

Chapter 7: Efficient Land Use

Introduction

Overview

In the past two chapters, NOACA illustrated how the evolution of the region's transportation network shaped the economy and housing for Northeast Ohio. This chapter focuses on the relationship between the same transportation network and the region's land use. Although NOACA does not hold a formal role in local land use policy (the domain of municipal government), the agency's regional responsibilities for both transportation and environmental planning influence land use change. Transportation planning and land use planning must operate in tandem for Northeast Ohio to leverage its resources more efficiently.

Land use and transportation infrastructure impact the quality of life experienced by the current and future population. Where and how development occurs impacts the functionality of the current transportation system, which in turn influences future land use decisions. Chapter 1 already demonstrated that the five-county NOACA region has continued to experience population loss since 1970, yet that smaller population has expanded its development footprint over a broader area. The consequence is an inefficient transportation system with excess capacity in some areas, while new infrastructure is built in others. This pattern of land use, without the requisite regional population growth has resulted in a legacy of underutilized, abandoned and disinvested land generally in core, urban areas. Strategic investment in transportation infrastructure improvements can act as an effective counter measure to this legacy. Transportation projects should be more multi-modal with increased efficacy within existing communities, particularly in Environmental Justice areas.

What Role Can NOACA Play?

The five goals specified in NOACA's Regional Strategic Plan vision statement encompass a host of objectives, some of which speak directly to land use and provide direction on how NOACA should prioritize projects to influence development patterns and protect valuable resources:

- **GOAL: PRESERVE EXISTING INFRASTRUCTURE**
 - preserve or maintain existing infrastructure that serves currently developed areas of the region
 - facilitate improvements that connect existing activity centers and reinvigorate existing communities
 - facilitate development in higher density areas
- **GOAL: SUSTAINABLE MULTIMODAL TRANSPORTATION SYSTEM**
 - Encourage transit-oriented development in higher density urban corridors and other higher density areas of the region and retrofit transit oriented elements in appropriate lower density areas
- **GOAL: ENHANCE QUALITY OF LIFE**
 - promote the redevelopment of declining and abandoned areas
 - preserve agricultural lands, open space and important habitat areas, woodlands, and wetlands

NOACA strives to fulfill its vision through attainment of these objectives. Recognizing that land use is a local issue, NOACA does not, and cannot, regulate land use decisions within or across

jurisdictions within its region. It must, however, consider the impacts of land use in its transportation and environmental planning processes. Land use decisions inform the development of plans and transportation plans inform land use decisions; they must be addressed concurrent to be effective. This is especially important given the significant relationships introduced in previous chapters.

Environmental Justice and Land Use

Environmental justice embodies the need for equity among communities; all stakeholders require involvement to help make decisions, especially when they bear the impacts that result from policies, programs, and projects. Negative impacts of development, industry, and natural processes disproportionately harm select communities, which result in reduced quality of life across income levels and ethnicities. While this chapter focuses on land use related to transportation infrastructure investment decisions, environmental justice reflects equity on a broader scale and is central to the entire Plan.

Local government needs and priorities drive land-use decisions in Northeast Ohio. A regional perspective reveals how land cover and development patterns change over time. The population of the entire NOACA region has slowly declined during the past 50 years (see Chapter 1), yet simultaneously spread outward over a much larger footprint. This pattern is inefficient and expensive, and strains both growing and declining areas because of simultaneous demands for new infrastructure and services in growing areas and expensive maintenance of existing infrastructure and services in declining areas. Moreover, many urban areas and older communities that have suffered disproportionate losses in population increasingly experience concentrations of low-income and minority residents who are unable to relocate. These are too often the redlined neighborhoods of the past (see Chapter 6), which have now become the Environmental Justice areas of today (see Chapter 1). The remaining population in declining areas must shoulder the increased burden to maintain (i.e., finance) the underutilized infrastructure of an aging community. Furthermore, utilities may focus investments in growing areas, which can yield neglect of service quality and degraded operations in declining areas.

Chapter 6 articulated how the post-World War II development pattern shifted Northeast Ohio's population into increasingly segregated neighborhoods and communities by income and race. Too often, community land-use policies and zoning regulations restricted or prevented low-income and minority populations. These groups, by default, concentrated in areas considered less desirable and, subsequently, less valuable. Stakeholders in these communities frequently lacked the power and influence to prevent land use decisions that negatively impacted their health, safety, and welfare. The result is many low-income and minority communities experienced reduced quality of life.

Regional Land Use Planning

Introduction

The State of Ohio is known as a “home rule” state, which means that municipalities (including incorporated cities and villages) have the power to govern themselves locally.¹ The Ohio Constitution empowers these local governments to enact land use decisions and zoning regulations; they do not have to coordinate with each other, nor with the county or region in which they are located:²

Whenever the planning commission of any municipal corporation or any board or officer with city planning powers, whether such commission, board, or officer is created by statute or municipal charter, certifies to the legislative authority of the municipal corporation any plan for the districting or zoning thereof according to the uses of buildings and other structures and of premises, such legislative authority, in the interest of the promotion of the public health, safety, convenience, comfort, prosperity, or general welfare, may regulate and restrict the location of buildings and other structures and of premises to be used for trade, industry, residence, or other specified uses, and for such purposes may divide the municipal corporation into districts of such number, shape, and area as are best suited to carry out the purposes of this section. Regulations may be imposed for each of such districts, designating the kinds or classes of trades, industries, residences, or other purposes for which buildings or other structures or premises may be permitted to be erected, altered, or used subject to special regulations.

Unlike municipalities, counties and townships in Ohio do not receive home rule authority under the Ohio Constitution; their authority cannot deviate from state statute. Any zoning in unincorporated areas must be in accordance with a comprehensive plan.

Given the power and provision of home rule, NOACA has no jurisdiction over the regulation of land use within individual communities in its region. Cities and villages have constitutional authority to plan and zone themselves, while other areas (including counties as a whole) must subscribe to a comprehensive plan in line with state statute. This limitation is important to emphasize because, even though NOACA may advocate for particular programs, policies or projects, the agency can never dictate land use decision-making over any of its members or any geographic district within its region. MPOs must respect the autonomy of the local governments and their land use decisions.

That being said, NOACA can certainly inform decision-making; convene collaborative discussions about land use issues with multi-jurisdictional (or regional) impact; and prioritize projects through its review process that support the goals and objectives approved by the NOACA Board in its Regional Strategic Plan. Even though local municipalities have the authority to decide their own land use patterns, the reality is that the communities of Northeast Ohio operate within a region linked by many common interests and systems, including transportation, economy and natural resources. Coordination and collaboration are in the best interests of each community. NOACA’s role is to educate and facilitate decision-making so that

¹ Ohio Department of Health, 2019. Zoning 101: Frequently Asked Questions (retrieved 4.20.2021 from https://odh.ohio.gov/wps/wcm/connect/gov/791e1124-7fd6-4782-8392-367a68257391/FAQ_Factsheet_Land+Use+Zoning.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-791e1124-7fd6-4782-8392-367a68257391-mJMzfuy).

² ORC, Title 7, §713.07, 1953. Planning Commissions: Restriction in Location of Buildings and Structures (retrieved 4.20.2021 from <https://codes.ohio.gov/ohio-revised-code/section-713.07>).

the vision its members articulate for themselves as a cohesive region becomes their future reality.

Zoning and Transportation

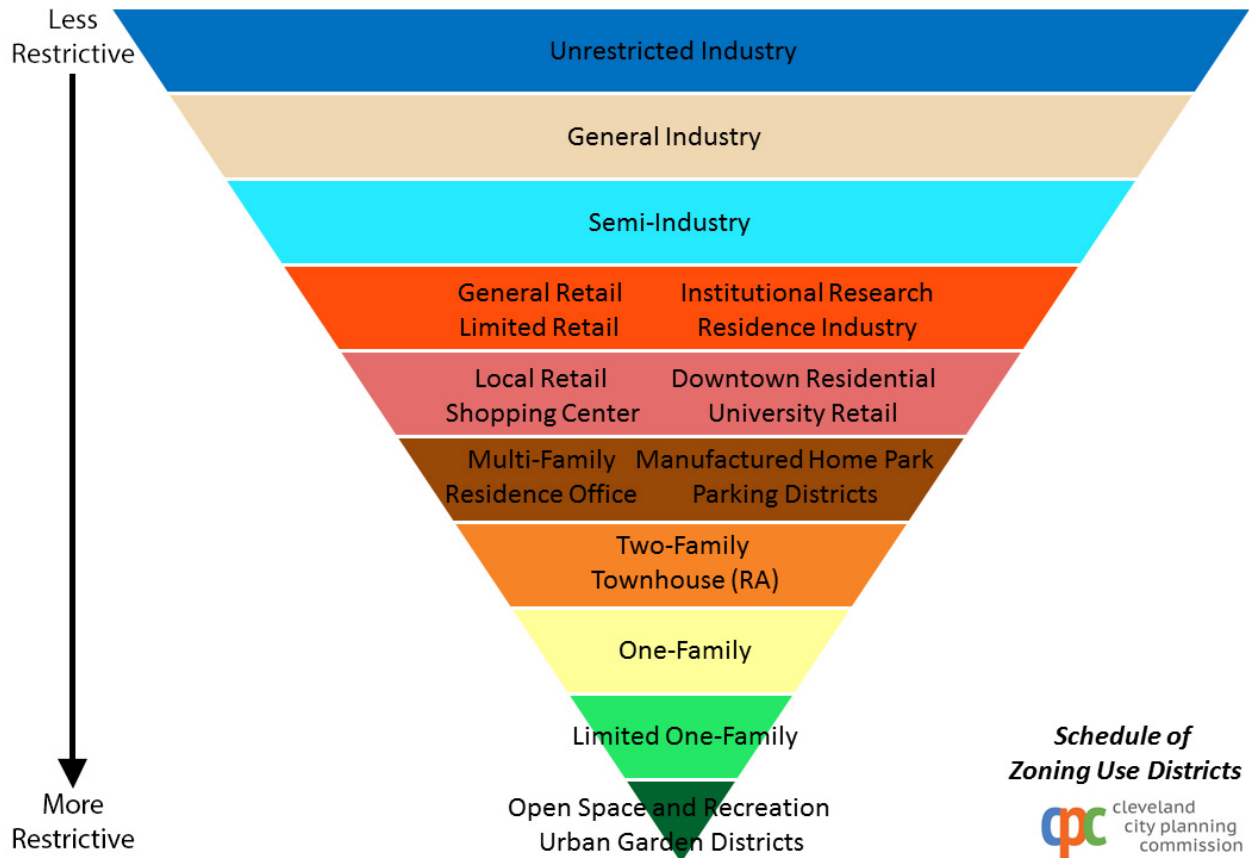
Land use within a region evolves through local zoning and regulations, both influenced by population, housing demands, employment opportunities, and infrastructure investments in utilities and transportation. Earlier chapters discussed the trends of these influences and the context within which land use planning occurs in Northeast Ohio.

Traditional land use planning and zoning establishes land uses for particular areas based on location within a community, uses of adjacent areas, and community preference. The 1929 U.S. Supreme Court decision, *Village of Euclid (Ohio) v. Ambler Realty Co.*, upheld the constitutional rights of cities, villages, and townships to separate land uses in their communities into specific zones.³ The term “Euclidian Zoning” came into the lexicon to describe this approach, which often uses a hierarchy of zones to separate residential, commercial, and industrial uses from one another within the physical footprint of a community. The Euclidean hierarchy generally allows less restrictive uses (e.g., commercial and residential) within zones designated for more restrictive uses (e.g., industrial) but not vice versa (see Figure 7-1). While the intent of Euclidean Zoning began as a mechanism to prohibit potentially harmful industrial and commercial uses adjacent to residential neighborhoods, many municipalities have co-opted zoning practices to restrict lands uses (e.g., multifamily residential housing) that could provide more housing choices for lower-income or minority populations (see Chapters 5 and 6).

Figure 7-1. Euclidean Zoning Hierarchy of Land Use Intensity⁴

³ Cornell Law School Legal Information Institute, “*Village of Euclid v. Ambler Realty Co.*,” 272 U.S. 365, <https://www.law.cornell.edu/supremecourt/text/272/365> (accessed March 10, 2021).

⁴ City of Cleveland Planning Commission, “How does Cleveland’s zoning code work? Euclidean zoning and ‘use districts,’” 2020, <https://planning.clevelandohio.gov/zoning/index.php> (accessed April 5, 2021).

