

The Willoughby Hills Proposed Comprehensive Land Use Plan

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On October 2, 2008, the working committee was formed to review and update the 2003 Master Plan

On March 3, 2010, the Willoughby Hills Planning and Zoning Commission recommended approval of this Comprehensive Plan after reviewing and revising

On _____ 2010, the Willoughby Hills City Council accepted this Comprehensive Land Use Plan, adopted as Ordinance _____.



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Proposed

Chapter 1: Introduction

Willoughby Hills adopted its first zoning ordinance in 1954, based on the township zoning in effect at the time. In 1970, the voters adopted a City Charter. One of the charter's requirements was for the City to adopt a comprehensive plan, with updates to occur at intervals not to exceed 5 years. The City adopted its first Comprehensive Land Use Plan in 1972. Since then, there have been three formal updates, two with assistance from the County Planning Commission (1979 and 1990), and one with assistance from a private consultant (1994).

The 1979 and 1990 updates underscored the community's desire not to make broad sweeping changes that would change the character of the City, since residents were generally pleased with development in Willoughby Hills. Yet the Plan updates stated that the City's development regulations needed to be revised to better achieve the goals of the citizens and to ensure that the character of the City was maintained. However, the zoning code had never been revised to be consistent with the Land Use Plan, meaning the previous plans have never been implemented.

Despite environmental issues, development in Willoughby Hills continues. Historically in Willoughby Hills, re-zonings have been achieved through judicial means. These judicial decisions have been the outcome of a reactive approach to planning and zoning, not a proactive one. This comprehensive planning process is intended to yield a more proactive approach to growth and development.

A 1992 Charter Amendment requires all currently authorized zoning uses to be reviewed every five years. The new zoning codes/uses adopted by the Council and the electorate in 2006 are a result of this required review.

The Chagrin River watershed continues to be the center of collaboration between many communities to help mitigate the effects of water runoff and flooding downstream near Lake Erie. The Euclid Creek has been the focus of studies due to pollution and malfunctioning or insufficient septic wastewater systems. As a result of this information, the City of Willoughby Hills, looking to preserve the natural beauty of the city, adopted the Protected Areas Regulations. The Protected Areas Regulations work with the property owner to preserve the Hillside, Riparian and Wetlands areas. Willoughby Hills is currently on Phase 3 of a sewer project on many streets of the city to eliminate the use of failing or inadequate septic systems.

Purpose of the Plan

This Comprehensive Land Use Plan seeks to establish a vision for the future of Willoughby Hills to ensure that anticipated growth is properly managed while being responsive to current needs. Guidelines contained in this document are intended to aid the City in making decisions regarding land use, economic development, conservation of open space, recreation needs, and utility extensions. It also includes prioritized strategies and implementation measures to carry out the objectives identified in the Plan.

This Plan establishes policies that are based on an analysis of current trends, development pressures and existing development patterns. The goals and land use policies contained in this Plan have been reviewed and debated in a number of public forums and therefore represent the consensus of a range of community interests. The Plan provides specific detailed action steps that offer suggestions on ways to actually implement the policies.

Many of the policies in the Plan are long-range policies, some of which will take considerably more effort to achieve. Other policies, especially those dealing with redevelopment, are very far reaching and will need to occur in incremental steps.

Adoption of this plan establishes guidelines to aid the City in making future land use decisions. **No laws or ordinances are changed by this Plan.** The most important tool the City has to carry out the policies of this Plan is the Willoughby Hills Planning and Zoning Code.

The Plan's policies are primarily influenced by the City's current development patterns and its context within the regional market. As a result of these influences, the Plan addresses the following:

1. Economic Development – Ways in which the City can maintain a balanced tax base.
2. Remedial or ongoing mechanisms to ensure sustained marketability of the City's existing land uses (both residential and non-residential) with respect to:
 - Property maintenance.
 - Avoiding or eliminating obsolescence.
 - Suitable infrastructure.
 - Community facilities.
 - City services.
3. The range of housing options offered in order to be responsive to demographic patterns and owner preferences with respect to:
 - Alternative types of residential development (conservation, senior, townhouse, etc.).
 - Marketability of existing or new housing stock.
 - Quality and value.
4. Ways in which the City can spur redevelopment and strengthen its commercial areas over time.
5. Ways in which the City can increase its financial capability to realistically carry out and enable the development/redevelopment objectives.

The Planning Process

In order to ensure that the goals and policies for the future development of the City of Willoughby Hills reflect the desires of the overall community, the Planning & Zoning Commission formed a working committee on October 2, 2008 to review and update the June 2003 Master Plan.

Through a series of regularly scheduled meetings that were open to the public, the Committee:

- Selected issues to be addressed by the Plan;
- Brainstormed strategies to realistically address the issues;
- Formulated detailed policy recommendations; and
- Designed implementation measures to carry out policy recommendations.

The policies contained in this Plan are based on current conditions and assumptions of future activities. However, unexpected development in surrounding communities, advances in technology, changes in utility service or other infrastructure improvements, and other unforeseen changes, are factors that can alter the appropriateness of policies in this Plan. Therefore, as with any document that establishes guidelines for the future, the policies contained in this report should be periodically reevaluated to ensure their relevancy. The City Charter requires this review at least every five years.

Proposed

Chapter 2: Context For The Plan

This chapter provides an overview and analysis of historic development, trends and existing conditions, including comparisons of Willoughby Hills to surrounding communities in Lake, Cuyahoga and Geauga Counties, and other key considerations. This analysis is necessary in order to understand the factors that influence and limit the development potential of areas within the City. This analysis also provides the foundation on which goals and objectives are formulated and policies and strategies established. The more noteworthy statistics are highlighted below while the complete set of data in tabular format is included in the Appendix.

Historical Context

Chagrin Township was formed in 1815 and encompassed the land bordered by Lake Erie, Mentor Township, Kirtland Township, Mayfield Township, and Euclid Township. In 1834, Chagrin Township became Willoughby Township in honor of Dr. W. Willoughby. At that time, Willoughby Township included the modern incorporations of Willoughby, Wickliffe, Willowick, Waite Hill, Lakeline, Timberlake, Eastlake and Willoughby Hills. Willoughby Hills was the last area of Willoughby Township to incorporate. Facing annexation by surrounding communities such as Willoughby and Wickliffe, residents decided to incorporate as a Village in 1954. With the 1970 census, when its official population reached the required 5,000 persons, the Village of Willoughby Hills became a city.¹

The residents of Waite Hill, Maple Grove, the Schram School district and Pleasant Valley School asked the Willoughby-Eastlake School Board to consider consolidating their schools. The Board favored the idea and began looking for a site. In 1927 the school board appropriated seven acres on the corner of Euclid Chardon Road and Chagrin River Road from the Otis family. The James A. Garfield School was dedicated in May of 1928 and closed in 1984. After it was closed the Willoughby-Eastlake Library Director formed a Citizens Committee charged with the responsibility of preparing a plan for using Garfield as a library station. The library opened in 1985 and closed in 1994. The building was finally demolished in 2008.²



Figure 1: James A. Garfield School

The Pleasant Valley Road Bridge was constructed in 1881 by the Wrought Iron Bridge Company of Canton, Ohio. It is a 163-foot long Whipple Truss (double intersection Pratt through truss) designed by Squire Whipple. It is one of the oldest double intersection Pratt trusses remaining in Ohio. There

¹ History derived from information supplied by the Willoughby Hills Historical Society, courtesy of Frank Cihula.

² Ibid

are less than ten remaining in Ohio. The bridge was built to sustain the Euclid-Chardon Road (U.S. Route 6), also known as the Grand Army of the Republic Highway (G.A.R.). It was used by travelers as well as the farmers in the region who needed to get their produce to the Cleveland markets. In 1952, a new high level bridge was constructed to the south and U.S. Route 6 was re-routed. The bridge continues to be an important element of the county's and state's engineering heritage³.

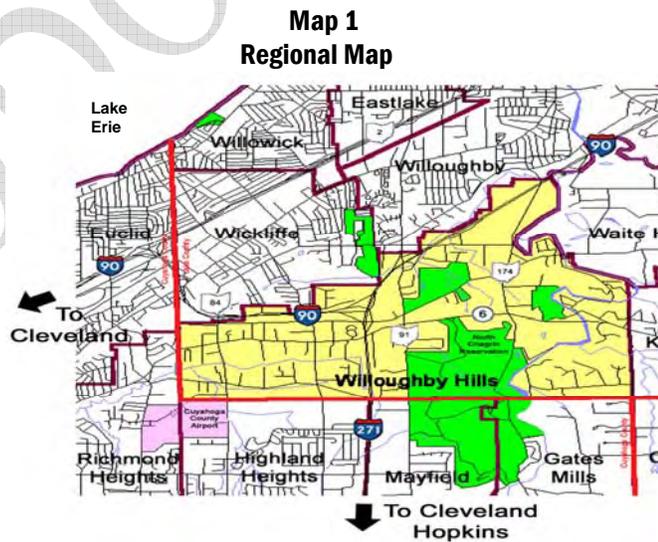


Figure 2: Restored Historic Pleasant Valley Bridge

Regional Context

Willoughby Hills encompasses almost 10.8 square miles and is located in the southwest corner of Lake County. Downtown Cleveland is about a 20-minute drive on Interstate 90, and Cleveland Hopkins International Airport is about a 30-minute drive along Interstate 271/480. Willoughby Hills is adjacent to a number of communities including:

Chester Township,
 Euclid,
 Gates Mills,
 Highland Heights,
 Kirtland,
 Mayfield Village,
 Richmond Heights,
 Waite Hill,
 Wickliffe, and
 Willoughby.



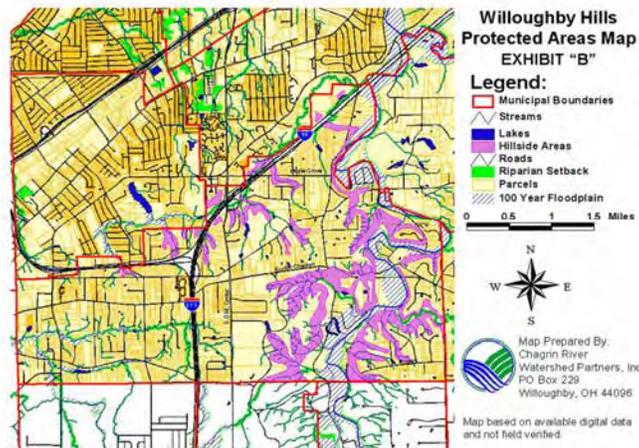
³ Ibid. Willoughby Hills Historical Society and Frank Cihula

Willoughby Hills is bisected and bordered by two major highways: Interstate 90 and Interstate 271. Entrance/exit ramps to I-90 are located at S.O.M. Center Road in the northern section of the City and at Bishop Road, adjacent to the north boundary of Willoughby Hills, in the western section of the City. There are no entrance/exit ramps to I-271 within the City. Local access to Willoughby Hills and the other major highway routes through the City include the following U.S. and state routes:

- ▶ U.S. Route 6 (Chardon Road) – East/West access from Richmond Heights to Kirtland
- ▶ State Route 84 (Bishop Road) – North/South access from Wickliffe to Highland Heights
- ▶ State Route 91 (S.O.M. Center) – North/South access from Willoughby to Mayfield Village
- ▶ State Route 174 (River Road) – North/South access from Willoughby to Gates Mills

Natural Features

Willoughby Hills is comprised of approximately 7,000 acres, which includes about 1,300 acres of parkland. The City is characterized by large residential lots and rolling hills. There are two unique topographic environments: east of S.O.M. Center Road (State Route 91) the terrain is fairly steep with deep river valleys; and to the west of S.O.M. Center, the landscape has a more gentle roll.



Map 2: Protected Areas Map

Willoughby Hills drains into two separate watersheds: the Chagrin River watershed and the Euclid Creek watershed. The Chagrin River flows through the eastern portion of the City. Faced with increasing water flows due to development upstream, the Chagrin River has been the center of attention of the cities in the watershed. The southwestern portion of the City lies in what is known as the Euclid Creek watershed. The Euclid Creek watershed has gained attention due to pollution caused primarily by failing septic systems. The attention that the Euclid Creek watershed attracted due to pollution caused primarily by failing septic systems is being addressed by the City of Willoughby Hills Sewer Project.



Figure 3: Chagrin River

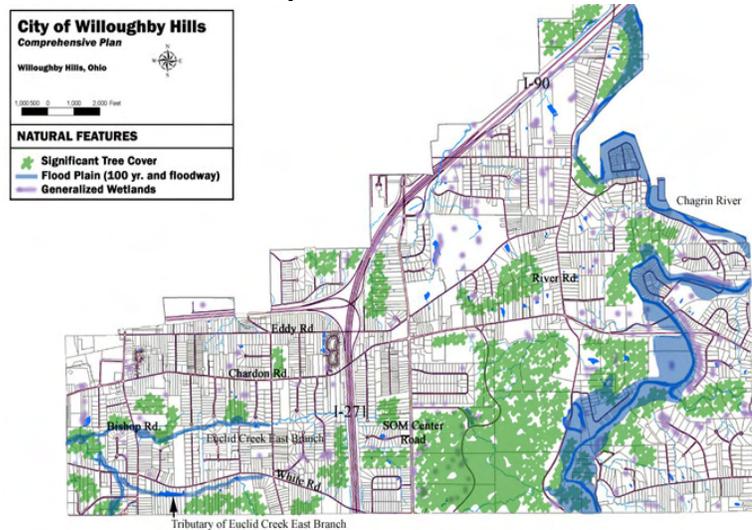
On the east side of the City, the river valley is defined by steep wooded hillsides. Due to these steep inclines, the City drafted and adopted hillside regulations in 1995 that subjects development on land with areas designated as “protected hillsides” to a more detailed review.

These regulations were updated in 2008 by the Protected Areas Regulations which include the Hillside, Riparian, floodplain and wetlands. The Protected Hillside Areas Map (See Map 2) illustrates land that is comprised of slopes greater than 30%, or considered by the City Engineer (with a team of experts) to have unstable soil conditions, or both. The map also shows the Riparian Corridors.

Vacant land that is in the floodplain and/or wetlands equals approximately 321 acres or four percent of the land in the City. Land within the floodplain becomes more prone to flooding as development intensity increases upstream, and less emphasis is placed on on-site detention. Floodplains are important because they serve a vital function by reducing the height and speed of floodwaters. It is important for this reason to retain these floodplains in their natural environment as much as possible to permit natural flooding and pooling when water levels reach high limits.

The majority of land along the Chagrin River is noted on the FEMA⁴ maps as being in the floodplain. Selected lands throughout the Euclid Creek Corridor’s tributaries are prone to flooding as well, but these lands are small in comparison to the flood lands of the Chagrin River. The primary wetlands that exist are shallow marshy lands, shrub/scrub wetlands, and wet meadows. These wetlands, though few and far between as shown on Map 3 are nevertheless important to the overall hydrology and flood control of the area.

**Map 3
Floodplain and Wetlands**



Riparian corridors (See Map 2), also known as stream corridor greenways, provide a variety of environmental benefits that impact water quality, habitat, and human health and well-being. Riparian corridors are linear stretches of land along waterways. Conservation of the Chagrin River and Euclid Creek riparian corridors is therefore important for a number of reasons.

⁴Federal Emergency Management Agency

Healthy riparian corridors, which include wetlands, native vegetation, and tree cover, help to improve and protect the quality of water in rivers and streams. Vegetated riparian areas filter pollutants, such as nutrients, metals and other toxic substances, from surface runoff before it enters the waterways. Vegetation along streams also prevents erosion of stream banks, controlling sediment levels in streams. Riparian corridors provide important habitat for many plants and animals. Canopy cover helps to shade streams, which enables aquatic life to prosper, while other animals make their homes in the vegetation along stream banks. Finally, a healthy riparian corridor also provides natural beauty and recreational opportunities such as hiking, canoeing, photography, and bird watching; settings that are difficult to recreate. Several entry points into Willoughby Hills are noteworthy for their scenic value:

Rural Landscapes and Views of the River Valley

Chardon Road and River Road provide scenic vistas of the rural landscape when entering the river valley. Traveling along Chardon Road, on the east side of the City, provides views of the Chagrin River valley including a historic bridge traversing the River just north of Chardon Road. River Road offers many scenic vistas of the Chagrin River; the most prominent being in northern Willoughby Hills as the road winds along the edge of the riverbank high above the River, especially where the road curves and the traveler's line of sight over the foliage reveals breathtaking views of the river valley. The other vista view is available to the southbound traveler just south of Chardon Road overlooking the valley with the Cleveland Metroparks to the right and privately owned land to the left.

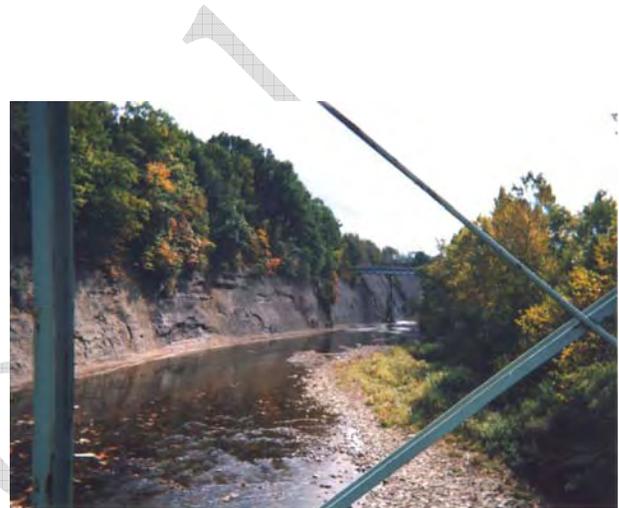


Figure 4: Chagrin River from Historic Bridge

Wooded Steep Slopes

Wooded steep slopes can also be observed along these two major roads. While emerging from the river valley westbound on Chardon Road, a traveler experiences views of the natural wooded slopes of Willoughby Hills. The other location to experience the wooded slopes (along a major road) is on River Road south of Chardon Road while in the river valley and while emerging from the river valley. Many of the observable wooded steep slopes exist in the Cleveland Metroparks' "North Chagrin Reservation" which encompasses nearly 900 acres in the south central portion of Willoughby Hills and is open to the public.

These views of the natural landscape provide memorable experiences to residents who travel along these various routes and therefore contribute to the character and image of Willoughby Hills.

Stormwater Management to Ensure Water Quality

Stormwater management is the process of controlling and processing runoff so it does not harm the environment or human health. The fundamental goals of stormwater management are to mimic the way runoff left the site before development and to prevent water pollution.⁵

Stormwater runoff has two major adverse impacts. One is related to quantity and the uncontrolled stormwater runoff entering sewers, lakes, rivers, and streams that may cause flooding. Second, stormwater runoff often carries pollutants that may severely impact water quality.

