

**City of Twinsburg
2021 Comprehensive Plan Update**



A Framework for Sustainability

COMPREHENSIVE PLAN UPDATE COMMITTEE

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INTRODUCTION

Status of Planning in Twinsburg

The City of Twinsburg is a community that recognizes the importance of planning for its future. The City's Comprehensive Plan provides guidance related to public policy and capital investments. It serves as an important tool that helps shape the City's near-term future and helps it anticipate long-term trends. In recognition of the importance of planning, the City has adopted a policy requiring regular comprehensive plan updates. This City's first plan was developed and adopted in 1975. It was not updated until 1990, when intense suburban expansion stimulated interest in planning for growth. Since then, plan updates have been prepared and adopted in 1998, 2007, and 2014.

Planning efforts are not confined to the preparation of the Comprehensive Plan. Occasional studies and analyses are performed in the periods between comprehensive plans. These studies and analyses may be incorporated, in whole or in part, to the next version of the comprehensive plan. Since the last update, a number of planning efforts and community development initiatives have been undertaken that contribute to this current update. Among them are the following:

- Mayor's On-going "Green Initiative" – this sustainability effort recently accomplished the addition of eight electric vehicle charging stations at four locations in the City, initiated lighting improvements in City buildings and improved accessibility to City Hall and the Fitness Center by installing automatic doors. The program focuses on projects that contribute to energy conservation and greenhouse gas emission reduction.
- "First Mile – Last Mile" Connecting Communities Plan – this AMATS funded trail planning effort provided recommendations for the connection of existing trails and trail proposals needed to connect them with the central area and other local destinations.
- "Downtown Redevelopment Districts" – the City has examined the benefits of creating these special districts where property taxes may be deferred for historic preservation and infrastructure improvements. Efforts are underway to establish as many as three districts in central Twinsburg.
- "PACE – ESID" Energy Conservation and Green Energy Financing Tools – the Development Finance Authority of Summit County and NOPEC have made these special assessment financing programs available to Summit

County communities and businesses. These programs fund energy efficiency improvements for property owners who agree to annual assessments for repayment. They can be very useful tools in efforts to conserve energy and reduce greenhouse gas emissions.

The City's 2014 Comprehensive Plan was a traditional plan touching on all aspects of the community and providing special emphasis on redevelopment of the City's central area. Since the 2014 Plan was adopted, vacant land in the community has been reduced by development to the extent that no significant tracts of vacant developable land remain for residential applications (See Figure 1). Further, undeveloped industrial land area has also been reduced to the extent that only two industrial tracts of more than twenty acres remain (See Figure 2). Several small tracts of commercially zoned land remain and retail and office properties in the community are seeing more vacancies. As the City approaches build-out, a greater community awareness of redevelopment opportunities and sustainability practices may be anticipated.

Sustainability and the City of Twinsburg

This 2021 Plan places emphasis on providing guidance for increased municipal sustainability. The Institute for Local Government's *Sustainability Best Practices Framework* was used to inform the planning process and to develop goals and objectives in support of increased sustainability in Twinsburg. In contrast, the 2014 Comprehensive Plan emphasized a conceptual plan for the City's central area, but also included goals and objectives related to future development of the entire City. A look back at the 2014 Plan recommendations was included in this planning process with the purpose of evaluating them from a current perspective in a rapidly changing environment (See Appendix A).

Allowing for community growth, supporting quality of life for all residents and maintaining the ecological integrity of natural resources are goals that often conflict with one another and balancing these goals can significantly challenge local governments. As the City of Twinsburg matures, more importance is being placed on preservation and property maintenance. It is also becoming more important, in order to sustain the current quality of life the community offers, to focus on sustainable practices and sustainable development. Over the course of several decades, the City of Twinsburg has implemented a variety of sustainability measures (See Appendix B). However, planning efforts focused on sustainability can support progress in a coordinated manner and help the City to achieve more significant outcomes.

"Sustainable development" has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability principals recognize the interdependence of environmental, economic and social equity issues. In order to affectively deal with these issues it is

necessary to consider if current systems and practices are capable of providing for the long term without compromising or reducing the quality of life of future residents. This will be the challenge for this and future planning efforts.

Purpose

The primary purpose of the Comprehensive Plan is to provide an ambitious, but attainable statement of goals and objectives that will enhance existing development by encouraging orderly growth. It combines current activities and long-range goals, the means by which they can be achieved, and the standards by which they can be measured. Comprehensive in scope, the Plan relates Twinsburg's development pattern to the region as a whole.

The plan itself has many extremely important functions in the administration of the City. Among those are the coordination of development, policy implementation and effectuation, public communication and education. In addition to providing a clear image of Twinsburg's desirable future development, the Comprehensive Plan serves many important purposes in the daily operation of the City. While the Plan does not change any laws or ordinances, it does provide a basis for making changes to the City's Zoning and Building Codes and Subdivision Regulations in order to achieve community goals. It serves as a point of reference in making decisions concerning the zoning of land by indicating appropriate locations for various land uses and types of development. It can guide all City departments and other governmental units in determining their own long-range programs and the equitable distribution of their efforts, particularly in capital improvement programming.

The Comprehensive Plan can also be used as a guide to sustainability by including policies and recommendations contributing to the mitigation of greenhouse gas emissions, encouragement of environmental conservation, energy conservation, green energy utilization, and waste reduction. These issues will receive particular attention in this comprehensive plan update.



Part 1 – Existing Conditions

Demographics

An analysis of demographic data is essential to providing a basis for understanding various population characteristics and in turn community needs. Population trends that relate to age, income, and household size for example, can be identified through an analysis of change in statistical data over time and these trends may be further understood by comparison to other populations. An analysis of demographic trends can highlight similarities and differences between local, regional, state and national populations, thus allowing for a better understanding of the local community and its needs.

The 2020 U.S. Decennial Census has been completed, however, this data is not yet available and the 2018 American Community Survey (ACS) data set has been used as the basis for analysis within this document, with some use of 2019 Census estimates where noted. The Decennial Census and the American Community Survey (ACS) are part of the Decennial Census Program of the U.S. Census Bureau. The American Community Survey provides communities, businesses and the public with detailed information more frequently than the Decennial Census. Since 2005, data that historically would have been collected only once every 10 years by the decennial census long form has been collected monthly (and released annually) through the ACS.

Many trends reflected in ACS data for the United States and for the State of Ohio are similarly seen in demographic data for the City of Twinsburg. For example, national, state and local populations are all: (1) aging, (2) becoming more diverse, and are (3) comprised of greater numbers of people living alone. Having an understanding of these specific types of demographic trends provides a foundation for establishing appropriate planning goals and objectives.

Population

Population growth in Twinsburg has moderated over the last 20 years as the availability of easily developed land has diminished. Twinsburg's 77% population increase between 1990 and 2000 gave way to a substantially reduced 11% population growth rate between 2000 and 2010. This trend of slowing population growth became even more pronounced between 2010 and 2018 as evidenced by a growth rate of less than 1% (.64%) for this period. This markedly reduced growth rate over the past decade mirrors the lack of remaining developable land within the City of Twinsburg and supports a community shift towards concern for livability issues and sustainability measures and a move away from growth management concerns.

Table 1, below, provides a look at total population and median age percent change between 2010 and 2018. Data is tabulated for Ohio, Twinsburg and surrounding suburban communities as a means of comparison. All of the listed geographies have seen some growth except for the City of Solon which experienced a 1.3% population loss. The trend toward population loss is shared by Cuyahoga County.

Table 1, POPULATION CHANGE 2000 - 2018								
Geographic Area	TOTAL POPULATION				MEDIAN AGE			
	2000	2010	2018	% Change 2010-2018	2000	2010	2018	% Change 2010-2018
Ohio	11,353,140	11,536,504	11,641,879	+0.91%	36.2	38.8	39.5	1.8%
Summit Co.	542,899	541,871	541,918	+0.03%	37.2	40.0	41.0	2.5%
Twinsburg	17,006	18,795	18,915	+6.4%	36.4	41.4	44.5	7.5%
Solon	21,802	23,348	23,038	-1.3%	37.5	43.1	44.4	3.2%
Macedonia	9,224	11,188	11,808	+5.5%	38.0	37.2	45.3	1.8%
Hudson	22,439	22,262	22,287	+0.11%	38.9	42.5	46.5	9.4%
Streetsboro	12,311	16,028	16,395	+2.3%	34.5	37.9	39.7	4.7%
Aurora	13,556	15,548	15,941	+2.5%	40.8	45.4	46.2	1.8%
Source: U.S. Census Bureau, American Community Survey, 2018								

Suburban sprawl continues to be a trend as evidenced by the growth rates of communities at the edge of suburbia. Solon and Twinsburg, the expanding suburbs of the 90's and early 2000's are now outpaced by population gains in communities that lie at the more distant fringe, like Streetsboro and Aurora. Medina, Geauga and Wayne Counties experienced significant growth between 1990 and 2010 and these counties continue to see population growth. Medina County had a 4% rate of growth between 2010 and 2018, while Cuyahoga County had a population growth rate of -3.5% over the last decade. Continued sprawl is evidenced by rural and suburban communities within the Cleveland Plus, 18-county area supporting the 2% Cleveland Plus regional population growth rate indicated in Table 2 as seen below.

Table 2, STATE AND REGIONAL POPULATION

<u>Geographic Area</u>	<u>2000</u>	<u>2010</u>	<u>2000-2010 Change</u>	<u>2018</u>	<u>2010-2018 Change</u>
State of Ohio	11,353,140	11,353,504	.003%	11,689,442	3%
Cleveland+ (18 counties)*	4,441,566	4,198,074	-5.5%	4,277,646	- 3.7%
Summit County	542,899	541,781	-.2%	541,918	-.18%
*Ashland, Ashtabula, Columbiana, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Mahoning, Medina, Portage, Richland, Stark, Summit, Trumbull, Tuscarawas and Wayne Counties					

Age Composition

Suburban sprawl may be the most noteworthy historic trend to have influenced the development of the City of Twinsburg and other northern Summit County cities; yet, the continued aging of these suburban populations is also significant. The median age of the U.S. population is 38 years old. Over the last decade, the median age of the Twinsburg population increased from 41.4 years to 44.5 years, or an increase of 7.5%. Since the 2000 Decennial Census, Twinsburg has seen a 22% increase in median age. Suburban communities surrounding Twinsburg have also experienced this trend toward aging. Aging of local populations reflects the national trend towards aging of the U.S. population resulting from increased life expectancies, decreased death rates for the elderly, and postponement of both marriage and child bearing.

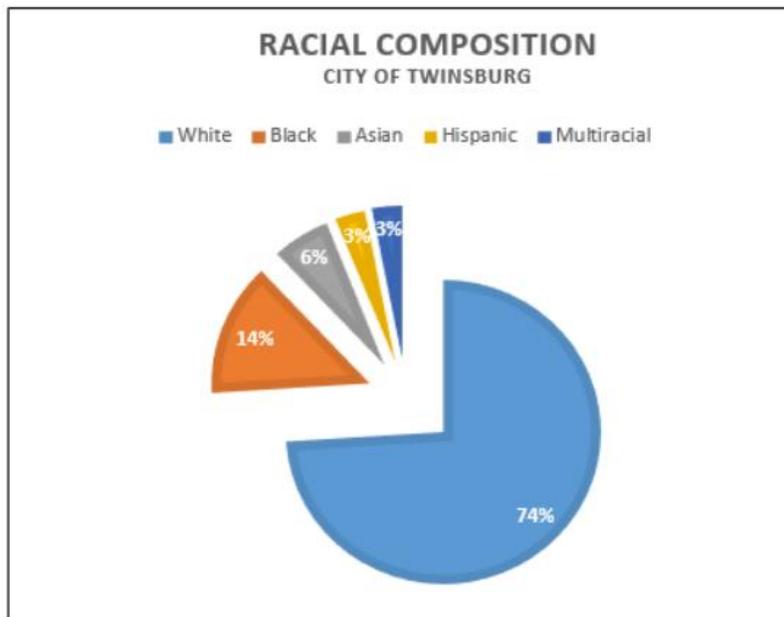
The Twinsburg City School District includes the City of Twinsburg, Twinsburg Township, and the Village of Reminderville. Table 3 provides historical population information relative to the City and School District. The 16% population increase within the school district between 2000 and 2010 was reduced significantly to an increase of 3% between 2010 and 2018. This reduced City population growth rate, continued aging of the population and smaller family size have all contributed to a plateau in school enrollment.

Table 3 - CITY AND SCHOOL DISTRICT HISTORICAL POPULATIONS

	Twinsburg		School District	
	Total Population	%Change	Total Population	% Change
1970	6,432	-	8,060	-
1980	7,627	19	10,850	35
1990	9,600	26	13,900	28
2000	17,006	77	21,506	54
2010	18,795	11	25,027	16
2018	18,915	.64	25,814	3

Racial and Ethnic Diversity

Twinsburg’s population composition has seen increased diversity for several decades, with this trend continuing over the last nine years. The City’s white population has decreased from 80% in 2010 to 74% in 2019. An increase in the Hispanic and Multiracial populations since 2010 are reflected in the pie chart below. With persons of Hispanic or Latino origin comprising 16% of the US population, this group remains under represented in Twinsburg as compared to the National population. However, the Hispanic population in the State of Ohio, at a rate of 3.9%, is similar to that found in Twinsburg. Black and Asian populations have increased by less than 1% since 2010.



