

# Buffalo, MN

## a transect-based land use strategy

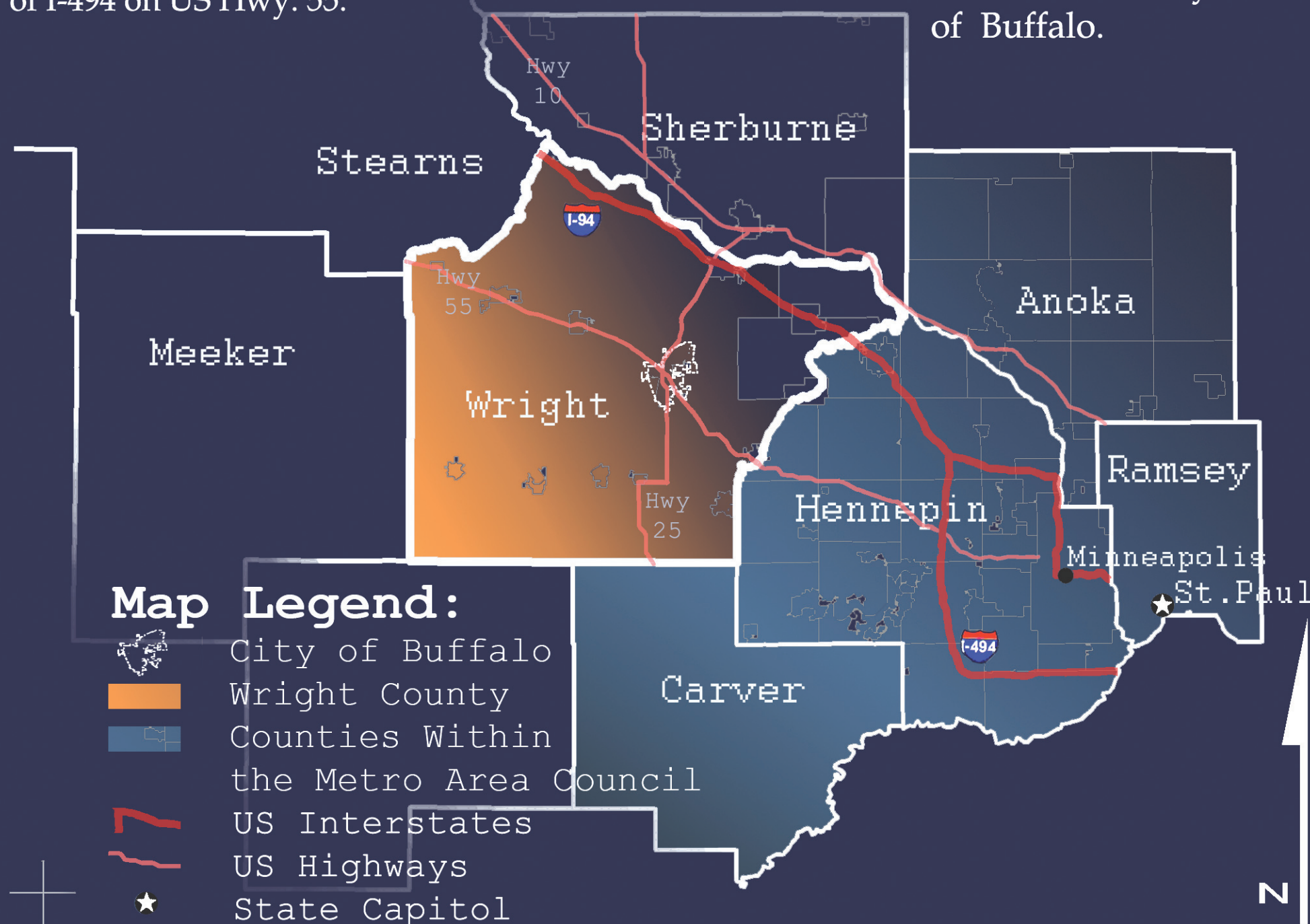


### The Region:

Wright county lies to the Northwest of the seven counties that make up the Minneapolis/St. Paul Metropolitan Statistical Area (MSA). This region is among the fastest growing regions in Minnesota, and the United States. Six out of the top 85 fastest growing counties in the nation are located within central Minnesota. (U.S. Census Bureau 2000-20004) According to Peter Calthorpe's 'The Regional City', the Twin Cities metro area has been a shining example of regional cooperation in planning for the past 30 years. Policies in transportation, natural resources, and regional parks will accommodate the region's anticipated growth. The metro area population is expected to reach 3.6 million people by the year 2030. (2005 Metropolitan Council Annual Report)

### Site Context:

The city of Buffalo lies about 50 miles northwest of St. Paul, the capital of Minnesota. The city is located about 15 miles south of I-94 on US Hwy. 25, and about 25 miles west of I-494 on US Hwy. 55.



#### Map Legend:

- City of Buffalo
- Wright County
- Counties Within the Metro Area Council
- US InterStates
- US Highways
- State Capitol

### City of Buffalo:

With a land area of approximately 4,350 acres, the city of Buffalo is nestled between lakes Buffalo and Pulaski, to the southwest and northeast respectively. Following over 300 years of Native American settlement, the village of Buffalo was platted in 1856. The map to the right illustrates the expansion of the city from 1900, to 2010. The city has a current population of about 14,000 people, increasing by 47% from 1990 - 2000. (US Census Bureau)

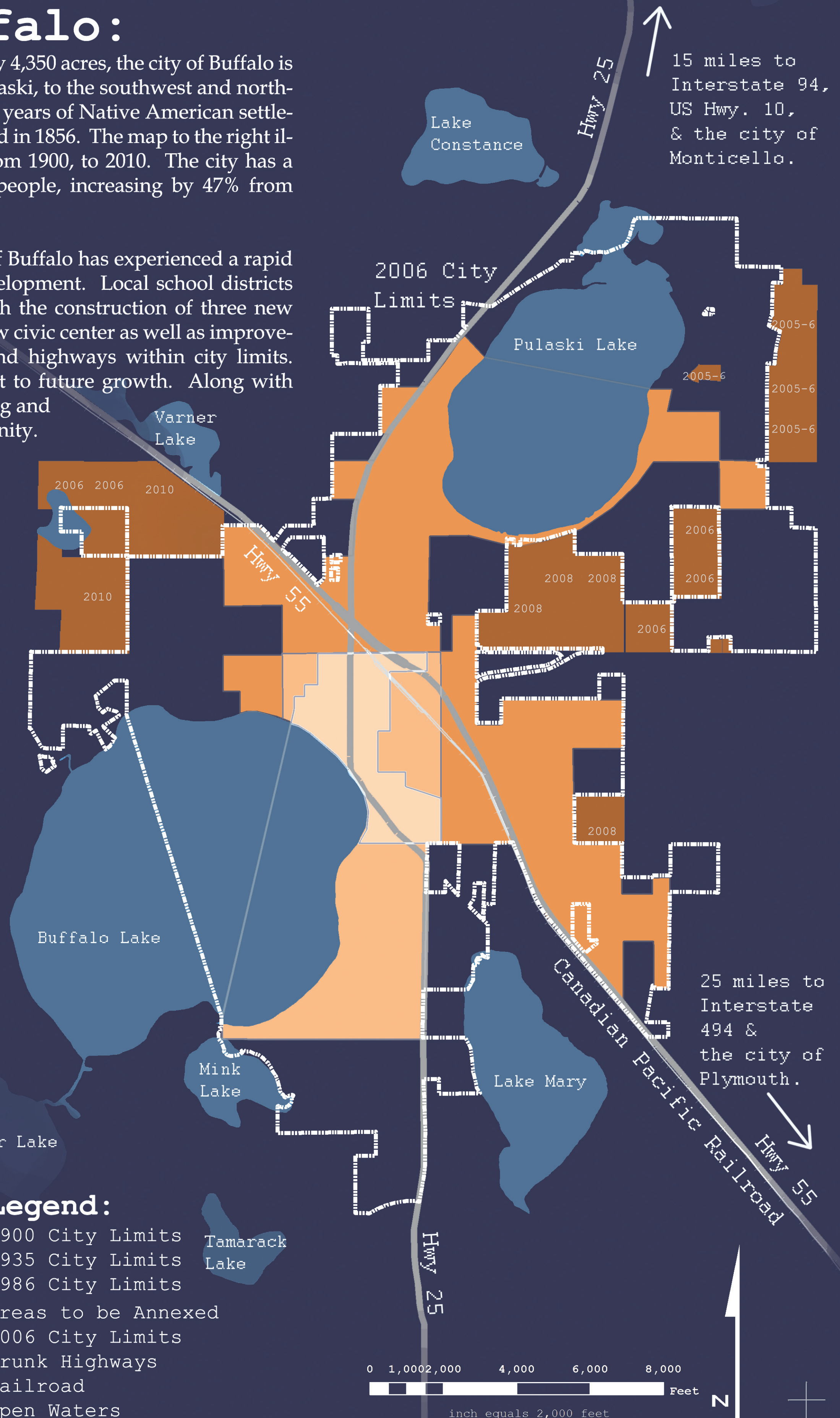
Within the last decade, the city of Buffalo has experienced a rapid increase in both population and development. Local school districts have invested in the community with the construction of three new schools. The city has invested in a new civic center as well as improvements to over 86 miles of streets and highways within city limits. These investments are a commitment to future growth. Along with this growth comes a need for visioning and planning for the future of the community.

### Goals:

The current zoning plan for Buffalo was adopted in 1996 and has been updated numerous times since then. There is a desire from community residents and city officials to adopt a new plan that addresses issues such as **neighborhood connectivity, natural preservation, rapid population growth, downtown revitalization, and park connectivity.** The primary goal of this thesis is to provide a media for the education and clarity of real alternatives to the current zoning and land use plan for both residents and city officials of Buffalo.