Traditionally, most communities have managed for stormwater quantity rather than water quality.

Stormwater management begins with an understanding that every piece of land is part of a watershed. A watershed is all the land from which all drainage flows to a common outlet. Comprehensive land use planning and sound site design are essential tools for effective stormwater management. Site-specific runoff control measures should be based on their location within the watershed. Effective stormwater management will strive to maintain the natural patterns of runoff within the watershed. The Willoughby Hills Zoning Code adopted in 2006 made head way on meeting the water quality goals.

Principles to strive for in Stormwater Management

These principles might be summarized as "The Four Cs" of Stormwater Management: Control, Collection, Conveyance, and Cleansing.

Control: Source control measures focus on pollution prevention.

Collection: Capture and storage of runoff for more timely release is a vital component of most stormwater management systems.

Conveyance: Conveyance systems are used to drain and direct the flow of runoff generated on a site.

Cleansing: Cleansing is commonly accomplished through techniques that promote filtration and settling of pollutants and their natural processing by vegetation and soil.

Neighborhoods and communities are part of a larger interactive eco-system. Therefore, it is important to recognize the impact on the community and surrounding communities when landowners and communities review plans for development.

⁵ Ohio State University Fact Sheet, "Stormwater and Your Community, AEX-442-00". Agricultural Engineering, Ohio State University. 3-16-09 <http://ohioline.osu.edu/aex-fact/0442.html>

Wind and Solar Energy – New Challenges for the City

Senate Bill 221 signed into law on May 1, 2008 requires that 25% of all electricity sold will be from advance energy sources by the year 2025. In 2009, the goal in Ohio is 82 mega watts (MW). Currently, Ohio has 7.2 megawatts (MW) installed. Ohio has a wind potential of 66,000 MW. As the movement to conserve energy and to build green-energy windmills increases, residents will be looking to the city for guidance. An important part of the process is sharing information, carefully reviewing projects, being knowledgeable about new developments and mindful of false information that does not provide empirical evidence. More and more solar panels are sprouting up all over Ohio. With utility costs increasing, it is crucial that the city is prepared⁶.

Proposed

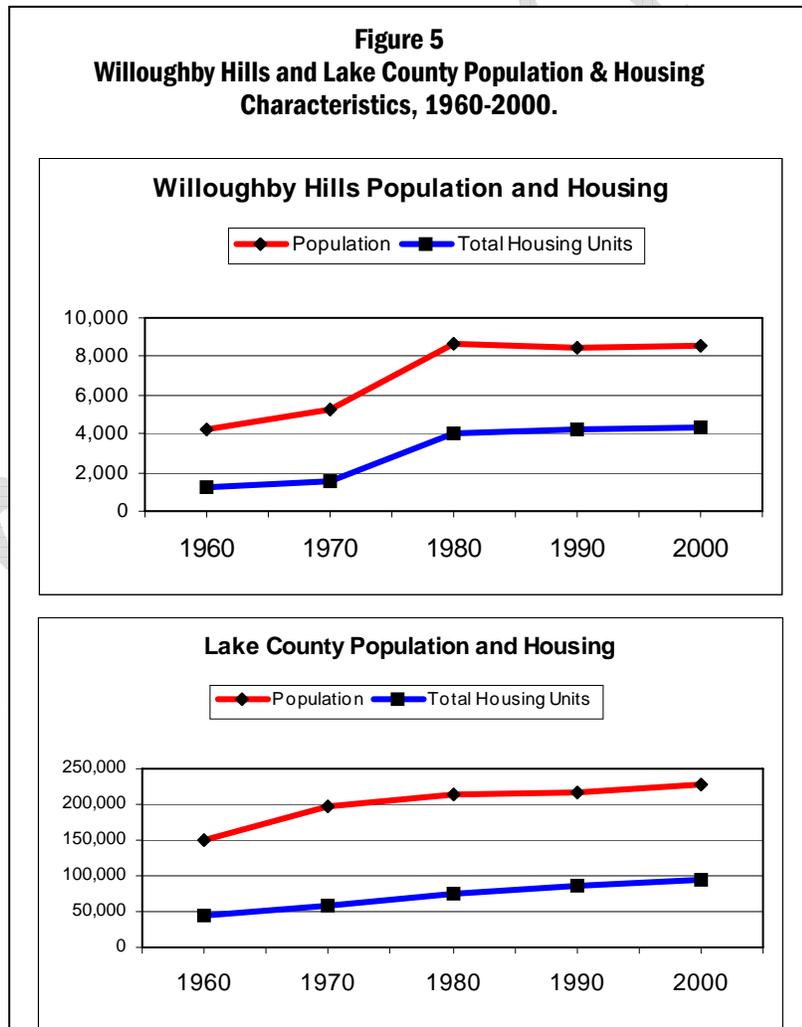
⁶ Wind Development WEBINAR power point presentation, 2009. Ohio Planning Commission

Historic Development

The majority of the growth in Willoughby Hills occurred in the 1960's and 1970's. In the 1970's, the population in Willoughby Hills increased by more than 60% while the average growth rate in the region was around 20%, see Figure 5.

This large increase was due primarily to construction of a few high-rise apartment buildings. In 1970, only 25% of housing units in the City were multi-family units, which was similar to the percentage of multi-family units in Lake County. By the end of the 70's, over 1,300 apartment units were constructed, compared to less than 200 single-family homes⁷. By 1980, multi-family housing accounted for over 52% of all units in the City. These apartments were located in a few high-rise apartment complexes on land area that comprised less than 1% of the overall land area of the City, and all within a mile of a major highway interchange. The majority of the new single-family homes constructed during this time were constructed in the western portion of the City where flat land was readily available.

By 1990, the percentage of multi-family units had increased to 54% of the City's units, but by 2000, the percentage had dropped to 44%.



⁷Lake County Planning Commission. *Willoughby Hills Master Plan 1979*. Page 2.

Population and Housing Characteristics

Since 1980, the number of dwelling units has slowly increased in the City: by 6.2% between 1980 and 1990, and by 1.3% between 1990 and 2000. (See Table 1) However, Willoughby Hills' growth rate for dwelling units during these two decades was considerably less than other communities within suburban Lake County and some eastern Cuyahoga County communities.

By 2000, there were 4,292 dwelling units within the City, reflecting an average increase of less than six units per year. The total number of residential building permits issued for Willoughby Hills between 1996 and September of 2001 was 67, or approximately 11 units per year.

Assuming that all units for which permits had been issued were constructed by the summer of 2002, it is estimated that there are currently 4,314 units in the City. (See Table 2), which is less than a one percent increase from 2000.

Despite the continual increase in the number of dwelling units between 1980 and 2000, during this same time there was very little change in the City's population: Total population decreased by 185 persons (2.1%) between 1980 and 1990, however increased by 168 (2.0%) between 1990 and 2000 (see Table 3).

Table 1
Comparison of Dwelling Units
1980 - 2000

	1980	1990	2000
Willoughby Hills City	3,989	4,235	4,292
% increase	--	6.2%	1.3%
Eastern Cuyahoga Co*	34,630	35,673	36,490
% increase	--	3.0%	2.3%
Lake Co	74,792	83,194	93,487
% increase	--	11.2%	12.4%
Geauga County	24,049	27,922	32,805
% increase	--	16.1%	17.5%

* Includes Euclid, Gates Mills, Highland Heights, Mayfield Village, and Richmond Heights.

Source: US Census Bureau.

Table 2
Estimated Dwelling Units - 2002

	2000 Census	Average # Permits per year	Units 2000-2002	Total Units 2002
Willoughby Hills	4,202	11	22	4,314

Source: Lake County Department of Building Standards

Table 3
Comparison of Population
1980 - 2000

	1980	1990	2000
Willoughby Hills City	8,612	8,427	8,595
% increase		-2.1%	2.0%
Eastern Cuyahoga Co*	81,646	76,705	77,671
% increase		-6.1%	1.3%
Lake Co	212,801	215,499	227,511
% increase		1.3%	5.6%
Geauga County	74,474	81,129	90,895
% increase		8.9%	12.0%

* Includes Euclid, Gates Mills, Highland Heights, Mayfield Village, and Richmond Heights

Source: US Census Bureau.

The increase in the number of dwelling units without the same increase in population growth is a result of a national trend toward smaller family size as well as an increased number of single person households, and an ever-increasing elderly population. Table 4 indicates the trend to smaller household sizes over the last 40 years.

Table 4
Average Persons Per Household
1960-2000
Willoughby Hills

	Owner-Occupied	Renter-Occupied	Overall Average
1960	--	--	3.4
1970	--	--	3.3
1980	--	--	2.23
1990	3.00	1.35	2.10
2000	2.6	1.64	2.16

Source: 1960, 1970, 1980, 1990, 2000 U.S. Census.

It should be noted that, beginning with the 1990 Census, students living outside the City are not counted as residents of Willoughby Hills.

Another observation of Table 4 is the higher occupancy rate of owner-occupied housing units (2.6 persons per household) compared to renter-occupied households (1.6 persons per household); numbers that are significantly different than the overall average household size of 2.16.

Existing Development Patterns

A community is made up of various elements that define its physical form such as streets, edges, nodes, neighborhoods, and landmarks. The combination, concentration, or diversification of uses contributes to the visual form of the community. The major streets within a community generally set the tone for the feel and character of that community. The major streets in Willoughby Hills are built to maximize automobile circulation, which then minimizes the importance, or even presence, of the pedestrian. City streets do not have sidewalks and the City does not have pedestrian paths within the business districts.

S.O.M. Center Road (State Route 91) is a major north-south regional state route connecting Willoughby Hills to I-90 and S.R. 2 to the north and to U.S. 322 in Mayfield Heights to the south. S.O.M. Center is used as an alternate route when the I-90/I-271 spur is congested. S.O.M. Center Road generally has residential frontage within the boundaries of the City, with the exception of the intersection at Chardon Road where an office/retail/governmental center exists. The city has fought and upheld the residential character of S.O.M. Center Road to keep it from becoming a major regional commercial center.

Chardon Road (US Route 6) is a major east-west state route that connects the City with Kirtland and Chardon to the east, and offers access to I-90 via Bishop Road to the west. Chardon Road is used as a commuter route when I-90 becomes congested. Similar to S.O.M. Center, Chardon Road is primarily comprised of residential frontage with the exception of the commercial and governmental center at S.O.M. Center, a regional retail center at the intersection with Bishop Road and a few scattered commercial businesses located at various intersections.

Bishop Road is a major route for commuters traveling to Richmond Heights or Highland Heights from I-90. Bishop Road is also highly traveled due to the industrial development in and around the Cuyahoga County Airport. Such companies as the United Parcel Service have major facilities in the communities south of Willoughby Hills and use Bishop Road as a major throughway to connect to the regional highway system. Bishop Road, with the exception of the northern portion near the regional retail center, has a highly residential feel. The portion of Bishop Road near I-90 has been expanded to two lanes of traffic in each direction plus turn lanes to accommodate the increased traffic generated by the commercial development.

Edges of a community are linear elements that often prohibit or separate one area from another in either a physical or visual way. Ideally, these edges exist at the perimeter of the City; however, when these edges exist within the community, they act as barriers and divisions between parts of the community. Edges include railroads, interstate highways, power transmission right-of-ways, and natural topographic features. The Chagrin River, I-90, I-271 and the hillsides all serve as major edges within Willoughby Hills.

A node is an area with a concentration of particular uses or a group of similar uses. Often a node can be referred to as a core. There are two primary nodes within the City, one acting as the commercial/retail center of the City and the other characterized by governmental and professional office use. These nodes, respectively, are the Bishop Road/Chardon Road commercial core (including the Shops at Willoughby Hills) and the S.O.M. Center/Chardon Road concentration of office/retail buildings, which are close to City Hall and churches.

A neighborhood is an area, larger than a node that has common identifying characteristics such as lot size, building style, age, types of street layout, or unique natural features. Willoughby Hills has a variety of distinct neighborhoods that are defined by their common lot arrangements. Neighborhoods within Willoughby Hills are easily recognizable on a map because, largely, the streets between neighborhoods do not interconnect. This lack of connectivity is something that Willoughby Hills residents value. The residents recognize that residential streets have less traffic as a result of cul-de-sac endings.

A landmark is an icon in the City to which people refer and relate; a place that is widely used when describing geographic location within a community. For example, a resident may refer to a street off Chardon Road on the west side near Richmond Heights as being located across the street from the “Shops of Willoughby Hills.” By describing a road as being across from, or near this landmark, it is widely known to Willoughby Hills’ residents where the road is generally located. Other major landmarks would include the North Chagrin Reservation, the Chagrin River, City Hall and the surrounding City parks, the Cuyahoga County Airport, and the I-90/S.O.M. Center interchange area, just to name a few. Additional landmarks could include places of worship, schools, and businesses with visibility to main roads.

At the present time, approximately 70 % of the land in the City is developed. Table 5 on page 22 indicates that the zoning classification that includes the greatest amount of land is the R-1 Single-Family Residential 1-acre zoning, which is also the largest zoning classification as a percentage of vacant land. The City is then further broken down into land devoted to higher density residential, commercial, office, industrial, highway, and government open space/park land.

The Existing Land Use Map (Map 4 on page 24) indicates vacant land within Willoughby Hills. Because of the manner in which Willoughby Hills has historically approached the rezoning of land, the R-Residential zone has been (more or less) a holding pattern for rezoning. It is because of this that there is little land available in any other zone than R- Residential. Many communities devote the majority of their land to residential uses because these are the least impactful uses. Willoughby Hills is 72% residentially zoned which means there are 5035 acres zoned for this use. Of these 5035 acres of residential land, 2998 acres (40%) are developed.⁸

The second largest category of land in the City is land devoted to public or semi-public open space/recreation, (18%), of this, the Cleveland Metroparks owns 990 acres including the North Chagrin Reservation and Manakiki Golf Course. Lake Metro Parks purchased the Gullybrook acreage in 2002, which is currently undeveloped as park land. Lake Metro Parks then purchased the Warner-Kingwood Nursery in 2007 and created Pleasant Valley Park with access to the Chagrin River. Five percent of city acreage is devoted to interstate highway right-of-way for Interstate 90 and Interstate 271. Only a small percentage of the City (3%) is devoted to commercial uses.

The B- Commercial Districts in 2003 had 199 acres total. According to Lake GIS figures and the County Auditor's office and the new 2006 Zoning map, the combined B-1, B-2 and B-3 (separate from E Research and Office) are now a total of 175 acres in 2009. E Research and Office increased from 14 acres in 2003 to 37 acres by 2009. Combining the B- Commercial Districts and the E Research and Office brings the total Commercial acreage to 212 acres, down from 213 acres in 2003.

⁸ The updated Zoning District figures were derived from the Willoughby Hills Building Department and the Lake County Geographic Information System (GIS)

The I- 1 Industrial District, added in 2006, has 45 acres. Total park land in the city has increased.

Existing Zoning

There are now ten zoning districts within the City. Five districts are primarily residential zoning districts: the R-1 Traditional Single Family, the R-2 Attached Single Family/Townhouse, the SCR Senior Citizen Residential, the M Multi-family District, and the M-1 High Rise Apartment District. There are five commercial districts: the B-1 Limited Commercial, the B-2 Commercial Campus/Mixed Use, the B-3 High Density Mixed Use/Commercial the E Research and the I-1 Industrial. The B- Commercial and E Research districts provide for retail, service, and office uses. The I-1 Industrial district provides for light industrial usage. The number of zoning districts were increased from five to 10 with the new Zoning Code adopted in 2006. The new zoning district boundaries are shown on Map 5, page 25. A summary of each district follows on page 26.

Proposed

Table 5: Summary Of Acres By Zoning District, City of Willoughby Hills

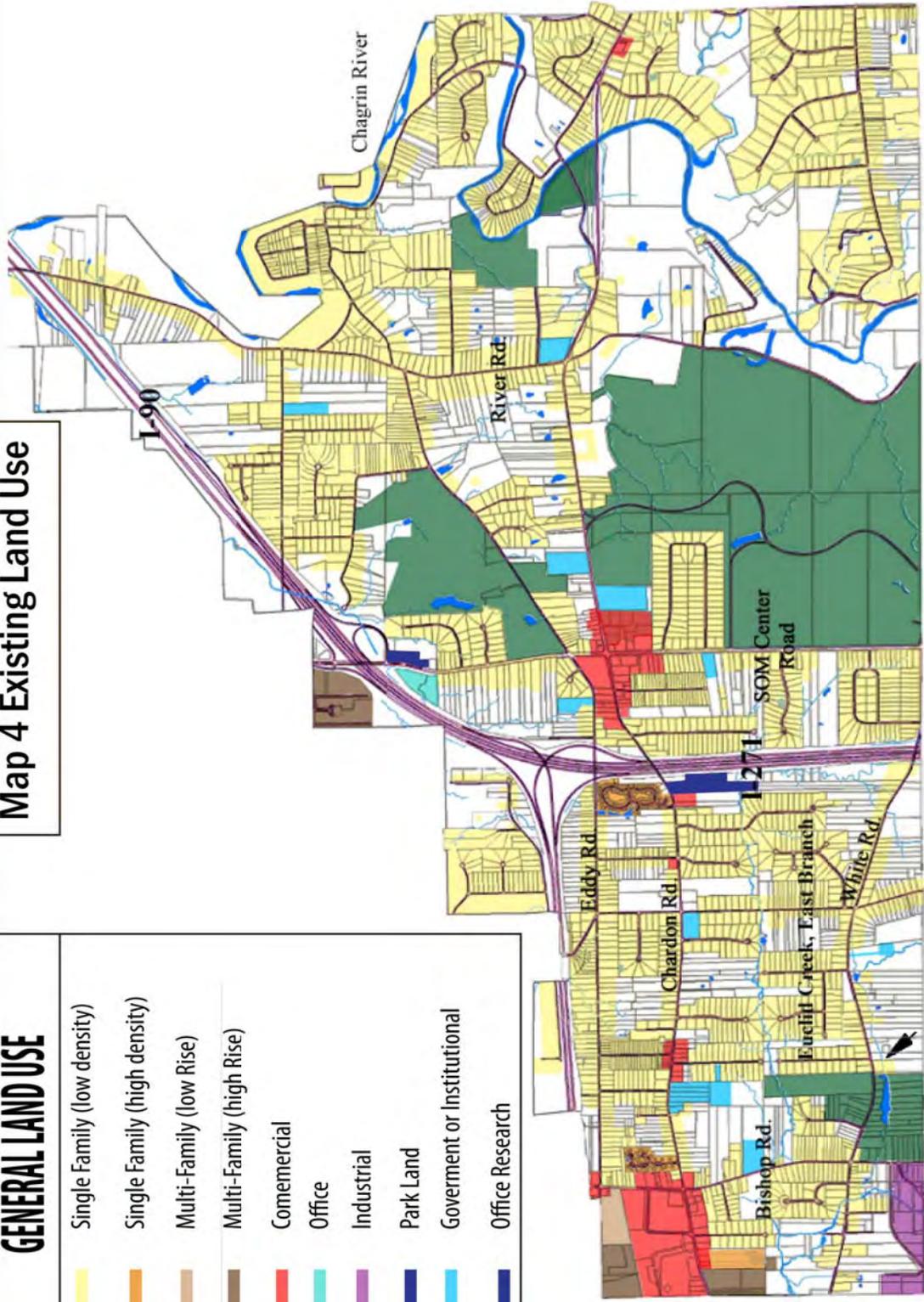
Zoning District	-A- Total Acres in District	-B- % Developed	-C- Acres Vacant ^a	-D- Flood Plain ^b	-E- Total Developable Land ^c	%of Total (Column A)
Residential						
R -1 Residential	4899	59%	2022	250	1772	36%
R-2 Residential	44	91%	4	4	0	0%
SCR Residential	12	0%	12	0	12	100%
M Multi-Family	21	100%	0	0	0	0%
M-1 High Rise Apartment ^d	59	81%	11	0	11	19%
Total Residential	5035	40%	2,037	254	1783	35%
Commercial						
B-1 Commercial ^e	10	80%	2	0	2	16%
B-2 Commercial	93	81%	18	0	18	19%
B-3 Commercial	72	97%	2	0	2	3%
E Research ^f	37	86%	5	0	5	14%
Total Commercial	212	87%	27	0	27	13%
Industrial						
I-1 Industrial	45	18%	37	0	37	82%
Total Industrial	45	18%	37	0	37	82%
Total Interstate	350	100%				
Parks/Recreation						
Cleveland Metroparks ^g	990	100%				
Lake MetroParks ^h	114	100%				
Local Parks ⁱ	203	100%				
Total Parks/Recreation	1307	100%				
TOTAL ACRES	6,949	70%	2101	254	1847	27%