Source Data: Census Bureau Quick Facts Estimate, vintage year 2019

Income

The Twinsburg median household income in 1990 was 134% of the State median household income, in 2000 it was 146% of the State median income and in 2010 and 2018 it was 147% of the State median income. Table 4 tabulates Twinsburg’s Household, Family, and Per Capita Incomes as related to the Nation and State. While Twinsburg residents have maintained an income level greater than the State or National is average, they trail behind surrounding communities in terms of household, family and per capita income and have seen a rate of income increase less than that experienced within the State and Nation.

Table 4 - MEDIAN AND PER CAPITA INCOME, 2018				
Geographic Area	Median Household	Median Family	Per Capita	Per Capita % Change (2010-2018)
TWINSBURG	\$77,021	\$102,944	\$38,143	13%
OHIO	\$54,543	\$69,837	\$30,304	21%
USA	\$60,293	\$73,965	\$32,621	25%

Source: U.S. Census Bureau, American Community Survey, 5 year estimate, 2014-2018, 2010 Decennial

Of note is the poverty rate within the City of Twinsburg which has significantly increased from 1% to 6% over the last decade. This poverty rate doesn’t reflect potential impacts resulting from the 2020 pandemic. Twinsburg’s poverty rate increased by 4.8% between 2010 and 2019. This increase in the rate of poverty was similarly experienced in Summit County and the State of Ohio, while the Nation as a whole saw a reduced poverty rate.

Table 5 - POPULATION BELOW PVERTY LEVEL				
Geographic Area	2000	2010	2019	2010-2019 Poverty Rate Change
Twinsburg City	1.6%	1.0%	5.8%	+ 4.8%
Summit County	7.5%	10.0%	13.2%	+ 3.2%
State of Ohio	7.8%	10.3%	14.0%	+ 3.7%
USA	11.3%	15.1%	10.5%	- 5.4%

Data Source: Bureau of Census, 2000 & 2010 Census and 2019: ACS 5-Year Estimates Subject Tables

Households

One or more people occupying a housing unit constitutes a household. A comparison of Household Data is provided below, in the Table 6.

Table 6 – Households (2015 – 2019)

Household Characteristics	Hudson	Macedonia	Aurora	Twinsburg
Owner-occupied housing unit rate	87.10%	93.00%	82.30%	74.00%
Median value of owner-occupied units	\$345,500	\$223,400	\$272,300	\$218,200
Median selected monthly owner costs - with a mortgage	\$2,248	\$1,575	\$1,835	\$1,544
Median selected monthly owner costs - without a mortgage	\$850	\$573	\$708	\$599
Households	8,019	4,610	6,061	7,822
Persons per household	2.74	2.57	2.6	2.38
% Living in same house 1 year ago	91.80%	92.00%	91.60%	89.60%
Bachelor's degree or higher, % persons age 25 years+	71.50%	44.40%	51.60%	45.50%
With a disability, under age 65 years	4.00%	4.80%	5.40%	7.00%

Family and Nonfamily Households

Census data relative to household characteristics is further compiled into Family Household or Nonfamily Household information. A Family Household is one in which the occupants are related by birth, marriage or adoption to the householder. A Family Household may consist of a married couple, parents and children, or grandparents and children or grandchildren. A Nonfamily Household is one in which the occupants are individuals not related by birth, marriage or adoption. College students sharing an apartment or house off-campus or unmarried couples sharing housing would be common examples of a Nonfamily Household. These individuals share a housing unit, but are not related to one another.

Table 7 – Type of Households

Households By Type	Estimate	Percent
Total households	7,817	100%
Family households (families)	5,062	64.8%
With own children under 18 years	2,341	29.9%
Married-couple family	4,094	52.4%
With own children under 18 years	1,836	23.5%
Nonfamily households	2,755	35.2%
Householder living alone	2,440	31.2%
65 years and over	1,375	17.6%
Average family size	3.08	X

Average household sizes have declined consistently across the nation over several decades as social and housing characteristics have changed. An aging population, fewer married couples, fewer children, fewer married couples with children, having children later in life, higher divorce rates and availability of a variety

of housing are all factors that have contributed to smaller household sizes. Average *household* size in Twinsburg was 2.49 at the time of the 2010 Census and is currently estimated at 2.38 per household. Average *family* size in Twinsburg is currently estimated at 3.08, slightly reduced from 3.09 in 2010 and 3.21 in 2000.

In 2000, 25% of Twinsburg households were occupied by one person and in 2010 one person households increased to 28%. The current estimate for one person households in Twinsburg is 31%. These declines in household sizes in the City of Twinsburg reflect similar declines throughout the nation.

LAND USE

Historic Land Use

Twinsburg experienced its strongest growth in the 1990’s as suburban sprawl reached the community after the extension of I-480. Table 8 below, illustrates land use by category as inventoried as part of prior Comprehensive Plan efforts. Figure 1 graphically illustrates the City’s current land use patterns.

Table 8 - Historic Land Use by Category

Land Use Category	1988		2004		2021	
	Acres	% *	Acres	%*	Acres	%*
Residential	1570	44.4	2983	40.3	3089	38.0
Commercial/Retail	160	4.5	171	2.3	197	2.5
Semi-Public	233	6.6	547	7.4	772	10.0
Parks/Open Space	237	6.7	1911	25.8	1972	25.0
Industrial/Office	600	17.0	942	12.7	1003	13.0
Roads/RR/ROW	735	20.8	853	11.5	906	11.0
Total Developed	3,535	100.0	7,407	100.0	7,962	100.0
Total City Area	7,835		8,788		8,791	
Vacant	4,300	54.9	1,381	15.7	829	9.4

* As a % of developed area

** As a % of total City area

Land use patterns in Twinsburg have generally resulted from the location of interstate and arterial roadways, natural features associated with Tinker’s Creek and proximity to both Akron and Cleveland. Twinsburg’s location and proximity to transportation networks has fostered suburban sprawl, but has also supported growth in commerce, education and health care facilities. The suburban land use patterns characterizing development in Twinsburg are also a product of local zoning and planning regulations. In 1965, the City adopted a Zoning Code and Map specifying development standards and mapping specific use areas. During the 55-year period between 1965 and 2020 the Planning and Zoning Code and Official Zoning Map were updated to keep pace with desirable development trends and to support continued economic development, both while maintaining the City’s suburban, small-town character. The Twinsburg zoning districts and their specified permitted uses have changed minimally over the decades and consist of single family residential, multifamily residential, commercial, industrial and public facilities – each zoning district producing specific patterns of development. Updates to the Twinsburg

Development Regulations included several new zoning districts that were enabled to allow for distinct land use patterns not indicated by the 1965 Zoning Code and Map.

- In 1971, and again in 1995, the Zoning Code was amended to permit Planned Development Districts. The 1971 legislation set the stage for approval of the 1988 Ethan's Green development agreement which allowed a Planned Unit Development (PUD) comprised of the Gleneagles Golf Course, a variety of housing options and a local commercial use area.
- In 1989, the Single Family Cluster District was adopted to allow a greater concentration of residential uses and flexibility in utilization of space. Several subdivisions, like Chase View and Boulder Brook have benefitted from this zoning district with the provision of large common open space areas and clustered, smaller private lots.
- The C-5 Mixed Residence/Business District was established in 2008 and encourages a sustainable, mixed-use and more compact land use pattern than permitted in other commercial and residential districts. The district anticipates a vibrant, residential and commercial mixed-use central area. As Twinsburg is now a built city, meaning there is little vacant land remaining for new development, the C-5 Mixed Residence/Business District represents one of a few remaining opportunities for new, current housing products.

Vacant Land Development Potential

As Table 8 illustrates, the amount of vacant land remaining is the City has been reduced substantially and now stands at less than 10 percent of total City area. Vacant developable land in Twinsburg has been reduced to the extent that no significant tracts of land remain for residential land uses. Any future new residential units will be constructed on small previously passed-over, vacant lots, or re-development sites. Industrial land areas have also been reduced leaving only two industrial tracts of more than twenty acres. Several small tracts of mixed-use and commercially zoned land remain undeveloped while others are under-developed. Remaining vacant industrial and commercial sites containing ten or more acres are listed below and are numbered on Figure 1, Potential Development Areas. Smaller, vacant sites are included on the map but are not numbered.

Potential Development Areas (PDA's) - 10+ Acres

DARROW ROAD

PDA #1 - This is a 15 acre parcel zoned C-2 Community Commercial District with frontage on Darrow Road. Approximately 10 acres of this property is developable. The railroad is adjacent to the north and east; and, existing commercial uses are located to the south. Tinker's Creek and wetlands are also located at the southern boundary. The

highest and best use of this property is likely commercial. No zoning change is recommended.

DUTTON DRIVE

PDA #2 - This PDA consists of two parcels at the terminus of Dutton Drive. It is comprised of 36 acres zoned for I-2 Limited Industrial District and is surrounded by I-2 zoned development. No zoning change is recommended.

CANYON FALLS BOULEVARD

PDA #3 - This PDA consists of 25 acres zoned I-2 Limited Industrial District and is surrounded by I-2 zoned development. No zoning change is recommended.

AURORA ROAD (SR 82)

PDA #4 - This PDA consists of 12.5 acres on the south frontage of Route 82 (Aurora Road) and adjacent to Chamberlin Road. The land is zoned C-2 Community Commercial District and is adjacent to industrial uses at the south and east. Wetlands at this site constrain the developable acreage. No zoning change is recommended.

HADDEN ROAD

PDA #5 - This PDA consists of 38 acres zoned for Interchange Business District. Additional adjacent land in Twinsburg Township has also been acquired by this property owner (approximately 25 acres). Total area 63 acres. Access is from Hadden Road, although a small parcel located at the I-480 interchange, with frontage on Darrow Road is also under the same ownership as the rest of this PDA. No zoning change is recommended.

CREEKSIDE DRIVE

PDA #6 - This parcel is located next to the Kent State University Regional Campus and I-480. It is accessed solely from Creekside Drive. The lot is 21 acres and is adjacent to City owned property to the northeast and east. Metro Parks serving Summit County owns land to the south. The lot is zoned C-3, Interchange Business District in keeping with the Creekside development. The cul-de-sac length, limited access options, proximity to the I-480 right-of-way and wetland features all constrain development of this land.

RAVENNA ROAD

PDA #7 - This vacant land has frontage on Ravenna Road. It is a 12.6 acre parcel, zoned I-2, Limited Industrial District, is served by utilities and is adjacent to Tinker's Creek and a potential flood area. I-1, Intensive Commercial and Light Industrial zoned land is located to the north and commercial and residential uses to the south and across the street on Ravenna Road. I-2 uses may not be appropriate at this location because of the adjacent residential uses, proximity to Tinker's Creek and indirect access to I-480. I-2 permitted uses would include warehousing, manufacturing, laboratories, machinery repair, etc. City land use goals seek to minimize conflicts like residential uses next to

industrial uses. Development of this lot for a higher density residential use such as single-family cluster development could be supported at this location.

DARROW ROAD

PDA #8 - This site consists of two parcels totaling 10.5 acres zoned I-2 Limited Industrial District. The site fronts on Darrow Road and has some development constraints related to the site topography. No zoning change is recommended.

ENTERPRISE PARKWAY

PDA #9 - This is a 17.5 acre rectangular site located on the north frontage of Enterprise Parkway and zoned I-3 Heavy Industrial District. It lies immediately south of a local rail line and has limited wetland at the rear of the property. No zoning change is recommended.

