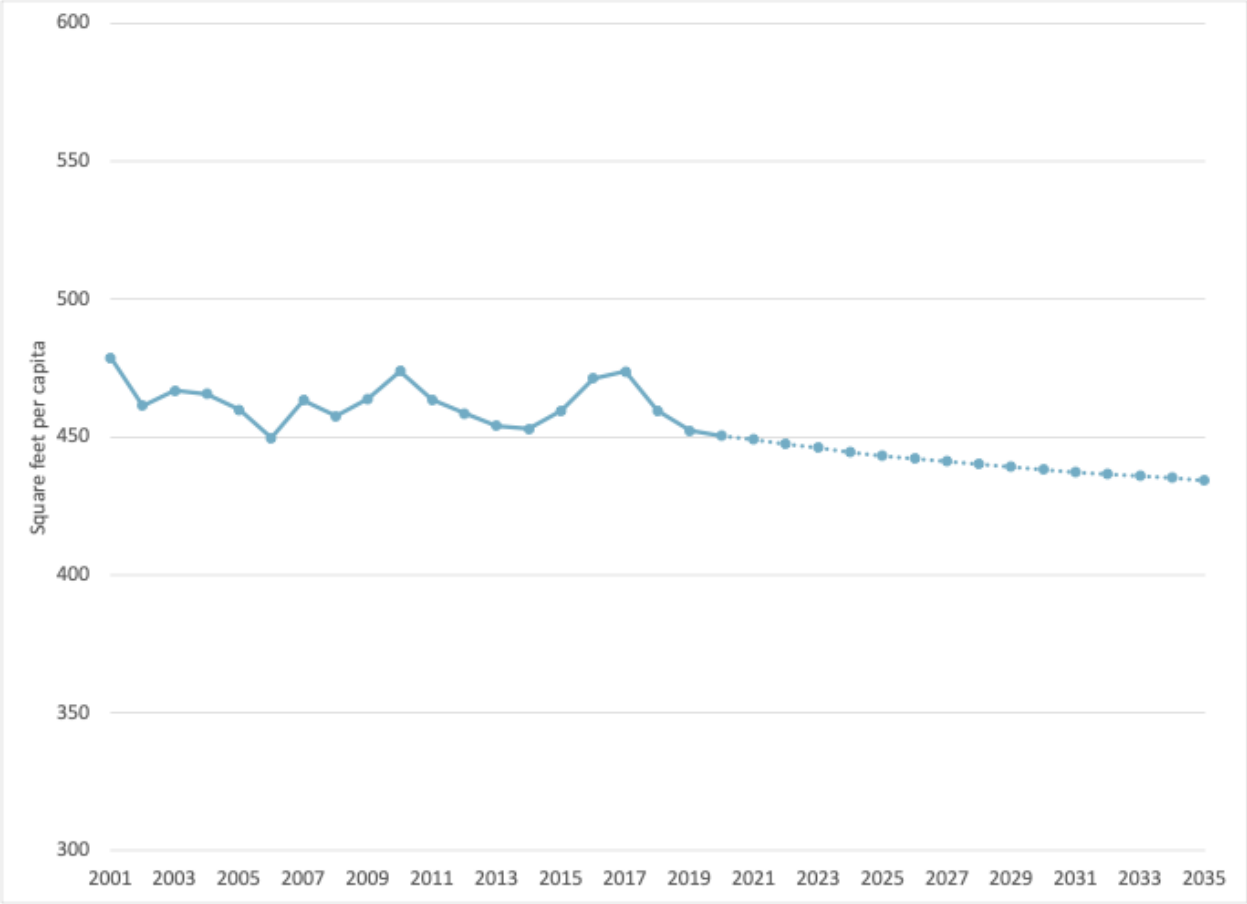
The one exception to the use of population to project revenues and expenditures was street maintenance expenditures, which were calculated from total square feet of roadway being maintained in each year. These totals are graphed in Figure 9. Figure 10 relates these totals to a total per capita – historic and projected population and employment. The slope analysis revealed a slight downward trend, which is continued in the projection. This projection is consistent with increased density, the prediction and need outlined in the *Insight 2050* study.

Figure 9: Historical and Projected Roadway Square Footage



Source: City of Delaware; Regionomics projections.

Figure 10: Roadway Square Feet per Resident and Worker



Source: City of Delaware; Population Estimates, U.S. Census Bureau; Regionomics projections.

This section begins with an analysis of the sustainability of the General Fund, then it considers the sustainability of business-type activities. Following this is a detailed analysis of one component of the General Fund that is of particular concern: street maintenance and repair. The following section will evaluate alternative strategies for enhancing the long-term budget position.

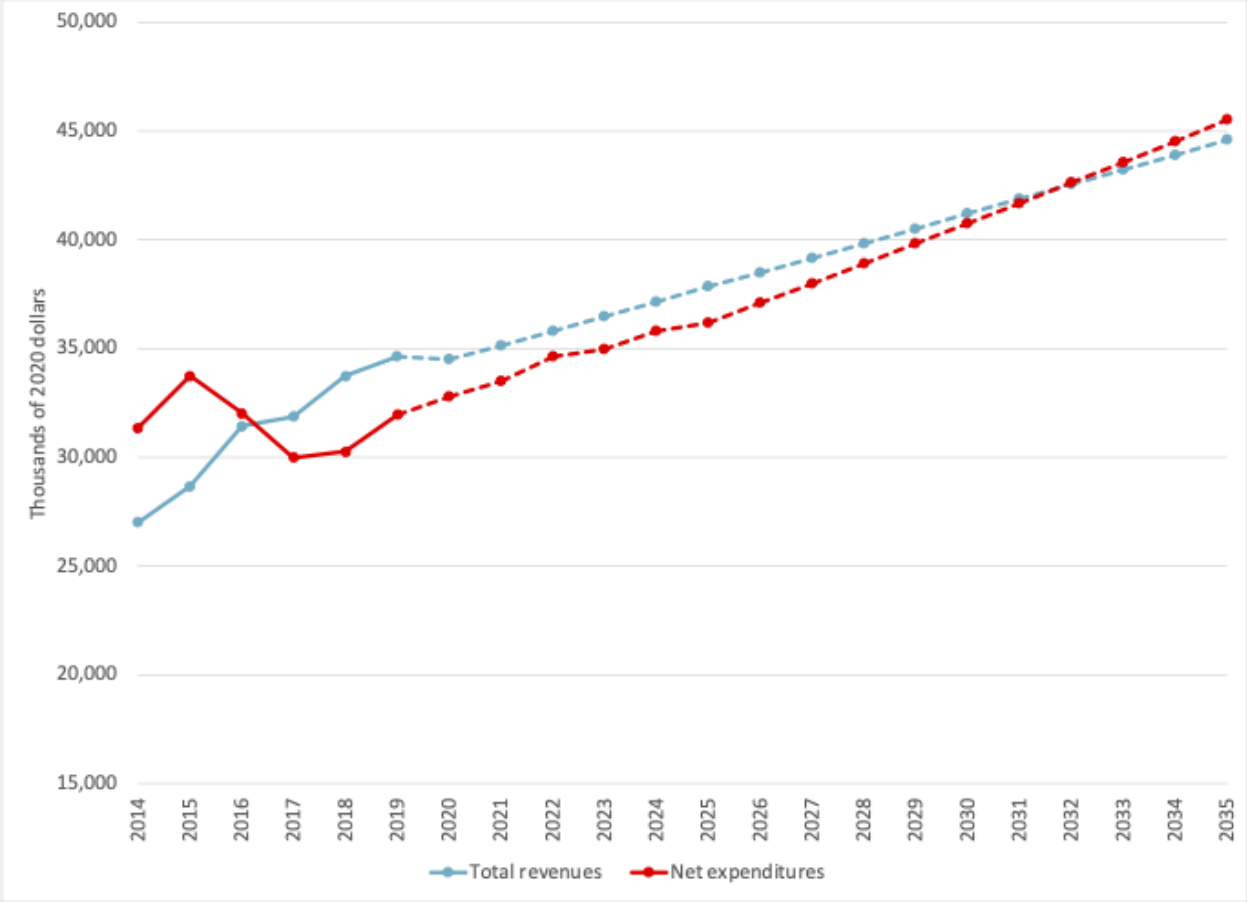
The Fiscal Sustainability of the General Fund

The calculations and projections described above are aggregated into totals showing the long-term sustainability of the Delaware General Fund. Again, because the emphasis is on the long-term viability of the budget, the impacts of the pandemic and future expansions and contractions are not considered. Business-type activities are considered separately, and revenues whose primary purpose is to defray specific expenditures are grouped with their associated expenditures. Examples of these include fines and forfeitures, which help to support the courts and public safety; license fees and gasoline taxes, which support roadway maintenance; and recreation and park fees, which support those expenditures. Thus, the primary revenue items are income taxes, property taxes, general licenses and fees, and hotel/motel taxes. Note that calculating some categories of expenditures on a net basis does not affect the key result: the distance between the revenue and expenditure lines.

The result of the fiscal sustainability analysis is shown in Figure 11. The chart begins in 2014 because court expenditures were not available before that year. However, the projection of each category of

revenues and expenditures incorporates as many years as possible. Net expenditures significantly exceeded revenues in 2014 and 2015, but a reduction in net court expenditures and an increase in parks and recreation revenues brought the budget back into balance in the following years. The excess of revenues over net expenditures continues through the current decade, but the more rapid projected increase of expenditures causes a steady decrease in the excess. As early as 2022, the excess is less than $1.2 million, and it vanishes altogether before the end of the forecast period. Even now, this is of concern because it implies a limited capacity to satisfy the significant need for road maintenance (to be discussed below), satisfy the needs outlined in the Capital Improvement Plan, and meet other expected and unexpected operating and capital obligations. Suggestions for addressing this shortfall are in the following section.

Figure 11: Fiscal Sustainability of the General Fund

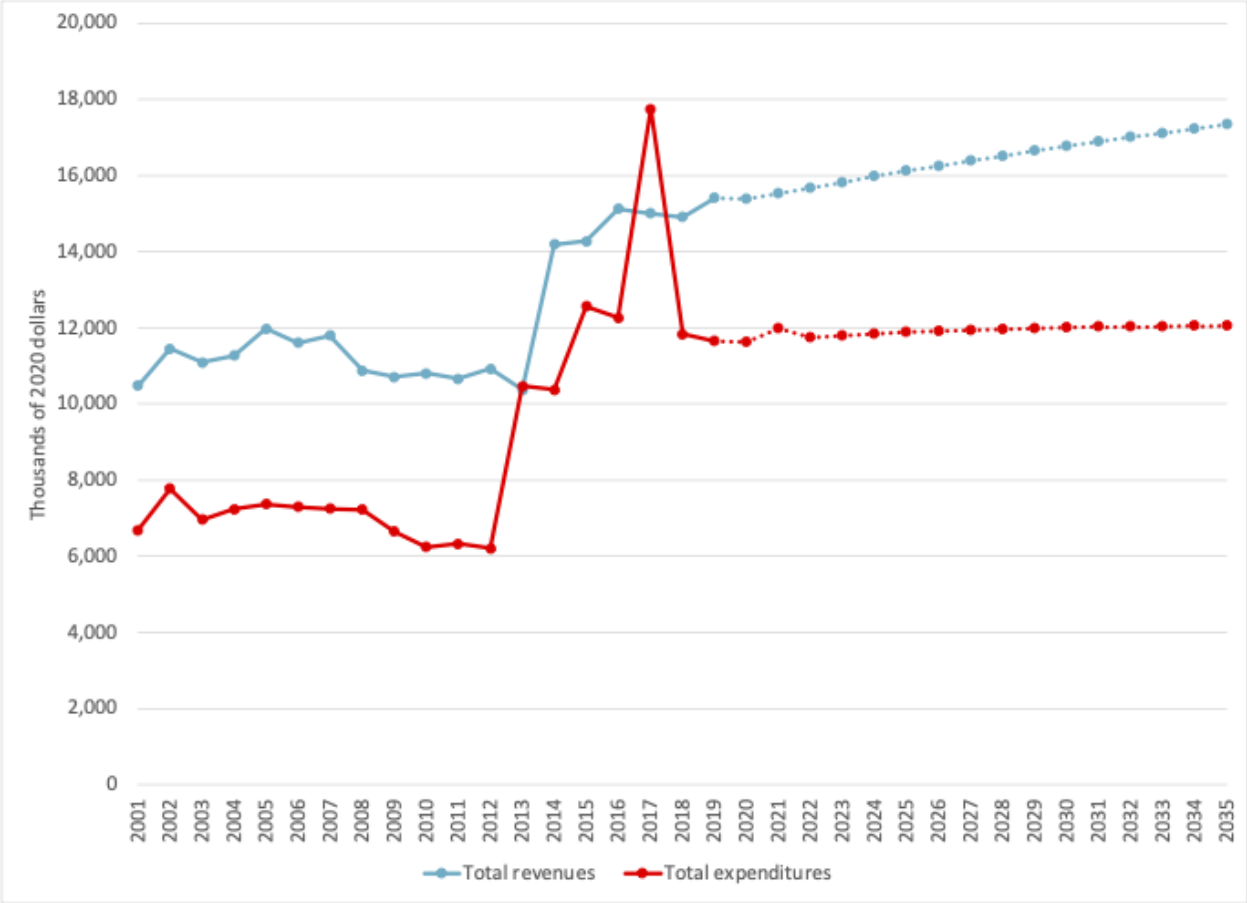


Business-Type Activities

As mentioned earlier, the analysis in Figure 11 omits the "business-type activities" that rely on user fees to be fully self-supporting. These activities include water, sewer, and storm sewer services; refuse services; and the Hidden Valley Golf Course. Two other activities should also be classified in this category because they also depend on user fees: Delaware Municipal Airport and Oak Grove Cemetery. These are analyzed in this section as well. Cemetery revenues, however, are much less than what is needed to support expenditures, so these revenues and expenditures were included in the General Fund analysis above.

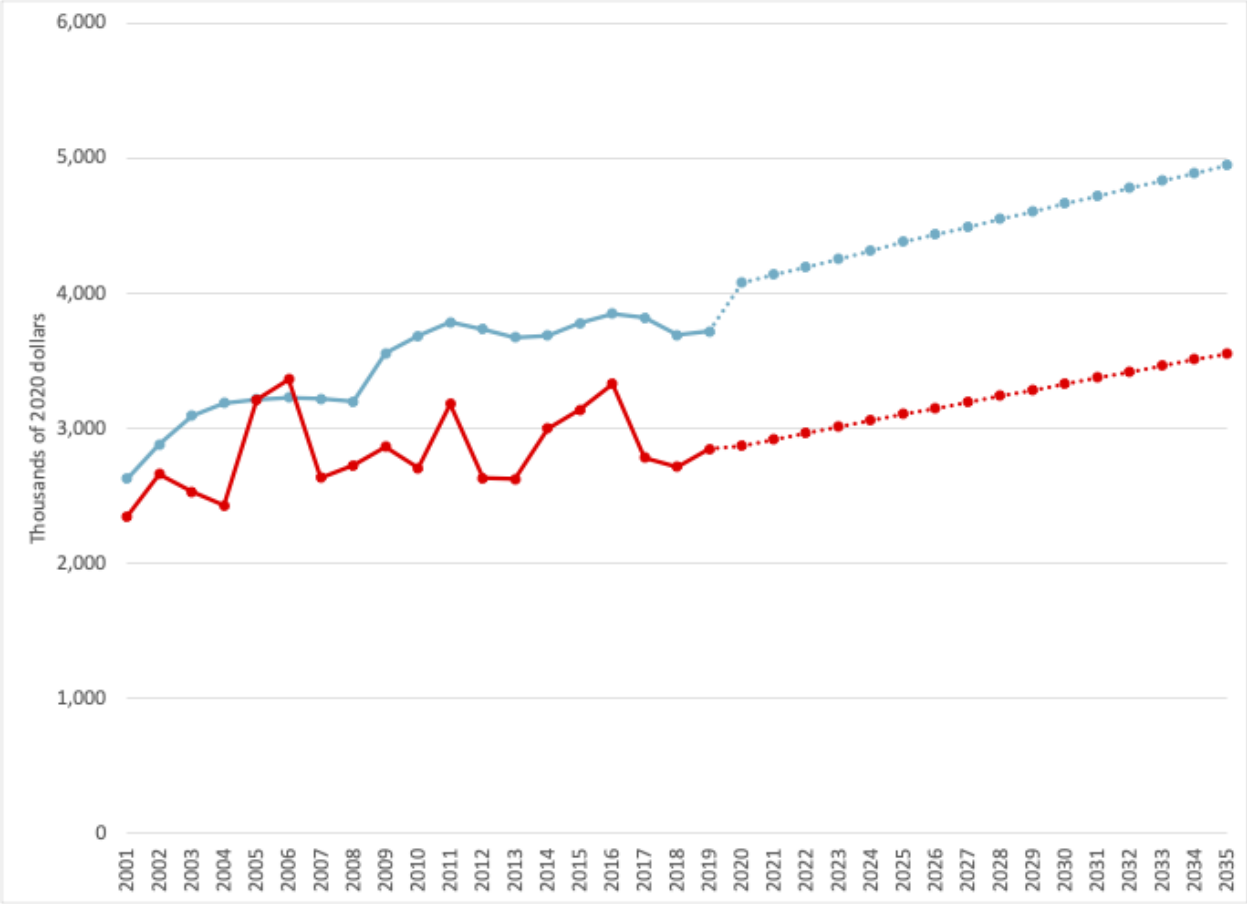
Water, Sewer, and Storm Sewer. The revenue and expenditure analysis of the water, sewer, and storm sewer activities is graphed in Figure 12. As in the General Fund analysis, capital expenditures and the related capacity fees are not included, but interest and principal payments on existing debt are included. A healthy excess of revenue over expenditures is particularly important in this activity because of the particularly large capital needs, including some expenditures that may be required on an emergency basis. It appears that water and sewer service revenues are well equipped to handle these needs. The large increases in revenues beginning in 2014 are due to the increase in meter fees. The increases in expenditures beginning in 2013 and the spike in expenditures in 2017 are due to increases in debt payments. Although revenues generally exceed expenditures, the excess is insufficient to meet the substantial needs in the Capital Improvement Plan. Consequently, an increase in rates in the near term is necessary.