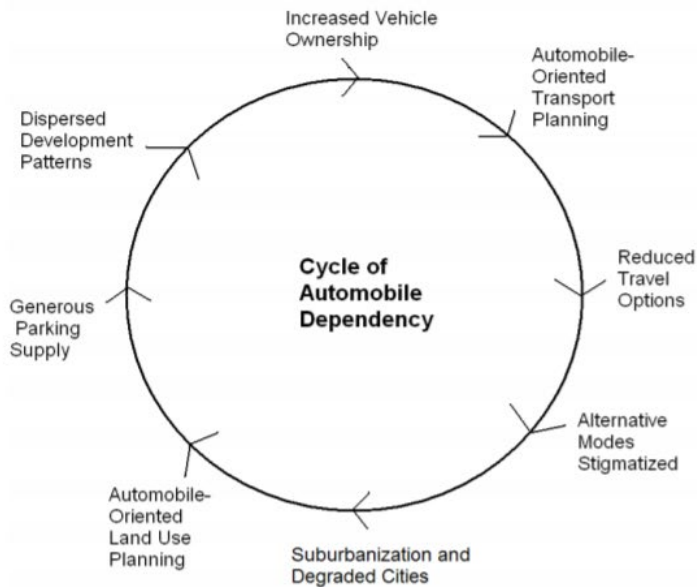


The intense motivation to strictly separate land uses, coupled with the rise in automobile prevalence and building on undeveloped sites, transformed Northeast Ohio. The region morphed from more compact, mixed-use, walkable, and transit-friendly urban neighborhoods and rural towns into a dispersed, car-dependent region with both population and jobs spread more thinly across the landscape. Residents of the newly created suburbs, towns, and villages initially continued to work and shop within the urbanized areas. However, movement of commercial uses to the new residential markets (e.g. decentralization of economic districts through growth of suburban shopping malls, strip-style retail, and large office parks) contribute to the decline of formerly bustling downtown streets. Because the new developments are much more dispersed from one another, walking, biking, and public transportation are increasingly difficult modes to move from Point A to Point B.

Figure 7-2. Cycle of Automobile Dependency⁵

⁵ Litman, Todd, 2019. Evaluating Transportation Land Use Impacts: Considering the Impacts, Benefits and Costs of Different Land Use Development Patterns (accessed 3.20.2021 from <https://vtpi.org/landuse.pdf>).

Figure 1 Cycle of Automobile Dependency and Sprawl



This figure illustrates the self-reinforcing cycle of increased automobile dependency and sprawl.

While outmigration clearly brought about changes in land use and supporting infrastructure in Northeast Ohio's urban core (see Chapters 1, 5-7), a parallel story exists in rural and agricultural areas suddenly inundated with new residents, stores, and employers. Over the past 70 years, farming communities were transformed into suburban communities. The pattern of development generally progressed along the fringe of urbanized areas and the corridors of major roadways. The following sections discuss these patterns and the outcomes of the region's shifting balance of population and development.

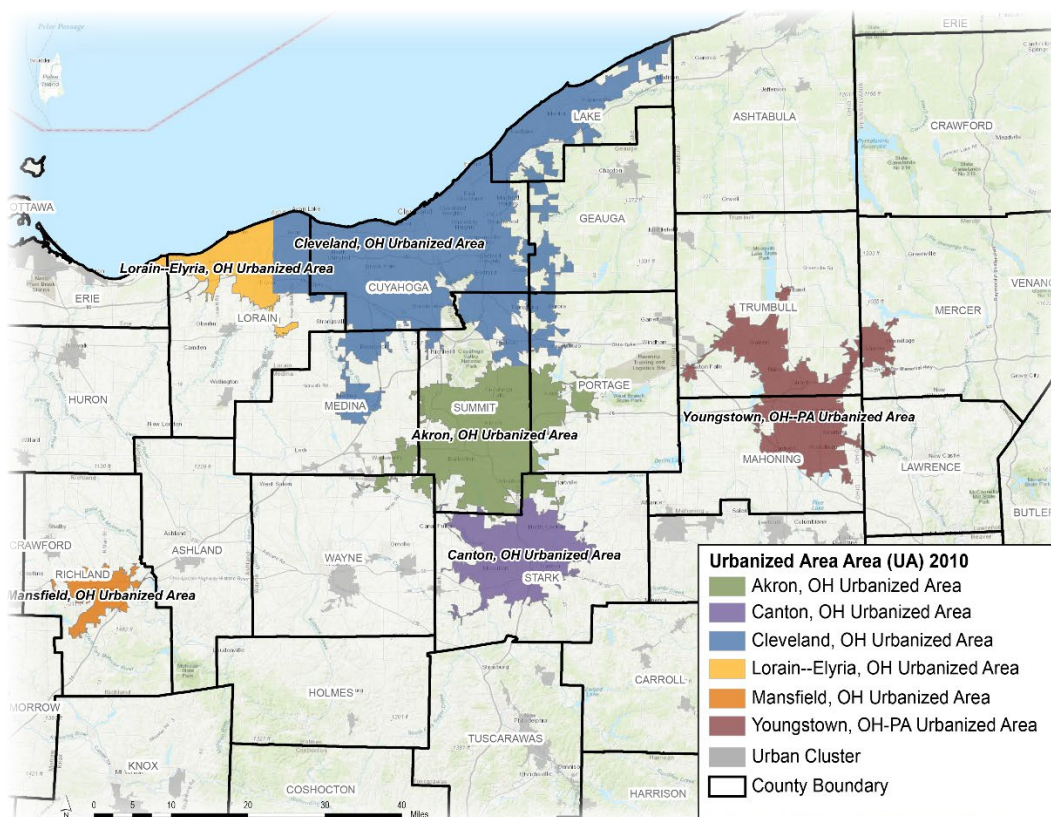
Urbanized and Developed Communities

According to the United States Census, an "urban area" comprises a densely settled core of census tracts or census blocks that meet minimum population density requirements, along with adjacent territories that contain nonresidential urban land uses, as well as territories with low population density included to link outlying densely settled territories with the densely settled core (see Figure 7-3).⁶ To qualify as an urban area, the territory must satisfy the above criteria and include at least 2,500 people (1,500 of whom reside outside institutional group quarters, such as prisons, etc.). The Census Bureau identifies two types of urban areas: Urbanized Areas (UAs) of at least 50,000 people and Urban Clusters (UCs) of at least 2,500, but less than 50,000 people.⁷

⁶ United States Census Bureau, (2010 Census Urban and Rural Classification and Urban Area Criteria, 2010, <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html> (accessed March 11, 2021).

⁷ Ibid.

Figure 7-3. Northeast Ohio Urbanized Areas in 2010



As the region’s urbanized area expands, new infrastructure (e.g., transportation, water, wastewater, and stormwater) is necessary to support intraregional migration. As a result, infrastructure costs for maintenance increase. The per capita costs increase even more given the decline in Northeast Ohio’s population over the past 50 years.

Suburbanization and interregional migration could result in “unequitable development” leaving behind legacy environmental and land-use issues in the urban core.⁸ Needed investment in maintenance of existing roadways and public transit competes with new transportation demands. Interregional migration leaves behind existing water, wastewater, and stormwater infrastructure and housing stock, and increases pressure for expanded infrastructure to serve new housing and commercial developments. Income moves out as people move out, which results in disinvestment in the previously developed area, often the urban core. The built environment continues to decline and becomes a burden on the populations that remain behind. Abandoned industrial areas, often requiring environmental remediation, increase as businesses seek new locations. As people and jobs move out, service sectors follow. Low-income and minority communities remain and must contend with the undesirable land uses and few remaining resources; they become “overburdened.”

⁸ United States Environmental Protection Agency, “Equitable Development and Environmental Justice,” 2021, <https://www.epa.gov/environmentaljustice/equitable-development-and-environmental-justice> (accessed March 10, 2021).

US EPA defines “Overburdened Communities” as “Minority, low-income, tribal, or indigenous populations or geographic locations that potentially experience disproportionate environmental harms and risks as a result of vulnerability to environmental hazards, lack of opportunity for public participation, or other factors.”

Rural and Developing Communities

For the purposes of *eNEO2050*, “rural communities” are populated areas outside the regulated urbanized area boundaries. “Agricultural communities” are defined as those communities with the majority of land use dedicated to farming or agribusiness. Throughout Northeast Ohio, urbanized areas continue to expand into rural areas due to the development dynamics discussed in Chapter 6. The challenge this creates is two-fold: 1) New development consumes a valuable resource and potentially limits growth of local agriculture and food processing (see Chapter 5); and 2) New development in rural areas can actually create stormwater runoff and other pollution impacts for areas downstream. Many downstream areas are the overburdened communities described above, and excessive upstream development may lead to flooding, sewage backups, pollution transport, and other harmful impacts. Given overburdened communities are already struggling with abandonment, disinvestment, brownfields, and greyfields, additional development in upstream rural communities only exacerbates the hardships.

Land Use and Land Cover

In NOACA’s *Clean Water 2020* (208 Plan), NOACA used the National Land Cover Data (NLCD) from 2001 and 2016 to illustrate land-use changes in Northeast Ohio (see Tables 7-1 and 7-2, and Figures 7-4 and 7-5).⁹ The tables reflect a transition of nearly 65 square miles from forest and farms to (primarily) development and grassland; the region lost more than a half square mile of wetland. The figures illustrate these transitions were most prominent in eastern Lake County, eastern Lorain County, and northern Medina County. These changes in land cover directly correlate with the outward migration of population, households, and employment. During the same period, the region’s population declined 4.6% (nearly 100,000 people) according to the U.S. Census Bureau. This is an inefficient pattern, which degrades the region’s infrastructure and environmental quality.

⁹ Multi-Resolution Land Characteristics (MRLC) Consortium, “NLCD 2016,” 2020, <https://www.mrlc.gov> (accessed Nov. 6, 2019).

Table 7-1. Northeast Ohio Land Cover Types in 2001 and 2016

| Land Cover Types | 2001 (mi ²) | 2016 (mi ²) | 2001-2016 (mi ²) | Percent Change (%) |
|------------------------------|-------------------------|-------------------------|------------------------------|--------------------|
| Barren Land | 5.36 | 5.07 | -0.29 | -5.5% |
| Cultivated Crops | 412.15 | 418.00 | 5.84 | 1.4% |
| Deciduous Forest | 895.72 | 863.50 | -32.22 | -3.6% |
| Developed - High Intensity | 44.14 | 51.41 | 7.27 | 16.5% |
| Developed - Medium Intensity | 124.46 | 146.27 | 21.81 | 17.5% |
| Developed - Low Intensity | 388.69 | 405.55 | 16.86 | 4.3% |
| Developed - Open Space | 411.90 | 424.68 | 12.78 | 3.1% |
| Emergent Herbaceous Wetlands | 10.77 | 11.00 | 0.22 | 2.1% |
| Evergreen Forest | 9.39 | 9.23 | -0.17 | -1.8% |
| Grassland/Herbaceous | 24.78 | 25.85 | 1.06 | 4.3% |
| Mixed Forest | 89.14 | 90.25 | 1.11 | 1.2% |
| Pasture/Hay | 509.10 | 471.60 | -37.49 | -7.4% |
| Shrub/Scrub | 3.83 | 7.72 | 3.89 | 101.5% |
| Water | 30.14 | 30.20 | 0.07 | 0.2% |
| Woody Wetlands | 118.23 | 117.49 | -0.75 | -0.6% |

Table 7-2. Northeast Ohio Land Cover Type Groups in 2001 and 2016

| Land Cover Type Grouped By Land use Types | 2001 (mi ²) | 2016 (mi ²) | 2001-2016 | Percent Change (%) |
|---|-------------------------|-------------------------|-----------|--------------------|
| Barren | 5.36 | 5.07 | -0.29 | -5.48% |
| Forest (Deciduous/Evergreen, Mixed) | 994.25 | 962.98 | -31.27 | -3.15% |
| Cultivated (Cultivated Crops/Pasture/Hay) | 921.25 | 889.60 | -31.65 | -3.44% |
| Developed (High, Medium & Low Intensities and Developed Open Space) | 969.19 | 1027.91 | 58.72 | 6.06% |
| Grasslands (Emergent Herbaceous, Wood) | 28.62 | 33.57 | 4.95 | 17.31% |
| Wetlands | 129.01 | 128.48 | -0.52 | -0.41% |
| Water | 30.14 | 30.20 | 0.07 | 0.22% |

