ABSTRACT

Title of Document:	SUSTAINABLE TOWN CENTER: WHEATON, MARYLAND
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Population and automobile dependency are growing at a fast rate. This proliferation brings side problems, such as sprawl, shrinking of natural green areas, traffic, and air pollution. Bringing people back to the cities and relying on public transportation becomes important to solve or reduce some of these problems.

Wheaton, Maryland, has the potential to become a better place. This thesis proposes the implementation of a sustainable mixed-use complex to revitalize the Wheaton town center. The town center seeks to provide a sense of community and to improve the social, economical, and cultural image of the individual and indeed of the larger community.

Multiple family housing is the major component of this mixed income community that has access to various types of outdoor spaces which encourages interaction. The important uses, in addition to housing, of this mixed use community include office space, retail, and community services, such as a day care, a new mid county community center, and a police sub-station. This program affords the community the possibility to live, work, entertain, and shop within a pedestrian-friendly environment.

SUSTAINABLE TOWN CENTER

by

Cesar Enrique Ramos

Thesis submitted to the Faculty of the Graduate School of the
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Advisory Committee:

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Dedication

To my parents and sister for all their love and support throughout all these years.

Acknowledgements

I would like to thank my advisory committee, Thomas Schumacher, Gary Bowden, and Karl DuPuy, for their guidance and knowledgeable input throughout the process of my thesis. I also like to thank the following people for their help and advice: Michael Steiner, Randy Steiner, Khalid Afzal, Alexander Chen, and Peter McGinnity.

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Introduction

Historically, town centers adapted to the social, economical, and cultural needs of the community. An agora was initially a place for political gatherings and legislative assemblies. It changed gradually into a center for marketing and eventually became solely commercial. Also, the medieval bastide town center of Montpazier, France, was a place for exchange of goods, services, and interact with other people. The most important feature about this town center is the use of mixed use buildings surrounding the town square. Certainly, there was an appropriate land use that supported the existence of the town center.

Wheaton, Maryland, has the opportunity to change and respond to current needs of the community. Downtown Wheaton has been in a motionless state for many years. Its town center has lost its "sense of place." This is mostly due to regulations and new developments that do not reinforced the character of a town center. In 1990, a zone named Wheaton Retail Preservation Overlay Zone (WRPOZ) was created. This zone served to limit the amount of new development that can occur in this area, and it helped to preserve the small business character of the downtown area, one and two-story retail and office spaces.

Not long after the creation of the WRPOZ, Wheaton Metro Station opened in September 20, 1990. Wheaton then encountered an excellent opportunity to develop and to become a better place. It is time to start Wheaton town center's metamorphosis in an organized manner, and to start addressing and solving some of the current community's needs. Having the metro station close to the town center is beneficial, so the city has to take advantage of this opportunity by improving or creating a better use of land and better

access to public transportation. Mixed use and increasing the density around the metro station aid in solving some of the issues. This would definitely improve the self-image of the user, as well as the community.
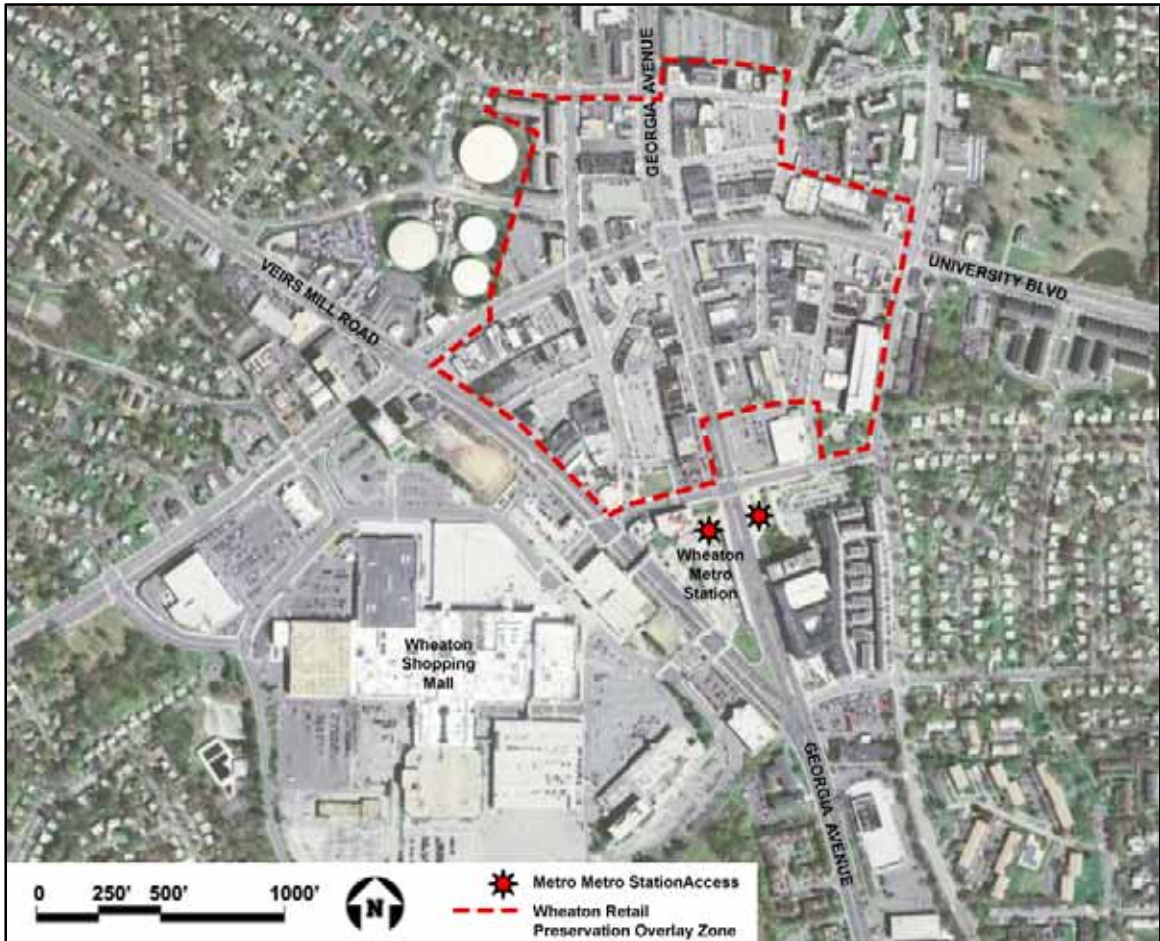
Figure 1: Wheaton Retail Preservation Overlay Zone, MD.   [Google Earth & Cesar Ramos, 2007]

This thesis seeks to revive Wheaton's town center. It advocates actions that help to create a "place" for the community. A "place" that is "truly-sustainable." "Truly-sustainable" means being able to technically self-sustain, as well as, socially, economically, and culturally. Both community and architecture play an important role in making this possible.

Some of the community's needs include a better connectivity of existing housing to the town center, to the metro station, and to the shopping mall. There are also some

other issues to keep in mind: safety, pedestrian and vehicular traffic, and loitering. In order to approach these issues, designing at various scales becomes necessary: the urban scale (connectivity, traffic, walkability), the architectural scale (safety, flexibility, compact design), and human scale (dimensionality, materiality, comfortability).

Ideas that inform the design at all scales are explored in chapter one. It discusses three different scales: the urban, architectural, and human scale. It also notes the different aspect that each of them incorporates in the making of community.

In chapter two the site and its larger context are introduced. The history of Wheaton is briefly presented, as is an analysis of the existing site conditions and other relevant information obtained. Eventually, site opportunities and constraints are presented.

In chapter three a program is developed; it includes the types of buildings and outdoor spaces, which foster people interaction and create a pedestrian-friendly neighborhood. Most of the program is developed based on the community needs and design ideals discussed in previous chapters.

An analysis of relevant precedents is introduced in chapter four. This analysis includes both urban and architectural precedents inform the schematic design.

Two design approaches that incorporate design ideals, site analysis, and precedents studies are presented in chapter five. This chapter also outlines pros and cons of both design approaches.

Lastly, chapter six presents final thoughts of the selected design approach, and what else could be done to improve it. Once again, the results of the three scales are developed.

Chapter 1: Design Ideals

This chapter describes ideas that take part in the design process. There are three scales that explore these ideas: the urban, the architectural, and the human scale. Each of these elements plays an important role when making "community." All of them contribute in part to the overall success of the design.

Urban Scale: Making Communities

"Good urban design is essential if sustainable communities are to be created."
Martin Richardson

Throughout time we have shaped our cities according to our social and cultural needs. What once used to be streets, where multiple ways of transportation could interact, it is now overtaken by the automobile. Today, it seems that motor vehicles shape our built environment. The dependence on automobiles brings side problems such as, urban sprawl, reduction of green areas, air pollution; factors that contribute to global warming.
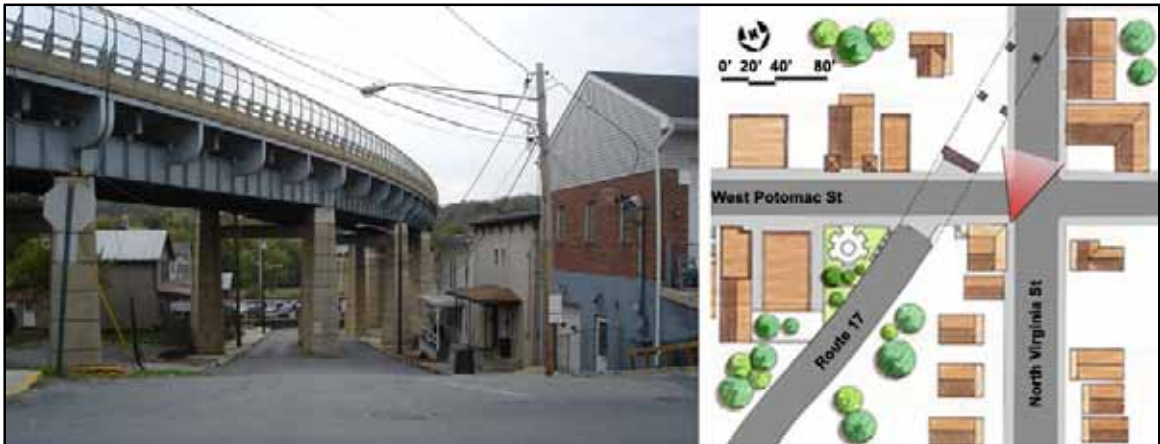
Figure 2: Route 17 Bridge, Brunswick, Maryland.   **[Cesar Ramos, 2007]**
This image shows how after sprawl there is a need for connecting back to other cities. In this case, the bridge becomes a connector (connecting the town to other cities) and a divider (the street bellow the bridge is divided by those enormous piers). This is the kind of situations where the urban grid is compromised by the automobile dependency.

Besides dependency on automobiles, zoning, in modern times, has become a critical issue. Separating land uses creates a divided community, where interaction happens only in certain areas and at certain times. The Wheaton town center is certainly an example of these two malfunctioning community-making factors. Wheaton town center, located in its central business district, is very active during business hours, and dead afterwards.

According to Leon Krier, a city is formed by smaller or greater number of independent and autonomous boroughs…A borough is formed by a maximum of four quarters…The urban quarter is a true city-within-the-city. As a part it contains the features and qualities of the whole.[1]
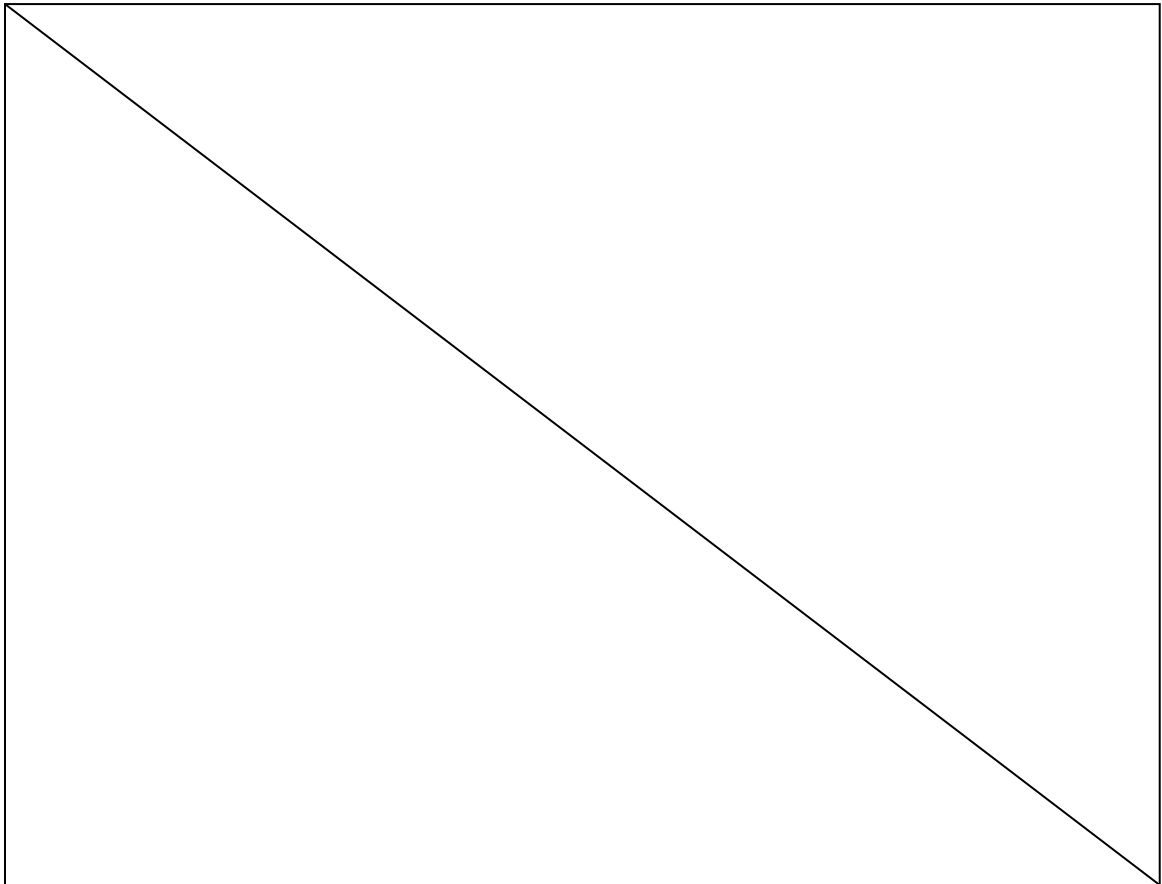
Figure 3: Community and anti-community diagrams. **[Leon Krier]**
These diagrams better show how a community is made and how it becomes divided when functional zones are created.

In order to transform Wheaton into a pedestrian-friendly community some aspects should definitely be improved; this includes better land uses, and better connection between residential neighborhoods, the town center, the mall and the Wheaton Metro Station. Peter Calthorpe recommends the use of what he describes as the pedestrian pocket, "a walkable, mixed-use neighborhood [that] reinforces transit, preserves open space, and makes a more compact metropolitan form."[2]

Peter Calthorpe's TOD diagram

Secondary Area: includes low-density housing, schools, and parks.

Residential Areas: Medium to high desinty housing

CONNECTOR

CONNECTOR

CONNECTOR

Commercial Core: includes office, retail spaces, and/or mixed-use

Public spaces

2000 feet

TRANSIT STOP

MAJOR ARTERIAL ROAD

Secondary Area

Secondary Area
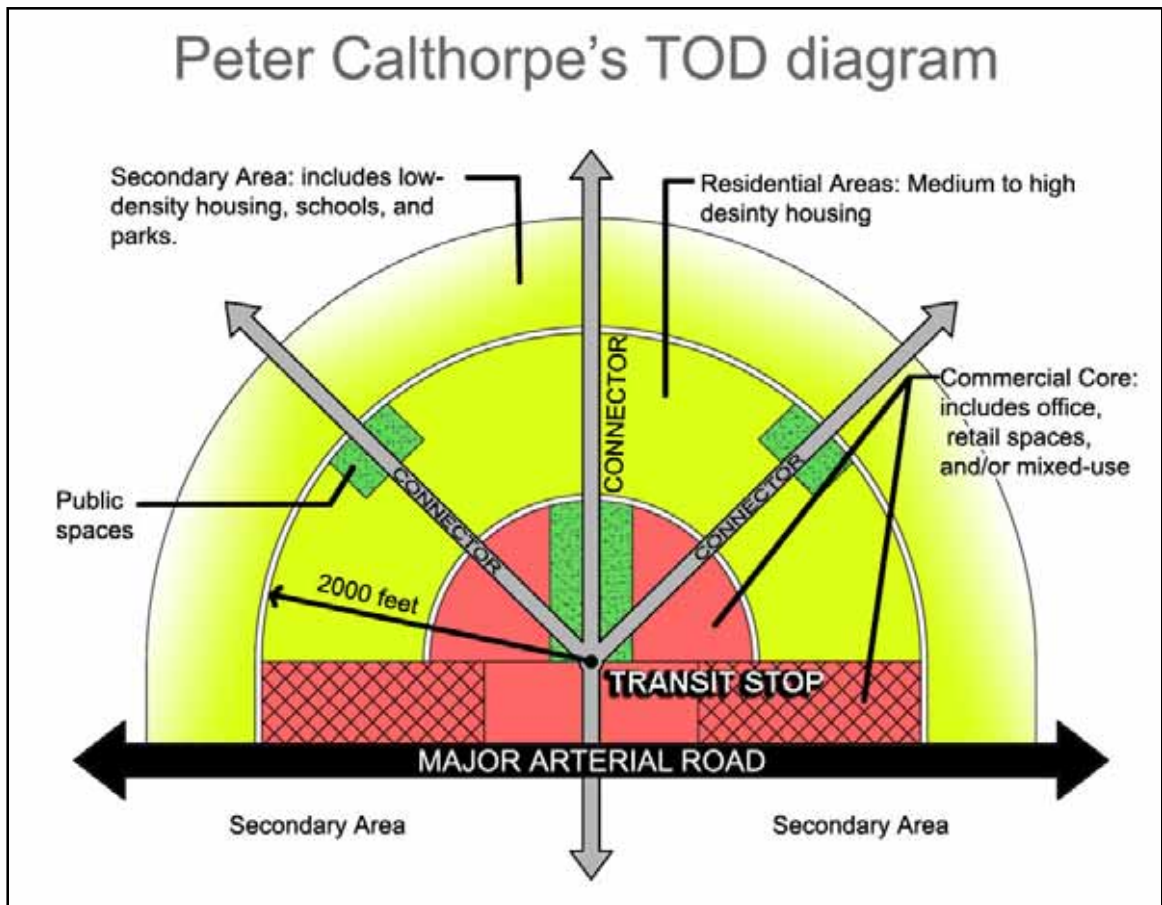
Figure 4: Transit –Orient Development as envisioned by Peter Calthorpe.   [Cesar Ramos, 2007]
This diagram shows the relationship of the transit stop to adjacent areas. Notice the connectivity between residential, commercial, mixed-use, and public spaces to the transit stop. Also, note the adjacency of a major arterial road.

Architectural Scale: Building the Identity

"We shape our buildings, and afterwards, they shape us."
Winston Churchill

The Urban scale deals with making a big community, in which elements such as, streets and outdoor areas, play an important role. Architecture, on the other hand, responds to technical, functional, ecological, social, cultural, and economical necessities of the community itself. A "truly sustainable" building has to address these needs. Site selection, programming, means and methods of construction, and green architecture are some of the factors that help to respond most of these issues. Cultural needs are probably the most difficult to deal with; this is mostly due to globalization. Globalization brings together a diversity of people and ideas that translate into a multicultural community. Wheaton is an excellent example of a multicultural community; this is discussed in later chapters.

Another important aspect of the architectural scale is the building of the community's identity. This is achieved through the design of the vertical surfaces, which enclose our urban spaces such as, streets and public open spaces. The quality of these outdoor rooms depends in the continuity and diversity of the vertical surfaces. The continuity of facades reinforces the street fabric, while the diversity makes the pedestrian experience more dynamic.

Architecture is multisensory experienced; therefore, factors that stimuli our senses should be considered during the architectural design process. Some of these factors include: designing with natural light, geometry and dimensionality of spaces, color and texture of materials (especially those that are in close contact with people, such as the paving along a promenade, or street furniture), and so on.

Figure 5: Rockville Town Square, Rockville, Maryland.   **[Cesar Ramos, 2007]**
This images show the continuity and diversity of the vertical surfaces, which reinforce the street fabric, as well as, make the pedestrian experience more dynamic.

Chapter 2: The Site

This chapter introduces the site and its larger context. The history of Wheaton is briefly presented, as well as, an analysis of the existing site conditions and other relevant information. Eventually, site opportunities and constraints are presented.

