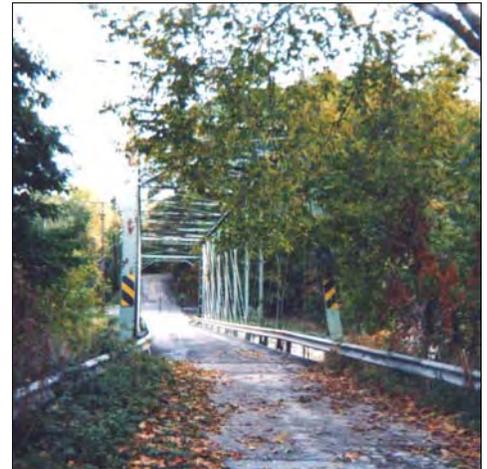


Willoughby Hills MASTER PLAN

June 2003



Where the City Meets the Country

Prepared by the
Willoughby Hills
Citizens Advisory Committee
and
D.B. Hartt, Inc.

Approved by **Willoughby Hills Planning Commission,**
Adopted by **Willoughby Hills City Council**

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On December 4, 2002, the CAC formally transmitted this report to the Willoughby Hills Planning and Zoning Commission for their consideration.

On March 20, 2003, the Willoughby Hills Planning and Zoning Commission recommended approval of this Comprehensive Plan after reviewing and making minor refinements to this report at its meetings on February 20 and March 6, 2003.

On June 12, 2003, the Willoughby Hills City Council accepted this Comprehensive Land Use Plan, adopted as Ordinance 2003-21.



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Chapter 1: Introduction

Willoughby Hills adopted its first zoning ordinance in 1954, based on the township zoning in effect at the time. In the 1970's, the voters adopted a City Charter, and 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 has never been revised to be consistent with the Land Use Plan, meaning the previous plans have never been implemented.

Recently, there has been much interest in the conservation of the natural environment, especially along the Chagrin River valley and the Euclid Creek corridor. The Chagrin River watershed has been 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/insufficient septic wastewater systems.

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.

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 involve changes to the zoning code that can be undertaken in a relatively short time. Others are long-range policies, some of which will take considerably more

effort to achieve. And yet other policies, especially those dealing with redevelopment, are very far reaching and will need to occur in incremental steps.

The 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. This Plan includes specific **recommendations** for updating and modifying the existing zoning and subdivision regulations, but **in order to actually adopt the recommended changes, a formal zoning amendment process will need to be undertaken as a separate and distinct action.**

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 December 2001, City Council, based on a recommendation from the Planning & Zoning Commission, retained D.B. Hartt, Inc., (D.B. Hartt), a land use planning consultant firm, to aid in the preparation of the City's Comprehensive Plan.

In order to ensure that the goals and policies for the future development of the City reflect the desires of the overall community, the Planning & Zoning Commission determined that the formation of an ad hoc committee was the best method to ensure substantial public input. The City administration, with the assistance of D.B. Hartt, created a Citizens Advisory Committee (CAC).

The CAC was comprised of the Mayor, two members of Council (one also a member of the Planning & Zoning Commission), the Planning & Zoning Commission in its entirety, one member of the BZA, a member of the recreation commission, and initially 18 additional citizen representatives. The additional citizen members were deliberately selected to represent a wide range of City perspectives such as environmental, school, parks and recreation, business, and developer/homebuilder. The purpose of the diverse representation was to ensure that most (if not all) views that could be raised at public meetings would be represented on the Committee. In addition, D.B. Hartt was responsible for facilitating the CAC meetings and providing professional planning expertise and guidance to the committee.

At the start of the planning process, each CAC member was interviewed in an informal manner in order for the consultant to gain a better understanding of the issues to be addressed in the Comprehensive Plan.

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

- Reviewed a summary of the interviews;
- 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.

In addition to the Citizens Advisory Committee meetings, the Committee and D.B.Hartt jointly presented the Preliminary Plan to City residents at a formal public meeting in July 2002. Once the preliminary policies were fine-tuned, a second public meeting was conducted in November 2002. Comments from these public meetings were discussed with the Citizens Advisory Committee and appropriate modifications to the Plan's policies and implementation strategies were made.

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.

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

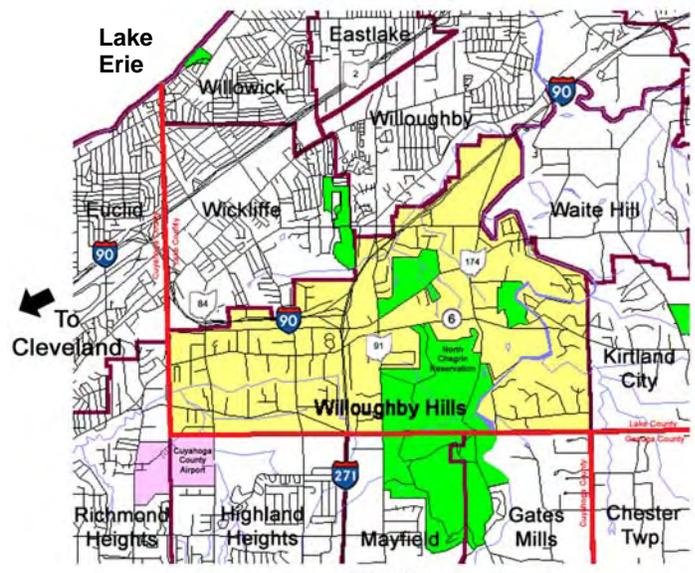
Chagrin Township was formed in 1815 and encompassed the land bordered by Lake Erie, Mentor Township, Kirtland Township, Mayfield Township, and Euclid Township. In 1834, Chagrin Township became Willoughby Township in honor of Dr. W. Willoughby. At that time, Willoughby Township included the modern incorporations 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

Regional Context

Willoughby Hills encompasses almost 11 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,
- Richmond Heights,
- Waite Hill,
- Wickliffe, and
- Willoughby.

Map 1
Regional Map



¹ History derived from information supplied by the Willoughby Hills Historical Society, courtesy of Frank Cihula, 2002.

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 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, and
- ▶ State Route 91 (S.O.M. Center) – North/South access from Willoughby to Mayfield Village.

Natural Features

Willoughby Hills is comprised of approximately 7,000 acres, which includes about 1,050 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.

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 western portion of the City lies in what is known as the Euclid Creek watershed. The Euclid Creek watershed has gained attention recently due to pollution caused primarily by failing septic systems.

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 that subjects development on land with areas designated as “protected hillsides” to a more detailed review. The Protected Hillside Area 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.

**Map 2
Protected Hillsides**

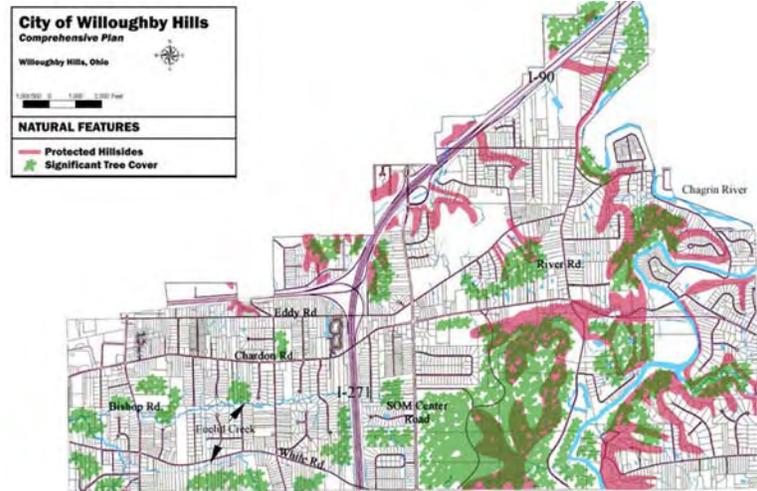
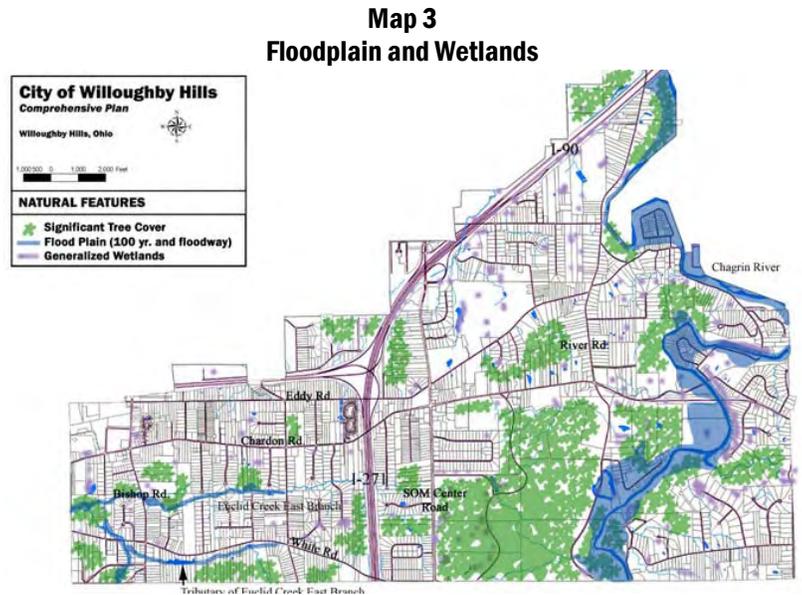


Figure 1: Chagrin River

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 FEMA² 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.



Riparian corridors, 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.

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.

² Federal Emergency Management Agency

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 2: 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.