Figure 7-4. Northeast Ohio Land Cover in 2001

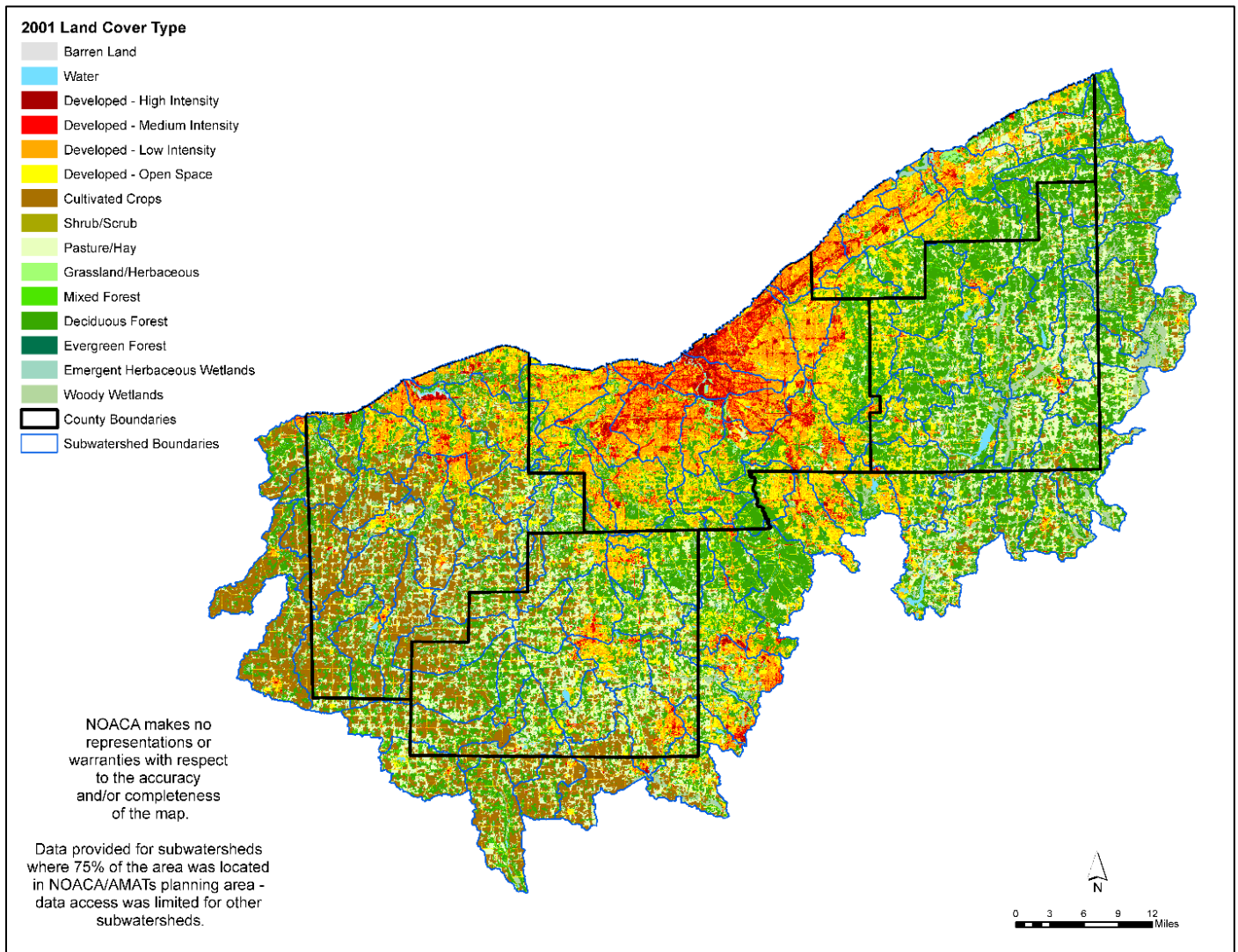
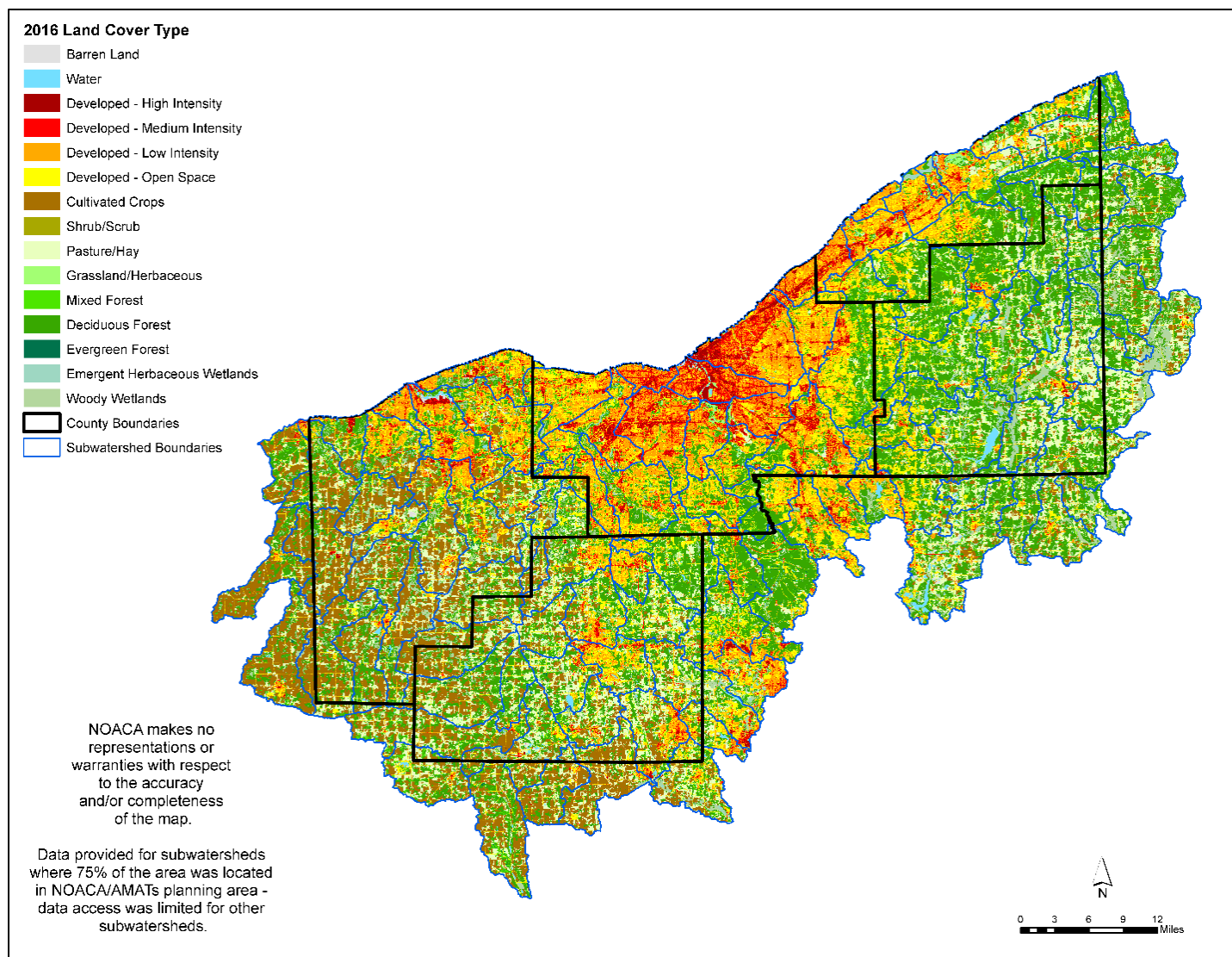


Figure 7-5. Northeast Ohio Land Cover in 2016



Land Use and the Transportation Network

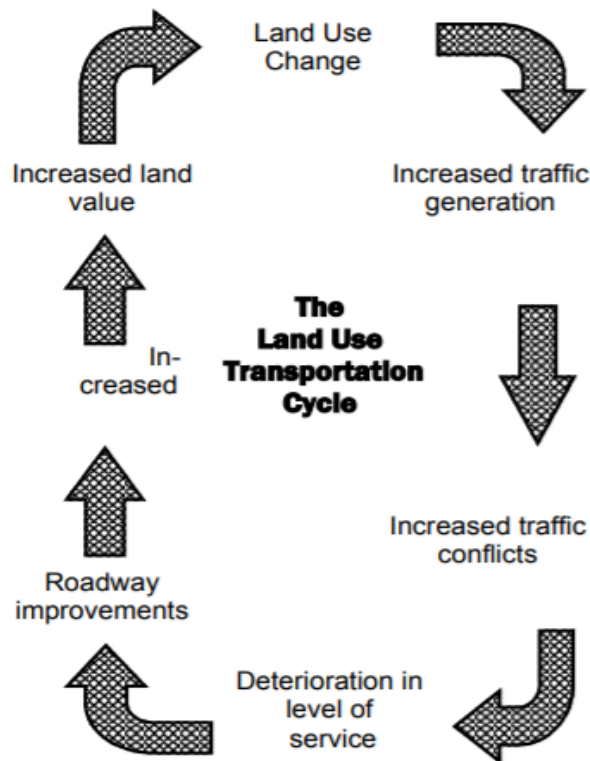
The transportation network consists of the region’s roadways, transit system, and facilities for bicycles and pedestrians. Route planning for each mode of travel requires analysis of current conditions and future expectations for safety, travel time, congestion, and mobility. Planners must also recognize how land use drives demand on specific modes or within certain locations.¹⁰ Expansion of capacity (wider roadways and extended highways) accommodates the continued spread of the region’s population. Investments in multimodal networks for walking, biking, and transit ridership, however, improves mobility within urban and suburban

¹⁰ Mike McKeever and Bruce Griesenbeck, “Linking Transportation and Land Use,” Federal Highway Administration, <https://www.fhwa.dot.gov/policy/otps/innovation/issue1/linking.cfm> (accessed April 8, 2021).

communities, and potentially stimulate redevelopment in higher-density, mixed-use neighborhoods closer to job hubs and serviced by existing infrastructure.

Figure 7-6 illustrates the cycle of how capacity expansion of the road network incentives new development and use of that road until it justifies further expansion, and the cycle repeats itself (somewhat parallel to the cycle shown in Figure 7-7). Table 7-3 illustrates how costs due to arterial/highway expansion impact land use far beyond the initial expense of design and construction.

Figure 7-6. The Land Use Transportation Cycle¹¹



¹¹ Strafford (NH) Regional Planning Commission, 2003. How to...Link Land Use and Transportation Planning (accessed 4.18.2021 from http://www.strafford.org/howto/how_to_land_use_trans.pdf).

Table 7-3. Transportation Planning Land Use Impacts and Costs¹²

Table 1 Transport Planning Land Use Impacts and Costs

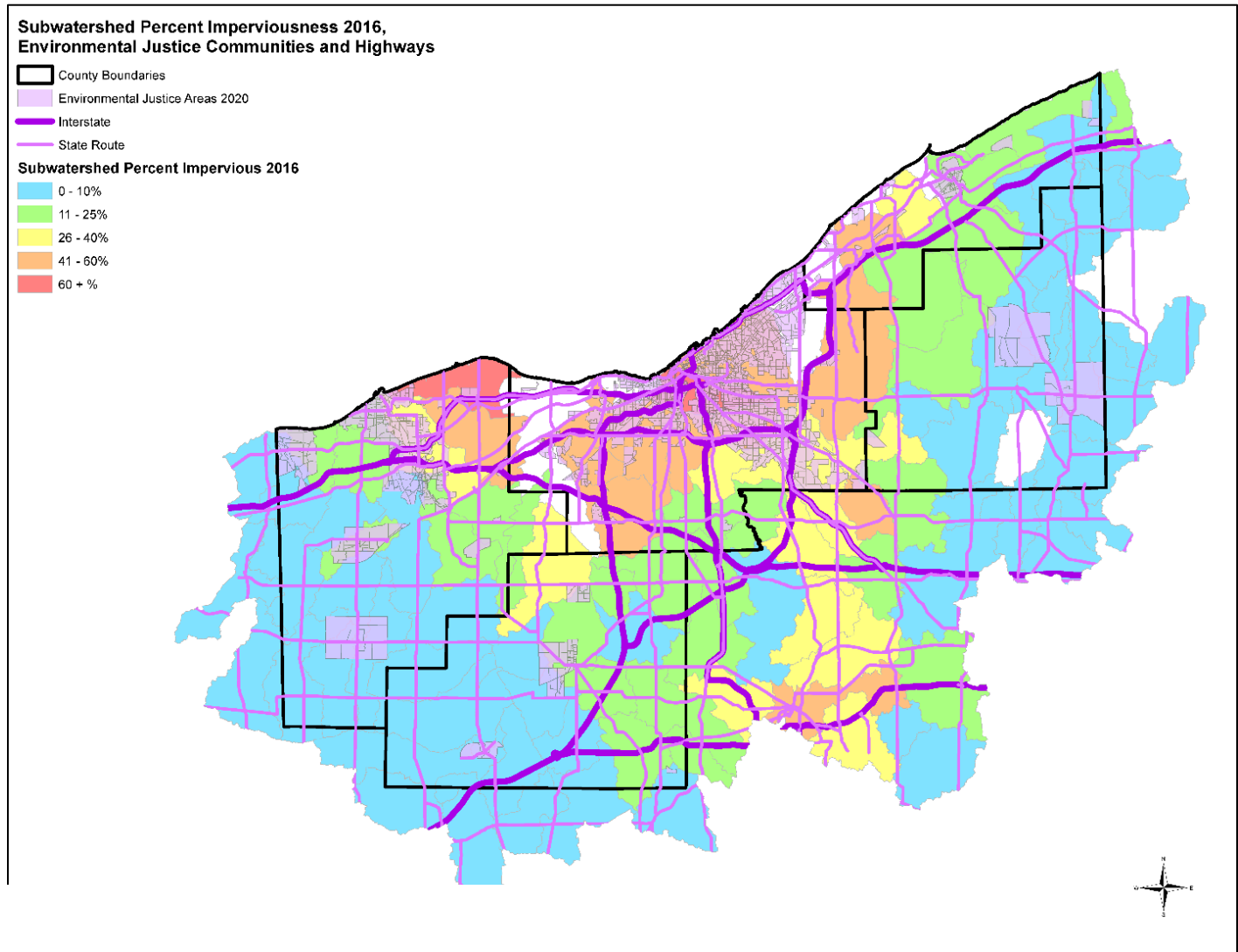
| Increased Pavement Area | More Dispersed Development |
|---|---|
| <ul style="list-style-type: none"> • Reduced openspace (gardens, parks, farmlands and wildlife habitat). • Increased flooding and stormwater management costs. • Reduced groundwater recharge. • Aesthetic degradation. | <ul style="list-style-type: none"> • Reduced openspace (farmlands and wildlife habitat). • Longer travel distances, more total vehicle travel. • Reduced accessibility for non-drivers, which is inequitable (harms disadvantaged people). • Increased vehicle traffic and resulting external costs (congestion, accident risk, energy consumption, pollution emissions). |

This table summarizes various land use impacts and costs from transport planning decisions.