#### Map Legend:

- 1900 City Limits
- 1935 City Limits
- 1986 City Limits
- 2010 Areas to be Annexed
- 2006 City Limits
- Trunk Highways
- Railroad
- Open Waters



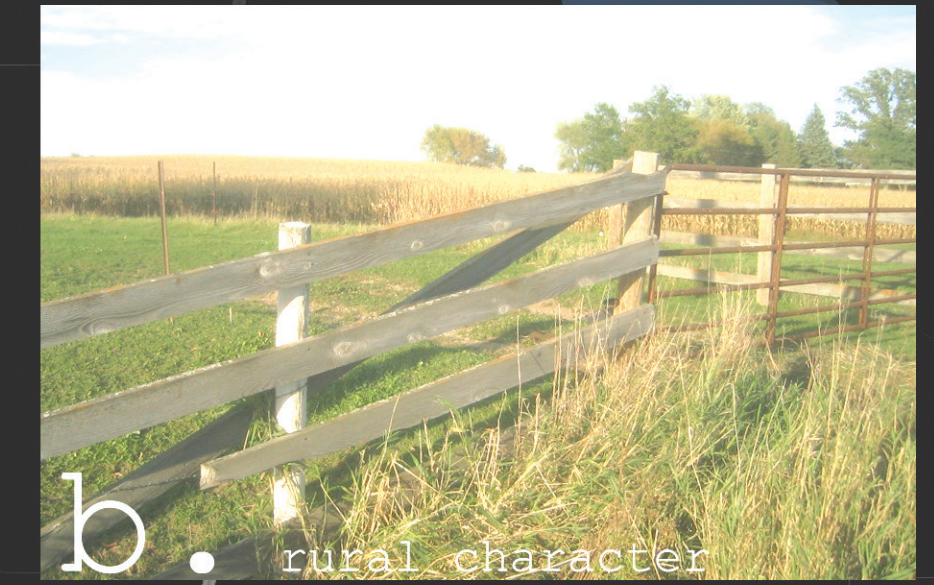
15 miles to Interstate 94, US Hwy. 10, & the city of Monticello.

25 miles to Interstate 494 & the city of Plymouth.

0 1,000 2,000 4,000 6,000 8,000 Feet  
1 inch equals 2,000 feet



a. looking North across Lake Pulaski from Griffing Park



b. rural character

## Land Use Patterns:

Land uses within the city of Buffalo consist of residential housing, healthcare/hospital facilities, commercial and industrial developments, public service facilities, agricultural land, and recreational parks. Residential and commercial features exist in two very different patterns.

### Traditional Neighborhood Development (TND):

The first of these patterns is one of **Traditional Neighborhood Development (TND)**. This pattern is found in most areas of town developed before 1945. Compact developments, efficient uses of land, and mixed use developments are all principles of this old style of small town development. There are a number of buildings within these areas that preserve a 'Historical Heritage' for the community. The Wright county courthouse, public service buildings, and the downtown shopping district all have characteristics of TND design.

### Conventional Suburban Developments (CSD):

In contrast to TND developments, there are built features throughout Buffalo that induce isolation, necessitate vehicular usage, and require large amounts of land for development. These areas are referred to as **Conventional Suburban Developments (CSD)**. These areas lie, for the most part, adjacent to and north of Highway 55, west of 4th Ave. NW, and southeast of Buffalo Lake. The developments within these areas are mostly low-density residential, schools, and/or retail commercial along transportation corridors. These areas are lacking connectivity to adjacent land parcels and the downtown area. The future projects map for the city of Buffalo shows 6 new developments scheduled to be completed within these CSD areas.

## Demographics:

The most recent demographics for Buffalo are shown in spreadsheets to the right. Future demographics for the region, and the city, are expected to increase in population, age, and dependency due to three main factors:

### Concentration in Metropolitan Regions-

The fastest population growth projected for the Twin Cities region is suburban and semirural exurban areas, including Buffalo. By 2020, 68 percent of Minnesota's population will live in one of three metropolitan areas, (Minneapolis/St. Paul, Rochester, or St. Cloud) including their suburban and exurban areas. (US Census Bureau)

### Aging-

During the next 30 years, the population born between 1947 and 1964 (often referred to as the 'Baby Boomer' Generation) will age to be 61 - 78 years of age by 2030. This will result in a substantial increase in the population over 65 years of age as well as a decline in the population under the age of 45. The very old population, those age 85 and older, will rise rapidly until 2010, after which its growth will slow, reflecting the low birth rates during the Depression of the 1930's.

### Rising Dependency Ration-

Elderly persons will not only increase rapidly in number after 2010, but they will also account for a larger proportion of the total population. By 2025, about 30 percent of Buffalo residents are projected to be more than age 65, compared to 11 percent currently. As this rise in elderly persons occurs, the dependency ratio (the ratio of the number of children and elderly to the number of working-age people) also will begin to go up. A relatively small number of workers will have to support a large number of retirees and children, increasing the potential for inter-generational interactions. (US Census Bureau)

### Map Legend:

- TND Residential
- TND Commercial
- CSD Residential
- CSD Commercial
- Future New Developments
- School
- Inventory Photograph
- Average Daily Traffic Volume (2002)

a.  
16000

### Age Demographics for Buffalo, MN: 2000

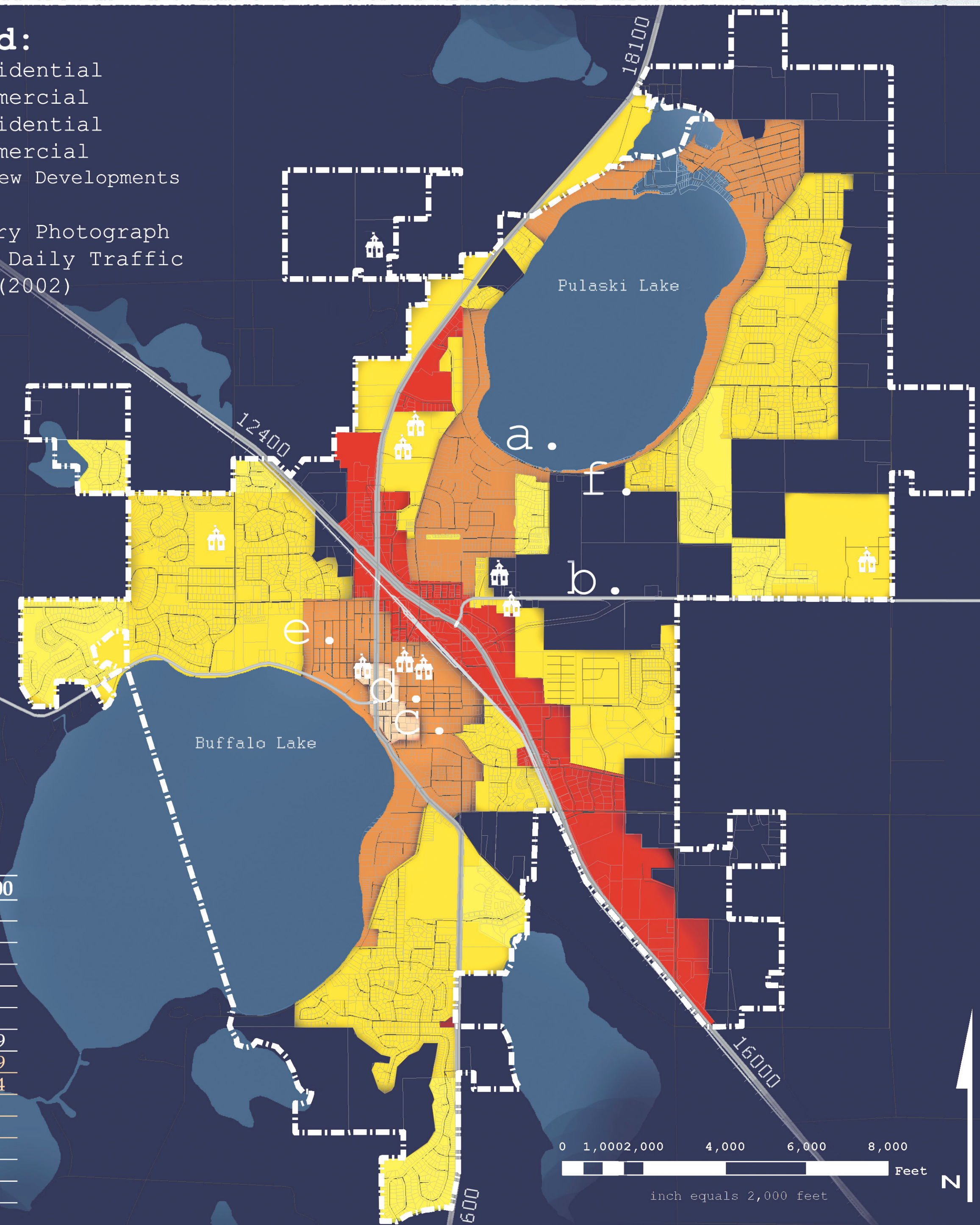
	#	%
Under 5	903	8.9
5-9	788	7.8
10-14	774	7.7
15-19	752	7.4
20-24	609	6.0
25-34	1706	16.9
35-44	1607	15.9
45-54	1147	11.4
55-59	371	3.7
60-64	298	3.0
65-74	473	4.7
75-84	424	4.2
85+	245	2.4

### Projected Population for Buffalo, MN: 2000 (www.demography.state.mn.us.html)

	1990	2000	2010	2020	2030	2040
Growth Rate:		47.27%				
Projected Growth Rate:			35%	30%	25%	20%
Population:	6,856	10,097				
<b>Projected Population:</b>			<b>18,900</b>	<b>24,570</b>	<b>30,713</b>	<b>36,855</b>

### Economic Census for Buffalo, MN: 2002

	#	Sales (1,000)	Paid Employees
Manufacturing	22	na	na
Retail Trade	59	312,412	1,256
Real Estate/Rental/Leasing	15	8,161	61
Professional Services	36	14,255	154
Healthcare	50	94,997	2,274
Accommodation/Food Services	24	15,499	577