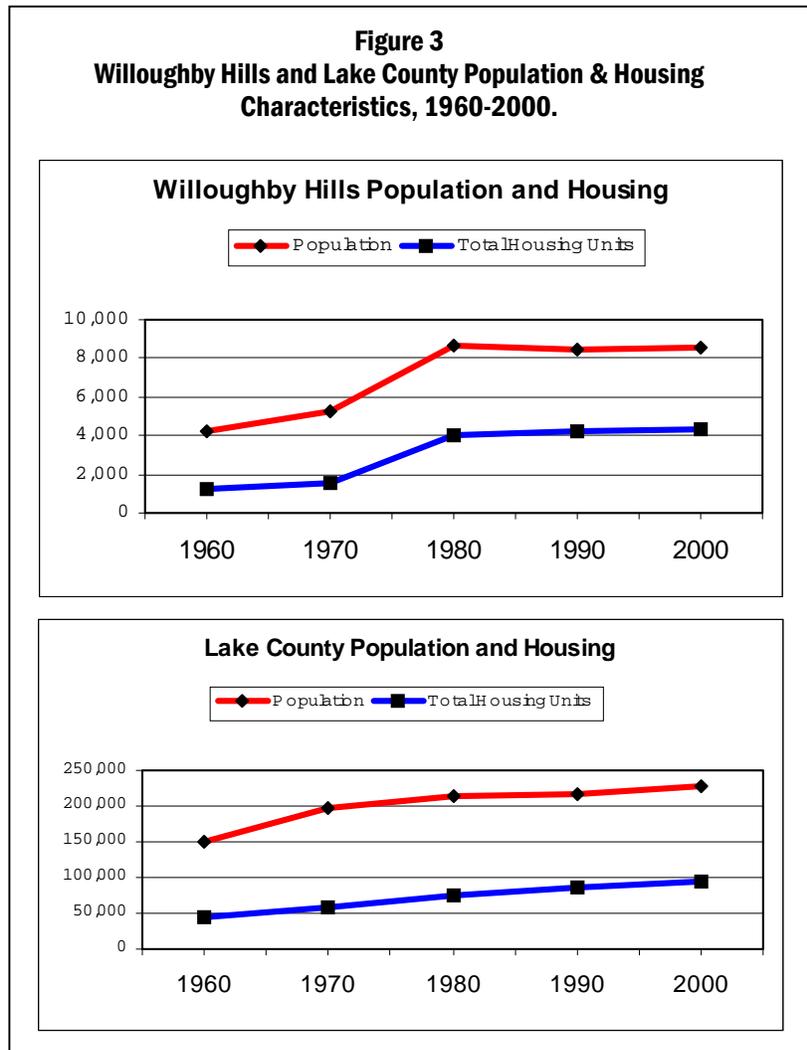
These views of the natural landscape provide memorable experiences to residents who travel along these various routes and therefore contribute to the character and image of Willoughby Hills.

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 3.

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 homes³. 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%.



³ Lake 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	4,292	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 is to be expanded to accommodate two lanes of traffic in each direction 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 67% of the land in the City is developed. Table 5 on page 14 indicates that the zoning classification that includes the greatest amount of land is “R” 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 commercial, office, highway, and government open space/park land.

The Existing Land Use Map (Map 4 on page 15) 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 77% residentially zoned which means there are 5,341 acres zoned for this use. Of these 5,341 acres of residential land, 3,098 acres (58%) are developed.

The second largest category of land in the City is land devoted to public or semi-public open space/recreation (15%); of this, the Cleveland Metroparks owns 878 acres including the North Chagrin Reservation and Manakiki Golf Course. Five percent 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.

Existing Zoning

There are currently five zoning districts within the City. Three districts are primarily residential zoning districts: R Residential District, M Multi-family District, and M-1 High Rise Apartment District. There are two commercial districts, B Commercial and E Research, which provide for retail, service, and office uses. There is no industrial district. The existing zoning district boundaries are shown on Map 5, page 15. A summary of each district follows on page 16, while more detailed outlines of each zoning district are included in Appendix D, pages 80-86.

**Table 5
Summary Of Acres By Zoning District
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)
<i>Residential</i>						
R Residential	5,269	58%	2,233	311	1,922	36%
M Multi-Family	13	100%	0	0	0	0%
M-1 High Rise Apartment	59	83%	10	10	0	0%
Total Residential	5,341	58%	2,243	321	1,922	36%
<i>Commercial</i>						
B Commercial	199	91%	17 ^d	0	17	9%
E Research	14 ^e	79%	3	0	3	21%
Total Commercial	213	91%	20	0	20	9%
Total Interstate	350	100%				
<i>Parks/Recreation</i>						
Cleveland Metroparks ^f	878	100%				
Local Parks ^g	167	100%				
Total Parks/Recreation	1,045	100%				
TOTAL ACRES	6,949	67%	2,263	321	1,942	28%

Notes to Table 5:

^a Calculated by D.B Hartt using 2000 aerial photos & base maps revised 2001 – includes hillsides and floodplains.

^b Only undeveloped land. Flood plain = undeveloped land in the floodway and 100 year flood plain.

^c Includes 368 acres in the protected hillside area. Hillside regulations regulate but do not prohibit development on steep slopes.

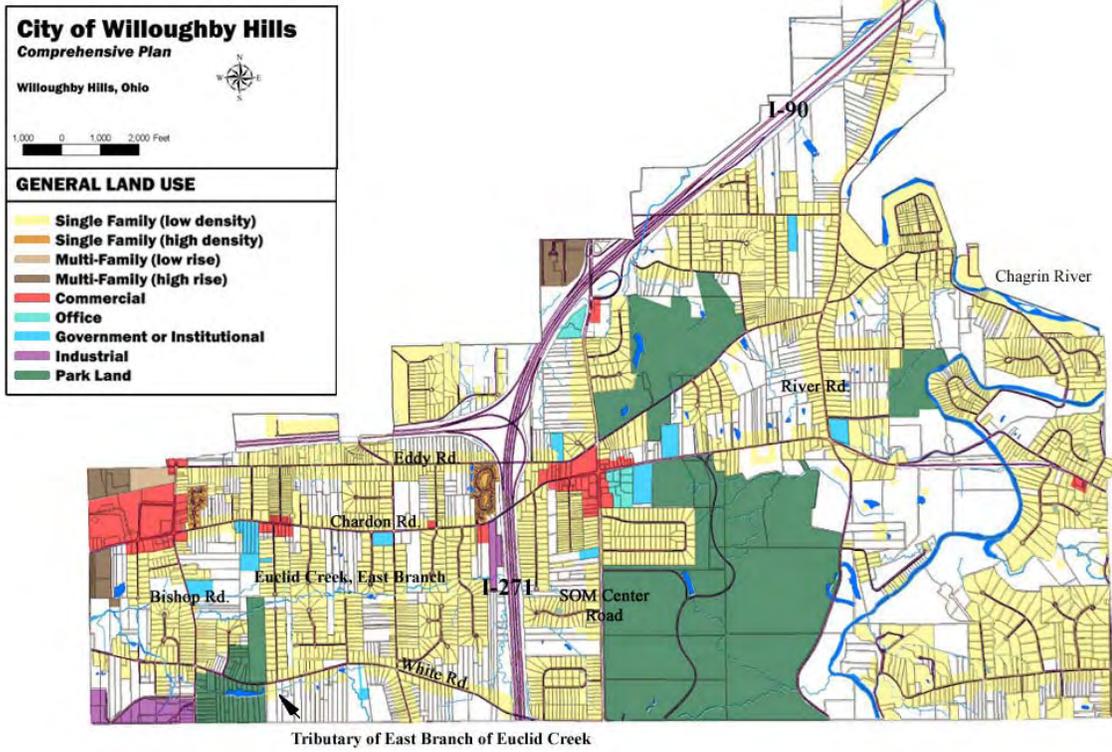
^d Includes pending litigation for M-1 use on 11.5 acres of commercially zoned land.

^e Includes 3 acres rezoned in spring 2002 to the E District from the R District.

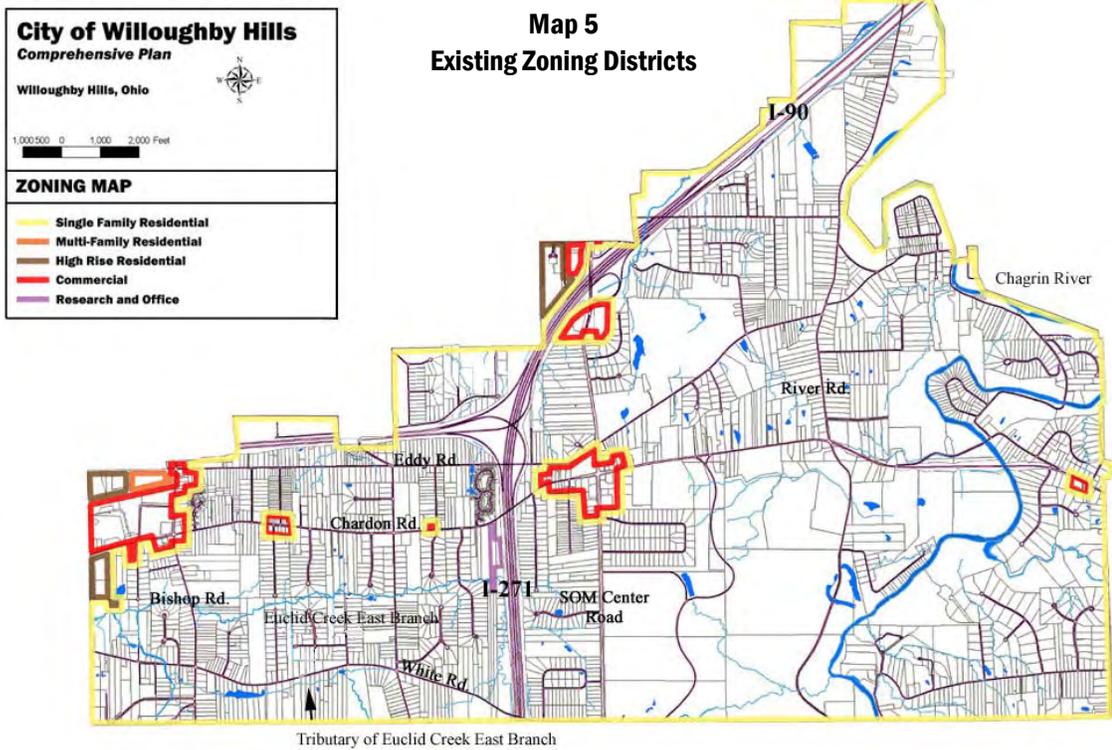
^f Includes Manakiki Golf Course and North Chagrin Reservation.