Notes to Table 5:

- ^a 2009 updated 2003 calculations using the 2007 Lake GIS aerial photos and base maps.
- ^b Only undeveloped land. Flood plain = undeveloped land in the floodway and 100 year flood plain.
- ^c Includes 368 acres in the protected-area. The Protected Area Regulations regulate but do not prohibit development on steep slopes. Estimate of buildable lots is affected by the Protected Areas Ordinance. Each project needs to be determined on a case by case basis.
- ^d Developable land in the M-1 district has 7.06 acres that are Deed Restricted to recreational use.
- ^e Vacant land in the B-1 district includes Sweets & Treats which was demolished in 2009.
- ^f Vacant acres in the E district includes 1.16 acre single family residence (non-conforming)
- ^g Includes Manakiki Golf Course and North Chagrin Reservation
- ^h Warner-Kingwood Nursery was acquired by Lake MetroParks in December 2007. It is now Pleasant Valley Park. Total acreage also includes Gullybrook owned by Lake Metro Parks. Those acres had been R Residential in 2003.
- ⁱ Includes Airport Greens Golf Course, Hach-Otis Sanctuary, Roemisch Fields and Campbell Park

GENERAL LAND USE	
	Single Family (low density)
	Single Family (high density)
	Multi-Family (low Rise)
	Multi-Family (high Rise)
	Comemercial
	Office
	Industrial
	Park Land
	Government or Institutional
	Office Research

Map 4 Existing Land Use



Tributary of East Branch of Euclid Creek

Residential Districts

The Residential Districts includes the R-1 Traditional Single Family, the R-2 Attached Single Family/Townhouse, the SCR Senior Citizen Residential, the M Multi-Family and the M-1 High Rise Apartment.

R-1 Traditional Single-Family District

The intent of the R-1 Residential district, with the 1-acre minimum lot size, is to preserve the rural character that Willoughby Hills offers its residents and to provide quality housing in a low-density environment. The R-1 district is restricted to single-family development only (with the exception of governmental and institutional uses)

R-2 Attached Single Family/Townhouse District

The R-2 District is established to provide, preserve and protect medium density residential areas for detached and attached single-family dwellings with a maximum density of four units per acre arranged to provide good building site design and effective open space in areas adequately served by City utilities and streets.

M Multi-Family District

The M Multi-family district is established to provide for low rise, medium density development with a maximum of fifteen units per acre for persons who desire apartment style living in a low-rise environment. It was established for multi-family dwellings arranged with good building site design and effective open space in areas adequately served by City utilities and streets. To blend this district into a low-density single-family environment, creativity becomes a crucial element-

M-1 High Rise Apartment District

The M-1 District is established to provide, reserve and protect locations for high-density apartment development in areas with appropriate levels of service. The district requires buildings to be between 80 feet and 150 feet tall.

SCR Senior Citizen Residential District

The SCR district is established to enable the construction of senior citizen residential developments (SCRD) that provide for the unique housing needs of persons of retirement age. Such residential developments should be located where supporting facilities such as public transportation, retail stores, community facilities and other facilities and activities are available. It allows a mixture of dwelling unit types, congregate facilities and nursing home facilities typically found in a senior citizen community or continuing care facility.

Commercial Districts

The intent of these B- Commercial districts is to provide an environment where commercial businesses can locate in Willoughby Hills to provide services which will benefit the residents of the City and its neighboring communities.

The B-1 Limited Commercial District is established to provide a limited range of uses in select locations within the City.

The B-2 Commercial Campus/Mixed-Use District is established to develop an area with a traditional city center character, through a mix of civic, retail and office uses that are concentrated enough to encourage pedestrian activity and interaction among these uses.

The B-3 High Density Mixed-Use Commercial District is established to accommodate mixed use with pedestrian-oriented development that fosters a vital streetscape created by commercial buildings with entrances and windows oriented to the public street. This District is intended to be the City's core area for retail sales.

Research and Office District

The E Research district is established to provide an appropriate location for the development of research and office complexes, while maintaining the residential character of the City. It is intended to create an environment conducive to well-designed office buildings and sites that accommodates the needs of office users.

Industrial District

The I-1 Industrial District and its regulations were established in order to provide a zoning district for industrial activities and for production, distribution and exchange of goods and services in order to serve and promote the economic development of the community.

Other Zoning Issues

Historically, the City of Willoughby Hills has taken a reactive approach to planning and zoning. The majority of land rezoned in the recent past had been done through court order or use variance. The City has had limited success defending its zoning ordinance in court. The underlying argument in law cases dealing with the rezoning of land is that the City did not have a land use plan that supported its zoning. In 2006, the Planning and Zoning Commission recommended and the Council adopted a new zoning code. The Voters approved a new zoning map including the new districts that are described in this chapter.

Most modern commercial development occurs at 10,000 square feet of development per acre of land. With conventional parking standards, approximately 20,000 square feet per acre is used for parking, and that permits landscaping to be between 20% and 30% of the site area.

The City Charter requires that all re-zonings of land and changes in zoning that result in a change of the uses permitted in a district must go before the voters in a public election.

Utilities

Willoughby Hills is serviced in its entirety with electricity, telephone, and water. Natural gas is available in most of the city. Cell phone, cable and satellite services are also available. The central sewer service area is not as broad.

The City of Willoughby Hills was charged with the need to install sanitary sewers in the area of S.O.M. Center Road south of Chardon Road, and Eddy Road west of Rockefeller Road and west to the county line since the existing septic systems were failing and could not be replaced or upgraded in compliance with the Lake County Health Department's regulations. The program was started in 2005 and is looking to completion in 2011.

Balance Growth

The City of Willoughby Hills strives for balance growth for the community as a whole. The Balanced Growth Program was adopted by the City in cooperation with the Chagrin River Watershed Partners, Inc. in 2008.⁹

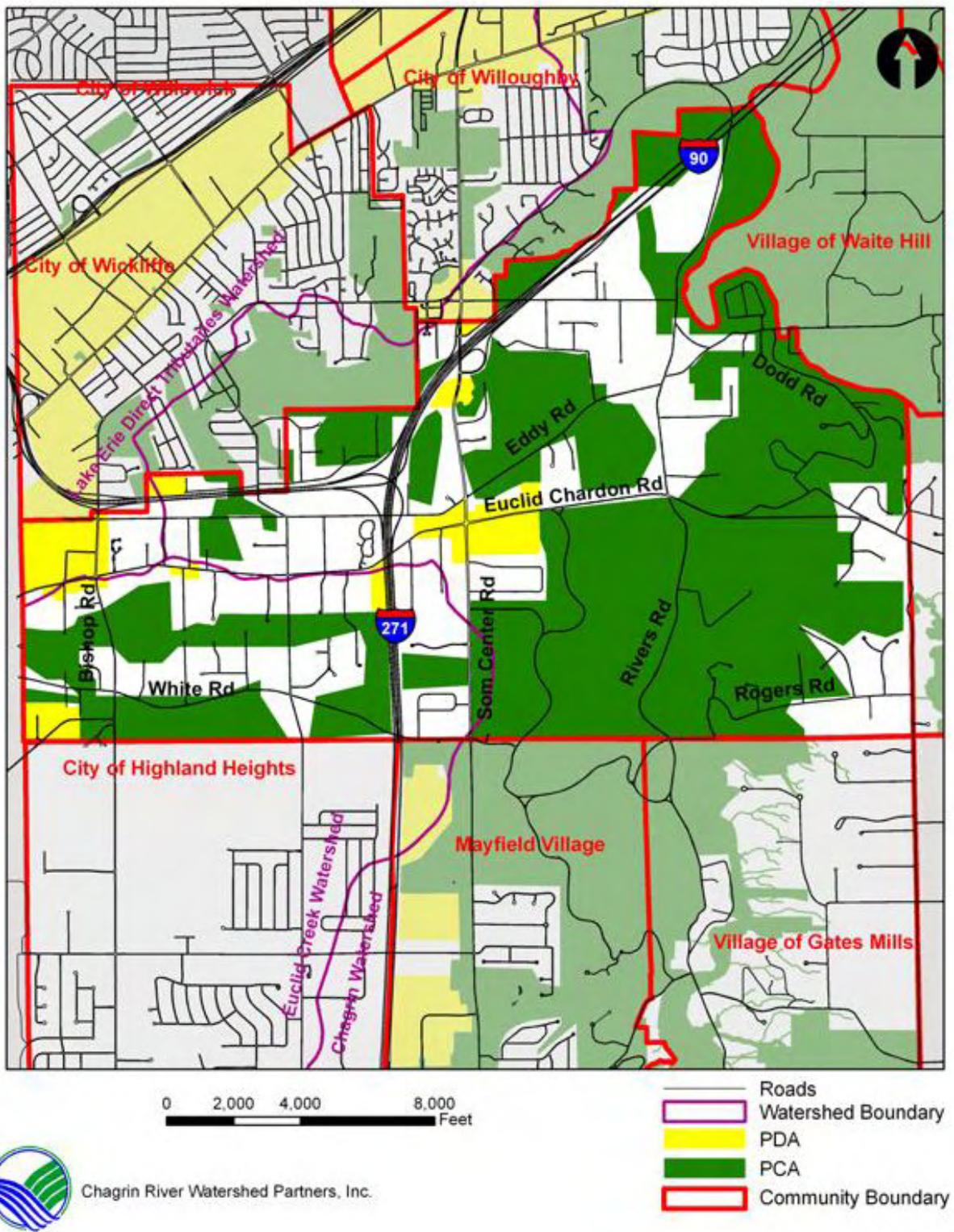
The Balance Growth Program is a voluntary, incentive-based program for balanced growth in the Ohio Lake Erie basin. It calls for the creation of a locally driven planning framework that focuses on land use and development planning in the major river tributary watersheds of Lake Erie. The Chagrin River Watershed Partners, Inc. (CRWP) worked with communities throughout the Chagrin River watershed to create the *Chagrin River Watershed Balance Growth Plan*.

The goal of the Balance Watershed Program is to begin to link land-use planning to the health of watersheds and the Lake. Two primary concepts are Priority Conservation Areas (PCA) and Priority Development Areas (PDA). Other planning tools that should be considered are overlay districts and housing/maintenance/preservation codes.

- Priority Conservation Areas (PCAs) are locally designated areas targeted for protection and restoration. PCAs may be important as ecological, recreational, heritage, agricultural, or public access areas. PCAs represent areas where land use change is predicted to have a high impact on the watershed in terms of flooding, erosion and water quality.
- Priority Development Areas (PDAs) are locally designated areas where growth and/or redevelopment is to be especially promoted in order to maximize development potential,
- Efficiently utilize infrastructure, revitalize existing cities and towns, and contribute to the restoration of Lake Erie. PDAs represent areas where land use change is predicted to have minimal impact on the watershed and where other conditions, such as access to highways, existing or planned utility service areas, and existing development, suggest that additional development may be appropriate.

⁹ Chagrin River Watershed Partners, Inc. (CRWP), 2009

**Figure 6
Balanced Growth Program**



Residential Development Capacity

In 2000 there were 4,292 dwelling units in Willoughby Hills and the city had a population of 8,595. According to the City's Building Department, there were 19 building permits issued by the City's Building Department for the construction of single-family dwelling units between the beginning of 2000 and September 2001. This number includes new construction only; permits issued for additions are not included. When combined with the 2000 census, and assuming all units were constructed, the number of dwelling units in the City in early 2002 was approximately 4,311.

During the time period of 2004 through June 2009 the Building Department issued 68 building permits for the construction of R-1 single-family and R-2 Attached Single-Family/Townhouse dwelling units. Population figures will be updated after the 2010 Census.

Pine Ridge East, a 159-unit multi-family four story apartment development, located north of I-90 and west of S.O.M. Center Road was constructed in 2006-2007. Stratford Way, a townhouse development with 57 attached homes west of Bishop Road, was completed in 2007. The Gullybrook development added another 16 condominium units.

The development potential of the City is largely determined by the zoning on the vacant land. In the spring of 2009, there were approximately 2037 vacant acres of R-1, R-2, SCR, M and M-1 residentially zoned land in the City. (See Table 5 on page 22 for a breakdown by zoning district.) Of this total, approximately 311 acres were considered wetlands and/or in a 100-year floodplain. Due to strict environmental concerns of regulatory agencies in Ohio and the passage of the new Willoughby Hills Protected Areas Regulations, the feasibility of development of land in Willoughby Hills may be decreased in the future.

To estimate the residential development capacity of the City, the residentially zoned vacant land was converted to dwelling units by multiplying the vacant land by the effective density that results from the minimum lot size requirements in each district.¹⁰

Approximately 254 acres of the vacant land are in a floodplain and zoned with a minimum lot size of one acre. For the purpose of this evaluation, high and low projections were generated. The low projection does not include any

**Table 6
Residential Development Capacity**

1. 2000 Dwelling Units	4,292	
2. Building Permits Issued: 2000-Sept 2001 ^a	19	
3. Anticipated MF units from current project	272	
4. Estimated Units (subtotal lines 1,2,3)	4,583	
	Low	High
5. Potential New Dwelling Units ^b	1,636	1,900
		–
6. Total Dwelling Units at Build-Out^c	6,219	6,483
(% increase from line 4)	36%	41%

Notes to Table 6:

^a Assumed complete by Summer 2002

¹⁰ The effective density takes into consideration factors for the area within a subdivision that is devoted to roads and the fact that not all lots in a subdivision are the minimum lot size.

vacant land in the in the wetlands / floodplain calculations. This projection yields (as Table 6 illustrates) an additional 1,636 units for a total of 6,219 at build out **according to current zoning**.

The high projection includes all of the vacant land in the R District, including acres in wetlands/floodplain. One-acre lots are large enough that the floodplain could conceivably be counted as developable land as it may be possible to design around the topography to ensure that the dwelling is out of the floodplain. Should this be the case, the City could expect a maximum of about 264 additional units for a build-out range of 6,219 to 6,483 units.

Should all the vacant land in Willoughby Hills be developed by current standards, as calculated in Table 6 on the previous page, the increase in the existing number of dwelling units between 2002 and at build-out is 36% to 41%. While it is not likely that every acre of vacant land will ultimately be developed, the above analysis generates a useful benchmark against which the current zoning and proposed land use policies should be judged.

The U.S. Census Bureau reported that the population of Willoughby Hills was 8,595 in 2000. A more detailed analysis of occupancy indicated that owner-occupied units averaged about 2.6 people per household, while renter-occupied units typically averaged only 1.6 people per household. Since the single-family houses in Willoughby Hills are predominately owner-occupied, it is assumed that the 2.6 persons per household is a good indicator of the average occupancy of the existing single-family homes

Economic Development Considerations

Typically, economic development is considered the primary way to reduce the increasing tax burden on community residents. Office development generates more real estate tax revenue per acre than retail or industrial development because offices have more floor area per acre than either industrial or retail uses. Retail development typically generates the second highest amount of real estate tax revenue per acre. As a category, residential development generates the lowest real estate tax revenue. In addition to real estate taxes, commercial and industrial uses pay personal property tax on machinery and equipment, tools, supplies and inventory.

Another aspect of land use is the level of services required compared to the amount of taxes paid. Service costs are generated by education needs, police and fire protection, and street maintenance, with the greatest share devoted to education. While safety protection and maintenance costs are generated by residents as well as commercial and industrial uses, only residents generate education costs. Therefore, not only do commercial and industrial uses pay more in taxes; they also require fewer services. This means that taxes paid by nonresidential uses subsidize the cost of education and thereby help to reduce the tax burden of residents.

On the other hand, compared to residential development, commercial and industrial developments generate more traffic, create more pollution, and have a higher proportion of impervious surface, which contributes to increased storm water run-off. Volumetrically, water runoff in the Chagrin River Watershed and the Euclid Creek Watershed is already a problem. As runoff increases, the City will ultimately need to allocate more funds to mitigate the effect of water runoff into the rivers and their tributaries. To a certain extent this can be solved with regulatory requirements on commercial

and industrial development for storm water detention, but complete mitigation of the issue may not be realistic. In addition, large-scale office development is typically located in areas with high visibility to the highway network. Therefore, in determining whether or not expanded economic development should be permitted, it is necessary for the City to weigh the tax benefits and the added convenience of having stores and offices nearby against the potential negative impacts outlined above.

