

# **It Takes a Transit Village**

**Medical District-Dunlap Street Station**

**Urban Design  
Fall 1998**

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### Introduction

In 1997, the Memphis Area Transit Authority (MATA) introduced a regional transit plan that included a light rail transit system (See Figure 1). The proposed light rail transit lines follow existing rail lines from downtown east to Collierville, south to DeSoto County, Mississippi, and north to Millington. MATA planned the proposed transit stops and stations to be concentrated in areas designated as activity centers. Proposed major stops include the Highland-Southern intersection at the University of Memphis, the Main Street Mall in downtown, the Historic Towne Square

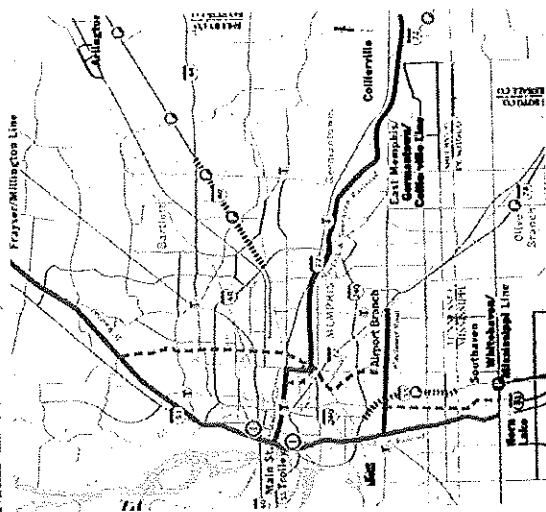


Figure 1 - The proposed MATA transit plan, displayed above, shows the light rail routes in red.

in Collierville and the intersection of Dunlap and Madison in the Medical District.

The MATA regional transit plan emphasized the importance of transit-oriented design along the proposed transit routes. One type of transit oriented design is the transit village.

A transit village is a compact, high-density development centered on an active transit stop. Transit villages typically contain a mixture of uses designed to emphasize the pedestrian over the automobile. Ultimately, the transit village seeks to lessen the dependence of residents and workers on automobiles and encourage transit usage. Few surface parking lots and pedestrian-friendly design characterize transit villages. Transit villages share many of the design attributes of neo-traditional development and new urbanist designs. Transit village's insistence to the addition of the central transit stop differentiates it from neo-traditional development and new urbanism.

The purpose of this report is to make the case for transit villages in the Memphis metropolitan area by focusing on the Dunlap station in the medical district. The report analyzes the current conditions (spatial, market and policy) in the Dunlap station area and creates an urban design to build the village necessary to support transit.

The Dunlap station will be located on the northeast corner of the intersection of Dunlap and Madison. The Dunlap station area is defined for this report as the quarter-mile radius of the transit stop site (See Figure 2).

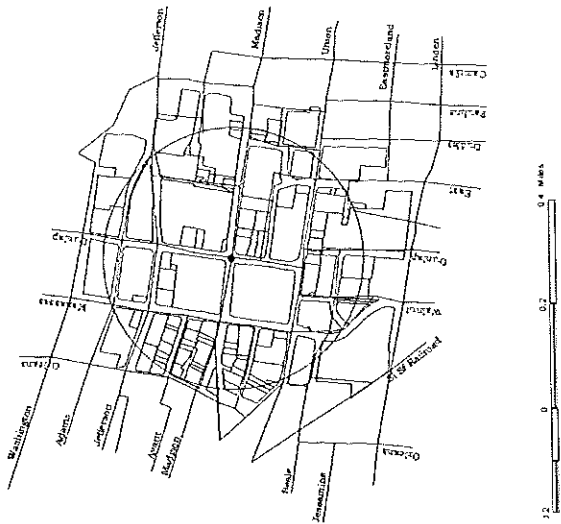


Figure 2 - The study area of this report is defined as the quarter mile radius from the proposed station. The proposed station is located on the northeast corner at the intersection of Madison Avenue and Dunlap.

Part I of the report has defined the purpose and scope of the report. Part II analyzes the existing conditions by examining the spatial, market and policy of the study area. Part III presents the urban design plan created to build a successful transit village around the Dunlap street station. The section outlines the design plan and the changes needed to make the plan a reality. Part IV is the report conclusion.

## Current Conditions

### Market Analysis

Successful transit villages depend upon specific demographic characteristics. Certain age groups, income levels and professions are more likely than others to live, work or live and work in a transit village. Childless couples, young professionals and empty nesters dominate the usual transit village population.

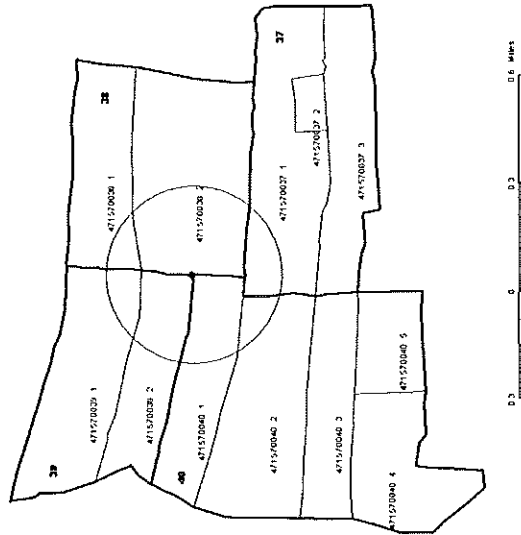


Figure 3 – The market information is described in terms of census tracts and block groups. Four census tracts make up parts of the Dunlap Station area. The above figure shows the census tracts and block groups that the Dunlap Station area is located in.

High densities are a necessity.

The Dunlap station area includes four census tracts with twelve block groups (See Figure 3). The following sections examine the demographic characteristics of the block groups from the 1990 Census of Population. The data will be used to understand current conditions and to create a design that results in a successful transit village. The section analyzes the data in Appendices A, D, E and F.

**Population** – The population of the Dunlap street station area in 1990 was 8,164. Census tract 40 had a population of 2,992. The populations of census tracts 37, 38 and 39 were 1,418, 1,701 and 2,053, respectively. The population of each block group with in these census tracts is shown in Figure 4 and Appendix A.

The racial make up of the Dunlap Station area is 2,484 white, 5,497 African American and 184 other. There are 4,471 females in the area and 3,693 males. The age of persons living in the area varies but the majority of residents in this area are young adults (18-25) and older adults (55 and up). This is due to the fact that there are several educational institutions in the area and two retirement communities.

Overall, the population of the Dunlap Station area is made up of young professionals who are employed in the medical fields.

**Employment** – Employment in the medical and educational fields dominates the study area job market. There are five hospitals and three colleges the study area vicinity. The educational institutions employ many medical employees too.