### Housing Demographics for Buffalo, MN: 2000

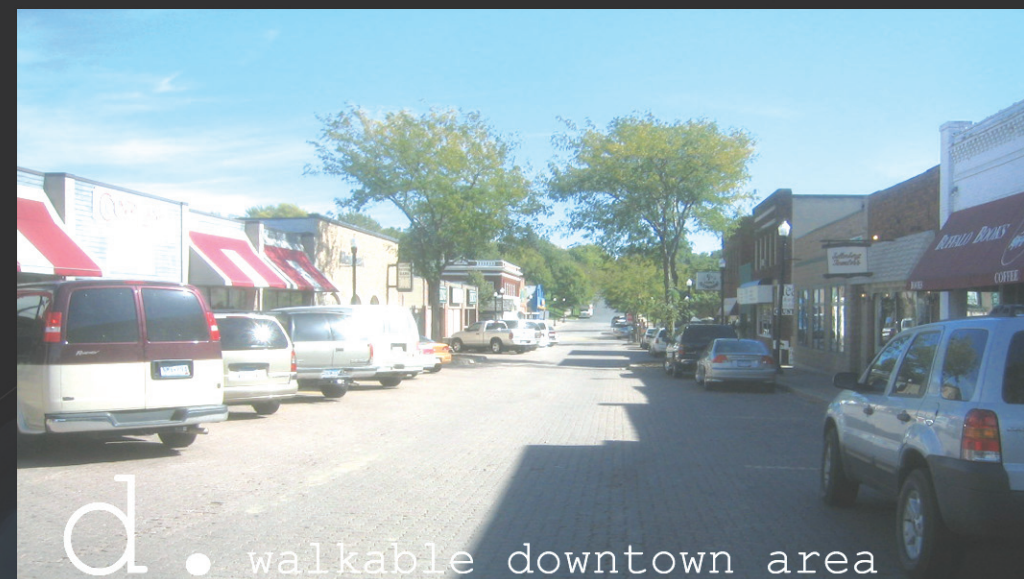
	#	% of Total
Occupied Housing Units	3,702	95.6
Vacant Housing Units	169	4.4
Owner-occupied Units	2,668	72.1
Renter-occupied Units	1,034	27.9
Rental Vacancy Rate	2.3%	

### Housing Type

	#	% of Total
1-unit, detached	2,389	61.7
1-unit, attached	195	5.0
2 units	107	2.8
3 or 4 units	66	1.7
5 to 9 units	182	4.7
10 to 19 units	122	3.2
20 or more units	502	13.0
Mobile home	309	8.0



c • pedestrian pocket in downtown



d • walkable downtown area



e • a traditional neighborhood



f • bike/pedestrian path

# Walkability Inventory:

A walkability inventory for the City of Buffalo illustrates how existing conditions influence the level of walkability. Maps include city parks, mature vegetation, FEMA floodway areas, commercial businesses, schools, elderly housing / healthcare facilities, and terminating streets.

## Open Space:

The city of Buffalo contains 23 city parks, (Cardinal Park, Prairie View Park, Greenbriar Park, Myhran Park, Pulaski Ponds Park, Eastland Estates Park, Buffalo Hills Park, Griffing Park, West Pulaski Park, Solbakken Park, Pine Meadows Park, Bentfield Mills/Family Park, Curly Park, Shonhaugen Park, Sturges Park, Lion's Park, Mills-Stuges Park, Methodist Church Park, Trapper's Pond Park, Serentiy Hills Park, Gary Mattson Park, Willow Ridge Park, and Buffalo Heights Golf Course). A 1/4 mi. buffer is applied to illustrate areas within a 5 minute walk for most residents.

Mature growth vegetation is shown in light green. These areas consist of remnants of the historic 'Big Woods' species that inhabited these lands within the past 500 years. Species include elm, ash, maple, and basswood.

Areas that are susceptible to floodwaters are shown in light blue. This information is derived from the Federal Emergency Management Agency (FEMA). FEMA is involved in the acquisition or improvement of land facilities located or to be located in identified areas having flood hazards.

## Commercial Businesses:

A list of commercial businesses was obtained from the Buffalo Tourism Bureau. The list includes over 85 commercial businesses in retail, books, dining, entertainment, specialty shops, occasional sales, and antique/thrift stores. Other businesses that were not included in the walkable inventory include orchards, golf courses, and lodging. A 1/4 mi. buffer is applied to illustrate areas within a 5 minute walk for most residents.

## Healthcare/Assisted Living:

Healthcare and assisted living is grouped together in this inventory due to the small number of facilities and the demographics of walking participants in each group. The city has 5 healthcare/assisted living facilities, (Buffalo Allina Hospital, Ebenezer Covenant Home Health Care, Sunrise Assisted Living, Sunrise Cottages of Buffalo, and Park View Care Center). A 1/2 mi. buffer is applied to illustrate areas within a 10 minute walk for most residents.

## Schools:

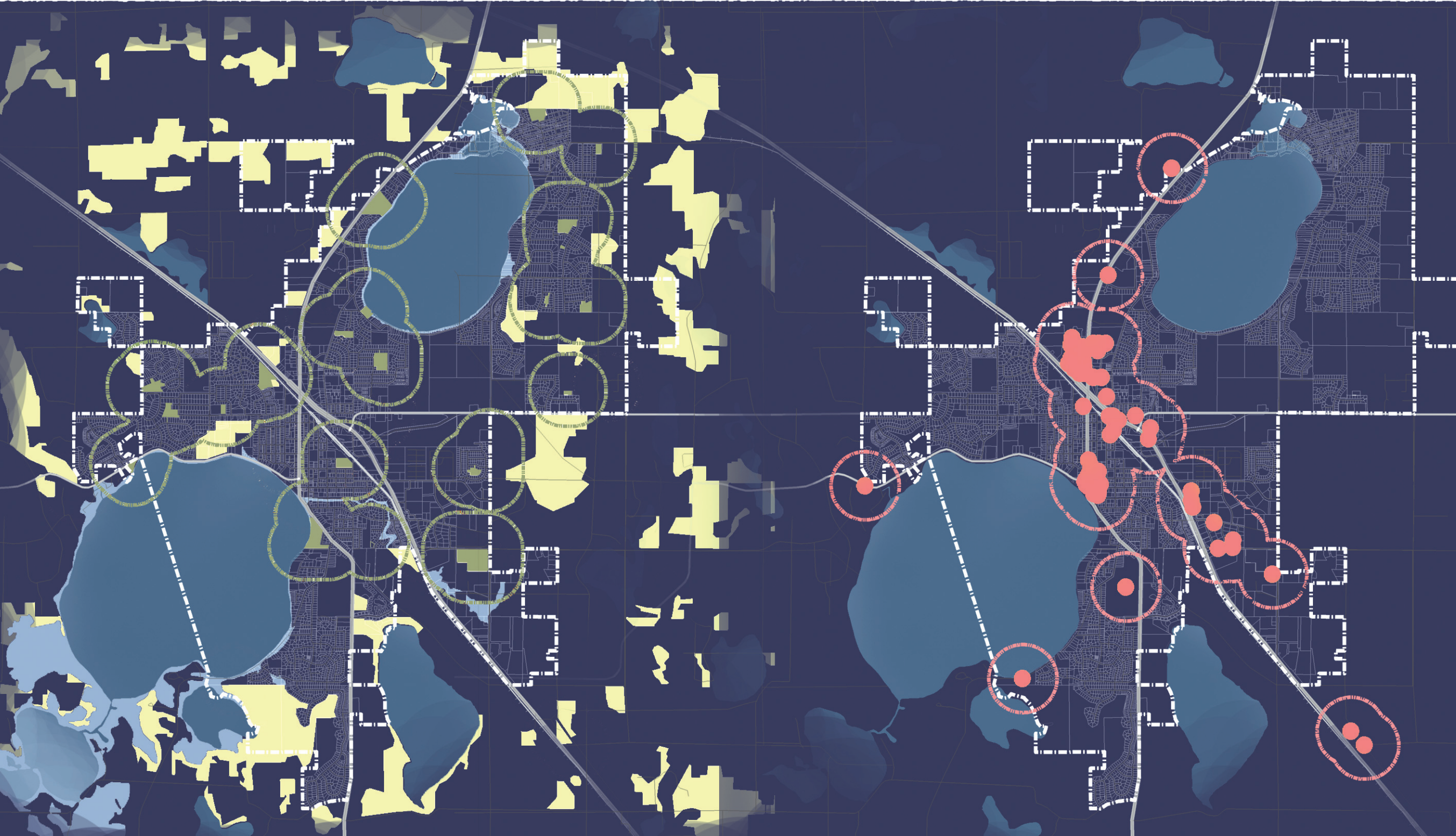
There are currently 8 schools in Buffalo (Buffalo High School, St. Francis Catholic Schools, Wright Technical Center, Phoenix Learning Center, Buffalo Community Middle School, Parkside Elementary, and Discovery Elementary schools) with 2 new schools under construction (Northwinds Elementary, and St. Francis schools). A 1/2 mi. buffer is applied to illustrate areas within a 10 minute walk for most residents.

## Civic Buildings:

There are 6 civic service buildings in Buffalo (Wright County Public Health Services, Buffalo Public Library, City of Buffalo Fire Dept., Buffalo Police Dept., Buffalo City Hall, Wright County Sheriff, and Buffalo Civic Center). A 1/4 mi. buffer is applied to illustrate areas within a 5 minute walk for most residents.

## Street Network:

A point of interest in regards to walkability is the connectivity of street networks. Connectivity is measured in terms of terminating streets (ie. cul-de-sacs, dead-ends). There are currently 121 terminating streets within the corporate limits of Buffalo, with more proposed within new developments.