Figure 12: Water, Sewer, and Storm Sewer Services Sustainability



Refuse and Recycling Services. The analysis of refuse administration, collection, and recycling sustainability used the same process as water and sewer: including all revenues and expenditures other than for major capital purchases. The results of the projection of revenues and non-capital expenditures are shown in Figure 13. As in the analysis of water and sewer services, refuse activities are sustainable, with revenues consistently greater than expenditures. The 2005-2006 spike in expenditures was due to the payoff of a note supporting the Curve Road landfill. However, this excess is insufficient to accommodate planned capital improvements, so the City is proposing a fee increase in 2022.

Figure 13: Refuse and Recycling Services Sustainability



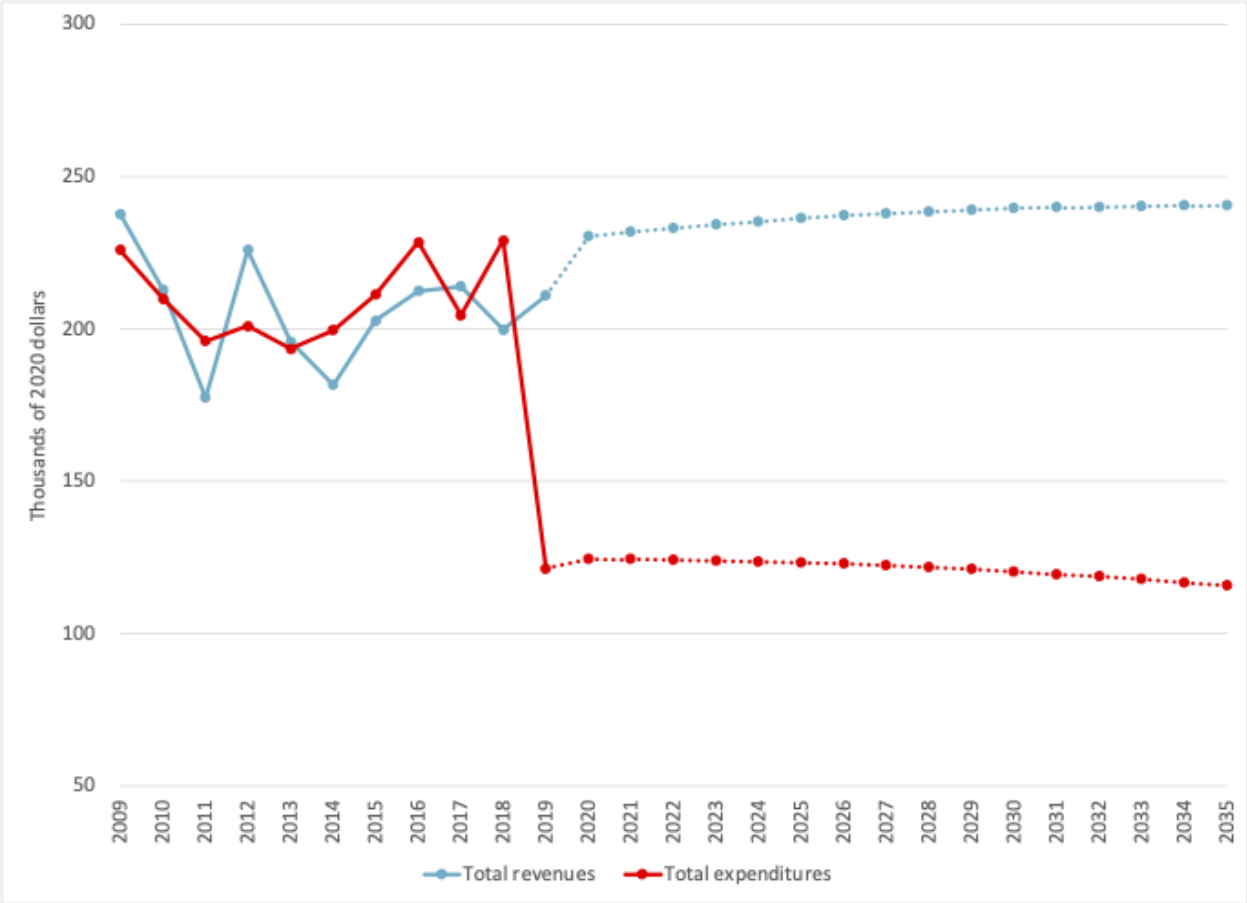
Hidden Valley Golf Course. Hidden Valley Golf Course opened in 1960; information is available in the financial records beginning in 2009. Golf courses have faced challenges for years, with the number of rounds played nationwide declining each year between 2006 and 2019.[5] Several central Ohio courses have closed for redevelopment in recent years, including Minerva Park Golf Club, Winding Hollow, Shamrock outside of Powell, Phoenix Links, and Blackhawk in Galena.[6] However, the natural social distancing offered by golf has been well suited to the requirements of the pandemic, and half a million more people golfed nationwide in 2020 than in 2019.[7] Hidden Valley also saw an increase in rounds played. It remains to be seen whether this growth will continue after the pandemic, but municipal courses such as Hidden Valley offer an accessible, affordable option for those wishing to play.

The sustainability analysis is charted in Figure 14. Prior to 2019, the golf course's position was slightly less than break-even. Inflation-adjusted wages and benefits declined more than 60% ($107,000) that year. This was not due to a change in staffing, but to a reallocation of these wages from the golf course to Parks and Recreation. That has effectively subsidized golf course operations. It is a policy decision,

[5] P. Dooley (2021, April 10). Golf (special report): How golf hopes to keep winning after COVID. *Wall Street Journal, Eastern Edition,* p. R1.
[6] M.M. Rose (2018, November 7). In the rough. *Columbus Dispatch,* p. 12B.
[7] Dooley.

and not necessarily a bad one. Delaware leadership has decided to maintain the golf course as an affordable amenity for players.

Figure 14: Hidden Valley Golf Course Sustainability



Delaware Municipal Airport. Delaware Municipal Airport (Jim Moore Field) is a public general aviation airport owned by the City and opened in August 1945. Facilities include a 5,800-foot runway, t-hangars, tie-downs, and fixed-base operator (FBO) services. According to AirNav.com, the airport is home to 86 aircraft, including 76 single-engine airplanes, six multi-engine airplanes, two jets, one helicopter, and one glider.[8]

The sustainability analysis is in Figure 15. Revenues are calculated on a net basis: aviation fuel revenues are net of their cost to reduce the variability of the time series. The 2014 expenditure spike was due to information technology costs of more than $630,000 in 2020-equivalent dollars. Revenues fell short of expenditures until 2013, when the t-hangars opened. The subsequent excess of operating revenues over operating expenditures excludes annual transfers from the General Fund, which have increased from $10,000 in 2014 to $30,000 per year in the last three years.

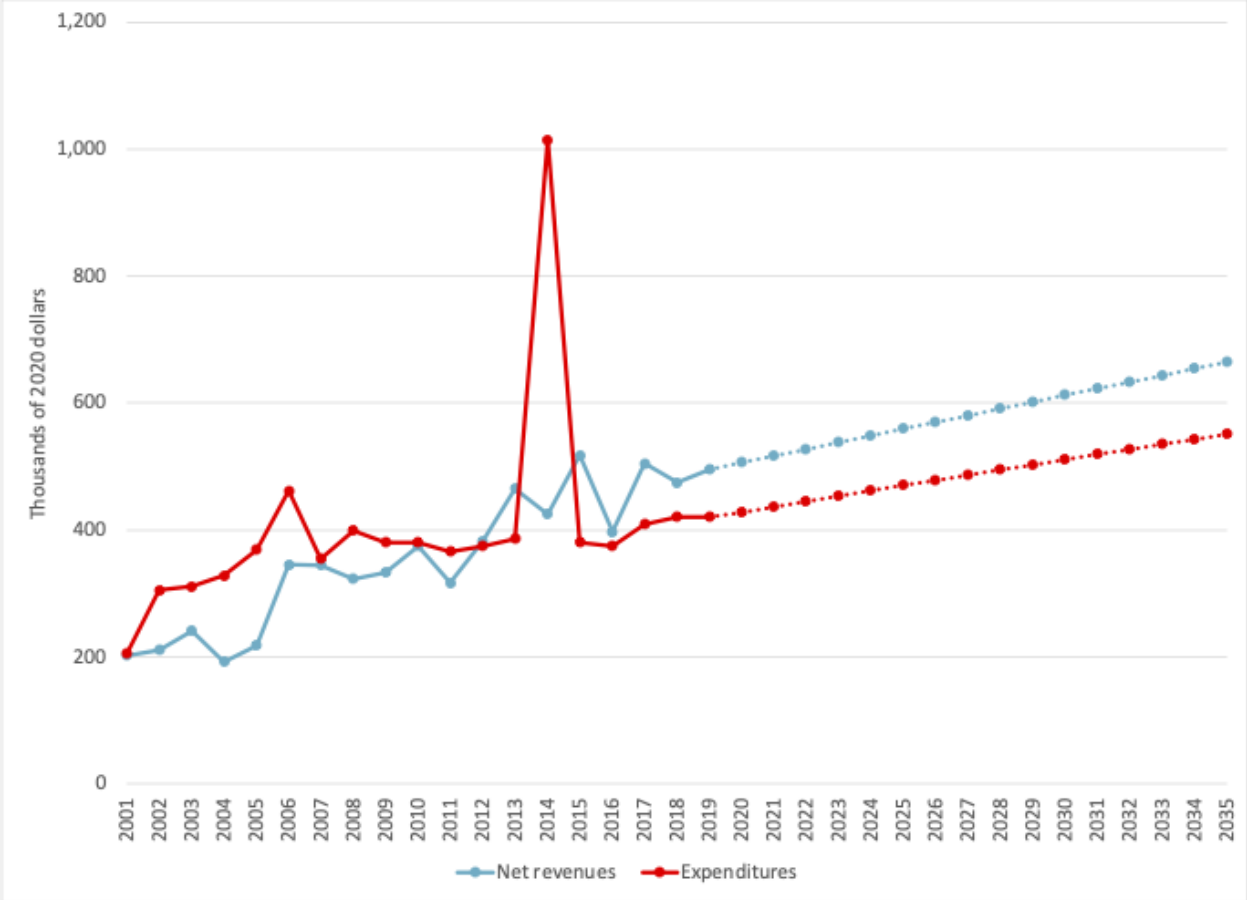
Projections are that revenues excluding transfers will continue to exceed expenditures, but by no more than 17%. In contrast, the projected water and sewer revenues exceed expenditures by more than 40%. Airports, like water systems, have significant capital needs so this excess may not be sufficient and may

[8] AirNav.com. Delaware Municipal Airport – Jim Moore Field. https://www.airnav.com/airport/KDLZ

leave the City exposed to large, unexpected funding needs. Unlike water systems, though, airports have access to Federal Aviation Administration Airport Improvement Grants. These grants are not guaranteed, however. A detailed market analysis of airport charges is beyond the scope of this project, but the Union County Airport's 2019 financial report showed a 30% excess of revenues over expenditures.[9] This is a smaller airport with shorter runways and only 55 based aircraft, but the profit percentage was more than double that of Delaware Municipal Airport in all of the past 20 years (except 2015) and the projected 16 years. The City may wish to consider an increase in airport fees and charges if the market will bear it.

Discussions are currently underway with Delaware County to establish a port authority to own and operate the airport. This would be a separate political jurisdiction, and not a branch of either Delaware City or Delaware County. However, both entities would appoint members to the governing board. This would separate the airport operations from those of the City. It would also give Delaware County a stake in an airport that doubtless benefits the county and Delaware County communities in addition to Delaware. However, it does not eliminate the concern that revenues may be insufficient to sustain the airport and the need to evaluate both revenues and expenditures to improve its self-sufficiency.

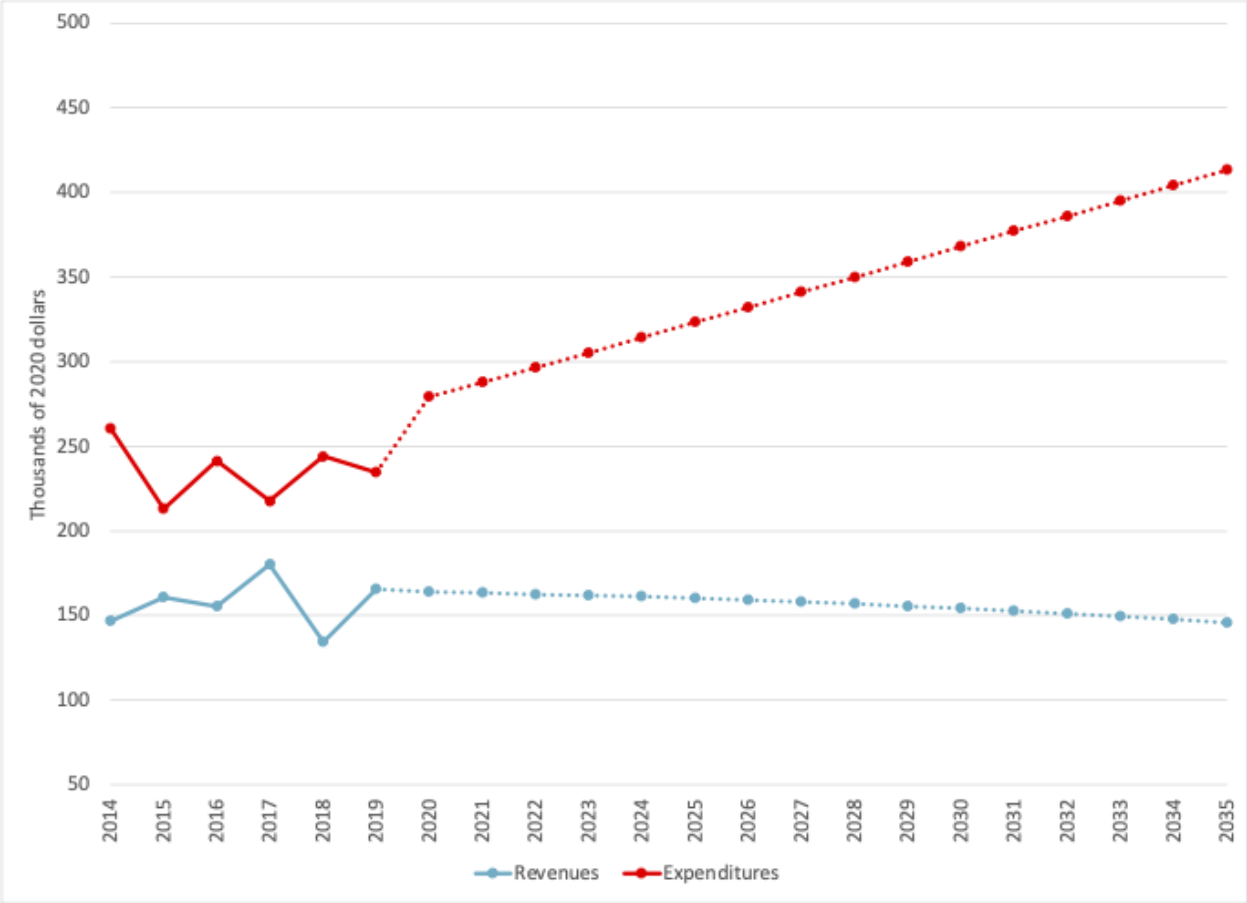
Figure 15: Delaware Municipal Airport Sustainability



[9] Union County, Ohio. *2019 Comprehensive Annual Financial Report*, p. 285. https://www.unioncountyohio.gov/media/Officials/Auditor/Financial%20Reports/Union%20County_19_CAFR_Final%20w%20Opinion.pdf

Oak Grove Cemetery. Oak Grove Cemetery was established in 1850. The cemetery was owned by a separate association from 1906 until 2012, when the association dissolved and the City assumed control. As shown in Figure 16, the cemetery's expenses far exceed its revenues. These projections are less certain because of the relatively short time series of historical revenues and expenditures. Theoretically, the cemetery could be a business-type activity, but given pre-purchased plots, the cost of perpetual care, and increasing wages and other expenses, there is little opportunity to bring revenues in line with expenditures. Thus, the cemetery is likely to remain a City-subsidized service to the community. The cost will be an increasing drain on the budget if the projections of increasing inflation-adjusted expenditures and slightly decreasing revenues are correct. Some effort could be made to increase revenues and/or decrease costs to mitigate this trend.