^g Includes Airport Greens Golf Course, Hach-Otis Sanctuary, Roemisch Fields and Campbell Park.

Map 4 Existing Land Use



Map 5 Existing Zoning Districts



R Residential District

The intent of the “R” 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 district is restricted to single-family development only (with the exception of governmental and institutional uses) and currently does not permit any alternative site standards for conservation developments.

M Multi-family District

The intent of the “M” Multi-family district is to provide for low rise, medium density development for persons who desire apartment style living in a low-rise environment. To blend this district into a low-density single-family environment, creativity becomes a crucial element. This district uses standards that are based on an entire development area, not conventional lots. Whether the development is on one, or 5 parcels, the standards apply to the perimeter of the development as a whole. The maximum density of a development in this district is fifteen units per acre.

M-1 High Rise Apartment District

The “M-1” High Rise district’s intent is to provide for high intensity development while still maintaining relative control over how such a development is achieved. The M-1 district requires a minimum project size and setbacks that will preserve the surrounding uses. The district requires buildings to be between 80 feet and 150 feet tall.

B Commercial District

“B” Commercial is the only true commercial district in Willoughby Hills. The intent of this district is to provide an environment where commercial businesses can locate in Willoughby Hills to provide services that the residents of the City and its neighboring communities will benefit from. The site development standards do not specify a minimum lot or project size for this district. Parking standards require that the parking area be equal to three times the ground floor area used for retail business or commerce.

E Research and Office District

The “E” Research district is only applied in one location, which is occupied by the Eaton Corporation. This district was designed to permit research and office uses such as laboratories, research and development and administrative support for the main or permitted business. This E District was expanded in spring of 2002, when the voters approved the rezoning of 2.7 acres from R to E.

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 their zoning and showed that there had been care and thought put toward the creation of their zoning map.

The City has site plan review yet, without more detailed development standards, such as landscaping requirements, the plan review process does not offer the level of review authority desired.

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 current requirement is to have a parking lot three times the square footage of the ground floor used for retail. By conventional standards, this leaves only 3,560 square feet of landscaping which, at a maximum, is approximately 8% of the acre of land used for the commercial use.

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 general public in a referendum election. The referendum requirement lengthens the time it takes to obtain a zoning change for development purposes. The Eaton Corporation development on Chardon Road is the third successful rezoning by referendum in Willoughby Hills. This land was rezoned in the spring of 2002.

Utilities

Willoughby Hills is serviced in its entirety with electricity, telephone, and water. The central sewer service area is not as broad. Within the last few years the City of Willoughby Hills has been charged with the need to install sanitary sewers on the west side of S.O.M. Center Road, south of Chardon Road, since the existing septic systems are failing and can not be replaced or upgraded in compliance with the Lake County Health Department's regulations. The parcels affected by this sewer mandate are typically parcels that are sub-standard lots platted before the adoption of the Zoning Code in 1954, though some do comply with the minimum lot size requirements.

Residential Development Capacity

In 2000, there were 4,292 dwelling units in Willoughby Hills and a population of 8,595. According to the City’s Building Department, there were 19 building permits issued 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. An additional 272 multi-family units are anticipated in a multi-family development located north of I-90 and west of S.O.M. Center Road.⁴

The development potential of the City is largely determined by the zoning on the vacant land. In the spring of 2002, there were approximately 2,240 vacant acres of residentially zoned land in the City. (See Table 5 on page 14 for a breakdown by zoning district.) Of this total, approximately 311 acres were considered wetlands and/or in a 100-year floodplain.

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 district⁵.

As noted above, approximately 311 acres of the vacant land were 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 vacant land in the wetlands/floodplain in the 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.

**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 (% increase from line 4)	6,219 - 6,483 36% - 41%

Notes to Table 6:

- ^a Assumed complete by Summer 2002
- ^b Calculated by multiplying vacant land by estimated effective density based on each district’s minimum lot size. See Appendix B, Tables 10 and 11.
- ^c The sum of lines 4 and 5.

⁴ Rezoning on this parcel from Commercial was applied for in the early 1990’s but the project was never pursued. A new low-rise apartment development is pending based on court order.
⁵ 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.

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. With all the available developable land being in the R-Residential district, the 2.6 persons per household factor was applied to the additional single-family units at build-out to project the City's ultimate population to be between 13,330 and 14,020 persons.⁶

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

⁶ This projection assumes that there is no change in the current zoning, as all vacant land currently exists in the R district. This number will change depending on changes in permitted density or rezoning of land to a more intense use. See also Appendix B, Table B-11, page 73.

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.⁷ 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 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 70.24 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 \$1,646 per \$100,000 of residential valuation and \$1,746 per \$100,000 of commercial/industrial valuation. Of the 13 taxing jurisdictions surveyed, Willoughby Hills had the 4th lowest rate. Richmond Heights' rate of \$2,108 per \$100,000 of residential valuation was the highest while the Highland Heights rate of \$1,451 per \$100,000 of residential valuation was the lowest.⁸

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 rate⁹, or they can be applied to rollback the taxes more for one of the two classifications.

⁷ 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.

⁸ Due to overlapping taxing jurisdictions for schools and other public entities, some communities are divided into two or more jurisdictions. See detailed tax comparison tables in Appendix C, pages 76-77.

⁹ Commercial/Industrial and Residential/Agricultural are classifications imposed by the County taxation structure.

Typically, commercial taxpayers pay a higher effective tax rate on their real estate. Yet, in Willoughby Hills, commercial taxpayers pay a slightly lower **city** tax rate than residential taxpayers, see Table 7 below. In comparison, the effective **county** tax rate for residential/agricultural uses is 80% that of the commercial/industrial rate (\$378 compared to \$467 respectively for \$100,000 of property value), while the effective **school** tax rate for residences is about 2% below that of the commercial/industrial rate (\$38 compared to \$44 respectively for \$100,000 of property value).

**Table 7
Taxes Paid Per \$100,000 Valuation**

	Total		County		City		Schools		Other	
	\$	%	\$	%	\$	%	\$	%	\$	%
Residential	\$1,646	100%	\$378	23%	\$252	15%	\$977	60%	\$38	2%
Commercial/ Industrial	\$1,746	100%	\$467	27%	\$249	14%	\$986	56%	\$44	2%

Between 56% and 60% 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

**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

residential 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 17 acres of vacant commercial land.

Chapter 3: Key Issues

At the onset of this plan the CAC was presented with the background data presented in Chapter 2. After discussions with the CAC, both in group form as well as private interviews, several key issues arose that started to shape the direction of the comprehensive plan. These key issues were then discussed and deliberated 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. Should a townhouse district be established to allow for higher density residential development (4-6 units per acre)?
 - a. As a transition between commercial and lower density?
 - b. In other locations?
2. Should residential conservation development be permitted at 1 unit per acre as an alternative to a standard 1-acre subdivision?
3. Should locations for senior housing be considered?

B. Economic Development: To what extent should it happen, and where should it be located?

1. Should there be additional industrial development along Curtis Wright Parkway near the airport?
2. Should commercial development be permitted 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 can be done to give Willoughby Hills a “city center”?
2. To what extent should pedestrian connections be emphasized compared to vehicular connections?
3. What part would a school play in the enhancement of community in Willoughby Hills?

D. Open Space and Natural Resources: How are the natural resources being protected?

1. What is being done to protect the rivers and streams in Willoughby Hills?
2. What is being done to protect the rural character with respect to hillsides?
3. Are septic systems an acceptable alternative to public sewers where the soil conditions are right?

E. Defensible Regulations: What is being done to be proactive in the land use and zoning of Willoughby Hills?

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 contained in the Willoughby Hills 1994 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 create a comprehensive land use plan that provides a rational basis for the City to make legislative, capital improvement, and administrative decisions

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.” Some 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 29, 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 widenings, 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.

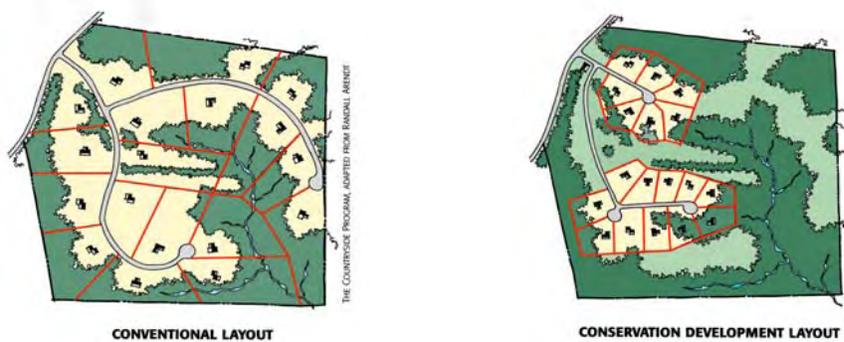
1. Maintain the R Residential District and its current lot regulations including the one-acre minimum lot size and the 100-foot minimum lot width and the minimum 75-foot front yard setback requirement.