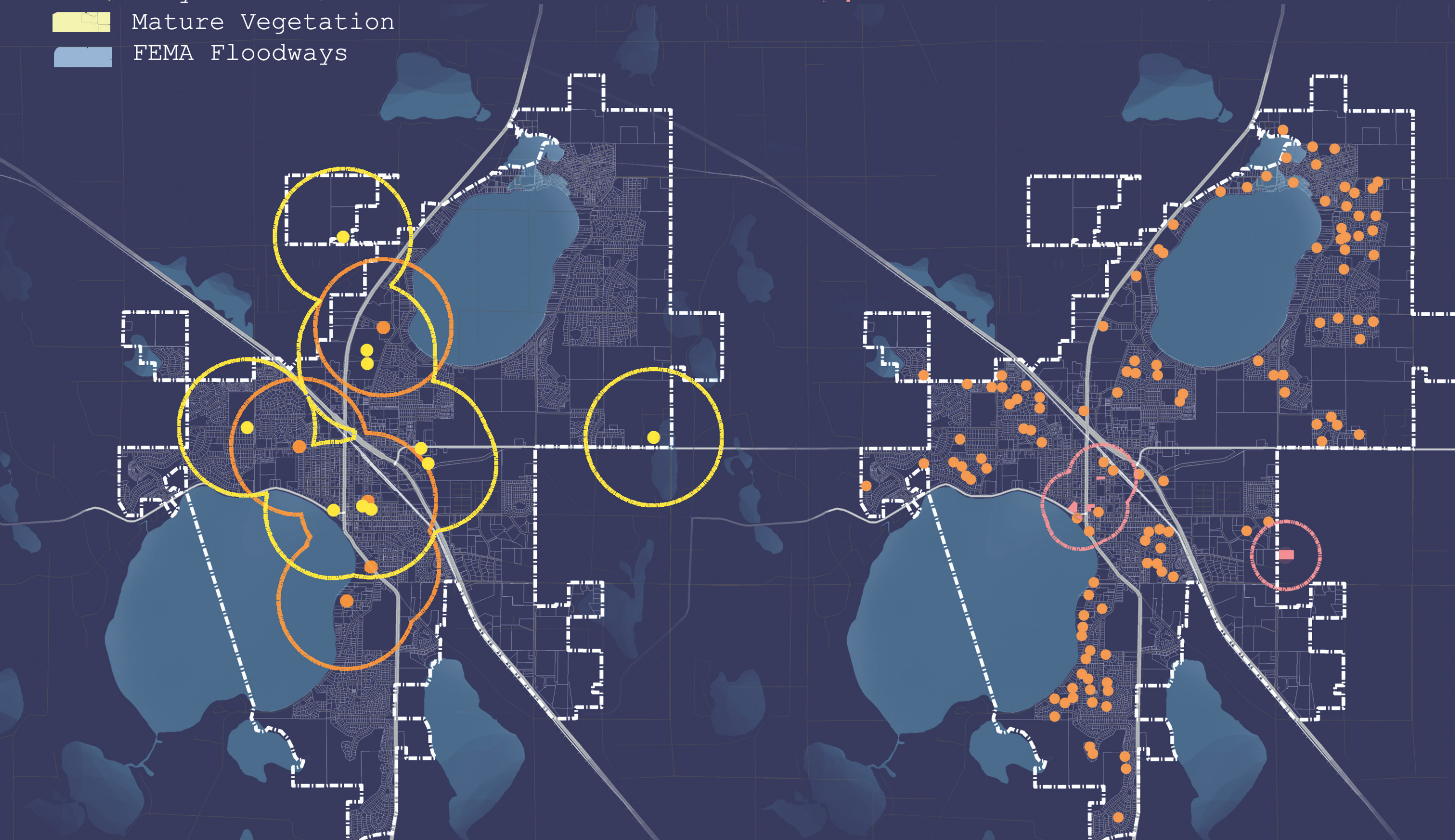


### Open Space Legend:

- City Parks
- City Parks 1/4 mi. buffer
- Mature Vegetation
- FEMA Floodways

### Commercial Business Legend:

- Commercial Business
- Commercial Business 1/4mi. buffer



### Healthcare/School Legend:

- Healthcare/Assisted Living Facility
- Healthcare/Assisted Living 1/2mi. buffer
- School
- School 1/2 mi. buffer

### Street Network/Civic Legend:

- Terminating Streets
- Civic Building
- Civic Building 1/4 mi. buffer



# Comprehensive Plan Objectives:

## Reassess the Regulatory Framework:

*Provide a media for the education and clarity of real alternatives to the current zoning regulations and land use plan for the city of Buffalo.*

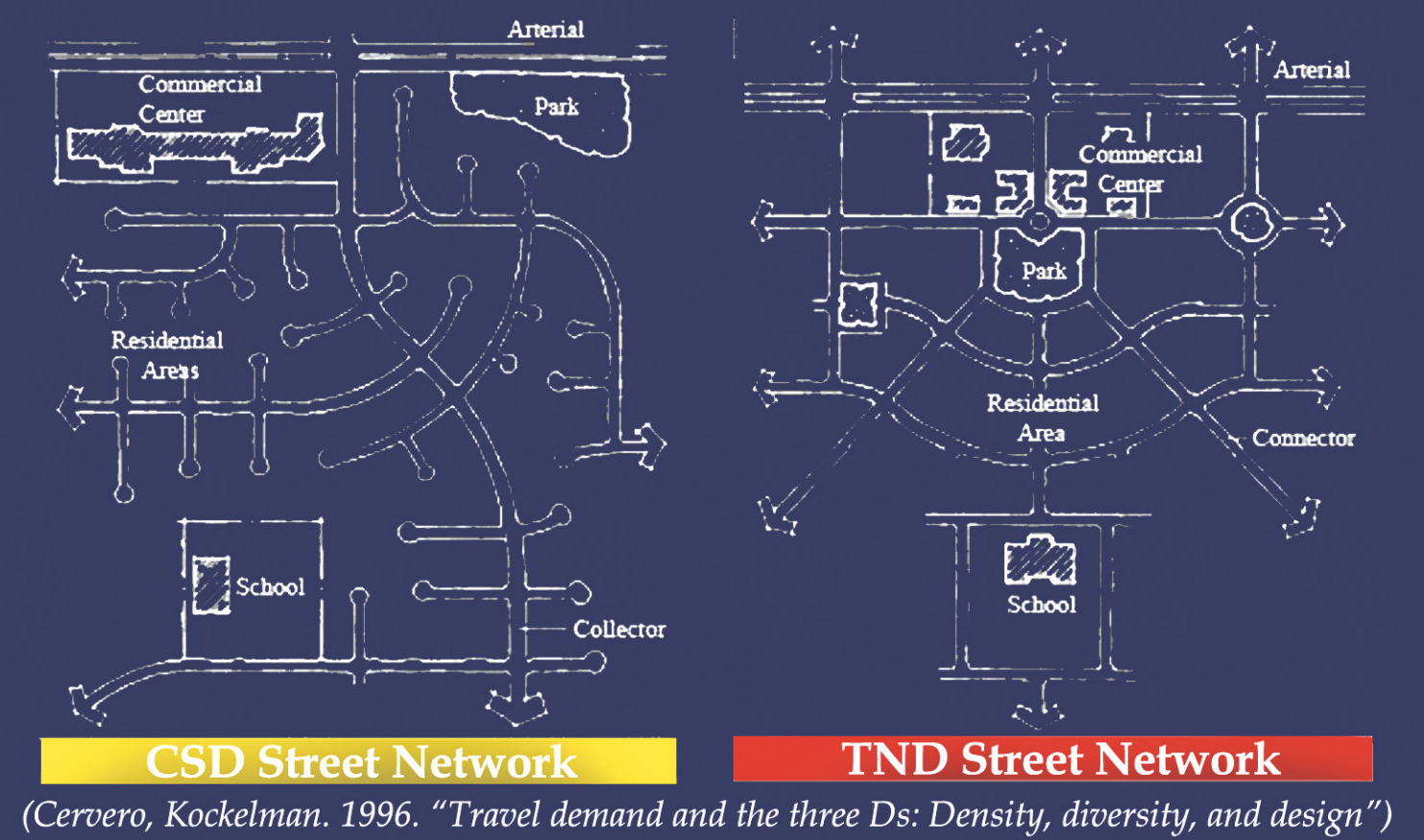
The Buffalo planning legislation, as well as most other US cities, is patterned after the Standard State Zoning Enabling Act (SZA). SZA was promoted by the Hoover Administration in the 1920's. The primary purpose was to segregate uses that were thought to be incompatible. The SZA-based statute results in different uses of land to be completely isolated from each other. The aforementioned zoning patterns are nearly 100 years old, and were created at a time when vehicular use and population demographics were much different than today. There is a need to restructure zoning regulations with the creation of a new comprehensive plan. The new plan will create **places**, rather than **zones**.

<u>Existing</u>	<u>Proposed</u>
Residential Zones & Subdivisions	Neighborhoods
Shopping Centers & Office Parks	Mixed-use Districts
Arterials & Highways	Boulevards w/ Walkable Streets

## Enhance Street Connectivity

*Create pedestrian-friendly street and roadway networks that support social interaction by connecting growth areas of the community.*

Buffalo has an abundant and increasing supply of CSD street networks. These networks are built to the scale of the automobile and increase travel distance between destinations. TND street networks allow for easier pedestrian movements and a greater amount of social interaction. Street connectivity facilitates better traffic flow, slower driving speeds, and faster emergency response times.



## Preserve Community Character:

*Preserving current croplands and rural areas will strengthen community character and identity, as well as prevent sprawling developments.*



Existing farms and rural landscapes add to the community character of Buffalo.



Preserved rural lands help define town and neighborhood edges.

The identification and preservation of rural landscapes is key to enhancing the community identity of Buffalo. Due to the small size of many agricultural lands surrounding the city, uses such as hybrid poplar cultivation, apple/wine orchards, and ranching could be explored in order to yield a higher profit margin while preserving the rural character.