Figure 16: Oak Grove Cemetery Sustainability



Street Maintenance and Repair

Roadway maintenance needs are a particular concern for the City. An April 27, 2021, memo by Justin Nahvi, Finance Director, stated that nearly 42% of Delaware roadways are in poor condition. This implies a substantial amount of deferred maintenance: the standard is that only 4%, or 1/25, of streets should be in poor condition at any one time. Judging from the time series of repair expenditures, this deferment of proper maintenance could have started as early as 2003. Roadways in poor condition are

not only an inconvenience and expense for Delaware residents, workers, and visitors, they create a negative impression of the city overall, and might adversely affect property values and the ability to attract new businesses and residents.

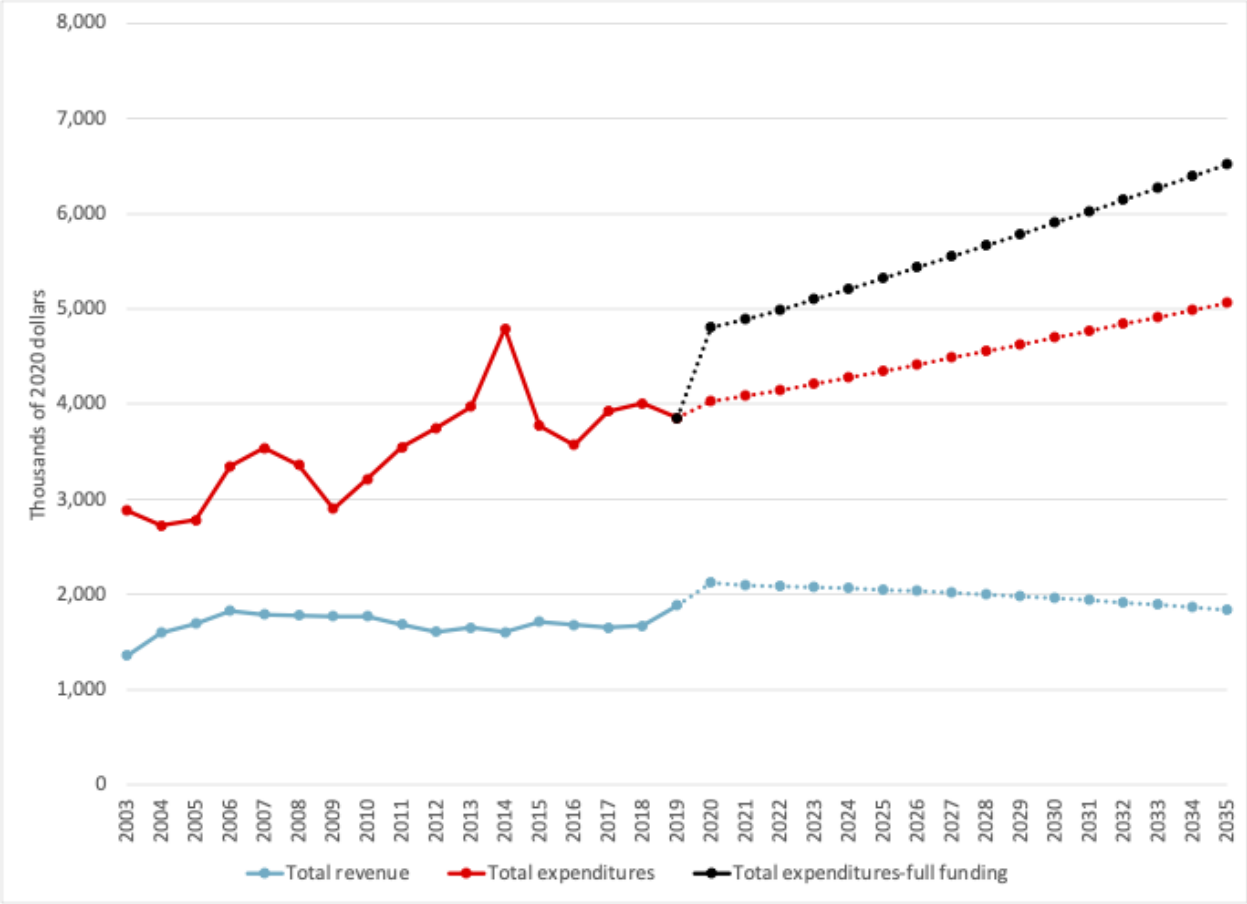
As noted earlier, street-related expenditures are projected based on square feet of roadway. The historical and projected square footage was charted in Figure 9. The projection is derived in the same way as population and employment: using regression analysis to project forward the long-term slope of the annual increase in roadway square footage. This implies a projected increase of 260,000 square feet, or roughly 3.3 lane miles, per year. Figure 10 charted historical and projected square footage per capita (population plus employment). The decline in roadway area per capita projected there suggests heavier roadway usage and consequently an even greater need to address roadway maintenance shortcomings. Traditionally, roadway maintenance expenditures have been funded by vehicle license fees of state and county residents and federal and state gasoline taxes. These revenues fall far short of the required amount to support roadway maintenance expense at even its current level. This was acknowledged in Governor Mike DeWine's successful effort to increase the gasoline and diesel tax for the first time in 14 years. The Governor originally sought an 18-cent increase to the 28-cent tax, but this was bargained down to 10.5 cents on gasoline and 19 cents for diesel. Annual fees of $100 for hybrids and $200 for electric vehicles were also imposed. These taxes, signed into law April 3, 2019, increased local governments' annual receipts by 56%, or $366 million, effective July 1, 2019.[10]

The Nahvi memo estimates that fully funding ongoing maintenance would cost $3.8 million annually, compared to less than $2.2 million budgeted per year over the next five years. In addition, nearly $25 million in 2021 dollars is needed to address the current backlog of deferred maintenance.

The operating budget position is shown in Figure 17, which includes both current projections and those assuming that future roadway maintenance needs are fully funded. Even with the increased gasoline tax revenues, the revenues fall far short of the increasing need for funding, even if no increase is assumed for street maintenance (the lower projected expense line). Gasoline taxes account for 85% of street maintenance revenues. The downward drift of revenue per capita is due to inflation eroding the value of the tax per gallon and improved fuel efficiency offsetting the increasing number of residents and workers. Finally, this chart includes only the increase in ongoing maintenance, and not the costs of curing the backlog. There are several potential funding options, each of which will have a different impact on the time series of costs. These options are discussed and evaluated in the next section.

[10] R. Ludlow & J. Siegel. (2019, April 4). Governor signs gas-tax increase. *The Columbus Dispatch,* p. 1A.

Figure 17: Street Maintenance Revenues and Expenditures



Addressing the General Fund Shortfall

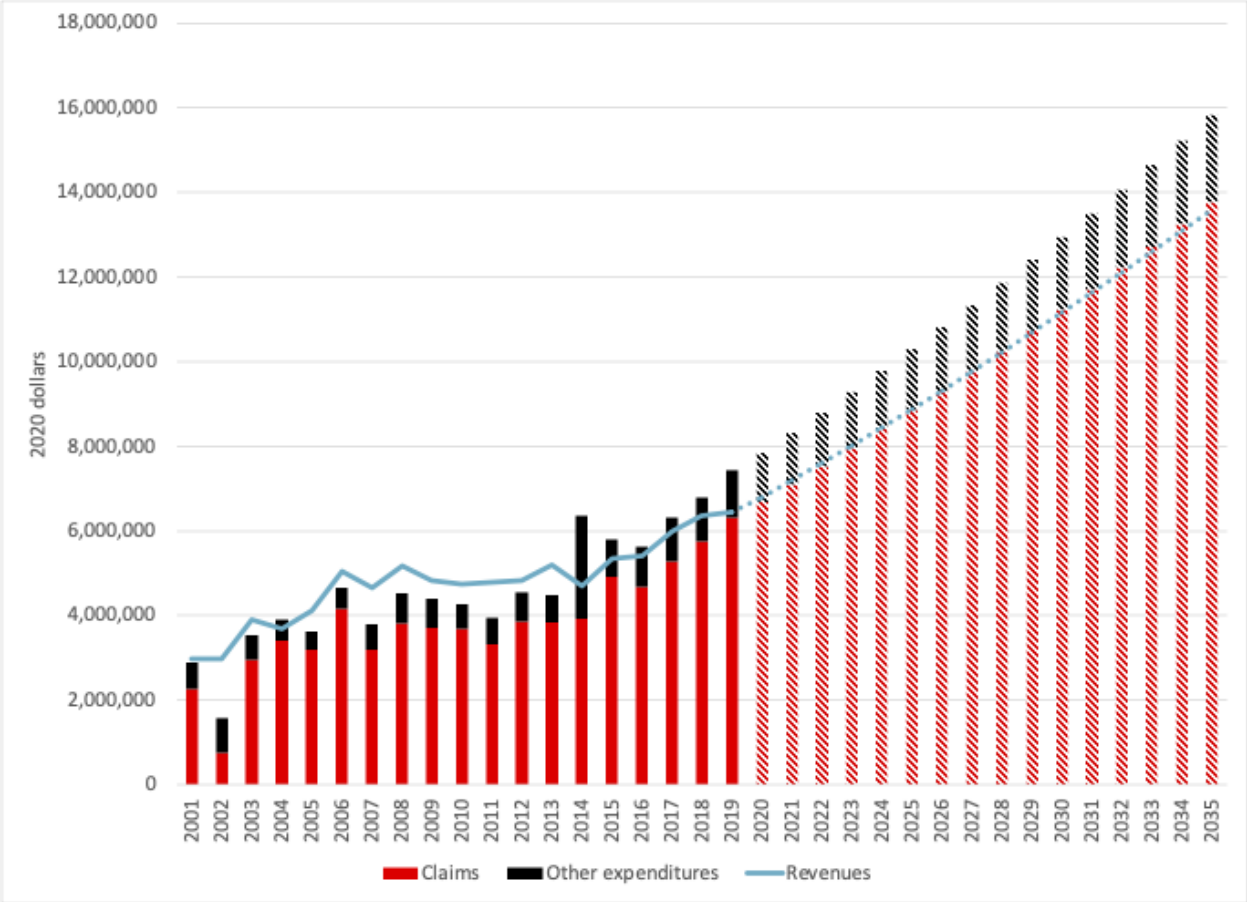
As stated earlier, there are only three ways to address the decreasing excess of revenues over expenditures in the General Fund: decrease expenditures, increase revenues, or some combination of the two. An examination of departmental operations could be undertaken to identify opportunities for greater efficiencies without harming the level of services delivered to Delaware citizens, employees, and visitors. However, the condition of the city's streets suggests that in that respect at least, current service levels are inadequate and in need of an upgrade. A review of operations might identify additional opportunities for improvement in efficiency or service levels.

An efficiency analysis is beyond the scope of this project, but one obvious opportunity lies in the self-insurance trust fund. As discussed in the 2020 Comprehensive Annual Financial Report (p. 90), the purpose of this fund is to provide medical and dental coverage for City employees, with all employees participating. The City purchases commercial insurance to backstop claims. Revenues of this fund are generally enough to cover claims, but not administrative costs.

Historic and projected self-insurance fund revenues and expenditures are charted in Figure 18. This shows claims and other expenditures separately. As shown, the last year that revenues exceeded total expenditures was 2013. Revenues continue to cover projected claims, but not other expenditures. The

projected shortfall in the near term is just over $1 million, and expands to $2.2 million in 2020 dollars by 2035. This compares to an overall projected General Fund shortfall of $900,000 in that year. It is an administrative decision whether to keep premiums at their current level and cover the additional costs as an employee benefit. If so, the shortfall will need to be covered elsewhere. Increasing self-insurance premiums will decrease the projected fiscal imbalance including street maintenance but will not cure it.

Figure 18: Historic and Projected Self-Insurance Fund Revenues and Expenditures



A more comprehensive possibility is to increase income tax revenues through increasing employment, increasing the rate (possibly coupled with an increase in the credit), or both. Income tax receipts provide just under 70% of total general fund revenues, making them a key candidate for reevaluation. *Delaware Together* includes areas for new commercial and industrial development. As these build out, they will increase income tax revenues, but it must be remembered that a substantial share of increased employment is likely to come from existing employers. Over the past 20 years, 76% of Ohio's new jobs were created by employers already resident in the state, based on analysis of the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey.

The question is the impact on tax collections of changes in the rate and possibly the credit for taxes paid to other municipalities. Currently, Delaware's income tax rate is 1.85% with a credit of half of the tax paid elsewhere, up to 0.925% (i.e., half of the Delaware rate). Thus, a Delaware resident working in Marysville, where the tax rate is 1.5%, would receive a credit of 0.75% and pay 1.1% to Delaware. A resident working in Columbus, where the tax rate is 2.5%, would receive the maximum 0.975% credit

and pay Delaware 0.975%. The Nahvi memo evaluates receipts from increasing the tax on workers in Delaware businesses but eliminating the tax on residents working elsewhere. It may be prudent to continue the limitation on the resident tax credit, however. Although taxes on residents working outside the city contribute only 10% of total revenue, the simulations discussed below and those in the Nahvi memo both show that reducing or eliminating this tax would require a substantial increase in the tax rate to raise necessary revenue. As demonstrated in the memo, increasing the income tax rate to 2% and eliminating the limitation on the resident credit causes receipts to decline.

Calculating the impact of changes in the tax rate and credit requires the income on which the tax is paid, which allows taxes from a change in rates to be calculated. The income of residents and non-residents working in Delaware can be derived by dividing the receipts as given by the Delaware Finance Department by the 1.85% tax rate. Business net income can also be obtained by dividing receipts by 1.85% if it is assumed that all taxed business net income is earned in the city. This is not entirely true: some proprietors may live in Delaware but own businesses located elsewhere. There is no way to estimate this percentage, and it is certainly less than the percentage of wage and salary workers whose job is outside the city.