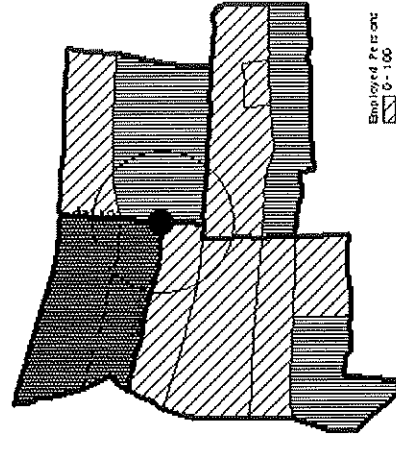
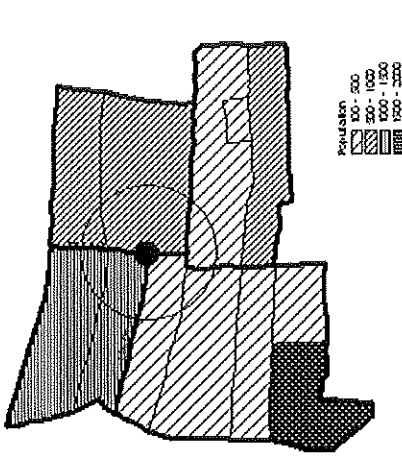


Figure 4 – (Top) The population of the study area is broken into census block groups.

Figure 5 – (Bottom) The number of employed persons in the study area is broken into census block groups.



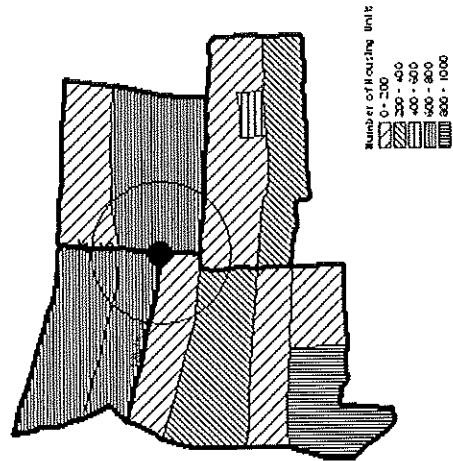
*Density* - Despite the fact that there are several apartment towers in the Dunlap Station area, the area has a relatively low population density. The number of persons per household for the total area is 1.87. This number is much higher in block 1 of census tract 37 where it is 4.60 persons per dwelling unit. Census tract 40 has the highest density of any of the census tracts with 2.16 persons per dwelling unit.

The low overall population density is due to the fact that most of the uses in the Dunlap Station area are non-residential (See Figure 7). Most of the uses are institutional with the primary theme being medical uses. There are

In 1990, 2,169 persons in the area were employed and 300 persons were unemployed. A majority of the employed population worked as professionals. The occupations are usually associated with the medical uses that make up a large portion of the Dunlap Station area. The number of employed persons is broken into block groups in Figure 5 and Appendix A.

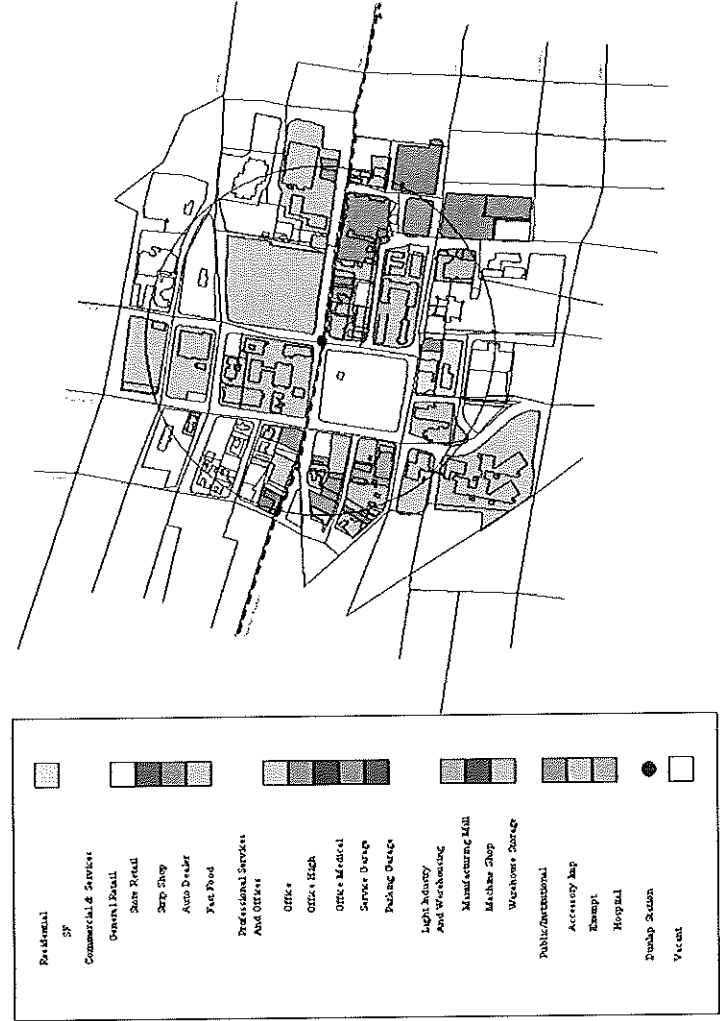
*Housing Units* - There are 4,402 housing units in the area with 4,014 being occupied and 388 being vacant as shown in Figure 6. Of the occupied housing units 83 are owner occupied and the remainder (3,931) are renter occupied. There are several large apartment towers in the area and a large number of students which results in the high number of renter occupied housing units.

Figure 6 - (Below) The number of housing units in the study area is broken down into census block groups. The highest number of housing units is located in the northwest section of the study area.



some unaccounted for persons in the population who reside in group quarters, such as mental institutions and college dormitories. The Census information understates the actual population density of the area, especially the area directly adjacent to the proposed station location. The University of Tennessee School of Medicine has dormitories located in this area.

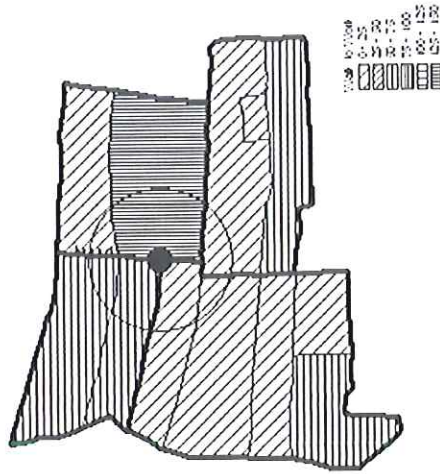
Figure 7 - (Below) The Dunlap Station area is made up primarily of medical uses. The majority of the land uses are non-residential leading to a low population density. There are also few commercial uses in the area.