Another important aspect of land cover is the amount of paved or impervious surface as natural landscapes are vital to environmental quality protection and positive health outcomes for local populations. In Figure 7-7, Environmental Justice communities and the highway network are shown along with the subwatershed percentage of impervious surface. If development continues to expand outward from the urbanized areas, higher-intensity land uses will result in rising percentages of impervious cover within watersheds where highway access is available.

¹² Litman, Todd, 2019. Evaluating Transportation Land Use Impacts: Considering the Impacts, Benefits and Costs of Different Land Use Development Patterns (accessed 3.20.2021 from <https://vtpi.org/landuse.pdf>).

Figure 7-1. Northeast Ohio Subwatershed Imperviousness and Environmental Justice Areas



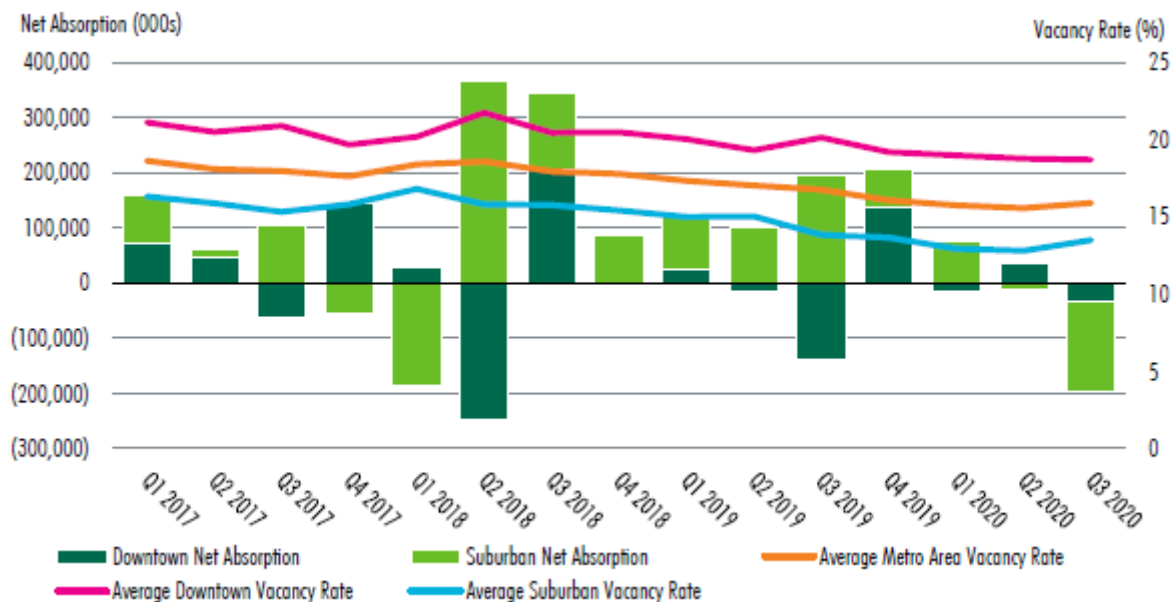
Real Estate

The saying in real estate is “location, location, location,” and that is certainly true for land use. The cost of land and buildings, the cost and time to ship between locations, and the ability to attract workers and customers are all key factors in business profitability and, therefore, site selection. Similarly, location matters in residential real estate because people want to live where they can easily access their place of employment, stores and services, and recreation (see Chapter 6 for more discussion about residential access to goods and services).

Commercial Office

Real estate firm CBRE notes that “Cleveland is capitalizing on its central location and unique real estate opportunities. The reuse of old industrial spaces...for data centers and co-working spaces will help the region succeed in the digital economy.”¹³ This is reflected in declining vacancy rates for downtown office space (Figure 7-8), although the average vacancy rate for suburban office space is much lower.

Figure 7-8. Absorption and Vacancy Rate of Commercial Space, 2018-2020¹⁴



Source: CBRE

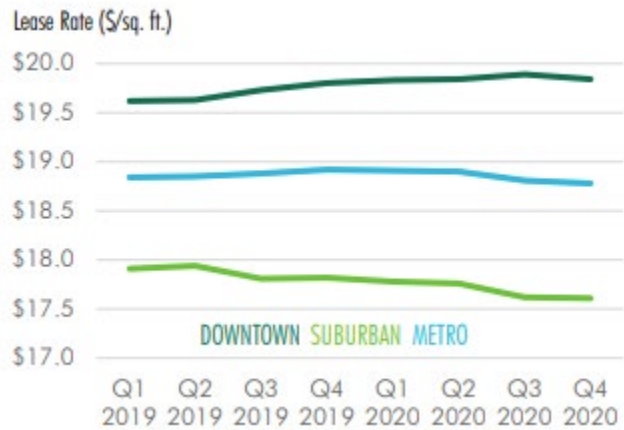
The lower suburban vacancy rate may reflect the amount of space available in the suburbs relative to downtown, and it also shows the strength of the suburbs to attract business over the past several decades. Additionally, Figure 7-9 shows the price per square foot to lease office space is far higher in the central business district than the suburbs. Interestingly, the average lease rate downtown has steadily increased over the past two years while it has declined in suburbs. These trends may indicate a shift in business preferences to locate downtown.¹⁵

¹³ CBRE, “Cleveland Viewpoint: The New Industrial Revolution - Cleveland finds its Place in the Knowledge Economy - February 2019”; <https://www.cbre.com/research-and-reports/Cleveland-Viewpoint--The-New-Industrial-Revolution--Cleveland-Finds-Its-Place-in-the-Knowledge-Econo> (accessed March 18, 2021).

¹⁴ Ibid.

¹⁵ Ibid.

Figure 7-9. Average Commercial Office Lease Price for Greater Cleveland (Downtown, Suburban, Metro)¹⁶



Source: CBRE

Real estate firm Newmark Knight Frank also tracks similar data.¹⁷ Table 7-4 shows that 2020 closed on a downturn where every market saw net negative absorption, largely due to the coronavirus pandemic. Absorption is the amount of office space leased (if a positive number) or made available (if a negative number). Although trends over several years are not available, Newmark does provide a good breakdown based on area of the region. Data show downtown Cleveland has the largest inventory of office space of any area, although the suburbs collectively exceed downtown. For the whole year 2020, data show that only downtown and the southern suburbs had a net gain in leased office space. These are the Downtown and I-77-Rockside Road major regional job hubs. The eastern area contains three other major regional job hubs: University Circle, Chagrin Highlands, and Solon, which showed the largest net loss of absorption. The southwestern area contains the sixth hub, Hopkins Airport.

¹⁶ Ibid.

¹⁷ Newmark Knight Frank, "Cleveland Office Market: Research 4Q 2020"; <https://www.ngkf.com/storage-nmrk/uploads/fields/pdf-market-reports/4Q20-Newmark-Cleveland-Office-Market.pdf> (accessed February 12, 2021).

Table 7-4. Commercial Office Space by Regional Area, Q4 2020¹⁸

| SUBMARKET STATISTICS | | | | | | | | |
|-----------------------|----------------------|-------------------------|--------------------|---------------------|---------------------|--------------------------------|--------------------------------|--------------------------------------|
| | Total Inventory (SF) | Under Construction (SF) | Total Vacancy Rate | Qtr Absorption (SF) | YTD Absorption (SF) | Class A Asking Rent (Price/SF) | Class B Asking Rent (Price/SF) | Total Average Asking Rent (Price/SF) |
| CBD Total | 18,071,632 | 0 | 18.8 % | (70,106) | 135,850 | \$24.91 | \$17.84 | \$18.94 |
| East | 8,769,134 | 0 | 13.7 % | (230,764) | (158,986) | \$22.88 | \$15.97 | \$18.68 |
| South | 7,416,807 | 0 | 18.2 % | (60,599) | 261,387 | \$20.28 | \$15.01 | \$17.18 |
| Southwest | 1,339,605 | 0 | 21.9 % | (12,818) | (76,516) | \$14.43 | \$14.26 | \$13.96 |
| West | 3,402,059 | 100,000 | 17.9 % | (31,855) | (12,190) | \$19.43 | \$14.81 | \$16.63 |
| Suburban Total | 20,927,605 | 100,000 | 16.5 % | (336,036) | 13,695 | \$20.81 | \$15.23 | \$17.33 |
| Market Total | 38,999,237 | 100,000 | 17.6 % | (406,142) | 149,545 | \$22.23 | \$16.62 | \$18.11 |

Source: Newmark

Commercial Retail

The retail subsegment of commercial space likewise fared poorly in 2020, according to research firm Colliers International (Figure 7-10).¹⁹ The vacancy rate for retail is far lower than that for office, but the retail trend is worse (Figure 7-11).²⁰ More than 470,000 square feet of existing retail space became available for lease due to businesses closing or moving. Despite this, an additional 450,000 square feet of new retail space are under construction. Retail sales in one community generally mean fewer sales in another; it represents a shift in economic activity rather than regional growth. It will be increasingly important to maintain or establish retail in areas with developed infrastructure so the region's development footprint does not continue to spread despite a declining population.

¹⁸ Ibid.

¹⁹ Colliers International, "Knowledge Report: Retail Research & Forecast Report Q4 2020" (Cleveland: Colliers International, 2021); https://mcusercontent.com/e80c19826dc31541dc9d4b1fe/files/7124abff-f97b-4b08-b290-3a5cb6b4fdf9/CLE_2020Q4_Retail.pdf (accessed March 19, 2021).

²⁰ Ibid.

Figure 7-10. Commercial Retail Space for Cleveland/Akron Market, Q4 2020

Summary Statistics

Q4 2020 Cleveland Retail Market

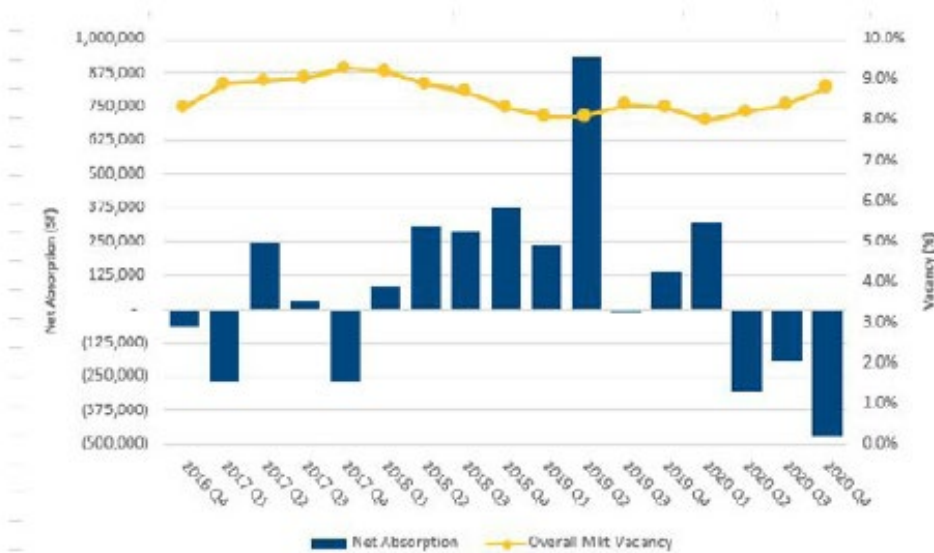
Cleveland

| | |
|-------------------------------------|-----------|
| Vacancy Rate | 8.8% |
| Change From Q3 2020 (basis points) | +40 |
| Net Absorption (Square Feet) | (471,957) |
| Under Construction (Square Feet) | 450,651 |
| Quarterly Completions (Square Feet) | 0 |

Source: Colliers International

Figure 7-11. Commercial Retail Absorption and Vacancy Trends for Cleveland/Akron Market

Retail Absorption/Vacancy



Three consecutive quarters of negative net absorption has driven overall market vacancy up by 80 bps to 8.8%

Source: Colliers International

The commercial retail situation illuminates Northeast Ohio development patterns. Economic developers recognize that retail tends to be zero-sum, where growth in one area corresponds with decline in another area. However, jurisdictions seek retailers because retailers pay commercial property taxes, employ many people who pay income tax (the third largest private sector employer), and may attract people from outside the jurisdiction who will pay sales tax to the jurisdiction. This helps explain why there are 24.5 square feet of retail floor space per person in the United States, compared to 4.5 square feet per person in Europe.²¹ In the Greater Cleveland-Akron-Canton area (Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Stark, and Summit counties), the amount of retail is 25.2 square feet per person as of 2019. This statistic only reflects malls, strip malls, big boxes, and other facilities of at least 50,000 square feet, which means the actual square footage per person is even higher.²² This makes retail extremely competitive and subject to failure, especially during shocks such as the coronavirus pandemic or an economic downturn.