Figure 4: Homes on 1-Acre Lots with Minimum Lot Width

2. Allow for the flexible arrangement of dwellings with a requirement to preserve a portion of the development site as aggregated open space. This would be an option to the standard single-family subdivision, and is referred to in this Plan as conservation development. This development option could be administered in one of two ways: by adding conservation development as a permitted use to the R District, which means conservation development could be proposed in areas already zoned R; or by establishing an overlay district that would be applied only in specific areas now zoned R.
- a) The purpose of the conservation development option 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 5
Comparison of Conventional Development
to Conservation Development**

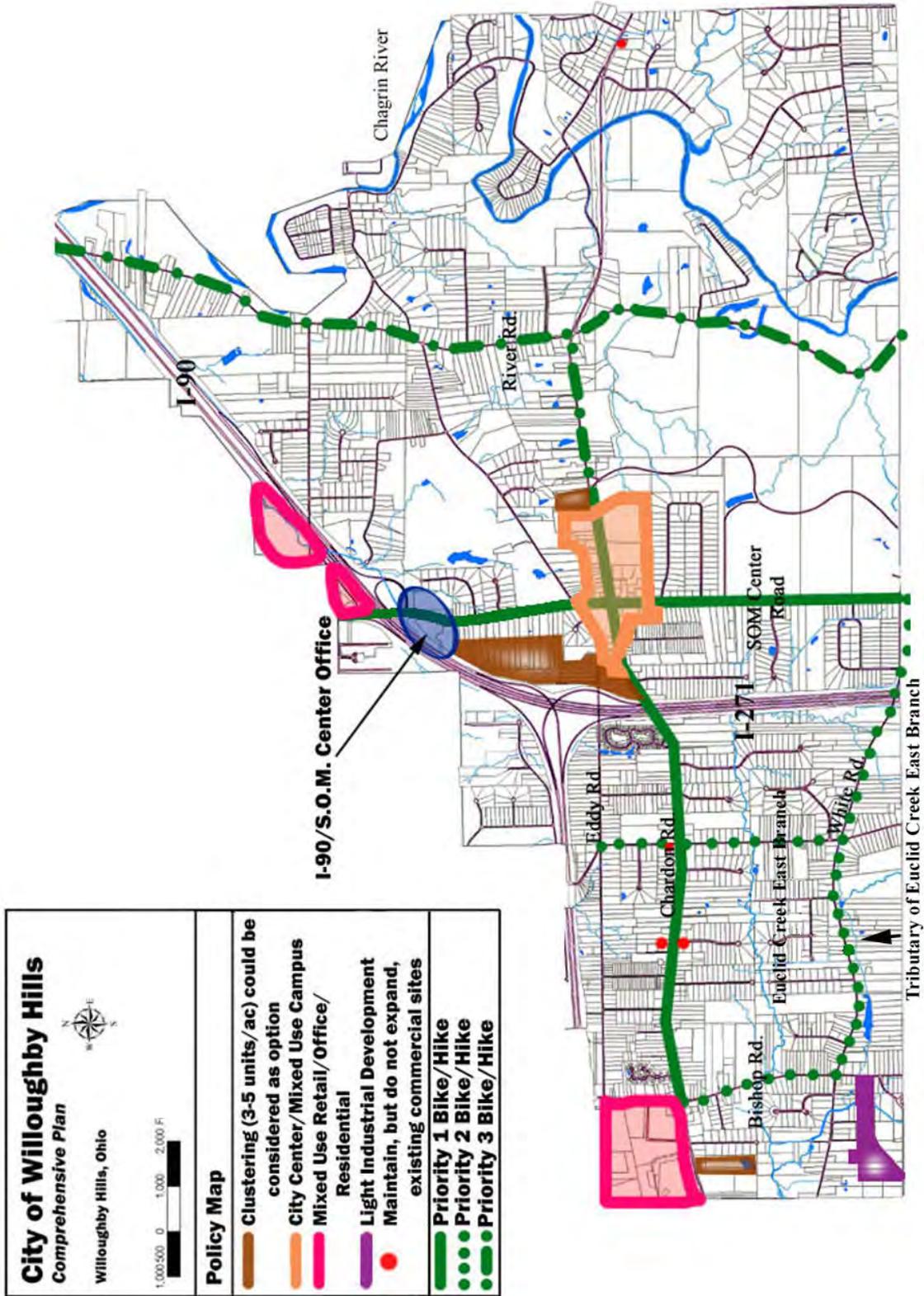


Area	36 acres	Area	36 acres
Lots	18 lots	Lots	18 lots
Undisturbed Open Space	none	Undisturbed Open Space	53%
Road Length	3,808 feet	Road Length	2,072 feet

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 20%-40% 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 6
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) Riparian Zones (lands adjacent to rivers and streams)
 - 2) Wetlands and Floodplains
 - 3) Steep Slopes and Hillside Areas
 - 4) Woodlands
 - 5) Wildlife Habitat Areas
 - 6) Fields, Meadows, and Hedgerows
 - 7) Scenic Views and Rural Roads via Scenic Corridor Management
 - 8) 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 7
Illustration of How Different Preservation Priorities Can Be Emphasized¹¹



Source: Rural By Design: Maintaining Small Town Character.

- e) Encourage innovative legislation that would accommodate “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 system 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 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 option rather than through the use of flag lot subdivisions.

¹¹ 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 only 20% to 40%.

B. Encourage alternative housing options including senior citizen housing, cluster 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), quality construction, additional amenities such as recreation and dining facilities, and barrier-free access, and in some cases, personal and health care services. 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) When located as a transitional use between non-residential zoning/development (either existing or planned) and lower-density single-family areas, in specific, definable locations to 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) Establishing a new zoning district titled R-2 Townhouse Residential to allow the construction of a variety of units, including senior citizen developments for independent and/or congregate living.
 - 1) Establish the purpose of this new district as a way to permit townhouses and enable senior citizen development.
 - 2) Allow a density of approximately 4 to 5 dwelling units per acre, which is similar to condominium projects Pebblebrook and Steeple Run.



Figure 8: Steeple Run

- b) Establishing an overlay district to permit senior citizen housing in addition to the range of uses already permitted in the underlying district. Overlay districts act as a re-zoning, but they simply impose additional and optional development guidelines on the land within the overlay boundaries. In this case, the overlay would impose the option to build senior citizen housing on land that is residentially zoned. The development regulations currently imposed on the land would still remain should the Senior Citizen option not be chosen.
 - 1) 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.

- 2) Determine the permitted density and intensity of the senior citizen development based on the density and intensity of the underlying district.
- 3) When located within a single-family neighborhood, require the senior housing project to have a similar residential character and scale as typically found in the surrounding neighborhood, as determined by the Planning and Zoning Commission.
- 4) When sited in an area where a facility or development could conceivably be completely screened to surrounding properties, permit greater intensity in return for greater green space (i.e. intensity could be increased if the development is completely screened from the property lines by natural buffers, for example, a tree buffer (with a depth of perhaps 50 to 100 feet) that adjoins the entire length of the abutting property.

Alternative types of housing, especially developments that are marketed as senior citizen housing or as high-end luxury units, typically are not 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. Regulate community facilities as conditional uses** to ensure 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 permitted by right 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 district 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 best 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. Establish the Planning & Zoning Commission as the body to review and approve proposed conditional uses.
2. Establish 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 numerical regulations (in tables) 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 now zoned residential, yet 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 should be rezoned to a new 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 “City Center” in the Chardon/S.O.M. Center location. Traditionally, the “city 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 city center. The City Hall, police station, new fire station, the recreation center at Roemisch Field, and St. Noel’s Church are congregated at the eastern end of the city center area with vacant or underutilized parcels located between City Hall and the Chardon/S.O.M. Center intersection.

- 1. Elements of a “city 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 city 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 “City Center” policies are summarized below and are illustrated on Map 7 page 49.
- a) Establish the “City Center” boundaries to include land east along Chardon Road to City Hall 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 city center.
 - c) Whenever the opportunity presents itself, continue to concentrate similar civic, public/semi-public uses in the city center area. The public investments that have been made for the new fire station and that are planned for the recreation center can be a catalyst to help create and organize the city 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 or Chardon Road to help protect the single-family environment that surrounds this center.
 - g) Increase rear development standards – building and parking setbacks and screening requirements - to 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 at 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 reminiscent of European cities and villages.
 - 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) Establish development 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 walkable environments; and
4. Establish design guidelines to enable more detailed review of buildings and public spaces.

E. Promote the South Side of I-90/S.O.M. Center interchange area as an office environment to take advantage of the prime location at the interchange. Offices are already located at the southwest quadrant of the interchange, and older vacant buildings exist across the street. 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.

1. Modify the current E Research District to accommodate the desired type and density of office development and apply the district to this area to enable office development.
2. Restrict the application to only the areas where offices exist or are currently proposed.



Figure 9: The Cleveland Clinic Foundation

F. Promote the Northeast Quadrant of the I-90/S.O.M. Center interchange area as a 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 entrance ramp and there is still some developable land behind the gas station and 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 and.

1. Encourage a range of uses in this area, including offices, retail, restaurants, entertainment, and higher density residential by applying the new B-1A district to this area.
2. Require integrated design elements including signs, landscaping, building design and circulation that establish an attractive environment suitable to be Willoughby Hill’s “front door”.

G. Maintain but do not expand the small, **scattered commercial sites** along Chardon Road. Chardon Road is predominately residential except for these few sites. These commercial structures predate the zoning and the commercial zoning designation was given to avoid creating nonconforming situations. However, the current B Commercial District allows a much larger range of uses than is appropriate for this residential corridor. These commercial sites should be more stringently regulated to protect the surrounding uses.

1. Create a new B-2 limited commercial district that allows a more limited range of nonresidential uses.

2. Establish development standards that are tailored to accommodate the existing commercial development along Chardon Road
3. Rezone the existing sites to this district to avoid non-conforming use status and to encourage the existing structures to be properly maintained.
4. BUT, do not expand the B-2 zoning boundaries beyond the current Chardon Road sites.



Figure 10: Scattered Commercial Businesses on Chardon Road



Figure 11: 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 “City 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.

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. Adopt landscaping and streetscape standards for commercial areas. These standards could address screening of



Figure 12: Example of Installed Landscaping

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 commercial maintenance code to ensure that, once constructed, buildings and their sites are properly maintained. A commercial maintenance code would address issues that are not regulated by the zoning or building code, including grass cutting, weeds, painting, staining and overall aesthetics of the property.

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, 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) Install public utilities in areas where private septic systems are failing and where the presence and capacity of the current utility lines enables the extension.

C. Create a greater sense of community among residents by establishing a “city center” in the Chardon Road/S.O.M. Center Road area as previously described. It is important that the city 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 (or redevelopment) of schools in Willoughby Hills. Schools are community facilities that spur community pride and interest. Difficulties exist, however, when a particular school building is not used as a school facility due to a drop in enrollment. Typically the building remains vacant until the school district decides if the reduction is likely to be long-term. Willoughby Hills has two schools that are no longer used by the Willoughby Eastlake School District. If and when it is determined that either building

is no longer needed as a district facility, the City should promote adaptive re-use of these buildings for residential purposes.