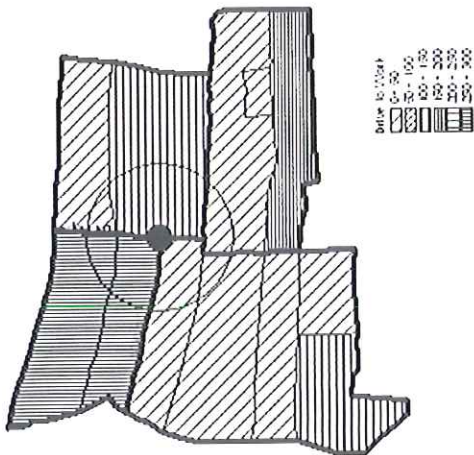
*Transportation to Work - Dunlap area* residents depend on the automobile as their primary mode of transportation to work. A large number of residents living in the area (431) walked to work and 229 relied on the bus for transportation (See Figure 8). Of the residents relying on the auto for transportation to work, 1,054 drove alone and 353 carpooled (See Figures 9 and 10). Around 76 residents in this area used other means of transportation or worked at home.

*Commuter Patterns -* The commuter patterns in the Dunlap Station area are examined using Traffic Analysis Zones (TAZ) designated by the Bureau of the Census. There are nine TAZs in the Dunlap Station area. The boundaries of these zones are shown in Figures Appendices B and C.

On an average day, over 60,000 trips are made into the various zones in the Dunlap Station area. These trips are based on place of



A



A employment. The majority of these trips are going into traffic analysis zones 28, 29 and 30. Traffic analysis zone 28 makes up a large portion of the Dunlap Station area. It has the highest number of daily trips at 16,085. This high volume of trips is due to the large number of hospitals located in the area. These trips are primarily comprised of employees coming to work from other parts of Memphis (See Appendix B).

Over 35,000 daily trips are made out of the Dunlap Station area. This is significantly lower than the number of trips coming in. This is because these trips are based on place of

Figure 8 - (Left) The number of people living in the area who walk to work is broken into census block groups.



Figure 9 - Shows the number of people from each block group in the study area who drive to work alone.

Figure 10 - The Union corridor is the heaviest traveled in the study area. Union is not pedestrian oriented and is an example of why the area is dependent on the car.

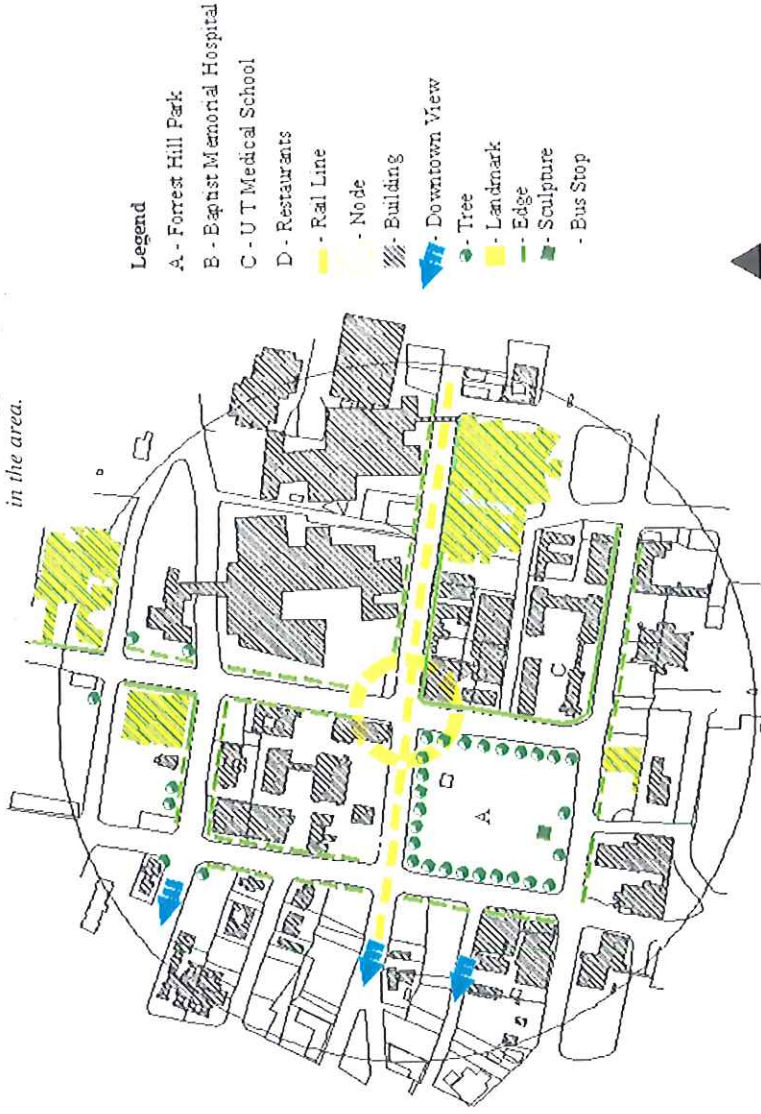
residence (See Appendix C). Employees outnumber residents in the area. Therefore, the number of trips coming into the area is much higher than the number of trips leaving the area. Also, as shown by the mode of transportation used to get to work, there are a relatively high number of individuals in the area that walk to work. The implication from this is that these residents live and work in the area.

The demographic make up of the Dunlap Station area, although not ideal for the development of a transit village has potential. The density is considerably lower than required but this is due to the fact that the majority of

surveyors mapped landscaping, pathways, nodes, current transit stops, edges, parks parking lots, some land uses, vistas, lost space, scale and building quality. The survey information will be used for analysis in the remaining subsections of this section (See Figure 11).

**Paths** – The primary automobile paths observed were Union, Madison, Jefferson and Adams running east to west and Dunlap and Manassas running north to south. The

Figure 11 – The visual survey conducted in the Dunlap Station area revealed a number of strengths as well as weaknesses. One of the problems noted in the area was the fact that many of the buildings are out of scale and therefore make the area unfriendly to pedestrians. The area located around the proposed station was identified as a node. The Scottish Rite building and Baptist Memorial Hospital were identified as landmarks. Several of the buildings in the area have large setbacks that weaken the edges along the streets and disrupt the grid pattern. Also, the vast amounts of parking lots lead to a weak imageability in the area.



uses in the district are non-residential. The fact that 431 residents in the area walked to work is promising for the development of light rail transit in the area. Also, 229 persons in the area currently rely on public transportation for getting to work.

The potential for development of the Dunlap Station area is very good. As shown by the commuter patterns, a high volume of traffic comes into the area on a daily basis. This is due to the fact that the area is an employment center for Memphis and Shelby County. This high number of commuters could utilize the light rail transit system to get to the district as an alternative to driving. These commuters represent a market for the rail transit system.

### Spatial Analysis

The purpose of the Spatial Analysis section of Part II is to analyze the existing physical conditions in the Medical District. Students conducted a visual survey to gather visual information about the Medical Center. Students then employed three theories to analyze the results of the visual survey. The Spatial Analysis section is divided into sections discussing the visual survey, lost space analysis, figure-ground theory, linkage theory and place theory.