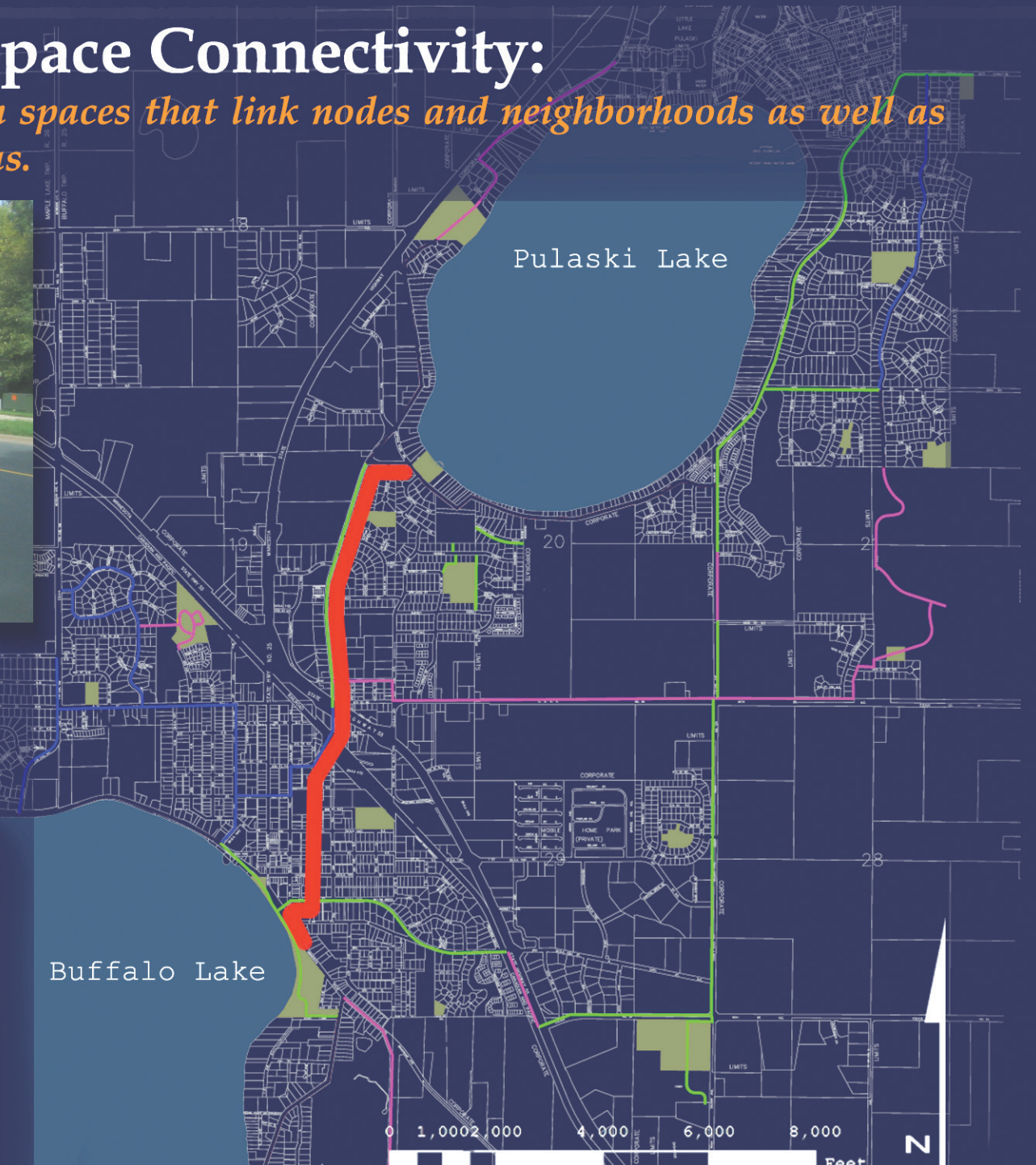
## Increase Park and Open Space Connectivity:

*Establish a network of parks and open spaces that link nodes and neighborhoods as well as offer both passive and active recreation areas.*



Current pedestrian trail along 3rd Ave. N.

Buffalo has 23 parks which are located adequately to serve adjacent neighborhoods. The problem is that the parks are lacking connectivity. The map here shows a proposed pedestrian connection between Griffing and Sturgis Parks. Although many more connections are needed, this connection is a primary concern as it will connect neighborhoods north of Hwy. 55 with downtown.



## Increase Housing Diversity:

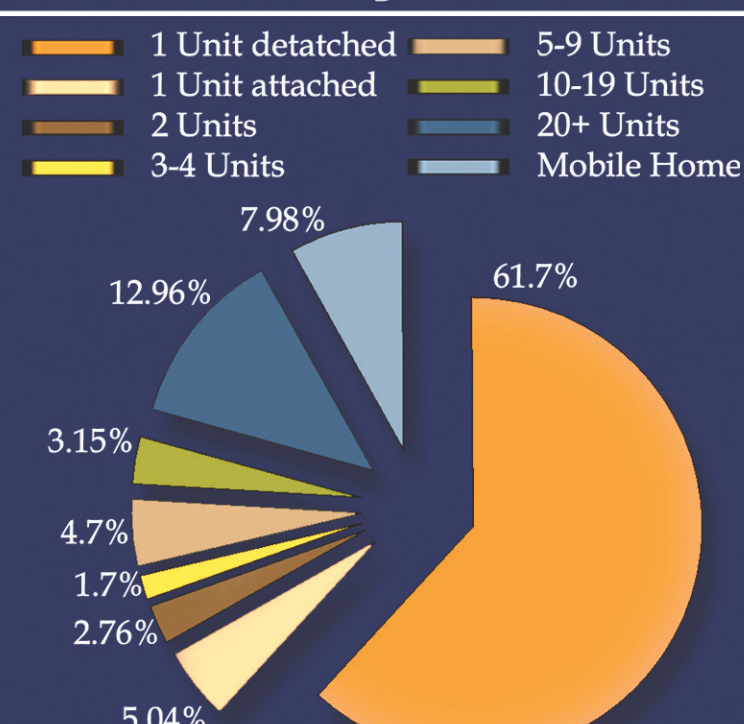
*Create standards that provide greater diversities of housing types, densities, and costs.*

Although Buffalo offers a good variety of housing options compared to similar communities in the region, there is an ever increasing demand for more diverse and affordable housing options (Housing Facts and Findings). The majority of Buffalo's housing is provided as single family, mobile home or large (greater than 10 dwelling units) apartment complexes. Row-houses, Accessory Dwelling Units, and Condo/Office Units are all options for increasing housing diversity.



Example of a medium-high density Row-house development.

Buffalo Housing Data (2000):



## Identify Community Nodes and Gateways:

*Create nodes at major transportation intersections. The nodes should produce higher densities of mixed uses to promote compactness and encourage pedestrian traffic. Gateways create the first and last impressions of the city for visitors.*

Nine community nodes are identified in the adjacent map (orange). The nodes are located at the intersections of regional and local thoroughfares. Nodes are created to discourage the development of commercial corridors in CSD patterns. The nodes are to serve as neighborhood centers with parks/open spaces, higher density residential, and mixed-use commercial lots. Every neighborhood should be within a 1/2 mi. of a neighborhood center, allowing pedestrian access to jobs, schools, and recreational areas. In addition to community nodes, gateways to the community are also identified (red). The gateways will create an edge for the community, which will inform visitors when they are entering or exiting the city.





# The Process:

## a) Local Calibration (the sector):

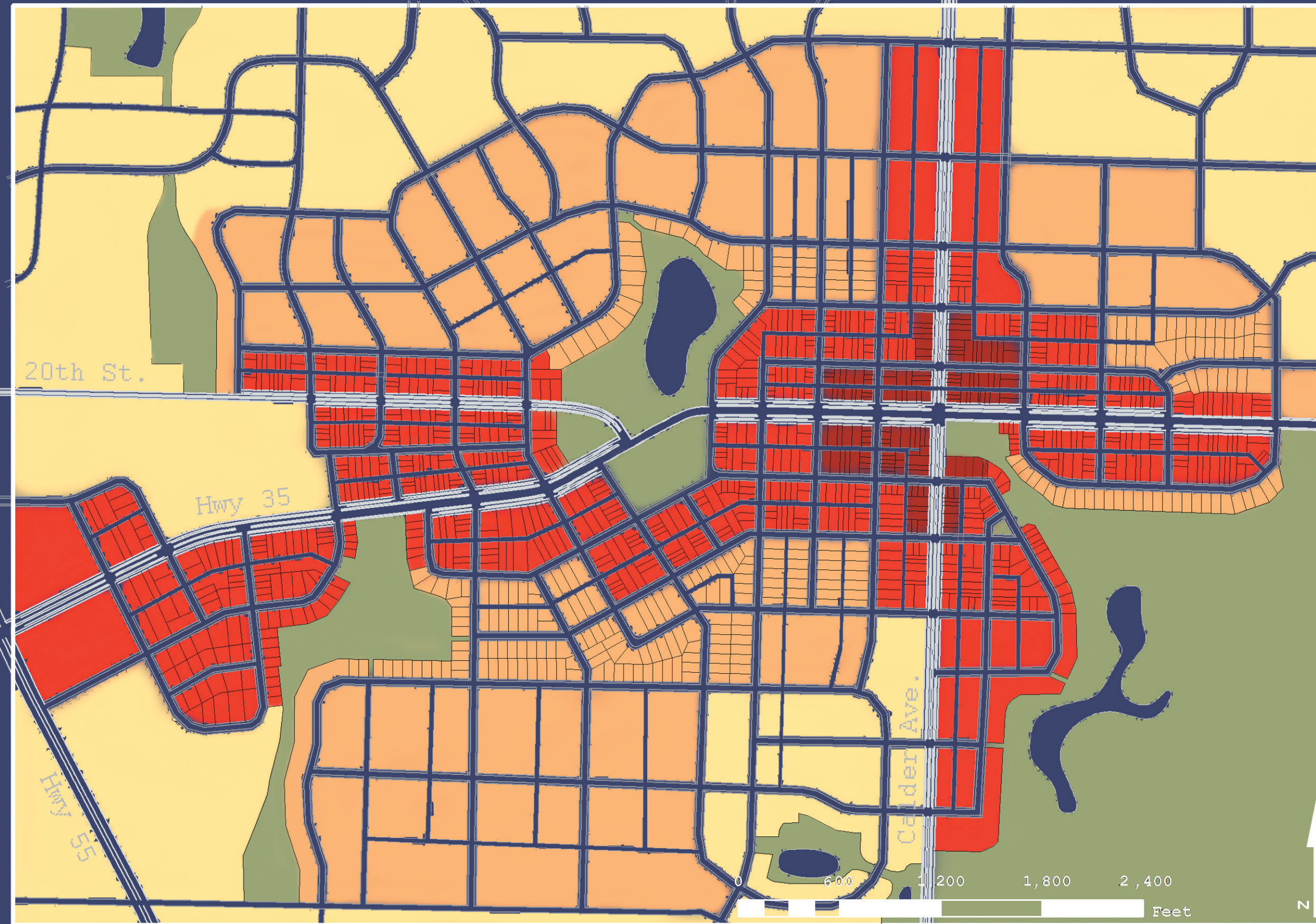
The first step in the transect-based land use strategy is to define the terms and set parameters for the delineation of local *sectors*. This includes the G4, G3, G2, G1, and O1-O2 sectors. The focus of the sector plan is to ensure an ecologically sustainable framework composed of protected resources, in which varying urban intensities of a community can be interspersed. (Smartcode v 8.0)