Deriving the income of Delaware residents working outside the city is not nearly so straightforward because obtaining the effective tax rate requires reflecting the complicated interplay of the credit limit and the dozens of different tax rates of the municipalities in which Delaware residents work. The LEHD data discussed earlier include estimates of the number of Delaware residents working in each city, village, or Census-designated place (CDP, an unincorporated population center). The effective Delaware tax rate is calculated for these residents using a database of tax rates and collections from the Ohio Department of Taxation.[11] Correctly calculating taxable income and maintaining comparability requires the 2019 tax rates, so Appendix Table A-1 lists the 50 municipalities with the largest number of workers living in Delaware, the municipalities' tax rate in 2019, and the post-credit Delaware tax rate.

An overall tax rate for Delaware residents working elsewhere is derived by calculating the weighted average Delaware tax rate after credits, where the weights are the percentages of Delaware residents working in each municipality. The resulting rate, 0.964%, is the weighted average rate on Delaware residents working outside of Delaware. Recall that the total number employed in these municipalities are estimates so the results are estimated with error. Finally, it is assumed that earnings are insensitive to changes in the tax rate.

The top panel of Table 4 shows the derivation of the income of each category of taxpayers using the tax payments of the category as given by the Delaware Finance Department, the income tax rate applicable to that category, and the income calculated by dividing the payments by the tax rate. Delaware's income taxes are earned on a combined $1.7 billion of worker and business income. The overall tax rate of 1.692% is calculated by dividing total tax receipts by total taxable income.

The second and third panels of Table 4 report the results of increasing the income tax rate to 2% and 2.25%, first maintaining the 50% maximum credit and then increasing the credit to a maximum of 75%. The process for deriving the tax rate for residents working outside of the city is the same as described above and in Appendix Table A-1: the tax rate net of the relevant credit is calculated for the 50

[11] Ohio Department of Taxation. (2020, September 28). Municipal income tax: Tax rates and net collections, by municipality, calendar year 2018.
https://tax.ohio.gov/static/tax_analysis/tax_data_series/local_government_funds/lg11/lg11cy18.pdf

municipalities and the weighted average tax rate is derived from the net tax rates. The resulting rates with the 50% credit are 1.048% for the 2% income tax rate and 1.219% for the 2.25% tax rate. Tax receipts increase $2.35 million (8.1%) at the 2% rate and $6.37 million (22.1%) at the 2.25% rate, including an additional $19 million for the General Fund.

The 75% credit may make the tax rate increase more palatable to voters, but significantly reduces the impact of the tax rate increase. Increasing the rate from 1.85% to 2% leads to less than $1 million, or 3.1%, in additional revenue. The 2.25% rate results in a $4.8 million (16.7%) increase.

Table 4: Estimated Income Tax Revenue at Varying Tax Rates and 2019 Income

	2019 tax revenues*	Tax rate	Income basis
Residents working elsewhere	$2,932,635	0.964%	$304,243,082
Residents working in Delaware	$5,027,242	1.850%	$271,742,811
Non-residents working in Delaware	$18,911,327	1.850%	$1,022,233,906
Business net profits	$1,937,329	1.850%	$104,720,486
Total	**$28,808,533**	**1.692%**	**$1,702,940,286**
Fund 101 – General	$15,556,608		
Fund 231 – Fire/EMS	$10,947,243		
Fund 233 – Recreation	$2,304,683		

50% maximum credit	**2% rate**		**2.25% rate**	
	Tax rate	**Revenue**	**Tax rate**	**Revenue**
Residents working elsewhere	1.048%	$3,188,119	1.219%	$3,709,807
Residents working in Delaware	2.000%	$5,434,856	2.250%	$6,114,213
Non-residents working in Delaware	2.000%	$20,444,678	2.250%	$23,000,263
Business net profits	2.000%	$2,094,410	2.250%	$2,356,211
Total	**1.830%**	**$31,162,063**	**2.066%**	**$35,180,494**
Fund 101 – General		$16,827,514		$18,997,467
Fund 231 – Fire/EMS		$11,841,584		$13,368,588
Fund 233 – Recreation		$2,492,965		$2,814,440

75% maximum credit	**2% rate**		**2.25% rate**	
	Tax rate	**Revenue**	**Tax rate**	**Revenue**
Residents working elsewhere	0.572%	$1,739,747	0.704%	$2,141,976
Residents working in Delaware	2.000%	$5,434,856	2.250%	$6,114,213
Non-residents working in Delaware	2.000%	$20,444,678	2.250%	$23,000,263
Business net profits	2.000%	$2,094,410	2.250%	$2,356,211
Total	**1.745%**	**$29,713,691**	**1.974%**	**$33,612,663**
Fund 101 – General		$16,045,393		$18,150,838
Fund 231 – Fire/EMS		$11,291,203		$12,772,812
Fund 233 – Recreation		$2,377,095		$2,689,013

*Source: Delaware Finance Department.

The Nahvi memo shows the impact of raising the rate while raising the credit for taxes paid elsewhere to 100%. Raising the rate to 2% while eliminating taxes on income earned elsewhere reduces total revenue by $5.0 million (17.3%). However, an increase to 2.5% with full resident credit produces revenue of $38.1 million, an increase of $9.3 million (32.2%). The intermediate alternative, an increase to 2.25%, increases revenues to $31.5 million, slightly more than the 2% rate and 50% credit.

Another way to increase revenue is through an increase in property tax. Nahvi found that each one-mill increase in the property tax rate produces $893,000 in additional revenue. This is less revenue than any of the income tax increases, but there is logic in using property taxes to fund the roadway deficiencies, at least in part. Improving the condition of the streets favorably impacts adjacent properties.

The Nahvi memo also discusses the funding needed to address the roadway deficiency. The total cost to reduce the percentage of streets in poor condition from 25% to 4% is $24.8 million in 2021-equivalent dollars, and $3.8 million per year is needed to maintain this standard. This ongoing expense is more than $1.6 million greater than the current allocation. Nahvi found that if Delaware were to issue 25-year, 3% bonds to raise the $24.8 million, the annual debt service payments would be more than $1,412,405. The memo suggests diverting at least some of the income earmarked for the Fire/EMS Fund to a street repair fund. This is reasonable, given that there is a healthy balance in the Fire/EMS fund. This fund totaled $8.7 million at the end of 2020, up from $5.2 million in 2016. Redirecting some of this income if there is not an impending need would reduce the tax increase required.

The roadway cost calculations were performed in April 2021. There has been substantial construction inflation since then. No producer price indices are available from the Bureau of Labor Statistics for heavy construction, but one is available for nonresidential building construction in the Midwest. This index implies a price increase between April and November 2021 of 9.3%. Interest rates are also expected to increase as a result of inflation and economic growth. The consensus December forecast of the National Association for Business Economics (NABE) is that the 10-year Treasury yield will increase from its April 2021 rate of 1.64% to 2.10% by the end of 2022. Municipal bonds comprise a different market segment from the Treasury bond segment, but this does suggest an increase in long-term rates in 2022. Assume that the 9.3% producer price increase is also relevant for heavy construction and that prices increase an additional 2.8% by the end of 2022 (the current NABE forecast for the Consumer Price Index). This implies that the cost of addressing the backlog will be $27.9 million by the end of 2022, and the $3.8 million annual maintenance cost will be $4.27 million. Assuming also that the bond rate will be 3.5%, the annual debt service payment would then be $1,692,800. Average Delaware County wages increased as well, but only 4.3% from 2019 to the second quarter of 2021. The message of this analysis is that the longer the delay in implementing this program, the greater will be the burden.

Bear in mind, though, that the need is not merely to restore and maintain the city's street grid but also to address the declining revenue excess illustrated in Figure 11 and adequately fund the other items in the Capital Improvements Program. An increase in the income tax rate is likely to be necessary, as will other measures as well. Earlier, it was suggested that an increase in the maximum credit for taxes paid elsewhere might make the tax increase more appealing to voters. But reasonable voters should expect to pay for the services that they need. When confronted with the need to raise taxes and the consequences of not doing so, voters may agree to a tax increase.

Consider the Columbus tax increase from 2% to 2.5%. It was approved by 51.7% of voters in August 2009, immediately after the end of the brutal 2007-2009 recession. The City had already imposed cutbacks and the campaign warned of more, including police and fire layoffs, if the increase was not approved. At least some of those who voted in favor were likely voting to tax themselves: half of all Columbus jobs at the time were filled by Columbus residents, according to LEHD data. The current share in Delaware is 16.5%.

In seeking an income tax increase, Delaware should clearly demonstrate that all measures to avoid raising taxes have been taken, including a study of internal operations. Columbus City Council and

Mayor Michael Coleman convened a 15-member citizen Economic Advisory Committee (including the author) that met monthly from March 2008 to March 2009. The meetings included a thorough review of City finances and presentations by the head of each major department. The committee concluded that there was no way to cure the structural budget deficit without raising taxes, but that tax increases should be coupled with compensation and benefits adjustments, efficiency improvements, and other ways of reducing costs.

In Delaware, the condition of the street grid is a readily apparent example of the consequences of insufficient revenues; there are likely to be others. An ad hoc citizen budget review committee would be helpful, but a public education campaign should also be undertaken and endorsements by community and neighborhood leaders should be sought.

Tax Incentives: Tax Increment Financing and Tax Abatements

One point related to property tax revenues is the City's use of tax increment financing (TIF). These agreements divert some or all of the increase in property taxes arising from development of a parcel or parcels to a fund to defray related infrastructure costs. The logic behind this arrangement is that the property would not be developable without the expenditures on infrastructure that the TIF fund is supporting. Without this development, the affected area would not develop. Table 5 summarizes the TIF agreements currently in place.

TIF agreements are encumbrances on property tax revenues that might divert those revenues from their highest and best use. They should thus be evaluated and implemented with great care. The author conducted an extensive analysis of the economic impact of tax incentives and abatements for Columbus City Council and the Franklin County Commissioners. With respect to TIF, this study recommends that, "TIF agreements should have clear objectives, a public purpose, budgets, and timelines."[12] TIF agreements with long terms, such as those in Table 5, might divert funding from other needs with a higher priority, especially in their later years when the initial need for infrastructure is satisfied. The study recommends that TIF agreements, "have expiration dates consistent with the underlying needs. The term of these agreements should be affirmatively extended…for good cause and only if necessary."[13]

The study also argues that many TIF-funded improvements have a private as well as a public benefit. In these cases, a reasonable expectation might be that the private entities reaping the benefit contribute to their cost. For example, it might be reasonable to consider a special improvement district or a special assessment as a supplement to, or instead of, a TIF district. This would help address the criticism that TIF agreements lead to diversions of public funds to private entities.

[12] B. LaFayette. (2020). *Analysis of the costs and benefits of property tax incentives,* p. 47.
[13] LaFayette (2020), p. 47.

Table 5: Tax Increment Financing Agreements

Area	Purpose	Total disbursed	Amount to City	Established	Expires
Airport #527- Jet Stream, Airspace	Improvement of intersection, utilities, ramps near airport	$0	$26,651	2014	2027
#565- Braumiller Subdivision	Glenn Parkway addition		$335,620	2014	2036
#562- Cheshire North	Glenn Parkway addition		$342,755	2014	2036
#563- Cheshire South	Glenn Parkway addition		$32,026	2014	2036
#564- Cheshire West	Glenn Parkway addition		$133,632	2014	2036
#566- Evans Residential	Glenn Parkway addition	$0	$2,029	2014	2036
#776- Southeast Commercial	Road improvements surrounding Ohio Health Blvd.	$0	$0	2014	2037
#945- Skyclimber & V&P Hydraulics	Payment of costs for acquiring V&P and Skyclimber parcels	$47,237	$47,237	2014	2037
#1088- Zaremba-Mill Run	Paid to developer for Glenn Parkway	$133,006	$133,006	2014	2039
Sawmill Parkway	To reimburse County for City portion of Sawmill Parkway	$0	$0	n/a	n/a
Seattle House	Point Project	$0	$0	n/a	2049
Buehler's	Central Ave. turn lane improvements	$0	$0	n/a	2048

Source: City of Delaware Finance Department.

The property tax incentive study also examined property tax abatements, which reduce the incremental property taxes arising from development for a stated number of years. Incentives are used by all states and nearly all cities, including most of those in central Ohio. Proponents of tax incentives argue that the incentive's "lost" revenue is not really lost. Even in cases where there is a 100% abatement, it is only the incremental revenue that is abated, and tax revenues are the amount that would have been paid had no development occurred. Consequently, it is incorrect to compare the revenue from the abated developed parcel to that from the unabated developed parcel; the correct comparison is between the abated developed parcel and the unabated undeveloped parcel.

However, these points are true only if the incentive is truly needed for the development to occur. If the development would have occurred in any case, the abatement is a deadweight cost that Delaware can ill afford. Unfortunately, whether the abatement is truly necessary is unknowable; the company applying for the abatement has a strong incentive to give the impression that the development will occur if and only if the abatement is granted. The literature cites examples of jurisdictions without formal guidelines for granting incentives or agreed-upon performance standards, state incentives granted to businesses with no out-of-state business, and incentives awarded to projects that were already completed.

The LaFayette study argues that using abatements to compete with other regions for projects is much less productive than using them to compete with other municipalities within the region. In deciding among regions, companies are much more likely to focus on workforce quality, the availability and affordability of real estate, proximity to suppliers and customers, general business climate, and business costs. The impact of tax abatements looms larger within a region where these other factors are at least broadly similar among the competing municipalities.[14] In general, given the fact that most municipalities in central Ohio use abatements to at least some degree, eliminating these altogether could result in Delaware losing lucrative projects to other municipalities.

Granting incentives inherently leads the municipality to pick winners and losers. The study recommends that priority be given to projects in industries that are economic drivers. These are industries that have employment larger than average and growth faster than average, and are thus likely to strengthen growth and provide stable jobs with greater opportunities for advancement. The author's *Delaware County Strategic Economic Development Plan* (2014) includes an economic driver analysis for the county in Chapter 2. Despite the age of the analysis, its conclusions should still largely apply. For any proposed incentive, it is crucial to conduct a serious analysis of the project proposed for incentives before the fact and monitor employment, payroll, and investment targets after operations commence.

Using an incentive to encourage development of a blighted or underused parcel can be a productive use of abatements. Incenting development where development is unlikely to occur otherwise can bring a variety of benefits to the city and its residents. The tax incentive study discussed the use of abatements to encourage the development of the long-vacant Timken site in the economically challenged Milo-Grogan area of Columbus for the headquarters, manufacturing, and distribution facilities for Rogue Fitness. The analysis shows that while Rogue employees live throughout the metropolitan area and beyond, a greater-than-average percentage lives in the immediate vicinity. In addition to providing economic opportunity, redevelopment projects such as this can increase the value of nearby properties and ultimately property tax revenues. In a broader sense, an increasing number of municipalities across the country are explicitly including equity and inclusiveness in their criteria for awarding incentives.

Fiscal Impacts of Specific Development Alternatives

The Delaware Together plan outlines broad development concepts rather than specific location plans. Accordingly, development alternatives are evaluated broadly here as well. The budget impact is estimated for 10 acres of development of a variety of residential and commercial property types.

This evaluation is different from that in the previous section. Because the goal is to measure marginal impacts, the only revenues and expenditures that matter are those that increase as population and development increase. Income and property tax revenues, wages of operations staff, maintenance costs of roadways, and expenditures on routine supplies increase with more homes, businesses, and residents. These are called variable revenues and expenses. On the other hand, many expenditures are fixed, meaning that they do not increase as population increases. Examples are salaries of the City Manager and City Council, building maintenance expenditures, and principal and interest payments on already-existing debt. As population increases, the burden of fixed expenditures is spread out among more people.

[14] LaFayette (2020), p. 15.

This is not to imply, however, that fixed expenses are fixed for all time. A substantial increase in population, employment, or development will lead to needs such as a new fire engine, a police substation, or additional supervisory staff. Fixed expenses are only fixed within a relevant range, and when they increase, they may increase substantially. The excess of revenues over expenditures estimated in the previous section provides the funding needed to meet increases in fixed costs. However, for the relatively small development increases analyzed here, these costs can be assumed to remain fixed.

The impact of a development does not stop at its property line. The occupants of residential properties buy household goods and services, and the businesses of commercial and industrial developments buy inventory, supplies, and business services. Businesses also pay wages and salaries to their employees, who use the income to purchase goods and services. To the extent that these purchases are made within Delaware, they increase economic activity, increase income, and sustain jobs in the city. This generates additional budget impacts, both revenues and costs. The supplier and household impacts can be measured through an economic impact model, and the variable revenues and costs of these impacts can be estimated in turn.