ENTERPRISE PARKWAY EAST

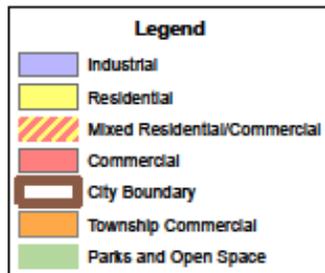
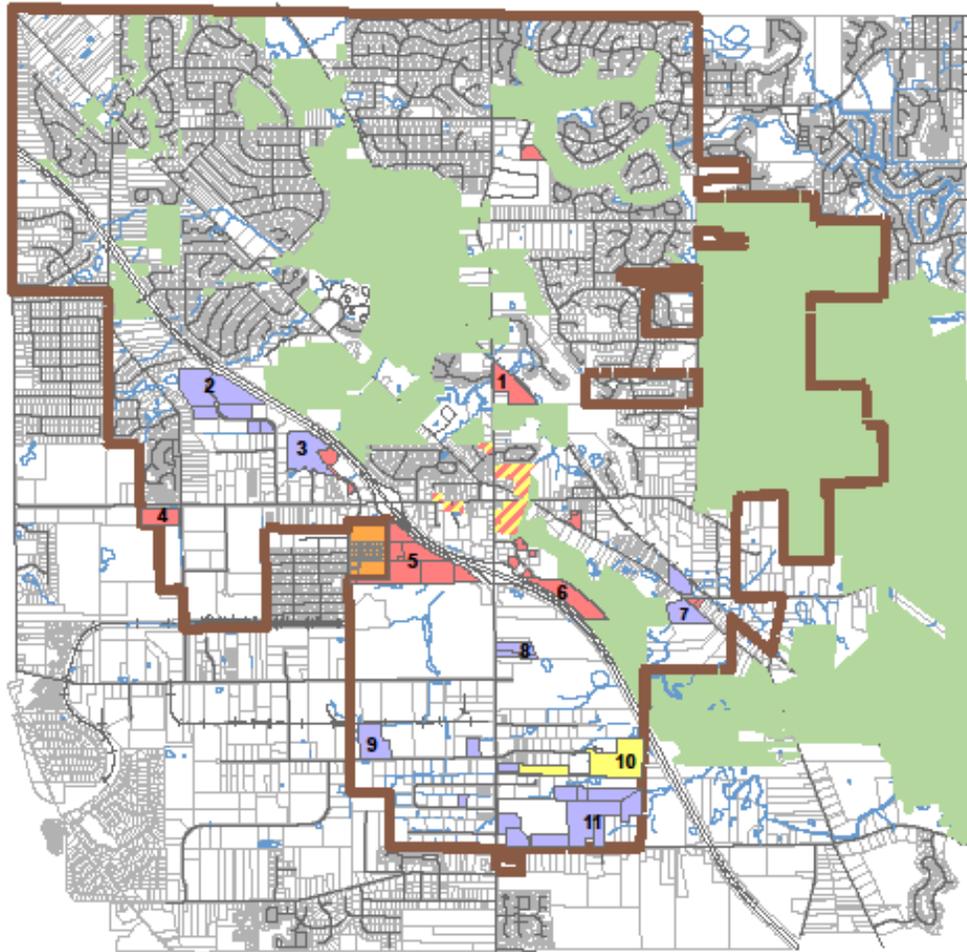
PDA #10 - This is a beautiful, wooded site with several water features. It is zoned R-7 Senior Residential District and is comprised of approximately 42.5 acres. Shared access for an existing memory care facility and the remaining vacant acreage is from a private drive at the terminus of Enterprise Parkway. No zoning change is recommended.

OLD MILL ROAD

PDA #11 - This industrial zoned land consists of 33 acres with frontage on Old Mill Road. It is adjacent to both industrial and residential uses. Large, individually-owned single-family lots are located along the Old Mill Road frontage. There is currently interest in development of this site and no zoning change is recommended.

Figure 1

Potential Development Areas - 10+ acres

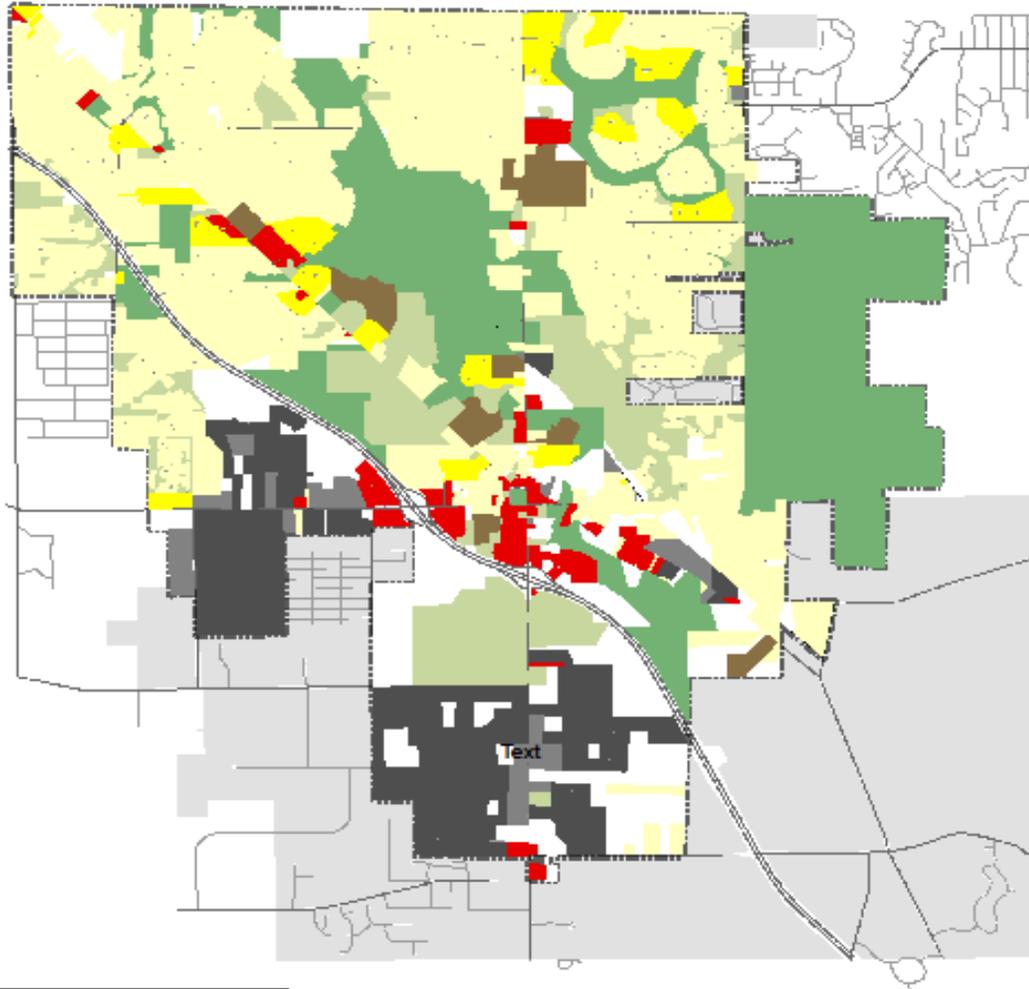


Twinsburg Comprehensive Plan 2021

Date: 11/17/2021

Figure 2

LAND USES



Legend	
	City of Twinsburg
	Twinsburg Township
	Single Family Residential
	Cluster Residential
	Multi Family Residential
	Commercial
	Vacant
	Parks and Open Space
	Light Industrial
	Heavy Industrial
	Semi-public

LAND USE	% of TOTAL DEVELOPED AREA
RESIDENTIAL	38%
PARKS/OPEN SPACE	25%
INDUSTRIAL	13%
ROADWAY/RR	11%
SEMI-PUBLIC/PUBLIC FACILITIES	10%
COMMERCIAL	3%

8,791 TOTAL ACRES



Date: 11/17/2021

Not included on this list of 10-acre or larger Potential Development Areas is a mixed-use site within the Southeast quadrant of the City's central area. This site is considered as a key location where redevelopment of it, along with adjacent land, might stimulate long-overdue reinvestment in the central portion of Twinsburg. The 2014 Comprehensive Plan concentrated a great deal of effort on land use in the area surrounding Twinsburg Square. It identified relatively large areas of under-utilized property, declining building conditions, and lack of new investment. Draft planning concepts were developed and presented to the public and were subject to critical analysis through a Workshop sponsored by the City with technical assistance funding from US EPA's Office of Sustainable Communities. The Workshop benefitted from experts and consultants from the Congress of New Urbanism. It was attended by more than 50 planners, designers, property owners, City administration and others.

A variety of recommendations came out of the Workshop. Many of them focused on design to establish a walkable street pattern with recommendations for the "Short Term" and "Medium to Long Term." Short Term recommendations included increasing property maintenance enforcement, identification of investments to entice private sector investment, and initiation of discussions with property owners to encourage support. Medium to Long Term recommendations included the establishment of a Community Improvement Corporation to encourage investment in the area. These recommendations have been implemented.

The Twinsburg Community Improvement Corporation has since participated in discussions with area stakeholders and acquired strategic properties to support the redevelopment effort. A redevelopment area of slightly over 10 acres has been identified and a Memorandum of Understanding executed between the City, the Twinsburg Community Improvement Corporation and a key property owner. With the cooperation and involvement of the City, a competitive qualifications based developer selection process has been performed resulting in the selection of a possible private sector partner for redevelopment of a portion of Central Twinsburg.

Once terms of a development agreement have been resolved, this project will enter the design phase. It is the intent of all parties to involve the public in the planning process in order to develop a specific plan that is marketable and supported by our residents. This first section of redevelopment will set the standard for subsequent redevelopment of other under-utilized central area properties. Planning of this area will be guided by the recommendations contained in the 2014 Comprehensive Plan with emphasis on accessibility, pedestrian convenience and aesthetics.

Global Trends Potentially Impacting Land Use and Community Development

Multiple technologies and innovations will impact the form and character of land use and the manner in which future neighborhoods and communities will function and be designed. Some of those trends are discussed below:

Declining Birth Rates/Aging Population - The United States and most other developed countries are experiencing lower birth rates and an increasingly older average age. In this country, family sizes are smaller on average than at any other time in history. Housing designed to serve aging populations is becoming commonplace. Modifications of existing housing to enable aging in place will be increasingly important as many elderly households will require special facilities to accommodate mobility within the house and around the property. Home maintenance requirements will continue to burden the elderly homeowner and property maintenance programs will gain in community importance as the housing stock ages along with the owners.

China's aging population is an example of demographics changing a national economy. The country's one-child per family policy has had unanticipated consequences; reducing population increases to below replacement levels. As cost of living increases, families are discouraged from having more children due to the expense of raising the family. This has exacerbated the imbalance between young and old, placing a greater burden on the working population. Rising labor costs will change the competitive nature of this economy and encourage wage pressure, changing China's ability to compete with developing nations.

Automation - The continuing automation of tasks previously performed by workers is reaching new segments of the workforce. Previously, repetitive actions that could be programmed to be performed by robotic machinery displaced millions of workers in manufacturing. This trend continues and is reaching into unexpected sectors including retail, where transactions such as sales are now conducted by on-line applications, or by self-service aided by scanning devices and display screens. Human interaction is being removed from the retail exchange.

AM - Additive manufacturing is changing the industrial machining landscape. This process creates objects by adding layer upon layer of material. It has the capability to construct complicated three dimensional objects and has limitless opportunities across a vast array of technologies. This technology is displacing other subtractive machining technologies (boring mills, laths, etc.) and requires more sophisticated operator capabilities related to design and programming.

Mobile Apps and Devices - Cell phones continue to replace other technologies as mobile applications are developed and successfully utilized. Apps have been designed to enable more and more functions to be performed or to enable the phone owner to participate in a wider range of activities. Apps are available to provide directions, deliver banking services, monitor health, trade stock, order food, play music and games and thousands of other activities provided by app developers. Apps will

continue to broaden the range of services that can be performed. New wearable devices will further expand this broad utility by incorporating communication devices into smaller objects including watches, clothing and other wearable technology.

5-G – Increased internet speeds and bandwidths associated with 5-G will boost communications performance capabilities to more than 100 times faster than 4-G technology. Dissemination of 5-G systems will support other advancing technologies like autonomous vehicles and drone deliveries and will also spur tremendous technological innovations.

Car Sharing/Ride Sharing – Recent innovations in personal transportation services are facilitating greater convenience and economy. Shared vehicle ownership among partners is enabling a new low-cost approach to ownership while service platforms like Uber and Lyft are providing an alternative to traditional cab services. People with physical impairments that prohibit them from operating a vehicle are less limited by utilizing these transportation services.

Ride sharing and ride services have impacted previously held concepts of vehicle ownership. In a survey conducted by Penn Schoen Berland, a U.S. research firm, more than half of Millennials surveyed are open to sharing rides with others. According to the Washington Post, only about one-half of Millennials got their driver's license before the age of 18. The number of 18 to 24 year olds traveling to work is declining as this age group is making personal decisions based more on convenience and preference, leading to different results in housing and work related practices.

Autonomous Vehicles – Driverless vehicles are making their way into the mainstream more gradually than anticipated, but nonetheless, they are anticipated to play an increasing role in future vehicular transportation. Currently, four states; Iowa, Michigan, California and Florida allow driverless vehicles on their roads. As more and more technology, including vehicle to vehicle communication capabilities, finds its way into the automobile, the rate of adoption will increase. What this means to land use and transportation facilities is unclear. If utilized in one way there could be a reduction in the number of vehicles on the road due to multiple trip accommodation by one vehicle. If used another way, there could be more vehicles on the road if the convenience of on-demand transportation results in increased individual trips. Also, parking needs may be dramatically reduced and locations for parking would be less dependent upon walking distance from a parking lot to a destination. Autonomous vehicles could park themselves in remote locations outside the dense urban realm, thereby freeing up large proportions of parking areas for more intense development.

On-line Purchases of Vehicles – This sales model is rapidly gaining momentum. Manufacturers are also entering the on-line sales model with companies like Tesla encouraging on-line vs. dealer sales business models. If this practice gains ground, the new car showroom and branded franchise may slowly disappear from the urban landscape.