- 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.
 - 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:



Figure 13: Pedestrian Trails in the Chagrin Reservation

- 1) Phase I: A separated “Class I” bike trail system:¹²
 - 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 the Willoughby border.

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 system:
 - 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” system¹² 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.

B. Establish specific development restrictions that protect environmental resources. There are many undeveloped areas within the Chagrin River Valley’s adjacent floodway and stream banks where development constructed according to the current zoning could jeopardize the quality of the natural environment. In addition to the open space requirement for Conservation Development, regulations should be adopted that apply to all development in the vicinity of the various natural resources found in the City. The following forms of environmental regulations should be further explored to protect lands adjacent to rivers and

¹² For definitions and selection criteria see Appendix E, pages 87-88.

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 should be related to the quality of soils and slope of the riverbank.
2. Buffers around designated wetlands.

When developing local environmental regulations, 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 14: 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.

Chapter 6: 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 Text Amendments
- ❖ Zoning Map Amendments
- ❖ Administrative Policies and Procedural Changes

Zoning Text Amendments

Zoning is the City’s fundamental tool to accomplish many of the land use policies in this Plan. A number of new zoning districts are suggested to ensure that policies established in Chapter 5 are implemented to the fullest, each to be carefully crafted to achieve the specific goals and objectives previously noted. Other suggested amendments involve modifying or adding new development standards, which in some cases include specific numerical standards. These numbers 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 numerical standards are ultimately adopted.

Table 9 indicates the existing and proposed zoning districts. The new zoning districts are shown in bold type.

<u>Existing Districts</u>	<u>Proposed Districts</u>
R Single Family	R-1 Single Family Residential <i>(amended)</i> R-2 Townhouse Residential SCRO Senior Citizens Residential Overlay
M Multi-Family	M Multi-Family
M-1 High-Rise Apartment	M-1 High-Rise Apartment
B Commercial	B-1 Commercial Campus/Mixed Use B-1A Commercial/Mixed Use B-2 Limited Commercial
E Research and Office	E Research and Office <i>(amended)</i> I-1 Light Industrial

The following 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. These changes are most effective when implemented as part of a complete review and update of the entire Willoughby Hills

Planning and Zoning Code. It is possible, but less efficient, to create new districts or modify existing districts in a more incremental way.

A. Residential District Changes

1. Maintain the R Single Family District and rename as R-1 for clarity and distinction between this district and any new adopted or modified residential district.
2. As a development option in the existing R-1 Single Family District, provide 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) Establishing 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 parcel is to establish a maximum density that replicates the typical density of a standard subdivision. For example, establishing a maximum density of about 0.85 dwelling units per 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.

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 1/2 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) Require a minimum of 20% to 40% of the project area to be designated as restricted open space and clearly state that all such open space is restricted (that is, prohibited) from future development.
- c) Establish design criteria and priorities for the layout and design of the restricted open space to ensure 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 should mirror the priorities in the Policy section of this Plan, and should reflect the overall desires of the community. However, priorities on a specific site may vary if the City feels that the 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) Riparian Zones (lands adjacent to rivers and streams)
- 2) Wetlands and Floodplains
- 3) Steep Slopes and Hillside Areas
- 4) Woodlands
- 5) Wildlife Habitat Areas
- 6) Fields, Meadows, and Hedgerows
- 7) Scenic Views and Rural Roads via Scenic Corridor Management
- 8) Rural Structures (Barns, stone walls, fences, etc.)

These preservation priorities should be 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, unbuildable area can be incorporated into a standard single-family lot. Therefore, to encourage conservation development as an alternative to conventional single-family subdivisions, regulations should be established that recognize, depending on the size, shape and location of wetlands, water bodies and floodplains, these features and may or may not limit the development potential of a site.
 - 1) Permit land in wetlands, water bodies and floodplains to be 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.

- 2) When it is likely that the size and/or shape of the wetlands, water bodies and floodplains reduce the overall development potential of a standard subdivision then the permitted density should be reduced appropriately.
 - When a wetland, water body, floodplain, or combination, exceeds the area required to be set aside as restricted open space, the excess is to be deducted from the total project area, and
 - The area deducted should not be used in the calculating the permitted number of lots.
- e) Allow for the flexible arrangement of units within the project site by allowing but not requiring units to be on subdivided lots.
- f) Allow 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) Establishing 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) Consider allowing homes and “building envelopes” to be located:
 - Closer to a new interior project street than the current minimum front setback of 75 feet;
 - Between 20 and 30 feet apart side by side (to be determined when legislation is drafted, so that the distance is reduced to permit greater flexibility in the arrangement of units);
 - 100 to 120 feet apart rear to rear compared to the current typical distance of 500 to 600 feet. The current minimum rear yard requirement is only 15 feet, yet few houses are located all the way to the rear of the parcel and are more typically located at or near the minimum 75-foot front yard setback resulting, on average, rear yard depths of 250 to 300 feet.
 - 3) Allow the option for private streets and, in certain situations, permit a reduced right-of-way width for internal public streets and reduced front setbacks along such rights-of-way to enable more flexibility and a greater ability to achieve the open space requirements.
- g) Require the perpetual maintenance of restricted open space. Include 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.

- h) Require review of projects by the Planning Commission to ensure that the objectives of the Conservation Development Regulations are accomplished with the proposed development.
 - i) Allow Conservation Development to be an option to standard subdivision, as a use permitted by right. As an alternative, Conservation Development could be categorized as a conditional use, however, if the regulations and criteria described above are in place, Conservation Development should be compatible with the surrounding development and therefore does not require the extra type of review required for conditional uses. Another option would be to create an overlay districts so that the option for conservation developments is permitted only in selected locations.
3. Create a new R-2 Townhouse Residential District to permit 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) Permit single family attached or detached units at a similar density to those developments already located in Willoughby Hills – Pebblebrook and Steeple Run (maximum density of 4 to 5 units/acre).
 - b) Require a minimum project size of 3 to 5 acres so that there are at least 12 to 20 units to a project, which is large enough to create a sustainable residential environment.
 - c) Require a minimum of two enclosed parking spaces per dwelling unit.
 - d) Require strict buffering along project boundaries that adjoin commercial development or single-family development.
 - 1) Require large buffers against commercial development to ensure long-term success and resale of units in the future. Ideally the burden should be on the commercial development to provide the buffer, but when a new residential project is constructed adjacent to an existing commercial development, the screening will need to be provided by the residential developer.
 - 2) Large buffers against single-family development are necessary for the project to truly act as a transition between commercial and residential property.
4. Create a Senior Residential Overlay District that 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) Require a 10-acre minimum project size.

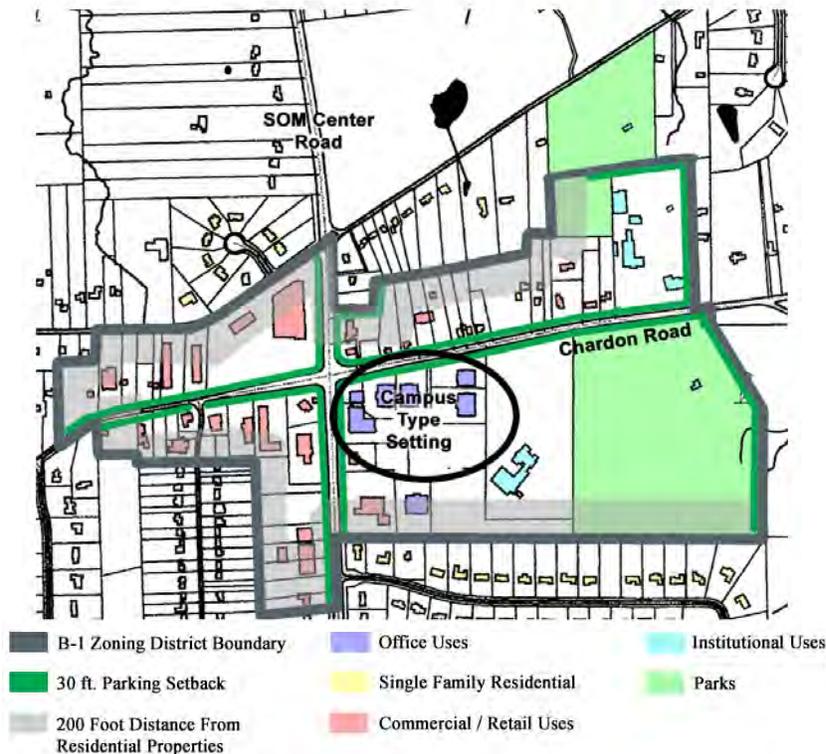
- b) Permit a density ranging between 2 and 12 units per acre depending on site location, surrounding characteristics, and if the development is of a cluster or attached single-family nature. Congregate senior housing in one enclosed building should be permitted up to 20 units per acre.
 - c) Establish development regulations 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:
 - 1) Reduce dwelling unit floor area standards for senior citizen housing.
 - 2) Reduce parking requirements for units in a senior citizen development.
 - d) Draft development regulations to ensure that the project design provides for pedestrian connections to appropriate amenities and services.
 - e) 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. Establish environmental regulations such as riparian setbacks and wetland buffers that protect sensitive natural areas by prohibiting development within a certain distance of these features. Local regulations should be guided by the policies and recommended standards established by the Chagrin River Watershed Partners.

B. Nonresidential District Changes

The City currently has only one commercial district and one research/office district. In order to properly regulate and manage the various types of retail, office, industrial, and mixed-use developments prescribed in these policies, it is necessary to create separate and distinct zoning districts for each.