An important point is that the operations of the development *cause* these supplier and household impacts. If the development did not exist, neither would the additional economic activity and employment. This is the point that makes economic impact analysis legitimate.

The economic impact of each development alternative on the 43015 ZIP code area is estimated using IMPLAN software. This analysis accounts for the presence or absence of relevant suppliers of goods and services in the area, and generates supplier and household output and employment by detailed industry. Each industry's employment is multiplied by that industry's 2020 average annual pay from the QCEW to determine total taxable wage and salary income. Output (revenue) is multiplied by sector-specific margins derived from the averages reported for commercial tax returns (including pass-through returns) in the Internal Revenue Service's *Statistics of Income*. This publication includes total revenues and taxable net income less deficit for corporations by industry sector. Net income divided by revenues equals the profit margin. Other variable current and projected per-capita revenues and expenditures are measured as for the direct impacts.

There is a crucial omission from the household impacts, however. These impacts include the value of purchases that households make but not the value of the labor they supply beyond the earnings from that labor. As will be seen, lower-value owner and renter housing has a negative impact on the budget. However, without the workers living in this housing, businesses would have greater difficulty filling lower-level positions. Consequently, their efficiency and profitability would suffer. This is a very real impact, but there is no way to include it in the analysis.

Residential Development Alternatives

The key revenues generated by residential development are income and property taxes, with additional contributions by residents toward roadway maintenance from gasoline taxes and license fees. Both income of residents and their effective income tax rate are needed to estimate income tax revenues. The house value of homeowners can be inferred by relating value to income. According to the 2011 American Housing Survey for the Columbus MSA from the Census Bureau – the most recent available – the home value of owner households in the MSA was on average 2.2 times household income.

Property values of both residential and commercial developments are obtained by benchmarking existing developments. Three recent residential developments in Delaware were analyzed to identify average purchase prices, the relationship between purchase prices and auditor values, the number of properties per acre, and the square footage of roadway. These include a relatively high-value development, Ryan Homes' Terra Alta development, a moderately-priced development, Rockford Homes' Willowbrook development, and a lower-price condo development, Ryan Homes' Enclave at Adalee. Condo developments are becoming increasingly popular because of the trends toward more single-person households and empty nesters discussed in the *Insight 2050* study. These developments are also consistent with the increased density needed as the region's population increases.

The Delaware County Auditor's market values are generally 5.5% less than the recent purchase prices of those properties. Academic studies have found that auditors' assessed values generally tend to understate market values. This is a sensible approach: if assessments are lower than market values, there are fewer property value challenges, and the jurisdiction avoids the time and expense associated with these challenges. This is part of the explanation, but so is the fact that home purchases often include appliances, which are not part of the real estate.

The income of renter households is derived from their rent. The American Community Survey reports that the average household in Delaware spends 29.1% of total income on rent. Annual rent is needed both to infer income and for the municipal income taxes of the property owners (discussed below). This is estimated from rent per square foot and the physical characteristics of recently developed apartment complexes. Physical characteristics – the number of units per acre and the square footage per unit – are obtained from 35 apartment complexes in Franklin County built between 2016 and 2019.[15] These complexes average 18.8 units per acre and 928.7 square feet per unit.

Rents per square foot are obtained from 11 apartments in three complexes in and near Delaware built between 2014 and 2020. The average annual rent per square foot of these apartments is $15.60, implying annual rent per unit of $14,488. This in turn implies an annual household income of $49,786. The effective income tax rate for both owners and renters is the 0.964% derived from current income tax provisions and the commuting patterns in Appendix Table A-1.[16]

Estimated household income includes all sources of income, both the wage, salary, and self-employment taxes that are subject to municipal taxes, and the investment, retirement, and social security income that is not. The Internal Revenue Service's *Statistics of Income* includes totals by line item on Form 1040 returns. Table 1.4 lists for all returns sources of income by size of adjusted gross income (AGI). These statistics reveal that wage, salary, and business net income comprised the following shares of total income for returns filed in 2019:

- AGI $40,000 to under $50,000: 83.4% of total AGI
- AGI $50,000 to under $75,000: 79.5% of total AGI
- AGI $75,000 to under $100,000: 76.3% of total AGI
- AGI $100,000 to under $200,000: 75.2% of total AGI

[15] Apartment complexes in Franklin County rather than Delaware County are analyzed because of the number of newer complexes and because, unlike Delaware County, Franklin County records report the total number of units in each complex. This assumes that the configuration of new apartment developments in Delaware will be comparable to those in Franklin County.

[16] Although some of these households will include workers employed in Delaware and paying the full 1.85%, their place of employment is irrelevant to the budget impact of their households.

Estimated household income is multiplied by the appropriate percentage to derive income that would be taxable by Delaware.

Most expenditure items are analyzed on a per-capita basis so the number of dwellings in 10 acres must be converted to the number of residents, reflecting both average household size and vacancy rates. Ideally, vacancy rates are needed for detached owner dwellings and rental apartments, but the Census Bureau's American Community Survey collects only overall owner housing and renter housing vacancy rates. For the city of Delaware, these averaged 1.0% and 4.7%, respectively, during 2015-2019. Owner households averaged 2.94 members; renter households averaged 2.16. Finally, roadway length is measured in each of the three benchmark developments, converted to square feet by assuming 24 feet of width, and measured per acre of development. The roads in the apartment complex are assumed to be private and thus have no budget impact.

The results of this analysis are reported in Table 6. In addition to the lower value Enclave at Adalee development with its actual average property value, the same development is analyzed assuming the higher middle value Willowbrook average. This hypothetical development shows the impact of more dense development on revenues, expenditures, and net contribution to the General Fund budget.

Table 6: Residential Property Characteristics

	Higher value owner	Middle value owner	Lower value owner	Dense middle value owner	Multi-unit renter
Units	22	38	64	64	188
Value per unit	$400,000	$341,650	$248,757	$341,650	$72,664
Total value	$8,800,000	$12,982,712	$15,920,461	$21,865,620	$13,660,740
Auditor value	$8,312,802	$12,263,945	$15,039,050	$20,655,066	$12,904,435
Number of households	22	38	63	63	179
Number of residents	65	112	185	185	387
Average income per household	$181,818	$155,296	$113,071	$155,296	$49,786
Taxable income per household	$136,754	$116,805	$85,046	$116,805	$41,545
Taxable income total	$3,008,586	$4,438,592	$5,357,917	$7,358,718	$7,436,543
Square feet of roadway	32,419	32,677	53,581	53,581	0

The number of residents, property values, and square feet of roadway are used to derive marginal revenues and expenditures for each type of development. These are shown in Table 7, as are the impacts generated by supplier and household purchases derived from the IMPLAN analysis. Note that business income taxes are included for the multi-unit rental development. This value is derived from data on corporate tax returns in *Statistics of Income.* The implied profit margin for real estate and rental and leasing is 32.8%. The $14,488 annual rent times the 179 occupied units yields total annual revenue of $2,593,300, This result multiplied by 32.8% gives net income of $850,324. Multiplying net income by the 1.85% tax rate yields business income tax revenue of $15,731.

Employees of the apartment complex also contribute income taxes. Direct employment is 9.4, according to the IMPLAN results. The average annual Delaware County wage for lessors of residential real estate is $43,179, as reported in the QCEW. At the 1.85% tax rate, employee tax revenues are $7,517 annually.

The indirect housing impacts include only the fiscal impacts of resident purchases in the 43015 ZIP code area. This area is larger than the city, so the impacts will be somewhat overstated. The renter housing impacts include the tax impacts of resident purchases, apartment operating wages and business purchases, and the impacts of apartment employees' and supplier employees' household purchases.

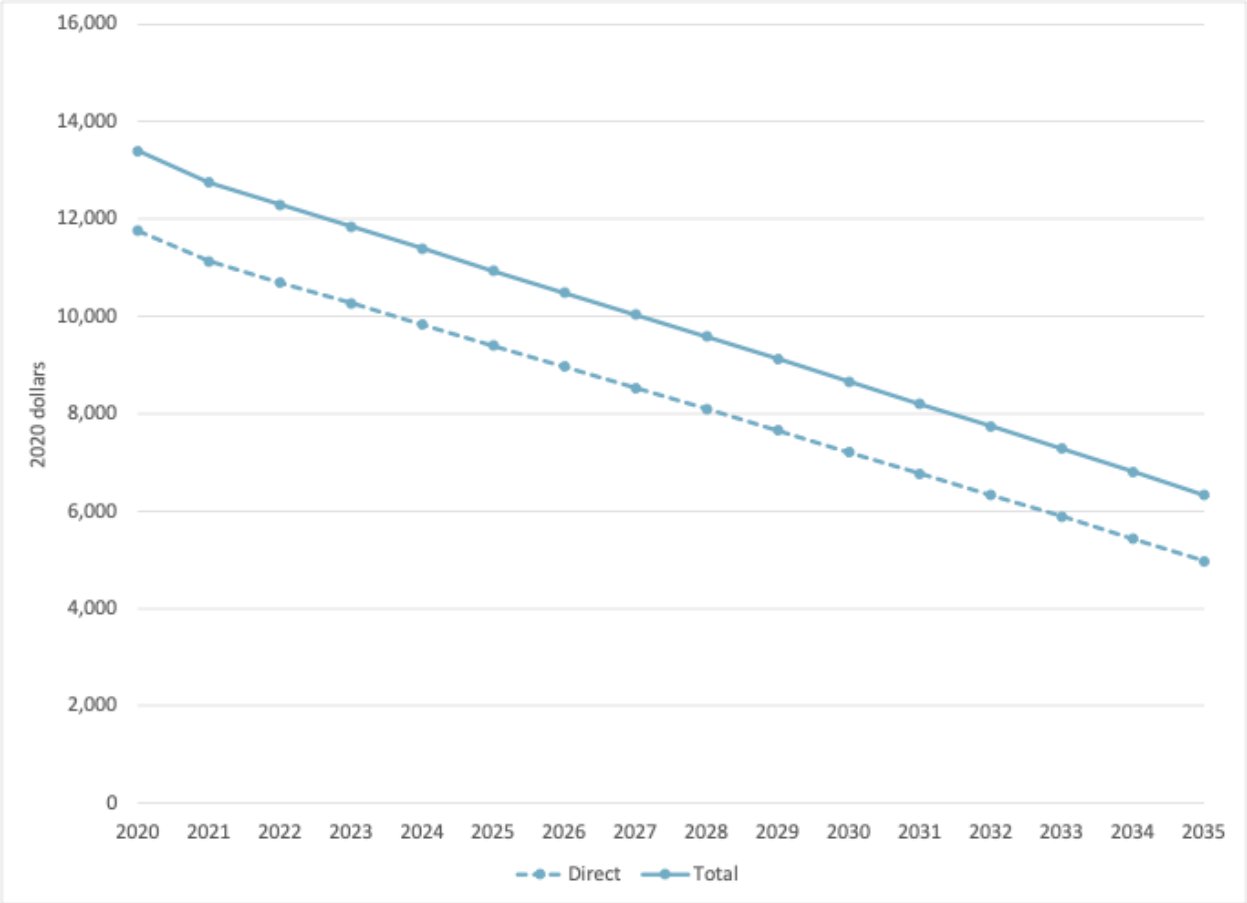
Table 7: Marginal Budget Impacts of Residential Development, 2020

	Higher value owner	Middle value owner	Lower value owner	Dense middle value owner	Multi-unit renter
Direct marginal revenues					
Income tax	$29,007	$41,335	$49,897	$68,530	$71,699
Business income tax					15,731
Employee income tax					7,517
Property tax	7,856	11,194	13,727	18,853	12,195
License fees and gas taxes	3,409	5,874	9,702	9,702	20,295
Total	**$40,272**	**$58,403**	**$73,326**	**$97,085**	**$127,437**
Direct marginal expenditures					
Finance	$132	$227	$375	$375	$784
Police	9,842	16,958	28,012	28,012	58,598
Fire & EMS	11,012	18,975	31,343	31,343	65,565
Planning	1,291	2,225	3,676	3,676	7,689
Economic development	267	460	761	761	1,591
Building maintenance	397	685	1,131	1,131	2,366
Garage	655	1,128	1,864	1,864	3,899
Information technology	1,590	2,739	4,525	4,525	9,465
Self-insurance (net)	1,192	2,054	3,393	3,393	7,098
Courts (net)	(453)	(781)	(1,289)	(1,289)	(2,697)
Parks and recreation	1,328	2,288	3,780	3,780	7,907
Street maintenance	1,376	1,387	2,274	2,274	0
Total	**$28,630**	**$48,347**	**$79,843**	**$79,843**	**$162,265**
Net direct impact	**$11,642**	**$10,056**	**($6,517)**	**$17,242**	**($34,827)**
Supplier and household impacts					
Income tax	$2,197	$3,291	$5,337	$4,515	$9,597
License fees and gas taxes	100	148	237	203	346
Total	$2,297	$3,439	$5,574	$4,718	$9,943
Expenditures	$656	$970	$1,552	$1,327	$2,431
Net marginal indirect impact	**$1,641**	**$2,469**	**$4,022**	**$3,390**	**$7,512**
Total impact	**$13,283**	**$12,525**	**($2,494)**	**$20,633**	**($27,315)**

The 15-year projections developed in the previous section can be used to project trends in the net marginal impacts to 2035. These are shown in the following series of charts. Figure 19 shows the direct and total (direct plus indirect) impacts of 10 acres of high-value owner residential development. Direct impacts are the dashed line; the solid line is the total impact. This and all the following impacts decline over time; this is consistent with the finding that the coverage of expenditures by revenues is projected to decrease, as shown in Figure 11. All impacts are shown with the current income tax scheme; an

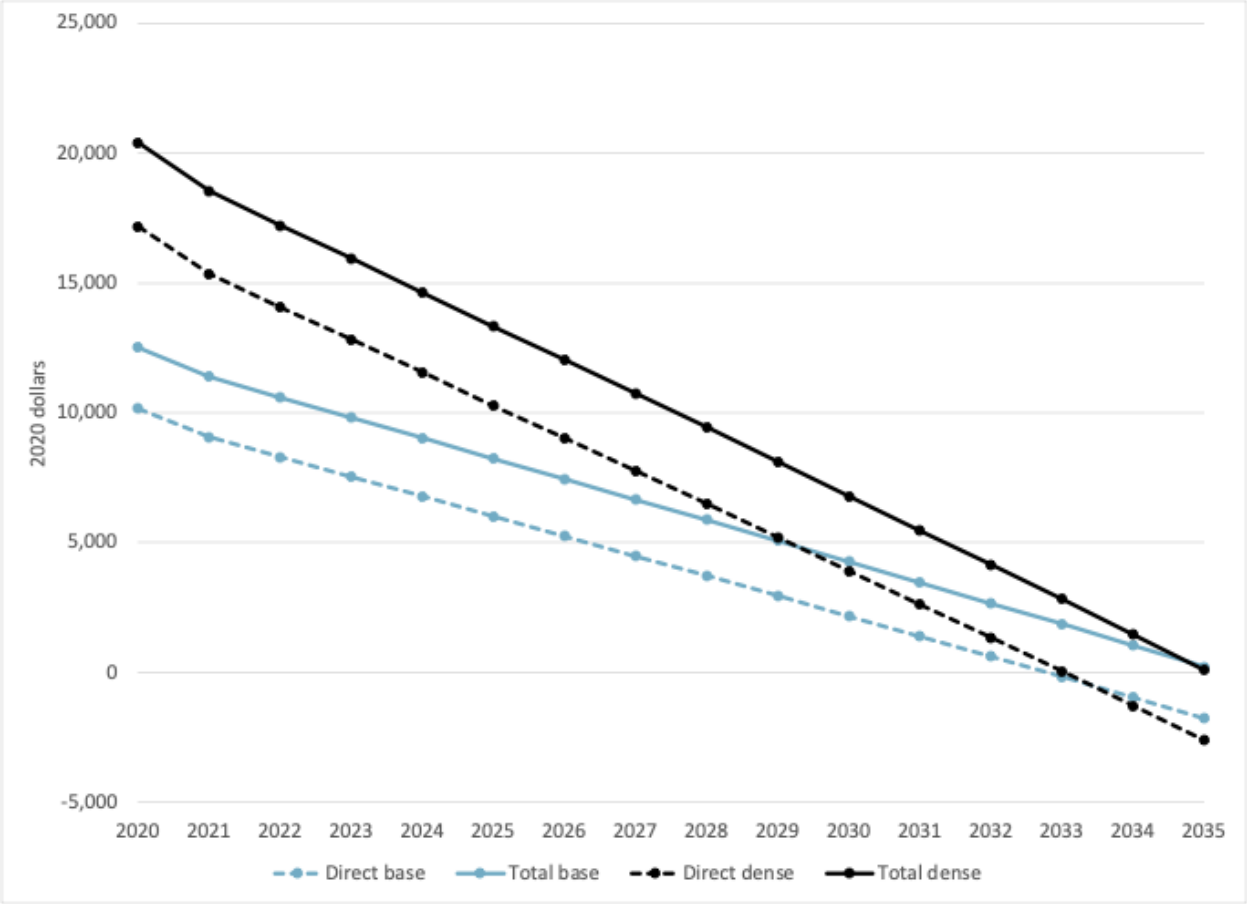
increase in the rate and/or a decline in the credit will shift the lines upward. The high-value owner housing impacts for all years are positive.