E-Commerce – While no longer new, E-Commerce continues to make inroads to different segments of the economy and retail sectors. E-commerce giants like Amazon

and others have integrated various delivery systems into their business model, creating expedited time to delivery, and multiple delivery options. Expect 5-G technology to speed up warehousing and sorting operations, allowing for even faster order fulfillment. Smaller retailers have also had to adapt by incorporating delivery services and various delivery systems into their operations. Shoppers can make food selections from the local grocer online and accept their order via home delivery or pick up their items curbside. Drones are beginning to make deliveries of lighter objects like prescription drugs directly to the home address of the client. Same-day or next-day delivery options are available from most E-Commerce sites with delivery vehicles finding their way into every neighborhood from every supplier.

Artisan Commerce – Artisan entrepreneurship is globally acknowledged as an engine for poverty reduction and economic development. According to the Inter-American Development Bank, the artisan sector represents an economy that would be equal to the fourth-largest economy in the world, with the fourth-largest workforce. Small-scale, on-site fabrication, production, preparation of food/beverages, products made by an artist or artisan that may include direct sales and consumption on site or local delivery characterize uses that have become desirable to local communities for both their support of placemaking and economic development. Home businesses, niche on-line businesses, artisan manufacturing and food production are all part of a successful and expanding artisan economy that may only sell products online or may provide support for small town placemaking.

Flexible Work/Work Re-Imagined – The COVID 19 pandemic was a catalyst for increased remote work. It has become apparent that many workers don't need to be tied to offices and that remote work can increase productivity while reducing the need for office space. In August of 2021, Northeast Ohio employers were surveyed by Crain's Business regarding plans for continued remote work. Many employers indicated that a combination of remote work and onsite work is here to stay. Implications of such a change in work practices may be dramatic and wide-ranging.

The pandemic also turned out to be a catalyst for re-imagined employment. The "Great Resignation" was set off by the COVID 19 pandemic, but an empowered labor force has spurred greater flexibility in work arrangements. Re-imagined lifestyles and employment opportunities will further expand participation in the Artisan Commerce and Gig Sectors of the economy. It is expected that the number of gig employees will surpass traditional employees by 2027 (William Jessup University, 2019).

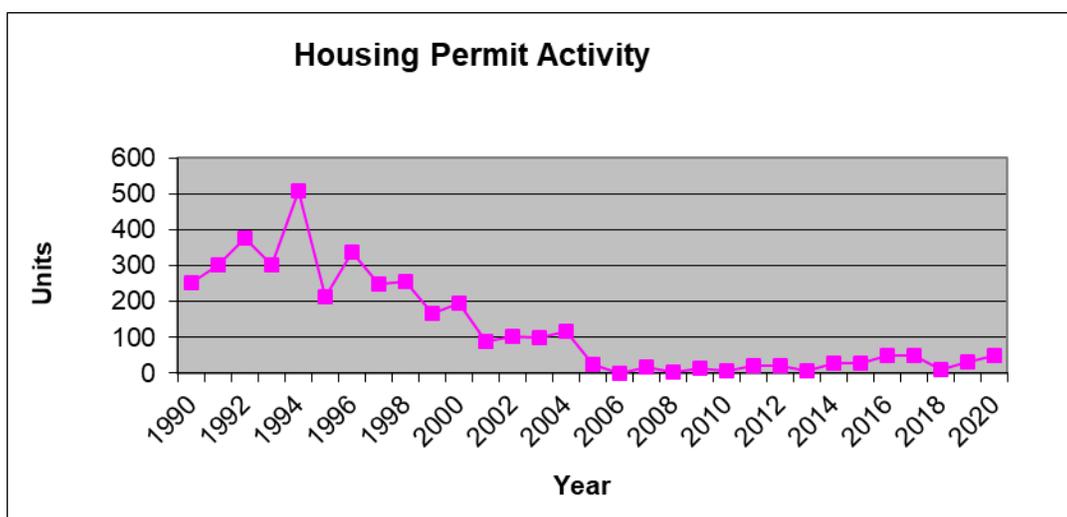
These are just a few of the many technological and functional influences that will impact communities throughout the country. Impacts of most of these will be felt in a long-term scenario - longer than the average life of this Comprehensive Plan. It will be important to be aware of these anticipated influences in order to avoid actions and policies that could preclude those technologies that might contribute to a more sustainable future.

HOUSING

Housing Stock and Tenure

Twinsburg's housing stock was comprised of 7,898 housing units at the time of the 2010 census. From 2010 through 2020 an additional 304 occupancy permits for new housing units have been issued. That means approximately 8,202 housing units are currently provided within the City. If we assume that Census Bureau Community Survey average household size estimate (2.37 persons per household) reflects the average household size in the City, Twinsburg's total population at the end of 2020 would be about 19,439.

The growth of Twinsburg's housing stock has slowed compared to the previous decade when 1,027 units or 14.9% of the City's housing stock was added. The City's most significant growth occurred during the 1990's when over 38% of all Twinsburg housing was constructed. See the chart below:



Before the housing bubble burst of 2008-2009, the number of new occupancy permits issued annually had moderated significantly. The following recession combined with the exhaustion of vacant developable property has resulted in a much slower rate of new housing construction than in previous decades. Growth management concerns of previous years has given way to concerns related to maintenance of an aging housing stock.

As the City's housing stock ages (see Table 9), the importance of property maintenance becomes more critical. While the City's overall housing stock is young compared to most cities, housing maintenance is none-the-less becoming more of an issue. The earliest subdivisions are now fifty years old or older. At this age units are

becoming obsolete as they no longer contain many of the features that have become popular since their construction. Examples include features like walk-in closets, open-floor plans, three-prong grounded electrical systems, etc. Building components like roof shingles, gutters and downspouts, siding and mechanical systems have aged and may need repaired or replaced. Original or long-term owners may now have debilitating conditions that require improvements to enable them to remain in the house as they age. Things like access ramps, stair lifts, grab rails, wider doorways for wheelchair access, etc. may be needed in addition to typical maintenance requirements.

Table 9 - Housing Stock Age Distribution

<u>Year Built</u>	<u>% of Total</u>
Built after 2010	3.8
Built 2000 thru 2009	14.2
Built 1990 thru 1999	38.7
Built 1980 thru 1989	15.6
Built 1970 thru 1979	11.9
Built prior to 1970	15.8

Source: U.S. Census ACS 2019 5-Year Estimate

Twinsburg’s housing stock is comprised primarily of single family detached houses on medium to large lots (11,000 to 30,000 sq. ft.) lots. The following table illustrates the types of housing units and their percent of total housing units.

Table 10 - Housing Composition by Type

<u>Description</u>	<u>Number of Units</u>	<u>% of Total</u>
Single family detached	5,233	65.6
Single family attached	1,039	13.0
Multi-family (unrestricted)	1,011	12.7
Multi-family (age restricted)	694	8.7
Total	7,977	100.0

Skilled Care units (329) are not included in the above

The majority of local housing units are owner-occupied (75% according to U.S. Census, ACS 2019). Multi-family rental units make up 21.4 percent of all housing units. While the majority of detached and attached single family units are owner-occupied, the number of single family units that are rented and occupied by other than the property owner has been growing. Census Bureau estimates indicate that 74 percent of total housing units are owner-occupied. This suggests that about 1,000 single family

units are occupied by residents other than the owner. As the City has no program in place to register or track the rental of single family structures, there is no way to confirm the exact number of traditional single family housing units currently occupied by persons other than the property owner. It is thought that rented units are not as well maintained as those where an owner is present in the unit. As the City has no means to track single family home rental, there is no vehicle in place to enable the monitoring of housing condition or maintenance complaints and violations based on occupancy status.

Sustainability and Housing

Sustainable housing is that which is safe, sanitary, adequately supported by infrastructure, and available to all. Truly sustainable housing is that which is located conveniently to the owner's employment and in close proximity to essential services and entertainment. It must be durable, but not so durable that its ultimate replacement upon obsolescence would become burdensome on the community. Its materials of construction contain high proportions of recycled materials and should be recyclable. It should be energy efficient, use green energy to the extent possible and be situated in a manner so as to take advantage of potential solar access, wind currents and natural light.

Very few housing units in Twinsburg possess characteristics that could be considered as sustainable. More broadly, prior land development practices, as well as, current home employment trends allowing broad dispersion, may further discourage sustainable live-work-play connections. Nearly every subdivision developed in Twinsburg is located separate and apart from supporting retail and service uses. They are situated miles from significant employment areas. Consequently, residents are very much auto dependent. This auto-dependency requires greater energy expenditures for personal transportation, transportation infrastructure, fossil fuel energy consumption, and contributes greater amounts of green-house gas emissions to the atmosphere.

Current efforts to encourage redevelopment of under-developed land within the central core of the City may contribute to the provision of more sustainable housing by constructing new units in a mixed-use environment. If appropriately executed, this could provide residences with more connectivity to the sidewalk network, multi-purpose trails and open space, and provide walkable access to stores, restaurants and other services.

As the amount of vacant developable land elsewhere in the community is severely limited, opportunities to construct more sustainable types of new housing are also very limited. Fortunately, housing sustainability options are not confined to new construction. With limited opportunities to construct new sustainable housing, future efforts will require retrofitting or reconstruction of existing houses to improve their potential for providing efficient, functional, shelter. Retrofitting existing housing stock

by enhancing energy efficiency, incorporating recycled materials, installing current technology, and taking advantage of green energy, can extend unit life and increase value. Retrofitting existing houses contributes to sustainability in that these efforts utilize previously committed resources and materials, salvaging them for re-use, and extending the life of the dwelling for generations to come. In this manner significant contributions to the City's sustainability goals can be achieved.

Opportunities to improve building function and energy efficiency can pay big benefits to the owner. Among the most frequent and affective improvements are the following:

- Building envelope sealing – sealing doors, windows, and vents by caulking and/or adding heat-shrink plastic covers to windows can reduce cold air infiltration and warm air loss. Sealing is a relatively inexpensive effort that can contribute to energy savings, humidity control, and abatement of insects and allergens.
- Upgrading home appliances like dish washers, clothes washers, water heaters, etc. with ENERGY STAR rated appliances and upgrading light bulbs with LED or ENERGY STAR rated bulbs is a quick and easy way to save energy. ENERGY STAR equipment is certified by the Environmental Protection Agency to deliver a high level of performance and savings.
- More aggressive retrofits like replacement of windows and doors with insulated products, adding interior or exterior insulation, furnace and air conditioner upgrades can make significant contributions to lower energy bills. When contemplating upgrades of mechanical systems it may also be necessary to upgrade electrical service in the house in order to provide a safe and efficient electrical supply.
- Installation of green energy systems like solar or wind power. If a property has appropriate solar or wind access, the installation of green energy systems may be possible. Declining costs of solar collectors and related material is making this a more frequent option for many homeowners.

Housing Maintenance and Preservation

Twinsburg has taken a proactive position of property maintenance and heightened code enforcement in an effort to manage foreclosures and other distressed properties. In doing so, we hope to protect adjacent property owners from the impacts of a neighboring property in disrepair. Twinsburg's approach to property maintenance includes several components: a point-of-sale inspection program; periodic neighborhood preservation inspections; an abandoned property registry; constant communication with bank representatives relative to bank owned properties; focused monitoring and code enforcement for foreclosed, abandoned and distressed properties;

and as a last resort, condemnation and demolition of those properties no longer suited for occupancy.

Financing Repairs and Renewable Energy

A variety of sources of financial assistance may be available to homeowners. While the primary sources for home repairs and maintenance projects remains traditional bank and home equity loan sources, a variety of programs are offered by public entities to help income qualifying homeowners finance needed repairs. The recently passed American Rescue Plan will provide money to assist owners and renters of property avoid foreclosure or eviction due to disruptions in income associated with COVID-19 mandates. This temporary funding will last only for the next year (2022).

- **Home Weatherization Assistance** is available through the Summit County Department of Community Development. Income qualified owners and renters are eligible to receive financial assistance for furnace replacement, weather sealing, insulation, hot water tank replacement and other energy efficiency needs.
- **Lead Abatement** – Homes constructed prior to 1967 in which children under 6 years of age spend more than 60 hours a year may qualify for financial assistance to offset costs of lead abatement. A 5-year forgivable mortgage loan may be available. Landlords of properties benefitted are required to pay 25% of mitigation costs.
- **Community Development Block Grant Minor Home Repairs** – Eligible communities in Summit County may apply for funds through the Summit County Department of Community and Economic Development for competitive grants funds available from HUD. Should a community be successful in applying for these funds they may establish a program to provide financial assistance to low and moderate income homeowners. In the past, the City of Twinsburg has used these program funds to assist local homeowners in the improvement of their properties.

Should a homeowner wish to obtain financial assistance related to the installation of solar or other green energy improvements a number of programs are available to assist them. Among them are the following:

- **Property Assessed Clean Energy Financing (PACE)** – PACE financing enables a property owner to install energy or other improvements to their property with little or no up-front cash outlay. A PACE funding agency (NOPEC and Summit County Development Finance Agency) can finance the improvement through a bond program that uses annual assessments to repay the loan. The assessment represents a lien on the property, similar to an assessment for road or sidewalk improvements, which is paid along with the annual property tax bill through the Summit County Fiscal Office. Through this process, a property owner can

benefit from the installation of an energy and cost savings improvement (like solar collectors) while paying for the improvement over an extended period of time with their annual property tax bill.