Description

Wheaton is located in the Montgomery County, Maryland. Much of downtown Wheaton lies within the Wheaton Retail Preservation Overlay Zone (WRPOZ). This zone was enacted in 1990 in response to recommendations contained in the 1990 Wheaton Central Business District Sector Plan. The Overlay Zone serves to limit the amount of new development that can occur in the downtown area. This limitation was intended to help preserve the small business character of the downtown area.[3]

Residential Demographics		
Downtown Wheaton and Inmediate Vicinity		
	Wheaton	Montgomery County
White	41.10%	68.20%
Hispanic	34.30%	11.40%
Black	17.60%	14.00%
Asian	10.80%	12.00%
Median Age	34.0 years	37.3 years
Foreign Born	49.60%	26.70%
Language Other than English	58.00%	31.60%
Median Income Family	$55,781	$79,115

Table 1: Residential Demographics.   **[Cesar Ramos, 2007]**
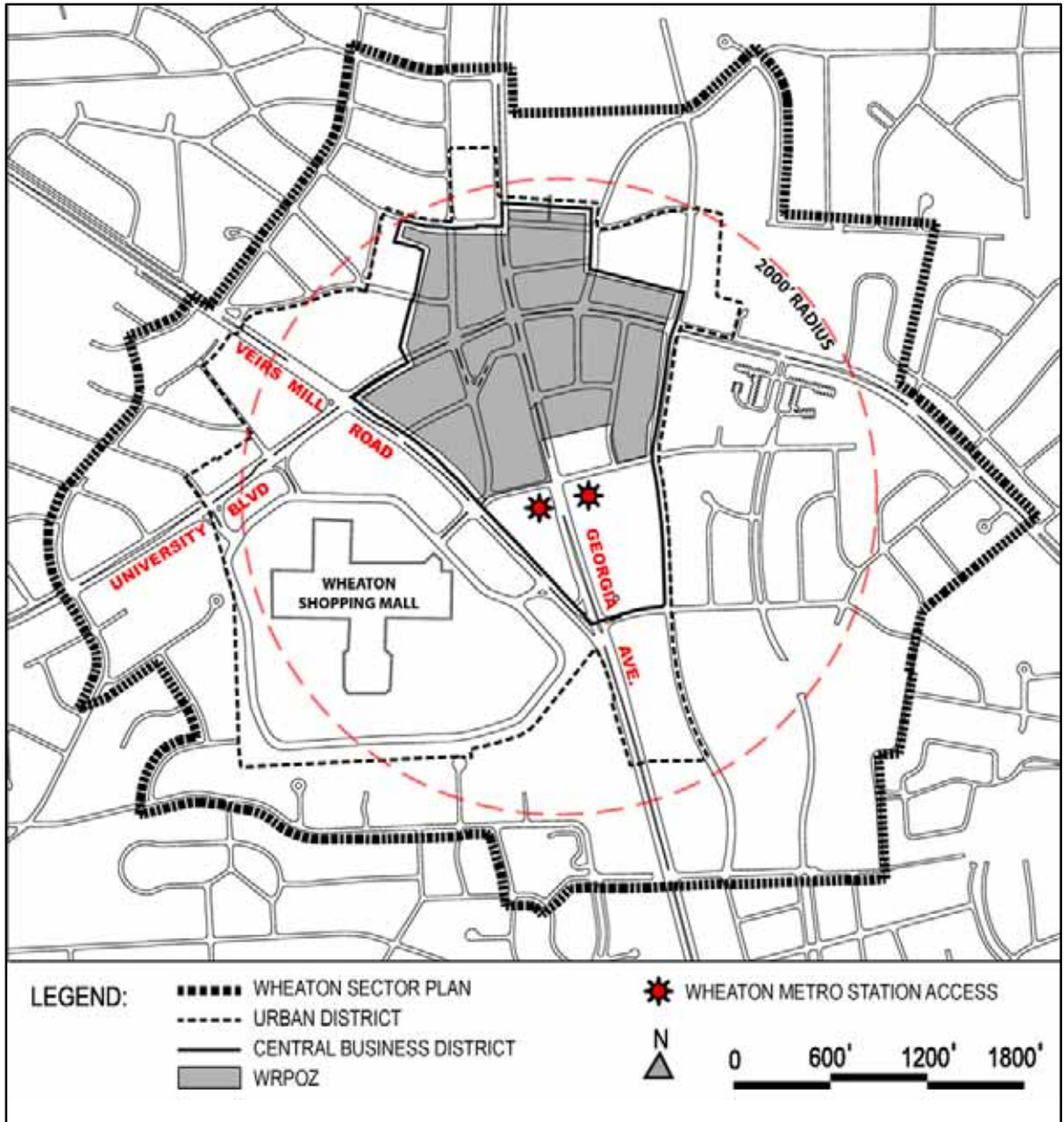
Figure 6: Wheaton zones boundaries, Maryland.   **[Cesar Ramos, 2007]**
The information of this table was obtained from the Wheaton Redevelopment Program. This statistics clearly show the multi-cultural character of Wheaton, as well as, the slightly younger community than in comparison to Montgomery County.
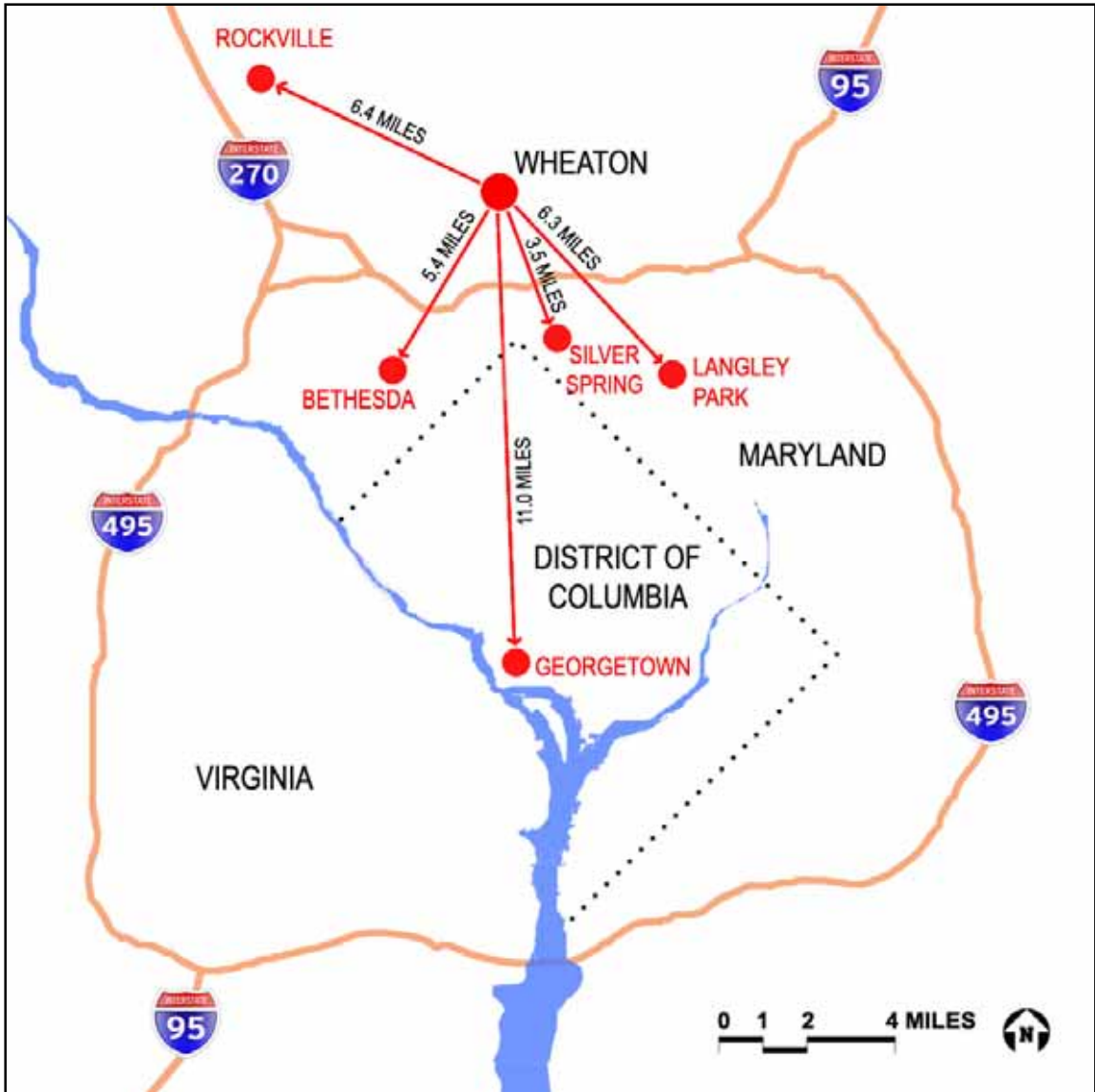
Figure 7: Regional Map, Wheaton, Maryland.   **[Cesar Ramos, 2007]**
Wheaton is located North of Washington DC, a few miles outside the capital beltway (495). This diagram shows Wheaton's relative distance to other neighboring town centers around.

Historical Overview

Overtime, Wheaton grew as a suburb of Washington, DC, and became an important commercial center. Prior to the 1880's, the Kensington-Wheaton area was predominantly agricultural.[4] No major development took place until the 1830's when the B&O railroad was completed. On November 1, 1952, the new Georgia Avenue (former Union Turnpike) was opened by Governor Theodore R. McKeldin. From this time on the

growth of Wheaton was phenomenal. Overnight Wheaton changed from the "Community of Tomorrow" to the "Community of Opportunity."[5] The following images better show how Wheaton grew over time.
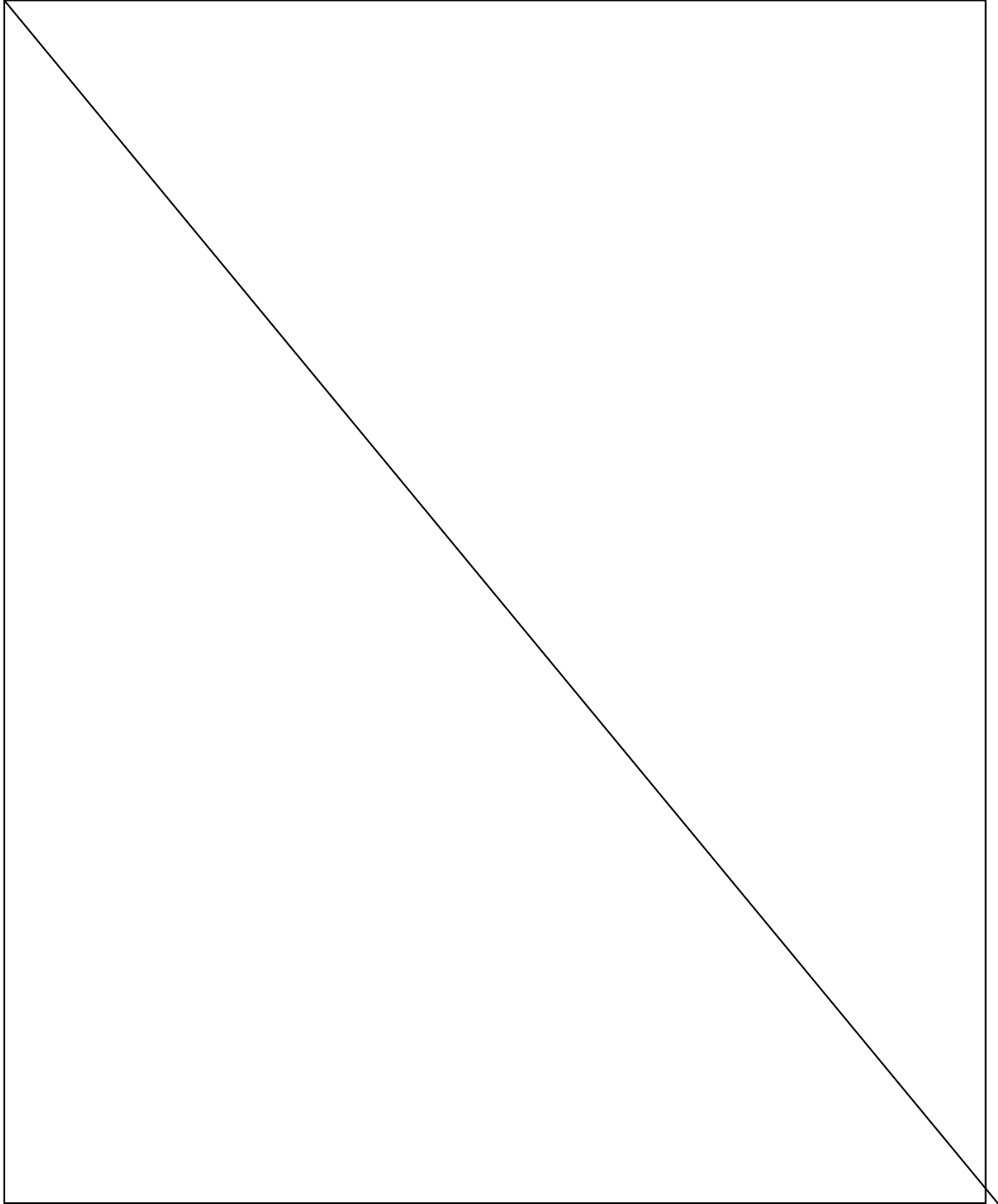
Figure 8: Topographic map of Wheaton, Maryland 1908.   **[U.S. Geological Survey]**
At this point of time Wheaton was an agricultural center with limited houses at the crossroad of Georgia Avenue and University Boulevard.
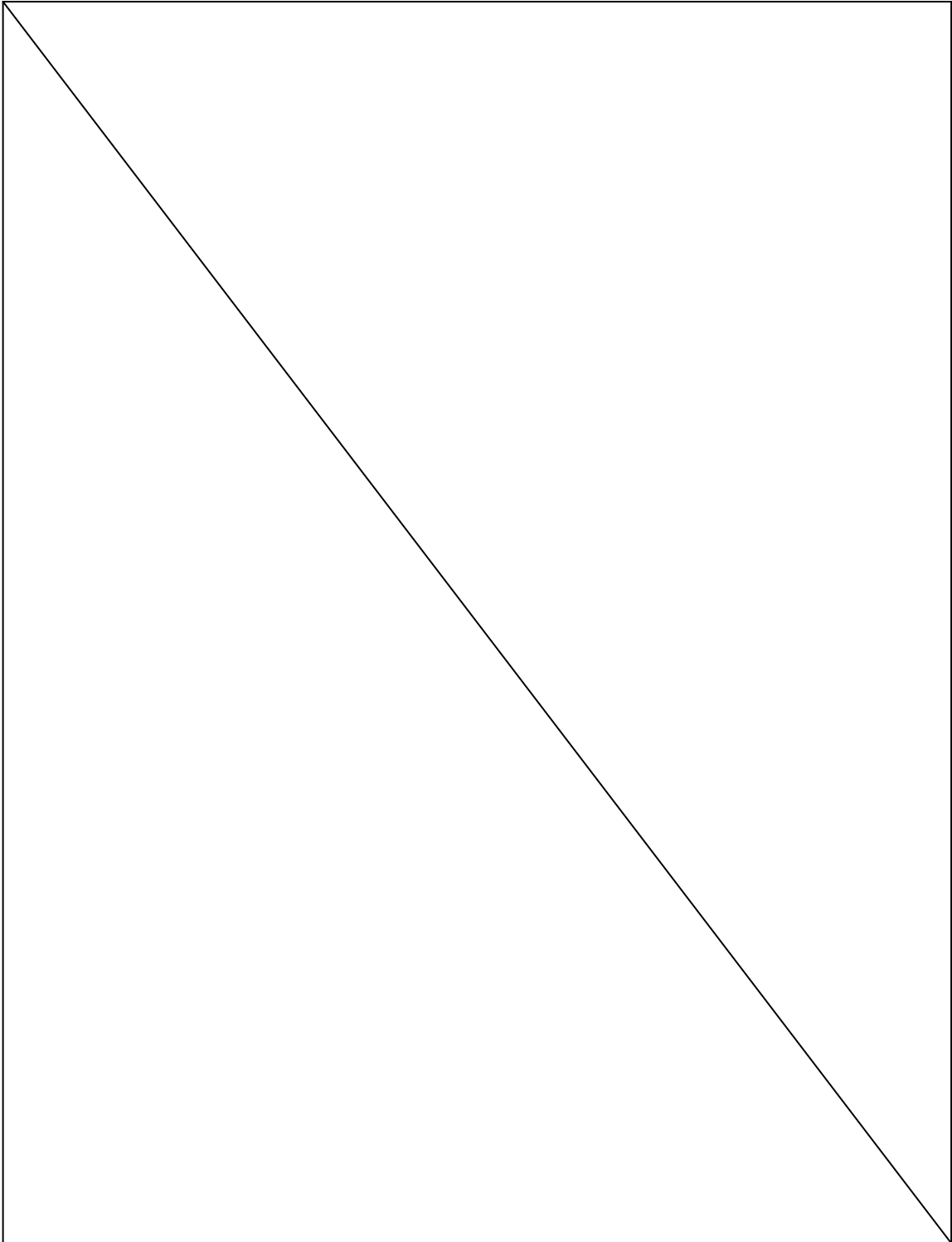
Figure 9: Topographic map of Wheaton, Maryland 1923.   **[U.S. Geological Survey]**
Georgia Avenue development north of Wheaton signals the start of Wheaton building boom. Perpendicular roads to the north of Wheaton, along Georgia Avenue, started to develop as well. The population of the Wheaton area doubled from 1890-1910. A need for sewer and other public services was created both by this growth and the "building boom" of 1920. In 1916, the Washington Suburban Sanitary Commissioned (WSSC) was created by the Maryland General Assembly.[6]