Traffic Generation

As noted above, retail and office uses generate much more traffic than residential uses. Using a standard of 10,000 square feet of retail floor area per acre of commercial land, one acre of retail in a stand alone environment can be expected to generate approximately 400 vehicle trips per day, while trip generation for one acre of offices (at 10,000 square feet per acre) would be about 125 vehicle trips per day.¹¹ This compares to about 10 vehicle trips per day for a single-family home, which, in Willoughby Hills equates to 8.5 trips per acre per day figured on an effective density of .85 units per gross acre. On a per unit basis, alternative housing such as townhouses typically generates less traffic than single-family homes. However, on a per acre basis, residential condominiums, for example, generate about 23 trips per day based on 4 units per acre. This amount of traffic is still much less per acre than that generated by the nonresidential uses noted above. This is not to say that economic development is bad, because it is still important to realize the tax benefits of such development. The negative impacts of commercial and industrial development must be balanced with the positive impacts with respect to tax income.

Tax Structure and Income

One of the primary sources of revenue for communities is the property tax. Willoughby Hills's present property tax rate is 73.15 mills. Taxes are paid on the assessed value of property, which is 35% of the market value. Because of various reductions, the effective rate that is actually applied to land in Willoughby Hills is \$1,523.86 per \$100,000 of residential valuation and \$1,809.82 per \$100,000 of commercial/industrial valuation.

Taxes are figured on a percent of a full tax rate. The full rate is a unilateral rate that is applied to all uses, commercial, industrial, residential, and agricultural. When paying taxes, however, a taxpayer is not required to pay the full rate; they pay an adjusted lower rate that is determined by applying rollbacks and discounts to the full tax rate. This reduced amount is known as the "effective rate". These discounts can be applied equally to the commercial/industrial tax rate and the residential/agricultural tax rate,¹² or they can be applied to rollback the taxes more for one of the two classifications.

In Willoughby Hills, residential taxpayers pay only a slightly lower **city** tax rate than the commercial taxpayers, see Table 7 below. In comparison, the effective **county** tax rate for residential/agricultural

¹¹ See Table B-12 in Appendix B, page 74, for a detailed list of trip generation figures from the Institute of Traffic Engineer's Trip Generation Manual, 6th Edition.

¹² Commercial / Industrial and Residential / Agricultural are classifications imposed by the County taxation structure.

uses is 76% that of the commercial/industrial rate (\$333 compared to \$440 respectively for \$100,000 of property value), while the effective **school** tax rate for residences is less than 1 % below the commercial/industrial rate (\$62 compared to \$60 respectively for \$100,000 of property value).

Table 7
Taxes Paid Per \$100,000 Valuation for Tax Year 2008 payable in 2009

	Total		County		City		Schools		Other	
	\$	%	\$	%	\$	%	\$	%	\$	%
Residential	\$1,523	100%	\$333	22%	\$218	14%	\$939	62%	\$31	2%
Commercial/ Industrial	\$1,809	100%	\$440	24%	\$248	14%	\$1,082	60%	\$38	2%

Between 60% and 62% of property taxes paid by a property owner go towards supporting the public school system (see Table 7). Because Willoughby Hills is only one of seven municipalities in the Willoughby-Eastlake School District, the schools are not solely reliant on economic development within Willoughby Hills. Economic development within the City benefits the tax burden on the residents with respect to school taxes, but there is not a direct relationship; it depends on other factors throughout the district.

For tax year 2000, the percentage of the total assessed property value that is attributable to residential

Table 8
Willoughby Hills 2000 Real Estate Tax Valuation
(in 000s)

	Existing		At Build-out	
TOTAL Valuation	\$221,552		\$383,777	
Agriculture/ Residential	\$165,739	75%	\$323,204	84%
Commercial/ Industrial	\$55,813	25%	\$60,573	16%

Source: Lake County Auditor

land was 75% compared to 25% for commercial, industrial and public utilities, including the value of tangible personal property. This illustrates the higher benefit of commercial and industrial uses since these uses comprise less than 5% of land area, yet they contribute more than 25% of the tax base. However, as Table 8 indicates, at build-out the proportion of residential valuation will increase to 84% of the total valuation because there are over 2,000 acres of vacant residential land

compared to 27 acres of vacant commercial land. It should be noted that the interpretation of build-out capacity for Willoughby Hills has changed since the new Protected Areas Ordinance and recent EPA rulings. Any floodplain is automatically protected.

Proposed

C **hapter 3: Key Issues**

The following key issues are used to formulate the goals and objectives and eventually the policies and implementation strategies.

- A. Residential Development: To what extent should the existing residential environment be permitted to be altered to accommodate diversity?**
1. A townhouse district has been established to allow for higher density residential development (4 units per acre).
 - a. It provides a transition between commercial and lower density.
 - b. In other locations, it provides a transition between freeways and lower density.
 2. Residential conservation development is permitted at 1 unit per acre as an alternative to a standard 1-acre subdivision.
 3. Locations for senior housing may be considered in appropriate higher density areas.
- B. Economic Development: To what extent should it happen, and where should it be located?**
1. There is room for additional industrial development along Curtis Wright Parkway on 37 acres near the airport.
 2. Commercial development may be permit limited opportunities to expand near existing commercial areas.
- C. Community: What is missing and what can be added to make Willoughby Hills a stronger community?**
1. What more can be done to give Willoughby Hills a “city center”?
 2. To what extent should pedestrian connections be emphasized compared to vehicular connections? Create bike paths.
 3. What part would a school play in the enhancement of community in Willoughby Hills? Encourage education facilities.
- D. Open Space and Natural Resources: How are the natural resources being protected?**
1. Protected areas regulations have been adopted to protect the hillsides, rivers and streams in Willoughby Hills.
 2. Maintain single-family one-acre zoning to protect the rural character with respect to hillsides.
 3. Septic systems are still an acceptable alternative to public sewers where the soil conditions are right.
- E. Defensible Regulations: This Master Plan is updated regularly to be proactive in the land use and zoning of Willoughby Hills.**

Proposed

Chapter 4: Goals and Objectives

In order to be a useful decision-making guide for the City, it is important for the Comprehensive Land Use Plan to have clearly defined Goals that describe the City's desired outcomes for the future related to economic development, housing development, open space protection, etc. As such, the goals and objectives contained in this chapter provide the framework around which the subsequent policies and implementation strategies are drafted. The following goals and objectives are a refinement of the goals originally contained in the Willoughby Hills 2003 Master Plan.

A. Residential Character

To maintain the existing low-density residential character of Willoughby Hills in a manner that reinforces the motto "Where the City meets the Country", while ensuring that:

1. A variety of housing options are available to meet local demand.
2. Reasonable development opportunities are available on sites that cannot feasibly be developed with standard single-family subdivisions comprised of one-acre lots.
3. All residential neighborhoods have the level and type of amenities desired by the residents.

B. Economic Development

To achieve a more balanced economy that ultimately slows the rate of increase in residential property taxes while maintaining or improving services by promoting economic development in selected locations, and ensure that:

1. Economic development is properly located, designed, and operated so as not to jeopardize the low-density character of the City.
2. Non-residential development and redevelopment enhances the City's image and identity.

C. Sense of Community

To create a greater sense of community and ensure that:

1. Special community places are established within the City to serve as focal points and gathering places that foster interaction among residents.
2. Pedestrian and vehicular linkages are established to facilitate community use of local amenities such as the Chagrin River Corridor, City parks, and the Cleveland Metroparks system.
3. The overall quality of life in the City is enhanced.

D. Open Space and Natural Resources

To conserve and protect the natural environment and the unique natural features that contribute to the image and character of Willoughby Hills.

E. Defensible Zoning Regulations

To maintain a comprehensive Zoning Code and Land Use plan that provides a rational basis for the City to make legislative, capital improvement, and administrative decisions.

Proposed

Chapter 5: Development Policies

The purpose of this Chapter is to set forth the specific policies that advance the goals and objectives summarized in Chapter 4. These policies address specific use recommendations, development requirements and administrative issues that are important to the ongoing planning agenda of the City.

Willoughby Hills has a unique dichotomy of uses ranging from intense uses like high-rise apartment buildings to low-density residential uses and undisturbed natural areas, hence the motto “Where the City meets the Country.” Few areas are still farmed and face pressures for development. Other areas are showing signs of becoming outdated and are in need of renovation or redevelopment. While this plan stresses the desire to preserve the low-density residential character and conserve open space, these goals must be balanced with economic development initiatives that will increase fiscal stability by increasing the non-residential tax base and reducing the tax burden on single-family homeowners.

The policies are divided into four sections: Residential Development, Economic Development, Community Image and Identity, and Open Space, Natural Resources and Community Facilities. These policies, illustrated on Map 6 on page 38, represent the land use directions to be pursued for various areas of the City. However, there are likely to be other areas of the City, which are not specifically identified in this Plan, yet which will be significantly impacted in the future – by new development, future road widening, and/or increased traffic. Therefore, it is important to continually assess areas along major streets and adjoining nonresidential areas so the City is able to respond when existing development patterns are threatened.

Residential Development Policies

Single-family residential uses are, by far, the predominant use of land in Willoughby Hills. The majority of the remaining vacant land, when eventually developed, will be developed for houses. Therefore, it is important to set forth policies that help to achieve the goal of preserving the existing low-density residential character in a manner that permits reasonable use of land while also protecting natural resources and the unique natural features found in the City, and to meet the needs of current and new residents at various life-stages. The specific residential development policies are set forth below:

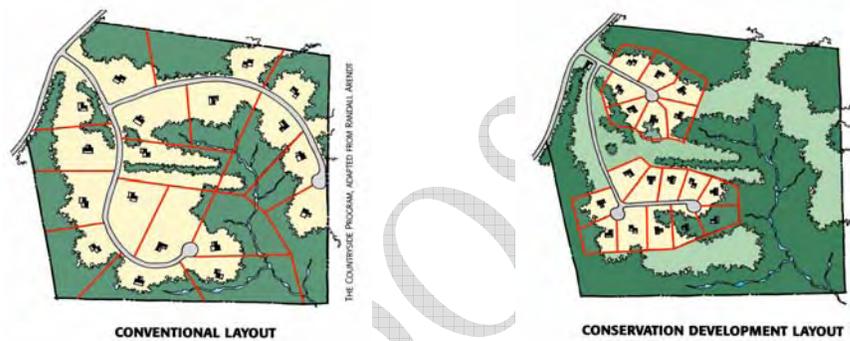
- A. To the extent possible, encourage single-family development at a density of one unit per acre.**
1. Maintain the R-1 Residential District and its current lot regulations including the one-acre minimum lot size and the 100-foot minimum lot width and the minimum 75-foot front yard setback requirement.



Figure 7: River's Edge

2. The Conservation Development Regulations allow for the flexible arrangement of dwellings with a requirement to preserve a portion of the development site as aggregated open space. This is an option to the standard single-family subdivision, and is referred to in this Plan as Conservation Development Regulations.
- a) The purpose of the Conservation Development Regulations is to enable houses to be grouped closer together so that more of the development site can be set aside as open space. Controlling the density while allowing greater flexibility enables developers to design around and therefore conserve landforms, protect important resources such as streams, wetlands, trees, historic elements and other features that contribute to the character and image of the City, and preserve large areas of open space when appropriate. (See Figure 5 below)

**Figure 8
Comparison of Conventional Development
to Conservation Development**

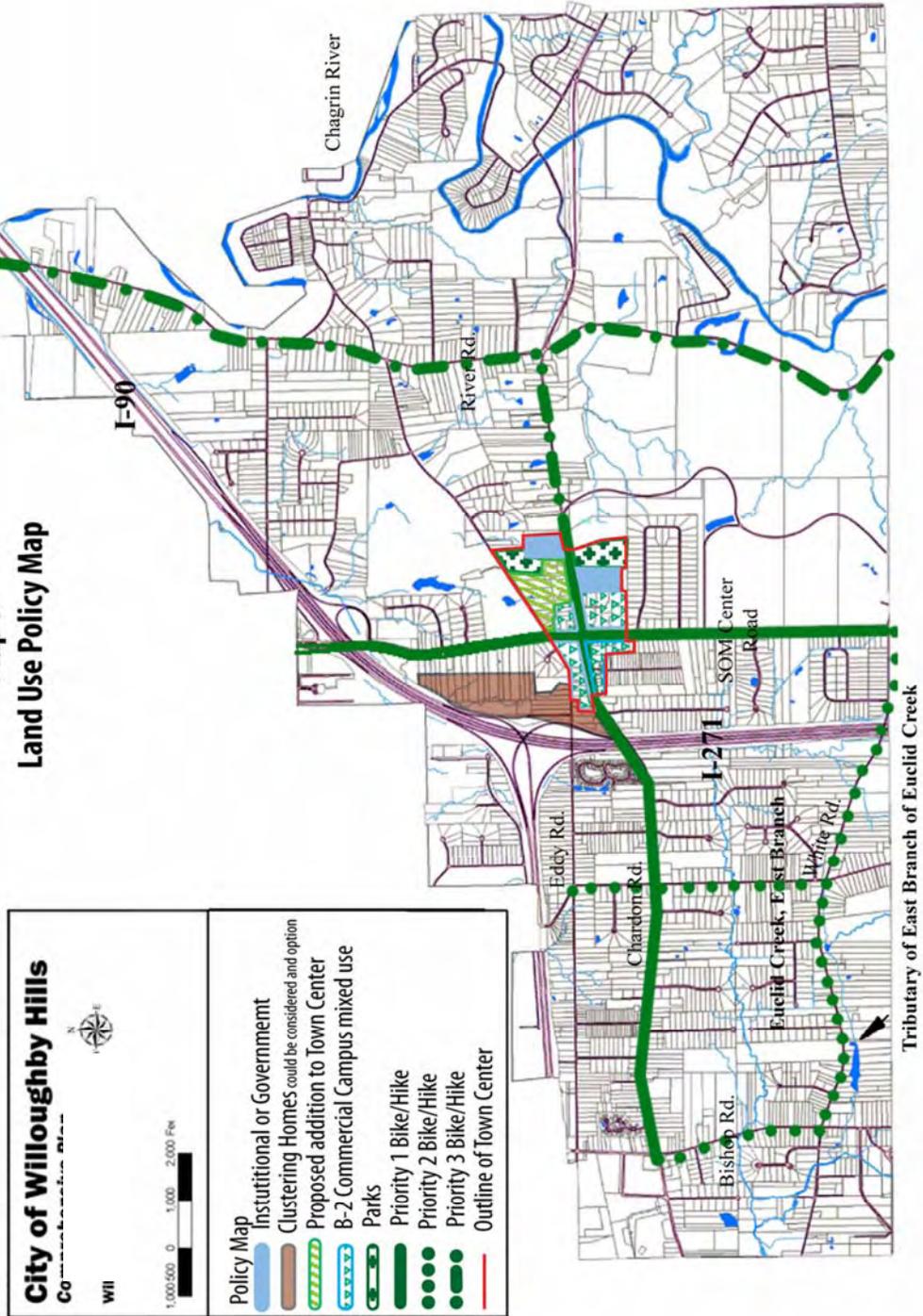


Area	36 acres	Area	36 acres
Lots	18 lots	Lots	18 lots
Undisturbed Open Space	none	Undisturbed Open Space	53%
Road Length	3,808 feet	Road Length	2,072 feet

Source: The Countryside Program, Workbook Section II, Handbook Fact Sheet Graphics.

- b) The principles of conservation development include maintaining an overall density that is the same as what could be achieved in a subdivision comprised of one-acre lots, while preserving a minimum of 35% of the project/development area. More flexibility is permitted in the arrangement of units in order to enable the required preservation of open space.

Map 6
Land Use Policy Map



- c) The land area set aside as open space is referred to as restricted open space since it is no longer able to be developed or subdivided; its development rights having been used somewhere else on the site. Figure 6 indicates the manner in which a development plan would indicate the restricted open space. A mechanism must be established to ensure the perpetual maintenance and preservation of this open space. A homeowners association is the mechanism typically used to achieve this, but other options, such as conservation easements held by a land trust, are available provided the option chosen adequately addresses perpetual maintenance, oversight and liability.

Figure 9
Illustration of Conservation Development and Restricted Open Space



Source: Rural By Design: Maintaining Small Town Character. Randall Arendt, et al. Planners Press, Chicago IL, 1994.

- d) Specific review criteria and procedures enable the City to require dwelling units within a Conservation Development to be arranged in such a way to protect/ conserve the “best” or most environmentally sensitive natural areas of the site. This would be accomplished by establishing design criteria and preservation priorities for the open space. From the City’s perspective, overall priorities for conservation efforts are listed below from highest priority to lowest. To the extent that the existence of natural features varies from one parcel to another, these priorities should be used as guidelines on a site-specific basis.

- (1) Protected Areas
 - Riparian Zones (lands adjacent to rivers and streams)
 - Wetlands and Floodplains
 - Hillside Areas
- (2) Woodlands
- (3) Wildlife Habitat Areas
- (4) Fields, Meadows and Hedgerows
- (5) Scenic Views and Rural Roads via Scenic Corridor Management

(6) Rural Structures (Barns, stone walls, fences, etc.)

As stated above, these preservation priorities are listed in order of overall importance for the City. However, the manner in which the restricted open space is designed and key site characteristics targeted for preservation/conservation should be determined based on their existence on a site-by-site basis. Priorities may also change based on future studies of natural resources by such entities as the Lake County Soil and Water Conservation District. Figure 7 illustrates how the arrangement of the dwelling units and the areas of the site chosen to be protected can vary depending on the priorities chosen by the City and/or developer.

Figure 10
Illustration of How Different Preservation Priorities Can Be Emphasized¹³



Source: *Rural By Design: Maintaining Small Town Character.*

- e) Innovative legislation accommodates “rural sanitary systems,” for example, allowing private septic systems to be located in the restricted open space and utilizing easements to enable the homeowner to maintain his/her system. Since much of the area where the vacant land exists is not now, or expected to be, serviced by public sanitary sewer lines, many new homes will need to install septic systems for waste disposal. The Lake County Health Department regulates the installation of new septic systems, so development within a Conservation Development will need to comply with the Health Department regulations. Depending on the physical characteristics of the parcels on

¹³ This figure is used only for illustrating different ways of locating homes on a site to preserve either the farmland or the woodlands; it is not illustrative of the amount of open space to be preserved in Willoughby Hills. This figure shows approximately 67% of the site being preserved as restricted open space, while the minimum being considered by Willoughby Hills is 20% to 40%.

which development is proposed, i.e., the quality of soils, topography, etc., the number of dwelling units permitted by the Health Department may be less than what the conservation development regulations permit.

3. Encourage coordinated development of backland, behind frontage lots, by promoting use of the Conservation Development Regulations rather than through the use of flag lot subdivisions.

B. Consider alternative housing options including housing and townhouses in selected locations of the City. As the population ages, more and more older adults are seeking housing that features low maintenance (interior and exterior), and quality construction. Another segment of the population that may benefit from increased housing options are young adults who have grown up in the City and wish to remain, but do not desire or can not afford a traditional single-family home.