1. Revise the current B Commercial District to be a mixed-use district. Rename to be called B-1 Commercial Campus/Mixed Use and apply this district to the Chardon Road and S.O.M. Center Road intersection (City Center). See Map 7 for an indication of the potential boundaries of this revised B-1 District.
 - a) Revise the list of permitted uses to enable smaller scale retail/office operations in a campus mixed use center:
 - 1) Consider deleting auto sales as a permitted use.
 - 2) Add multifamily as a conditional use.
 - 3) Prohibit outdoor storage.

Map 7
B-1 Commercial Campus / Mixed Use District
(S.O.M. Center/Chardon Road)

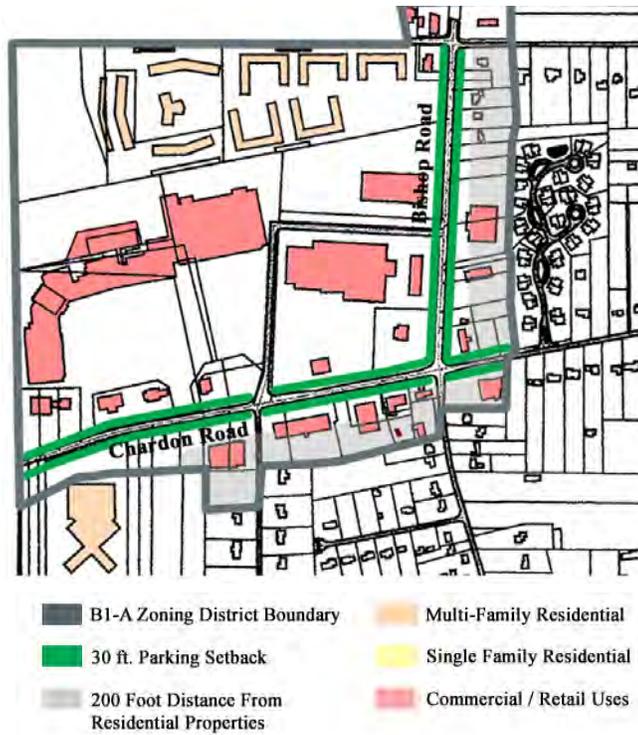


- b) In order to ensure a more pedestrian oriented atmosphere within the “city center”, several amendments to the existing standards should be considered:

- 1) Reduce the minimum building setback from Chardon Road and S.O.M. Center Road to 30 feet from the street right-of-way to promote pedestrian activity and to keep the visual scale of a small town commercial district. The current standard requires a setback of 100 feet from the centerline of a state route, which results in a setback of approximately 45 feet.
 - 2) Add a front parking setback requirement of 30 feet to create a substantial green area along the existing streets.
 - 3) Encourage the building site layouts, parking and on-site vehicular and pedestrian circulation to logically relate to adjacent parcels.
 - 4) Permit off site parking for commercial and residential uses:
 - Encourage joint venture parking lots among building owners to encourage parking away from the street.
 - Provide a square foot bonus structure for developments whose buildings front on either S.O.M. Center or Chardon Road and which provide for parking in ways that diminish the visual appearance of cars along these roads. Allow this bonus to be also be used by property owners who jointly provide parking off site.
- c) Maintain the maximum two (2) story building height within 200 feet of a residential property line. Permit three (3) story buildings when located at least 200 feet from the residential boundary.
 - d) Establish regulations for screening and buffering when adjacent to residential districts.
 - e) Require 30% to 40% of site area be comprised of landscaping and establish specific landscaping/planting requirements in the following locations:
 - 1) Along street frontages and in the fronts 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. This will help to minimize the impact of development on surface water runoff and flooding.
 - f) Revise parking guidelines:
 - 1) Require four (4) to five (5) spaces for every 1,000 sq ft of enclosed retail compared to the current parking standard that requires the parking area to be three times the ground floor area used for retail business or commerce.
 - 2) Require multi-family uses to have 1.5 to 2 spaces for every unit.

2. Create a new B-1A higher density mixed use commercial district with development standards appropriate for the existing shopping center located on the northwest quadrant of the Chardon Road and Bishop Road Intersection. See Map 8 for an indication of the potential boundaries of the new B-1A District.
 - a) The types of uses permitted are similar to those that are permitted in the B-1 with the following additions:
 - 1) Gasoline stations as a permitted use.
 - 2) Multi-family as a conditional use.
 - 3) Drive-thru facilities as a conditional use.
 - 4) Auto sales as a permitted use.

**Map 8
B-1A Commercial / Mixed Use District
(Bishop/Chardon Road)**



- b) Increase the maximum building height to encourage multi-story, mixed-use and more intense development.
 - 1) Building height bonuses may be granted when the developer agrees to provide structured parking to significantly reduce or eliminate surface parking.
 - 2) The 200-foot single-family residential separation (for height bonuses) as used in the B-1 district, would essentially prohibit more intense development along the east side of Bishop and the south side of Chardon Road.

3. Create a new B-2 limited commercial district to maintain the existing scattered commercial sites on Chardon Road.
 - a) Establish a very narrow range of permitted uses that essentially reflects the existing land uses.
 - b) Tailor the minimum lot area, lot width and yard requirements to accommodate buildings and sites

4. Create a new I-1 Light Industrial zoning district that restricts the types of industrial uses permitted and ensures that new development does not negatively impact the western portion of the City:
 - a) Permitted uses are to include the following:
 - 1) Offices;
 - 2) Light manufacturing/assembly;
 - 3) Repair services;
 - 4) Equipment sales; and
 - 5) Outdoor storage of fleet vehicles that are used in the operation of the manufacturing establishment. Other outdoor storage such as storage of supplies or scrap would not be permitted.
 - b) Proposed development standards include:
 - 1) Lot Area and Width: Require a minimum lot area of one acre and a minimum lot width of 150 feet.
 - 2) Front Yard Requirements: Require a building setback of 40 feet from Curtis Wright Parkway or other internal industrial park street, and for corner lots, a minimum of 100 feet from Bishop Road.
 - 3) Yard Requirements when Abutting Residential: Maintain a minimum buffer area of at least 50 feet for all buildings and 30 feet for all parking lots when the lot is adjacent to a residential zoning district.
 - 4) Parking Setbacks: Establish a parking setback of 60 feet from the right-of-way of Bishop Road and other streets that are not internal industrial park streets, (same as recommended for buildings). Establish a 20-foot parking setback from an interior street.
 - 5) Require significant buffering along property lines adjoining residential property. Significant buffering shall consist of materials designed to screen the residential property from view to a height of up to 6 feet.
 - 6) Establish performance standards that regulate various operational aspects such as requiring that there be no light trespass, glare, or other nuisance past the property boundary of the Industrial property.

5. Revise the E Research and Office district to include administrative, medical, and other professional offices and apply this zone to the “Corporate I-90” area south of the I-90/S.O.M. Center intersection.

- b) Permit development and expansion subject to development plan review.
- c) Establish landscaping, buffering, lighting, and other development standards appropriate for office development when adjacent to residential zones.
- d) Permit performance bonuses for office development for height, parking, landscaping and buffering.

C. Administrative/Procedural Changes

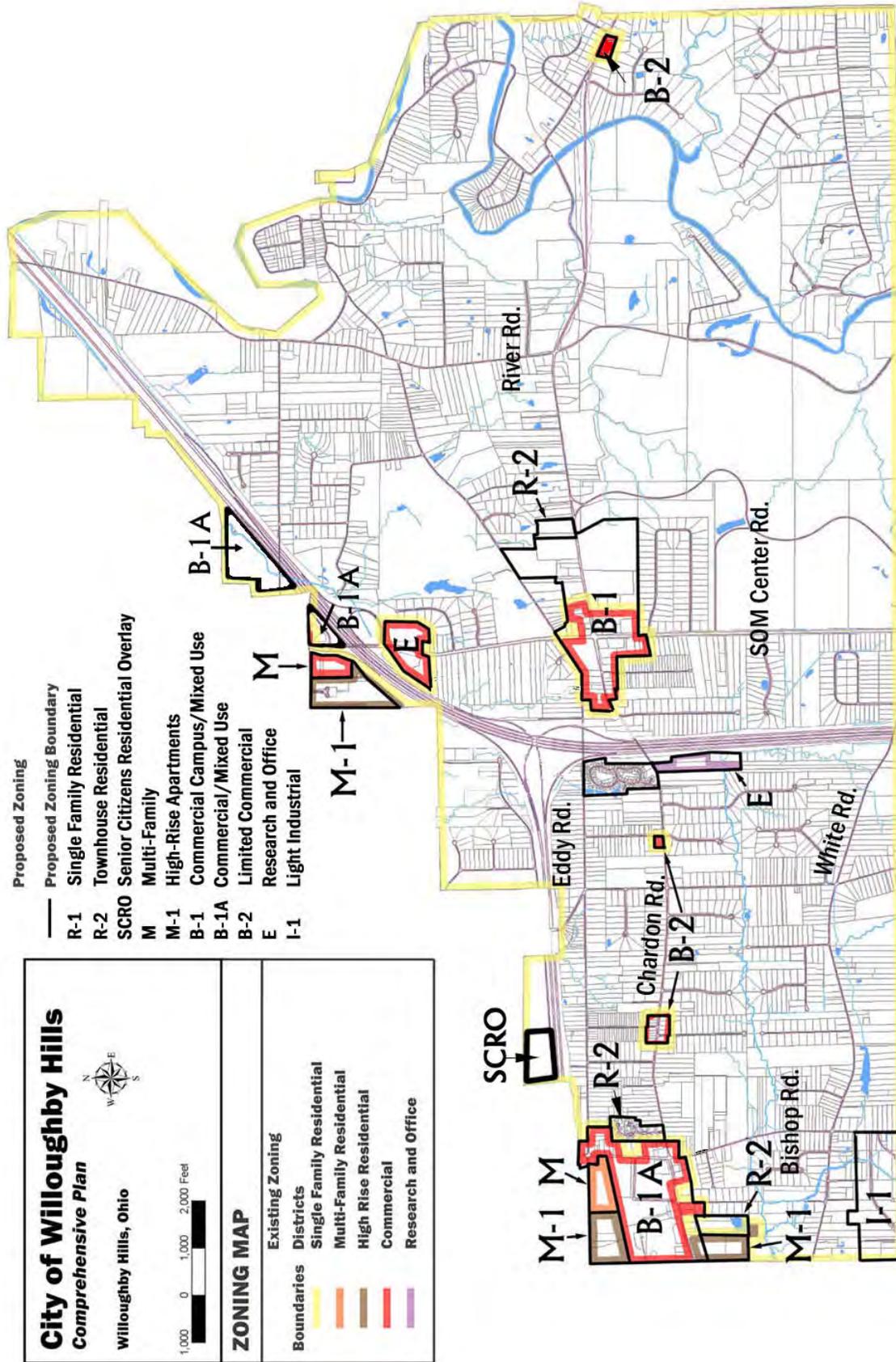
1. Create specific procedures for the review of large-scale commercial and residential development plans that are separate and distinct from the rezoning process and the architectural review process. Include specific approval criteria to guide decisions.
 - a) Require development plans to depict compliance with landscaping/planting requirements.
 - b) Require development plans to depict pedestrian circulation both internally within the specific site, and externally to other parcels.
 - 1) Internal pedestrian circulation shall be deliberately identified to denote specific circulation routes for the user.
 - 2) Pedestrian connections should connect to existing off-site pedestrian systems where possible, or should provide for these connections in the future should there be no pedestrian system adjacent to the development.
2. Create specific review criteria and procedures for conditional uses.
 - a) Include three levels of review for the Planning Commission's use in making conditional use determinations:
 - 1) General subjective review criteria regarding the use's "fit" in the area where proposed, (i.e., the proposed use is harmonious with the surrounding neighborhood, etc.).
 - 2) Specific regulations that differ from the district regulations such as lot width, building setbacks and parking setbacks.
 - 3) Standards that are unique to a particular use, such as spacing standards for group homes, maximum number of beds for a nursing home, etc. This is similar to the larger lot sizes required for churches, schools, etc in the residential districts.
 - b) Establish specific review procedures – i.e. requirements for a public hearing, time frame for notification to surrounding property owners, and time frame for Planning Commission action.
3. Establish a standard zoning amendment procedure that applies to all rezonings and zoning text amendments. There should be a specific process with submission requirements, time frames for review by the Planning Commission and Council, and public hearing requirements.