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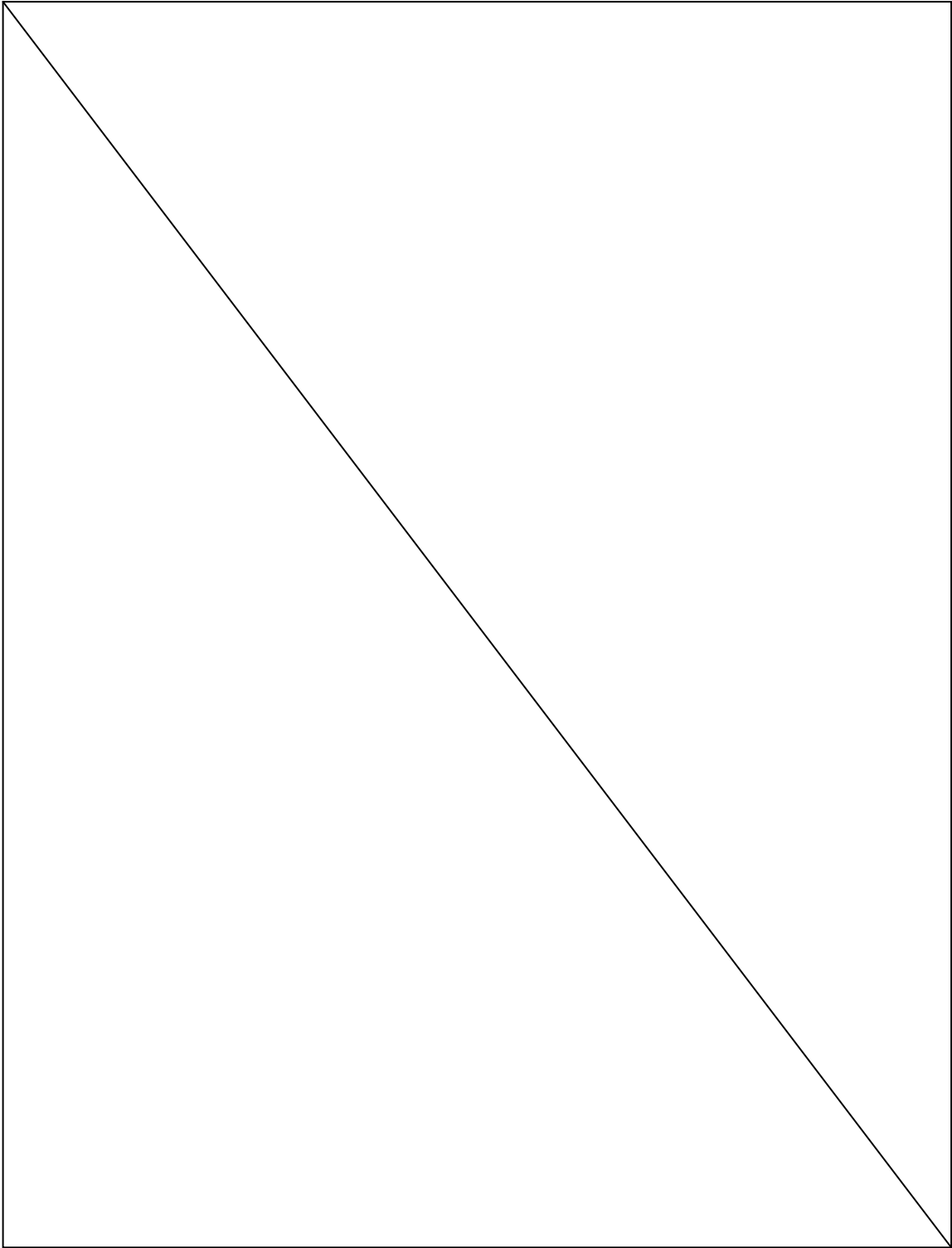
Figure 10: Topographic map of Wheaton, Maryland 1944.   **[U.S. Geological Survey]**
Veirs Mill Road (running Northwest off Georgia Avenue) becomes an important corridor. Development along Veirs Mill Road and University Boulevard has started. From 1930 to 1940, the Wheaton District's population grew from 13,000 to almost 29,000 people. Growth was due largely to a surge of federal employees moving into Montgomery County. In twenty years, the economy went from a rural, farming-dependent economy to one dependent on the growing federal bureaucracy.[7]
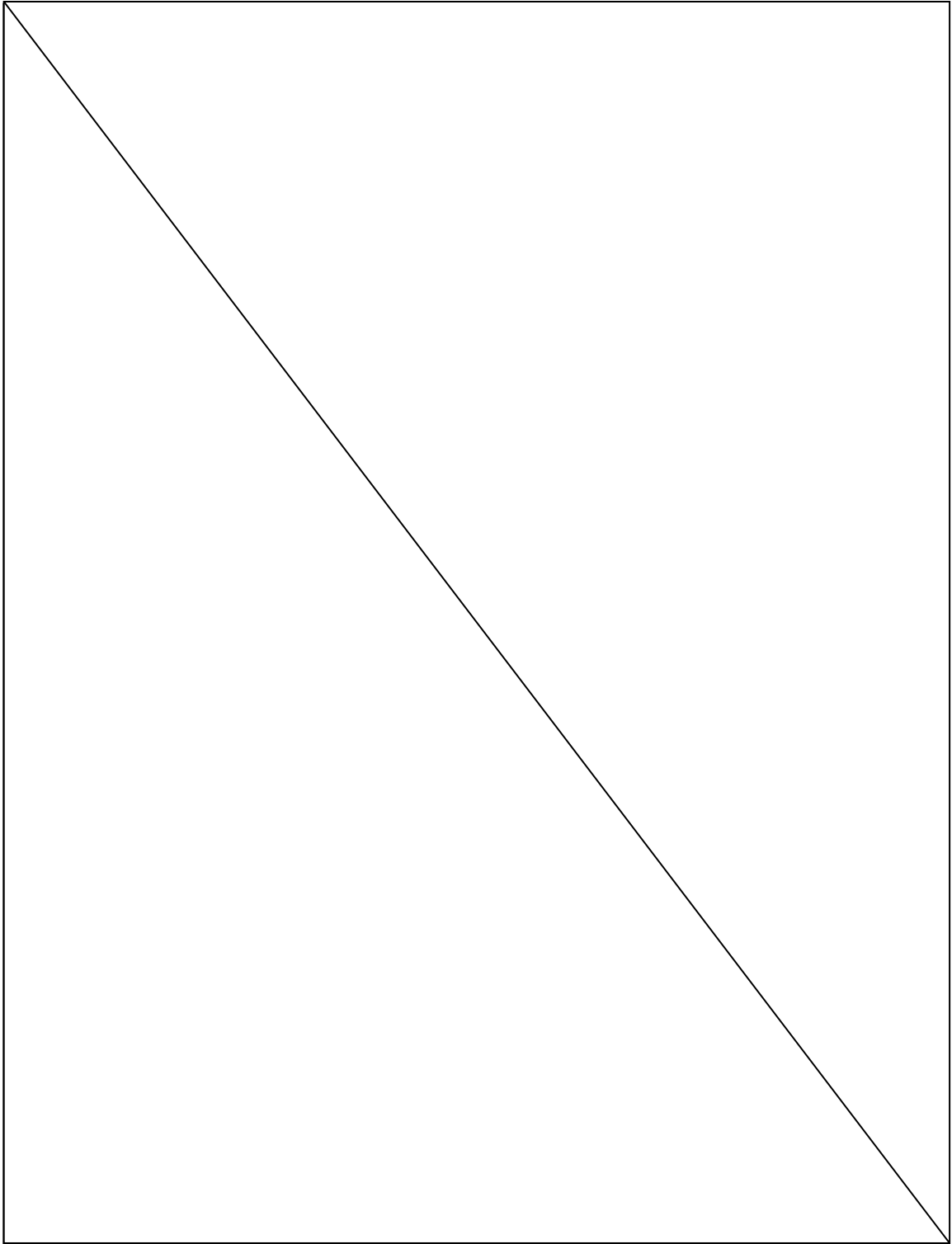
Figure 11: Topographic map of Wheaton, Maryland 1951. **[U.S. Geological Survey]**
Wheaton Triangle is divided by secondary streets. By 1950, Wheaton had rapidly outgrown Bethesda, with a population of over 77, 000 people. Veirs Mill Road, between Rockville and Wheaton, became a major corridor of suburban growth.[8]
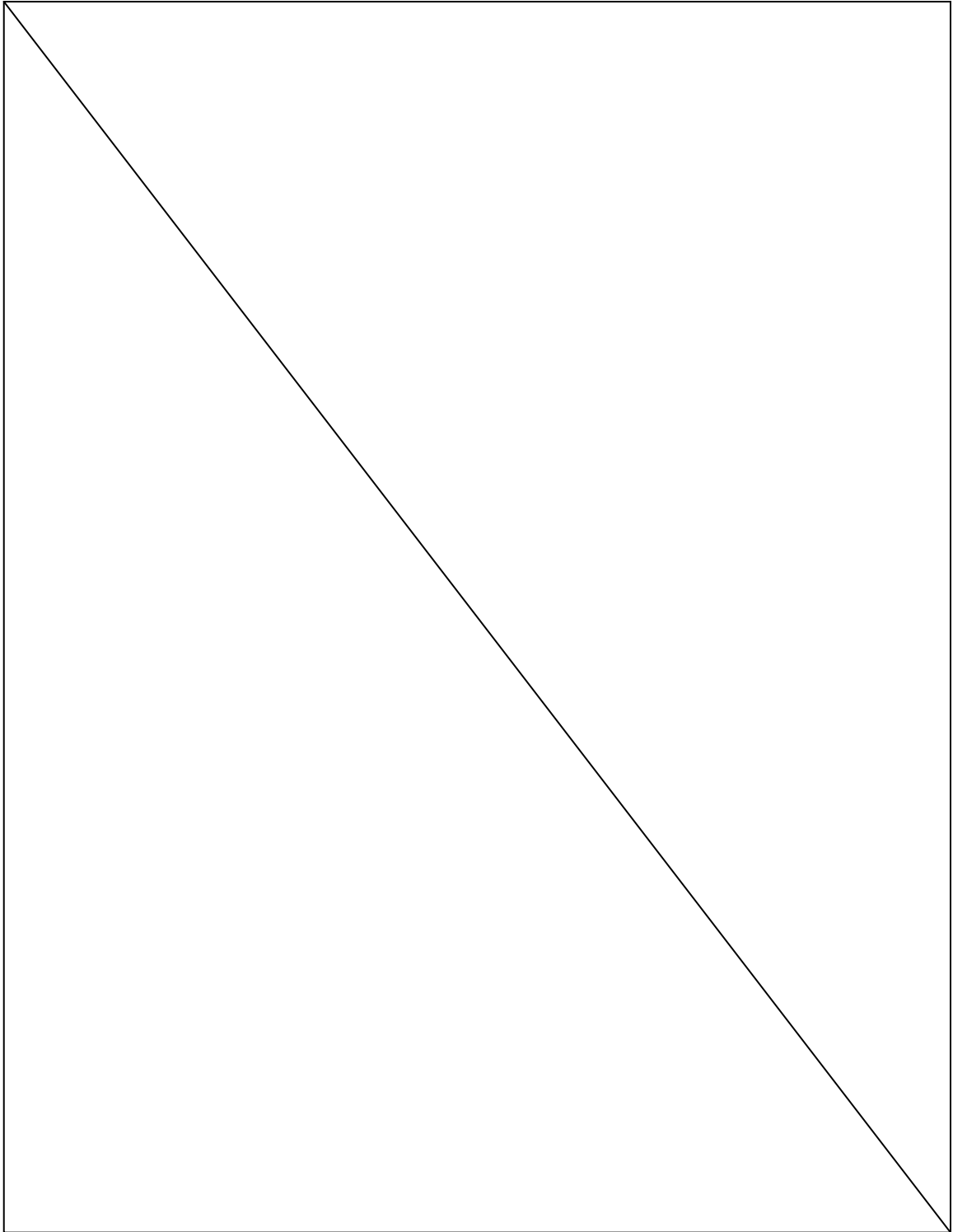
Figure 12: Topographic map of Wheaton, Maryland 1998.   **[U.S. Geological Survey]**
This map shows the Wheaton Plaza Shopping Center (1962). In 1954, construction was begun on Wheaton Plaza and by 1958 there were 400 businesses and professionals listed in the Wheaton directory. By 1963, Wheaton Plaza ranked fourth in size in the nation and further enhanced Wheaton's influence as a regional center of major importance in Montgomery County.[9]

Site Analysis: Opportunities and Constraints

The purpose of this part of study is to become more familiar with the existing conditions of the site, and to observe what the potentials and constraints are for new development.
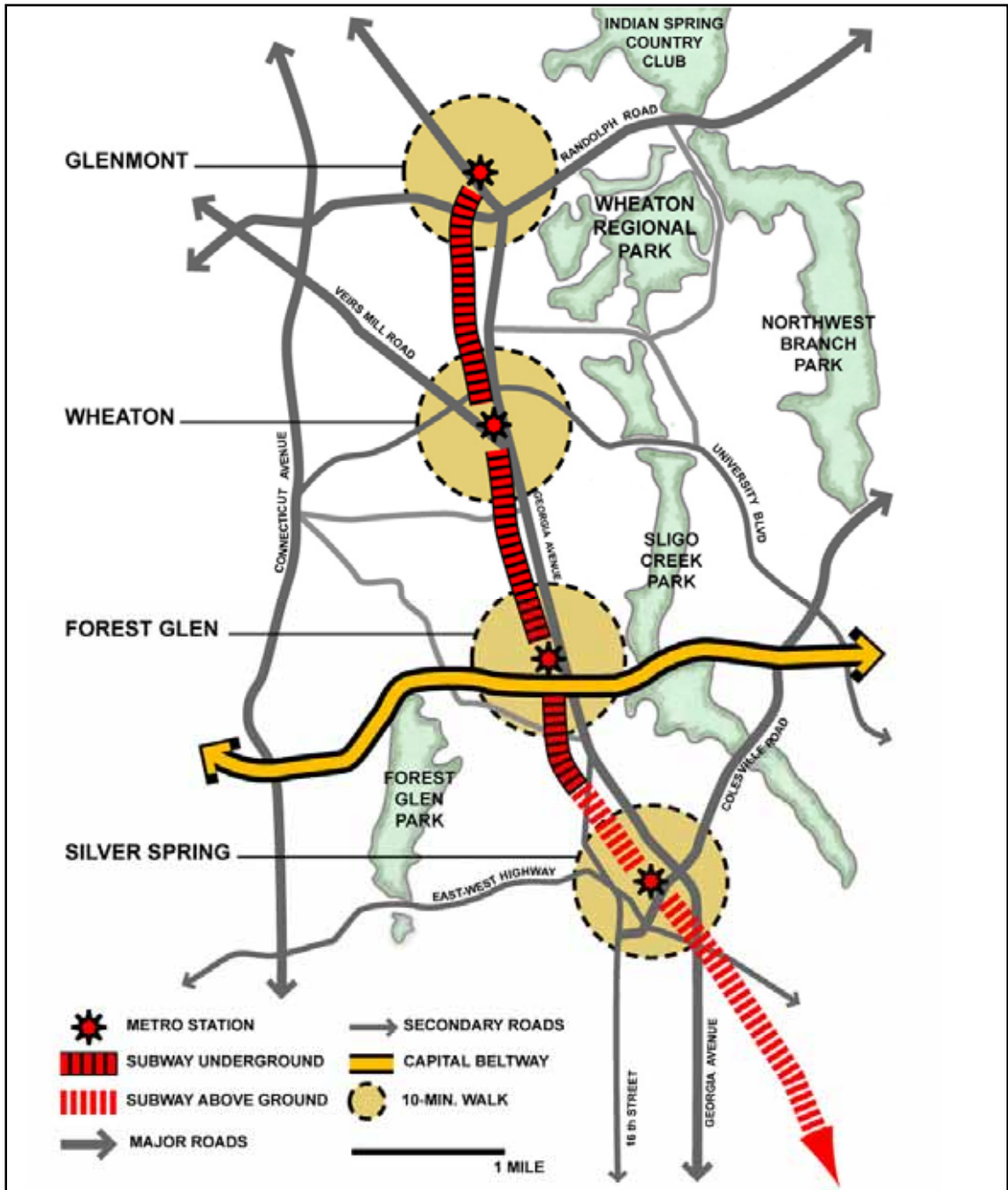
Figure 13: Regional Connectivity to the Wheaton Metro Station.   **[Cesar Ramos, 2007]**
The red line metro runs parallel to Georgia Avenue. This diagram shows the adjacency of major roads to the explored site. Therefore, multiple ways of transportation can be provided.
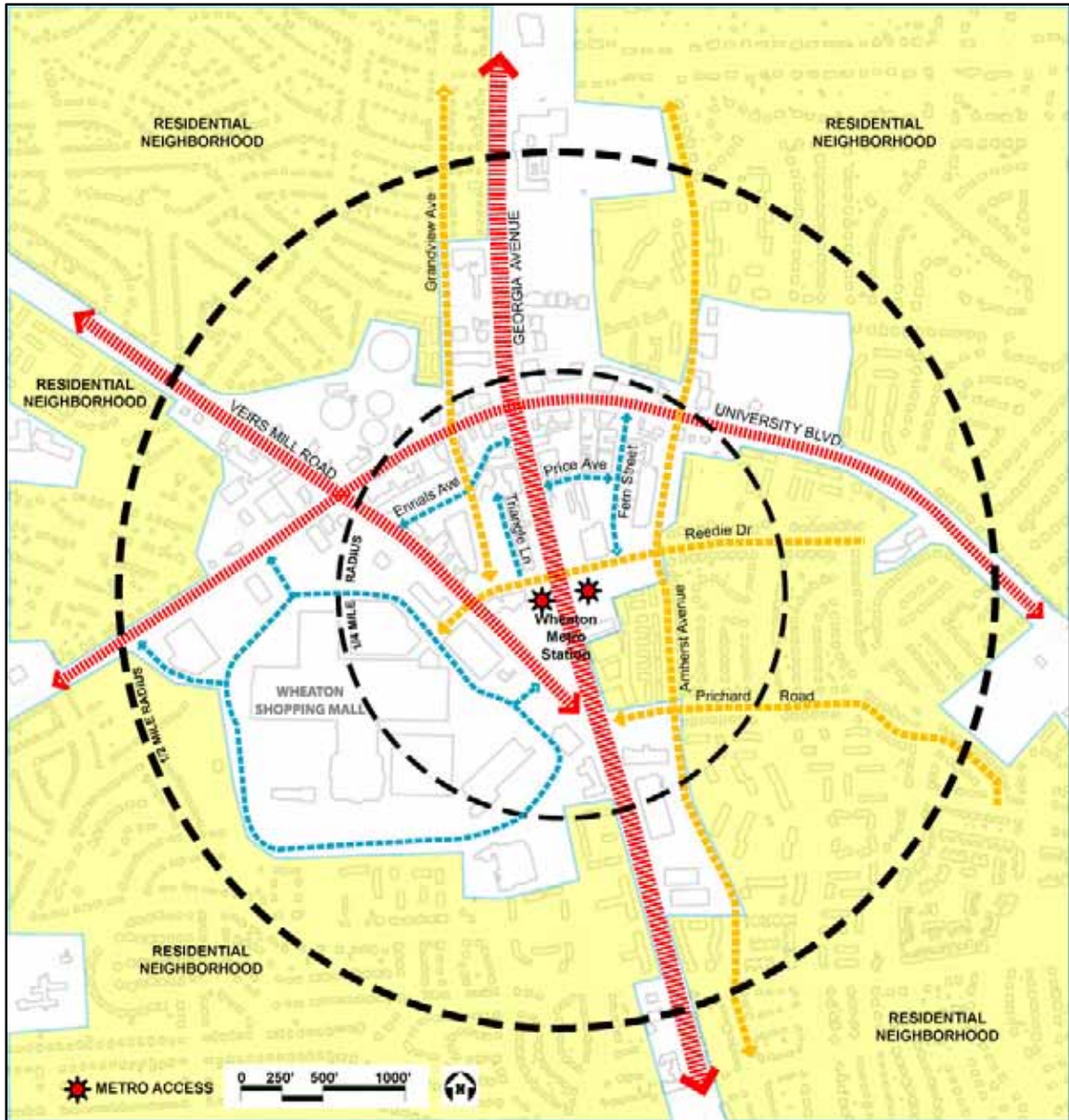
Figure 14: Streets Connectivity, Wheaton, MD.   **[Cesar Ramos, 2007]**
This diagram shows the lack of connectivity between the residential neighborhoods, the Center Business District and the Wheaton Shopping Mall. Note that the only road crossing both the Georgia Avenue and Veirs Mill Road is Reedie Drive. Also, Grandview Avenue, which crosses University Boulevard, becomes an important connector of a residential neighborhood to the commercial area. Ennals Avenue certainly helps with circualtion in the triangle; however, it does not cross any major road; this makes crossing the major roads, at these two intersections, very unsafe.
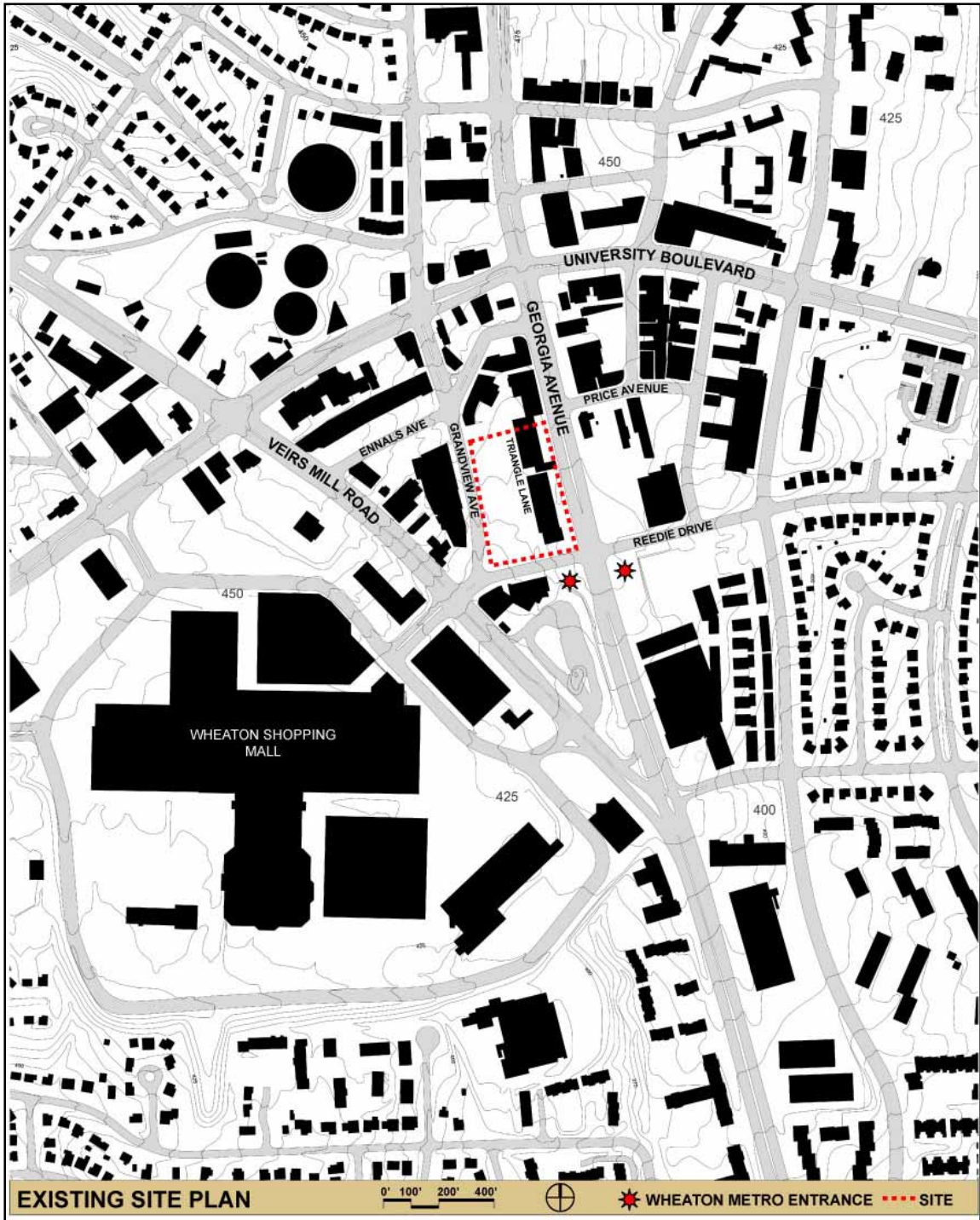
Figure 15: Space Positive Drawing, Wheaton, MD.   **[Cesar Ramos, 2007]**
This diagram shows the irregular nature of the city grid. Also, the fabric of the city is not consistent mainly around major roads such as, Georgia Avenue, Veirs Mill Road, and University Boulevard, and the blocks are not compact enough in the Central Business District, which is surrounded by mostly single family houses.