1. Alternative housing options are appropriate in locations that meet the following circumstances:
 - a) In locations as a transitional use between non-residential zoning/development (either existing or planned) and lower-density single-family areas, specific, definable locations help confine and restrict future expansion of commercial areas.
 - b) In locations that are adjacent to major highways, such as I-271.
 - c) In locations where it may not be reasonable to expect that low density residential can be developed.
2. Mechanisms to enable alternative housing include:
 - a) The R-2 Attached Single-Family/Townhouse Residential District allows for the construction of a variety of units and allows for a density of 4 dwelling units per acre. This is similar to the condominium projects at Pebblebrook and Steeple Run.
 - b) SCR District regulations have been established to permit senior citizen housing. These regulations accommodate the full range of housing needs for seniors, including dwellings for active, independent living, continuing care facilities and options in between, and associated facilities for congregate dining, health care, recreation, etc.



Figure 11: Steeple Run

Alternative types of housing, especially developments that are marketed as senior citizen housing or as high-end luxury units, are not typically occupied by families with children, and so do not increase the burden on the public school system. As such, alternative housing can be considered a form of economic development, since it, like non-residential development, pays school property taxes without adding any associated expense.

Whenever the City determines that due to traffic or adjacent development, some relief from existing low-density zoning is warranted, and the area(s) is not designated for future non-residential economic development, the policy is to promote higher density residential development.

- C. Community facilities are conditional uses** to ensure that they are designed, constructed, and operated in ways that make them compatible with the surrounding residential environment. Currently, community facilities such as churches, schools, museums, and libraries are conditional uses in the single-family residential district. However, these community facilities are less predictable in their size and nature of operations meaning the impacts of such facilities can vary significantly from one type of institution to another.

In districts such as the single-family residential districts where only a narrow range of uses are permitted, the compatibility of community facilities depends on the manner in which they are designed, arranged, sited and operated. Therefore, community facilities are regulated as conditional uses in order to enable the City to thoroughly review each proposed facility, evaluate its impacts, and impose reasonable conditions to manage traffic congestion and noise, and preserve and enhance the surrounding residential neighborhood.

1. The Zoning Code directs the Planning & Zoning Commission as the body to review and approve proposed conditional uses.
2. There are three levels of review criteria to guide the decisions of the Planning & Zoning Commission.
 - a) General subjective review criteria regarding a use's "fit" in the area where proposed. For example, one criterion could be that "the proposed use must be designed to be compatible with the surrounding neighborhood and conform to the purposes of the District".
 - b) Specific regulations that differ from the basic district regulations such as lot width, building setbacks and parking setbacks.
 - c) Unique standards for specific uses such as placement and screening of parking lots, loading areas, dumpsters, etc.

Economic Development Policies

Economic development, which involves attracting new high quality, non-residential development to Willoughby Hills and supporting/enabling the expansion and/or redevelopment of existing businesses in the City, is necessary to increase the tax base and minimize the future tax burden on residential property owners. It is important that this new development occur in appropriate locations where it will have the least impact on adjacent residential uses.

The following policies were formulated to encourage economic development in Willoughby Hills.

- A. Encourage light industrial or "quiet industrial" development** along Curtis Wright Parkway near the airport. This area, which is predominantly vacant, is directly across the street from the Cuyahoga County airport. Since Curtis Wright Parkway serves an industrial

park with existing industrial development on parcels outside Willoughby Hills, it is more suitable for industrial development than for single-family development.

1. The parcels along Curtis Wright Parkway are zoned as a light industrial district in order to prohibit further residential development and to reserve land for additional economic development.
2. Encourage offices and light industrial uses whose operations are conducted entirely indoors.

B. Pursue the concept of a “Town Center” in the Chardon/S.O.M. Center location.

Traditionally, the “Town Center” is the heart of a community, where cultural, social and business activities are typically concentrated. Also, it is often the most identifiable physical expression of that community’s identity. Therefore, establishment of such a place is critical to conveying the City’s image to the rest of the world and creating a sense of community for current residents.

There already exists a substantial amount of commercial and office development at or very near the intersection, which is sufficient to provide the nucleus for the Town Center. The City Hall, police station, new fire station, the Community Center at Roemisch Field, and St. Noel’s Church are congregated at the eastern end of the Town Center area located between City Hall and the Chardon/S.O.M. Center intersection.

1. Elements of a “Town Center” include:
 - a) A mix of civic, retail and offices uses that are concentrated enough to encourage pedestrian activity and interaction among the uses. Commercial uses and public/semi-public uses already exist in this area and should be considered as types of “anchors” or focal points for the Town Center.
 - b) An integrated, functional and attractive environment achieved through design guidelines that require continuity and compatibility of signage, landscaping, building design and circulation.
 - c) Uses that are centered around or visually and functionally linked to some type of design feature, either open space or public plaza, which serves as a community focal point.
2. The “Town Center” policies are summarized below and are illustrated on Map 7 on page 58.
 - a) Establish the “Town Center” boundaries to include land east along Chardon Road to City Hall and along Eddy Road from SOM Center east to Campbell Park in order to link the existing government and park facilities with the commercial center
 - b) Utilize the existing commercial and office development and public uses as “anchors” to begin to organize and design the Town Center.
 - c) Whenever the opportunity presents itself, continue to concentrate similar civic, public/semi-public uses in the Town Center area. The public investments that

have been made for the fire station and for the Community Center can be a catalyst to help create and organize the Town Center.

- d) Encourage development and redevelopment of the area, with slightly higher density than what is currently permitted, while maintaining a more campus-oriented development characterized by an abundance of green space.
- e) Encourage development closer to the road by permitting additional height for buildings located further from single-family homes.
- f) Non-single-family development in this area should be oriented so that it fronts on S.O.M. Center Road, Chardon Road or Eddy Road to help protect the single-family environment that surrounds this center.
- g) Increased rear development standards – building and parking setbacks and screening requirements - provide greater protection to abutting single family development.
- h) Primarily rely on private development to provide the necessary supporting uses. Ensure that private development is consistent with the specific design and development standards formulated for this area. Any new development should be visually and functionally linked to the existing facilities.

C. Promote a more traditional Mixed-Use Commercial Center in the Bishop/Chardon Road commercial area (centered around the “Shops of Willoughby Hills”). This area already has a variety of uses that co-exist.

1. Elements of a more traditional Mixed-Use Commercial Center include:
 - a) Multi-story buildings (more than 2) that are devoted to retail uses on the ground floor and offices and/or residential uses on the upper stories.
 - b) Higher density compact development that is concentrated enough and properly designed to encourage pedestrian activity and interaction among the uses. Multi-family higher density buildings surround the current “big-box” commercial development but because each was independently developed there are few intentionally/pleasantly designed pedestrian connections.
 - c) Integrated design elements including signs, landscaping, building design and circulation that establish an attractive, pleasant environment.
 - d) Uses that are centered around or visually and functionally linked to some type of community focal point or public gathering space that enables and encourages more social interaction.
2. Policies for this area are summarized below and illustrated on Map 8 on page 51.
 - a) Confine the “Mixed Use Center” area to the existing commercial uses and commercial district boundaries.
 - b) Encourage higher density compact development only on the northwest quadrant where buildings are desired to be occupied by a mix of uses, including offices, retail, restaurants, residential, and entertainment.

- c) Maintain the existing lower density character along the east side of Bishop Road and the south side of Chardon Road.
- d) Develop standards that require buildings to be located closer to the street with parking areas located behind or to the side of the buildings or in parking garages to reduce the visual impact of cars;
- e) Promote increased density through allowance for taller buildings (above the two story limit) in return for constructing parking structures in order to reduce the amount of surface parking.

D. Enhance these two “Centers” to create, in each location, a unique sense of place that contributes to the overall identity and image of the City. While the two existing commercial centers have very different functions, characteristics and surroundings, the following development policies are appropriate for both locations to help establish and enhance a “Willoughby Hills” image and identity:

1. Establish detailed site development standards, such as increased landscaping requirements, and improved vehicular/ pedestrian circulation patterns;
2. Require design elements for signs, landscaping, etc that are common to both centers to help ensure continuity;
3. Require pedestrian oriented amenities to encourage walk-able environments; and
4. Design guidelines to enable more detailed review of buildings and public spaces.

E. The South Side of I-90/S.O.M. Center interchange area is an office and retail environment to take advantage of the prime location at the interchange. Offices are already located at the southwest quadrant of the interchange. Across the street at the southeast quadrant there are three auto dealerships. This area is a prime gateway into the City for those who travel I-90. High quality offices that are similar in character to the existing office development will enhance both the tax base and the City’s image.

F. Continue to promote the Northeast Quadrant of the I-90/S.O.M. Center interchange area as a high density mixed-use commercial environment to take advantage of the prime location at the interchange. The BP gasoline station is already located just north of the exit ramp and there is still some developable land along Maple Grove Road, between the Willoughby border and the I-90 highway. This area is a prime location for additional economic development and new commercial and office development would be sufficiently bounded by the highway to have no impact on the existing residential development in Willoughby Hills.



Figure 12: The Cleveland Clinic Foundation

G. Maintain but do not expand the small **commercial site** on Chardon Road. Chardon Road is predominately residential except for a few sites. These commercial structures predate the zoning and the commercial zoning designation was given to avoid creating a nonconforming situation.

1. The B-1 Limited Commercial District, which allows a limited range of nonresidential uses, applies to the area at Chardon Road, Orchard Drive and Cricket Lane.
2. Development standards were established to accommodate the existing commercial development along Chardon Road.
3. Encourage the existing structures to be properly maintained.



Figures 13 and Figure 14: Scattered Commercial Businesses on Chardon Road

Community Image, Identity, and Community Facilities

Improving Willoughby Hills’ image and community identity starts with improving the “front door” appearance. The entrances into the City and the quality of development along the major highways, the routes most travelers take through the community, establish the City’s image and, rightly or wrongly, create a perception of the overall quality of the community. In addition, a resident’s pride in his/her community is tied to the quality of his/her immediate neighborhood.

A major focal point – like the “Town Center” discussed previously – helps to create a sense of community for current residents and convey the City’s image to the rest of the world since it is often the most identifiable physical landmark of the community.

The following policies seek to improve Willoughby Hill’s image and identity:



Figure 15: Fifth Third Bank

A. Promote higher quality development.

1. Improve/maintain the quality and character of streetscapes and buildings located at City entrances, gateways and key intersections, and along important corridors, by enhancing the visual characteristics of areas that serve as the City’s “front door”.

2. Promote landscaping and streetscape standards for commercial areas. These standards address screening of parked automobiles, sign regulations, requirements for street trees, and the required/preferred types of landscaping and plants, which together serve to create a cohesive area.
 3. Adopt a residential maintenance code to ensure that, once constructed, buildings and their sites are properly maintained. A residential maintenance code would address issues that are not regulated by the zoning or the building code. It would include grass cutting, weeds, painting, staining, overall aesthetics of the property and outdoor storage visible from the street.
- B. Create an improved community image for residents and non-residents when they think of Willoughby Hills, such as the “Garden Spot of Lake County.”**
1. Encourage residents to invest in properties to improve overall city appearance.
 2. Encourage “city cleanup” programs that aim to do things like reduce litter or to cleanup city gateways.
 3. Work toward improving existing older neighborhoods, and enhancing the quality of new neighborhoods.
 - a) Upgrade existing roads to current engineering standards including installing curbs and gutters, where needed, and re-surfacing/rebuilding roads to meet minimum width requirements.
 - b) Plan and implement upgrades to existing neighborhoods so that they occur concurrently. For example, when the installation of sanitary sewers are planned and additional improvements such as sidewalks at the Town Center and at the Bishop-Chardon commercial area, bikeways, re-paving or installation of a curb and gutter system are also desired, then all the improvements should be done at the same time to help minimize the negative impacts of such construction.
- C. Create a greater sense of community among residents by establishing a “Town Center”** in the Chardon Road/S.O.M. Center Road area as previously described. It is important that the Town Center be a place where people can congregate for many reasons, both formally in scheduled events and informally in spontaneous events; where people in the community can relate and gain a sense of civic pride.
- D. Focus transportation improvements on key corridors and at key gateways** to improve traffic flow and circulation. Manage traffic at intersections instead of widening streets for capacity; limit new curb cuts and consolidate existing curb cuts to permit signalization if warranted, particularly along Bishop Road, Chardon Road and S.O.M. Center Road.
- E. Promote the development of continuing education such as colleges and career centers in Willoughby Hills.** Schools are community facilities that spur community pride and interest. The City's location on two major intersections and its accessibility makes it a desirable location.
- F. Establish partnerships with other jurisdictions/agencies on regional issues.** As communities become more aware of issues such as traffic, storm water management, open

space and hike/bike networks that extend beyond the invisible boundaries that divide one city from another, it becomes more important to work cooperatively to jointly seek solutions to these issues.

- G. Work cooperatively with adjoining communities** to ensure that the impacts of development along the city’s borders are properly managed to the benefit of all affected property owners.

Open Space, Natural Resources, and Recreation

Residents in the City of Willoughby Hills are fortunate to have two of the region’s natural jewels in their community. The North Chagrin Reservation, which is part of the Cleveland Metroparks Emerald Necklace, and the Chagrin River Valley are significant resources. Increasing access to these community facilities and protecting these treasured environments are key goals for the City.

- A. Create and encourage the use of green space and pedestrian/bikeway networks throughout the community.**

1. Create a solid network of bike, pedestrian, bridle or other type of paths/trails between the City’s neighborhoods and the various recreational venues within the city.
2. Encourage linkages with neighboring cities and their bike/hike systems and implement strategies/systems that complement adjoining systems to ensure maximum compatibility and to create a truly regional approach to recreational trails.



Figure 16: Create Biking and Hiking System

3. Priority for the bike/pedestrian path should be as follows:
 - a) Any state route in which the state is willing to include money for bike/pedestrian paths should be a first priority. More specifically, these include Chardon Road from the Richmond Heights border to the North Chagrin Metropark and S.O.M. Center from the Mayfield border to the Willoughby border.
 - b) Absent state funds, if the City chooses to provide bike/pedestrian paths on their own, project funding should be prioritized in this order:
 - 1) Phase I: A separated “Class I” bike trail system¹⁴

- Along Chardon Road from Bishop Road to Buttermilk Falls Parkway; and
- Along S.O.M. Center connecting to the existing Mayfield bike route and leading north to Willoughby.

This system should be separated from the roadway and capable of two-way bike/pedestrian traffic. North of Chardon Road, the path could be located along or near the I-271 right-of-way. While it may be difficult to construct a bike path over the I-90 expressway, this should be a priority connection in order to provide a link to the larger regional hike/bike network.

- 2) Phase II: A combined “Class II” bike system¹⁴
 - Along Rockefeller Road, between Chardon Road and Eddy Road;
 - Along White Road to S.O.M. Center Road;
 - From White Road to Chardon Road via Rockefeller Road.
 - And completing the loop with a link from White Road to Chardon Road via Bishop Road.

This system may be a painted shoulder attached to the roadway capable of separating two-way vehicular traffic from bike/pedestrian traffic.

- 3) Phase III: River Road (SR 174) separated “Class I” system¹⁴ that runs the length of Route 174 to accommodate bike traffic on the east side of Willoughby Hills. There should be a connector from Route 174 to the Chardon Road separated system at Buttermilk Parkway. Due to the nature of Route 174, this system should be separated from the roadway and capable of two-way bike/pedestrian traffic.

- c) Despite the priorities listed above, the City should stay abreast of potential funding opportunities and be ready to pursue any of these desired links when available funding dictates one route over another, even if the potential route is not the highest priority.

4. New residential developments that are built adjacent to an existing or proposed bike path should provide connections to the path to enable residents to take advantage of the network system envisioned.

¹⁴For definitions and selection criteria see Appendix D, page 91

B. Specific development restrictions have been enacted that protect environmental resources. They apply to some undeveloped areas within the Chagrin River Valley's adjacent floodway and stream banks. In addition to the open space requirement for Conservation Development, regulations were adopted that apply to all development in the vicinity of the various natural resources to be found in the City. The following forms of environmental regulations were formulated to protect lands adjacent to rivers and streams and to help prevent the proliferation of development related impacts such as flooding.

1. Riparian setbacks along rivers and streams, which would prohibit development within the setback. The required setbacks are related to the quality of soils and slope of the riverbank.
2. Buffers around designated wetlands.

The City should be guided by the policies already established for the Chagrin River by the Chagrin River Watershed Partners. These regulations should have sufficient flexibility to preserve property rights and enable the City, when reviewing a project, to determine which natural features and open space areas are most important to protect.



Figure 17: Natural Areas in the Riparian Corridor along the Chagrin River

- C. Promote the maintenance and upkeep of natural areas** (i.e. through flood prevention measures, etc.) in the Chagrin River area, so that the environment is preserved for future generations. Proper management and maintenance of these natural areas is key to the preservation of the community's natural heritage and historic landscapes as well as enabling opportunities for recreational use of the River.
- D. Promote, enhance, and strengthen the existing municipal active park space.** The City has municipal multi-purpose fields that act as a community gathering spot for residents, especially families with children, who actively participate in baseball, softball and/or soccer leagues, to name a few. It is important that these facilities are maintained and strengthened, and that the City develops a plan for long-term improvement.
- E. Work cooperatively with adjoining jurisdictions** to develop a comprehensive storm water management plan that complies with the federally mandated Storm Water Management Phase II requirements.

Proposed

C **hapter 6: Districts & Implementation Strategies**

This comprehensive plan accomplishes two things: it serves as a guide for future land use decisions and it states the City's goals for future partnerships and relationships that have a direct effect on the quality of life and development in the City. The following are implementation measures needed to achieve these policies:

- ❖ Zoning Districts
- ❖ Zoning Text and Amendments
- ❖ Administrative Policies and Procedural Changes
- ❖ Non-Zoning Implementation Steps

Zoning Districts

Zoning is the City's fundamental tool to accomplish many of the land use policies in this Plan.

Table 9 indicates the-current zoning districts enacted in 2006.

**Table 9
Zoning District Summary**

<u>Current Zoning Districts</u>	<u>Districts Established in 2006</u>
R-1	Single-Family Residential
R-2	Attached Single Family/Townhouse
SCR	Senior Citizen Residential
M	Multi-Family
M-1	High-Rise Apartment
B-1	Light Commercial
B-2	Commercial/Mixed Use
B-3	High Density/Mixed Use
E	Research and Office
I-1	Industrial

Zoning Text and Amendments

A number of new zoning districts have been established to achieve specific goals and objectives. Suggested amendments involve modification and addition of new development standards. Development policies are intended to serve as a guide and should be evaluated further by the

Planning Commission and Council at the time the Zoning Code is amended to ensure that the appropriate standards are ultimately adopted.