Suggested Zoning Map Amendments

The following zoning map amendments are recommended in order to implement the development policies established in Chapter 5. Map 9 on page 56, Suggested Zoning Amendments Map, identifies the areas where these suggested map amendments are located.

- A.** Rezone the following areas to the R-2 Townhouse District:
 - 1. The area immediately east of the B-1 City Center area land to act as a buffer or “step down” from mixed-use development to the surrounding residential.
 - 2. The area comprised of multiple contiguous vacant parcels on the south side of Chardon Road across the street from the Shops of Willoughby Hills (the B-1A), and adjacent to the M-1 District.
 - 3. The existing condominium developments, known as Pebblebrook Condominiums and Steeple Run Condominiums, which are now zoned for 1-acre single-family.
- B.** Consider application of the SCRO Senior Housing district on vacant land bordering Wickliffe behind the intersection of West Miller Road and Orchard Extension.
- C.** Rezone the commercial “city center” at S.O.M. Center and Chardon Roads to B-1 (same zone, different name), and expand the zoning to extend eastward to City Hall and Roemisch Field.
- D.** Rezone the following areas to the new B-1A District:
 - 1. The existing commercial area at the Bishop and Chardon Road intersection.
 - 2. The BP Gasoline Station area on the northeast quadrant of I-90/S.O.M. Center Road intersection.
 - 3. The parcels along Maple Grove Road, west of I-90 highway.
- E.** Rezone the small, scattered commercial parcels along Chardon Road to the new B-2 commercial district.
- F.** Rezone parcels along Curtis Wright Parkway to I-1 Light Industrial.
- G.** Rezone to the E-Office Research District the commercial area on S.O.M. Center Road, immediately south of the I-90 interchange.

Map 9
Suggested Zoning Amendments



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 neotraditional city center environment, regardless of the size of the buildings.
 - b) Sign and landscape planting guidelines to help create common themes and unity between the two 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.
 - e) Commercial 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.

Appendix of Background Data

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▶ Appendix C: Tax Comparisons	75
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▶ Appendix E: Bikeway Definitions and Selection Criteria	87

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

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
Gender				
Male	2,630	4,247	4,129	4,107
Female	2,617	4,365	4,298	4,488
Age				
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

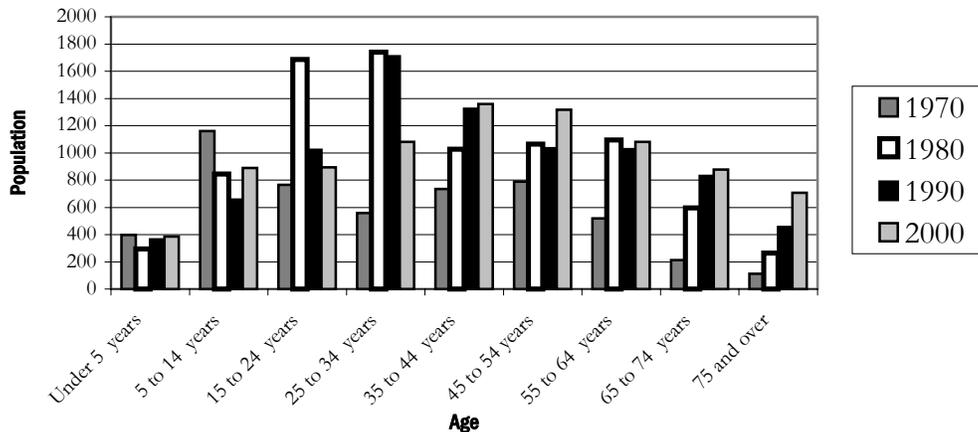


TABLE A-3
SCHOOL AGE CHILDREN PER HOUSEHOLD 1970-2000*
Willoughby Hills

	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%
Cuyahoga County							
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 includes 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.

Appendix B: Land Use & Development Capacity

- ▶ **Table B-9:** Land Area by Zoning District
- ▶ **Table B-10:** Projected Increase in Dwelling Units & Population
- ▶ **Table B-11:** Residential Development Potential at Build-Out
- ▶ **Table B-12:** Trip Generation By Land Use

**TABLE B-9
LAND AREA BY ZONING DISTRICT
Willoughby Hills**

ZONING DISTRICT	-A- Total Acres in District	% of Total Acres	-B- Acres Developed	% of Total in Column -A-	-C- Acres Vacant¹	-D- Flood Plain ²	-E- Total Developable Land³	% of Total in Column -A-
<i>Residential</i>								
R Residential	5,269	76%	3,036	58%	2,233	311	1,922	37%
M Multi-Family	13	0.1%	13	100%	0	0	0	0%
M-1 High Rise Apartment	59	0.8%	49	83%	10	10	0	0%
Total Residential	5,341	77%	3,098	58%	2,243	321	1,922	36%
<i>Commercial</i>								
B Commercial	199	3%	182	91%	17 ⁴	0	17	9%
E Research	14 ⁵	0.2%	11	79%	3	0	3	21%
Total Commercial	213	3%	193	91%	20	0	20	9%
Total Interstate	350	5%	350	100%				
<i>Parks/Recreation</i>								
Cleveland Metroparks ⁶	878	13%	878	100%				
Local Parks ⁷	167	2%	167	100%				
Total Parks/Recreation	1,045	15%	1,045	100%				
TOTAL ACRES	6,949	100%	4,686	67%	2,263	321	1,942	28%

¹ Calculated by D.B. Hartt using 2000 aerial photos & base maps revised 2001 – includes hillsides and flood plains.

² Only undeveloped land. Flood plain = undeveloped land in the floodway and 100 year flood plain.

³ Includes 368 acres in the protected hillside area – hillside regulations regulate but do not prohibit development on steep slopes.

⁴ Includes pending litigation for M-1 use on 11.5 acres of commercially zoned land.

⁵ Includes 3 acres rezoned in spring 2002 to the E District from the R District

⁶ Includes Manakiki Golf Course and North Chagrin Reservation.

⁷ Includes Airport Greens Golf Course, Hach-Otis Sanctuary, Roemisch Fields and Campbell Park.

TABLE B-10
PROJECTED INCREASE IN DWELLING UNITS & POPULATION
Willoughby Hills
(based on current zoning)

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-11
RESIDENTIAL DEVELOPMENT POTENTIAL AT BUILD-OUT
Willoughby Hills
(based on current zoning)

	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)	272	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-12
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-13:** Comparison of Assessed Tax Valuations: Tax Year 2000
- ▶ **Table C-14:** Comparison of Tax Rates: Tax Year 2000
- ▶ **Table C-15:** Projected Property Valuation At Build-Out

TABLE C-13
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
Willoughby Hills	\$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-14
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-15
PROJECTED PROPERTY VALUATION AT BUILD-OUT
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).

Appendix D: Zoning District Regulations Summary

- ▶ **Table D-16:** Permitted Uses in Residential Districts
- ▶ **Table D-17:** Summary of Development Standards in Residential Districts
- ▶ **Table D-18:** Permitted Uses in Commercial and Office Districts
- ▶ **Table D-19:** Summary of Development Standards in Commercial and Office Districts

TABLE D-16
PERMITTED USES IN RESIDENTIAL DISTRICTS

	R Residential Districts	M Multi-Family Districts	M-1 High Rise Apartment Districts
(a) Residential			
(1) Single family dwellings	P	-	-
(2) Multi-family dwellings	-	P	P
(3) Apartment buildings	-	P	P
(b) Community Facilities			
(1) Municipal offices and buildings, community center building, and fire stations	P	-	-
(2) Churches	P ^(a)	P	P
(3) Schools	P ^(a)	P	P
(4) Public libraries	P ^(a)	P	P
(5) Public museums	P ^(a)	P	P
(6) General hospitals	P ^(a)	-	-
(c) Open Space, Recreation, Other			
(1) Parks and reservoirs	P	-	-
(2) Agricultural, including nurseries and greenhouses	P	-	-
(d) Required Accessory Uses ^(b)			
(1) Off-street parking or garages		A	A
(2) Garbage and rubbish disposal facilities		A	A
(3) Screening and landscaping ^(c)		A	A

Notes to Table 16:

P Principal use permitted by right.