Northeast Ohio examples of the retail transition from downtown to suburban shopping mall to lifestyle center include the City of Elyria, Midway Mall (Lorain County) and Crocker Park (Westlake). Elyria's historic, walkable downtown included two-to-three-story mixed-use buildings, with ground-floor retail and commercial office and residential on the upper floors. This made it possible for people of all incomes to live, work, and shop without needing a personal vehicle. It also surrounds a large public greenspace used for relaxing or recreation. In 1966, however, Midway Mall opened on the fringe of Elyria and was anchored by large national chain stores and no commercial office or residential uses. The mall not only attracted residents from a broad area, but neighboring communities also witnessed its boom and tried to replicate it with smaller retail centers and strips. This growth came at the expense of downtown Elyria, which lost several of its retailers and, subsequently, office and residential occupancy. Furthermore, the competition between Midway and the smaller venues created challenges for Midway.

Economic development within underutilized historic centers and districts more efficiently leverage the capital infrastructure investments already made without demand for new or expanded roads, surface parking lots, and highway interchanges. This strategy will also make available jobs and services within easier reach of low-income and minority populations who rely more on walking, biking, and transit to navigate the region.

Industrial

Unlike office and residential space, industrial property lease rates are higher in most suburban areas versus the urban core, particularly the Chagrin-Highlands and Solon major regional job hubs. These hubs are in CBRE's southeast market (Table 7-5), which has the largest amount of industrial space in Northeast Ohio.²³ It's also the second most expensive market, which indicates high demand. This indicates greater preference among industrial businesses for locating in areas that have available land and easy highway access, which has been a common theme for decades as development has spread outward. It is unlikely companies in these sectors will choose dense downtown areas, nor do communities typically want them to due to

²¹ Gregory Scruggs, "The Unmallings of America: How Municipalities Are Navigating the Changing Retail Landscape," *Land Lines* (The Lincoln Land Institute, January 2020); <https://www.lincolninst.edu/sites/default/files/pubfiles/unmallings-of-america-lla200105.pdf> (accessed February 14, 2021).

²² CBRE, "Cleveland Retail, H1 2020"; http://cbre.vo.llnwd.net/grgservices/secure/Cleveland_Retail_MarketView_H1_2020.pdf?e=1614260433&h=7c60251e02dfe9d0208feaccf16a7324 (accessed February 25, 2021).

²³ CBRE, "Cleveland Marketview, Q4 2020"; <https://www.cbre.us/research-and-reports/Cleveland-Industrial-MarketView-Q4-2020> (accessed February 16, 2021).

noise, pollution, and safety concerns with large trucks (although they often generate coveted tax revenue). A recent example is GOJO Industries, who leased space at Cleveland’s I-X Center to expand its operations due to increased demand during the coronavirus pandemic. This happened just two months after the I-X Center announced its closure. The GOJO expansion makes excellent use of existing building, roads, and utilities in the Hopkins Airport hub, which demonstrates the importance of major regional job hubs and existing infrastructure for industry clusters.²⁴ Furthermore GOJO’s expansion into Maple Heights also takes advantage of a mature transportation system and available capacity in an Environmental Justice community.

Table 7-5. Industrial Real Estate Metrics by Location, Q4 2020

| Submarket/ Size | Net Rentable Area Sq. Ft. | Vacancy Rate (%) | Availability Rate (%) | Q4 2020 Net Absorption Sq. Ft. | YTD Net Absorption Sq. Ft. | Asking Rate (\$/SF) | Under Construction Sq. Ft. |
|---------------------|---------------------------------|------------------------|-----------------------------|--------------------------------------|----------------------------------|------------------------|----------------------------------|
| Downtown | 44,678,547 | 3.2 | 3.7 | (11,979) | (122,245) | 4.22 | - |
| East | 6,216,864 | 3.8 | 5.2 | (1,600) | 19,094 | 8.19 | - |
| Geauga West | 2,129,734 | 3.8 | 5.0 | - | (5,000) | 5.41 | - |
| Lake County West | 26,162,140 | 3.4 | 4.2 | (39,778) | (174,168) | 6.13 | - |
| Northeast | 27,898,039 | 5.0 | 5.8 | 169,142 | 145,000 | 3.01 | - |
| Northwest | 32,919,878 | 1.9 | 2.9 | 163,750 | 179,230 | 3.84 | 103,527 |
| South | 37,736,251 | 5.0 | 6.4 | (3,800) | (150,132) | 5.24 | - |
| Southeast | 57,061,208 | 3.6 | 4.4 | 7,002 | 375,295 | 6.18 | 429,000 |
| Southwest | 44,864,979 | 5.0 | 7.8 | 126,514 | 35,977 | 4.44 | 130,000 |
| Total Market | 279,667,640 | 3.9 | 5.1 | 409,251 | 303,051 | 4.85 | 662,527 |

Source: CBRE

Table 7-6 shows that industrial real estate can be broken into different property types. Over the past several years, warehouse and distribution has been a rapidly growing segment, overtaking manufacturing as the largest industrial property type by square footage. Through the first three quarters of 2020, occupied warehouse space grew by nearly 300,000 square feet, while manufacturing space declined by more than 430,000 square feet; nearly 625,000 square feet of warehouse space is also under construction. This trend is likely to continue, as online shopping continues to grow and people expect fast delivery of orders. To this extent, Amazon repurposed two vacant malls in the NOACA region and a third in neighboring Summit County in just the past two years. Community officials for the Euclid Square and Randall Park malls in Cuyahoga County recognized they could repurpose these large buildings and leverage the existing roads, sewers, and utilities around them.

²⁴ Eric Heisig, “GOJO, the Akron-based Maker of Purell, Will Lease Space at the Coronavirus-shuttered I-X Center in Cleveland,” *Cleveland.com*, Nov. 20, 2020; <https://www.cleveland.com/realestate-news/2020/11/gojo-the-akron-based-maker-of-purell-will-lease-space-at-coronavirus-shuttered-i-x-center-in-cleveland.html> (accessed February 16, 2021).

Table 7-6. Industrial Real Estate Metrics by Subsector, 2020 3rd Quarter²⁵

| Property Type | Net Rentable Area Sq. Ft. | Vacancy Rate (%) | Availability Rate (%) | Q3 2020 Net Absorption Sq. Ft. | YTD Net Absorption Sq. Ft. | Asking Rate (\$/SF) | Under Construction Sq. Ft. |
|------------------------|---------------------------|------------------|-----------------------|--------------------------------|----------------------------|---------------------|----------------------------|
| Warehouse/Distribution | 134,287,451 | 4.0 | 5.5 | 373,493 | 299,836 | 4.96 | 624,813 |
| Modern Bulk* | 13,598,173 | 4.6 | 10.2 | 434,000 | 434,000 | 6.23 | 624,813 |
| Manufacturing | 124,060,821 | 3.1 | 3.7 | (148,205) | (431,267) | 3.47 | 145,400 |
| R&D/Flex | 20,440,830 | 5.2 | 6.5 | (19,168) | 25,231 | 8.05 | - |
| Total Market | 278,789,102 | 3.7 | 4.8 | 206,120 | (106,200) | 4.81 | 770,213 |

Source: CBRE Research, Q3 2020.

*Modern Bulk defined as Warehouse/Distribution properties built after 1999, sized 100,000 sq. ft. and above, and a clear height of 24' and above

Source: CBRE

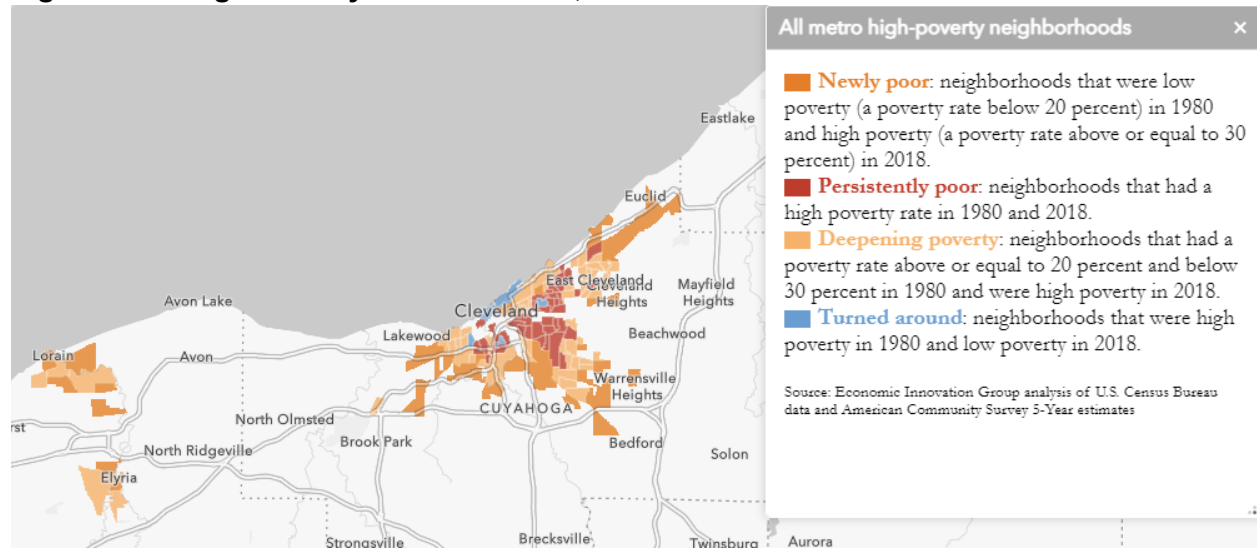
Residential

Research from the Center for Population Dynamics at Cleveland State University finds that the downtown population of college-educated young adults specifically has increased after the Great Recession at a faster rate than the nation as a whole (see Chapter 5). Residential growth may not seem as important to economic development as commercial or industrial growth, but cities around the country hope to attract young professionals because they are likely to have higher wages and spend more money. This further encourages commercial growth, as businesses want to be located near potential employees and customers. An exclusive focus on this group of young, highly educated office workers threatens to leave many people behind, however. It will be imperative for stakeholders to consider people of all ages and education in economic development to ensure a more equitable future for Northeast Ohio.

Deepening and expanding poverty has prevailed in certain areas of Northeast Ohio since 1980. Figure 7-12 shows that most east-side Cleveland neighborhoods were high-poverty in 1980 and remain so today, many with even higher poverty now. Additionally, poverty has suburbanized; many inner-ring suburbs now experience higher poverty rates. Elyria and Lorain also experienced new or worsening poverty.

²⁵ CBRE, "Cleveland Marketview, Q4 2020," <https://www.cbre.us/research-and-reports/Cleveland-Industrial-MarketView-Q4-2020> (accessed February 16, 2021).