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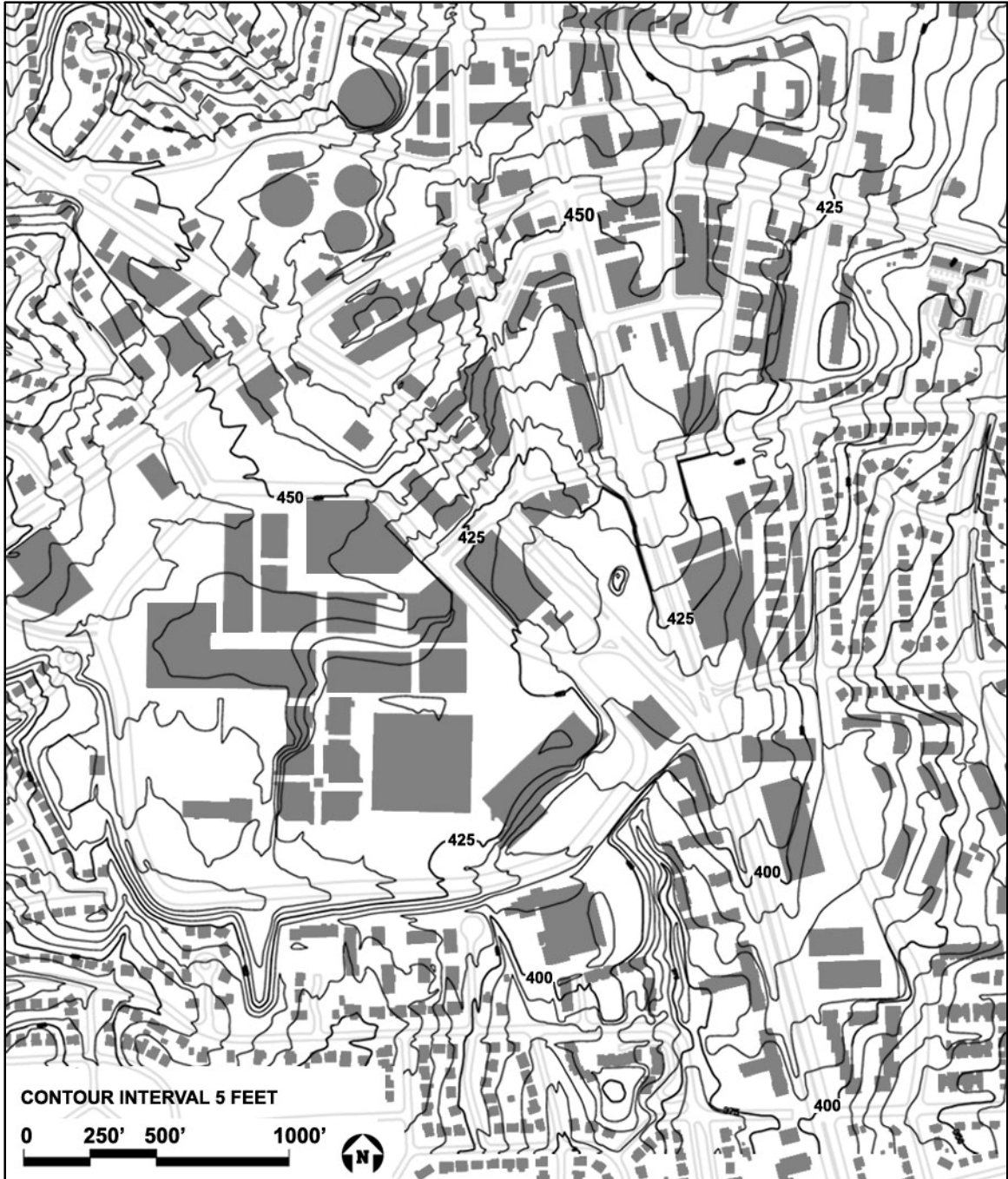
Figure 16: Existing Topography in Wheaton, MD.   **[Cesar Ramos, 2007]**
Note that the highest point is located near the intersection of Veirs Mill Road and University Boulevard.
Most of the site is somewhat steep, mainly along Veirs Mill Road, between University and Reddie Drive.
The slope along Georgia Avenue is gentle and more or less constant.

WHEATON LAND USE
1/4 MILE RADIUS FROM WHEATON METRO STATION ENTRANCES
1/4 MILE EQUALS 5 MINUTE WALK

- RESIDENTIAL
- COMMERCIAL
- INSTITUTIONAL
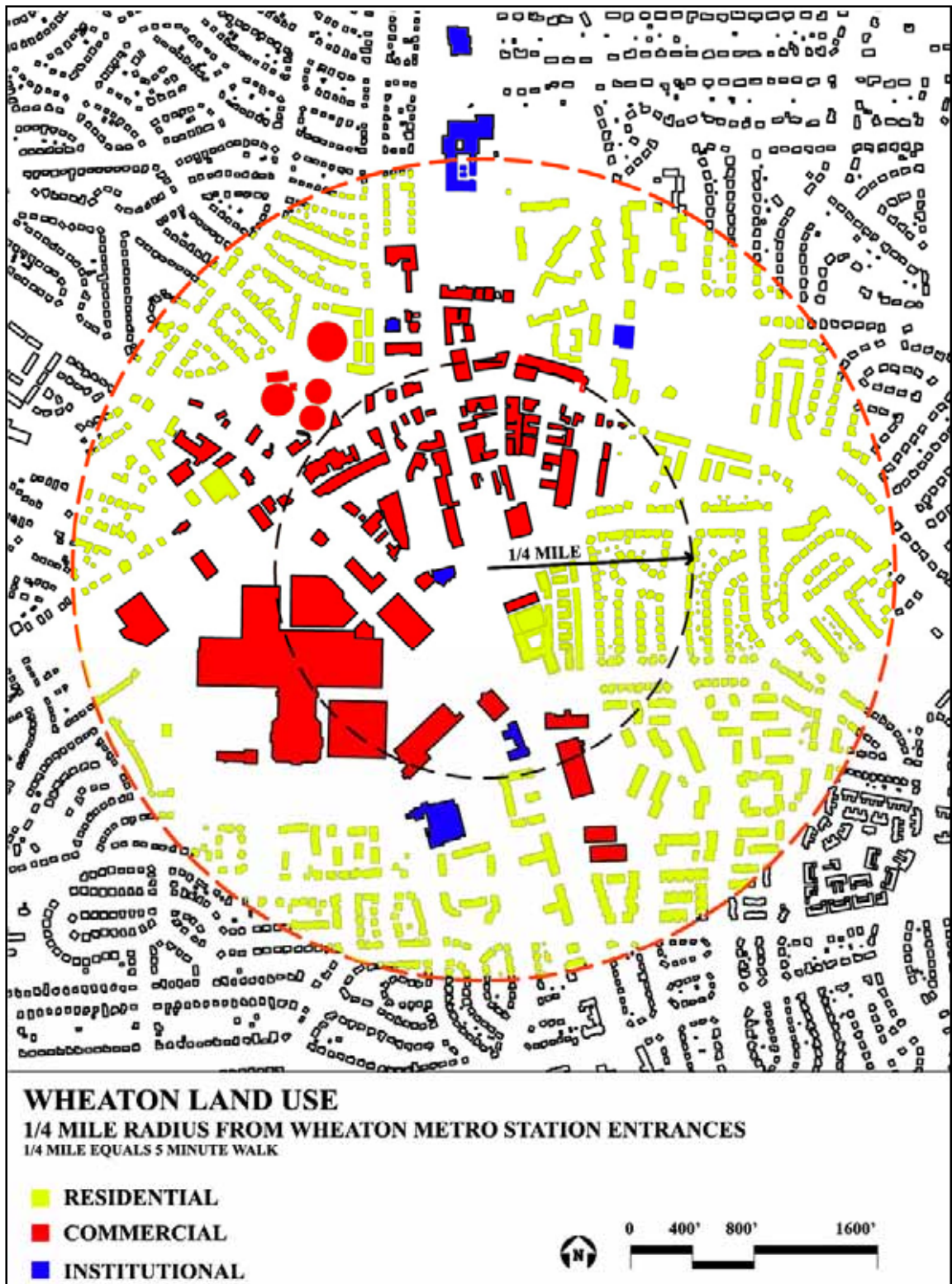
Figure 17: Existing Land Use diagram, Wheaton, MD. [Cesar Ramos, 2007]
This diagram shows the extensive commercial area and the low-density, mostly single-family housing, around the Wheaton Metro Station. There is a need for higher density housing and more mixed land-use.

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Figure 18: Existing Zoning, Wheaton, Maryland.   **[Cesar Ramos, 2007]**

Wheaton CBD Zoning			
	CBD1	**CBD2**	**CBD3**
a). Standard Method of Development			
Residential (Max. DU/Acre)	43	80	120
Max. Non-residential (F.A.R.)	1	2	3
Max. Building Height	60'	60'	72'
b). Optional Method of Development			
Residential (Max. DU/Acre)	125	200	200
Max. Non-residential (F.A.R.)	2	4	6
Max. Building Height	60'	143'	143'

Table 2: Central Business District Zoning, Wheaton, MD.   **[Cesar Ramos, 2007]**

The standard method requires compliance with a specific set of development standards and permits a range of uses and a density compatible with these standards. If residential uses are included in a development, Moderately Priced Dwelling Units must be provided. Under the optional method greater densities may be permitted and there are fewer specific standards, but certainly facilities and amenities must be provided by the developer. The presence of these facilities and amenities is intended to make possible the creation of an environment capable of supporting the greater densities and intensities of development permitted.[10]

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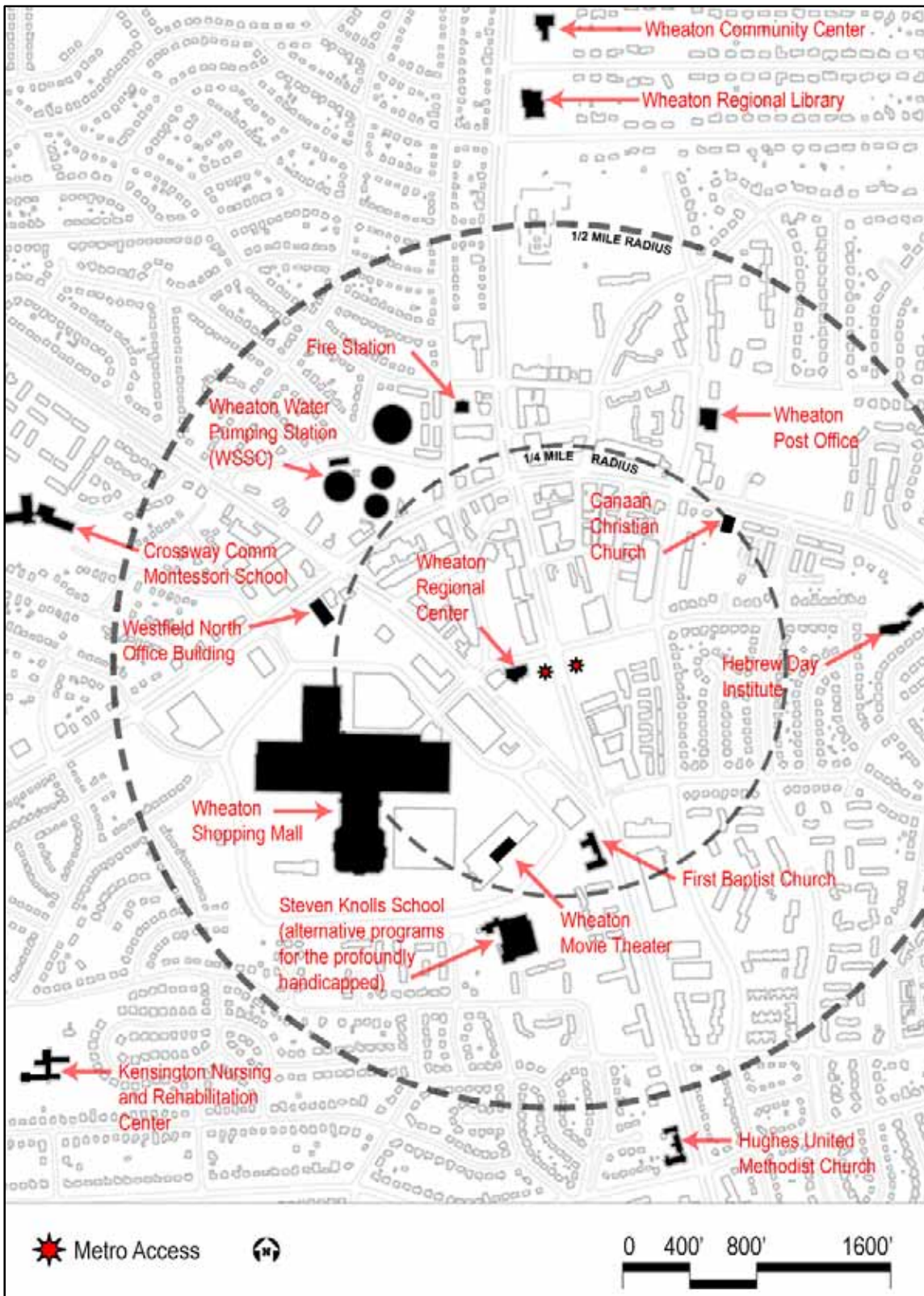
Figure 19: Important Public Buildings, Wheaton, MD.   **[Cesar Ramos, 2007]**

Most of these public buildings are outside the quarter mile radius (5 min. walk) from the Wheaton Metro Station. There is a need to bring some of these buildings closer to the metro station to better center this area.

Figure 20: Important Buildings around Wheaton Town Center. [Cesar Ramos, 2008]

Figure 21: Wheaton Shopping Mall, Wheaton, MD. [Cesar Ramos, 2008]

The Wheaton Shopping Mall ever since its creation has been economically important for Wheaton. As mentioned before, by 1963 it was the fourth largest in size in the nation. In 2005, 50 new specialty stores and a Macy's were added to the mall.[11] It seems that both the mall and the CBD complement each other. The mall attracts customers from all around the region, while the Wheaton CBD attracts mostly residents of the Wheaton area. The CBD benefits in part from the regional drag the mall has, and this is shown in the following survey made by the Wheaton Redevelopment Program.
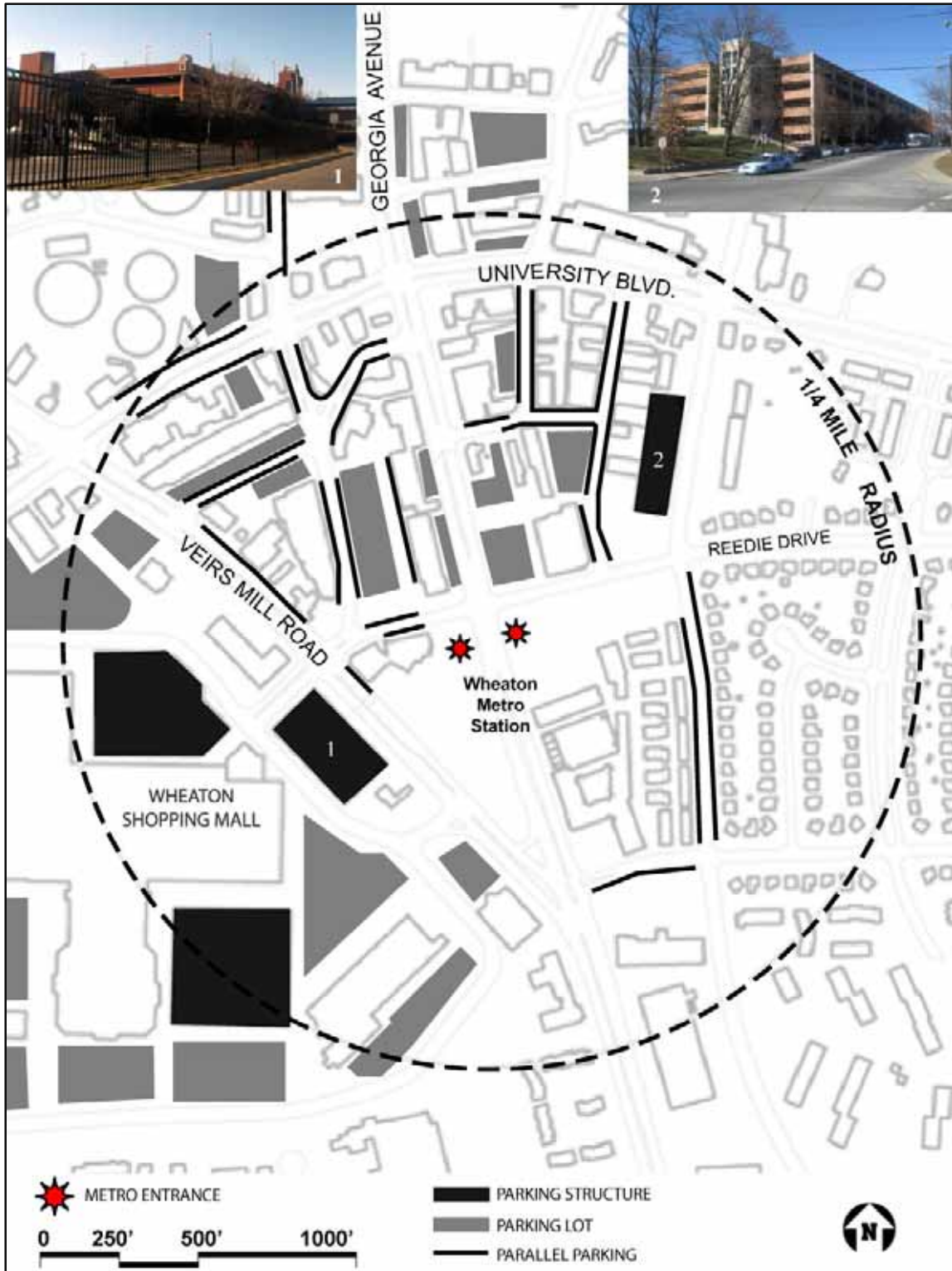
Figure 22: Existing Parking around Wheaton Metro Station, MD.   [Cesar Ramos, 2008]

There are only a couple of parking structures that support the metro station. Most of the parking lots face important streets, making the promenade along these streets very unpleasant. These parking lots are scattered all around the CBD; they occupy much space and provide limited parking spaces. Much of this land can be used for new developments that would enhance the pedestrian experience. Get the parking right![12]
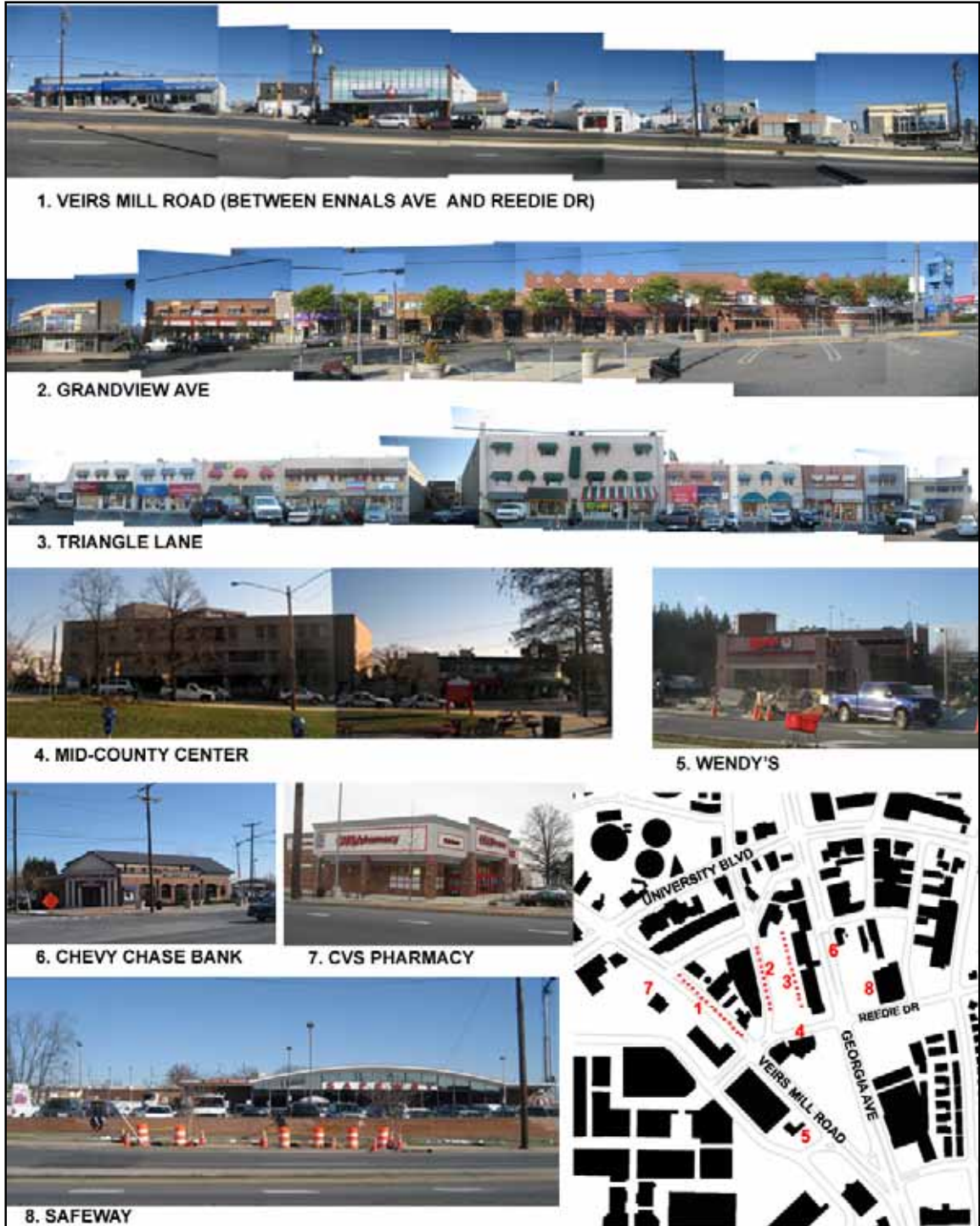
Figure 23: Existing conditions, Wheaton, MD. [Cesar Ramos, 2007]

The facades show the existing one and two-story retail and office character of the Wheaton Business District. It also shows the need for a better land use. Buildings like the barely new CVS Pharmacy and the almost completed Wendy's should not be allowed to be built. Their bulk is exemplary of a suburban development, not a development around this area. They occupied much of this valuable land and they offer so little.

Figure 24: Sections Through Veirs Mill Road, Wheaton, MD.   [Cesar Ramos, 2008]
Current conditions show the lack of reinforcement of the street fabric. Buildings are not tall enough and they are not continuous. Also, there is a need for a greater set back that would allow better pedestrian circulation.