- Use not permitted in district.

A Accessory use.

(a) Only permitted when: the parcel has a minimum frontage of 100 feet on any state or federal highway; the maximum building setback is 500 feet from front lot lines; and all driveways used for service outlet only onto the bordering state or federal highway.

(b) Accessory uses permitted in the R district are not specified.

(c) When adjoining or abutting an R district.

**TABLE D-16 (continued)
PERMITTED USES IN RESIDENTIAL DISTRICTS**

	R Residential Districts	M Multi-Family Districts	M-1 High Rise Apartment Districts
(e) Permitted Accessory Uses ^(b)			
(1) Enclosed garages		A	A
(2) Directional and real estate signage		A	A
(3) Gardens, fences, walls, swimming pools and other recreational facilities		A	A
(4) Restaurant, limited shops, and service facilities ^(d)		A	A

Notes to Table 16:

P Principal use permitted by right.

- Use not permitted in district.

A Accessory use

^(b) Accessory uses permitted in the R district are not specified.

^(d) Only when the restaurant is located in a multi-family complex and is solely accessible from such complex. No signage or advertising shall be visible outside the complex.

**TABLE D-17
SUMMARY OF DEVELOPMENT STANDARDS IN RESIDENTIAL DISTRICTS**

	R	M	M-1
(a) Lot Requirements			
(1) Minimum lot size			
- Residential Dwellings	1 acre	5 acres	8 acres ^(a)
- All other uses permitted	3 acres/ building	5 acres	5 acres
(2) Minimum lot frontage	20 ft.	100 ft. ^(b)	100 ft. ^(c)
(3) Minimum lot width	100 ft. ^(d)	350 ft. ^(e)	100 ft. ^{(c) (e)}
(4) Maximum land coverage (including accessory uses)	-	25 %	25 %
(5) Maximum density	-	15 units/acre	No Limit
(b) Yard Requirements/ Building Spacing			
(1) Minimum front yard	75 ft. ^(f)	50 ft.	50 ft.
(2) Minimum side yard (each side)	15 ft.	25 ft.	25 ft.
(3) Minimum rear yard	15 ft.	50 ft.	50 ft.
(4) Landscaped buffer yard	-	-	15 ft. ^(g)
(5) Minimum distance between buildings		(h)	(h)
(c) Height Requirements			
(1) Minimum height	-	-	80 ft. ⁽ⁱ⁾
(2) Maximum height	2 ½ stories or 35 ft.	2 ½ stories or 35 ft.	12 stories or 150 ft. ⁽ⁱ⁾

Notes to Table 17:

- Not specified or not applicable
- (a) For one building, 12 acres for two high rise buildings, and an additional 5 acres of land per building thereafter constructed on the same land.
- (b) 100 ft. minimum frontage is specified for apartments, all other uses conform to a 200 ft. street frontage requirement per section 1141.09 *LOT STREET FRONTAGE*.
- (c) For apartment buildings; all other uses not specified.
- (d) In the event that this 100 ft. width is not achieved by a distance of 75 ft. from the edge of the public right of way, no property between the located between the right of way and the point where 100 ft. is achieved shall be included for the purpose of determining whether or not the lot complies with the minimum lot size requirements.
- (e) At the lots narrowest point, all lots must have an average width of 350 feet, except in the case of irregular lots whereby approval may be sought from the Planning and Zoning Commission.
- (f) Except where there is an established building line, in such case, the building shall be constructed to conform to such setbacks.
- (g) Where parcel abuts an R district.
- (h) The minimum distance shall be determined by adding the length and height of each proposed building and dividing the result by four.
- (i) A high rise apartment building is defined as a multi-family dwelling not less than eighty feet tall, but not more than 12 stories nor more than 150 feet in height.

TABLE D-17 (continued)
SUMMARY OF DEVELOPMENT STANDARDS IN RESIDENTIAL DISTRICTS

	R	M	M-1
(1) Minimum living area for single-family dwellings			
- Minimum total area	1,250 sq. ft. ⁽ⁱ⁾	-	-
- Minimum first floor area	900 sq. ft.	-	-
(2) Minimum living area for multi-family dwellings			
- One bedroom	-	750 sq. ft. ⁽ⁱ⁾	550 sq. ft. ⁽ⁱ⁾
- Two bedroom	-	900 sq. ft.	750 sq. ft.
- Three bedroom	-	1,100 sq. ft. ^(k)	900 sq. ft.
- Four bedroom	-	1,250 sq. ft. ^(k)	1,050 sq. ft.
(e) Accessory Building Requirements			
(1) Maximum floor area	600 sq. ft. ^(l)	-	-
(2) Maximum height	15 ft.	15 ft.	-
(f) Parking Setback from R District	-	25 ft.	10 ft.

Notes to Table 17:

- Not specified or not applicable
- ⁽ⁱ⁾ No more than fifty percent of building shall be in the one bedroom category.
- ^(k) No more than twenty percent of building shall be in the three or more bedroom categories.
- ^(l) Requirement is for lots one acre or less, on lots larger than one acre, permitted area is increased one square foot for every 100 sq. ft. of lot area in excess of 43,560 sq. ft.

**TABLE D-18
PERMITTED USES IN COMMERCIAL DISTRICTS AND OFFICE DISTRICTS**

	B Commercial Districts	E Research and Office Districts
(a) Residential		
(1) Upper floor apartments ^(a)	P	-
(b) Office and Professional Services		
(1) Professional offices	P	-
(2) Banks	P	-
(3) Brokers	P	-
(4) Agents	P	-
(5) Laboratories for experimental, research, and testing purposes	-	P
(6) Offices for administration of main or permitted businesses	-	P
(7) Offices for wholesale trade with offsite warehouses		
(c) Retail and Personal Services		
(1) Retail stores	P	-
(2) Drug stores	P	-
(3) Shops for custom work sold on premises	P	-
(4) Studios	P	-
(5) Barber shops, beauty shops	P	-
(6) Restaurants, lunch rooms and bakeries ^(b)	P	-
(7) Theaters under roof	P	-
(8) Bowling alleys	P	-
(9) Skating rinks	P	-
(10) Dance halls	P	-

Notes to Table 18:

P Use permitted by right

C Use permitted through a conditional use permit process

A Accessory uses

- Not specified or not applicable

^(a) Must be designed for the proprietors, caretakers, or operators of stores or offices in the building, cannot exceed the ground floor area of the building; not to be used for rental use.

^(b) No lunchroom or restaurant shall be permitted on a parcel that abuts a residential zone or which is less than 2 acres.

TABLE D-18 (continued)
PERMITTED USES IN COMMERCIAL DISTRICTS AND OFFICE DISTRICTS

	B Commercial Districts	E Research and Office Districts
(11) Automobile sales ^(c)	P	-
(12) Gasoline service stations	C	-
(d) Community Facilities/Other		
(1) Municipal offices and buildings, community center buildings, and fire stations	P	-
(2) Lodge halls, offices or nonresidential quarters for associations, clubs or fraternities	P	-
(e) Required Accessory Uses ^(d)		
(1) Off street parking or garages		A
(2) Garbage and rubbish disposal facilities		A
(3) Landscaping and screening ^(e)		A
(f) Permitted Accessory Uses ^(d)		
(1) Enclosed garages for the temporary storage of automobiles		A
(2) Private restaurant or cafeteria (not open to the public)		A
(3) Directional and real estate signage		A
(4) Auditoriums, clinics and recreational facilities ^(f)		A
(5) Indoor storage and assembly of components related to permitted uses		A

Notes to Table 18:

- P Use permitted by right
- C Use permitted through a conditional use permit process
- A Accessory uses
- Not specified or not applicable
- ^(c) Auto sales are limited to the sale and service of new automobiles and parts as well as used automobile sales if operated in conjunction with the sale of new automobiles.
- ^(d) Accessory uses permitted in the B district are not specified.
- ^(e) Required when abutting a residential district.
- ^(f) For use by employees and visitors to buildings on the premises, and controlled under the same ownership and operation as the building.

**TABLE D-19
SUMMARY OF DEVELOPMENT STANDARDS IN COMMERCIAL AND OFFICE DISTRICTS**

	B	E
(a) Lot Requirements		
(1) Minimum lot size	None	5 acres
(2) Minimum lot width and frontage	None	250 ft.
(3) Maximum lot coverage	-	25%
(b) Yard Requirements		
(1) Minimum front yard		
On a federal or state highway	100 ft. ^(a)	100 ft. ^(b)
On other public roads	75 ft. ^(a)	100 ft. ^(b)
On a private road or alley serving 2 or more properties	40 ft. ^(a)	100 ft. ^(b)
(2) Minimum side yard	10 ft. ^(c)	50 ft.
(3) Side yard adjacent to residential	15 ft.	-
(4) Minimum rear yard	10 ft. ^(c)	50 ft.
(5) Landscaped buffer yard	-	15 ft. ^(d)
(c) Parking Setback	^(e)	25 ft. ^(f)
(d) Maximum Building Height	2 stories or 30 ft. ^(g)	2 stories or 30 ft.

Notes to Table 19:

- Not specified or not applicable
- ^(a) Setbacks as measured from the centerline of the traveled portion of any public or private way.
- ^(b) Ordinance reads setback as being measured from the “street line.”
- ^(c) A zero (0) side and/or rear setback may be utilized if a two hour firewall is, a five foot clearance is required if such wall exists and the building contains a residential.
- ^(d) When abutting a residential district.
- ^(e) Parking may be located in the front setback in accordance with 1145.05(d).
- ^(f) Where a parcel abuts a residential district.
- ^(g) Appurtenances shall be granted an additional three feet; roofs with a pitch steeper than 4/12 shall be granted an additional five feet in overall height.

Appendix E: 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>