- **Ohio Net Metering Policy** – Ohio has adopted a modest goal for renewable power generation by utilities located in the State. This goal will require electric utilities to source at least 12.5 percent of their power needs from renewable source by the year 2025. The State’s net metering policy allows individuals to gain value from the excess electricity generated by their green energy system. Excess power may be transferred to the grid in return for credits to future utility bills.
- **Solar Renewable Energy Certificates (SREC)** – For each MWH of power produced by renewable energy systems like solar panels, the owner may report the amount generated to a third party organization. This organization certifies the energy amount generated and for every MWH a certificate is provided to the generator. These “Renewable Energy Certificates may be sold by the generator to an appropriate electrical utility for a price. These certificates have value to the utility who may take a credit towards their obligation to the State of Ohio to generate targeted amounts of power from renewable energy sources. Currently, these certificates sell for about \$8 per MWH. Because of the State’s’ modest renewable goals and an oversupply of credits in the market, SREC’s should not be relied upon for any significant revenue from a domestic system.
- **Federal Tax Credits** - Owners may benefit from federal and state tax rebates. Solar collectors can be used to pre-heat domestic water or to offset electrical power otherwise drawn from the grid. In either case, reductions in greenhouse gas emissions can be achieved.
- **Ohio Eco-Link Interest Rate Reduction** – The State of Ohio has made reduced interest rate loans available through a linked-deposit program that enables interest rates on qualifying energy conservation bank loans. Through this program borrowers may receive up to 3 percent interest rate reductions on loans with terms up to seven years.

Trends in Housing Construction

RCLCO Real Estate Consulting’s Housing and Community Preference Survey (<https://relco.com/publication/disruptive-demographics>) and other recent research efforts have identified a number of housing construction and supply trends. Many of these trends will impact the type and size of homes constructed in this market, the costs of those homes and how well the supply addresses the needs of homeowners. For example;

- Limited supplies of rental units keep rental vacancies low, rents high and encourage families to seek rental of single family homes. (An estimated 1,000 of the City's single family homes were being rented in 2019).
- Even though average household size continues to decline nationally, and as families with children represent less than a third of all households, the size of new single family homes continues to increase.
- Increased new home size, increased land and material costs and increased labor costs all contribute to higher costs of new homes.
- According to the Joint Center on Housing Studies at Harvard University (JCHS), single households and married households without children are expected to account for 69% of household growth from 2018 through 2028.
- RCLCO Real Estate Consulting's Housing and Community Preference Survey found that while conventional single family detached homes remain the most desirable for-sale product, approximately one third of all consumers surveyed would consider a higher density attached product, yet these products make up only about 15% of newly constructed homes.
- According to RCLCO Real Estate Consulting consumer research, there is substantially more demand for smaller, less expensive, single family homes and townhomes than the market is currently providing.

Savvy home builders have recognized these trends and are focusing on addressing demands for smaller homes and single family homes for renters. Companies like Global City Development in Miami Florida will develop 10,000 homes in the east and southeast United States. They are focusing on 25 to 45 year old clients entering the first-time buyer and step-up rental home market. These companies have discovered that the build-to-rent product experiences fast lease-up, stronger occupancy rates and less turnover; making it a more stable, lower risk opportunity. Rental homes being constructed run from 1,200 square feet to 2,000 square feet in area.

As is indicated elsewhere in this document, Twinsburg has essentially exhausted its supply of vacant residentially zoned developable land. No vacant tracts of any significant size (over 10 acres) remain. Re-zoning would be required for any significant vacant land, with the exception of land in the central area that is in the C-5 Mixed Use Residential/Commercial zoning district. Any other new residential development would be on small, individual, appropriately zoned in-fill lots.

The above trends would seem to support the type of higher density, reduced size, amenity-rich residential products envisioned for the central Twinsburg area. Such a product would be well suited to a very walkable, semi-urban location adjacent to Tinkers Creek and in close proximity to entertainment and employment.

ECONOMY

Employment/Income

The U.S. Bureau of the Census estimates that 66.8 percent of the local population over 16 years of age is available for employment. Unemployment is estimated to be only 1.5 percent of the labor force. This is substantially lower than the unemployment rate experienced in the rest of Summit County, State of Ohio and the Country.

Twinsburg serves as a regional employment center as a result of the substantial and diverse businesses located within the City’s boundaries. The largest number of Twinsburg residents are employed in education, health care and social services, while the second largest employment category is manufacturing. Twinsburg’s proportion of local employment in manufacturing is greater than that experienced in Summit County, the State of Ohio, as well as the proportion of those employed in manufacturing in the U.S. as a whole. Twinsburg also experiences a somewhat higher proportion of its labor force employed in wholesale trade, finance and real estate categories.

Employment in construction and retail trade is relatively lower than that experienced in other geographies. Table 11 provides a comparison of a variety of selected employment and economic characteristics relative to the County, State and U.S. as a whole.

Table 11 - Selected Income and Employment Characteristics*

Characteristic	US	Ohio	Summit Co.	Twinsburg
Population over 16	259,662,880	9,356,584	442,279	10,098
% in the labor force	63.4	63.3	64.8	68.4
% employed	59.6	59.8	61.1	66.8
% unemployed	5.3	3.4	5.5	1.5
Industry of employed (%)				
Agric., forestry, mining	1.8	1.0	.2	.2
Construction	6.6	5.4	5.4	3.1
Manufacturing	10.1	15.3	14.5	17.3
Wholesale trade	2.6	2.6	3.3	5.4
Retail trade	11.2	11.4	11.6	8.7
Trans., warehousing	5.4	5.2	4.9	3.7
Information	2.0	1.6	1.7	1.9
Finance, real estate	6.6	6.4	6.1	11.1
Prof., scientific, administration	11.6	9.7	11.0	11.7
Education, health & social	23.1	24.1	23.9	23.4
Arts/entertain./accommodations	9.7	9.1	10.0	8.9
Other	4.9	4.4	4.6	2.4
Public Administration	4.6	3.8	2.9	2.3

*Source: U.S. Bureau of Census ACS 5-Year Estimate 2019

Major Employers

Once reliant on a few, large manufacturing sectors, like automotive parts and equipment, over the years the Twinsburg industrial and business base has both expanded and diversified. With more than 450 businesses registered, Twinsburg has become home to the second largest employment concentration outside of Akron. Businesses sectors with a significant presence here include beverage bottling, telecommunications, health care, medical equipment, insurance, electronic controls and aviation equipment. The City's largest employers are listed below in approximate order of their volume of employees as of 2020.

Cardinal Health/RGH Enterprises
Cleveland Clinic Foundation
Rite Aid/Elixir
Twinsburg Board of Education
Rockwell Automation Inc.
Amazon Commercial Services
Bottling Group, LLC
City of Twinsburg
Hitachi Health Care Americas Co.
GD Mobile Security America Inc.
FedEx Ground Package Systems Inc.
Reuter-Stokes, LLC
State of Ohio
Cellco/Verizon
Windstream Services II, LLC

Approximately 14 million square feet of industrial and office space is provided within the City, with slightly over 2 million square feet in Cornerstone Business Park (the former Chrysler Stamping Plant property). Twinsburg has been a desirable location for business and industry because of the quality of transportation connections conveniently available here. According to Costar Realty Information Inc., the overall vacancy rate for industrial and commercial space is currently a low 3.5 percent. According to the same source, annual rent growth and market sales prices of properties have been steadily increasing over the last ten years.

Relative Tax Burden

In addition to advantages related to transportation and an existing inventory of buildings, Twinsburg also provides a business friendly environment with well-maintained infrastructure at competitive costs relative to other area communities. The

city operates its own wastewater treatment facility and provides this service at a cost that is among the lowest in the region. The City’s tax structure is also favorable with property tax rates among the lowest in the area.

Table 13 – Twinsburg’s Competitive Tax Structure

Community	Income Tax		Property Tax	
	Rate	Credit*	Mils	Cost/000’\$ Value**
Aurora	2%	100% up to 2%	66.808	\$ 23,383
Bedford Heights	2%	100% up to 2%	100.640	\$ 35,224
Boston Heights (Hudson SD)	2%	100% up to 2%	76.497	\$ 26,774
Glenwillow	2%	100% up to 2%	93.730	\$ 32,806
Hudson	2%	100% up to 2%	78.494	\$ 27,473
Macedonia	2.5%	100% up to 2.5%	65.792	\$ 23,027
Oakwood	2.5%	100% up to 2.5%	82.540	\$ 28,889
Solon	2%	100% up to 2%	94.200	\$ 32,970
Streetsboro	2%	100% up to 2%	67.302	\$ 23,556
Twinsburg	2%	100% up to 2%	67.154	\$ 23,504

*Credit for taxes paid to another community; ** Based on 35% of market value times 2020 effective rate

Changes in the Local Economy Relative to 2014 Comprehensive Plan

Employment and income characteristics have changed considerably relative to those of the period during which the prior Comprehensive Plan was completed. At that time Twinsburg was recovering from the closure of its largest employer. The City was also becoming more aware of environmental quality issues and had embarked on its “Green Initiative”; an open space and environmental preservation program. Efforts associated with these issues resulted in the recovery from business losses and implementation of a variety of conservation and sustainability measures. However, challenges to the community never disappear as conditions are always changing and new challenges continually occur. It’s difficult to estimate how recent trends may impact the future municipal economy. The following is a list of new and residual issues that continue to challenge the City.

- The former Chrysler site is built-out. It now provides two million square feet of building area employing about 1,500 full time and part-time employees generating about \$1,500,000 of income tax revenue (about one million dollars less than the former Chrysler average annual income tax contribution).
- Employment sectors which were once dominated by industrial manufacturing businesses are now dominated by healthcare and medical service related employment. The City’s three largest employers are healthcare related.

- Retail sales and services have been dramatically impacted by the current COVID-19 pandemic.
- Current work at home practices have essentially vacated Twinsburg's largest office buildings. Remote work practices are expected to continue after the pandemic and will reduce demand for office space nationally over the coming years. "Corporate America's aggressive embrace of hybrid work arrangements comes with increasingly clear, and negative, economic externalities that are getting harder to ignore" (Javier E. David, Growth and the Remote Work Revolution). While it's likely that Twinsburg's diverse industrial base will provide some stability, remote work practices may result in unfavorable economic impacts unless they are offset by an increase in the number of residents employed elsewhere but residing in the City.

TRANSPORTATION

Auto-Dependent Suburban Design

Many people continue to choose living in urban places where they can get around by walking, biking, taking transit and using rideshare options. In suburban communities dominated by private vehicle use, residents also have the desire for more walkable, less auto-dependent ways of living. Complete pedestrian and cycling facilities in support of recreation and alternative modes of transportation are an aspiration shared collectively by urban and suburban communities. Twinsburg's comprehensive roadway network was designed to support local trips and commutes by private vehicles and it has historically underemphasized other modes of transportation. Both sustainability and livability in Twinsburg can be enhanced by emphasizing a more multi-modal approach to the transportation system.

Non-Motorized Transportation

Modes of non-motorized transportation most typically include walking and cycling. These modes serve the dual purpose of recreation and transportation while also promoting healthy lifestyles and GHG reductions. While existing trails provide substantial opportunity for enjoying local parks and open spaces, the City doesn't currently have a well-connected and complete non-motorized transportation network. *Safety and connectivity are two critical factors in creating a successful system* and both factors must be addressed for the system to effectively serve the community and to support sustainability goals.

- While almost all local, residential roadways within the City are served by sidewalks, there remain some dispersed connection gaps within residential neighborhoods. Additionally, where residential uses are in a walkable proximity to commercial uses, connectivity gaps may also be found. Where proximity exists without connectivity, safety issues will be more likely. This can take the form of lengthy distances between crosswalk facilities on Ravenna Road or lack of sidewalks altogether on Darrow Road.
- Lack of sidewalk access at Metro RTA bus stops creates connectivity issues, particularly at those locations serving employer concentrations in industrial areas south of I-480. The 2014 Twinsburg Comprehensive Plan identifies Summit Commerce Park and Case Parkway as employment concentrations being served by RTA and lacking pedestrian facilities. These bus stops lacking pedestrian connections are also identified in the AMATS 2019 Active Transportation Plan.
- The City has made consistent efforts to upgrade sidewalks and curb ramps to current ADA standards, but many existing streets and neighborhoods will require accessibility updates when facilities are replaced or repaired.

- Center Valley Trail is quite actively used by residents for exercise and recreation. However, it lacks any defined connection to key destinations located on Ravenna Road.
- Most arterial roadways, like Ravenna, Darrow and East Aurora Roads have limited pedestrian facilities and no dedicated bicycle facilities. Cycling infrastructure can come in several different forms, from sharrows and dedicated bike lanes to multi-use paths. While cyclists have the option to use roadways, the absence of bicycle markings (sharrows or dedicated lanes) is a safety concern for many cyclists or would-be cyclists. A lack of cycling infrastructure in Twinsburg right-of-ways frequently results in available sidewalks being used as multi-purpose paths on collector roads and on Ravenna Road.