## b) Where to Grow (the transect zone):

The second step is to create a comprehensive plan to direct future growth into intended land use patterns. This involves subdividing sectors into *transect zones*. A **transect** is a geographical cross-section of a region used to reveal a sequence of environments. For human environments, this cross-section can be used to identify a set of habitats that vary by their level and intensity of urban character, a continuum that ranges from rural to urban. (Smartcode v 8.0)

## c) Detail the Growth (the detailed site plan):

Once transect locations have been established at a community scale, the last step is to assemble *detailed site plans* for pedestrian sheds (the identification of major natural and/or built barriers to pedestrian travel). These plans focus on site specific standards at the pedestrian scale. An example of a detailed plan employing the full spectrum of transect zones (less the rural transect) is shown to the right.



Highway 35 Corridor Plan:

Detailed Site Plans

# Build-out Analysis:

Build-out analysis data looks at only the G3 and G2 sectors. These sectors illustrate the most potential for future growth.

## Employment Data:

To arrive at employment estimates, ratios were derived from the 2002 Economic Census and national employment density standards (web.mit.edu). The following ratios reflect these assumptions:

Transect/Employment:	Sq.Ft.	Jobs/Acre	Commercial	Office
<b>T6</b>	<b>74.39</b>			
Retail		3.48	80%	
Service/Real Estate		18.49	20%	70%
Public/Institutional	Pop./100			
Health/Social Care		7.51		30%
<b>Total Employment</b>			<b>565</b>	<b>1628</b>
<b>T5</b>	<b>930.22</b>			
Retail		1.05	80%	
Service/Real Estate		4.31	20%	50%
Public/Institutional	Pop./100			
Health/Social Care		3.76		50%
<b>Total Employment</b>			<b>2119</b>	<b>6360</b>
<b>T4</b>	<b>1337.06</b>			
Retail		0.03	80%	
Service/Real Estate		0.14	20%	50%
Public/Institutional	Pop./100			
Health/Social Care		0.13		50%
<b>Total Employment</b>			<b>101</b>	<b>304</b>
<b>T3</b>	<b>1043.74</b>			
Retail		0.01	80%	
Service/Real Estate		0.04	20%	50%
Public/Institutional	Pop./100			
Health/Social Care		0.04		50%
<b>Total Employment</b>			<b>23</b>	<b>71</b>
<b>Grand Total: (11,174)</b>			<b>2809</b>	<b>8364</b>

## Housing/Population Data:

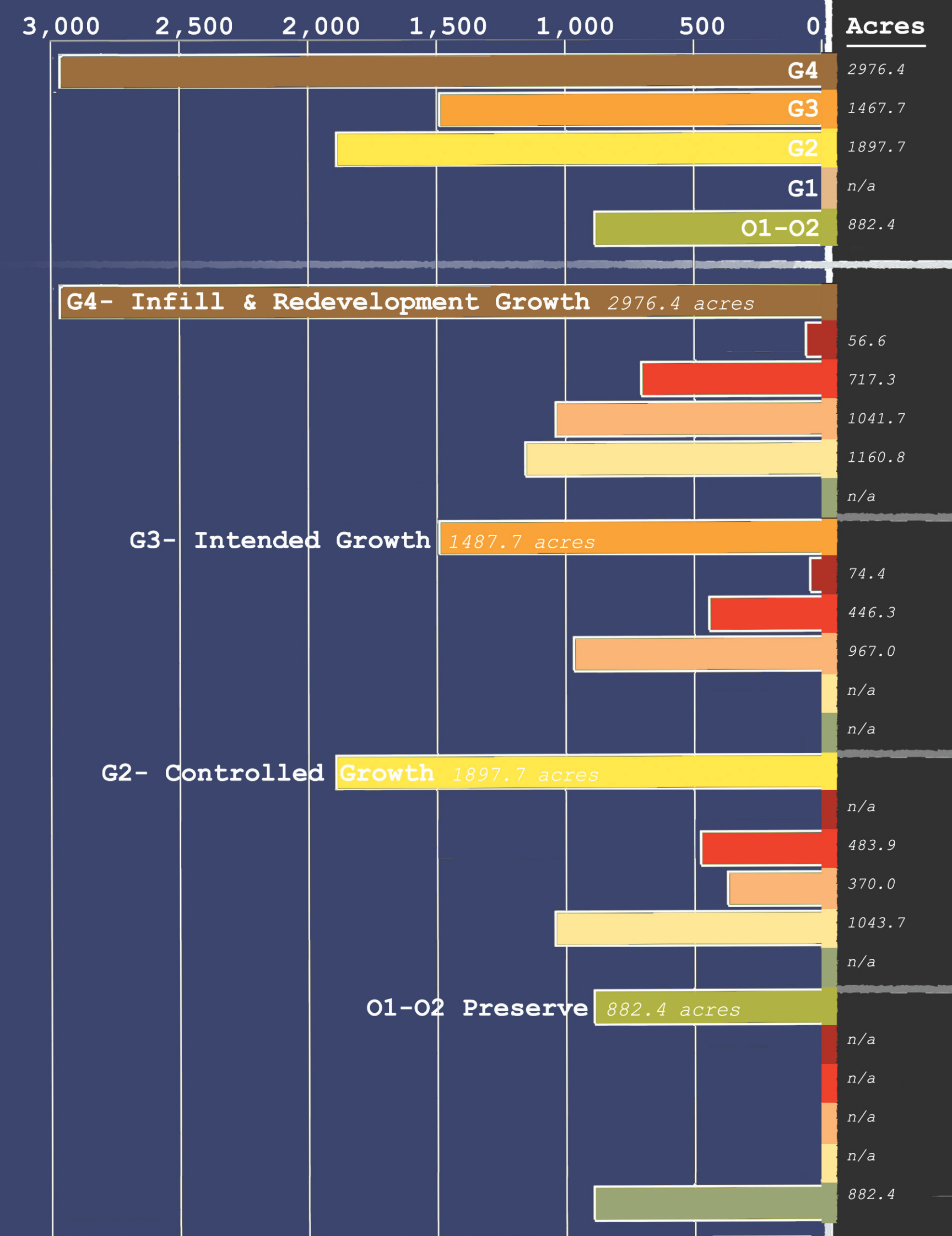
To arrive at population estimates, an average persons per household for single family and multi-family homes was developed based on US Census sources. This ratio was used in sequence with a ratio for single/multi family usage in each transect. The following ratios reflect these assumptions:

Household (HH) Data	Persons per HH
Total Avg. SF/MF	2.63
Single Family	3.04
Multi-Family	2.22

HH Transect Data	Single Family	Multi-Family
T6- Urban Core	10%	90%
T5- Urban Center	15%	85%
T4- General Urban	50%	50%
T3- Sub urban	100%	0%

Transect/Employment:	Acres	Households	Persons
<b>T6</b>	<b>74.39</b>		
Single Family		89.3	271
Multi-Family		803.4	1,784
<b>Total Persons</b>			<b>2,055</b>
<b>T5</b>	<b>930.22</b>		
Single Family		837.2	2,545
Multi-Family		4,744.1	10,531
<b>Total Persons</b>			<b>13,076</b>
<b>T4</b>	<b>1,337.06</b>		
Single Family		2,674.1	8,129
Multi-Family		2,674.1	5,937
<b>Total Persons</b>			<b>14,066</b>
<b>T3</b>	<b>1,043.74</b>		
Single Family		2,087.5	6,346
Multi-Family		0	0
<b>Total Persons</b>			<b>6,346</b>
<b>Grand Total:</b>			<b>35,543</b>

Land Allocation for Sectors & Transects within City Limits (acres)