Figure 7-12. High Poverty Census Tracts, 1980 and 2018²⁶

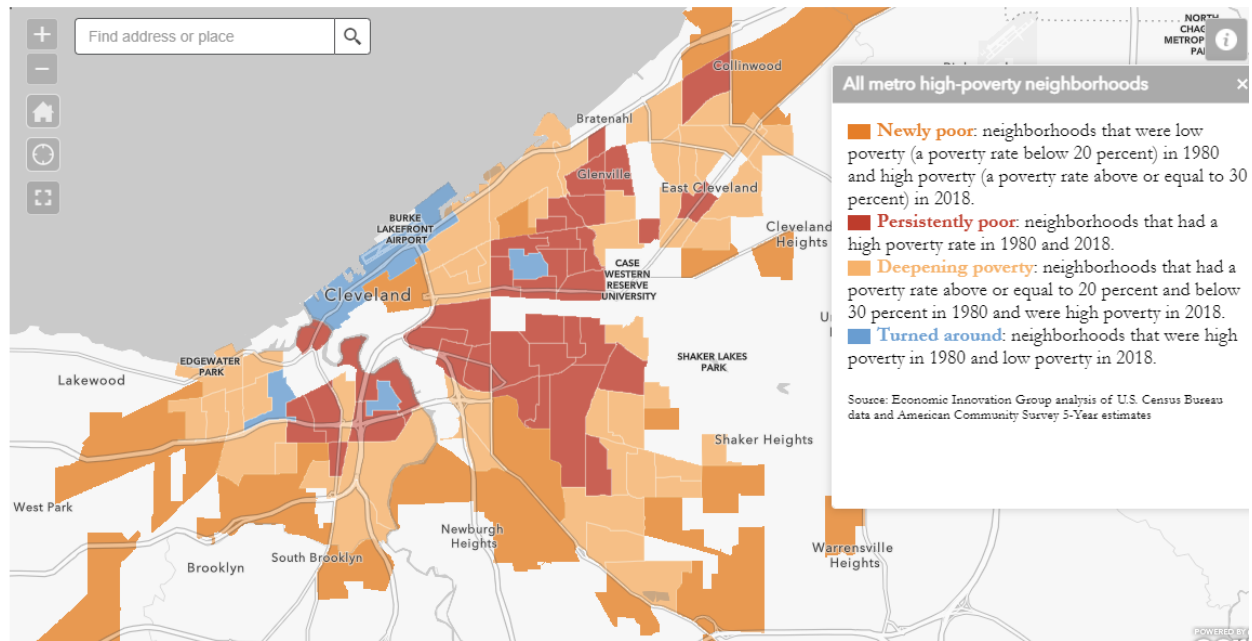


Source: Economic Innovation Group

A few Cleveland neighborhoods have maintained lower poverty rates during the period (University Circle, Ohio City) or experienced declines in poverty rates during the period (Downtown, Asiatown, Hough, Tremont, Detroit Shoreway) (see Figure 7-13). Some of these areas have undergone substantial growth and rapid increases in high-end residential sales (see Chapter 6). These are the areas where gentrification may be a concern. Planners and policymakers can work to ensure that existing residents benefit from neighborhood change through targeted housing assistance, new job training, and multimodal transportation connections to access employment opportunities. Please see Chapter 6 for much more detailed discussion on housing.

²⁶ Economic Innovation Group analysis of U.S. Census Bureau and American Community Survey data. Interactive map found at <https://eig.org/neighborhood-poverty-project/interactive-map> (accessed February 16, 2021).

Figure 7-13. Shifting Poverty Rates in Cleveland Neighborhoods, 1980-2018²⁷



Source: Economic Innovation Group

Parking

Parking is a relevant, but often overlooked factor, in real estate. Its availability, the space to provide it, and the cost to build it all influence where development occurs. Public infrastructure firm WGI notes that, in 2020, the average cost to build one parking space in an above-ground parking garage in Cleveland was \$21,312.²⁸ Surface lot spaces cost less, and underground garage spaces cost more due to materials and design. Central business district spaces cost more than those in outlying areas due to greater demand for land. This is one factor that encourages both outward migration of development and more driving to reach outlying development.

In addition, downtown parking lots are a lucrative business, which means owners are often reluctant to sell. This reluctance to sell prevents a higher and better use that could employ more people and generate more income for a city. The high cost to purchase the lot for development discourages business relocation to these areas. Urban planning researcher Donald Shoup suggests three steps to change course: eliminate mandatory parking minimums, charge the right price at the right time for public parking, and invest these proceeds back into the neighborhood in the form of improved services or amenities, such as transit and cycling.²⁹

²⁷ Ibid.

²⁸ Raymond Smith, "Parking Structure Cost Outlook for 2020" (WGI, 2020); <https://h8f4v6c7.stackpathcdn.com/wp-content/uploads/2020/07/Parking-Construction-Cost-Outlook.pdf> (accessed February 12, 2021).

²⁹ Matt Hurst, "Q&A: UCLA's Parking Guru Donald Shoup," *UCLA Newsroom*, Jan. 15, 2014; <https://newsroom.ucla.edu/stories/q-a-ucla-s-parking-guru-donald-249859> (accessed February 16, 2021).

Shoup's first step, eliminate parking minimums, does not mean there will be no parking. Rather, it means businesses and the free market can decide how much parking to provide. Parking minimums raise costs for businesses because they force developers to purchase enough land to accommodate the spaces, build the spaces, and maintain the constructed parking facility. Parking is a low-value land use; every parcel dedicated to the temporary storage of vehicles does not have a viable business that provides jobs, sales, and higher tax revenue. The only exceptions are private parking facilities whose owners may employ attendants. Required parking minimums also consume excess land and reduce development density. Lower densities induce driving and make transit, cycling, and walking less feasible. Lower densities also raise housing construction costs, which can discourage people from staying in, or relocating to, the region. Reduced parking, higher densities, and increased emphasis on denser, walkable, transit-accessible, and mixed-use development may help low-income residents who currently struggle to access jobs because they do not own a vehicle. Reduced parking requirements may also help low-income residents more readily afford housing (i.e., lower housing costs if parking is not required with the unit).

NOACA, as a transportation agency, could offer to convene a discussion on parking best management practices. One NOACA program, the Transportation for Livable Communities Initiative (TLCI), funds planning and implementation of multimodal transportation improvements; parking is often a concern in these projects because road reconfigurations may change the amount of available parking. These site-specific plans to optimize parking may be scaled across neighborhoods or entire cities.

NOACA Efforts

NOACA has pursued several efforts that address the intersection of land use and transportation. As land use and zoning are a primarily local responsibility, NOACA has been working closely with counties and municipalities in ensuring that land use decisions and transportation investments are mutually beneficial. The subsequent section describes NOACA's efforts in assessing transportation demand based on land uses and in enabling communities to take an integrated look at their land use and transportation needs.

Transportation for Livable Communities Initiative (TLCI)

NOACA's Transportation for Livable Communities Initiative (TLCI) is a program that focuses on "integrated transportation and land use planning and projects that strengthen community livability."³⁰ TLCI advances the goals of NOACA's *Regional Strategic Plan* through the following objectives:

- Develop transportation projects that provide more travel options through complete streets and context sensitive solutions, increasing user safety and supporting positive public health impacts
- Promote reinvestment in underutilized or vacant/abandoned properties through development concepts supported by multimodal transportation systems
- Support economic development through place-based transportation and land use recommendations, and connect these proposals with existing assets and investments

³⁰ Northeast Ohio Areawide Coordinating Agency (NOACA), "Transportation for Livable Communities."; <https://www.noaca.org/community-assistance-center/funding-programs/transportation-for-livable-communities-initiative-tlci> (accessed February 2, 2021).

- Ensure that the benefits of growth and change are available to all members of a community by integrating principles of accessibility and environmental justice into projects
- Enhance regional cohesion through support of collaboration between regional and community partners
- Provide people with safe and reliable transportation choices that enhance their quality of life

The initiative is split into two categories: Planning Projects and Implementation Projects. Planning studies lead to improvements of transportation systems and the neighborhoods they support. Implementation projects help communities move forward with the development and installation of infrastructure from completed livability studies.

The TLCI program is especially useful to communities for maintenance and redevelopment of existing infrastructure. TLCI plans help improve safety and connections to work, business, and community amenities such as schools, libraries, and parks. Altogether the program looks to improve livability to retain residents and attract new ones. As of 2020, NOACA has invested nearly \$9.5 million into 133 Planning Studies, and \$8 million into 59 Implementation Projects.

NOACA's TLCI projects have focused on bicycle and pedestrian improvements, multimodal connectivity, transit access, greenspace connectivity, traffic studies, downtown/district redevelopment master plans, and comprehensive corridor and complete street plans. These types of projects support existing neighborhoods and infill housing developments to increase modal choice and quality of life. Figure 7-14 shows some of the program scopes covered in funded projects from 2015-2020.

Figure 7-14. Examples of NOACA TLCI-funded projects and scopes (2015-2020)³¹

³¹ Ibid.



Vibrant NEO

Vibrant NEO 2040, an extraordinary effort to articulate a regional vision framework for the 12-county region of Northeast Ohio (including NOACA’s five counties), illustrated the fiscal implications of continued outward spread of development with simultaneous decline of the region’s population (see Chapter 2). In this context, as businesses and jobs spread, they often move from one place to another in the region, with accompanying tax and job losses in some places and gains in others. While this is certainly beneficial for the receiving community, there is essentially no regional benefit. Furthermore, communities that were receiving population 50 years ago have now started to lose population. From a regional perspective, business and job attraction from other areas to our region are critical to grow every community’s tax revenue to provide services and amenities. Indeed, the authors of *Vibrant NEO 2040* found that every county government budget will be unbalanced by 2040 if the status quo continues. Expenses would exceed revenues due to unsustainable development patterns. By law, budgets must balance, which means this financial shortfall would result in costly tax increases or decaying infrastructure, both of which discourage business retention, expansion, and attraction.

Vibrant NEO identifies six different “Place Types,” based on the age and form of the housing stock, and 23 different “Development Types” within these places. Local community members and key stakeholders can determine the place type(s) and development type(s) they currently have or want to encourage. Vibrant NEO 2040 makes recommendations and describes

initiatives for each place type to promote land use and transportation systems that result in equitable and sustainable growth to maintain or realize desired types.

One example is the list of [Pilot Projects](#), a searchable database of best practices from around the region, updated in 2020.³² It illustrates how many NOACA communities across the region continue to progress toward implementation of *Vibrant NEO 2040* recommendations. Examples include the City of Lakewood Affordable Housing Strategy, Lake County Better Flip housing revitalization effort, and the City of Lorain Broadway streetscape improvements. Another tool is the Vibrant NEO [Policy Framework](#), which provides dozens of detailed recommendations that county or local governments can adopt.³³ NOACA itself has adopted several relevant policies such as its Complete and Green Streets Policy (described below). The Vibrant NEO framework can foster the growth of existing companies and the creation of new ones rather than the zero-sum movement of existing businesses within the region.

Workforce Accessibility and Mobility

NOACA's Workforce Accessibility and Mobility study, completed in 2019, looks to the future of economic growth through regional job hubs and worker accessibility. Noting that Northeast Ohio's economy is only as strong as its workforce, the study highlights important considerations for job hub development and workplace access.

The study indicated that improved access and mobility was contingent upon job site selections and residential land use patterns and recommended that employee access and mobility factor into development and siting of job hubs. The primary analysis focused on commute time data based on workers' home ZIP codes and the ZIP codes of six major job hubs in the Cleveland metropolitan statistical area (MSA) which all happen to be in Cuyahoga County, with subsequent work focused on legacy and minor job hubs in the collar counties. NOACA created a travel time shed for each identified job hub using data from NOACA's travel forecasting model. The data included both auto and transit trips. Additionally, NOACA considered socioeconomic data (age, income, job industry, race, ethnicity, educational attainment, and gender) to draw correlations between worker characteristics and measurements of access. The objective was to spatially match employees to job hubs in order to achieve a goal of shorter commute times and reduced vehicle miles traveled.

NOACA can glean data from this extensive study in various ways to improve employment access, including:

- employment agencies to match job seekers to easily accessible employment
- business retention planning
- business location siting
- workforce development

The Workforce Accessibility and Mobility Study concludes with recommendations to further improve transportation to job hubs for a wide range of workers and their needs, and to

³² Vibrant NEO, "Pilot Projects", 2020, <https://vibrantneo.org/action-products/pilot-projects/> (accessed April 13, 2021).

³³ Vibrant NEO, "Vibrant NEO 2040 Policy Vision Framework, December 6, 2013, <https://vibrantneo.org/wp-content/uploads/2014/01/Vibrant-NEO-2040-Policy-Framework.pdf> (accessed April 13, 2021).

incentivize development of new housing and workplaces closer to existing job hubs and transit stations (Transit Oriented Development).³⁴

Transit-Oriented Development (TOD)

Transit Oriented development (TOD) is “compact, walkable development integrally linked to public transportation.” NOACA’s “Regional TOD Scorecard and Implementation Plan” highlights that most successful TOD includes a mixture of the following elements:

Development that is compact and dense. Compact in relative terms, especially compared to the surrounding area. This allows more people to live, work, shop, or go to school within walking distance of the station or stop.

A rich mix of land uses, if not at each station then in each segment of a corridor. Mixed-use development helps create safe “24/7” places. When housing, jobs, and other uses are in close proximity, many daily activities are within safe, reasonable walking or biking distance. Mixed-use development also allows more efficient use of the transit system; it generates commuter trips both to and from the station in question.

A safe, inviting, and interconnected public realm that “glues” land uses to each other and to the transit station. Transit-oriented development is also pedestrian-oriented development, and successful station areas include a grid of small, navigable blocks with ample sidewalks, active uses at street-level, attractive amenities, good lighting and way-finding, bicycle lanes and facilities, and uniform accessibility for seniors, the disabled, and people with baby carriages.