SECTIONS THROUGH GEORGIA AVE.
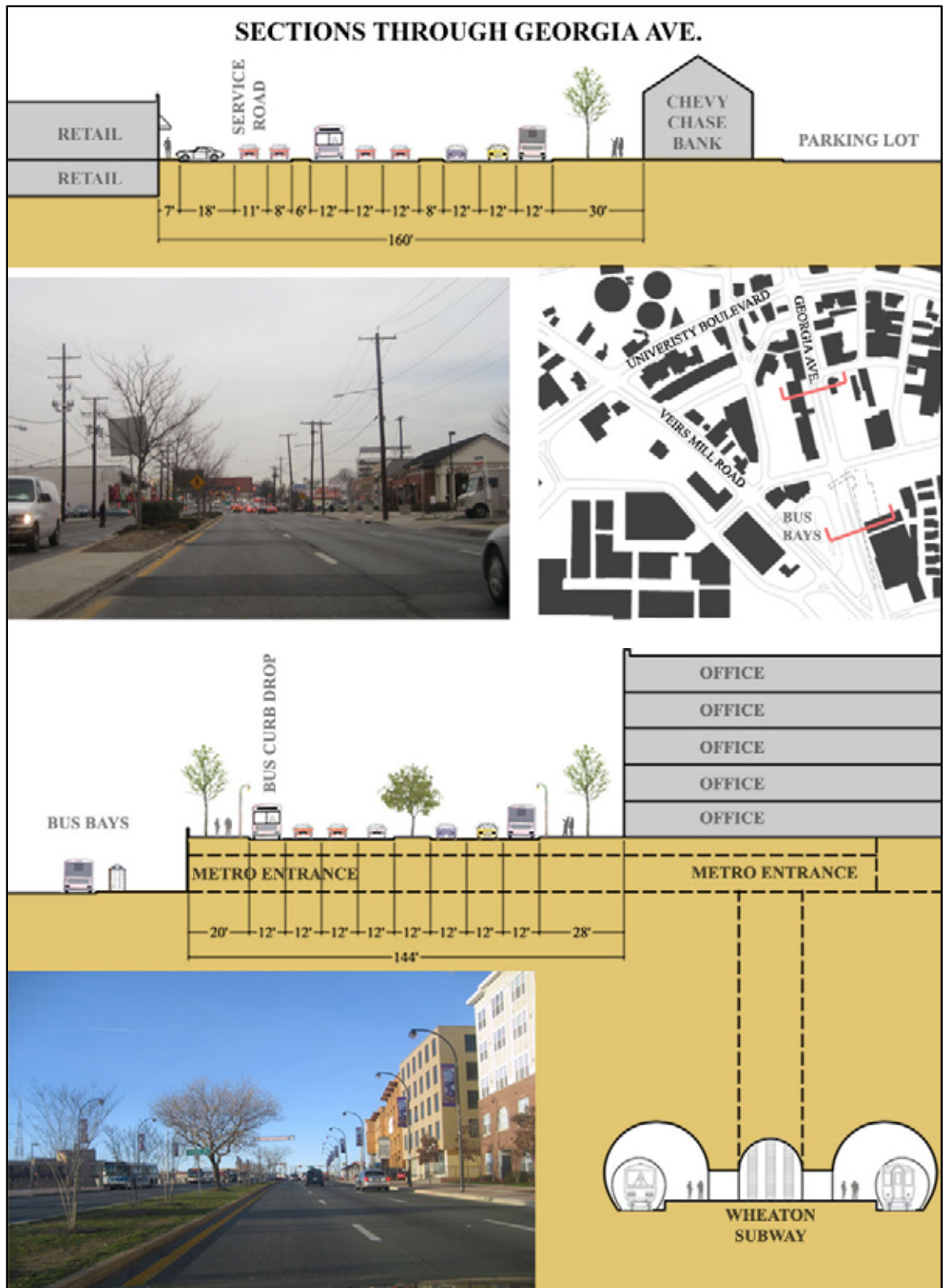
Figure 25: Sections Through Georgia Avenue, Wheaton, MD.   **[Cesar Ramos, 2008]**
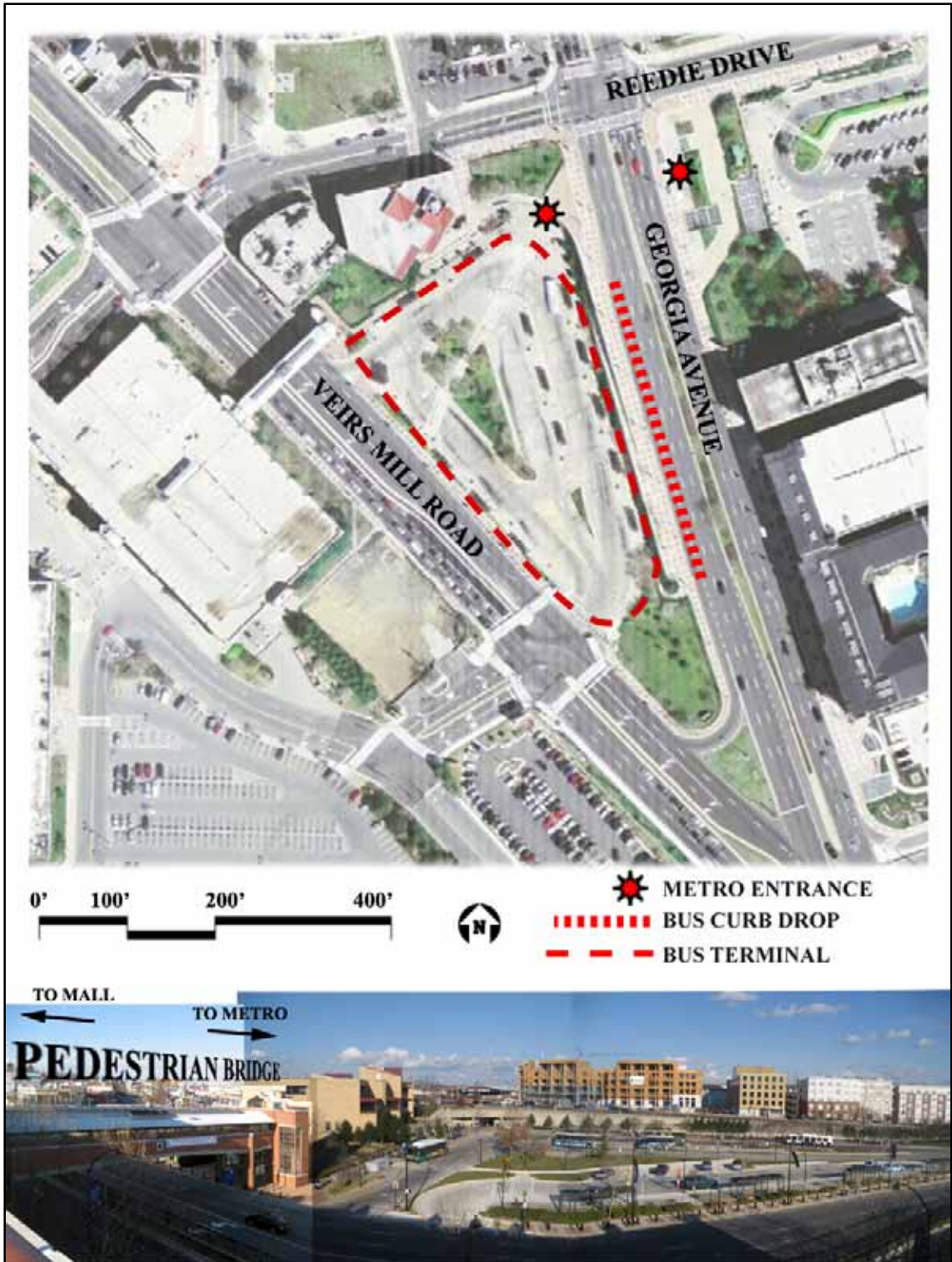
Figure 26: Wheaton Metro Station Bus Terminal, Wheaton, MD.　　　　　**[Cesar Ramos, 2008]**
There are 14 bus bays and a total of 23 different bus routes that connect to other metro stations and other important locations around Wheaton. Notice that all of these bus bays are joined in a single bus terminal, which is accessed from Veirs Mill Road. The lot seems to be overwhelmed by so many bus bays. There is a need for another bus terminal that could take some of this load, and probably could be located in an opposite bound than the existing one.
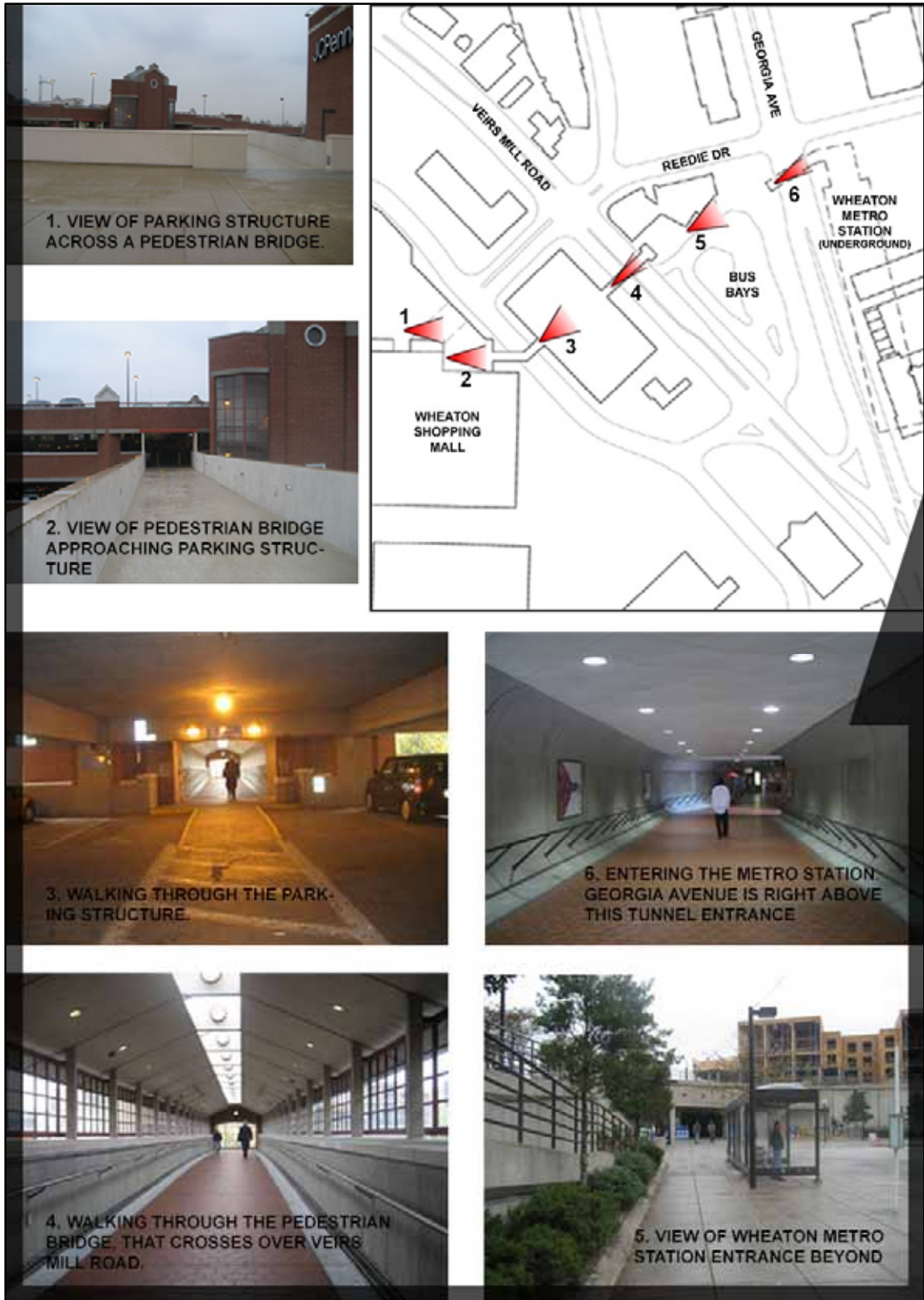
Figure 27: Promenade from Wheaton Shoping Mall to Metro Station, MD. [Cesar Ramos, 2008]
These photo sequence shows how boring and unsafe the promenade from the mall to the Metro Station is, mainly walking through the Metro parking structure, which is very dark and isolated.
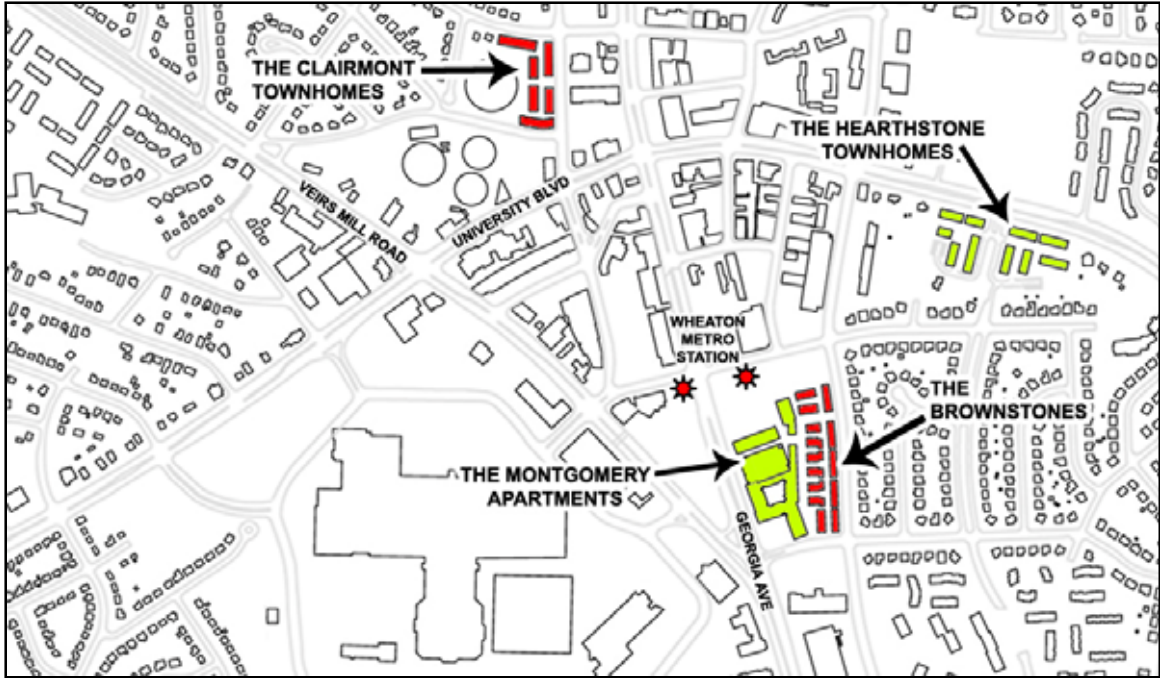
Figure 28: Major Residential developments and their proximity to the site.   **[Cesar Ramos, 2007]**
This diagram shows the recent developments and their proximity to the site. Figures 28, 29, 31, and 30 are keyed to the site plan.

Figure 29: The Clairmont Townhomes, Wheaton, MD.   **[Cesar Ramos, 2007]**
This project includes 42 townhomes and one single family home on a 1.7 acre site. This equals to 25 DUs/acre.

Figure 30: The Montgomery Apartments, Wheaton, MD.   [Cesar Ramos, 2007]
This project includes 243 luxury rental apartments and 400 space parking garage.

Figure 31: The Brownstones, Wheaton, MD.   [Cesar Ramos, 2007]
This housing project includes 75 three-story townhouses. Both the Montgomery apartments and the Brownstones sit on a 6 acre site approximately; therefore, the density equals to 53 DUs/acre plus the 400 space parking garage.

Figure 32: The Hearthstone Townhomes, Wheaton, MD.   **[Cesar Ramos, 2008]**
This project includes 54 townhomes on a 4.25 acre site. This equals to 12 DUs/acre and 50 parking spaces.
The townhomes have three stories and two garages.

Chapter 3: The Program

Program is mandated by TOD's design principles, connectivity, and community needs.

TOD's Design Principles

According to Peter Calthorpe a Transit Oriented Development must have the following components: a core commercial area, a residential area, public uses, and a secondary area. A core commercial area is a mixed use area located adjacent to the transit stop. A residential area must accommodate a minimum average of 18 DU/Acre. Residential areas provide a higher concentration of households in close proximity to transit service and core commercial areas. Public uses include parks, plazas, greens, public buildings, and public services. Secondary areas may have lower density single-family housing, public schools, large community parks, low intensity employment-generating and park and ride lots.[13]

MIX OF USES	
USE	Percentage for an Urban TOD
Public	5% - 15%
Core/ Employment	30% - 70%
Housing	20% - 40%

Table 3: Mix of Uses for an Urban TOD as Peter Calthorpe recommends.   [Cesar Ramos, 2008]
All TODs must be mixed-use and contain a minimum amount of public, core commercial and residential uses. Vertical mixed-use buildings are encouraged, but are considered a bonus to the basic horizontal mixed use requirement. This chart is a preferred mix of land uses, by percent of land area within a TOD.

Identifying the Needs

There are multiple needs that were identified by a survey made by the Wheaton Redevelopment program in 2005. This survey is summarized in the following chart:

2005 Wheaton Small Business Survey	
188 Surveys Distributed	
139 Surveys Completed and Returned	
73% Response	
Over 63% of businesses have been in Wheaton for more than 6 years	
30% of businesses have less than 2 years remaining on their leases	
Over 70% have leases less than 5 years	
57% report that business is good or better	
11% report that they are "having trouble	
Top buiseness concerns:	
1. Parking	4. Vehicle traffic
2. Safety/Crime	5. Pedestrian traffic
3. Marketing	

Table 4: 2005 Wheaton Small Business Survey, MD[14]   **[Cesar Ramos, 2008]**

Program Tabulation

Proposed Program Matrix		
Mixed-Use Buildings Program		
Residential Units	**SF**	**Comments**
20 1-Bed Flats	640	SF/ unit
16 Flats	780	SF/ unit
4 Lofts	1,050	SF/ unit
12 2-Bed Duplexes	1,160	SF/ unit
12 2-Bed Flats	1,210	SF/ unit
8 3-Bed Duplexes	1,520	SF/ unit
2 2-Bed Duplexes	1,540	SF/ unit
Commercial Space	**SF**	**Comments**
Office	27,280	1 parking space/ 1,000 sf of office space
Retail/ Dining	35,650	3.5 parking spaces/ 1,000 sf of retail/dining space
Parking		258 spaces total (including 1 space per residential unit)
Community Spaces	**SF**	**Comments**
Day Care	700	
Multi-Purpose Room	750	
Courtyard	8,160	

Table 5: Mixed-Use Buildings Program.   **[Cesar Ramos, 2008]**

Proposed Program Matrix		
Civic/ Social/ Cultural Program		
Program Space	**SF**	**Comments**
Civic Plaza	46,500	Includes an amphitheater
Library		
Lobby	500	
Display area	150	
Circulation Desk	1,000	
Information Desk	450	
Public access catalogs	1,600	
Children's area	5,470	
Young adult area	550	
Adult area	12,000	
General reference collection	2,400	
Periodical Area	3,200	
Electronic Information	600	
General staff workroom	1,200	
Offices	1,620	
Staff conference Room	500	
Staff Kitchen/ Lounge	350	
Delivery area	500	
Book drop room	200	
Meeting room	3,250	
Classrooms/ Lecture rooms	600	
Gallery	1,000	
TOTAL LIBRARY SF	37,140	
Wheaton Center	35,800	
Day Care	1,600	
Police Sub-Station	6,750	
Farmers' Market	15,900	Located along Grandview Avenue, between Price Avenue and Reedie Drive

Table 6: Civic, Social, and Cultural Program for the Town Center.[15]   **[Cesar Ramos, 2008]**
The library program was derived from Yi-Cheng Chen's thesis dissertation, "Rockville Public Library-Revitalization of Downtown Rockville, MD."

Chapter 4: Precedents

Before starting the design, studies were made to precedents that are relevant to the design process and completion of this thesis. They are separated into urban precedents and architectural precedents. The urban precedents relate to contemporary towns and they are the following: Rockville Town Square, in Rockville, MD, the Market Common at Clarendon, in Clarendon, VA, and Kentlands Town Center, in Germantown, MD. The architectural precedents include: The Government Office Building, in Rauma, Finland, the Eastern Village Cohousing, in Silver Spring, MD, and the Elevation 314, in Takoma Park, MD.

Rockville Town Center, Rockville, MD

Figure 33: Rockville Town Square Site Plan, Rockville, MD.   **[Cesar Ramos, 2008]**

SECTION THROUGH ROCKVILLE TOWN SQUARE

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RETAIL/ DINING

OUTDOOR DINING/ WALKWAY ZONE

OUTDOOR DINING/ WALKWAY ZONE

OFFICE
OFFICE
OFFICE
OFFICE
RETAIL/ DINING

20'   85'   20'
125'

PATHWAY

Rockville Town Square is surrounded by a public library and mixed-use buildings, in which retail, convenience, and dining stores prevail at ground level. In the upper levels both residential and office spaces reinforce this beautiful void. A couple of rows of trees create a zone for walkways , as well as, outdoor dining and coffee areas.