### Visual Survey Review

The visual survey was conducted on a weekday afternoon. The team of surveyors analyzed and mapped the Madison, Dunlap, Union, Manassas, Jefferson, Adams and Washington routes of the study area. The

block area to the west of UT-Memphis between Union and Madison. The park has many large-growth trees and walking paths to serve the area. The park includes large trees, vast green space, walking tracks and exercise facilities (See Figure 13 and 14).

*Visual Vista* – The surveyors noted two visual vistas. The view of the downtown Memphis skyline is clear when traveling west along Madison. The historic and architecturally significant Scottish Rite Temple can be viewed from several blocks north of its site while traveling south on Dunlap, which also creates a strong visual vista that terminates at Union (See Figure 15).

*Figure 12 – The Dunlap Station area has several levels of paths. The streets serve as paths for the automobile while the sidewalks serve as paths for the pedestrians in the area. There are also several skywalks in the area which connect hospital buildings to one another. These skywalks allow the pedestrians to travel safely between the buildings without having to cross the busy streets. The pedestrian crosswalks located at intersections in the area are not differentiated from the street in any special manner.*

*Figure 13 – One park was noted in the visual survey. Forrest Park is located the south west of the proposed station location. The park takes up a one-block area. The park is named after Nathan Bedford Forrest, a Confederate General in the several war.*

*Figure 14 – The problem with the large park in the area is its lack of connectivity with the surrounding areas. The park stands alone in a sea of medical buildings and parking lots with little or no connection to other areas.*

automobile paths included sidewalk access for pedestrians. The paths were built to accommodate automobile traffic and storage. Few elements exist to provide pedestrians protection from automobiles along the paths surveyed.

Other noted paths were the pedestrian path system in Forrest Park, the skywalks along Union, Madison and Jefferson connecting various hospitals (See Figure 12).

*Parks* – One park was noted in the survey. The Forrest Park named for the Confederate General Nathan Bedford Forrest holds a large-



*Figure 15 – (Below) The Scottish Rite Temple is a landmark in the Dunlap Station area. The building is located at the termination point of Dunlap just south of the proposed station location. This makes the building the primary focal point while traveling on Dunlap.*

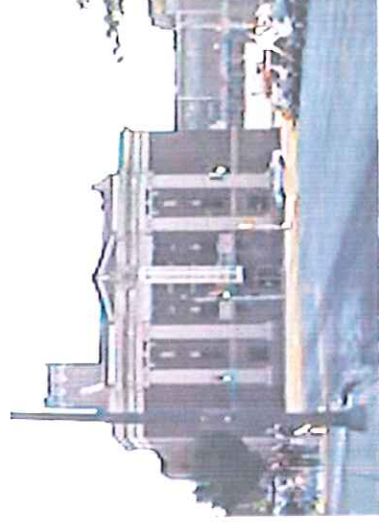




Figure 16 – (Top Left) The University of Tennessee at Memphis is a focal point in the Dunlap Station area. The buildings have a unique architectural style from the rest of the area. The traditional college style sets the buildings apart from others in the area.



Figure 17 – (Middle Left) LeBonheur Hospital is a landmark in the Dunlap Station area. Its unique architecture coupled with its height makes it stand out in the area. It is a focal point on Dunlap, north of the station.



Figure 18 – (Bottom Left) One of the few strong edges in the Dunlap Station area is along Union on the north side. This edge is formed by some of the buildings of UT-Memphis. These buildings are set close to the street and have a uniform facade with leads to a strong edge.



**Landmarks** – The following landmarks were observed during the survey: Scottish Rite Temple, Forrest Park, Historic homes on Jefferson, The Med, University of Tennessee, Memphis, Baptist Memorial Hospital tower and LeBonheur Children's Medical Center (See Figure 16 and 17).

**Streetscape** – The streetscape varied. The streetscape along the northern side of Union had a strong continuous edge. The UT-Memphis buildings line the edge of the roadway with small setbacks. Little activity at the pedestrian level along this side exists. Varying building setbacks and dramatic architectural differences among the UT-Memphis College of Dentistry, the Scottish Rite Temple, McDonalds and Back Yard

Burgers create a weak and broken edge along the southern side of Union. Union serves as a barrier that separates the north and south sides of the street making pedestrian movement between the two destinations difficult.

The edges created along the south side of Madison were strong. The BMH building abuts the street with no significant building setback. Ground-floor access is limited in the BMH, UT-Memphis and other buildings on Madison. Broken edges occur on north side with The Med. Other weak edges were noted along both sides of Jefferson between Manassas and Dunlap and on the west side of Manassas between Union and Jefferson (See Figure 18).

**Building Scale** – Most of the buildings were constructed at a human scale (See Figure 19).



Figure 19 – Although many of the buildings are large and not in human scale, some locations in the area are to human scale and are somewhat pedestrian friendly. The area located closed to the station area are medium height and set close to the street making them in human scale.

The buildings are built to a reasonable height with the exception of the UT-Memphis Student Administration building at Madison and Manassas and the Baptist Memorial Hospital buildings between Union and Madison. The BMH building of 20 plus floors towers above the medical district. The Med and other hospitals are massive buildings that are not human scale, but their heights are not as overwhelming as the BMH buildings (See Figure 20).

**Parking Lots** – The surveyors noted a proliferation of parking lots in the area. In many cases multiple blocks of former business areas have been cleared to make room for out-of-scale parking lots. The area west of Manassas between Union and Madison is a sea



*Figure 20 – Baptist Memorial Hospital is the tallest building in the area at over 20 floors. The building was identified as a landmark in the visual survey. The building towers over the rest of the district and is not in human scale. It cast shadows in other parts of the area and breaks up the connection in the area.*

of parking. The same is true for the area south of Beale Street in the southern section of the district.

The poor edges, lack of pedestrian access and connectivity, proliferation of parking lots and poor streetscape create poor imageability in the district. The challenge will be to redesign these areas to add elements that create a stronger place.

#### Lost Space Analysis

The inadequacies shown in the visual analysis will be analyzed in this section for the lost space they create. As shown, the challenge faced by designers will be to create an outdoor environment as a collective and unifying framework to guide new development. The problem of the current urban development stems from the concept of designing buildings as independent and isolated objects. Decisions about growth patterns were made without considering the relationship between buildings and spaces. The result is an “unshaped anti-space.”



Roger Tranick, in his book *Lost Space: Theories of Urban Design*, defined lost space as “the unstructured landscape at the base of a high-rise tower or the unused sunken plaza located away from the pedestrian activity. Tranick said that lost spaces are the surface parking lots that ring the urban core of most American cities and sever the connection between the commercial center and residential areas. They are the end products that emerge out of poor design conception.