Urban Core

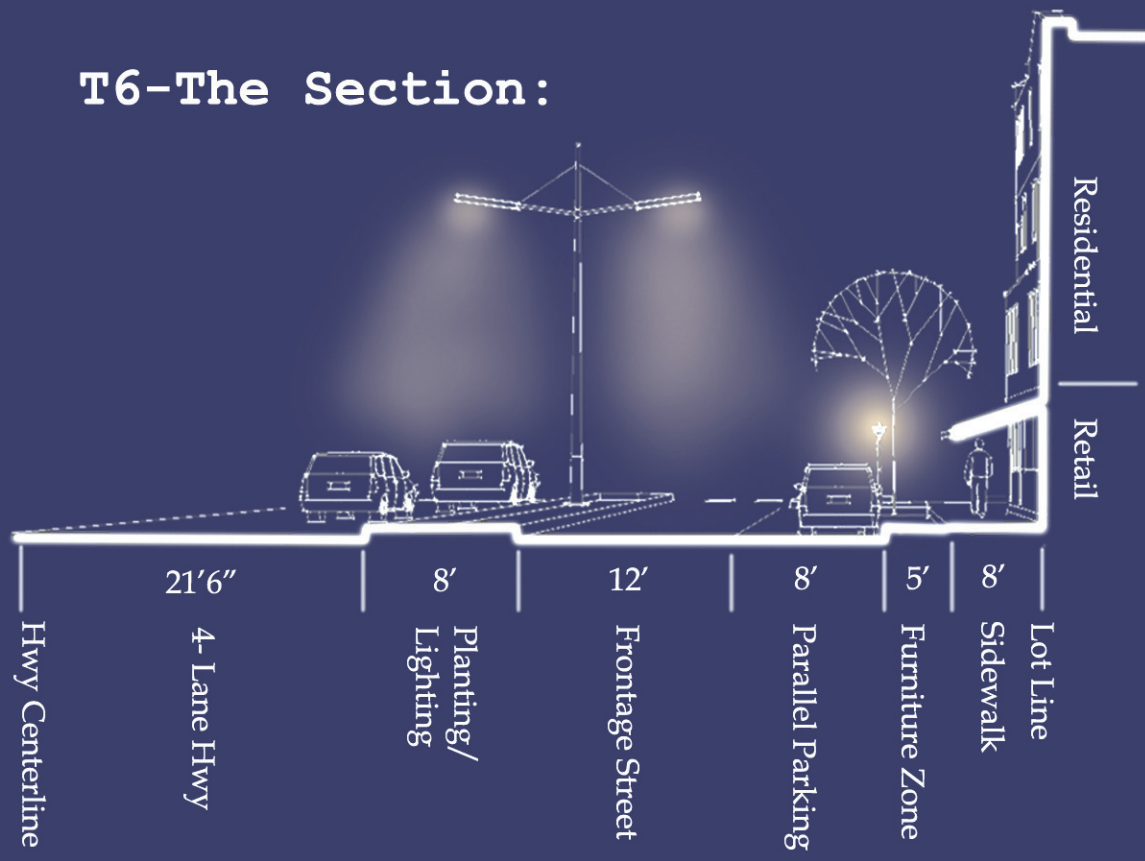
T6

Land Uses	Residential	
	Single-family	
	Multi-family	
	ADU	
	Commercial	
	Retail	
	Office	
	Civic	
	Services	
	Schools	
	Parks/Rec.	
	Industry	
	Heavy	
	Light	
Natural Resources		
Agriculture		
Sensitive Areas		

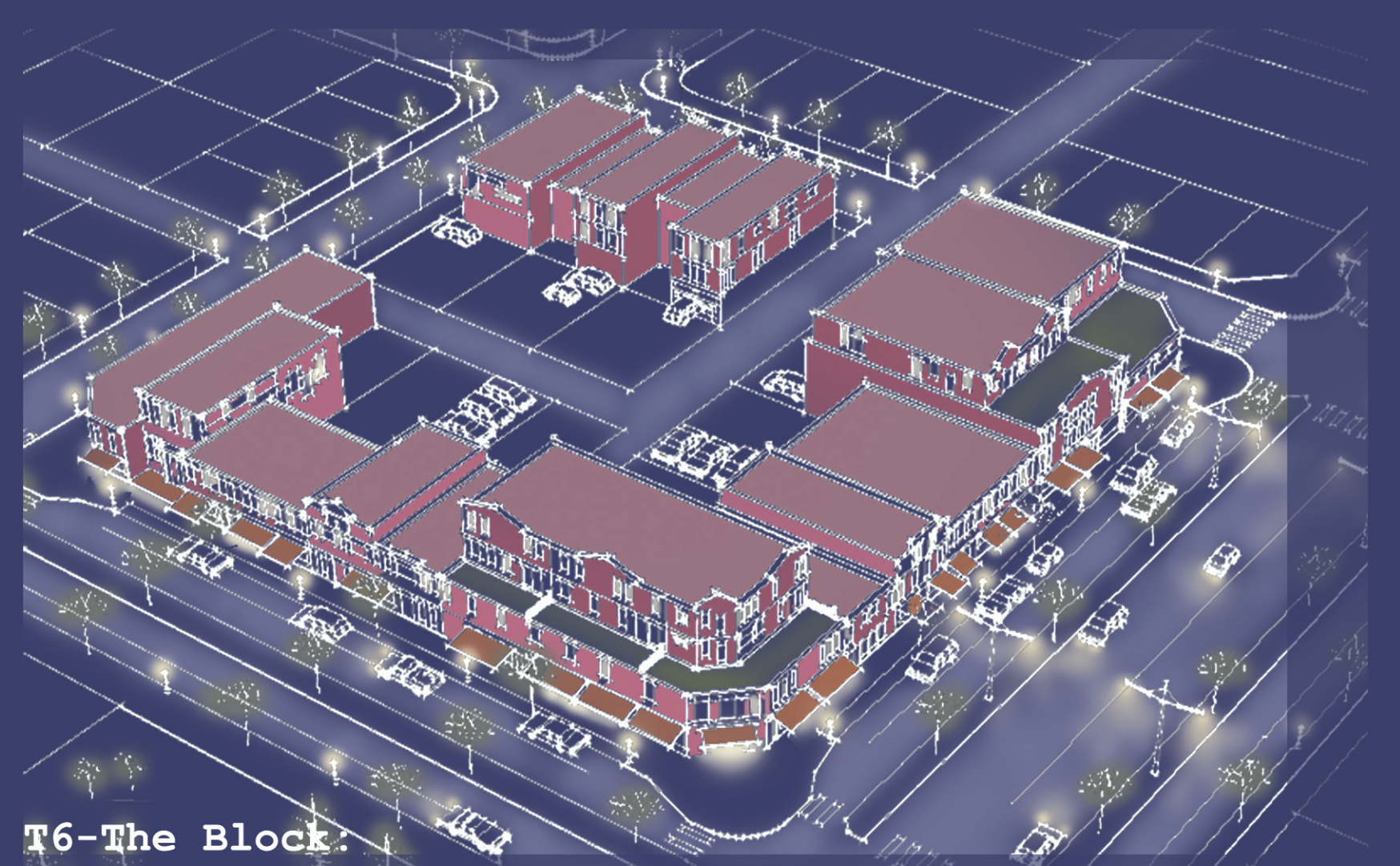
Site Detail	<b>Residential Density</b>	units/ac.	
	Standard	12/ac. grs.	
	* Purchase Rights	**36/ac. grs.	
	<b>Block Size (ft.)</b>	Min	Max
	Block Perimeter	1500'	
	<b>Lot Occupation (ft.)</b>	Min	Max
	Lot Width	18'	
	Lot Coverage	100%	
	<b>Bldg Disposition (ft.)</b>	Min	Max
	Front Setback	0'	12'
	Side Setback	0'	24'
	Rear Setback	0'	
	<b>Bldg. Height (stories)</b>	Min	Max
	Principal Bldg.	2	6

\* densities may be increased with the purchase of development rights up to this amount. 15% shall be affordable housing.  
\*\* municipal approval if great than 36 units/ gross acre.

T6-The Section:



**T6-** The role of the T6 block is to provide a high level of mixed uses, including retail at ground level with commercial/residential above (12units/acre gross). Located at major transportation intersections, T6 blocks offer high density retail and residential opportunities.



T6-The Block.

Urban Center

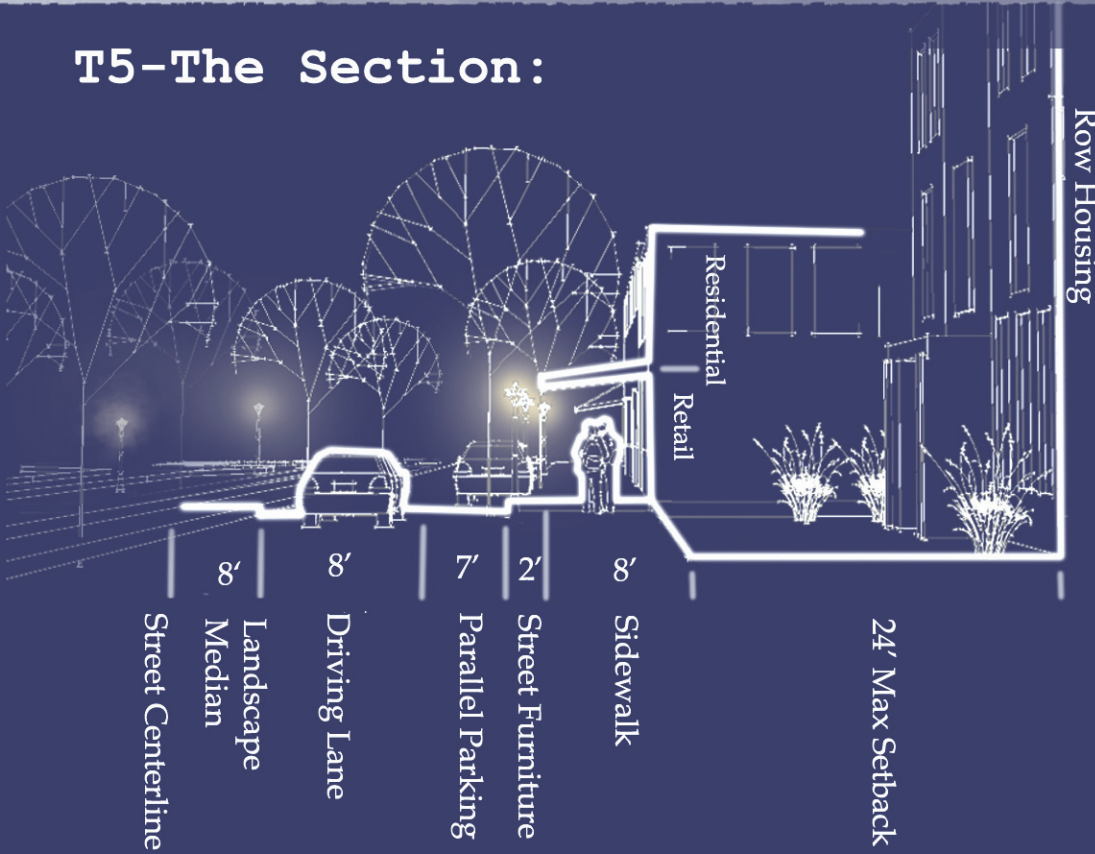
T5

Land Uses	Residential	
	Single-family	
	Multi-family	
	ADU	
	Commercial	
	Retail	
	Office	
	Civic	
	Services	
	Schools	
	Parks/Rec.	
	Industry	
	Heavy	
	Light	
Natural Resources		
Agriculture		
Sensitive Areas		