Figure 19: Net Marginal Impact of High-Value Residential Development, 2020-2035



As previously discussed, the moderately priced development is analyzed assuming both the smaller number of units implied by the Willowbrook development, and the larger number implied by the denser Enclave at Adalee development. The objective is to explore the fiscal impact of fostering denser residential developments. The results are graphed in Figure 20. The blue lines represent the base impacts assuming the Willowbrook configuration; the black dense lines assume the Enclave at Adalee layout. Comparing the actual moderate value residential impact with that of the hypothetical denser development with the same unit value shows that density has a positive impact on net revenues. The denser development increases the impacts by nearly two-thirds initially, but they decline more quickly. Still, the dense total impact only equals that of the less dense development at the end of the 15-year period. In the model, these benefits come from fewer square feet of roadway per resident, but density also reduces the amount of other infrastructure that must be installed and maintained, and may also decrease emergency service response times and costs. Because these impacts are not reflected, the actual advantage of the denser development is greater than that shown.

Figure 20: Net Marginal Impact of Traditional and Dense Moderate-Value Residential Development, 2020-2035



Lower-income households generally demand more in services than they contribute in revenue. This finding is illustrated in Figures 21 and 22, which plot the impacts of low-value owner housing and the rental apartment complex. However, recall the earlier point: these impacts do not include the benefit of having a nearby workforce with a wide diversity of skills, which allows businesses to operate with greater efficiency.

Further, the fact that even the high-value housing impacts are positive is only because of the partial taxation of income earned elsewhere. In cities with a full credit, such as Columbus, commercial development subsidizes all residential development. If a full tax credit were available in Delaware, all residential impacts would be negative, and the income tax rate imposed on businesses and workers in the city would have to be substantially higher.

Figure 21: Net Marginal Impact of Low-Value Residential Development, 2020-2035

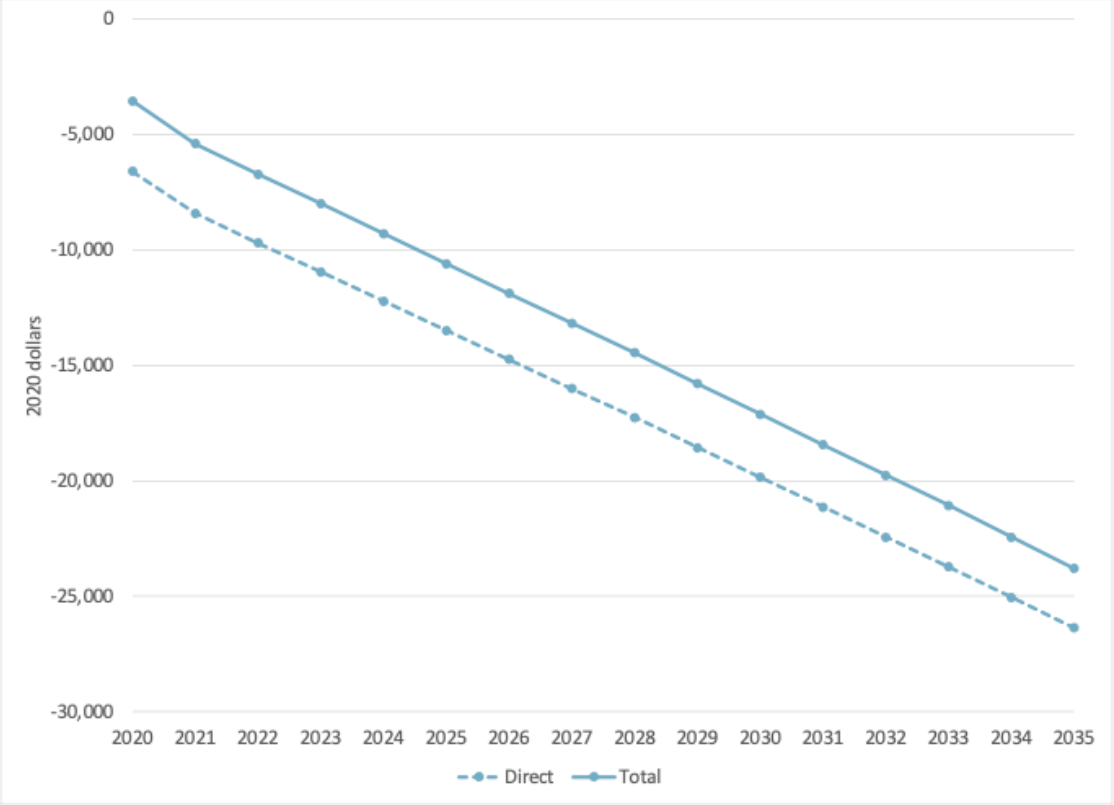
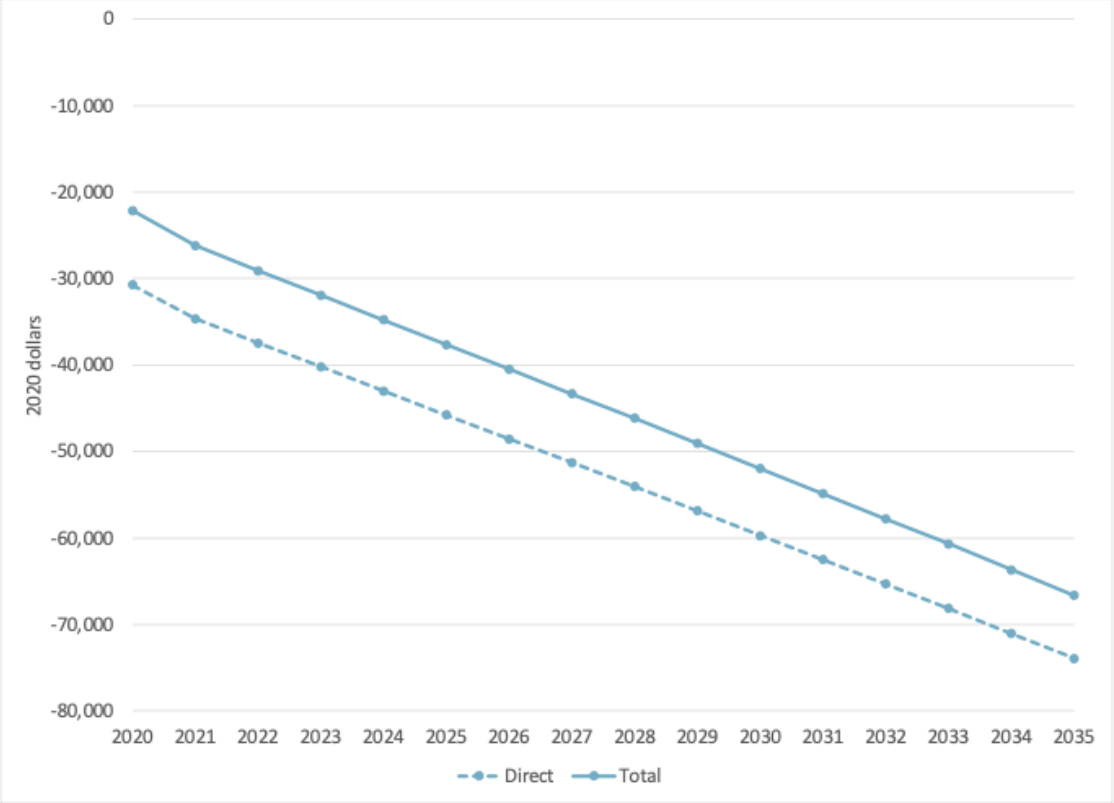


Figure 22: Net Marginal Impact of Multi-Unit Residential Development, 2020-2035



There are two restrictive assumptions underlying these projections that tend to make them conservative. First, no increases in tax rates are assumed. The increases in the income tax rates modeled earlier would shift all time series upward. Second, household wages and property values are assumed to increase only at the rate of inflation (i.e., they remain constant in inflation-adjusted terms).

Commercial Development Alternatives

As with residential properties, the necessary characteristics of commercial properties are obtained by benchmarking similar developments in Delaware. For the multi-unit apartment development analyzed above, tax generation comes primarily from the taxes on resident income. However, rental properties are both residential and commercial in nature, and generate employment. As discussed above, the implied expenditures of these employees are included with the resident-generated impacts in Table 7 and Figure 22.

Six other commercial and industrial property types are considered: restaurants, small retail structures less than 20,000 square feet, larger retail structures including big-box stores and shopping centers, manufacturing plants, and warehouse/distribution facilities. As for the residential developments, the impact estimates assume 10 acres of development. This development is likely to be scattered, especially for restaurants and small retail. It is assumed that development is either infill or in office or industrial parks with privately-owned roadways, so there is no cost for incremental public streets. Office developments are assumed to be single-story.

Total employment is estimated based on the average number of employees in each type of facility per 1,000 square feet, which in turn requires the number of square feet per acre for each development type. Average property characteristics are derived by analyzing relevant Delaware County properties: 21 stand-alone restaurants, 11 small retail properties, 21 large retail properties, 17 general office properties, 25 medical offices, and 37 industrial properties. The resulting characteristics of each property category are listed in Table 8. Because the land and building values are obtained from Auditor records, they are equal to the taxable values. General office and industrial employment averages per 1,000 square feet are from a 2018 Building Owners and Managers Association (BOMA) survey.[17] Other averages are generated by Regionomics from property square footage and employment counts from Data Axle Reference Solutions (formerly Reference USA). The resulting property characteristics are listed in Table 8. The employment total for each type of development is the variable on which the indirect impacts are calculated by IMPLAN.

Table 8: Commercial Property Development and Employment

Category	Square feet per acre	Land value per acre	Building value per square foot	Employment per 1,000 sq.ft
Restaurant	4,128	$ 298,806	$ 97.47	6.54
Small retail	5,845	217,711	74.42	2.18
Large retail	8,517	155,354	44.27	1.50
General office	3,553	126,423	70.23	3.47
Medical office	4,095	149,107	136.89	2.00
Industrial	7,842	33,290	21.95	2.13

[17] Building Owners and Managers Association. (2018, September 18). BOMA International's office and industrial benchmarking reports released. https://www.boma.org/BOMA/Research-Resources/3-BOMA-Spaces/Newsroom/PR91818.aspx

Table 9 presents restaurant and retail characteristics. The estimates assume a 7% vacancy rate for all property types. Wages are 2020 averages for Delaware County workers in the given industry from the U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW). Retail wages are an average of Delaware County average wages from the QCEW for relevant retail industries, weighted by employment in each industry.[18] Revenues are the direct output estimates from the IMPLAN results.[19] Revenue is multiplied by the margins computed for each sector from *Statistics of Income* as discussed above, yielding an estimate of taxable business net income.

Table 9: Commercial Property Characteristics

	Restaurant	Small retail*	Large retail
Square footage	41,278	58,449	85,168
Auditor value	$7,011,595	$4,408,154	$3,855,842
Employment	251	118	119
Average wage per employee	$20,445	$30,907	$31,014
Total wages	$5,132,922	$3,662,453	$3,684,723
Revenue	$24,921,951	$25,850,041	$35,880,560
Margin	6.4%	3.1%	3.1%
Taxable net income	$1,594,588	$808,762	$1,122,583

*Less than 20,000 square feet.

The budget impacts of retail and restaurant development are in Table 10. There are no gasoline taxes and license fees and no cost imposed for parks and recreation; these taxes are paid and facilities are used primarily by residents.

[18] Small retail industries are furniture stores, electronics stores, health stores, gas stations/convenience stores, clothing stores, sporting goods stores, and miscellaneous retail. Large retail industries are auto dealers, building materials stores, grocery stores, and department stores.

[19] Output is usable directly for all industries except retail. Retail output estimates include only the impact of local retail activities. The estimates exclude the manufacturing, transportation, and wholesaling activities that are part of the sale price, and thus of taxable net income. To reflect this, retail output is grossed up by IMPLAN's industry margin estimates.

Table 10: Marginal Budget Impacts of Restaurant and Retail Development, 2020

	Restaurant	Small retail*	Large retail
Marginal revenues			
Income tax – wages & salaries	$ 94,959	$ 67,755	$ 61,656
Income tax – business	29,500	14,962	20,768
Property tax	6,626	4,166	3,644
Total	**$ 131,473**	**$ 87,127**	**$ 92,793**
Marginal expenditures			
Finance	$ 508	$ 240	$ 241
Police	38,014	17,943	17,990
Fire & EMS	42,534	20,076	20,129
Planning	4,988	2,354	2,360
Economic development	1,032	487	488
Building maintenance	1,535	725	726
Garage	2,530	1,194	1,197
Information technology	6,140	2,898	2,906
Self-insurance (net)	4,605	2,173	2,179
Courts (net)	(1,750)	(826)	(828)
Total	**$ 100,137**	**$ 47,264**	**$ 47,388**
Net marginal direct impact	**$ 31,336**	**$ 39,863**	**$ 45,404**
Supplier & household impacts			
Income tax	$ 18,488	$ 9,872	$ 9,051
Expenditures	16,498	1,614	2,350
Net marginal indirect impact	**$ 1,990**	**$ 8,258**	**$ 6,701**
Total impact	**$ 33,326**	**$ 48,121**	**$ 52,105**

*Less than 20,000 square feet.

As is true of residential impacts, the fact that these impacts consider only the revenues and expenditures arising from the property itself and the indirect economic activity results in an understatement of the net marginal impacts. Several academic studies have found that residential property values are higher if retail and restaurants are nearby. This implies that if these new retail and restaurant establishments formed a new cluster or enhanced an existing cluster, nearby residential property values and property taxes would increase. Also, these establishments contribute to the local quality of life, helping to attract and retain residents.

Figure 23 charts the inflation-adjusted net marginal restaurant development impacts, while the impacts of small and large retail developments are in Figure 24. Large retail developments (the black lines) provide a somewhat greater impact than small ones (the blue lines). Once again, impacts decline over time. The rapid decline is a function of the large number of low-wage workers generating a relatively small amount of income taxes.