Generally speaking, lost spaces are “undesirable urban areas that are in need of redesign. These are anti-spaces, that make no positive contribution to the surroundings or users”. The five major factors that have contributed to lost space in our cities are the over dependence on the automobile, attitude of modern architects towards urban design, zoning and land-use policies during urban-renewal period, lack of responsible caretakers for public urban environment and the abandonment of sites in the inner city.

Hospital facilities and related medical uses (doctor’s offices, clinics, parking facilities, labs and research facilities, etc.) that typically cluster around a regional medical facility characterize the Medical District. Scattered parking garages and surface parking lots for the medical uses also characterize the area (See Figure 21). The buildings are separated by vast

*Figure 21 – There are many surface parking lots located in the area especially in the western part of the station area. The parking lots, in many cases, take up a whole block causing a lack of connection and breaking up the character of the area.*



Figure 22 – (Top Left) Parking lots and out of scale buildings dominate the Medical District landscape as shown at the intersection of Pauline and Jefferson.



Figure 23 – (Bottom Left) Parking lots in the area create vast amount of lost space in the area. The parking lots in the area represent underutilized space that could be used for other purposes. The parking lots also cause a breaking of the edges, which leads to a lower imageability in the area. The design plan for the Dunlap Station area will address the large amounts of surface parking in the area.

lacking and is often confusing. Poor streetscape and an overall pedestrian unfriendly environment are predominant in the medical district (See Figure 23).

The lost space in the district is mainly due to the scattered parking lots. Spaces that are out of human scale occur at prominent intersections. On the other hand they provide an excellent opportunity for redesign and potential in-fill.

By connecting the different parts of the district through the design of outdoor space and bringing back some richness and diversity to public life, the problem of lost space could be solved. The district needs an urban design plan that is a generator of context and in-fill buildings that define exterior space rather than displace it.

**Figure Ground**

Figure ground theory is the study of the relative land coverage of buildings as solid mass (figure) to open voids (grounds). The urban environment has an existing pattern of

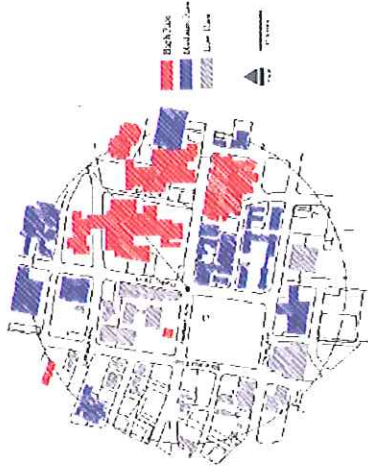


Figure 24 – The Figure-Ground Map reveals the mass empty lost space in the Medical District.

solids and voids, and the figure ground approach to spatial design is an attempt to manipulate these relationships by adding to, subtracting from, or changing the physical geometry of the pattern. These manipulations clarify the structure of urban spaces in a city or district by establishing a hierarchy of spaces of different sizes that are individually enclosed but ordered directionally in relation to each other.

Figure ground analyses are also powerful tools for identifying the textures and patterns of the urban fabric as well as problems in its spatial order, but can lead to static and two-dimensional conception of space.

The figure-ground map of the Medical District reveals that building coverage is not dense enough to shape the public openings (See Figure 24). Buildings read as individual and isolated objects and the spaces between them

are formed. In the Medical District the open spaces are not carved out of the building mass as a continuous flow linking interior and exterior spaces and activities. Some of the open spaces are more figural than the solids that define them.

The figure ground relationship in the Medical District is a mesh between block pattern and individual buildings. Object buildings are identified by their parking spaces and the tightly packed streets around them. In the figure-ground map of the Medical District some of the buildings reveal the clearly defined edges. Most of the buildings in the area are institutional buildings and help define the area as the Medical District.

The figure-ground theory analysis can be used to find the voids where future development can occur. The future development when constructed with the imageable district. The figure-ground relationship is also helpful in defining the linkages discussed in the following section.

### Linkage

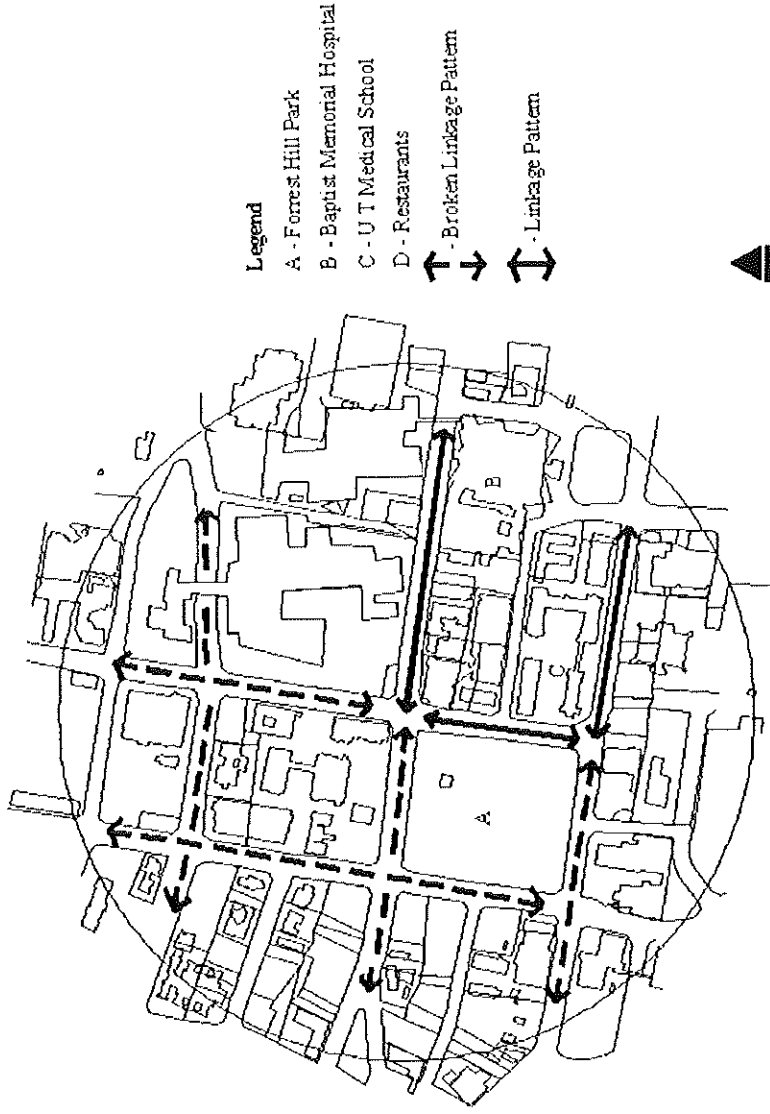
The figure-ground theory indicates the placement of buildings and structures based on their ability to create public spaces. The outline of the buildings creates another aspect to be studied. The outline creates paths and linkages. Each building has a relationship with the next building. The linkage theory analyzes these relationships.