Figure 34: Section Through Rockville Town Square, Rockville, MD.   **[Cesar Ramos, 2008]**
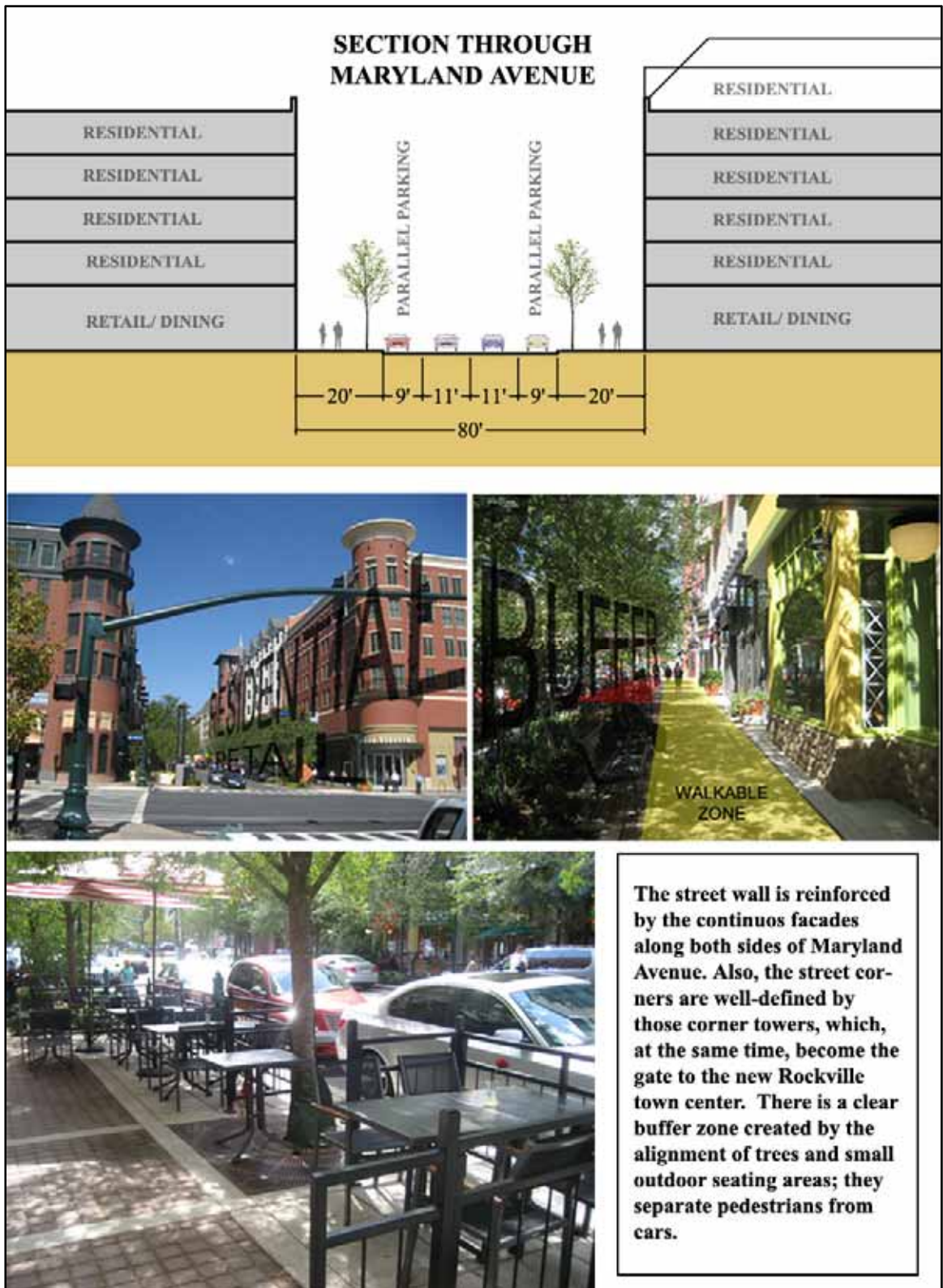
Figure 35: Maryland Avenue Section, Rockville, MD.   [Cesar Ramos, 2008]

The following text appears within the figure:

SECTION THROUGH MARYLAND AVENUE

RESIDENTIAL

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RETAIL/ DINING

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RETAIL/ DINING

PARALLEL PARKING

PARALLEL PARKING

20' 9' 11' 11' 9' 20'

80'

WALKABLE ZONE

The street wall is reinforced by the continuos facades along both sides of Maryland Avenue. Also, the street corners are well-defined by those corner towers, which, at the same time, become the gate to the new Rockville town center. There is a clear buffer zone created by the alignment of trees and small outdoor seating areas; they separate pedestrians from cars.

SECTION THROUGH GIBBS STREET

RESIDENTIAL | RESIDENTIAL
RESIDENTIAL | RESIDENTIAL
RESIDENTIAL | RESIDENTIAL
RESIDENTIAL | RESIDENTIAL
RETAIL/ DINING | RETAIL/ DINING

PARALLEL PARKING IN BETWEEN TREES

BICYCLE PATHWAY

20'　11'　9'　15'

55'

PEDESTRIANS

BICYCLE

AUTOMOBILE

BICYCLE

AUTOMOBILE

The most important feature of this street is the separation of multiple movement systems. Consequently, pedestrians, bicyclists, and drivers have their own zone, and these areas are clearly separated with physical vertical architectural elements such as, trees, planters, and steel poles; or simply with a different paving materials.

Figure 36: Gibbs Street Section, Rockville, MD.　　　　　　　　**[Cesar Ramos, 2008]**

The Market Common, Clarendon, Virginia

Figure 37: The Market Common Site Plan, Clarendon, Virginia.   **[Cesar Ramos, 2008]**

SECTION THROUGH THE MARKET COMMON- LOOKING NORTH

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RETAIL/ DINING

RETAIL/ DINING

PARALLEL PARKING

PARALLEL PARKING

PARALLEL PARKING

PARALLEL PARKING

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RETAIL/ DINING

20' 40' 6' 38' 6' 40' 20'

170'

PHOTOGRAPH OF THE MARKET COMMON LOOKING SOUTH

EAST WING

WEST WING

Figure 38: Section Through the Market Common, Clarendon, Virginia.   **[Cesar Ramos, 2008]**

Figure 39: Connectivity of the Market Common to adjacent buildings, VA. [Cesar Ramos, 2008]
These images show the connectivity of the square to adjacent housing. Sequence 1 shows a cover pathway that leads to the entrance of upper apartments and also connects to townhouses at the other end. Image 2 shows the entrance to the apartments above in the other side, as well as, a public parking entrance. Sequence 3 shows a pathway that also connects the square with townhouses at the other side.

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Kentlands, Germantown, Maryland
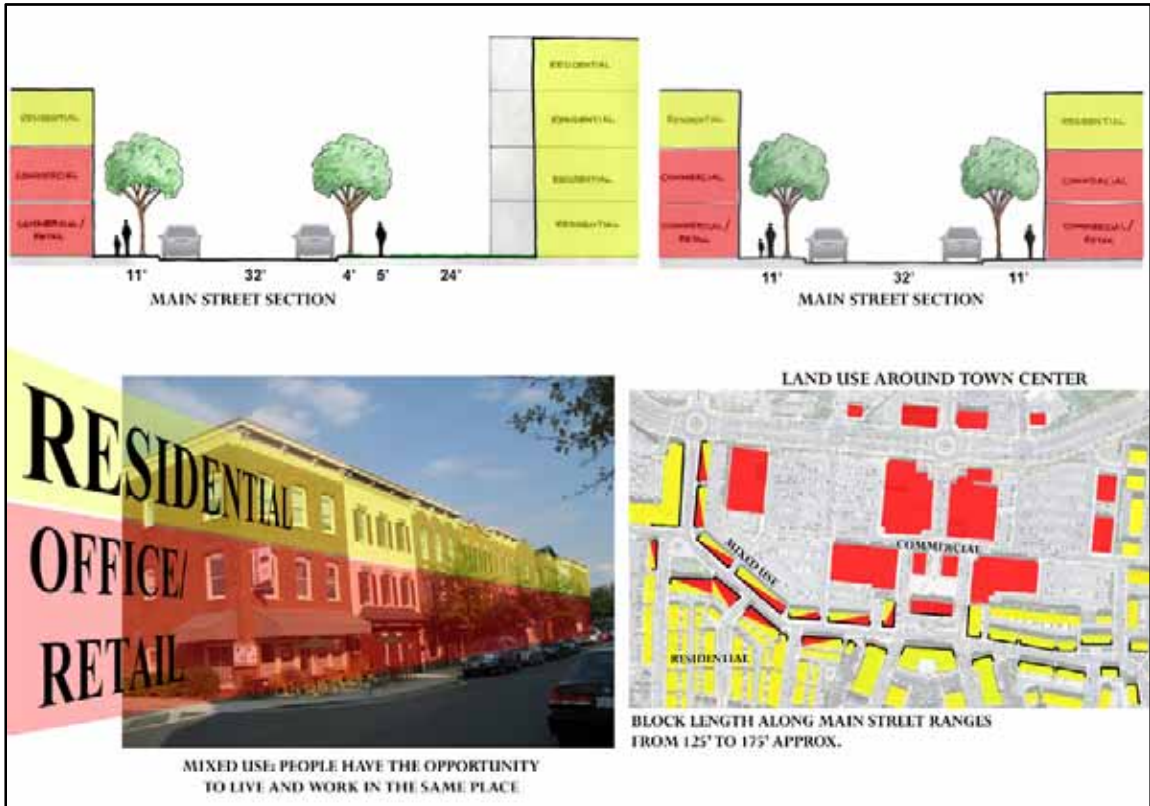
Figure 40: Kentlands Town Center, Germantown, MD.   [Cesar Ramos, 2008]
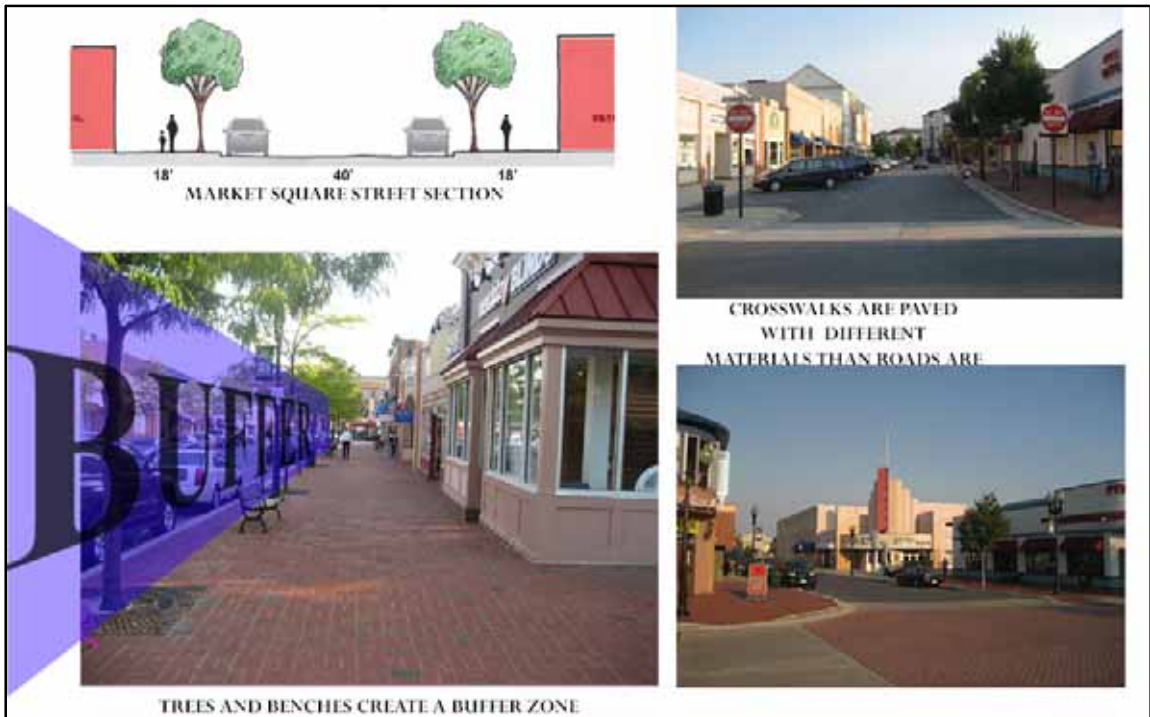
Figure 41: Kentlands Town Center, Germantown, MD.   [Cesar Ramos, 2008]

Rauma Government Office Building, Rauma, Finland
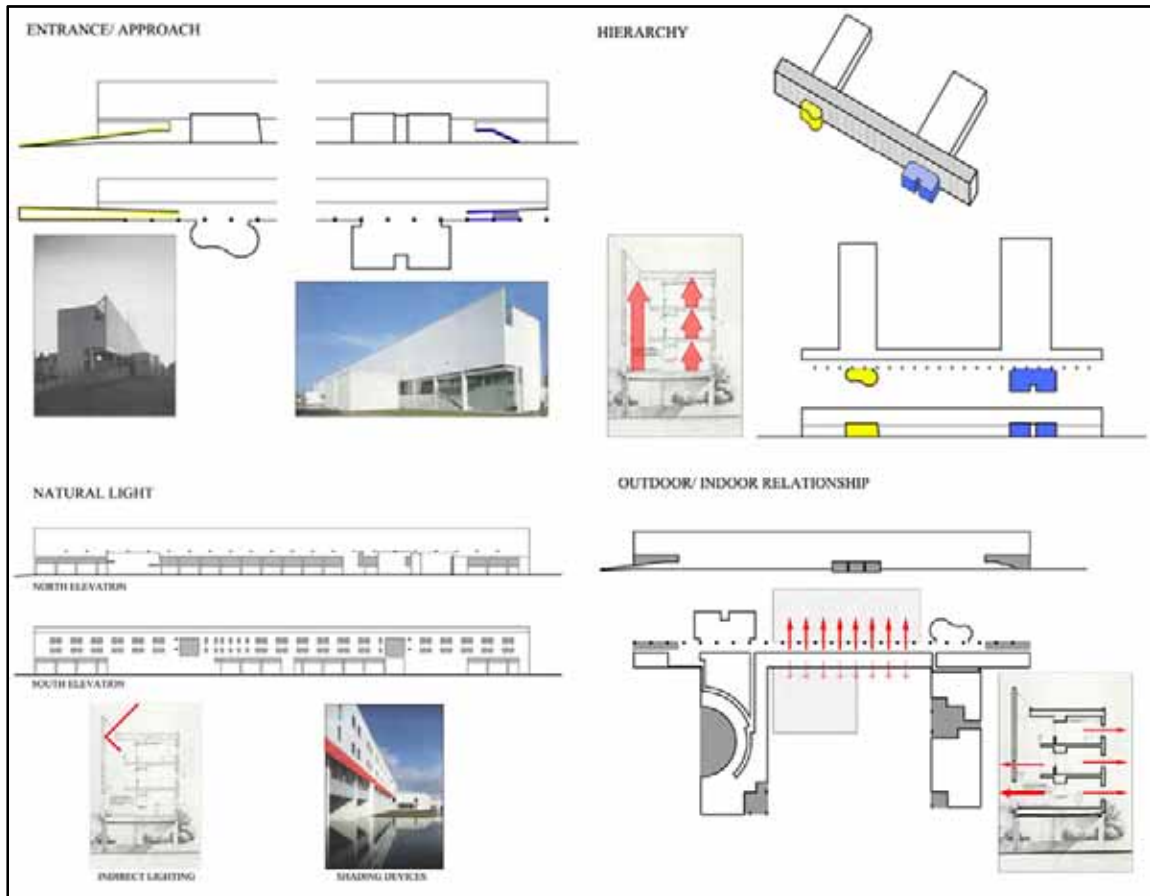
Figure 42: Rauma Government Office Building, Rauma, Finland.   **[Cesar Ramos, 2008]**

Figure 43: Rauma Government Office Building, Rauma, Finland.   **[Cesar Ramos, 2008]**
This image shows North (above) and South (below) Elevations of the Rauma Office Building built in 1991 by Olli-Pekka Jokela and Pentti Kareoja.

Eastern Village, Silver Spring, Maryland

Figure 44: Eastern Village General Information. [Cesar Ramos, 2008]

Figure 45: Eastern Village Site Context. [Cesar Ramos, 2008]
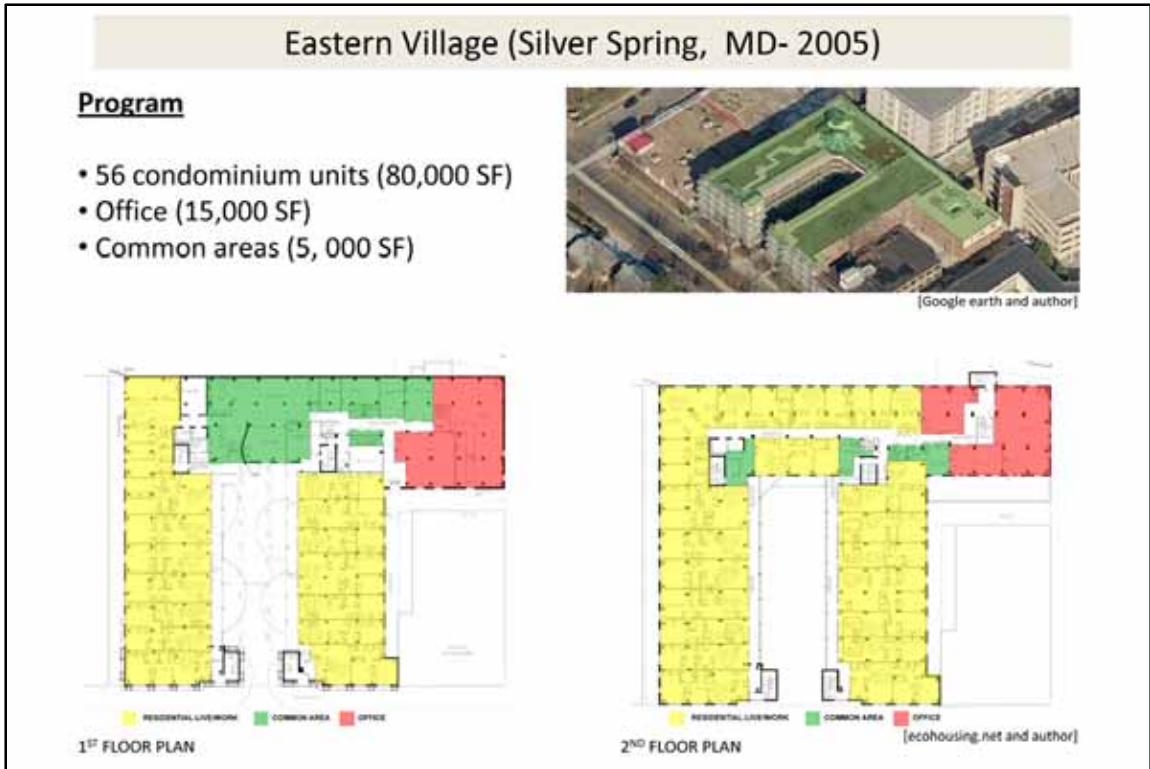
Figure 46: Eastern Village Program and Floor Plans. [Cesar Ramos, 2008]

Figure 47: Eastern Village Program and Units Plans. [Cesar Ramos, 2008]

Figure 48: Eastern Village Common Areas. [Cesar Ramos, 2008]

Figure 49: Eastern Village Exterior Corridors. [Cesar Ramos, 2008]

The exterior corridors are also used as places for people's interaction. Dwellers place furniture and plants to make these spaces inhabitable.

Figure 50: Eastern Village Eco-Friendly Features. [Cesar Ramos. 2008]

Elevation 314, Takoma Park, Maryland

Figure 51: Elevation 314 Sustainable Features, Takoma Park, MD. [Cesar Ramos, 2008]

Chapter 5: Design Approach

There are three design principles that will be included on the design process:

- Sustainability: have green components that will teach lessons of natural resources.

- Flexibility: components of the building can be used for different activities and should be able to grow over time.

- Integration: good integration of mixed uses makes a mixed use development successful.

Now days, technical means of sustainability must be included in the design process. But, how to afford social, cultural, and economical sustainability is the question raise in this thesis.

As a plaza is important to a neighborhood, a building must have a program that promotes social interaction. Also, residential and office spaces above retail help support the retail areas. In a multicultural area such as Wheaton, the plaza must include a program that encourages cultural exchange. It has to be open for live performances, farm markets, recreation, and general events such as, the very successful Wheaton festival. This festival is celebrated once a year, and it is the occasion when the multicultural demographics of Wheaton are mixed into one.