The City of Twinsburg adopted the *First Mile/Last Mile* Community Connections Plan in 2018. This Plan focusses on specific non-motorized transportation objectives which include:

- Improve connections to accomplish greater trail utilization rates
- Enhance and develop Twinsburg’s identity as a bicycle- friendly community
- Overcome auto-dependent suburban land patterns to develop a network that supports non-motorized transportation
- Create safer alternative transportation options along high-volume arterial roadways
- Close gaps within the existing trail network to provide stronger connections to community facilities

The need for meeting these objectives became even more apparent during the COVID-19 pandemic, as remote workers and family units alike looked increasingly towards outdoor activities for recreation and fitness. The City’s *2020 Community Engagement Survey* firmly identifies the need for trails as a community-wide priority. Support for non-motorized transportation facilities is strongly supported by the community: 46% of respondents considered “Expansion & Maintenance of Trails & Bike Paths” to be very important and 33% considered this objective to be somewhat important. This is nearly 80% of survey respondents. Trails and sidewalks also serve as an amenity attractive to both existing and new businesses and are important to a workforce with a growing desire to incorporate healthy, sustainable practices into their lifestyles.

Completion of a community wide trail system is clearly supported by residents and is also in line with City sustainability goals. A complete trail system would balance the competing demands for quiet, safe neighborhoods and for multi-modal access to

local destinations. Accessibility to parklands, enhanced connections to the natural environment, greater opportunity for outdoor exercise, support for economic development and multi-modal travel to key destinations are all supported by an improved trail system. Trails, sidewalks and bike amenities have become vital to livability, the economy and the environment. Communities that fail to recognize the importance of these features as livability priorities risk becoming less desirable for residents and for employers. “The fundamental future choice may not be between city and suburb but between more walkable, diverse and healthy places, on the one hand, and more automobile-dependent, monolithic, and unhealthy ones, on the other.” (Kaid Benfield, Sustainable Cities Collective, 2017)

Walkability

‘Walk Score’ was launched in 2007 and provides a walkability index that assigns a numeric walkability score to any address in the United States. For example, the City of Lakewood has a Walk Score of 69, while the City of Twinsburg has a Walk Score of 16. A list of Ohio’s 114 largest cities ranked for general walkability is provided in Appendix B. It’s apparent from this ranking that the lowest scoring communities are characterized by historic suburban development patterns typified by auto-dependence and dominated by arterial roadways designed for vehicles and not necessarily pedestrians. The Cities of Green and Broadview Heights are last on this ranking, each with a score of 8. Even communities with active, walkable downtowns may score poorly on this index when connectivity to these destinations aren’t supported. For example, the City of Hudson has a Walk Score of 11, while the City of Kent has a Walk Score of 41. Kent’s higher Walk Score is likely reflective of strong pedestrian connections employed to support KSU student access to downtown Kent.

Historic designs of both Twinsburg’s arterial roadways and land use patterns disregarded walkability at a City-wide level. This suburban development style, while desirable for its quiet residential streets connected to efficient arterial roadways, has resulted in a lack of multi-modal connections. However, redevelopment of the Central Area presents opportunities for a more walkable environment within the area adjacent to Twinsburg Square and for creation of a community destination supported by multi-modal connections to a larger City area.

Central Area Multi-Modal Opportunities

Three arterial roadways intersect at Twinsburg Square, creating inherent access and circulation challenges for bicyclists and pedestrians in the central area. Multi-lane roadways designed to maximize vehicular traffic flow in an auto-dominant environment, make these arterial roadways uncomfortable for pedestrians and risky for cyclists. Previous City planning efforts have focused on: (1) redevelopment opportunities in the area around Twinsburg Square; and, (2) improved multi-modal connections to the Central Area. Specifically, the *2018 Connecting Communities Plan*

identifies Ravenna Road as a key multi-modal connection node to Twinsburg Square. The Plan identifies Ravenna Road as a spine that links many neighborhoods with Twinsburg's civic and commercial centers. Given the nature of the corridor and its destinations, bicycle and pedestrian enhancements along the Ravenna Road corridor would be of significant benefit to the community. Implementation of this finding remains key to delivering multi-modal connectivity to the Central Area for all residents.

The 2014 Comprehensive Plan includes goals and objectives relative to Central Area redevelopment. Creating a public component as a community destination is envisioned as integral to a successful redevelopment effort of the Southeast Quadrant in the Central Area. This effort includes a linear feature (multi-use trail, promenade, walkway, etc.) adjacent to Tinker's Creek and ultimately connecting to other trails. Multi-modal connections will be an important component of site development supporting this endeavor. Multi-modal transportation needs inherent to the Twinsburg Square area are of importance for both livability within this mixed-use district and for integrating Central Area destinations into the fabric of the community. These multi-modal connections will be integral in supporting the dynamic Central Area envisioned by the community.

COMMUNITY FACILITIES AND SERVICES

Parks and Recreation

The City maintains an extensive inventory of park facilities, but also owns substantial acreage which remains undeveloped and is part of the municipal park system or is open space associated with Tinker's Creek or other environmentally important sites. Approximately 25% of land within Twinsburg is devoted to public parks and open space. While demographic data indicates a consistent trend towards smaller sized, aging households, this trend must be recognized to appropriately guide the type, location, and amenities included within open spaces and parks so as to best serve Twinsburg residents.

City parks include both developed and undeveloped land at most park locations. For example, Glen Meadow Park includes four baseball diamonds, pickle ball courts recently converted from tennis courts, a basketball court, play structures and other facilities, in addition to maintained open space and a larger portion of wooded land adjacent to Tinker's Creek. Other City owned park lands may be unimproved properties or intentional open space; some of which are managed in some way. Management may include mowing of field areas, adjacent road frontage areas or removing dead trees. Woodlots are not managed for lumber or firewood and no other management actions are generally performed. A total of about 1,640 acres of the total 1,969 acres (82%) of City-owned property is undeveloped.

In spite of their undeveloped nature, these natural areas provide substantial existing and potential value. Their trees sequester tons of carbon dioxide annually and contribute to improved air quality. They mitigate storm water, filter particulates out the air, provide wildlife habitat and provide safe haven to threatened and endanger species. The meadow habitat associated with Liberty Park also provides habitat to pollinators and carbon sequestering. While these lands are unimproved, they never-the-less contribute value to the City and its residents due to their environmental benefits.

The substantial open space areas provided by the City are supplemented by about 2,000 additional acres of land owned and managed by Summit Metro Parks. A cooperative agreement between the park system and the City provides for the monitoring and management of Liberty Park's natural areas by Summit Metro Parks. This cooperative arrangement provides a vast area of land containing high quality wetlands, forests, meadows, stone ledges, streams and lakes. Liberty Park is recognized by the Audubon society as an Important Birding Area. The eco-tourism potential of this resource has yet to be realized.

The City's recreational programs are managed by a Parks and Recreation Director and staff. This department provides for a wide variety of recreational programs provided at the developed park facilities including Glen Meadow Park,

Glenn Chamberlin Park, Liberty Park, and other areas. The City's Fitness Center is located within the Twinsburg High School complex. Its facilities are used by both fitness center members and students. Some of the programs and services provided by the Department of Parks and Recreation follow:

- Twinsburg Senior Center
- Water Park
- Fitness Center
- Community theater
- Athletic leagues
- Summer Day Camp
- Trails and playgrounds
- Court games
- Instructional programs (sports/self-improvement)
- Holiday Events/Festivals

The City's Gleneagles Golf Course is managed as a separate department by City staff. It is recognized as one of the best public courses in the region. Its restaurant and banquet center is operated under license with a well-known local restaurant chain.

Safety Services

Police Department. Twinsburg operates and maintains its own Police and Fire Departments. The Police Department has an authorized strength of 31 full-time officers, three full-time administrators, nine full-time public safety dispatchers, two part-time dispatchers, and a part-time custodian. The Twinsburg Police Department is comprised of a patrol division, a detective bureau, a dispatch center and a records bureau. It is supervised by the Chief of Police, Assistant Chief, two Lieutenants, five Sergeants and a Dispatch Supervisor. Two patrol officers are assigned to the schools as School Resource Officers (SROs). Members of the Police Department participate in a number of regional law enforcement groups including Metro SWAT, Summit County Crash Response Team and U.S. Marshall Service Northern Ohio Violent Fugitive Task Force.

Since the last Comprehensive Plan was published in 2015, calls for service have grown. Total calls for service for 2015 were 27,457. For 2020 calls totaled 30,139 or ten percent (10%) more than in 2015. Over the same period the population of Twinsburg is estimated to have increased by less than one percent.

Fire Department. Twinsburg's Fire Department includes two fire stations; one centrally located adjacent to City Hall and a second located in the northern residential area on Glenwood Drive. Both stations are staffed and available to respond at all times. There are currently 45 members of the Fire Department with 33 career and 11 part time members, plus a full-time administrative assistant. Firefighters are cross-trained as certified State of Ohio Professional firefighter II/Paramedics. There are nine firefighters

on duty each 24-hour shift, with a Chief, Assistant Chief and an Executive Assistant in office Monday through Friday.

The Fire Department's Fire Prevention Bureau is responsible for annual fire inspections of buildings located in the City and Twinsburg Township. This bureau also provides fire investigations, fire safety education services, and fire extinguisher training.

Several firefighters have received specialized training and participate in regional special teams. Some are trained in water rescue, rope rescue, high angle rescue and trench rescue. These firefighters are part of broader County rescue teams. Other firefighters are trained in hazardous materials mitigation. They participate in the Summit County HAZMAT Team. Several members are part of the Summit County Incident Management Assistance Team (IMAT). This team manages large incidents throughout Summit County at the jurisdiction's request. The Assistant Chief is Branch Director of Summit County IMAT, the State of Ohio Incident Management Team (IMAT), and is a Wildland Firefighter. He can be deployed to incidents within Ohio, as well as nationally and internationally. Besides the required Advanced Cardiac Life Support (ACLS) certifications, our paramedics have received extra training in Pediatric Advanced Life Support (PALS) and Basic Trauma Life Support (BTLS).

- The Department operates an Explorer program for young adults. This program provides the opportunity to be exposed to the activities and responsibilities of a position in a fire and EMS career.
- The Fire Department administers the City's Community Emergency Response Team (CERT). This group of volunteers has a roster of 65 people who are well trained in disaster response, traffic control, search and rescue techniques and incident management functions. This group is called upon to assist the Twinsburg safety forces when needed.

While the physical area of responsibility has remained the same since the prior Comprehensive Plan, the number of calls for service has been gradually increasing. Calls for service for 2015 were 2,431. Total calls in 2020 increased to 2,979. Possible explanations for the increase in demand may be related to an increase in age-restricted housing catering to seniors, the existence of two major hospital system facilities with expanding services and a general aging population.

Essential Services

Water. Twinsburg receives its water from the Cleveland Division of Water and major water infrastructure (water towers, water mains) are owned and maintained by them. Distribution lines of six inch diameter and under are owned by the City of Twinsburg but maintained by agreement with the Cleveland Division of Water. Water is sourced from Lake Erie, treated at filtration plants in Cleveland and distributed to a

broad regional service area. Water quantity is not limited and water quality is maintained at the highest levels.

Wastewater. Only very small areas within the City are currently not served by the Twinsburg wastewater system. Those areas not served are regulated by the Summit County Health Department. This County Department is responsible for testing, permitting and monitoring on-site wastewater systems. New dwellings and failing septic tank systems are required to be connected to a centralized sewer system if one is available nearby.