Site Detail	<b>Residential Density</b>	units/ac.	
	Standard	6/ac. grs.	
	* Purchase Rights	12/ac. grs.	
	<b>Block Size (ft.)</b>	Min	Max
	Block Perimeter	700'	1800'
	<b>Lot Occupation (ft.)</b>	Min	Max
	Lot Width	18'	
	Lot Coverage	80%	
	<b>Bldg Disposition (ft.)</b>	Min	Max
	Front Setback	0'	12'
	Side Setback	0'	24'
	Rear Setback	** 3'	
	<b>Bldg. Height (stories)</b>	Min	Max
	Principal Bldg.	2	4

\* densities may be increased with the purchase of development rights up to this amount. 15% shall be affordable housing.  
\*\* or 15ft. from centerline of alley

T5-The Section:



**T5-** The role of the T5 block is to provide retail at ground level with optional commercial/ residential above (6units/acre gross). The T5 block allows for row housing at the same density.



T5-The Block.

General Urban

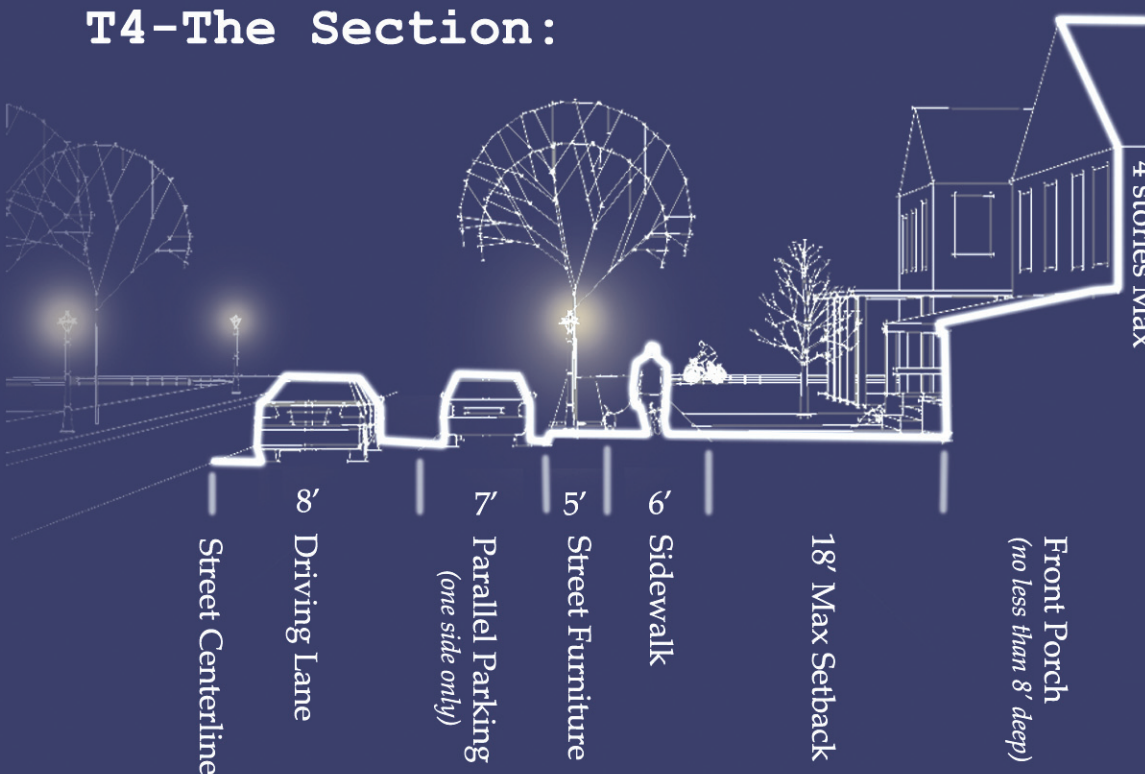
T4

Land Uses	Residential	
	Single-family	
	Multi-family	
	ADU	
	Commercial	
	Retail	
	Office	
	Civic	
	Services	
	Schools	
	Parks/Rec.	
	Industry	
	Heavy	
	Light	
Natural Resources		
Agriculture		
Sensitive Areas		

Site Detail	<b>Residential Density</b>	units/ac.	
	Standard	4/ac. grs.	
	* Purchase Rights	8/ac. grs.	
	<b>Block Size (ft.)</b>	Min	Max
	Block Perimeter	1000'	2000'
	<b>Lot Occupation (ft.)</b>	Min	Max
	Lot Width	20'	75'
	Lot Coverage	70%	
	<b>Bldg Disposition (ft.)</b>	Min	Max
	Front Setback	6'	18'
	Side Setback	0'	
	Rear Setback	** 3'	
	<b>Bldg. Height (stories)</b>	Min	Max
	Principal Bldg.	2	4

\* densities may be increased with the purchase of development rights up to this amount. 15% shall be affordable housing.  
\*\* or 15ft. from centerline of alley

T4-The Section:



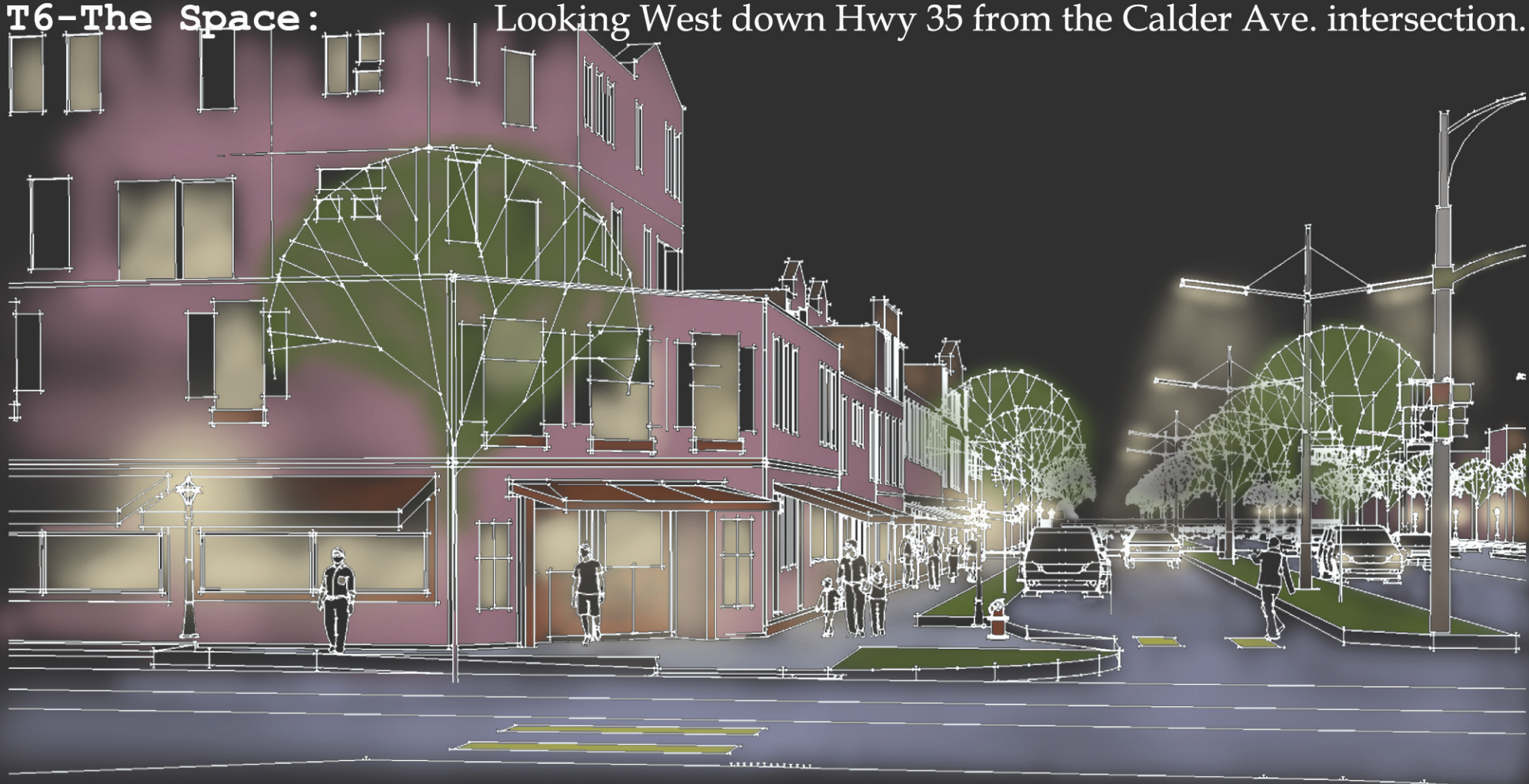
**T4-** The role of the T4 block is to allow for TND residential developments that support compactness and walkability (4units/acre gross). The T4 block offers a variety of housing types. Corner stores and live/work units may be found in the T4 block.



T4-The Block.

T6-The Space:

Looking West down Hwy 35 from the Calder Ave. intersection.



T5-The Space:

Looking North towards Hwy 35 from a proposed Ave.