Early density studies were made to have an idea of how to achieve a minimum density required to support a Transit Oriented Development. This is shown in the following images.
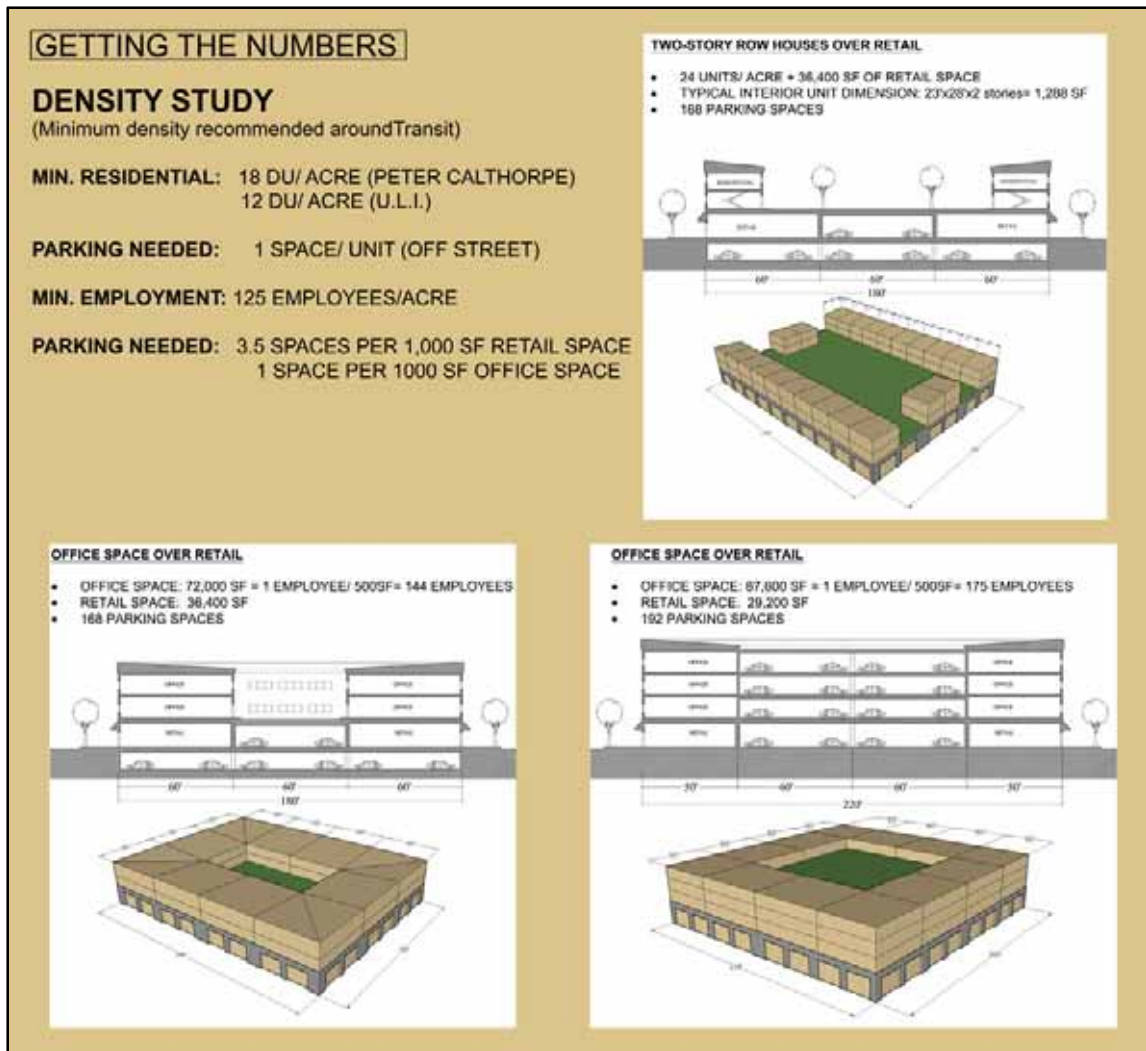
Figure 52: Density Studies.   **[Cesar Ramos, 2007]**
Any of these cases achieve the recommended minimum density by Peter Calthorpe. Even though these studies are purely done for residential densities, it seems that if any of these densities are placed above some retail, they could become part of the CBD, and still comply with the suggested density.

Wheaton grew up as a suburban town, and as such, it stayed for several years. The current town center is an area overloaded of typical one and two-story retail and office space. The opening of the Wheaton Metro Station in 1990 brought up an opportunity that the town has to take advantage of. However, after almost 20 years of the metro station opening this site is still underutilized. Besides, there are other issues such as, traffic, need for more parking, lack of connectivity, crime, loitering, and so on. As it was proposed at the beginning of this thesis, in order to transform Wheaton into a sustainable

town center, there were two scales involved throughout the design process, the urban and architecture scale. The important factors that play a significant role on making each scale successful is shown below:

SUSTAINABLE TOWN CENTER	
SUSTAINABLE NEIGHBORHOOD (URBAN SCALE)	SUSTAINABLE HOUSING (ARCH. SCALE)
* MIXED USE	* DENSITY
* WALKABILITY	* MIXED-INCOME
* SAFETY	* DIVERSITY
* EMPLOYMENT OPPORTUNITIES	* LONG TERM DWELLERS
* IDENTITY	* TECHNICAL SYSTEMS
* INTEGRATION WITH PUBLIC TRANSPORTATION	
* MULTIPLE TRANSPORTATION OPTIONS	

At the urban scale, the concept plan and proposed urban guidelines suggest to solve most of these issues in different ways. First, walkability is improved by remapping Ennals Avenue and letting Price Avenue cross both Georgia Avenue and Veirs Mill Road. This move also improves connectivity between the Wheaton Shopping Mall, the new town center, the Wheaton Metro Station, the public parking structures, and adjacent residential neighborhoods. Also, the inclusion of new parking structures will support the new and existing retail, as well as, the metro station.

Furthermore, the proposed urban guidelines suggest mixed-use buildings at two different scales, one for primary streets, such as Georgia Avenue, Veirs Mill Road, and University Boulevard; and another one for secondary streets, such as Reedie Drive, Grandview Avenue, Ennals Avenue and Price Avenue. These mixed-use buildings will make streets more safe, since residential on top of retail will put more eyes on the streets.

Lastly, the concept plan incorporates a public plaza that becomes the new social and cultural center, and most of the program surrounding it makes it very active during most of the time.
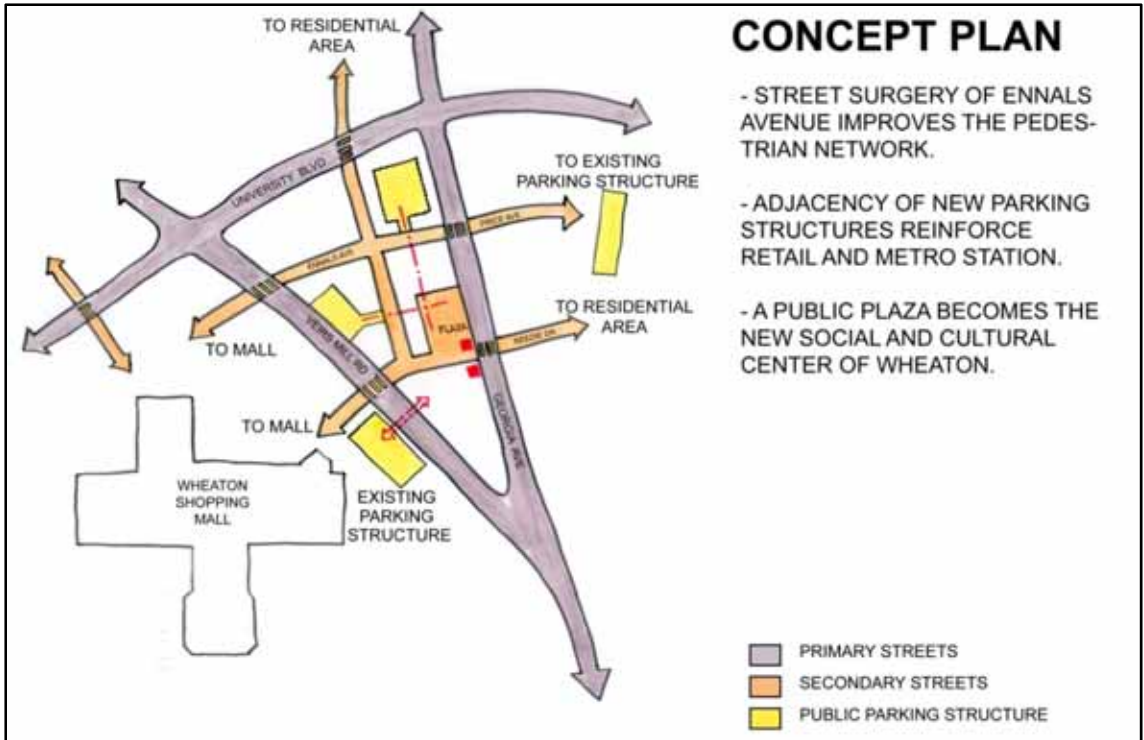
Figure 53: Wheaton Town Center Concept Plan.   [Cesar Ramos, 2008]

Figure 54: Proposed Urban Design Guidelines.   [Cesar Ramos, 2008]

Figure 55: Proposed Wheaton Town Center Site Plan.   [Cesar Ramos, 2008]

The program for the plaza and adjacent buildings includes retail and dining stores at ground level. A new public library and a coffee shop are placed in the west flank of the plaza, in the intersection of Grandview Avenue and Reedie Drive. Bellow the raised main reading room of the library bike racks are placed to promote this kind of transportation.
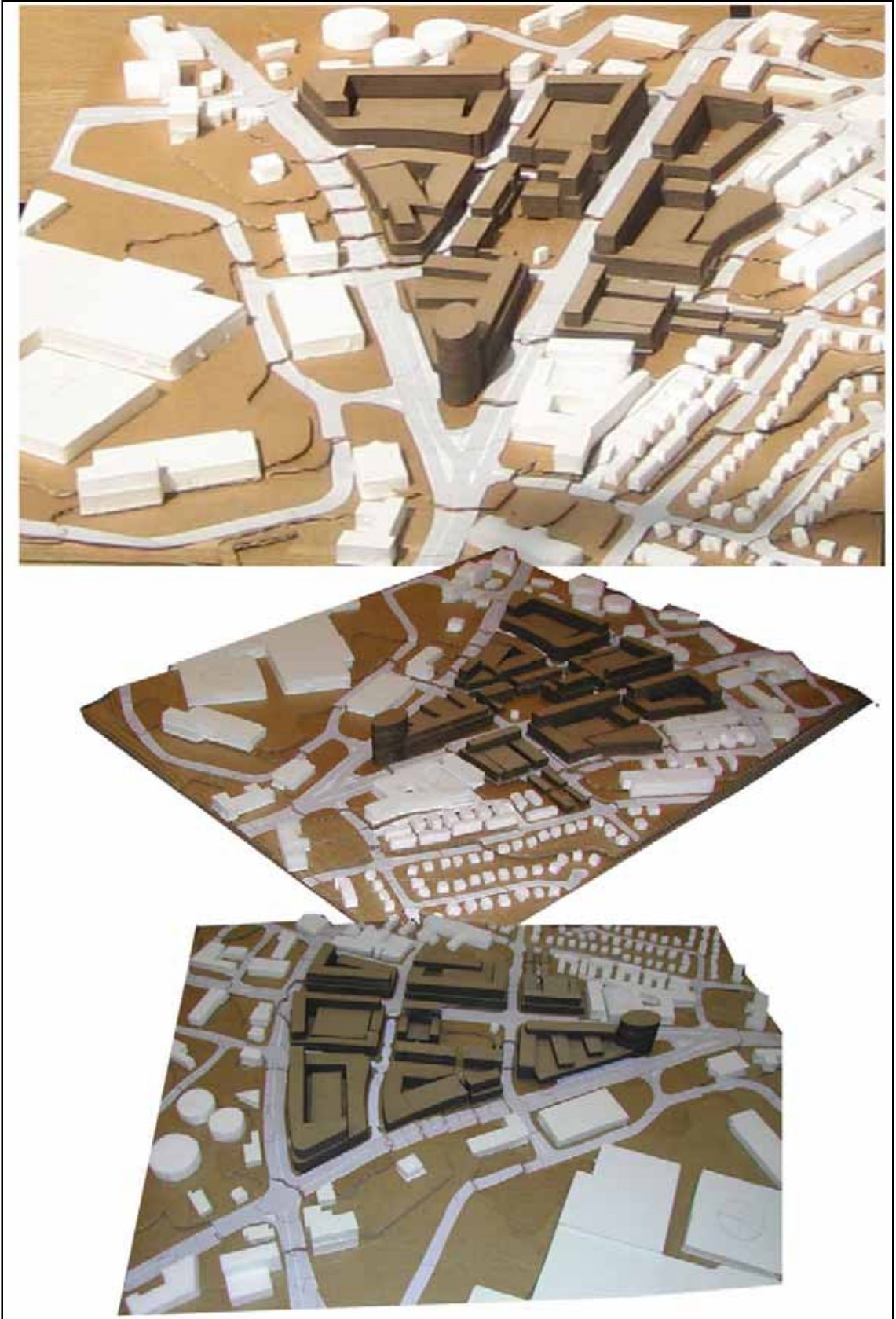
Figure 56: Wheaton Town Center Massing Model.   [Cesar Ramos, 2008]

Figure 57: Birds Eye View of Proposed Public Plaza and Adjacent Program.   [Cesar Ramos, 2008]

A kiss and ride is located in the east flank of the plaza, and it becomes the transition point and a buffer zone from Georgia Avenue. The plaza itself includes an amphitheater that can be used for any kind of outdoor performance. The focal point of the plaza is the water splash that kids can enjoy during summer and can be transformed into a band stand when performances take place. The areas of green lawn, in the plaza, can be used for small casual gatherings.   These green areas will also become rain gardens filtering water to the ground.
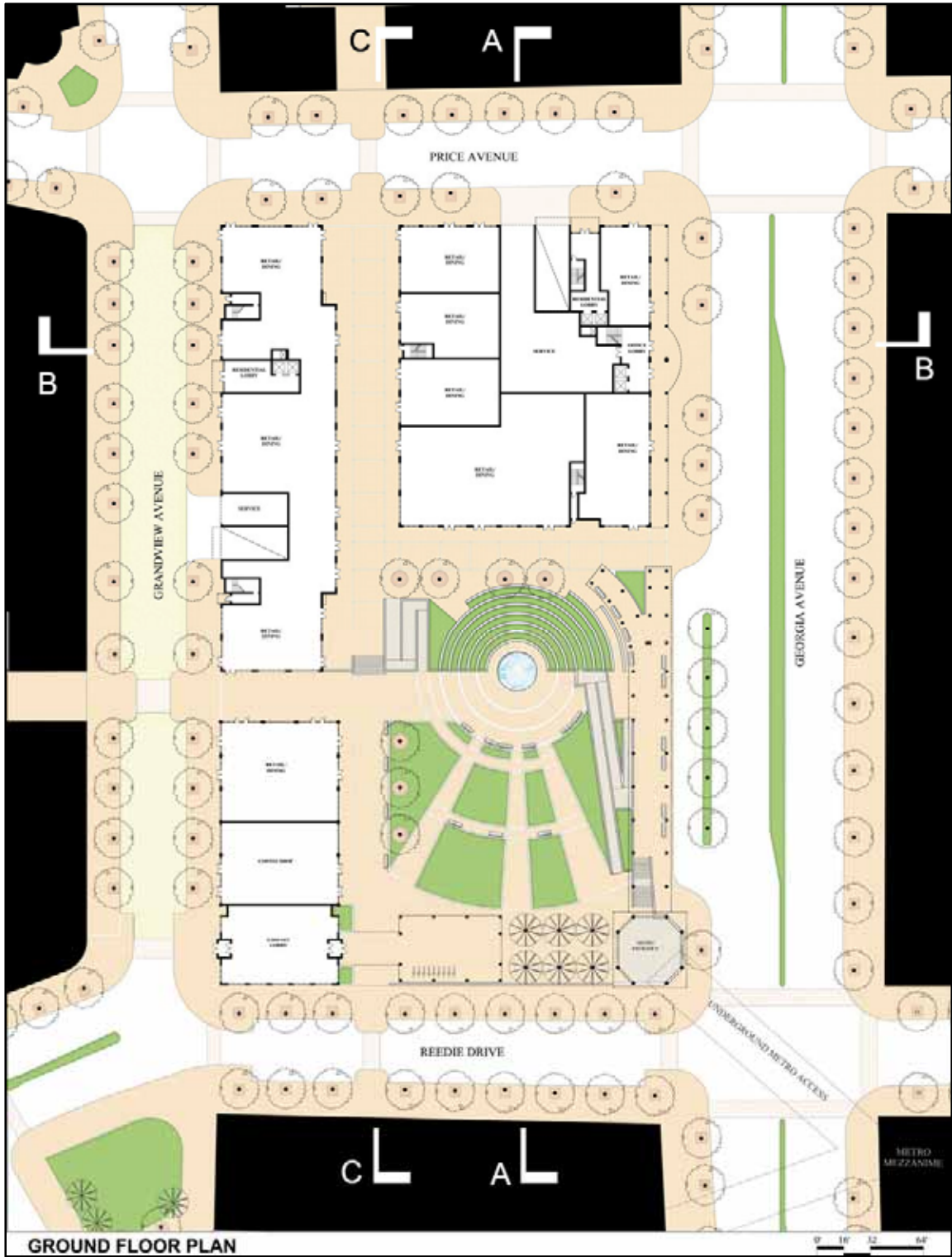
Figure 58: Proposed Ground Floor Plan.   **[Cesar Ramos, 2008]**
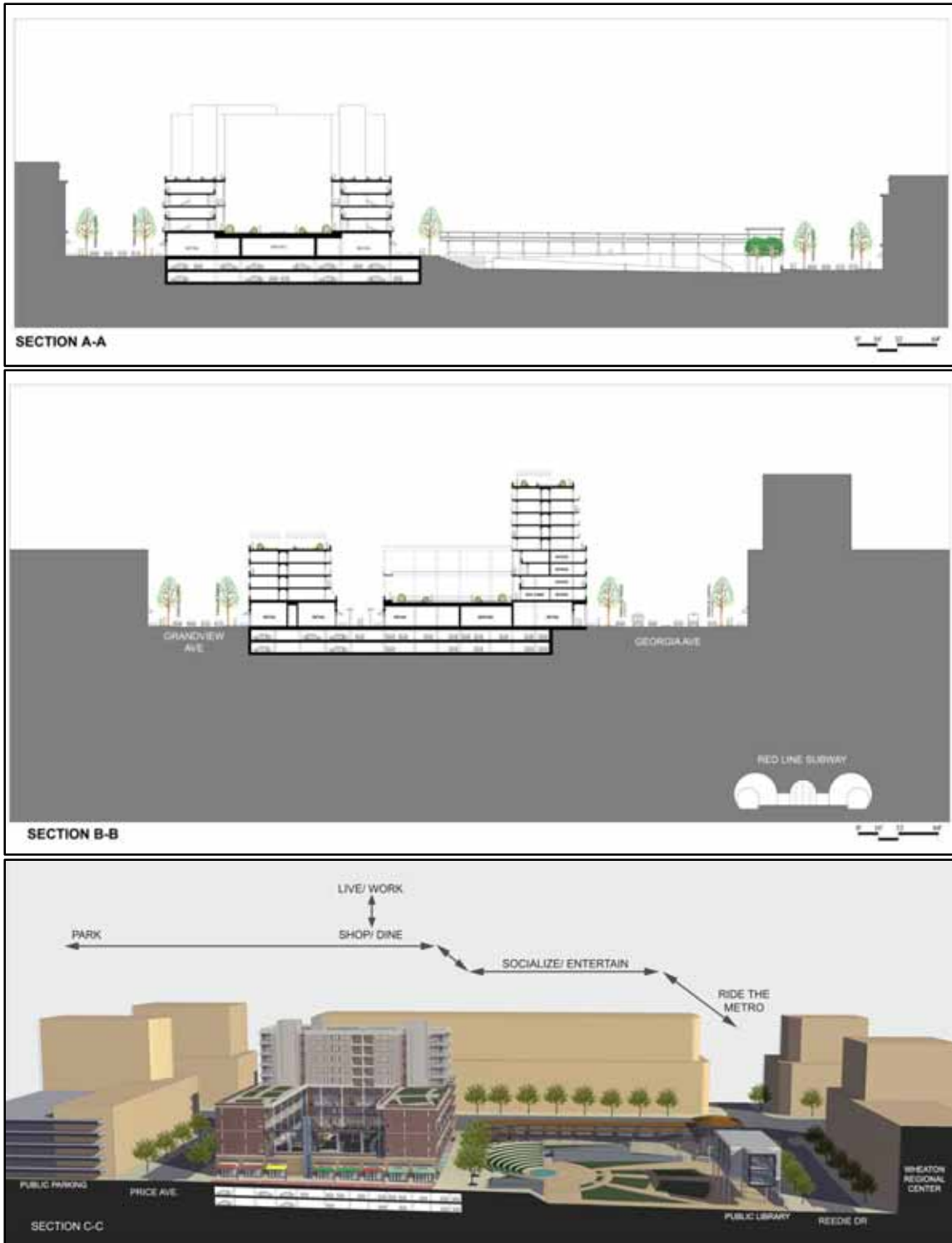
Figure 59: Site Sections. [Cesar Ramos, 2008]
Section A-A shows the relationship between Price Avenue, the proposed mixed-use building and its courtyard, the proposed sunken plaza with his amphitheater, Reedie Drive and the Wheaton Regional center. Section B-B shows the relationship between Grandview Avenue, the proposed buildings with a pedestrian street in between, the building's courtyard, and Georgia Avenue. Section C-C shows the relationship of a proposed parking structure, Price Avenue, the proposed pedestrian street, the proposed plaza, the library's main reading room, Reedie Drive, and the Wheaton Regional Center.

Figure 60: View of Public Plaza. [Cesar Ramos, 2008]
This view shows the proposed sunken public plaza, which includes the amphitheater and water splash. It also shows the kiss and ride pergola on the right side and the proposed buildings surrounding the plaza.

Figure 61: View of the Kiss and Ride pergola. [Cesar Ramos, 2008]
The pergola becomes a transition zone between Georgia Avenue and the public plaza.

Figure 62: Pedestrian Street Between Proposed Two Buildings.   **[Cesar Ramos, 2008]**
The pedestrian street becomes the axis that connects a proposed parking structure at one end and the proposed plaza with a public library at the other. Consequently, the retail spaces in this pedestrian street will always be active since people are force to walk along this important axis.

Initial ideas located a farmers' market along the kiss and ride pergola and the plaza, but because of functionality, it makes more sense to place the farmers' market along Grandview Avenue between Reedie Drive and Price Avenue. This will ease the accommodation of the farmers' trucks and only will take place during weekends early in the morning, so it will not affect business of adjacent retail stores. Finally, two new parking structures placed close enough to the plaza will support new retail and public transportation.