Amendments to the City’s zoning code are necessary to ensure that the regulations enable development to occur according to the policies stated in this plan.

A. Residential District

1. R-1 Traditional Single Family District provides for clarity and distinction between this district and the other residential districts.
2. As a development option in the existing R-1 District, utilize the Conservation Development Regulations for the flexible arrangement of dwelling units in order to maximize preservation of open spaces and significant natural features, while maintaining the same number of dwelling units that would otherwise be permitted for standard lot development.

The key regulations for Conservation Development include:

- a) Regulations that permit the same number of dwelling units in a conservation development as would be achievable in a standard subdivision. One way to determine the potential number of dwelling units for a particular development is a maximum density that replicates the typical density of a standard subdivision. For example, a maximum density of about 0.85 dwelling units per gross acre for a conservation development approximates the effective density of a standard one-acre lot subdivision. The effective density, as shown in Table 10, takes into consideration the land area within a subdivision that is devoted to roads and the fact that not all of the lots in a subdivision are exactly one acre in size. The minimum project size is 10 acres.

For example, a 100-acre parcel, subdivided into one-acre lots, will typically yield 85 lots. Many of the lots will be larger than the one-acre minimum and a portion of the 100 acres is used for road right-of-way.

**Table 10
Determination of Approximate Effective Density**

Statistical density per acre	1.00 unit per acre
Minimum lot area	43,560 sq feet (1 acre)
PLUS additional area devoted to road per lot (based on lot width x ½ right-of-way)	+ 3,000 sq feet 100 ft x 30 ft
Subtotal	46,560 sq feet
PLUS inefficient lot layout*	+ 4,656 sq feet (+10%)
Total area assigned to lot	51,116 sq feet
Effective density per acre	0.85 unit per acre
* The inefficiency of a development varies depending on the size and shape of the development site.	

The total number of permitted dwelling units for a particular project would be determined by multiplying the total project area by the permitted density. This is an easy calculation to determine the development potential of a project.

However, this manner of determining density would not be a guaranteed number of dwelling units since the topography and other natural features on a parcel must also be assessed, see item d) below.

- b) A minimum of 35% of the project area is required to be designated as restricted open space and all such open space is restricted (that is, prohibited) from future development.
- c) Utilize design criteria and priorities for the layout and design of the restricted open space so that the project preserves the site's worthy natural features in a way that achieves the goals of the Conservation Development Regulations. This list of priorities mirrors the priorities in the Policy section of this Plan, and reflects the overall desires of the community. However, priorities on a specific site may vary if the City feels that certain natural features are more significant on a particular piece of property.

Priorities for conservation efforts are listed below, from highest to lowest priority:

- (1) Protected Areas
 - Riparian Zones (lands adjacent to rivers and streams)
 - Wetlands and Floodplains
 - Hillside Areas
- (2) Woodlands
- (3) Wildlife Habitat Areas
- (4) Fields, Meadows and Hedgerows
- (5) Scenic Views and Rural Roads via Scenic Corridor Management
- (6) Rural Structures (Barns, stone walls, fences, etc.)

These preservation priorities are considered based on their existence on a site-by-site basis. They may also change based on future studies of natural resources by such entities as the Lake County Soil and Water Conservation District.

- d) Many times with a lot size of one acre or more, some difficult areas can not be incorporated into a standard single-family lot. Therefore, to encourage conservation development as an alternative to conventional single-family subdivisions, there are regulations in the Zoning Code that recognize, depending on the size, shape and location of wetlands, water bodies, floodplains, and hillside areas. Those features may, or may not, limit the development potential of a site. Land in wetlands, water bodies, floodplains and hillside areas are counted toward an overall density when they are protected as part of the open space network, and do not exceed the required amount of restricted open space. This recognizes that in a standard one-acre lot subdivision, many times, smaller areas of floodplain, etc. can be included in a lot's rear yard without affecting the overall density.

- e) Allowing units to be arranged/grouped closer together within the project while ensuring that a sufficient setback is maintained along existing streets and the perimeter of the project in order to create an adequate buffer area when adjacent to standard single-family lots by:
 - 1) Utilizing both standard setback regulations (in the event individual lots are included) as well as separation requirements for “building envelopes” since the standard setbacks work only when lot lines exist. The standards should achieve the same results in terms of the distances between homes.
 - 2) The option for private streets and, in certain situations, a reduced right-of-way width for internal public streets and reduced front setbacks along such rights-of-way enables more flexibility and a greater ability to achieve the open space requirements.
 - f) The perpetual maintenance of restricted open space is required. Included are requirements for the establishment of a mechanism such as a homeowners association to protect and maintain the open space. This can also be achieved alternatively through the involvement of a land trust or other type of conservation organization that agrees to be responsible for the maintenance of the open space. The homeowners association covenants and restrictions are to be submitted at the time the proposed project is reviewed by the City and reviewed and approved by the Law Director as a condition of approval of the entire project.
 - g) Review of projects by the Planning Commission is required to ensure that the objectives of the Conservation Development Regulations are accomplished within the proposed development.
3. R-2 Single Family/Townhouse Residential District permits higher density townhouse or cluster development to act as a logical “step down” transition next to a more intense use where single family, one-acre lot minimums may not be realistic, but a residential environment is still desired by the community:
- a) Single family attached or detached units are permitted at a similar density to those developments that are already located in Willoughby Hills – Pebblebrook and Steeple Run (maximum density of 4 units per acre).
 - b) A minimum project size of 3 to 5 acres is required so that there are at least 12 to 20 units to a project, which is large enough to create a sustainable residential environment.
 - c) A minimum of two parking spaces per dwelling unit, with one enclosed, is required.
 - d) Strict buffering along project boundaries that adjoin commercial development or single-family development is required.
4. SCR Senior Citizen Residential District permits the type of development typically desired by older adults whether it be in a multi-family environ, an attached single-family environ, or a detached single-family environ.
- a) A 10-acre minimum project size is required.

- b) A maximum density ranging between 4 and 10 units per acre depending on site location, surrounding characteristics, and if the development is of a cluster or attached single-family nature, is permitted.
 - c) Development regulations have been established that recognize the potential for reduced housing needs of senior citizens when the housing is reserved for older persons according to the Housing for Older Persons Act of 1995 as specified in the Fair Housing Act:
 - d) When used as a transitional use between commercial and low density residential, the highest intensity use should be located closest to the commercial areas, and the intensity should logically flow to the lowest intensity use adjacent to the low-density residential land. This should be part of the consideration in the site plan review process.
5. Protected Area environmental regulations such as riparian setbacks and wetland buffers that protect sensitive natural areas by prohibiting development within a certain distance of these features have been established.

Proposed

B. Nonresidential District Changes

In order to properly regulate and manage the various types of retail, office, industrial, and mixed-use developments prescribed in these policies, it was necessary to create separate and distinct zoning districts for each nonresidential district. It is further proposed that a town center should be created to formalize the Chardon Road and S.O.M. Center area.

- 1) The B-2 Commercial Campus/Mixed Use District located at the Chardon Road and S.O.M. Center Road intersection is the ideal location for a designated Town Center. See Map 5 on page 25 in Chapter 2 for an indication of the boundaries of the B-2 District
- 2) The addition of a designated Town Center provides for a large commercial area that would be appropriate along Chardon Road, including the existing B-2 district, to City Hall and along Eddy Road from S.O.M. Center Road east to Campbell Park. (See Map 7, page 58).
 - a) The Town Center should be campus-style:
 - It should be user-friendly and pedestrian-accessible from all sides.
 - Buildings should be attached and closer to the street.
 - The number of curb cuts should be limited. Parking should be in the interior.
 - This area connects to the parks and the municipal center. There could be a cart path from Manakiki Golf course.
 - Potential uses such as art festivals should be explored.
 - Outdoor storage should be prohibited.
 - b) It is important to treat all of the Town Center as one, blending the existing architectural style into the new district. Examples of architectural styles can be found in Chapter 7 Architectural Features. There are features in existing buildings in the Town Center that should be considered, for example the cupola on Community Center, the quoins on the office buildings on the southwest corner of Rt. 91 and Chardon Road, and the Animal Hospital on Rt. 91.
 - c) In order to ensure a more pedestrian-oriented atmosphere within the “Town Center”:
 1. Create a substantial green area along the existing streets.
 2. Encourage the building site layouts, parking and on-site vehicular and pedestrian circulation to logically relate to adjacent parcels.
 3. Encourage connecting parking lots among the building owners to encourage parking away from the street. Pedestrian walkways should be encouraged.

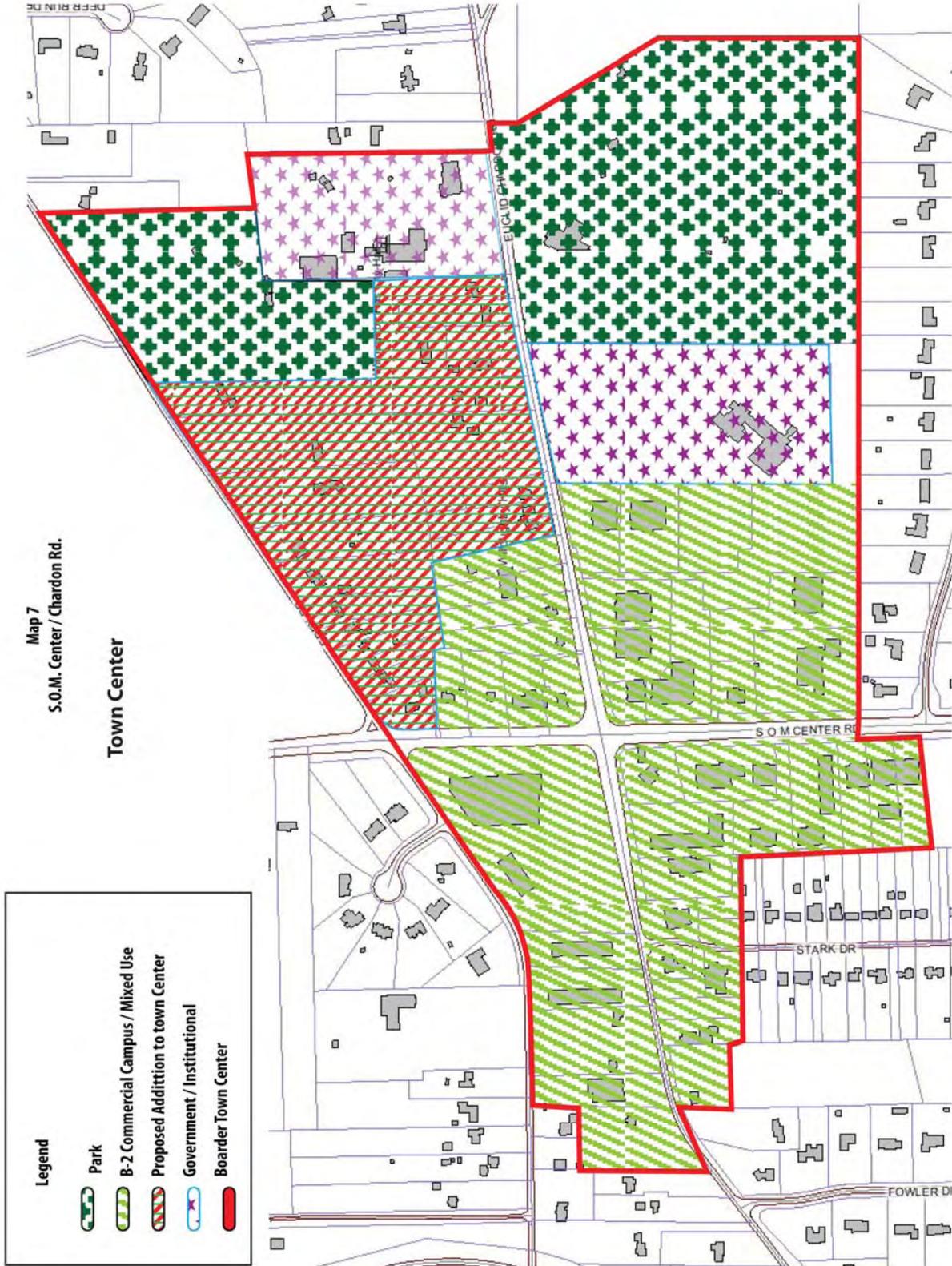


Figure 18
Pedestrian Walkway for the Proposed Town Center District



- d) The Proposed Pedestrian Walkway runs along Chardon Road from the far west side of the Town Center across S.O.M. Center Road and continues to the Community Center. (See Figure 18)
- e) Landscaping and planting requirements need to be enhanced in the following locations:
1. Along street frontages and in front of buildings.
 2. Along the perimeter of parking lots to soften their appearance.
 3. In the interior of parking lots to reduce the large expanse of pavement.
 4. Where possible, storm water management and landscaping/buffering should work together. Landscaping islands and front or side yard setbacks could provide for integrated retention systems into them while still providing the landscaping desired by the community. Use of rain gardens is encouraged. This will help to minimize the impact of development on surface water runoff and flooding.

- 3) The current B-3 High Density/Mixed Use District applies to the northwest quadrant of the Chardon Road and Bishop Road Intersection. It is important to have current redevelopment standards appropriate for the existing shopping area. See Map 8 on page 60 for an indication of the boundaries
 - a) Redevelopment should reflect architectural guidelines and aesthetic site layouts and landscaping.
 - b) Encourage joint venture parking structures and parking lots to encourage parking away from the street.
 - c) Pedestrian walkways should be encouraged. See Figure 19 for an example of pedestrian walkways for these districts.

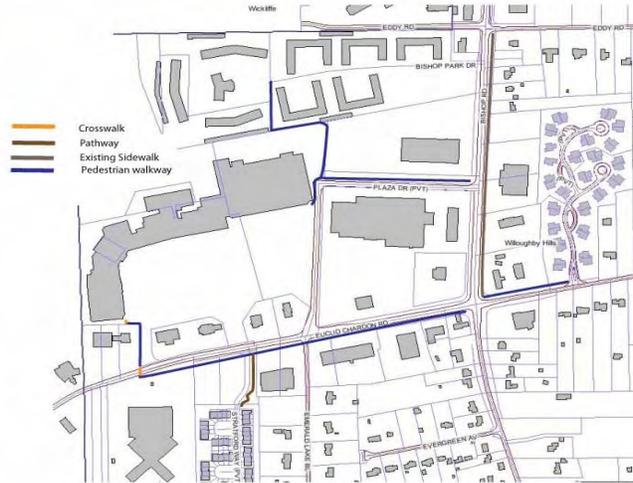
Proposed

Map 8
Commercial / Mixed Use District
(Bishop/ Chardon Road)

-  B-1 Limited Comercial
-  B-2 Commercial Campus /Mixed-use
-  B-3 High Density / Mixed-use Commercial
-  R-2 Attached Single Family /Townhouse
-  M Multi Family
-  M-1 High Rise Apartments



**Figure 19: Pedestrian Walkway for
Bishop / Chardon Road**



C. Administrative / Procedural Changes

1. Property Maintenance¹⁵

The intent of the Code is to: provide requirements addressing the public health, safety and welfare as they relate to the use and maintenance of structures and premises; preserve the physical character of the city of Willoughby Hills; and protect the appearance of property and real estate within the city from impairment or destruction of value.

Establish minimum requirements for the maintenance of property, premises and structures.

- a) Require that repairs, alterations and installations be executed in a skilled manner.
- b) Require that grass and weeds be kept at a height to reduce rodent shelters and pollen problems.
- c) Establish simple, straightforward requirements that the exterior areas shall be clean and free from rubbish and garbage.
- d) Require that all walkways, stairs, driveways, parking spaces etc., are useable and kept in proper repair.

¹⁵International Code Council, International Property Maintenance Code: Commentary 2006. Country Club Hills, Illinois: International Code Council, Inc., 2007

- e) Require that accessory structures, including detached garages, fences and walls, pools spas and hot tubs are maintained in good repair.
- f) Require that the exterior of a structure shall be maintained in a good repair, structurally sound and sanitary.
- g) Provide for administration, enforcement and penalties.

2. Storm Water Management ¹⁶

a) Planning Guidelines for Stormwater Management

Members of planning and zoning commissions routinely review site plans for new construction to determine compliance of a proposed development with land use regulations. A major consideration of the site plan review should be the proposed development's impact on water resources, particularly from stormwater runoff. Site-by-site evaluation of stormwater plans can be greatly improved and facilitated by having a set of guidelines clearly stating the key management principles that the commission wants developers to address in the site plan.

b) Recommendations for Stormwater Systems that Protect Water Quality also should promote an educational forum for residents and developers. The importance of educating the public cannot be understated.

- The importance of water quality as well as water quantity needs to be considered.
- The amount of impervious area to be created should be minimized.
- It is important to maintain consistency with the local Comprehensive Land Use Plan and any existing watershed management plan.
- Stormwater management practices should be coordinated with erosion control measures and aquifer protection.
- Disturbance of natural grades and vegetation, and use of existing topography for natural drainage systems if adequate should be minimized.
- Natural vegetated buffers along water bodies and wetlands should be preserved.
- Homeowners can also help protect the water quality and quantity by incorporating simple measures such as rain gardens.
- Infiltration of cleansed runoff to appropriate soils should be maximized. The city should investigate ways of controlling polluted run off from roadways.
- Peak flow should be reduced to minimize soil erosion, stream channel instability, flooding, and habitat destruction.

¹⁶ "Stormwater and Your Community", AEX-442-00, Ohio State University Fact sheet, Agricultural Engineering. <http://ohioline.osu.edu/aex-fact/0442.html>

- Wetlands and water bodies can be used to receive or treat runoff only when it is assured that these natural systems will not be overloaded or degraded.
- Maintenance schedules for management practices, including designation of maintenance responsibilities are necessary.

3. **Wind and Solar** ¹⁷

Create specific review criteria and the procedure for review of Solar Energy and Wind Turbines.

- Draft zoning that balances the rights of participating landowners with the rights of non-participating landowners
- Create user-friendly permit application forms and review procedures for Photovoltaic (PV) solar devices. PVs are currently defined as devices able to generate an electric current or voltage when exposed to visible light.
- Adopt flat permit fees or fee waivers for PV energy system and small wind systems.
- Incorporate information about wind energy opportunities into municipal comprehensive planning.
- Establish small wind turbines as permitted uses, with appropriate design guidelines, performance standards and review procedures.
- Ease permitting processes by establishing statewide interconnection standards and educating building and electrical inspectors about proper installation procedures for distributed renewable energy systems.
- Do not re-invent the wheel. Examine existing zoning language that may be applicable for wind and solar.