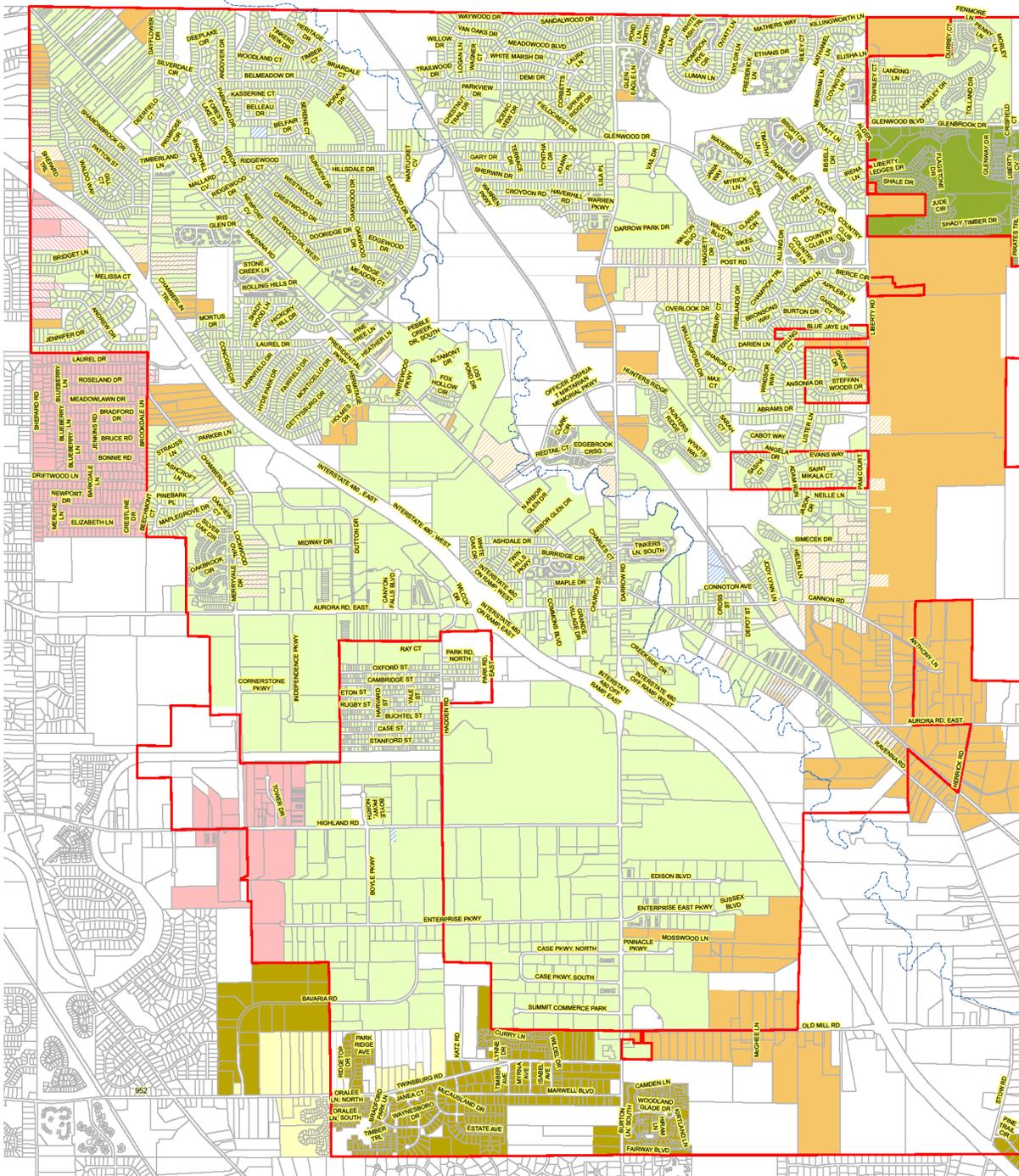
Twinsburg owns and operates a wastewater collection network servicing nearly the entire area of the City plus portions of the City of Reminderville and Twinsburg Township (see Figure 3). The facility is operated by the Public Works Department. This collection system conveys an average daily flow of approximately 2.9 mgd to the wastewater treatment plant located at 10221 Ravenna Road. The facility is an activated sludge system providing tertiary treatment via microscreen. The plant has a maximum capacity of about 5.6 mgd, providing enough reserve to meet any anticipated increased demand. An industrial pre-treatment program is operated by Public Works staff in order to safeguard the quality of flow to the plant. This program works with area businesses and industry to identify and remove potential waste stream products that might upset the biological treatment process.

The plant operation has incorporated a number of sustainability practices including using digester gas (methane) to fuel an electric power generator that provides energy to heat digesters. Also, dried sludge is transported to farmland and spread as a soil amendment.

Service Department. This department which is under the auspices of the Public Works Director has primary responsibility for road maintenance, snow removal, traffic signal maintenance, maintenance of the public right-of-ways, mowing of public lands, leaf removal, branch chipping and other functions. The Service Department is supported by a number of buildings including a salt storage facility, administrative offices, vehicle maintenance facility and other associated structures.

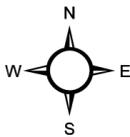
Figure 3

CITY OF TWINSBURG SANITARY SEWER CONNECTION STUDY



MAP COMPILED: FEBRUARY 2006
 MAP UPDATED: JANUARY 2021
 SOURCE: CITY SANITARY SEWER BILLING RECORDS.
 MACEDONIA CONNECTIONS FROM DOES BILLING
 RECORDS. REMINDERVILLE CONNECTIONS REFERENCED
 FROM DOES SEWER MAPPING.

- Legend**
- CONNECTED OR WILL BE
 - NO STRUCTURE
 - MACEDONIA
 - MACEDONIA/AVAIL CURRENT SEPTIC
 - SEPTIC
 - CURRENT SEPTIC TWIN SEWER AVAILABLE
 - UNKNOWN
 - REMINDERVILLE DOES
 - DOES OTHER
 - OTHER SEWER AVAILABLE CONNECTION UNKNOWN



Local Government. Responsibilities associated with the administration of the day-to-day functions of the City require a broad set of skills. The City's Chief Official is the Mayor, who provides leadership and direction to staff. While the Mayor has a seat at City Council, he/she has no voting power. However, legislation passed by City Council must be presented to the Mayor for signing. If the Mayor disapproves any part or a whole piece of legislation it is returned to Council and is not effective unless Council considers the matter and approves it by a 2/3 majority.

A number of department heads are appointed by the Mayor with City Council approval. The City's Law Director advises the Mayor, Council and staff as appropriate. A part-time Prosecutor assists the Law Director. The Finance Director assists the Mayor in the preparation of budgets, estimates of costs and revenues, and day-to-day management of City finances and accounts.

The Department of Public Safety includes the Police and Fire Departments and the Director of Public Safety is the Mayor. The Chief of Police and Fire Chief, as well as the officers and personnel of the departments, are appointed from the Civil Service Commission and by the Director of Public Safety with approval by Council.

Other positions do not require Council approval. The Director of Parks and Recreation and Director of Community Planning and Development are appointed by the Mayor. The City Planner, City Building Commissioner and City Engineer are part of the Department of Community Planning and Development, as are other personnel, as determined appropriate by Council. All new buildings, building additions, and land improvements which require permits are reviewed within this Department.

A variety of Boards and Commissions including the Planning Commission, Board of Building and Zoning Appeals, Architectural Review Board, and Environmental Commission are composed of community residents with support services provided by staff as necessary.

TWINSBURG'S CARBON FOOTPRINT

The term “carbon footprint” refers to the total amount of greenhouse gases generated by an individual, event, organization, or product. Greenhouse gases in the atmosphere absorb energy, creating a barrier that traps heat and contributes to global warming.

Carbon dioxide (CO₂) is the primary greenhouse gas. Based on U.S. EPA studies, about 80% of greenhouse gas emissions in the U.S. is CO₂. While this gas is generated naturally, since the beginning of the industrial revolution human activities have been altering the natural carbon cycle. These activities are adding substantially more volumes of CO₂, while at the same time, humans are performing other activities that reduce the earth's ability to absorb (sequester) CO₂.

Other greenhouse gases include methane (CH₄), Nitrous oxide (N₂O) and fluorinated gases. Methane contributes about ten percent of U.S. emissions while nitrous oxide contributes about seven percent and fluorinated gases contribute about three percent. Methane emissions result primarily from the production of fossil fuels, livestock, and decay of organic wastes. Nitrous oxide emissions occur with the combustion of fossil fuels and organic wastes, during agriculture, wastewater treatment and industrial activity. Fluorinated gases come primarily from industrial processes. While they are emitted in lower quantities than other greenhouse gases, they are more damaging than others. (<https://epa.gov/sites/production/files/2021-04/gases-by-source-2021-caption.png>).

Every person, community and business contributes greenhouse gases to the atmosphere and therefore contributes to global warming. As the focus on this Comprehensive Plan update is “Sustainability”, our efforts will concentrate on what actions the City can take to reduce its contribution. By doing so, the City can do its share in preserving the quality of the environment for its current and future residents.

The first step on the path to greenhouse gas reduction is identifying the City's current carbon footprint. As a result, the first effort must be development of a baseline greenhouse gas emissions estimate. A variety of programs and data sources are available to provide guidance to the City in this effort. We have chosen to follow the process described in U.S. EPA's Simplified GHG Emissions Calculator (v6, 2020). This calculator will enable the City to estimate its direct and indirect contribution of greenhouse gases for a particular year. We have chosen to utilize information from the 2019 calendar year to establish a baseline emission total. The 2019 calendar year was selected as it preceded the onset of the COVID-19 pandemic, which caused disruptions

in typical operations and social interactions which were not reflective of normal City operations.

A substantial amount of information has been assembled by staff to enable the use of the GHG Emissions Calculator tool. Utility bills have been obtained for every meter and account of the City for the 2019 year. Data obtained included the amount of energy consumed and billed costs for each account. Energy consuming facilities and locations were identified and classified as stationary sources of GHG emissions, mobile sources of emissions, purchased and consumed electricity and emissions associated with waste disposal. Stationary sources of GHG consisted of natural gas consumed in processes and space heating of fixed assets like buildings, pump stations and facilities like the pool and wastewater treatment plant. Emissions associated with electrical power were estimated under the classification of “Location-Based Consumed Electricity.” Emissions associated with cars, buses, trucks, heavy equipment, and portable power tools were estimated under the category of “Mobile Sources.” Emission estimates were represented as CO2 equivalent values. The following provides a summary of emissions by inventory class:

Stationary Sources	897.3 metric tons
Mobile Sources	893.0 metric tons
Location-Based Electricity	2,994.0 metric tons
Subtotal of Organization Emissions	4,784.3 metric tons
Emissions related to Waste	3,439.0 metric tons
Total Emissions from All Sources	8,223.3 metric tons

For stationary sources of GHG, like buildings and pump stations, the size and general construction of the structure was identified. For electric service accounts serving other facilities like traffic signals, street lights, pump stations, etc., monthly and total metered energy consumption or billed base energy volumes were identified. This data was evaluated in the Location Based and Market Based Sections of the GHG Tool.

Some sections of the GHG Tool were not utilized. For example, GHG emission estimate for refrigeration and air conditioning maintenance, which are the responsibility of third party contractors, were not estimated. The GHG emission contributions of employee commuting were also not estimated due to data acquisition

concerns. As a result, the estimate focused on the City’s core operational GHG emissions associated with operations and municipal waste transportation and disposal.

Energy requirements for buildings, pump stations, lights and signs are satisfied by natural gas and electric. For the subject year, natural gas consumption for all City operations totaled 16,465,600 cubic square feet (csf). City buildings, which totaled about 175,600 square feet in area, consumed about forty-five percent (45%) of natural gas consumption. The City’s wastewater collection and treatment system consumed fifty-five percent (55%) of all natural gas. Natural gas is used for both space heating and various treatment processes. These stationary sources of natural gas combustion are estimated to have contributed 897 metric tons of GHG emissions. The following table illustrates amounts of natural gas utilized by City buildings, ranked by order of volume of natural gas consumed.

Table 15 - Ten Largest Natural Gas Consuming Buildings (2019)*

Rank	Building	Building Area (sf)	Total Annual Consumed Gas (csf)
1	Municipal Complex	76,910	3,309,700
2	Fitness Center	77,000	2,725,700
3	Pool	5,500	2,685,300
4	Golf Clubhouse	20,554	1,856,700
5	Service	3,012	1,319,400
6	Fire 2	7,130	591,100
7	Golf Maintenance	5,947	419,600
8	VFW	4,352	331,600
9	Watershed Office	1,850	163,600
10	Center on Sq. (theater garage)	4,250	119,300

* Excludes Wastewater Collection and Treatment

Electricity consumed in all City operations totaled more than 5.6 million kWh. The operation of the wastewater treatment plant alone consumed forty-one percent (41%) of the City’s total electric demand, while pump stations represented about five percent (4.6%). Without the wastewater treatment and collection system included, building operations, lights and signs consumed over 3 million Kwh or fifty-four percent (54%) of total electric demand. The GHG Tool provided estimates of emissions from these sources in the Location Based Purchased and Consumed Electricity category. An estimated 2,994 metric tons of GHG emission were contributed from electric generation, transmission and consumption.

Table 16 - Ten Largest Electricity Consuming Buildings (2019)*

<u>Rank</u>	<u>Building</u>	<u>Total Annual Electricity Used (kWh)</u>
1	Fitness Center	805,782
2	Municipal Complex	725,600
3	Community Center	317,600
4	Golf Clubhouse	284,600
5	Pool	121,613
6	Service Department	110,115
7	Fire 2	78,445
8	Liberty Park & Nature Center	53,096
9	Historical Society	26,999
10	Glenmeadow Park	20,933

* Excludes Wastewater Collection and Treatment

Mobile sources of GHG emissions are related to vehicles, machinery and small equipment using gasoline or diesel fuel. More than 72,000 gallons of gasoline and 35,800 gallons of diesel fuel were consumed in City operations for this purpose. Most the fuel consumption, and therefore GHG contribution came from vehicle operations. City vehicles provided more than 700,000 miles of travel but also experienced energy consumption while idling or excavating. Small equipment operations also consumed both diesel fuel and gasoline. These mobile sources contributed an estimated 893 metric tons of GHG emissions.

In total, contributions of GHG attributable to City operations in the 2019 calendar year were more than 8,200 metric tons of GHG, primarily in the form of CO₂. A copy of the emissions summary is included as Appendix C.