A new approach to parking. TOD doesn’t mean “no cars”—even with an emphasis on transit, pedestrian, and bicycle use, successful TOD will generate car trips. But TOD does require less parking. It can afford lower parking ratios that take advantage of transit; shared parking facilities that take advantage of mixed uses; and location and design standards that blend into the district.³⁵

TOD elements benefit communities because they prioritize compact development and save on infrastructure costs. Because TOD makes use of existing connections to the transportation network, residents have access to multimodal options in a pedestrian-friendly environment. Additionally, mixed uses in TOD create opportunities for residents to “live, work, play” all in one place, which can lower the cost of transportation.

Aging-in-Place with TOD. In Northeast Ohio and across the county, the rapidly aging population presents both challenges and opportunities. In Ohio, the population of individuals age 60 and older is expected to grow 47% by 2030 (42% in Northeast Ohio; see Table 7-7). The National Council on Aging (NCOA) reports that as the population ages, more individuals continue to work past the traditional retirement age, whether for financial necessity or to remain invested in their careers and communities. In 2015 there were more than 33 million Americans over the age of

³⁴ NOACA, “Workforce Accessibility and Mobility” (Cleveland: NOACA, November 2019); <https://www.noaca.org/home/showpublisheddocument?id=24551>.

³⁵ AECOM, “Regional TOD Scorecard and Implementation Plan,” (Cleveland: Northeast Ohio Areawide Coordinating Agency, November 2016); <https://www.noaca.org/regional-planning/transportation-planning/transit-planning-tod/transit-oriented-development-tod> (accessed November 16, 2020). Should it be this link instead? <https://www.noaca.org/home/showpublisheddocument?id=19936>

55 who still worked full time.³⁶ Rising costs of housing, health care, and pharmaceuticals, as well as basic necessities such as food and transportation, negatively affect those who already have limited monthly incomes.

Table 7-7. Current and Projected Senior Population in Northeast Ohio

| Senior Population by County | | | | | | | | |
|-----------------------------|----------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|
| County | 2010 Census | Percent total Population | Projection 2020 | Percent total Population | Projection 2030 | Percent total Population | Projection 2040 | Percent total Population |
| Cuyahoga | 198,541 | 16% | 227,420 | 19% | 261,510 | 23% | 245,480 | 22% |
| Geauga | 14,474 | 15% | 19,470 | 21% | 24,180 | 25% | 22,010 | 23% |
| Lake | 36,965 | 16% | 44,930 | 20% | 53,060 | 23% | 49,530 | 22% |
| Lorain | 43,131 | 14% | 55,450 | 18% | 66,070 | 21% | 64,280 | 20% |
| Medina | 22,601 | 13% | 32,610 | 18% | 42,750 | 22% | 45,910 | 23% |
| Total | 315,712 | 15% | 379,880 | 19% | 447,550 | 22% | 427,190 | 22% |

Source: U.S. Bureau of the Census (2010), Ohio Development Services Agency

While traditional planning for older adults focuses on the development of nursing homes and long-term care and assisted living facilities, The American Association of Retired Persons (AARP) notes that “the vast majority of older adults want to age in place so they can continue to live in their own homes or communities.” Their report “Aging in Place: A State Survey of Livability Policies and Practices” specifically found that transportation was a core concern and that “increased mobility options can reduce reliance on transportation by personal car.”

As previously discussed, development and land-use patterns in Northeast Ohio have decentralized over the past 50 years so that housing, jobs, medical facilities, and social service resources have spread farther apart. For individuals who are dependent on transit and specialized transportation, this can create long-term social and economic exclusion.³⁷

TOD presents a viable solution for an aging population through affordable, diverse housing options in pedestrian-friendly landscapes, near transportation options and other amenities. This compact development is ideal for individuals who cannot or do not want to drive, but also prefer to maintain their independence and mobility. NOACA’s “Regional TOD Scorecard and Implementation Plan” includes an Aging-in-Place strategy.

TOD in Northeast Ohio. TOD presents itself as an innovative solution to development in the face of Northeast Ohio’s changing landscape. Planned and incentivized redevelopment in the urbanized area, centered on public transportation, takes advantage of the “bus, pedestrian and bicycle amenities and land uses that can support reduced auto dependence commonly associated with TOD.”³⁸

³⁶ National Council on Aging, “Fact Sheet: Mature Workers,” 2016; <https://www.aarp.org/content/dam/aarp/livable-communities/old-learn/economic/mature-workers-fact-sheet-aarp.pdf> (accessed November 11, 2018).

³⁷ Center for Transit-Oriented Development, “Creating Connected Communities: A Guidebook for Improving Transportation Connections for Low and Moderate-Income Households in Small and Mid-Sized Cities,” (Washington, D.C.: U.S. Department of Housing and Urban Development, April 2014); https://www.huduser.gov/publications/pdf/Creating_Cnnted_Comm.pdf (accessed November 10, 2020).

³⁸ NOACA, “TOD in Northeast Ohio,” (Cleveland: NOACA, June 2017); <https://www.noaca.org/regional-planning/transportation-planning/transit-planning-tod/transit-oriented-development-tod> (accessed November 30, 2020).

NOACA's "Regional TOD Scorecard and Implementation Plan" is a useful tool to leverage future investment in and maintenance of the transit system to bring people, jobs, and services closer together.

Complete and Green Streets Policy

In June 2020, NOACA adopted the [Complete and Green Streets Policy](#), which aims to create a more equitable, balanced, and resilient transportation system that enables safe, multimodal use of streets and roads, and that also mitigates harmful environmental impacts.³⁹ The Complete and Green Streets policy promotes a multimodal transportation system that is integrated with sustainable green infrastructure. The goals of this policy are:

- Create a comprehensive, integrated, and connected transportation network that supports sustainable development and provides livable communities.
- Ensure safety, ease of use, and ease of transfer between modes for all users of the transportation system.
- Restore the natural hydrologic function of the region's watersheds.
- Provide flexibility for different types of streets, areas, and users.

Complete Streets are roadways designed to safely and comfortably accommodate all users, including, but not limited to motorists, cyclists, pedestrians, disabled individuals, transit and school bus riders, Amish buggies, freight haulers, and emergency responders. All users includes people of all ages and abilities. Such streets encourage different modes and also a stronger mix of land use types that actively engage streets and roads to foster a friendlier user experience.

Green Streets reflect the transportation policy and design approach that minimizes environmental impact by focusing on efforts to retain, treat and eliminate runoff at the source using green infrastructure applications. Green infrastructure helps replicate natural hydrologic functions like storage, detention, infiltration, filtration, evaporation, transpiration, and uptake by plants, and can improve water quality and reduce runoff volumes (see Chapter 8). These natural functions are often lost in transportation projects where impervious road surfaces prevent rain water from soaking into the ground. Green streets incorporate infiltration, biofiltration, and/or storage and use BMPs to collect, retain, or detain stormwater runoff while also providing design elements that creates attractive streetscapes. Green Streets can foster unique and attractive streetscapes that protect and enhance neighborhood livability and integrate, rather than separate, the built and natural environments.

Complete and Green Streets create a measurably better transportation system that is more equitable, balanced, and effective and which offers every user of the public right-of-way safe, connected, and sustainable transportation options. Every project that requests NOACA-administered funds is required to consider complete and green streets elements. . NOACA will evaluate projects to ensure, depending on the context of the surrounding environment, that motorists, cyclists, pedestrians, disabled individuals, transit and school bus riders, Amish buggies, freight haulers, and emergency responders can safely share the road.

³⁹ Northeast Ohio Areawide Coordinating Agency (NOACA), *Complete and Green Streets Policy*, (Cleveland: NOACA, June 16, 2020), <https://www.noaca.org/home/showpublisheddocument?id=25242> (accessed April 13, 2021).

Development Impact Policy for Proposed Wastewater Facility Planning Area (FPA) Modification Requests

The NOACA Board of Directors approved this policy in 2019 as part of [Clean Water 2020](#), NOACA's wastewater management and water quality plan (see Chapter 8).⁴⁰ The Ohio Environmental Protection Agency (Ohio EPA) defines Facility Planning Areas (FPAs) as “a discrete geographical planning area of sufficient scope to allow for an analysis of various alternatives for the treatment and disposal of wastewater.”⁴¹ The NOACA Board is responsible for maintaining FPA boundaries and reviewing any proposed changes. The Board can either approve or reject any changes to the FPA boundaries. The creation of any new FPAs require Board action as well. These changes are effective upon Board approval and reflected in the next plan update submitted to Ohio EPA for certification. The Development Impact Policy requires that “the NOACA Board shall consider regional development impacts if the FPA boundary modification is primarily for new residential or commercial development.”⁴² With this policy, the Board recognizes that a boundary modification may shift development within the region rather than facilitate new growth, and that the modification would have a net negative fiscal or environmental impact. The following questions guide staff review in their application of the policy to specific FPA boundary modification requests:

1. Is the modification request primarily for new construction (residential or commercial)?
2. Is the modification request area within a U.S. Census Bureau urban area?
3. Estimate of the number of new homes or structures proposed for construction.
4. Estimate of the amount of new sanitary sewer infrastructure to serve the requested modification area (e.g., linear feet of gravity sewers, linear feet of force main sewers, number of pump stations, etc.).
5. Is the proposed sanitary sewer infrastructure expansion part of an asset management plan?
6. Estimate the projected capacity impacts to the transportation system that may result from the proposed developments.

Where Will We Go?

Future Development Scenarios

Looking forward to 2050, there are a number of different possible paths for the NOACA region to realize its future. The following four scenarios serve as predictions for what could be, based on levels and types of transportation investment. There will be particular focus on worker accessibility to jobs and equity. The scenarios—MAINTAIN, CAR, TRANSIT and TOTAL—are

⁴⁰ Northeast Ohio Areawide Coordinating Agency (NOACA), *Clean Water 2020: 208 Areawide Wastewater Management and Water Quality Plan*, (Cleveland: NOACA, September 11, 2020), <https://www.noaca.org/home/showpublisheddocument?id=25346> (accessed April 13, 2021).

⁴¹ Ohio EPA, “Water Quality Management Plans (CWQ Sections 208 and 303), Glossary,” <https://www.epa.ohio.gov/dsw/mgmtplans/208index#157704654-glossary> (accessed December 20, 2019).

⁴² Northeast Ohio Areawide Coordinating Agency (NOACA), Resolution No. 2020-017: Water Quality Management Plan (208 Plan) Development Impact Policy for Proposed Wastewater Facility Planning Area (FPA) Modification Requests, March 2020; <https://www.noaca.org/home/showdocument?id=24899> (accessed February 12, 2021).

discussed in relation to impacts on land use in the region. Chapter 9 provides a more detailed presentation of the scenarios, their components, and performance measures used for scenario comparison and selection.

Scenario 1: MAINTAIN-State of Good Repair

Scenario 1 focuses solely on maintenance of the existing transportation system, with no expansion of roads, bridges, highways, or public transit. The scenario assumes no variation from the current population and employment forecasts for the region, which reflect recent trends (slight decrease in population, slight increase in employment).

While the population of the region and total households will both decrease slightly, moderate new housing starts and demand for new housing will likely remain as NOACA will prioritize projects to maintain roads and highways with good access to job hubs. An emphasis on maintenance will likely encourage continued outward migration of the region and continued deconcentration of development in the urban core. Average commute times will likely decline slightly, but so will the number of people and jobs within a 15-minute (3/4-mile) walk of a transit (rail or bus) station. Modal choice will not expand under the MAINTAIN scenario; it's all about a state of good repair with regard to what the region currently has, not new investment.

Given the continued outward spread of people and jobs, there will be a limited demand for Transit Oriented Development (TOD). Any new TOD will likely occur in urban neighborhoods that already have momentum and access to jobs (e.g., University Circle, neighborhoods close to downtown, inner-ring suburbs near job hubs and rail transit). Regardless, the existing population of aging Baby Boomers will create demand for accessible, affordable housing of all types (independent living through skilled nursing levels). A demand for housing that allows individuals to “age in place” could be part of TODs and could grant access to transit, dining, entertainment, shopping, healthcare resources, and other essential needs.

Limited redevelopment and revitalization in traditional urban core communities and inner-ring suburbs is expected with population loss; however, some urban infill projects may persist where professionals and retirees demand housing (high-end, workforce type mix) in urban areas. Increased transportation costs from more driving and less transit may strain household budgets a bit, but the improved state of existing roads may reduce vehicle maintenance needs and insurance premiums.

MAINTAIN will continue the land use trends of the past few decades; there will be little to no change.

Scenario 2: Captivating Auto Region (CAR)-Single—Occupancy Vehicles

In Scenario 2, road capacity expansion is the priority. This includes new and improved infrastructure (roads, highways, bridges, interchanges), shorter travel times through traffic signal timing optimization, reduction of highway bottlenecks, ramp metering,⁴³ and reduced commutes to job hubs. Like Scenario 1 (MAINTAIN), CAR assumes no change to the projected population (slight decrease) and employment (slight increase) totals by the year 2050.