There is a question about keeping the identity of Wheaton. Certainly, what makes of Wheaton unique is its multicultural community. This is best represented in the central business district where a bunch of small retail, restaurants, and offices from all over the world are located. This area is very active during business hours, but it is nobody's land during any other time. The idea of this thesis is to enhance Wheaton's multicultural

character by converting this town into a 24-7 community. In order to make this possible, better land uses must take place. This will also give Wheaton a "sense of place" that it currently does not have.   In order to make place, it is important to consider the relationship or interdependence of the building and space (street), the solid and void. For that reason, early sectional studies suggest how tall these buildings can be, what kinds of uses are located and which streets, and how important the continuity of the street wall becomes to create a place.

Figure 63: View of Plaza Looking Back at Proposed Buildings.   **[Cesar Ramos, 2008]**
This view shows the sunken plaza and the character of the two buildings with the pedestrian street in between. Further back, along the pedestrian street, the proposed parking structure is seen.

Figure 64: Second and Third Floor Plans of the Proposed Buildings.   [Cesar Ramos, 2008]

PRICE AVENUE

ROOF PLAN

RESIDENTIAL UNITS

FLAT 780 SF
16 UNITS

LOWER STORY   UPPER STORY
LOFT 1,050 SF
4 UNITS

LOWER STORY   UPPER STORY
3-BED DUPLEX 1,520 SF
8 UNITS

LOWER STORY   UPPER STORY
2-BED DUPLEX 1,160 SF
12 UNITS

1-BED FLAT 640 SF
20 UNITS

2-BED FLAT 1,210 SF
12 UNITS

LOWER STORY   UPPER STORY
2-BED DUPLEX + DEN 1,540 SF
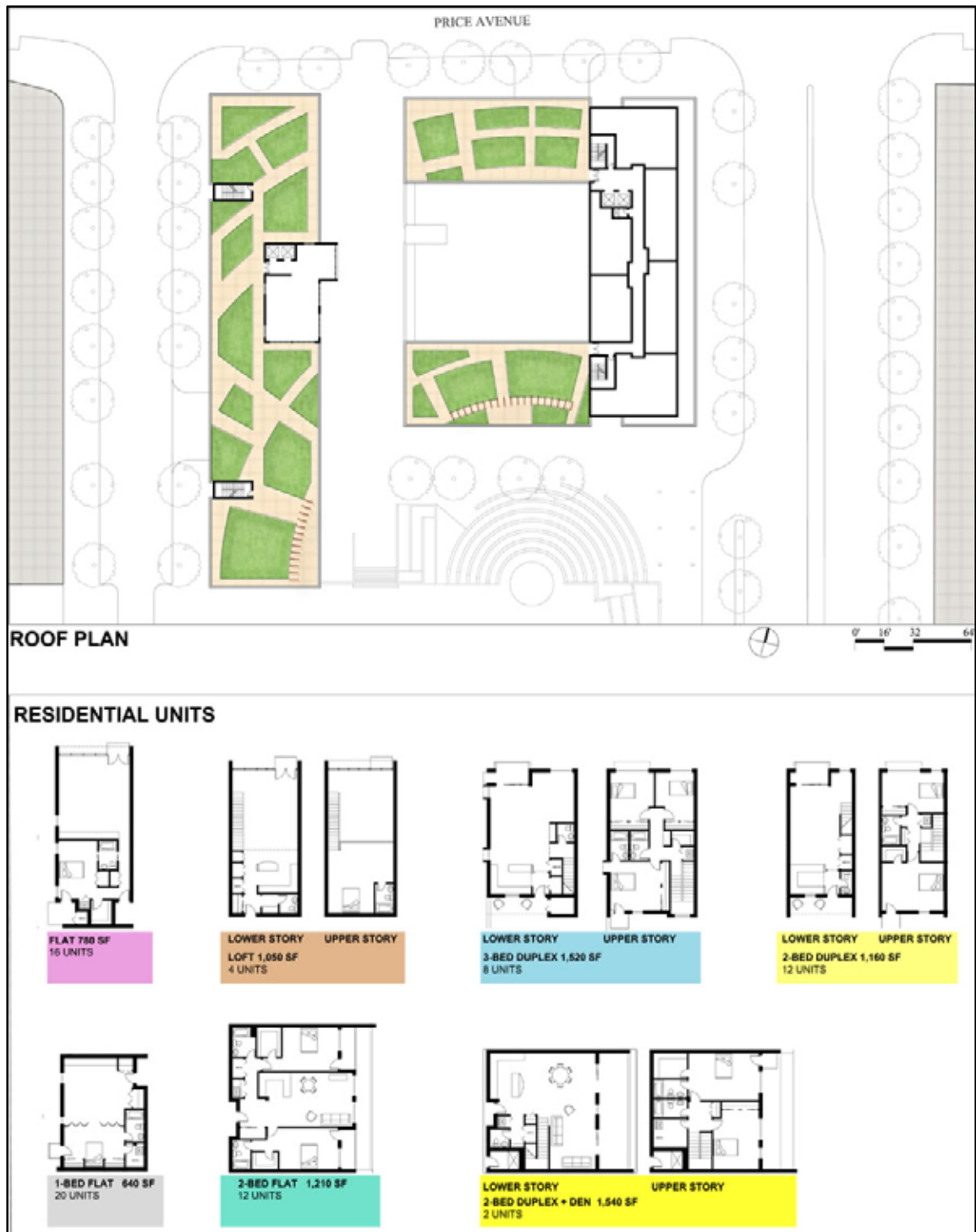2 UNITS

Figure 65: Roof Plan of Proposed Buildings and Residential Units Plans.   [Cesar Ramos, 2008]

In terms of the architectural scale, the mixed-use building creates a smaller community. The intent of the building design is to accommodate a mixed-income community that has access to various types of outdoor spaces that creates casual

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encounters and promotes people interaction. Another goal is to provide common services such as, a multi-purpose room, and a day care for such smaller community.

When designing this mixed-use building, there were multiple concerns that had to be considered during the design process. Every single use has different requirements in terms of light, air, dimensions, accessibility, etc. While developing the structure of the building, there were two points kept in mind. First, the structure had to be permanent, and second, it had to accommodate to change throughout time if there was a need for a new program. The result became a cast in place concrete frame with a 10 feet floor to floor height. This dimension allows the residential units have excellent day light and air flow throughout them. It also allows to accommodate small office spaces typical of the Wheaton community. Consequently, if throughout time there is a need for programmatic change, this dimension will allow to adapt the residential units into office space or vice versa. This idea is reinforced by the use of exterior materials in such a way that floors six to twelve are clad with metal panels. So if these residential units were transformed into office space, it will be easier to deconstruct these metal panels, as well as, they could be 100% recycled.

Another important idea was to promote people interaction at the building scale. The courtyard, the green roof terraces, the multipurpose room, and the day care play an important role in this case. Most of the 2 and 3-bedroom duplexes are organized around the central courtyard, giving a chance to families to use this space most likely. The multi-purpose room and the daycare have also direct access to the courtyard. The courtyard is a green roof that becomes a space where people can grow vegetables; it includes benches, a playground, and an outdoor room for the daycare.

Figure 66: Courtyard View Looking at Duplex Units. [Cesar Ramos, 2008]

Figure 67: Courtyard View from Upper Duplex Units. [Cesar Ramos, 2008]
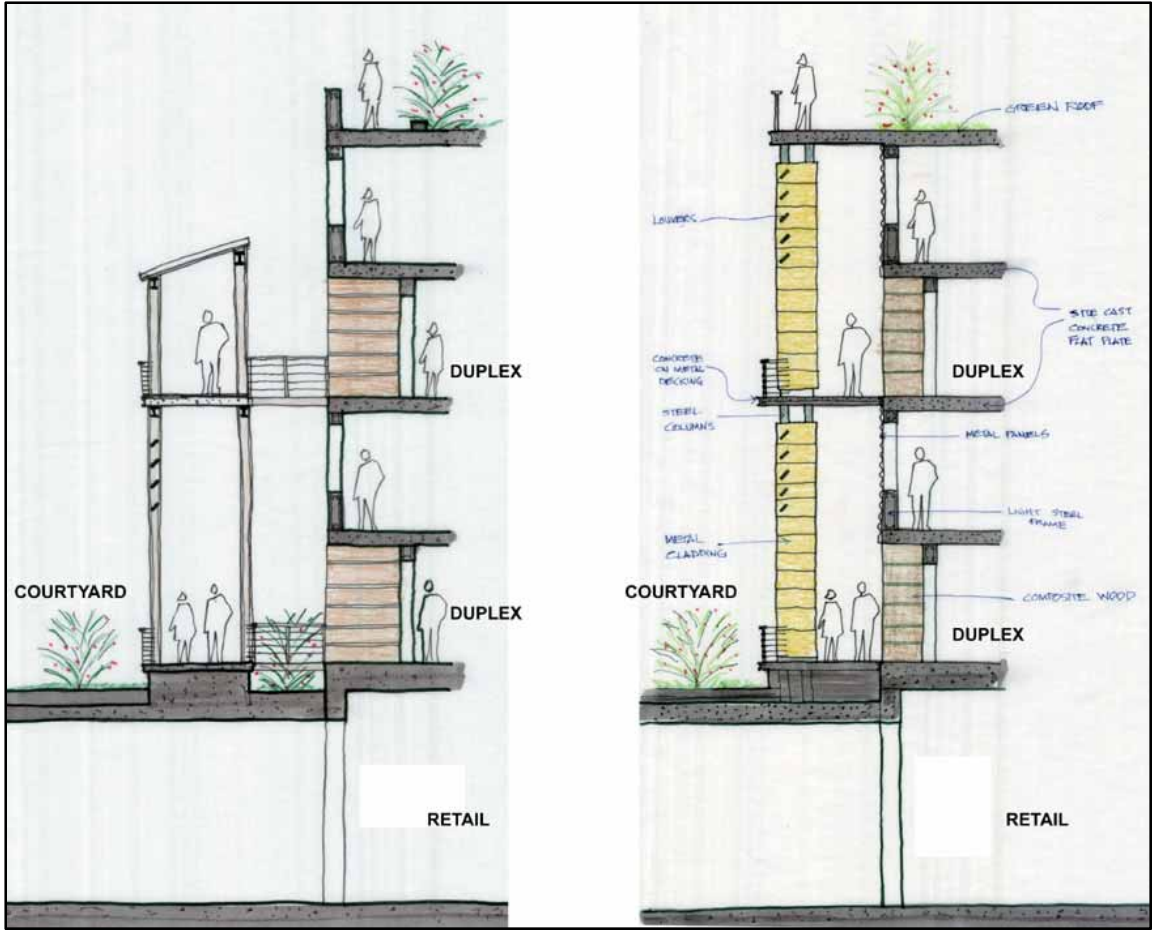
Figure 68: Courtyard Wall Section Studies.   **[Cesar Ramos, 2008]**

GROWING MEDIUM
FILTER MEMBRANE
DRAINAGE
WATER PROOF/ ROOT REPELLANT LAYER
SUPPORT PANEL
3" RIGID INSULATION
VAPOR BARRIER

METAL STUDS
PLYWOOD SHEATHING
METAL BRACKETS
COMPOSITE WOOD
CONCRETE SLAB

CONCRETE SLAB OVER
CORRUGATED DECKING
STEEL ANGLE
STEEL BEAM
STEEL TUBE

METAL LOUVERS

GROWING MEDIUM
FILTER MEMBRANE
DRAINAGE
WATER PROOF/ ROOT REPELLANT LAYER
SUPPORT PANEL
4" RIGID INSULATION
VAPOR BARRIER
CONCRETE SLAB

WALL SECTION THROUGH COURTYARD

0' 1'   2'   4'
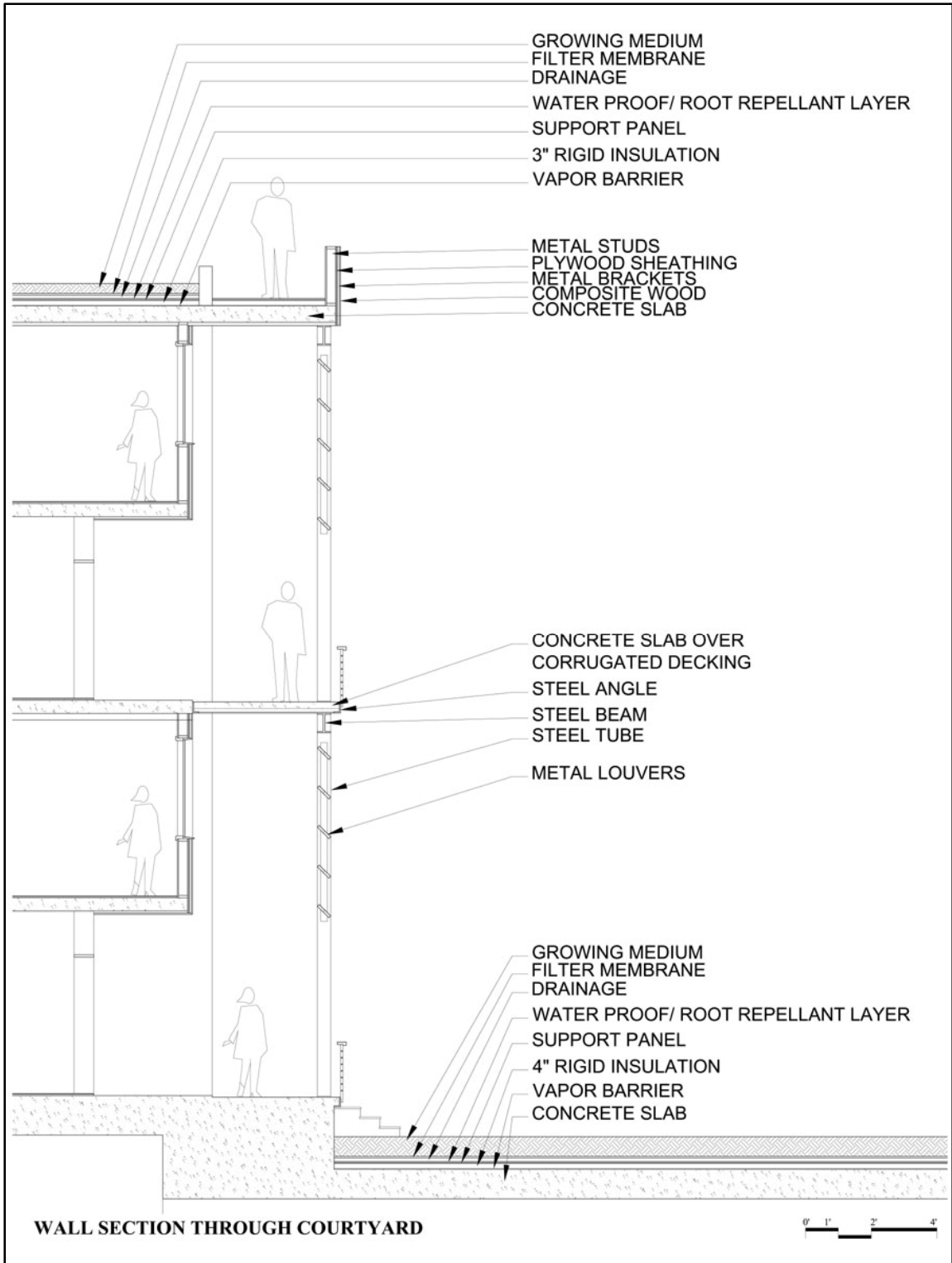
Figure 69: Courtyard Wall Section.   **[Cesar Ramos, 2008]**

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Figure 70: Vertical Integration of Mixed Uses.   **[Cesar Ramos, 2008]**

Chapter 6: Design Conclusions

As it was proposed at the beginning of this exploration, there were two scales that were investigated, the urban and architectural scale. During the final review and the presentation of this thesis to the members of the Wheaton Central Business District Planning Commission, both scale explorations brought different questions as whether the original intent was achieved or not.

At the urban scale, the biggest concern was destroying Wheaton's identity. Certainly, what makes of Wheaton unique is its multicultural community. This is best represented in the central business district where a bunch of small retail, restaurants, and offices from countries all over the world are located. The intent of this thesis is not to change this; on the contrary, the idea of this thesis is to enhance Wheaton's multicultural character by converting this town into a 24-7 community. In order to make this possible, better land uses must take place. What makes this idea difficult to achieve is that the site seats in a very expensive area, adjacent to the metro station. It seems that economic feasibility will become major intricacy. Most of the time, it is not feasible to relate small retail spaces with such expensive sites, as this one. Besides, greater densities are usually wanted, especially for those who profit from these kinds of developments and who most of the times do not care about the quality of dwellings offer to the people. Furthermore, proposing a public space in the same site could also be difficult to achieve. However, there is already an open space, a parking lot, that seats in the location where the proposed plaza is placed. This could facilitate the idea of having a grandiose public space that would better enhance Wheaton's town center.

The economic feasibility part was not deeply explored in this thesis; therefore, the next part of this exploration could be if Wheaton can afford to have an open space as it is proposed instead of the parking lot that brings some revenue to the city.

There is also another part of this thesis that could be further investigated. The mall played, and still plays, an important role in the community's socio-economic stability. However, it has the same issues as the central business district. It is a single-use building that does not contribute to the place making that this thesis proposes. Getting rid of the mall, extending the town center's grid over it, and replacing it by a new mixed-use neighborhood is an idea that could be explored. This new mixed-use neighborhood will be able to provide all the elements, which are mentioned in the design approach chapter, to make a pedestrian friendly environment.
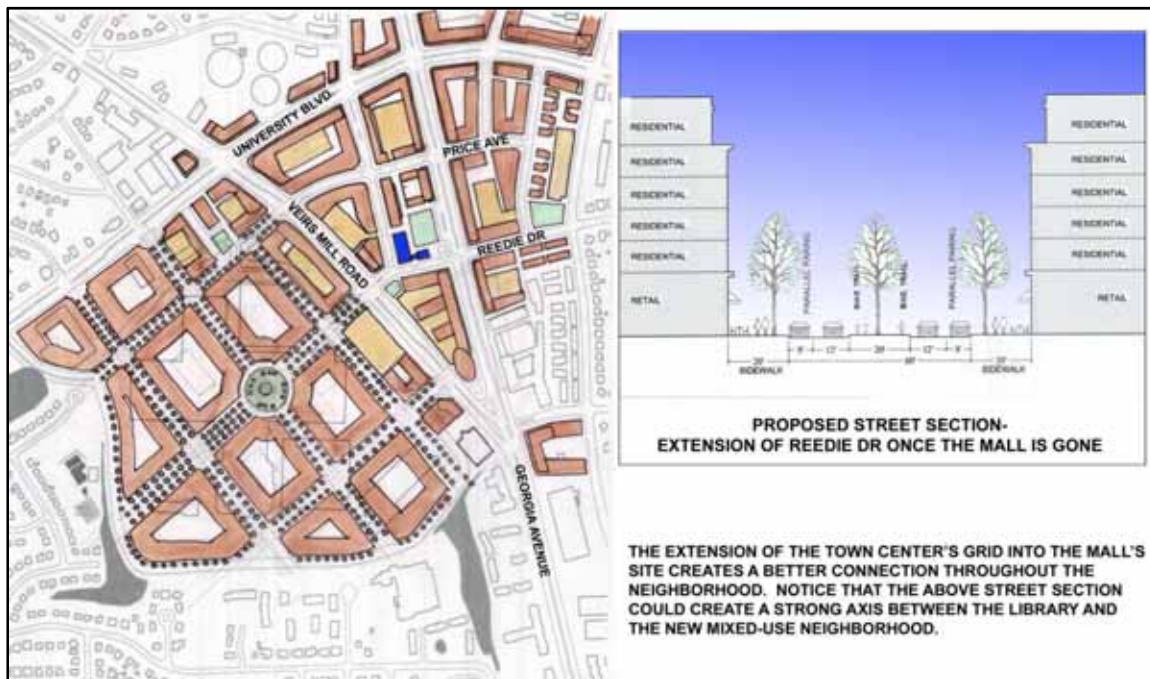

Figure 71: Wheaton's Town Center Grid Extended Into the Wheaton Mall.   [Cesar Ramos, 2008]

At the architectural scale, it the major concern was creating a smaller mixed income community that has access to various types of outdoor spaces which encourages

interaction. This was achieved through the proposition of variety, in terms of different size and type of dwelling units, and relationship of these dwellings to the common spaces. These variations would give people the option to choose from, and this could attract people with different economic, social and cultural status, and at various stages of their lives. What was debatable at the final review was the idea that some of these transitional spaces, such as, the front porches for the two and three bedroom duplexes, around the courtyard, were not inhabitable. However, many studies of this spaces were made, such as, sectional, spatial, and materiality. Eastern Village became a good precedent for this space; in this case, the dwellings were directly connected to an outdoor corridor, and even so, people are able to put furniture and plants along this space. This idea was taken a little further, and it was used to create porches that became transition zones between the dwellings and the outdoor corridor, which runs along the perimeter of the courtyard. Therefore, theses porches are certainly inhabitable spaces.

Since the beginning of this exploration, there has been little change in Wheaton Town Center. Some of the walkways have been re-paved and in some cases they have been widen. This is certainly a sign that some of the issues revealed by the surveys made to the residents and retailers in this area are being heard. Not long ago four stores, between Ennals Avenue and Veirs Mill Road, burned down. We should make of this an opportunity to plan for the future, an opportunity for starting to improve some of these old buildings and start using this valuable land more properly; increasing the density and including mixed use buildings.

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