Part 2 – Towards a Sustainable Twinsburg

Efforts to Date

The 2014 Comprehensive Plan focused on redevelopment issues and recognized opportunities presented by an underutilization of properties located in the city center. The Plan highlighted these central core opportunities envisioned within a framework of a walkable, more pedestrian oriented downtown and supported by appropriate public infrastructure. Twinsburg’s economic future lies in its ability to provide a high quality small-city experience in the district surrounding the Township Square. However, the central core remains an economic development area that has not been subject to growth and development through investment by private enterprise. Inadequate public infrastructure continues to serve as an obstacle to development of a vibrant central core. The dynamic, sustainable, mixed-use district visualized by the 2014 Plan, remains both an economic development goal and a placemaking strategy. A summary of all the goals and objectives from this previous plan is included in Appendix A with comments regarding their status and the progress made toward addressing them. This current plan takes a deeper dive into issues related to the City’s long-term capability to become a sustainable entity.

The City of Twinsburg has a history of environmentally conscious planning and development. While several individual actions and practices have been put in place by department heads and staff, there has never been an over-arching administrative policy or set of procedures devoted specifically to the subject of “Sustainability.” However, sustainable thinking has become an imperative as climate change and economic shifts continue to impact our communities. This 2021 Comprehensive Plan update attempts to provide some structure for increasing sustainability relative to the City’s operations and practices.

Comprehensive Plan Update Committee Efforts

In order to pursue this objective the administration and City Council have assembled a Comprehensive Plan Update Committee. The purpose of the Committee is to review the City’s prior efforts, consider sustainability practices that might be practical to adopt, and make recommendations to the Administration and Council regarding those that they feel should be pursued. The Committee has considered a vast array of practices and objectives, many of which are reflected in the Institute for Local

Government's "Sustainability Best Practices Framework." This document and many other resources have been utilized to inform and solicit the input of the Committee.

The Comprehensive Plan Committee has met on seven occasions including one field trip to observe and consider unique environmental assets and projects. Committee members have endured hours of presentation and discussion guided by information related to current best practices in ten practice areas including the following:

- Energy Efficiency & Conservation
- Water & Wastewater Systems
- Waste Reduction & Recycling
- Green Building
- Renewable Energy & Low-Carbon Fuels
- Climate Friendly Purchasing
- Efficient Transportation
- Land Use & Community Design
- Habitat Preservation/Open Space/Carbon Offsetting
- Community & Individual Action

After discussion and consideration, a number of goals and objective have been recommended by the Committee for further consideration and possible action by the Administration and Council. Also included in these goals and recommendations are suggestions of potential actions that might be undertaken by residents to advance sustainable practices in the home or business.

GOALS AND OBJECTIVES FOR A SUSTAINABLE TWINSBURG

ACTUATING THE PLAN: ORGANIZE THE CITY’S SUSTAINABILITY EFFORTS INTO A COHESIVE INITIATIVE TO CREATE EFFICIENCIES AND SYNERGIES.

- a. Create a sustainability working group representing each City department.
- b. Create measures to track progress of both successes and failures. Regularly evaluate sustainability goals and objectives to reflect changing times and conditions.
- c. Engage City employees in sustainability efforts by creating an environment where suggestions are encouraged.
- d. Adopt best practices specific to department operations/responsibilities.
- e. Adopt best practices relative to City wide operations/responsibilities.

ENERGY EFFICIENCY/CONSERVATION: STRIVE TO REDUCE ENERGY COSTS FOR HEATING, COOLING, AND LIGHTING THROUGHOUT CITY OPERATIONS.

- a. Commission an Energy Audit of City facilities to identify opportunities for energy savings through efficiency and conservation measures.
- b. Prioritize audit findings and pursue financial assistance for implementation.
- c. Where feasible invest in technology and transition properties to “smart buildings”.



How Might Residents Contribute?

Make your home as energy efficient as possible by [sealing cracks, gaps and leaks](#). Consider adding insulation or buying new windows.

Use LED light bulbs.

Employ laundry energy-saving tips to reduce energy consumption and costs.

During summer months, close blinds, shades and drapes on the sunny side of your home.

RENEWABLE ENERGY: PRIORITIZE THE USE OF RENEWABLE ENERGY SOURCES.

- a. Seek opportunities to implement solar and/or wind projects to meet all or part of the energy requirements of City owned buildings and facilities.
- b. Consider policy that offers rebates or financial incentives to encourage photovoltaic systems on new or existing residential and commercial buildings. Use annual NOPEC funding to incentivize solar panel installations.

- c. Demonstrate the feasible local application of solar energy by mapping and communicating existing solar projects.
- d. Make local businesses aware of energy conservation and finance programs like PACE.



How Might Residents Contribute?

Consider investing in solar panels for home energy use.

TRANSPORTATION: STRIVE TO REDUCE FOSSIL FUEL DEPENDENCY IN ALL CITY OPERATIONS AND PROMOTE OPPORTUNITIES FOR MULTI-MODAL CONNECTIONS THAT ENHANCE PEDESTRIAN AND BIKE ACCESS TO LOCAL BUSINESSES, INSTITUTIONS, AND DESTINATIONS.

- a. Provide safe and convenient pedestrian and bike-friendly access to local destinations as identified in the adopted Last Mile/First Mile Connectivity Plan.
- b. Create safe alternative transportation options along high-volume arterial roadways.
- c. Provide pedestrian access at RTA bus stops with particular attention to bust stops serving employment concentrations.
- d. Encourage EV adoption and an increase in the number and availability of charging stations.
- e. Continue the transition of the City’s vehicle fleet to EV, green fuels and hybrid technologies.



How Might Residents Contribute?

When possible, choose transportation options that don’t contribute to or that reduce carbon pollution.

Combine errands into one efficient trip. Be vigilant about cutting back on the number of shopping trips you make.

WASTE REDUCTION/RECYCLING: AGGRESSIVELY WORK TO REDUCE MUNICIPAL AND HAZARDOUS WASTE AND PROMOTE RECYCLING AND REUSE TO THE GREATEST POSSIBLE EXTENT.

- a. Make recycling a priority and a habit throughout all City operations.
- b. Increase recycling rates throughout the City with education programs and coordination of recycling opportunities such as community e-waste drives.
- c. Implement a roadway litter control program to engage and support local property owners, businesses and groups in ‘adopting a roadway’ for clean-up of litter.



How Might Residents Contribute?

Participate in community clean-up and recycling events.

Use the Summit County Reworks facility to appropriately dispose of Household Hazardous Waste materials.

Contribute your best effort to the City’s curbside recycling program. Visit the Waste Management website for information about materials that currently should and shouldn’t be placed in your recycling cart.

Bring reusable bags for shopping.

CLIMATE FRIENDLY PURCHASING: MAXIMIZE COST SAVINGS OPPORTUNITIES WHILE REDUCING THE CITY’S ECOLOGICAL FOOTPRINT AND PROVIDING A MARKET FOR PRODUCTS WITH RECYCLE CONTENT.

a. Adopt and implement a procurement policy that establishes standards for purchasing climate-friendly products and services. Prioritize the purchase of:

- products with recycle content;
- cleaning products with Green Seal or Eco Logo;
- Energy Star certified equipment; and,
- building materials with recycle content, low VOC (volatile organic compounds).

b. Create a City Procurement Officer job position.



How Might Residents Contribute?

Consider purchasing environmentally preferable products that may have a range of attributes, including if the product is recyclable, repairable, durable, made with recycled content or is eco-friendly.

LAND USE & COMMUNITY DESIGN: ENSURE THAT LAND USE, ZONING, AND DEVELOPMENT POLICIES AND REGULATIONS SUPPORT THE COMMUNITY’S SUSTAINABILITY GOALS.

a. Encourage the reduction of greenhouse gases by removing obstacles to the installation of renewable energy facilities and green building techniques.

b. Support ordinances and policies that encourage natural features preservation and protection, such as tree protection and replacement and riparian corridor protection.

c. Implement a central area redevelopment plan that reflects new urbanism, walkable community features.



How Might Residents Contribute?

Join the ‘Friends of Twinsburg Parks’ community group. friendsoftwinsburgparks@gmail.com

CARBON OFFSETTING: SUPPORT OPPORTUNITIES FOR STORAGE AND OFFSETTING OF GREENHOUSE GAS EMISSIONS.

- a. Evaluate current grass mowing boundaries to identify locations where mowing reductions would not be problematic relative to aesthetics or public use. Incrementally expand natural areas and reduce carbon emissions by limiting grass cutting boundaries.
- b. Identify locations within City-owned open space areas where re-forestation may be appropriately carried out.
- c. Make the public aware of the green-house gas impacts of meat production and consumption and the potential reduction of green-house gases possible with reduced meat consumption.
- d. Remove invasive non-native plants and promote sustainable native-forests and grasslands.



How Might Residents Contribute?

Plant a native tree in your yard.

Consider integrating some meatless meal options into your weekly meal plan.

Implement sustainable lawn care practices.

HABITAT PRESERVATION: PROTECT THE OVERALL HEALTH OF THE CITY’S HABITATS, WATERWAYS, SOILS AND OTHER NATURAL RESOURCES.

- a. Continue to manage the established Meadow Habitat at Liberty Park and other existing native and naturalized plantings and gardens located on public properties.
- b. Be aware of opportunities for habitat improvement. Build upon the Audubon Society ‘Important Bird Area’ designation at Liberty Park by exploring opportunities for habitat enhancements and increased public appreciation and support of threatened and endangered bird species.
- c. Support habitat preservation on City-owned open space by discouraging actions that fragment or degrade habitat.
- d. Promote “habitat awareness” to the general public.
- e. Require best management practices associated with stormwater management facilities.



How Might Residents Contribute?

Appropriately employ landscaping materials such as native trees, shrubs and flowers to provide “back yard birds” and pollinators with the food resources they need.

Carefully use lawn products to minimize runoff of excess nutrients.

Take care to keep yard debris and litter from entering storm sewers. Don't leave grass clippings in the gutter or street.

WATER & WASTEWATER SYSTEMS: RECOGNIZE THAT EFFICIENT WATER USE PLAYS AN IMPORTANT ROLE IN SAVING ENERGY, REDUCING GREENHOUSE GAS EMISSIONS AND CONSERVING RESOURCES.

- a. Promote water conservation by encouraging the use of low-flow plumbing fixtures, grey water recycling and other water conservation measures.
- b. Implement feasible water efficiency strategies in City operations.
- c. Research potential for costs savings associated with using renewable energy to power lift stations.



How Might Residents Contribute?

Install a rainbarrel or raingarden in your yard.

Mow grass at 3-4 inches to allow development of a deep root system to better find water and nutrients in the soil and to withstand heat and drought.

ECONOMIC DEVELOPMENT: USE SUSTAINABILITY AS A TOOL FOR ECONOMIC DEVELOPMENT.

- a. Make sustainability central to Twinsburg's culture and brand with tie-in to the "Naturally Beautiful" tag line.
- b. Align the City for grant funding and partnership opportunities.
- c. Consider eco-tourism prospects related to opportunities presented from biking trails, birding, Salamander Festival, Parks, Tinker's Creek, etc.



How Might Residents Contribute?

Support local economic development efforts by publicly promoting the City's sustainability initiative.

COMMUNITY AND INDIVIDUAL ACTION: FOSTER A CITY-WIDE CULTURE OF SUSTAINABILITY AND RESILIENCY.

- a. Involve diverse stakeholders, including such groups as chambers of commerce, HOAs and community groups in developing sustainability policies and programs.
- b. Reduce carbon footprint at City-sponsored events through recycling, alternative transportation and other strategies.

- c. Create sustainability-centered outreach materials. Include information in local agency mailings, websites and other media about actions that individuals and businesses can take to address climate change.
- d. Provide programs and/or incentives to individuals, groups and businesses that adopt practices that reduce their carbon footprint. Incentives can be financial or non-financial, such as official recognition of participants' efforts.
- e. Share progress with the community on the implementation of City and/or community sustainability policies and practices.



How Might Residents Contribute?

Organize a neighborhood or HOA meeting to identify eco-friendly practices that might be employed within your subdivision.

GREEN BUILDING: ENCOURAGE THE USE OF GREEN BUILDING AND SITE DEVELOPMENT TECHNIQUES.

- a. Promote material standards for inclusion of renewable, recyclable, non-toxic and low volatile organic compounds (VOC's).
- b. Encourage use of alternate paving materials or permeable concrete to facilitate reduced runoff and encourage groundwater recharge.
- d. Offer incentives for use of green building standards in construction projects.
- c. Adopt sustainable landscape standards providing reduced maintenance and incorporating native plant materials.



How Might Residents Contribute?

Consider energy efficiency when updating or replacing materials, systems or appliances at your home (i.e. hot water heater).

Promoting the Adoption of Sustainability Practices

The Comprehensive Plan Committee's recommendations have been submitted to the City's Planning Commission and Council for consideration and adoption. The adoption of goals and recommendations is only the starting point for our sustainability efforts. If progress is to be made, responsibilities must assigned and accountability established. It will be necessary to establish a process, procedures, and funding necessary to promote sustainability practices to be executed by City departments, residents and area businesses.