⁴³ Ramp meters are signal systems near the end of entrance ramps onto limited-access highways. The meters detect speed and occupancy of mainline lanes, allowing cars to enter the highway from the ramp at appropriate times to promote the most efficient flow of mainline traffic (retrieved 4.9.2021 from <https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/traffic-operations/resources/ramp-meters>).

Despite the expected loss of population and total households in the CAR scenario, improved and expanded highways will accelerate existing migration of people and jobs to peripheral areas of the region. Moderate to high new housing starts may occur in more rural and exurban areas, even outside NOACA entirely, due to fast and easy access to job hubs. New highway access points will incentivize greenfield development and disincentivize greyfield and brownfield redevelopment. There will be less motivation for urban core infill and revitalization since a centralized location won't mean as much. Average commute times by car will likely decrease given the anticipated improvements and even greater capacity in the arterial and highway network.

The CAR scenario promises an expanded, efficient transportation system for drivers, likely decreasing the demand for housing near job hubs as workers can live anywhere in the region, provided they have access to a private, reliable vehicle. Job hubs may even see increased demand for parking since there will likely be an increase in the number of workers incentivized to drive. Though the emphasis on personal, single-occupancy vehicles will lower demand for TOD, it will continue to be a useful development strategy for seniors who need accessible, affordable housing of all types (independent living through skilled nursing levels). TOD will also be necessary for low-income individuals and families who may not be able to afford personal vehicles. Unfortunately for these groups, overall demand for transit will likely decline and transit investment will be an even lower priority for government budgets. These groups will still need a mix of workforce and low-income housing, but it is unclear whether such housing can find a home in closer proximity to a major regional job hub.

CAR will accelerate the land use trends of the past few decades; there will be increased spread from the urban core and from major regional job hubs.

Scenario 3: TRANsportation System with Improved Transit (TRANSIT)-Multimodal Transportation System

Scenario 3, TRANSIT, is essentially the opposite of CAR (Scenario 2). TRANSIT expands all transit agencies in the region through implementation of the improved 2017 Visionary Rail Network and increased bus service to Environmental Justice Areas.⁴⁴ TRANSIT also includes connections between transit stops and job hubs with autonomous shuttles and new pedestrian and bike routes. In Scenario 3, the projected 2050 population and employment is based on the same NOACA forecasts used in the MAINTAIN and CAR scenarios, plus additional increases as described below.

The transit and active transportation investments should stimulate both population and employment increases beyond the original projections used in the MAINTAIN and CAR scenarios. NOACA staff anticipate a 5% increase in target area population (transportation analysis zones within a five-mile radius from any rail station or major regional job hub would experience this additional 5% increase). NOACA staff anticipate 80% of this growth would occur in multifamily housing (20% single-family housing) due to its affordability and closer proximity to existing, denser development; transit stations; and job hubs. NOACA staff also anticipate a 3-8% additional employment increase in each of the six major regional job hubs (although the actual increase will vary based on the primary employment sector at each hub); see Chapter 9.

⁴⁴ NOACA, "AIM Forward 2040" (Cleveland: NOACA, June 2017); <https://www.dropbox.com/s/1pvfvhx8xszgdlo/AIM%20Forward%202040.pdf?dl=0> (accessed March 16, 2021).

Total households are projected to increase from 2020 as well, and increased accessibility across the region due to expanded public transit capacity (particularly rail) will make urban living more attractive. New housing starts will increase to accommodate the growth in both single family and multifamily units. Infill housing in urban and core towns and neighborhoods, particularly near transit stations, should exceed the numbers in the first two scenarios. More households will be within a 30-minute commute from work, whether by car or transit. Transit trips may double, and more than 100,000 more people will be within a 15-minute walk of a bus stop or rail station.

The expanded transit system will increase the demand for TOD so people and employers can take advantage of greater modal choice, including transit, biking, and walking. More workforce housing in transit-accessible locations or near job hubs will be necessary. Housing demand, particularly demand for revitalized or repurposed housing in existing urban areas, will likely increase as this would be the first time in more than 50 years the region has experienced any population growth. There will continue to be a need for accessible, affordable housing of all types for the aging population, and improved transit will increase options for dining, entertainment, shopping, healthcare resources, and other essential needs.

While TRANSIT does not necessarily help drivers (expect increased costs from lack of roadway maintenance and greater population without capacity expansion), individuals who cannot afford personal vehicles will have greater mobility and can more easily access jobs. A transit mobile workforce should encourage companies and other employers to focus on, and prioritize proximity to, transit during location decisions.

Scenario 4: Transportation with Optimal Technology and Access for All (TOTAL)-Advanced Multimodal Transportation

The fourth scenario, TOTAL, incorporates all projects in the CAR (save highway interchanges) and TRANSIT scenarios. Additionally, the TOTAL scenario includes technological advances in the form of electric vehicle (EV) charging stations; autonomous vehicle lanes; and the futuristic Hyperloop system and stations. The projected 2050 population and employment in TOTAL is based on the same NOACA forecasts used in the other scenarios, plus additional increases as described below.

The wide array of transportation investments should stimulate significant population and employment increases beyond the original projects used in the other scenarios, even the TRANSIT scenario. NOACA staff anticipate a 10% increase in target area population (transportation analysis zones within a five-mile radius from any rail station or major regional job hub would experience this additional 10% increase). NOACA staff anticipate 80% of this growth would occur in multifamily housing (20% single-family housing) due to its affordability and closer proximity to existing, denser development; transit stations; and job hubs. NOACA staff also anticipate a 6-16% additional employment increase in each of the six major regional job hubs (although the actual increase will vary based on the primary employment sector at each hub); see Chapter 9.

To accommodate more households, the percentage of infill housing in urban and inner suburban neighborhoods should exceed the previous three scenarios. The average commute time for auto users will increase slightly, but transit commute times will decrease by a significant margin. Transit trips are expected to triple, and nearly twice as many people will be within a 15-minute walk of a bus or rail station than even in the TRANSIT scenario.

Like the TRANSIT scenario, the expanded transit system will increase the demand for TOD. An increase in jobs in the region will spur demand for workforce housing, especially near job hubs. As noted in all scenarios, there will continue to be a need for accessible, affordable housing of all types for the aging population. New technology and improved transit will benefit individuals who cannot, or do not, drive, which allows for improved mobility. Individuals who cannot afford personal vehicles will also have greater mobility and easier access to jobs. Employers and companies should look to existing job hubs and housing when they make siting decisions.

A greater emphasis on technology in the TOTAL scenario can be a boon for mobility across the region, but there should be concerted efforts to ensure equal access to these opportunities for all residents in the NOACA region. One of the biggest issues related to either the TRANSIT or TOTAL scenario could be the potential negative environmental impacts from an increase in population in Northeast Ohio. Although 5% and 10% increases over the current baseline projection don't seem like much, the model predicts that air quality and water quality will bear the brunt of negative impacts from an increase in population, households, and jobs. The next chapter, Environment and Health, will explore these issues in greater detail and consider how Northeast Ohio leaders and stakeholders might plan for future transportation investment; maintain and improve the region's environmental quality; and mitigate climate change impacts to improve its resiliency.

Performance Measures and Targets

Although Chapter 9 will present a much more detailed discussion and analysis of the four future scenarios mentioned above, this section details performance measures to assess progress toward more efficient land use. The performance measures are variables used to assess the scenarios comparatively against each other. There are two important values associated with each performance measure: the baseline and the target. The baseline is the value of the performance measure in the current state (2020). The target is the value of the performance measure in the future state (2050). One of the four future scenarios will be the preferred scenario and its performance measures will be the target values NOACA will use to assess the region's progress from the current state to the preferred future state. Table 7-13 illustrates the performance measures and targets focused on efficient land use. This table does not include as many performance measures as similar tables in Chapters 5 and 8; one of NOACA's recommendations is to research and develop more performance measures and targets on land use for the 2025 Long-Range Plan.

The outputs are presented in a specific way to help the reader digest the information clearly and concisely with the following guidelines:

1. The baseline represents current conditions (2020 conditions). The outputs reflect how the performance measure will change from the baseline to the target year (2050) under each of the four scenarios.
2. The "-" and "+" signs shown as outputs for each performance measure under each scenario indicate the direction of change. A "-" sign indicates a decrease from the baseline and a "+" sign indicates an increase from the baseline. There are two sizes for each sign; they represent the magnitude of change (smaller signs indicate slight change; larger signs indicate more substantial change).
3. The colors of the signs and numbers for each output are also important. Red color indicates a negative impact on the region, while green indicates a positive impact on the region. While many people commonly associate "-" signs with a negative impact and "+"

signs with a positive impact, that is not always the case. It is possible to have a red “+” sign, meaning the value of that performance measure will increase under a scenario, but that increase will have a negative impact on the region.

4. Some of the performance measures in Table 7-8 are qualitative. To help the reader interpret the differences across scenarios, consider the performance measure, “future population and employment in communities with peak population in 1970.”
 - a. MAINTAIN: Maintenance of the status quo will likely yield continued slow decline of population in those communities whose population peaked in 1970, the same year the region’s population peaked. These communities make up the region’s peak population development footprint; after 1970, all growth essentially came at the expense of older, urban core neighborhoods that experienced decline, disinvestment, abandonment, and demolition.
 - b. CAR: Prioritization of arterial and highway infrastructure expansion will likely yield a substantial decline in the population and employment of the 1970 development footprint.
 - c. TRANSIT: Investment in expansion of transit lines and stations instead of road/highway capacity will restore some of the population and employment within the 1970 development footprint.
 - d. TOTAL: Investment in both transit and road capacity expansion will restore some of the population and employment within the 1970 development footprint.

Table 7-8. Performance Measures and Targets

| Performance Measure | Scenario 1 MAINTAIN | Scenario 2 CAR | Scenario 3 TRANSIT | Scenario 4 TOTAL | 2020 Baseline |
|--|------------------------|-------------------|-----------------------|---------------------|---|
| Regional Population | - (42,806) | - (42,806) | + 100,406 | + 200,892 | 2,026,866 |
| Regional Employment | + 55,850 | + 55,850 | + 66,254 | + 132,950 | 1,421,195 |
| More investment in Environmental Justice Areas? | SAME | - | + + | + + | Current investment within EJ areas |
| Ecologically Sensitive and Agriculturally Productive Lands | - | - | SAME | - | Current acreage of ecologically sensitive and agriculturally productive lands in Northeast Ohio |
| Future Population and Employment in Communities with Peak Population in 1970 | - | - | + + | + + | Current estimate of total population and employment for all communities whose population peak occurred on or before 1970 (another option is to consider median age of single-family homes (1970 or earlier) |
| Cleaned Brownfields (formerly developed, polluted sites) | - | - | + + | - | Current number and acreage of brownfields |

Principal Considerations for Transportation in the Context of Land Use

As NOACA and Northeast Ohio plan for the next three decades, here are some principal considerations that may help create more efficient land use for Northeast Ohio:

1. Diverse housing options within ¼ mile to public transportation stops provides greater transportation choice and employment opportunities, particularly relative to the rapid transit network.
2. Inclusionary, flexible land-use practice and zoning policies allow for more transportation options, particularly transit.
3. Greater collaboration between urban, suburban, exurban and rural communities may improve land use practice across all place types that can be better supported by transportation policy.

4. Regional data sharing about projects and programs that embody approaches to more efficient and equitable land use allow communities to learn from one another and replicate success stories across multiple jurisdictions.

Implementation Action Items

Looking forward to 2050, NOACA should implement the following actions to move the region toward a more equitable future:

1. Continue to work with the City of Cleveland and GCRTA to implement the pilot TOD sites identified in the 2017 NOACA Regional TOD Scorecard and Implementation Plan.
 - a. West Boulevard-Cudell
 - b. East 116th Street
 - c. Broadway-Slavic Village
2. Refine the transportation model with new data from the 2020 Census once it becomes available. The new model runs will enable NOACA staff to update and expand its land use performance measures. .
3. Continue to fund TLCI planning and implementation projects and develop a portfolio of success cases to share with communities across the region.
4. Implement the Complete and Green Streets Policy and develop a portfolio of success cases to share with communities across the region.
5. Implement the Development Impact Policy for FPA Modification Requests and work with elected officials, wastewater managers and engineers to refine and improve NOACA's countywide FPA map effort to reduce the number of individual requests that do not comport with mapped (i.e. planned) wastewater management improvements.
6. Study how many acres of land are currently planned to be sewered. Assess how many households and residents can be accommodated within this area based on the average regional and county densities in the urbanized area. Examine the implications for transportation investments.
7. Conduct studies in collaboration with the transit providers and affected municipalities for each recommended rapid transit corridor (Chapter 9) including considerations of land redevelopment potentials along the corridors, impact on travel times in the transportation network, cost effectiveness, effects on travel choices in existing neighborhoods, support for economic development, and benefits to disadvantaged groups. .