The linkage theory is derived from the lines that are drawn connecting groups of buildings and attractions to each other. The figure ground

theory analyzes the patterns of solids and voids in the layout of structures. The lines drawn that include pedestrian paths, automobile paths, gateways, and linear open spaces form linkages. The linkage is what these paths or lines do to the built environment. The goal of the theory is to connect buildings with a system of networks that establish a structure for ordering spaces.

The street system is the only form of linkage in the Medical District (See Figure 25). The street system does not necessarily conform

Figure 25 – The Linkage Map shows how the street system does not conform to the building shapes defined in the Figure-Ground Map. Major roadways sever pedestrian paths. A strong linkage was noted along Dunlap from Madison. This is where Dunlap terminates at the Scottish Rite. Traveling along Madison to the west a strong linkage was noted. The linkage is weakened after crossing Dunlap. Overall, there are few strong linkages in the area.





to the building shapes defined in the figure-ground maps. The street system has been manipulated though major road improvements over the years to make room for new and expanded medical facilities and buildings (See Figure 26). The result has been longer than necessary blocks and less pedestrian scale, which results in a lack of linkage (See Figure 27 and 28).

Major roadways sever pedestrian paths from one building to the next. Skywalks connect several buildings and parking areas as a direct result of this problem.

The buildings have been constructed as individual projects. Each hospital has its own long-range plans with little communication with other landowners to create a comprehensive plan that would link buildings together with a common thread or glue.



Figure 26 - The large intersection of Madison and Jefferson is intimidating for pedestrians wishing to cross at the intersection. In order to cross, pedestrians must battle 4 lanes of traffic. Pedestrian cross walks are not distinguished from the traffic lanes and crossing signals are not present at all intersections.

Figure 27 - (Top Right) The street pattern of the study area is primarily in the traditional grid lay out. However, many of the blocks are very long due to hospitals building over existing streets in the past. This weakens the strength of the grid pattern.

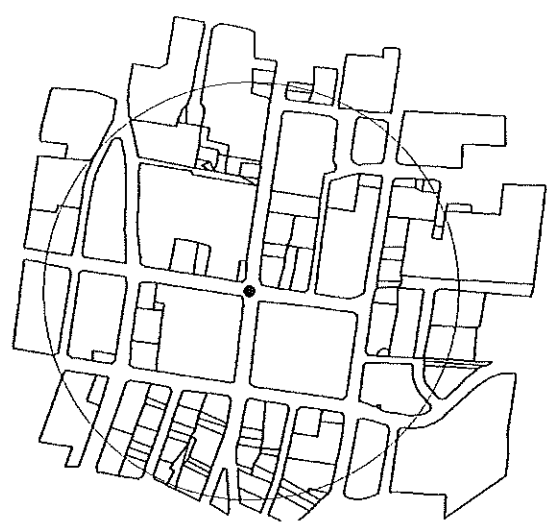


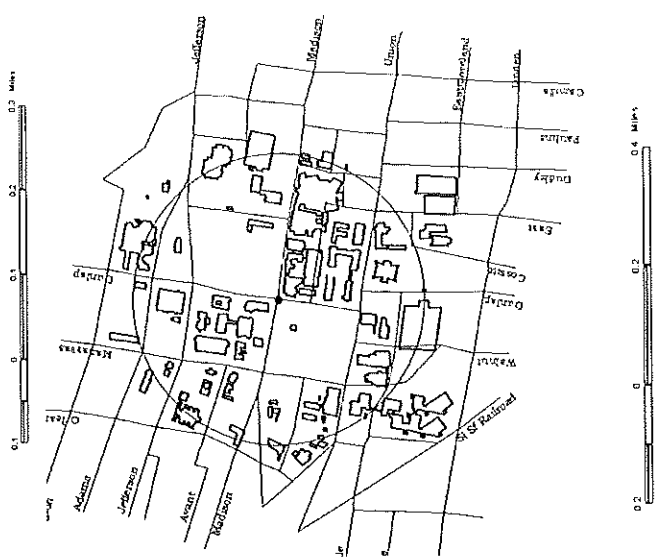
Figure 28 - (Bottom Right) The lay out of the buildings further weakens the strength of the grid. The building are laid out on parcels with no thought given to relating them to the street lay out.

Future plans of development and design in the Medical District should pay close attention to the figure-ground and linkage theory principles. The developments should strive to locate in places that can be easily linked to other important places. Also, future designs should strive to better link the existing structures through the use of pedestrian paths and other means.

**Place**

Cities and regions are characterized by their physical layout in the figure-ground and linkage theory analysis. The history and culture of the area are not used to analyze the placement of streets, types of designs chosen and variety of commercial and residential development. Place theory addresses the issues of history and culture.

Place theory goes beyond the physical space analysis of the figure-ground and linkage theories. Place theory adds the components of human needs and cultural, historical and natural contexts. The place is defined by its history. Additional value is added to an area by incorporating individual forms and details that



are unique to the setting of the project. The theory requires an understanding of the cultural and human characteristics of the physical space (See Figure 29).

The city limits of Memphis had barely made their way to the Medical District in 1866. They only extended to Dunlap. The annexation that captured the area in 1866 drew in mostly residential uses that had popped up along the

corridors of Madison, Jefferson and Union Avenues of "east" Memphis. Medical District land uses were still not even dreams.

Although various versions of streetcars had carried commuters from the residential areas of "east" Memphis to downtown, it was not until 1887 that the Dummy Line train began its run along Madison. It took travelers east on Madison through the Dunlap area on to Cooper.

where it made a turn south through what would become the Cooper-Young neighborhood. It then made a turn to the east at the corner of Cooper and Young where it then terminated at East Parkway. Memphians would ride the train to the forests and parks on East Parkway for weekend fun in the country. The track was officially called the East End Railway. A more modern streetcar trolley replaced the Dummy line train in 1894. It was then replaced with a motorized bus system in the 1930s.

The beginnings of the Medical District started with the opening of Memphis City Hospital on Madison just east of Dunlap on July 2, 1898. The hospital was designed to favor the Johns Hopkins Hospital grounds and the building was able to take advantage of the transit lines along Madison and Jefferson.

The area began to add medical educational institutions when Memphis Medical College opened at the intersection of Union and Marshall in 1901. It had originally been located closer to the river in downtown. It was located in what is now the University of Tennessee, Memphis' Rogers Hall. In 1911, the college became part of the new University of Tennessee, Memphis that added the colleges of Dentistry, Medicine and Pharmacy.