¹⁷James Damon, "Wind Development in Ohio – The Planner's Role" WEBINAR power point presentation sponsored by the Ohio Planning Commission: 2008

Concepts Proposed for Adoption

The Planning Commission recommends the following concepts be adopted in order to implement the development policies outlined in Chapter 6: Districts and Implementation Strategies. Map 9 on page 69 identifies the areas where these suggested concepts are located.

A. The Town Center Concept

The Town Center area would be defined as the B-2 Commercial Campus/Mixed Use District located at the Chardon Road and S.O.M. Center Road intersection with the addition of a designated Town Center provides for an expanded commercial area that would be appropriate along Chardon Road, including the existing B-2 district, to City Hall and along Eddy Road from S.O.M. Center Road east to Campbell Park. See Map 9 on page 69. This concept is how the Planning Commission sees the city in the next ten years.

1. Development Concepts for the Town Center

- This is a prime area for development that would serve the local community.
- We recommend designed growth. The area should not be left to random, piecemeal development.
- There is already a step down built-in (buffer) in place at Campbell Park to the east on Eddy Road, institutional and government buildings on the north side of Chardon Road and the Community Center, Roemisch Fields and St. Noel Church on the south side of Chardon Road.
- A plan for the entire area should be developed.

2. Planning Concepts for the Town Center

- It should establish a user-friendly, comfortable, park-like setting.
- It needs to be strictly zoned to prevent 'big box' development.
- We visualize it as mixed-use area with attached buildings and parking in the center.
- Pedestrian Walkways would connect the business areas to the parks.

B. Opportunity for a Conservation Development (R-1 or R-2 District)

The identified area would be accessed west of Rt. 91 off Eddy Road. It runs along the freeway (I-90) to north and encompasses approximately 42 acres.

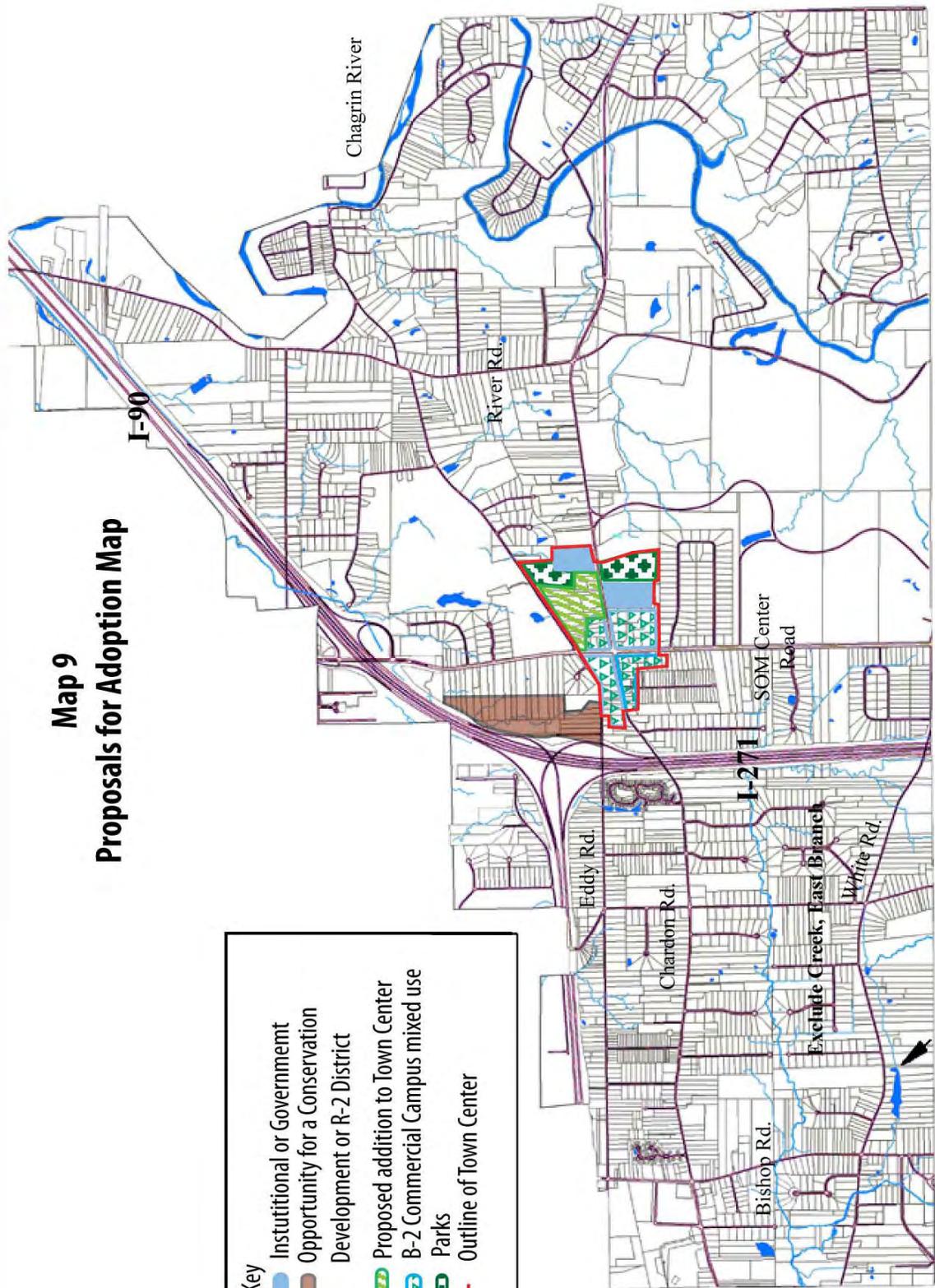
- It would provide relief to home owners with acreage facing Rt. 91.
- It allows for flexible development.
- It would create a buffer between the freeway and the R-1 Residential properties to the east.
- It would protect and retain the look of Willoughby Hills as you drive along Rt. 91.
- It would be a good use of land along the freeway.

C. Bishop Road and Chardon Road Commercial Area

We are encouraging redevelopment of the area that should reflect architectural guidelines and aesthetic site layouts and landscaping as enumerated in Chapter 6.

Map 9 Proposals for Adoption Map

Map Key	
	Institutional or Government
	Opportunity for a Conservation Development or R-2 District
	Proposed addition to Town Center
	B-2 Commercial Campus mixed use
	Parks
	Outline of Town Center



Tributary of East Branch of Exclude Creek

Non-Zoning Implementation Steps

Some of the policy recommendations identified in Chapter 5 cannot be addressed solely through zoning. Therefore, in addition to the various zoning text and map amendments recommended in the previous sections, the following measures should be pursued to further implement the policies included in this Plan.

- A. Work with the Northeast Ohio Areawide Coordinating Agency (NOACA) to secure funding for multi-modal transportation improvements.
 - 1. Work with the State of Ohio DOT and NOACA to secure TEA-21 or other transportation grant money to include bike/pedestrian paths in state planned road improvement projects.
 - 2. Make fiscal contributions to a bike/pedestrian fund to ensure money is available for matching funds on such projects if necessary.

- B. Create a greater community identity by:
 - 1. Establishing design guidelines including:
 - a) Building design guidelines to encourage facades that attempt to replicate a neo-traditional Town Center environment, regardless of the size of the buildings.
 - b) Sign and landscape planting guidelines to help create common themes and unity between the three major commercial areas of Willoughby Hills.
 - 2. Promote programming that helps to strengthen the external image of Willoughby Hills. Programs could include:
 - a) Code enforcement program.
 - b) General neighborhood improvement program.
 - c) Storefront renovation program.
 - d) Public streetscape improvement program to install special sidewalk treatments, banners, street furniture in the commercial districts.
 - e) Residential maintenance code.
 - 3. Promote programming that helps strengthen the internal quality of Willoughby Hills. Programs could include:
 - a) Expanded recreational programming (city funded or externally funded by leagues).
 - b) Enhanced community pride by improving the physical appearance of structures and sites within the City.

Proposed

Chapter 7: Architectural Features

Examples of Western Reserve architectural features appropriate in the commercial areas of B-1, B-2, and B-3 and in the Town Center are shown below. Each of the architectural features (AF-) in the figures are labeled and described (see numbered items). The guidelines identify a series of pre-existing building types. By using the AF-, a consistent pattern can be created for new buildings, renovations and additions.

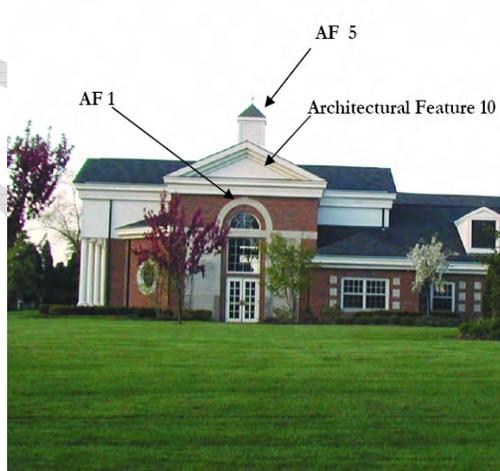
These guidelines are intended to assist property owners, business owners and their architects in preparing plans for projects in the City's commercial areas. These guidelines will be used by the City Planning Commission and Architectural Board of Review when reviewing projects in and around commercial areas. A project in one of the City's commercial areas may require several levels of review. The City Planning Commission conducts a site plan review for all new buildings. The Architectural Board reviews the design of new construction and additions or exterior alterations to existing buildings. Signage and landscaping is also reviewed by the Architectural Board.

Examples of Architectural Features (AF-)

(AF-1) Arch - Elliptical shape above doors and windows. Major feature elements include keystone, impost, springing line, head trim and crown.



Example: Figure 20



Example: Figure 21

(AF-2) Baluster - A short post or pillar in a series supporting a rail or coping used as a canopy or roof feature.

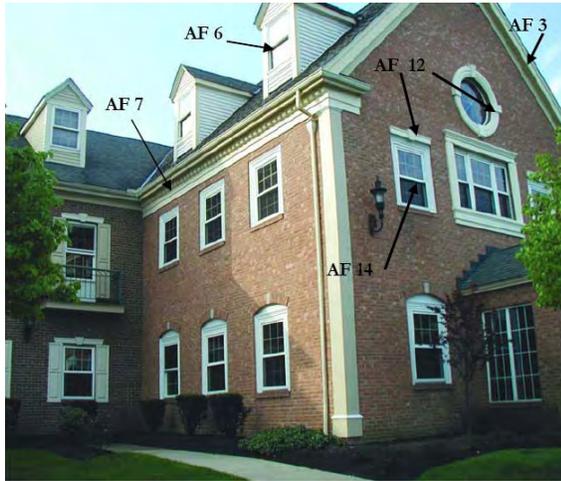
(AF-3) Cornice/Rake board - The top projecting section of gabled end roof or any projecting moulding along the top of a wall. Detail is often enhanced with crown moulding.

(AF-4) Crown Moulding - Double curving molding, concave above and convex below. Typical style is an ogee moulding. Sometimes detail is enhanced with dentils, small square block used in series in traditional moulding.

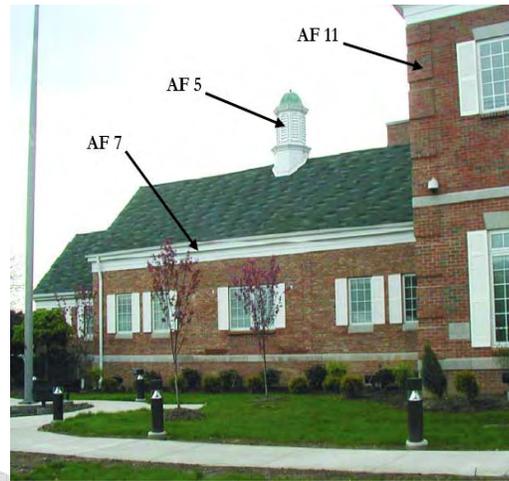
(AF-5) Cupola - A dome on a circular or polygonal base, crowning on a roof used for decoration or detail.

(AF-6) Dormer Window - A window placed vertically on a sloping roof with a roof of its own. Window is perpendicular to the main roof.

(AF-7) Fascia - A horizontal band extending below the entire overhang transitioning the different soffit material from the wall material.



Example: Figure 22



Example: Figure 23

(AF-8) Gable - The triangular upper portion of a wall at the end of a pitched roof.

(AF-9) Off-Set/Water Table - The part of the wall exposed horizontally when the portion above it is reduced in thickness, often sloping, with a projecting drip mould on the lower edge to stop water running down the walls.



Example: Figure 24



Example: Figure 25

(AF-10) Pediment - A low pitched gable above a portico, window or entranceway formed by a triangular shape above the opening.

(AF-11) Quoins - The decorative stones or brick patterns at the corners of buildings.

(AF-12) Trim - The framing or edging of openings or other features of a building exterior. Features include entrance systems with pediment, cross head and pilasters; window/door systems with heads and panels and gable end louvers.

(AF-13) Veranda - An open gallery or balcony with a roof supported by a row of columns.
(See Figure 21)

(AF-14) Double-Hung Windows – Units that have operable lower and upper sashes¹⁸.

Proposed

¹⁸ Pictures and definitions of the architectural features were provided by CT Consultants, May 2009.

Proposed

A ppendix of Background Data

SECTIONS

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- ▶ Appendix D: Bikeway Definitions and Selection Criteria 87

Proposed

Appendix A: Population & Housing Trends

- ▶ **Table A-1:** Total Persons: 1980, 1990 & 2000
- ▶ **Table A-2:** Population and Gender Characteristics 1970-2000
- ▶ **Table A-3:** School Age Children Per Household
- ▶ **Table A-4:** Total Dwelling Units: 1980, 1990 & 2000
- ▶ **Table A-5:** Characteristics of Housing: 2000
- ▶ **Table A-6:** Housing Unit Construction Rates: 1996 - 2001
- ▶ **Table A-7:** Average Housing Unit Construction Costs 1996-2000
- ▶ **Table A-8:** Housing and Occupancy Characteristics: 1990 & 2000

Proposed

TABLE A-1
TOTAL PERSONS: 1980, 1990 & 2000
Willoughby Hills and Adjacent Jurisdictions

	1980	1990	Change 1980 - 1990		2000	Change 1990 - 2000	
			#	%		#	%
Lake County							
Kirtland	5,969	5,881	-88	-1.5%	6,670	789	13.4%
Waite Hill	529	449	-80	-15.1%	446	-3	-0.7%
Wickliffe	16,790	14,558	-2,232	-13.3%	13,484	-1,074	-7.4%
Willoughby	19,329	20,510	1,181	6.1%	22,621	2,111	10.3%
Willoughby Hills	8,612	8,427	-185	-2.1%	8,595	168	2.0%
Cuyahoga County							
Euclid	59,999	54,875	-5,124	-8.5%	52,717	-2,158	-3.9%
Gates Mills	2,236	2,508	272	12.2%	2,493	-15	-0.6%
Highland Heights	5,739	6,249	510	8.9%	8,082	1,833	29.3%
Mayfield Village	3,577	3,462	-115	-3.2%	3,435	-27	-0.8%
Richmond Heights	10,095	9,611	-484	-4.8%	10,944	1,333	13.9%
Geauga County							
Chester Township	11,212	11,049	-163	-1.5%	10,968	-81	-0.7%
COUNTY SUMMARY							
Lake County	212,801	215,499	2,698	1.3%	227,511	12,012	5.6%
Geauga County	74,474	81,129	6,655	8.9%	90,895	9,766	12%

SOURCE: U.S. Census Bureau – 1980, 1990 and 2000 Census Reports;
Missouri State Census Data Center – Basic Demographic Trend Report; and
Office of Strategic Research, Ohio Department of Development, 3/2001.

TABLE A-2
POPULATION AGE AND GENDER CHARACTERISTICS 1970 - 2000
Willoughby Hills

	1970	1980	1990	2000
<i>Gender</i>				
Male	2,630	4,247	4,129	4,107
Female	2,617	4,365	4,298	4,488
<i>Age</i>				
Under 5 years	397	294	365	387
5 to 14 years	1,160	844	658	890
15 to 24 years	765	1,686 ^(a)	1,023	894
25 to 34 years	559	1,741	1,709	1,081
35 to 44 years	734	1,026	1,323	1,360
45 to 54 years	788	1,064	1,034	1,318
55 to 64 years	519	1,095	1,028	1,081
65 to 74 years	213	596	830	878
75 and over	112	264	457	706
Total	5247	8612	8427	8595

^(a) 850 aged 22-24 years

SOURCE: U.S. Census Bureau – 1970, 1980, 1990 and 2000 Census Reports.

Chart A-2
WILLOUGHBY HILLS DEMOGRAPHIC CHANGE 1970-2000

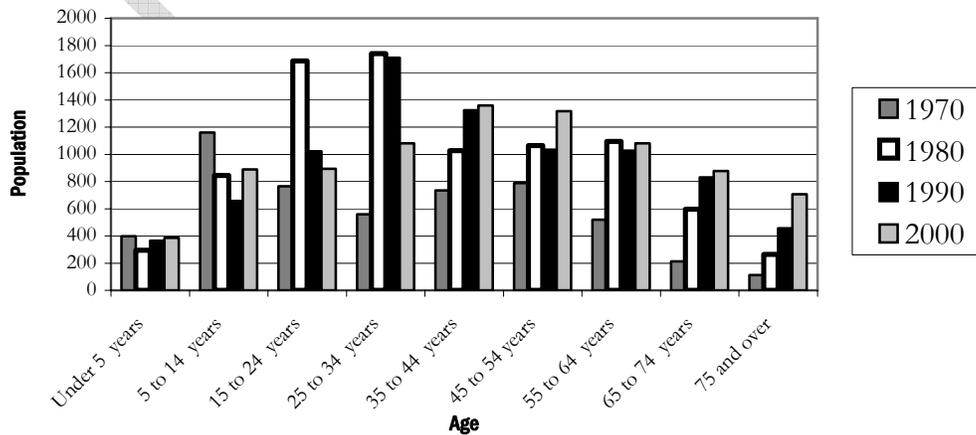


TABLE A-3
SCHOOL AGE CHILDREN PER HOUSEHOLD 1970-2000*
Willoughby Hills

	1970			1980			1990			2000		
	Units	5-18 yrs. Old	Child/unit									
Eastlake	5,630	5,933	1.05	7,310	5,517	0.75	7,979	4,067	0.51	8,310	3,655	0.44
Lakeline	78	NA		90	78	0.87	87	25	0.29	70	28	0.40
Timberlake	251	NA		300	205	0.68	307	164	0.53	321	115	0.36
Wickliffe	5,333	6,803	1.28	5,540	3,582	0.65	5,623	2,159	0.38	5,787	2,010	0.35
Willoughby Hills	2,068	1,668	0.81	3,989	1,261	0.32	4,235	925	0.22	4,292	1,172	0.27
Willoughby	5,538	5,167	0.93	7,749	3,591	0.46	8,969	3,018	0.34	10,700	3,485	0.33
Willowick	5,573	7,199	1.29	6,168	3,479	0.56	6,207	2,066	0.33	6,272	2,306	0.37
Total	24,471	26,770	1.09	31,146	17,713	0.57	33,407	12,424	0.37	35,752	12,771	0.36

* Approximately 9,000 children attend the Willoughby Eastlake Schools - 0.25 public school students per household.