Figure 23: Net Marginal Impact of Restaurant Developments, 2020-2035

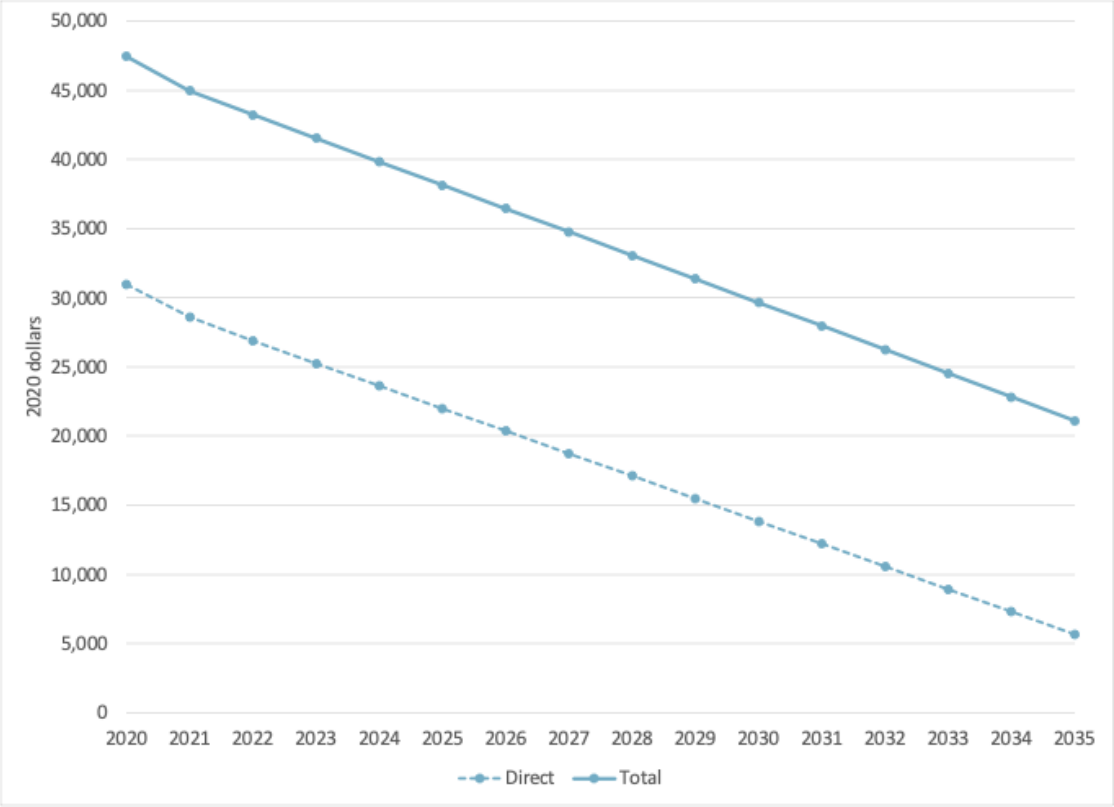
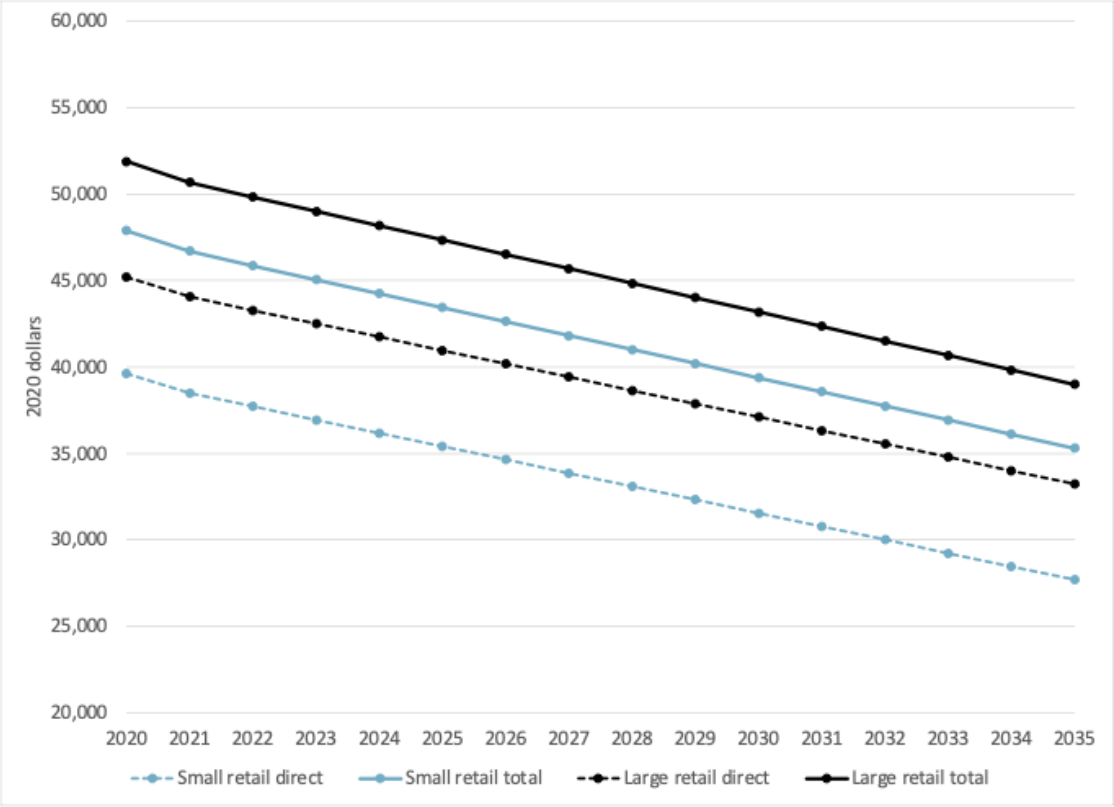


Figure 24: Net Marginal Impact of Small and Large Retail Developments, 2020-2035



Turning next to office and industrial developments, Table 11 summarizes the property and wage characteristics assumed for these properties. General and medical office characteristics are based on single-story buildings. The employment and wages in a two-story office would be substantially greater, but less than double because of the greater parking requirements and consequent smaller land coverage per acre. As before, average wages are for the relevant industries. Office-using employment is in several industry sectors; consequently, the office wage is the weighted average of Delaware County wages in information, financial activities, professional and technical services, and management of companies and enterprises from the QCEW. The weights are the Delaware County employment in each sector. As before, revenue is obtained from the direct IMPLAN output results.

Industrial properties studied have an office component varying from none to 38.5%. A higher percentage of office raises the per-square-foot value of the building. The 38 Delaware industrial properties analyzed help to ensure that the average value is not unduly affected by properties with extremely high or low office components.

Table 11: Commercial Property Characteristics

	General office	Medical office	Manufacturing	Warehouse/ distribution
Square footage	35,534	40,948	78,417	78,417
Auditor value	$2,679,404	$5,977,381	$1,905,291	$1,905,291
Employment	115	76	155	155
Average wage per employee	$105,367	$70,522	$69,916	$47,924
Total wages	$12,090,233	$5,371,193	$10,871,629	$7,451,970
Revenue	$14,991,888	$10,480,972	$34,977,962	$16,278,465
Margin	11.2%	11.3%	7.4%	5.6%
Net income	$1,685,478	$1,189,501	$2,582,414	$907,520

Table 12 provides 2020 budget impacts for office and industrial development categories. Office and industrial developments provide far greater net revenues than other property types, especially general office developments. However, this result is not likely representative of the tax impacts of the current general office stock. This stock is relatively old, which leads to lower property values and possibly lower wages than elsewhere in the county.

General office direct and total impacts are graphed in Figure 25, impacts for medical offices are in Figure 26, and industrial and warehouse impacts are in Figures 27 and 28, respectively. The high wages not only lead to higher net impacts, but they also help to blunt the declines in the impacts.

Table 12: Marginal Budget Impacts of Office and Industrial Developments, 2020

	General office	Medical office	Manufacturing	Warehouse/ distribution
Marginal revenues				
Income tax – wages & salaries	$ 223,669	$ 99,367	$ 201,125	$ 137,861
Income tax – business	31,181	22,006	47,775	16,789
Property tax	2,532	5,649	1,801	1,801
Total	**$ 257,383**	**$ 127,021**	**$ 250,700**	**$ 156,451**
Marginal expenditures				
Finance	$ 232	$ 154	$ 315	$315
Police	17,374	11,532	23,544	23,544
Fire & EMS	19,440	12,904	26,344	26,344
Planning	2,280	1,513	3,089	3,089
Economic development	472	313	639	639
Building maintenance	702	466	951	951
Garage	1,156	767	1,567	1,567
Information technology	2,806	1,863	3,803	3,803
Self-insurance (net)	2,105	1,397	2,852	2,852
Courts (net)	(800)	(531)	(1,084)	(1,084)
Total	**$ 45,767**	**$ 30,378**	**$ 62,021**	**$ 62,021**
Net marginal impact	**$ 211,616**	**$ 96,643**	**$ 188,680**	**$ 94,431**
Supplier & household impacts				
Income tax	$ 9,019	$ 5,730	$ 15,162	$15,067
Expenditures	1,824	1,070	1,957	3,403
Net marginal indirect impact	**$ 7,195**	**$ 4,659**	**$ 13,205**	**$ 11,664**
Total impact	**$ 218,811**	**$ 101,303**	**$ 201,885**	**$ 106,095**