In July of 1912, Baptist Memorial Hospital opened a hospital in the area. The first of

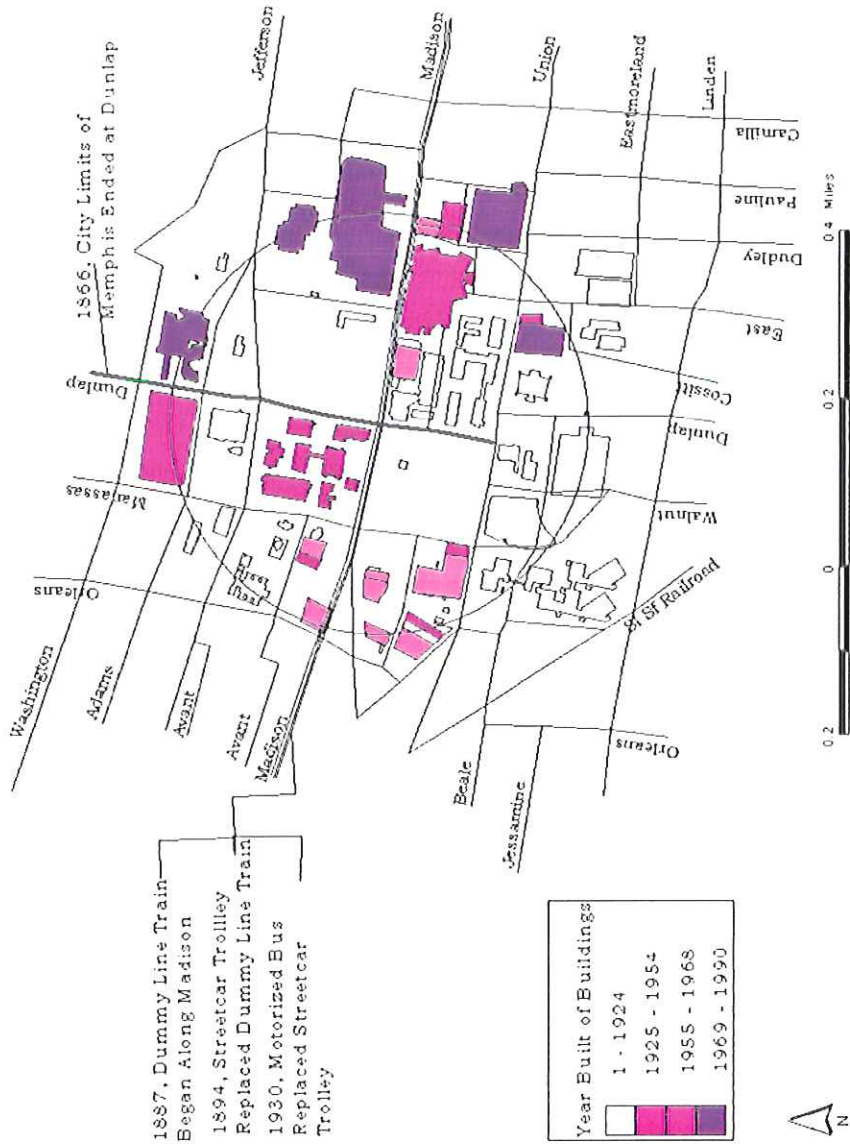
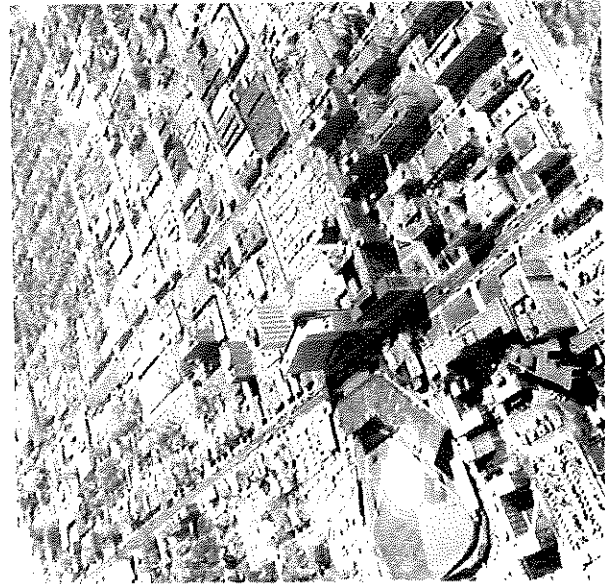


Figure 29 – The Medical District History Map shows the how the district has evolved over the years including the rail lines that ran through the district. Understanding the history of the area helps to make the case for a transit village in the area.

several additions occurred in 1918 when the bed capacity was increased to 250. Later in 1928 offices were constructed. A series of additions have occurred since, including the construction of the 20-story buildings in the 1960s. It was the largest private hospital in the United States.

In 1924, Methodist Hospital opened at 1265 Union Avenue, several blocks east of Baptist Memorial Hospital and the University of Tennessee, Memphis. It too was served by the trolley lines along Union Avenue and was built in the growing suburb east of what is now the Interstate 240 corridor near Bellevue and Union.

The Memphis Eye, Ear, Nose and Throat Clinic opened in the Medical District in 1926.



*Figure 30 – (Left) The Aerial photograph from 1958 shows the Baptist Memorial Hospital tower, the baseball stadium and the old City Hospital. The area had more of a residential feel than it does now.*

Since, the University of Memphis has opened a specialty health center, UT-Memphis has grown and expanded its Bowld Hospital and LeBonheur Children's Medical Center has grown to the north of UT-Memphis campus. Veterans Hospital has also located in the area.

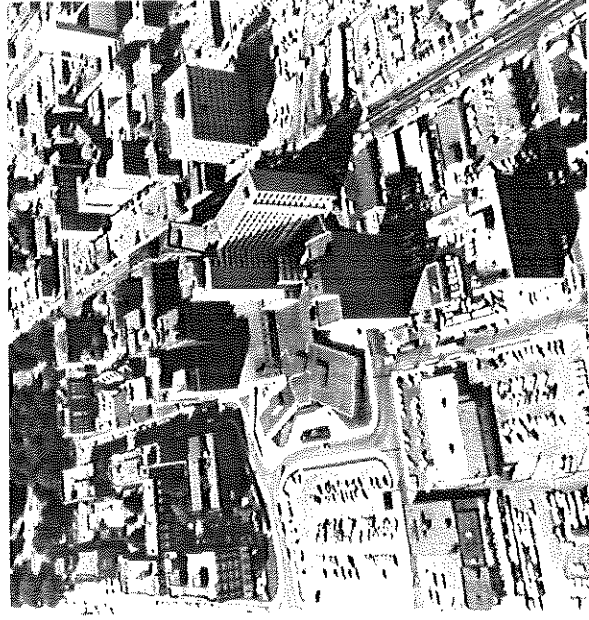
Russwood Baseball Park, the past home of professional baseball teams in Memphis, was located along the streetcar line on Madison Avenue. Located across Madison from BMH, the stadium burned in the 1950s (See Figure 30). On its site parking for BMH and later construction of the Regional Medical Center (The Med) and the Elvis Presley Memorial Trauma Center were opened (See Figure 31).