TABLE A-4

TOTAL DWELLING UNITS: 1980, 1990 & 2000

Willoughby Hills and Adjacent Jurisdictions

	1980	1990	Change 1980 - 1990		2000	Change 1990 - 2000	
			#	%		#	%
Lake County							
Kirtland	1,988	2,138	150	7.5%	2,558	420	19.6%
Waite Hill	190	183	-7	-3.7%	197	14	7.7%
Wickliffe	5,540	5,623	83	1.5%	5,787	164	2.9%
Willoughby	7,726	8,969	1,243	16.1%	10,700	1,731	19.3%
Willoughby Hills	3,989	4,235	246	6.2%	4,292	57	1.3%
Cuyahoga County							
Euclid	26,417	26,586	169	0.6%	26,123	-463	-1.7%
Gates Mills	789	992	203	25.7%	974	-18	-1.8%
Highland Heights	1,794	2,176	382	21.3%	2,862	686	31.5%
Mayfield Village	1,332	1,416	84	6.3%	1,471	55	3.9%
Richmond Heights	4,298	4,503	205	4.8%	5,060	557	12.4%
Geauga County							
Chester Township	3,473	3,816	343	9.9%	4,038	222	5.8%
COUNTY SUMMARY							
Lake County	74,792	83,194	8,402	11.2%	93,487	10,293	12.4%
Geauga County	24,049	27,922	3,873	16.1%	32,805	4,883	17.5%

SOURCE: U.S. Census Bureau – 1980, 1990 and 2000 Census Reports;
MISSOURI STATE CENSUS DATA CENTER – BASIC DEMOGRAPHIC TREND REPORT;
NORTHERN OHIO DATA AND INFORMATION SERVICES (NODIS)

TABLE A-5
CHARACTERISTICS OF HOUSING: 2000
Willoughby Hills and Adjacent Jurisdictions

	1-unit detached		1-unit attached (a)		2-4 units per building		5 or more units per building		mobile home, other	
	#	%	#	%	#	%	#	%	#	%
Lake County										
Kirtland	2,216	87%	35	0.1%	54	2.1%	122	4.8%	131	5.7%
Waite Hill	193	98%	4	2%	0	0%	0	0%	0	0%
Wickliffe	4,856	84%	168	2.9%	196	3.4%	488	8.4%	79	1.4%
Willoughby	5,353	50%	966	9.0%	699	6.5%	3,416	32%	274	2.5%
Willoughby Hills	2,235	52%	111	2.5%	63	1.5%	1,890	44%	0	0%
Cuyahoga County										
Euclid	14,266	55%	1,685	6.4%	1,339	5.1%	8,823	34%	10	0.03%
Gates Mills	945	100%	0	0%	0	0%	0	0%	0	0%
Highland Heights	2,789	97%	49	1.7%	8	0.3%	16	0.5%	0	0%
Mayfield Village	1,176	78%	41	2.7%	13	0.9%	270	18%	0	0%
Richmond Heights	2,783	55%	426	8.4%	39	0.8%	1,812	36%	8	0.1%
Geauga County										
Chester Township	3,830	95%	34	0.8%	37	0.9%	21	0.5%	116	2.9%
COUNTY SUMMARY										
Lake County	68,094	73%	5,849	6.3%	3,767	4%	13,439	14.4%	2,329	2.5%
Geauga County	28,252	86%	933	2.8%	1,072	3.3%	1,167	3.6%	1,381	4.2%

(a) A unit where the walls separating the unit from another unit extend from the ground to the roof.

SOURCE: 1990 U.S. Census.

TABLE A-6
HOUSING UNIT CONSTRUCTION RATES: 1996-2001^(a)
Willoughby Hills and Adjacent Jurisdictions

	1996	1997	1998	1999	2000	2001 ^(b)	Total 1995 – 2001	Annual Average # of buildings
Lake County								
KIRTLAND	40	45	43	31	39	24	222	37
Waite Hill	NOT AVAILABLE							
Wickliffe	13	18	11	11	7	4	64	11
Willoughby ^(c)	64	74	60	65	70	29	362	60
Willoughby Hills	15	11	10	12	7	12	67	11
Cuyahoga County								
Euclid ^(c)	40	3	15	12	16	N/A	86	17
Gates Mills	5	8	7	10	3	1	34	6
Highland Heights^(c)	19	38	43	96	89	51	336	56
Mayfield Village	5	5	4	3	1	2	20	3.3
Richmond Heights	37	43	43	41	36	16	216	36
Geauga County								
Chester Township	15	21	34	34	29	11	144	24
COUNTY SUMMARY								
Lake County ^(c)	NOT AVAILABLE			901	761	623	2,285	762
Geauga County	NOT AVAILABLE			594	519	409	1,522	507

(a) Based on the number of building permits issued in each community.

(b) Reported through September 2001.

(c) Communities where a portion of units are multi-family units

SOURCES: U.S. Census Bureau – Residential Building Permit Reports; Kirtland Zoning Department; Lake County Building Department.

TABLE A-7
AVERAGE HOUSING UNIT CONSTRUCTION COSTS 1996-2001^(a)
Willoughby Hills and Adjacent Jurisdictions

	1996 Avg. Cost	1997 Avg. Cost	1998 Avg. Cost	1999 Avg. Cost	2000 Avg. Cost	2001 ^(b) Avg. Cost	Average Annual % Increase 1996-2001
Lake County							
Kirtland	NOT AVAILABLE						
Waite Hill	NOT AVAILABLE						
Wickliffe	\$115,615	\$129,000	\$160,227	\$150,727	\$185,714	\$153,250	5.4%
Willoughby	\$125,985	\$151,165	\$178,050	\$191,760	\$190,613	\$185,670	7.9%
Willoughby Hills	\$167,129	\$183,407	\$246,290	\$299,980	\$222,857	\$257,559	9.0%
<u>Cuyahoga County</u>							
Euclid	\$84,285	\$168,333	\$103,267	\$110,750	\$141,963	\$134,760	10.0%
Gates Mills	\$1,002,000	\$781,750	\$658,214	\$933,738	\$942,240	\$993,000	-0.2%
Highland Heights	\$297,245	\$319,787	\$307,209	\$256,206	\$284,140	\$348,361	2.9%
Mayfield Village	\$279,600	\$192,600	\$344,250	\$400,000	\$85,000	\$350,000	4.2%
Richmond Heights	\$183,243	\$201,044	\$215,087	\$232,463	\$244,528	\$235,218	4.7%
Geauga County							
Chester Township	\$66,333	\$75,930	\$103,458	\$104,716	\$103,243	133,636	17.0%
COUNTY SUMMARY							
Lake County	NOT AVAILABLE			\$185,353	\$163,079	\$160,449	-4.5% ^(c)

^(a) For new construction of single-family dwellings only.

^(b) As reported or estimated through September 2001.

^(c) 1999-2001

SOURCES: U.S. Census Bureau – Residential Building Permit Reports.

TABLE A-8
HOUSING AND OCCUPANCY CHARACTERISTICS:
1990 & 2000
Willoughby Hills

	UNITS		PERCENT OF TOTAL		Average PERSONS PER UNIT	
	1990	2000	1990	2000	1990	2000
Owner-occupied	1,813	2,165	45%	54%	3.00	2.60
Rental	2,206	1,808	55%	46%	1.35	1.64
TOTAL OCCUPIED UNITS	4,019	3,973	100%	100%	2.10 ^(a)	2.16 ^(a)
Vacant	216	319	5.1% of total units	7.4% of total units		
TOTAL	4,235	4,292	100%	100%	2.0 ^(b)	2.0 ^(b)

(a) Persons per occupied unit is the same as persons per household; does not include persons living in group quarters.

(b) Persons per unit is based on both occupied and vacant units. This figure therefore contains a realistic vacancy factor that is necessary when estimating future population based on projected housing units.

SOURCE: 1990 and 2000 U.S. Census.

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Appendix B: Land Use & Development Capacity

- ▶ **Table B-9:** Projected Increase in Dwelling Units & Population
- ▶ **Table B-10:** Residential Development Potential at Build-Out
- ▶ **Table B-11:** Trip Generation By Land Use

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TABLE B-9
PROJECTED INCREASE IN DWELLING UNITS & POPULATION
Willoughby Hills
(based on current zoning in 2003)

ZONING DISTRICT	Vacant or Underdeveloped Acres ¹		Effective Density (units/acre) ³	Potential Dwelling Units		Projected Population ²	
	Low	High		Low	High	Low	High
R Residential	1,925	2,236	0.85	1,636	1,900	4,250	4,940
M Multi-family	0	0	--	0			0
M-1 High Rise Apartment	0	0	--	0	0	0	0
Total	1,925	2,236	--	1,636	1,900	4,250	4,940

TABLE B-10
RESIDENTIAL DEVELOPMENT POTENTIAL AT BUILD-OUT
Willoughby Hills
(based on current zoning in 2003)

	Potential Total Dwelling Units	Potential Total Population
2000 Census	4,292	8,595
Additional Units in 2001	19	50 ³
Anticipated Units from 11.5 acre M-1 development (pending litigation)	159	435 ⁴
Subtotal	4,583	9,080
Additional Development Potential (estimated in Table B-10)	1,636 – 1,900	4,250-4,940
Total Residential Development Potential at Build-Out	6,219 – 6,483	13,330-14,020-
% Growth at Build-Out	36% - 41%	47% - 54%

¹ Includes significant backlands of large parcels and land devoted to farming. Low includes vacant land excluding floodplain, Column E, Table B-9; High includes all vacant land from Column C, Table B-9 for the R district.

² Based on 2.6 persons per occupied unit as reported by the 2000 Census.

³ Effective density takes into account land area devoted to streets and inefficient lot layouts.

⁴ Based on 1.6 persons per rental unit as reported by the 2000 Census.

TABLE B-11

TRIP GENERATION BY LAND USE

USE	TIME					Unit of Measure
	Week day	A.M. Peak	P.M. Peak	Sat.	Sun.	
Industrial						
Light Industrial	6.97	1.03	1.13			1,000 SF GFA
Industrial Park	6.97	0.08	0.89			1,000 SF GFA
Warehousing	4.88		0.60			1,000 SF GFA
Residential						
Single Family Detached	10.06	0.77	1.01	10.15	8.73	Per DU
Apartment	6.10	0.57	0.70	6.29	5.66	Per DU
Residential Condominium	5.86	0.45	0.54	5.67	4.85	Per DU
Planned Unit Development	7.44	0.58	7.24	6.43	5.09	Per DU
Recreational						
General Recreation (i.e. Sea World)	3.64				2.68	Per Ac
County Park	5.89			2.17	25.96	Per Ac
Golf Course	8.33			7.54	8.06	Per Ac
Tennis Courts	32.93			20.87	26.73	Per Ac
Racquet Club	15.94			25.55	22.15	Per Ac
Special Uses						
Church/Synagogue	7.70			1.29	31.46	1,000 SF GFA
Day Care Center	67.00					1,000 SF GFA
Library	45.50					1,000 SF GFA
Offices Business Park						
	12.42			2.51	1.29	1,000 SF GFA
Retail						
Specialty Retail Center	40.68			42.04	20.43	1,000 SF GFA
Shopping Center	166.40					1,000 SF GFA
High Quality Restaurant	95.62			91.80	71.96	1,000 SF GFA
High Turnover Restaurant	200.90			222.57	203.29	1,000 SF GFA
Fast Food/ w Drive Thru	632.13			720.83	550.00	1,000 SF GFA

Source: Trip Generation, 6th Edition. Institute of Traffic Engineers, 1997.

Appendix C: Tax Comparisons

- ▶ **Table C-12:** Comparison of Assessed Tax Valuations: Tax Year 2000
- ▶ **Table C-13:** Comparison of Tax Rates: Tax Year 2000
- ▶ **Table C-14:** Projected Property Valuation At Build-Out

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TABLE C-12
COMPARISON OF ASSESSED TAX VALUATIONS: TAX YEAR 2000
Willoughby Hills and Adjacent Jurisdictions

(Sorted highest to lowest % of Commercial/Industrial Valuation)

COMMUNITY	Real Property		TOTAL ^(a)
	Agricultural/ Residential	Comm/ Industrial/ Public Utility	
Mayfield Village	\$88,578,950 61%	\$56,540,350 39%	\$145,119,300
Willoughby	\$268,680,740 64%	\$153,969,350 36%	\$422,650,090
Richmond Heights	\$165,900,900 66%	\$84,005,750 34%	\$249,906,650
Euclid	\$502,678,150 72%	\$191,537,930 28%	\$694,216,080
Wickliffe	\$187,052,970 75%	\$61,600,250 25%	\$248,653,220
<u>Willoughby Hills</u>	\$165,739,180 75%	\$55,813,270 25%	\$221,552,450
Highland Heights	\$222,593,310 81%	\$53,041,590 19%	\$275,634,900
Chester Township	\$251,808,380 93%	\$20,372,500 7%	\$272,180,880
Kirtland	\$167,475,200 94%	\$10,436,530 6%	\$177,911,730
Gates Mills	\$174,895,610 98%	\$2,745,700 2%	\$177,641,310
Waite Hill	\$32,125,920 99%	\$302,040 1%	\$32,427,960
COUNTY SUMMARY			
Lake County	3,370,167,850 77%	\$1,034,912,510 23%	\$4,405,080,360
Geauga County	\$1,858,913,140 90%	\$210,875,710 10%	\$2,069,788,850

^(a) Total equals 100%

SOURCE: Lake County Treasurer, Cuyahoga and Geauga County Auditors.

TABLE C-13

I. COMPARISON OF TAX RATES: TAX YEAR 2000
Willoughby Hills and Adjacent Jurisdictions

(Sorted lowest to highest Residential Effective Tax Rate)

Taxing Jurisdiction	Full Tax Rate	Effective Rate	
		Residential/ Agricultural	Other
Highland Heights	80.90	41.47	45.90
Mayfield Village	84.20	41.74	46.67
Willoughby City	69.75	44.42	47.84
Willoughby Hills City	70.24	47.03	49.89
Gates Mills	87.80	47.07	51.17
Willoughby City/Kirtland SD	91.79	47.37	52.55
Wickliffe City	84.41	47.81	63.70
Kirtland City	95.93	49.40	54.47
Chester Township-West Geauga SD	82.77	50.34	51.41
Waite Hill Village/Willoughby SD	75.84	52.85	55.77
Waite Hill Village/Kirtland SD	97.88	55.79	60.48
Euclid	104.60	59.79	74.34
Richmond Heights	105.00	60.22	63.54

SD School District

SOURCE: Lake and Cuyahoga County Treasurers, Geauga County Auditor

TABLE C-14

II. PROJECTED PROPERTY VALUATION AT BUILD-OUT

Data from the 2003 Master Plan
Willoughby Hills

	Existing Real Estate Tax Valuation		Development at Build-out	
	\$\$	%	\$\$	%
Residential/ Agricultural				
Units	4,292		1,636 ^(a)	
Value added			\$157,465,000 ^(b)	
Total Res./ Agricultural	\$165,739,180	75%	\$323,204,180	84%
Commercial				
Acres	193		17	
Value added			\$4,760,000 ^(c)	
Total Commercial	\$55,813,270	23%	\$60,573,270	16%
GRAND TOTAL	\$221,552,450	100%	\$383,777,450	100%

^(a) Based on Table B-10 calculation of potential residential units.

^(b) Residential: Average unit cost \$275,000. Total Value x 0.35 (assessed value).

Commercial: Total acres x \$800,000 (assumed value per acre based on 10,000 sq. ft. of building floor area per acre x \$80/sq. ft. including land value) x 0.35 (assessed value).

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Appendix D: Bikeway Definitions and Selection Criteria

Definitions

A bikeway is any facility that provides primarily for bicycle travel.

Class I Bikeway (Bike Path). Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow minimized.

Class II Bikeway (Bike Lane). Provides a striped lane for one-way travel on a street or highway.

Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor traffic.

Selection of the Type of Bikeway Facility

The following applications are the most common for each type of facility.

Shared Roadway (No Bikeway Designation). Most bicycle travel occurs on streets and highways without bikeway designations. In some instances, the streets are adequate for safe and efficient bicycle travel, and signing and striping for bicycle use may be unnecessary. Routes that are not along high bicycle demand corridors are generally inappropriate to designate as bikeways (i.e. minor residential streets).

Class I Bikeway (Bike Path). Generally, bike paths should be used to serve corridors not served by streets and highways or where a wide right-of-way exists, permitting such facilities to be constructed away from the influence of parallel streets. Bike paths should offer opportunities not provided by the road system. They can either provide a recreational opportunity, or in some instances, can serve as direct high-speed commute routes if cross flow by motor vehicles and pedestrian conflicts can be minimized. The most common applications are along rivers, canals, utility right-of-ways, abandoned railroad right-of-ways, within college campuses, or within and between parks. There may also be situations where such facilities can be provided as part of planned developments. Another common application of Class I facilities is to close gaps to bicycle travel caused by construction of freeways or because of the existence of natural barriers such as rivers and streams.

Class II Bikeway (Bike Lane). Bike lanes are established along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. The purpose should be to improve conditions for bicyclists in the corridors. Bike lanes are intended to delineate the right-of-way assigned to bicyclists and motorists and to provide for more predictable movements by each. But a more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets. This can be accomplished by reducing the number of lanes, or prohibiting parking on given streets in order to delineate bike lanes. In addition, other things can be done on bike lane streets to improve the situation for bicyclists, that might not be possible on all streets (e.g., improvements to the surface augmented sweeping programs, special signal facilities, etc.). Generally, stripes alone will not measurably enhance bicycling.

If bicycle travel is to be controlled by delineation, special efforts should be made to assure that high levels of service are provided with these lanes.

Class III Bikeway (Bike Route). Bike routes are shared facilities that serve either to:

- Provide continuity to other bicycle facilities (usually Class II Bikeways); or
- Designate preferred routes through high demand corridors.

As with bike lanes, designation of bike routes should indicate to bicyclists that there are particular advantages to using these routes as compared with alternative routes. This means that responsible agencies have taken actions to assure that these routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists. Normally, bike routes are shared with motor vehicles. The use of sidewalks as Class III bikeways is strongly discouraged.

Source: Highway Design Manual. February 1, 2001.
<http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp1000.pdf>

Proposed