Figure 25: Net Marginal Impact of General Office Developments, 2020-2035

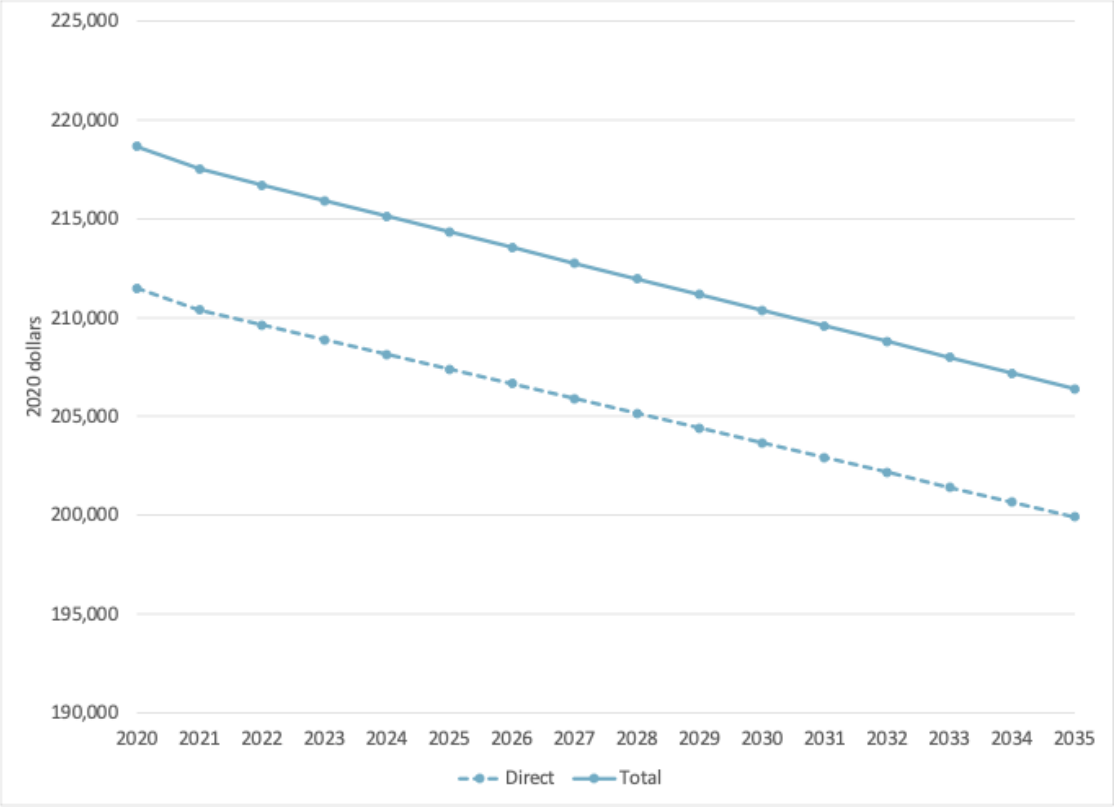


Figure 26: Net Marginal Impact of Medical Office Developments, 2020-2035

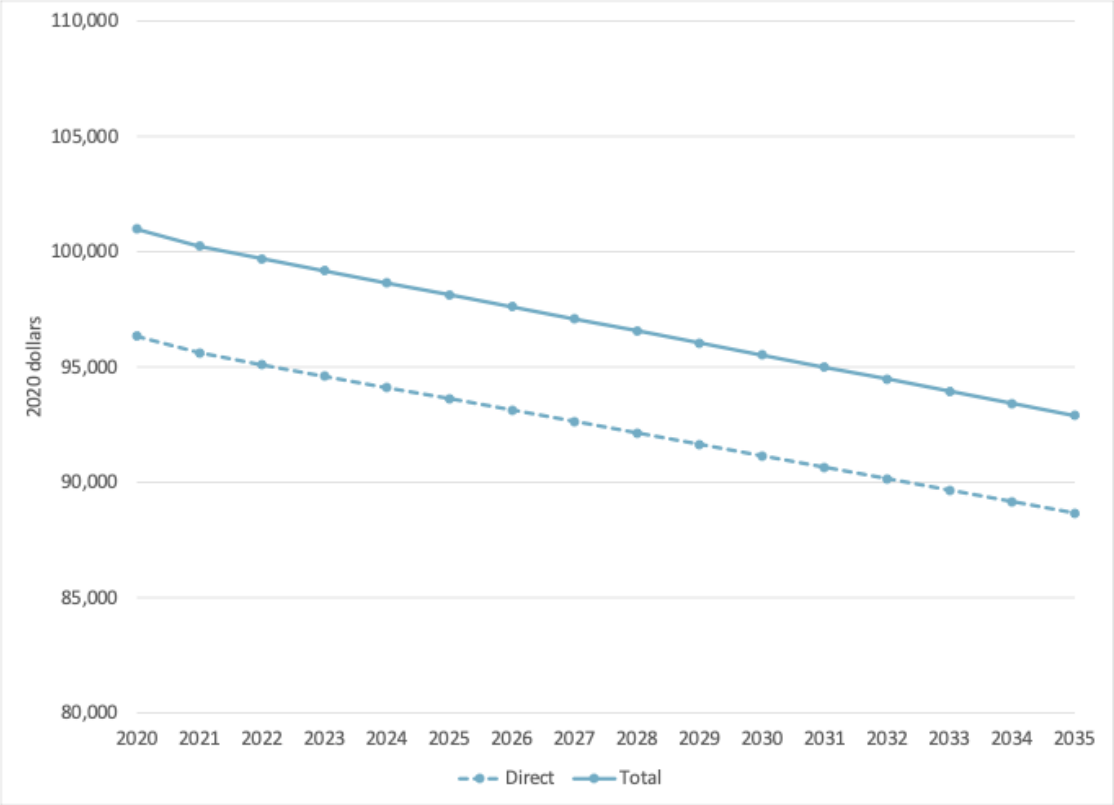


Figure 27: Net Marginal Impact of Manufacturing Developments, 2020-2035

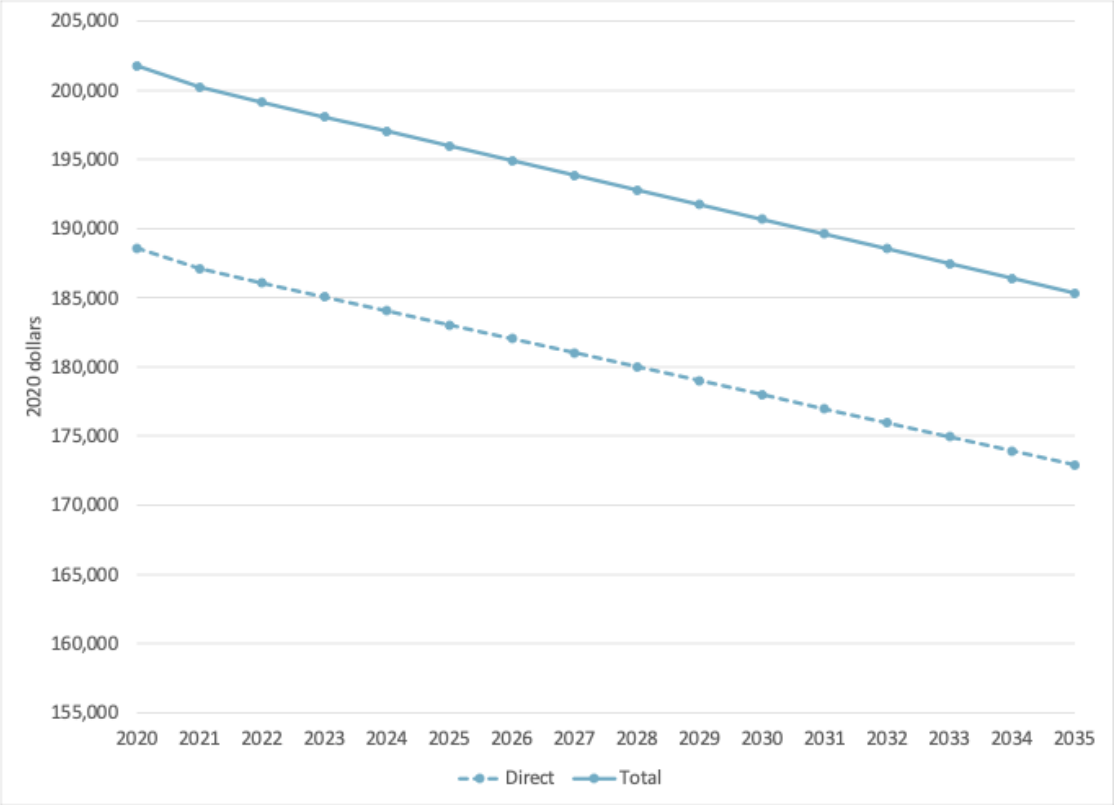
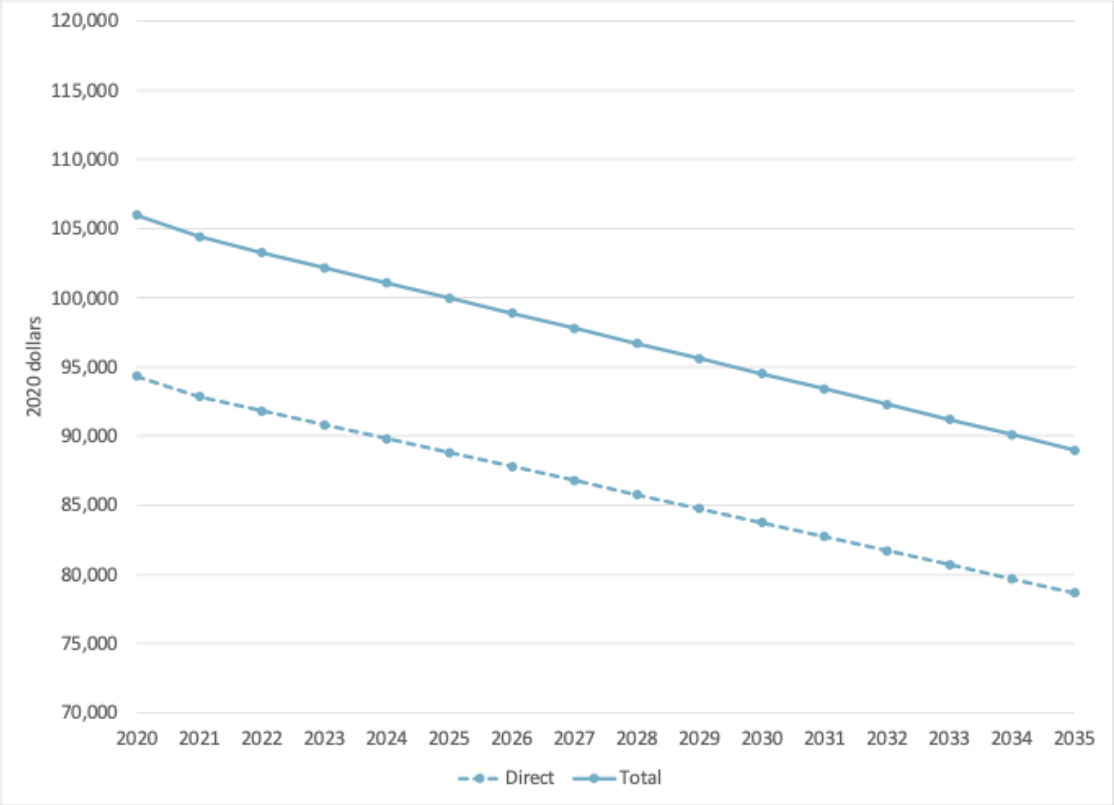


Figure 28: Net Marginal Impact of Warehouse/Distribution Developments, 2020-2035



Concluding Thoughts

As this analysis demonstrates, some development alternatives are more favorable to the Delaware budget than others, and the lower-income housing alternatives lead to a net decrease in tax revenues, even at the outset. This might lead the Delaware development staff to focus on office and industrial projects to the exclusion of other types whose impact is less favorable. This would be a serious mistake. As argued previously, housing for households at all income levels provides the nearby workforce that makes employee recruitment and economic development more successful and enhances population diversity. A wide array of retail and restaurants leads to a more vibrant city, creates placemaking opportunities, attracts visitors, and improves quality of life. There is a synergy among these property types, and the success of one depends upon the success of all. The greater impact of the more favorable alternatives offsets the lesser impact of the less favorable.

Housing affordability is rapidly becoming a regional concern. Central Ohio housing has traditionally been considered affordable, but increases in house values at a rate greater than the national average is imperiling that reputation. A key reason is an underinvestment in new housing. Until recently, the development of new housing in Central Ohio seriously lagged the increase in households. Residential building permits in the Columbus MSA increased from 7,000 units in 2014 to 9,400 in 2018, but then fell back to 8,100 in 2019. The maximum of 49,200 housing units developed during this period (not all permitted units are built) resulted in a net increase of 37,400 housing units. Over the same period, the number of households in the MSA increased 52,700. Because by definition each household occupies a housing unit, the excess growth in households was accommodated by a decrease in vacant existing housing units and/or a subdivision of larger units. This supply is finite. Permits in 2020 increased to a record 12,358, but even this level is unlikely to meet the needs of the household increase given the loss of existing units from the stock.

The result is many households must struggle to afford their housing. The U.S. Department of Housing and Urban Development defines households paying 35% or more of their gross income on housing as "housing cost burdened." This is true of 35% of Delaware renter households (1,900 households), according to estimates from the American Community Survey, while 21%, or roughly 1,100 households, pay at least half their income on rent. This is equivalent to the Columbus MSA average, and only marginally less than the national average. As the city's population and demand for housing increase, housing prices and costs will increase. If housing is unavailable for low-income households, the risk of household instability and homelessness increases, and employers will find it increasingly difficult to fill entry-level positions. Affordable Housing Online reports 17 low-income apartment complexes in the city, while the Delaware Metropolitan Housing Authority offers 441 housing choice vouchers. Its waiting list is closed.

The *Insight 2050* study has been referenced several times in this paper. This study, originally released in 2014 by the Mid-Ohio Regional Planning Commission (MORPC), Columbus 2020 (now One Columbus), and the Columbus District Council of the Urban Land Institute, contemplated the makeup and needs of the central Ohio population in 2050.[20] The study found that the population of Franklin and adjacent counties, currently 2 million, could grow to 3 million by 2050. (More recent trends continue to confirm this projection.) Driven by broad demographic trends, the composition of the population will also change substantially. Average age will increase, the share of households with children will decrease, and a higher percentage of households will be singles and empty nesters. The demand for denser

[20] Mid-Ohio Regional Planning Commission et al. (2015). Insight 2050. http://www.getinsight2050.org

development readily accessible by public transit will increase, while the need for large lot suburban development will decrease. As was shown earlier, denser development is more positive for the Delaware budget. Beyond this, continuing focus on large lot development promotes sprawl and runs the risk of generating supply exceeding future demand. This will lead to a decline in value of these properties and a reduction in property tax revenues.

Economic development often focuses on commercial and industrial retention and attraction and ignores retail development. The argument for this approach is that, in addition to the impact on the municipal budget, businesses occupying office and industrial space often serve non-local markets and attract dollars into the local economy from other regions. This increases local income and wealth. It is argued that retail simply circulates dollars already in the economy, creating no wealth, and will take care of itself as other development occurs. Fortunately, this is not the attitude of the Delaware Economic Development Department, which has a strong outreach to retailers and restaurants.

The argument that retail does not matter in economic development is incorrect both because of the synergy among property types and because locally owned, locally serving retail and restaurants trap dollars that would otherwise leave the local economy. This makes the fostering of retail and restaurant entrepreneurship particularly important. These businesses generally source inventory, supplies, and business services locally to a much greater degree than chains, which usually centralize these suppliers and functions outside of the region. A series of studies by Civic Economics found that a typical chain retailer retains 14 cents of every sales dollar in the local economy for at least one additional round of spending, while a typical locally owned retailer retains 48 cents. Chain restaurants retain 30 cents, while locally owned restaurants retain 65 cents.[21] A 2016 study by the author found that retailers the North Market in Columbus retained 79 cents of every sales dollar and restaurants retain 87 cents – at the upper end of the range of impacts found by Civic Economics.[22] Spending at local businesses traps dollars that would otherwise flow out of the local economy to distant corporate headquarters. Trapping dollars that would otherwise leave the local economy has the same economic impact as bringing dollars in. Additionally, local business owners are better able to meet the unique needs of the community because they live in and understand the community. A broad array of unique shopping and dining experiences attracts people and their dollars – and ultimately new residents – strengthening the local economy and contributing to the Delaware budget.

The Delaware Development Department may wish to consider evaluating the demand for upscale office space and fostering this development if the demand exists. The survey of office properties undertaken to generate the analysis above suggested that the city's non-medical office stock is relatively old. Delaware provides an attractive, historic, walkable environment that, as the urban studies theorist Richard Florida and others have argued, is more attractive to creative workers than the homogeneous surroundings that are prevalent in many other places in the county and region. This suggests a potential untapped demand, but again, a market study and/or conversations with developers should be undertaken to confirm this possibility.

[21] Civic Economics. (n.d.). Indie impact study series. http://www.civiceconomics.com/indie-impact.html
[22] Bill LaFayette. (2016). Economic and tax impacts of the North Market.

Conclusions and Recommendations

The projections developed in this study suggest that the City of Delaware's budget is currently in a positive long-term position, but that position is steadily deteriorating. A structural imbalance may develop within the next 15 years, implying that municipal services and capital expenditures will not be covered by revenues even in favorable economic environments. These projections implicitly assume that current tax rates and expenditure patterns continue. However, capital needs are likely to increase as the population grows, development continues, and the vision to preserve residents' quality of life and the city's historic character is implemented. Above all, the condition of city streets and the need to perform extensive rehabilitation – the result of as many as 20 years of deferred maintenance – implies that the financial position of the city budget is even more negative than the projections imply. The poor condition of the streets is dangerous to those who travel them and conveys a negative impression of Delaware to residents and visitors.

Several opportunities for increasing revenues were identified in the study. The self-insurance fund revenues can be increased so that they cover fund costs. User fees for the airport and the golf course can be increased to cover their costs. The property tax rate could be increased. But the most promising strategy is to increase the income tax rate.

Recommendations are as follows:

1. Consider increasing the income tax rate in the near term. Maintain some level of limitation on the credit for income earned outside of the city.

2. As soon as revenues are increased, begin addressing the streets, possibly through bond funding. If maintenance continues to be deferred, deterioration continues, and costs increase, the cost of repairs and negative impacts on the community will increase.

3. Examine operations to discover any opportunities to improve efficiency and reduce costs.

4. Increase fees at the airport and golf course. Increase self-insurance premiums.

5. Use tax increment financing sparingly and thoughtfully. These agreements divert funding from other important public services. Terms and the life of the agreement should be closely tied to the actual need for infrastructure financing.

6. Evaluate property tax abatements with care. Whether a given incentive is truly necessary in a particular case cannot be conclusively established, but critically evaluate the probability that incentives will make a difference in the applicant's decision. Bidding wars with other jurisdictions for a project may result in a positive outcome, but create more costs than revenues for an extended period.

7. Consider prioritizing property tax incentives for projects in driver industries, for those planned for underused and blighted properties, and for those that promote equity and economic opportunity.

8. Prioritize housing developments that increase density.

9. Increase the number of low-income housing units and housing choice vouchers.

10. Encourage the development of additional affordable and workforce housing.

11. Continue to encourage retail and restaurant entrepreneurship and locally owned businesses. Work with the Delaware Area Chamber of Commerce and local business owners to implement a Buy Delaware campaign Engage local residents using the arguments discussed earlier.

12. Encourage the development of office space if there is demand for this type of development.

Appendix

Table A-1: City and Village Workplaces of Delaware Residents and Derivation of Effective Delaware City Tax Rate for Residents Working Elsewhere

City/village	Number	Percentage of total		Tax rate	
		All workers	Non-Delaware workers	Municipal	Delaware
All employed Delaware residents	**17,140**	**100.00%**			
Delaware city, OH	3,151	18.38%		1.85%	1.850%
Columbus city, OH	4,743	27.67%	33.91%	2.50%	0.925%
Dublin city, OH	778	4.54%	5.56%	2.00%	0.925%
Westerville city, OH	688	4.01%	4.92%	2.00%	0.925%
Worthington city, OH	349	2.04%	2.49%	2.50%	0.925%
Marysville city, OH	347	2.02%	2.48%	1.50%	1.100%
Gahanna city, OH*	245	1.43%	1.75%	2.50%	0.925%
Hilliard city, OH	215	1.25%	1.54%	2.00%	0.925%
Sunbury village, OH	152	0.89%	1.09%	1.00%	1.350%
New Albany city, OH	140	0.82%	1.00%	2.00%	0.925%
Grove City city, OH	139	0.81%	0.99%	2.00%	0.925%
Powell city, OH	136	0.79%	0.97%	0.75%	1.475%
Cleveland city, OH	98	0.57%	0.70%	2.50%	0.925%
Marion city, OH	94	0.55%	0.67%	2.00%	0.925%
Upper Arlington city, OH	92	0.54%	0.66%	2.50%	0.925%
Cincinnati city, OH	90	0.53%	0.64%	2.10%	0.950%
Grandview Heights city, OH	80	0.47%	0.57%	2.50%	0.925%
Reynoldsburg city, OH	69	0.40%	0.49%	2.50%	0.925%
Whitehall city, OH	64	0.37%	0.46%	2.50%	0.925%
Newark city, OH	60	0.35%	0.43%	1.75%	0.975%
Groveport city, OH	58	0.34%	0.41%	2.00%	0.925%
Mount Vernon city, OH	49	0.29%	0.35%	2.00%	0.925%
Mansfield city, OH	48	0.28%	0.34%	2.00%	0.925%
Lincoln Village CDP, OH	42	0.25%	0.30%	0.00%	1.850%
Dayton city, OH	38	0.22%	0.27%	2.50%	0.925%
Blue Ash city, OH	35	0.20%	0.25%	1.25%	1.225%
Cardington village, OH	35	0.20%	0.25%	2.50%	0.925%
Akron city, OH	34	0.20%	0.24%	1.00%	1.350%
Independence city, OH	34	0.20%	0.24%	2.00%	0.925%
Toledo city, OH	33	0.19%	0.24%	2.25%	0.925%
Mount Gilead village, OH	31	0.18%	0.22%	1.00%	1.350%
Richwood village, OH	30	0.18%	0.21%	1.00%	1.350%
Lancaster city, OH	28	0.16%	0.20%	1.75%	0.975%
Springfield city, OH	27	0.16%	0.19%	2.40%	0.925%
Zanesville city, OH	27	0.16%	0.19%	1.90%	0.925%
Beavercreek city, OH	26	0.15%	0.19%	0.00%	1.850%
Bellefontaine city, OH	26	0.15%	0.19%	1.33%	1.184%
Pataskala city, OH	26	0.15%	0.19%	1.00%	1.350%
Pickerington city, OH	26	0.15%	0.19%	1.00%	1.350%

*2018 rate: 1.50%.

– Continued –

Table A-1 (continued): City and Village Workplaces of Delaware Residents, 2018

City/village	Number	Percentage of total		Tax rates	
		All workers	Non-Delaware workers	Municipal	Delaware
Findlay city, OH	22	0.13%	0.16%	1.00%	1.350%
Wooster city, OH	22	0.13%	0.16%	1.50%	1.100%
Chillicothe city, OH	21	0.12%	0.15%	2.00%	0.925%
Ashland city, OH	20	0.12%	0.14%	2.00%	0.925%
Obetz village, OH	19	0.11%	0.14%	2.50%	0.925%
Sidney city, OH	18	0.11%	0.13%	1.75%	0.975%
Ontario city, OH	17	0.10%	0.12%	1.50%	1.100%
Sharonville city, OH	17	0.10%	0.12%	1.50%	1.100%
Athens city, OH	16	0.09%	0.11%	1.85%	0.925%
Beachwood city, OH	16	0.09%	0.11%	2.00%	0.925%
Middleburg Heights city, OH	16	0.09%	0.11%	2.00%	0.925%
All Other Locations	4,553	26.56%	32.55%		
Workers outside of Delaware	**13,989**	**81.62%**	**100.00%**		**0.964%**

Source: Longitudinal Employer-Household Dynamics, U.S. Census Bureau.