The original residential character of the former streetcar neighborhood is all but forgotten. In 1989 UT-Memphis razed part of the Memphis Area Transit Authority streetcar storage barn off Beale Street. It was once used to house the hundreds of streetcars in the MATA system. Part of the structure was saved

after an outcry from the historic preservation community. The barn is one of many buildings razed in recent years to make room for the ever increasingly demanded parking.

On the southwestern edge of the Medical District study area is the world famous Sun Studio. The studio was where young Elvis Presley once listened to great rhythm and blues performers record their records. The studio is a tourist attraction that sits alone in the Medical District area with little connection to the rest of the city's music tourist areas.

Currently, the Medical District area spreads from the Methodist Hospital complex east of Interstate 240 to include Methodist Hospital, Baptist Memorial Hospital, The Med, Veterans Administration Hospital, Le Bonheur



*Figure 31 – (Right) The Aerial photo from 1960 shows the parking lot that replaced the baseball stadium. As of this photo, the area was beginning to become proliferated with parking lots to meet the high demands of the traffic that travels into the area on a daily basis for both work and medical care.*

Children's Medical Center, St. Joseph Hospital, St. Jude Children's Research Hospital in downtown, UT Bowld Hospital, Memphis Mental health Institute and the University of Tennessee Medical Group Behavioral Health Center (See Figure 32 and 33). Baptist Memorial Hospital and Methodist Hospital offer educational opportunities for hundreds of students in various medical fields while the UT-Memphis campus continues to offer many post-graduate level degrees in the medical field.

Place Theory would then place the future of the Medical District in the continued use of medicine. It would also seek to draw from its musical heritage with the Sun Studio area. Drawing from the past, the addition of light-rail transit pulls from the historical presence of rail transit and spatial formation that accommodated the transit. The changes that would come from a new urban design for the Medical District based on the transit village concept would be consistent with the place theory logic.

The results of the visual survey were analyzed by using the logic of the figure-ground, linkage and place theories in this section. The theories made the inadequacies of the district visible. The theories described the problems of the district. From there the design team can work on solutions to these problems by continuing to apply the theories to address the problems, which will be done in the following sections.

### Policy Analysis

The lost space in the medical district is a result of the current development policies in Memphis and Shelby County. Zoning and subdivision rules governing the use of land require a separation of uses. Poorly planned, single-use, disconnected employment and residential centers have emerged as a result of the current zoning policy. This section analyzes the policy and land development trends that have created the medical district as well as the rest of Memphis and Shelby County by examining the current zoning governing the Medical District. The section analyzes zoning, the Center City Commission's Central Business Improvement District (CBID) overlay, subdivision regulations and the connection of the transportation and land use plans in Memphis and Shelby County.

**Zoning** – Current zoning forbids transit village development in the Medical District by requiring separated land uses and large setbacks. The Euclidean zoning system employed by Memphis and Shelby County allows uses by right and by condition. The following zoning districts cover the Medical District:

- Multiple Dwelling Residential District (RMH): This zoning is designed to allow for the development of high-density residential areas in locations due to their proximity to other high density developments, employment centers, the central business district, heavily traveled transportation routes, commercial enterprises and cultural activities.

- Highway Commercial District (C-H): This zoning is intended to allow the development and continued maintenance of general commercial uses located in a linear fashion along highways and near transportation



Figure 32 --The MedPlex (Top) is a new addition to the Med.

Figure 33 -- The Med is one of several hospitals located in the area. The Med is located across from BMH on Madison.

facilities and industrial areas.

- Central Business District (CBD): The purpose of this district is to allow for the uses that will reinforce the vitality of the central business district as a residential and employment center and as the commercial, governmental, and cultural center of Memphis.
- Light Industrial District (I-L): The purpose of this district is to provide areas in which manufacturing, wholesaling, and warehousing that are accessible to major transportation routes and minimize the adverse impact of these uses on nearby districts.
- Hospital District (H): The purpose of this district is to provide a category devoted to primarily hospital and health related uses because of the unique problems of scale and intensity of use. The hospital district is used to facilitate the development, expansion and modernization of major hospital complexes in which a diversity of uses are necessary to perform its services. The zoning of the Dunlap Station area is shown in Figure 34.

*Center City Commission* – The Center City Commission is charged with, the comprehensive redevelopment of Downtown as the economic, cultural, and governmental heart of the city and county. The CCC recently expanded the Central Business Improvement District (CBID) to include the Medical District. The expanded CBID increased opportunities for new development and redevelopment inside the area. The CCC has several organizations that are able to aid developers in financing projects inside the CBID.

One of these is the Center City Development Corporation (CCDC). The CCDC is a non-profit



Figure 34 – Zoning in the area limits the type of development that can occur in the Medical District. The types of zoning are very specialized toward medical uses. The CBD zoning (Central Business District) is also a very specialized zoning. This zoning links the study area to Downtown Memphis.

entity that offers development loans to prospective developers Downtown and acts as a developer of key Downtown projects.

The Center City Revenue Finance Corporation (CCRFC) also plays a role in the development of the Medical District. The CCRFC is a state chartered industrial development board that offers bond financing and payment in lieu of taxes (PILOT) programs in the CBID.

*Subdivision Regulations* – The subdivision regulations require that buildings be set back a certain number of feet to allow for maximum ventilation and sunlight to reach the street. The current zoning does not allow for mixed uses in these categories. The only option is to apply for a rezoning as a planned unit development. This category allows for a mixture of uses in one or more buildings integrated into a complex.

The mixture of uses is seen in the field and can be adapted to make a better transit oriented development. The single uses of each land use results in a landscape that is only alive from 7:00 AM until 6:00 PM. The only things that are open in the area after hours are the hospital emergency rooms.

*Land Use and Transportation* – In Memphis and Shelby County, the Office of Planning and Development is charged with the design and implementation of the land use and transportation plans. The land use and transportation plans are designed without correlation. This oversight lead to sprawling low-density development rather than cohesive development integrated with transportation.

The current policy affecting the area has several advantages and disadvantages. Some of the advantages are that the medical district is in the CBID imposed by the Center City Commission giving it extra incentive for development with PILOTS and low interest loans. However, a major disadvantage is that the zoning and subdivision ordinances are designed to discourage higher density and encourage single uses versus mixed use, which allows for an active area. The plans drawn up by the county also do not link land use and transportation leading to sprawling development.

### Transit Village Design

Michael Bernick and Robert Cervero say the transit village shares many of the attributes of new urbanism, neo-traditional development and traditional communities in their book *Transit Villages in the 21<sup>st</sup> Century*. New urbanism, neo-traditional development and transit villages share the reliance on compact residential development, mixed-use areas and strong pedestrian orientation. The transit village usually requires a balance of jobs and housing. However, that is not always necessary if the housing is balanced throughout the rest of the transit metropolis. That is the case with the Medical District.

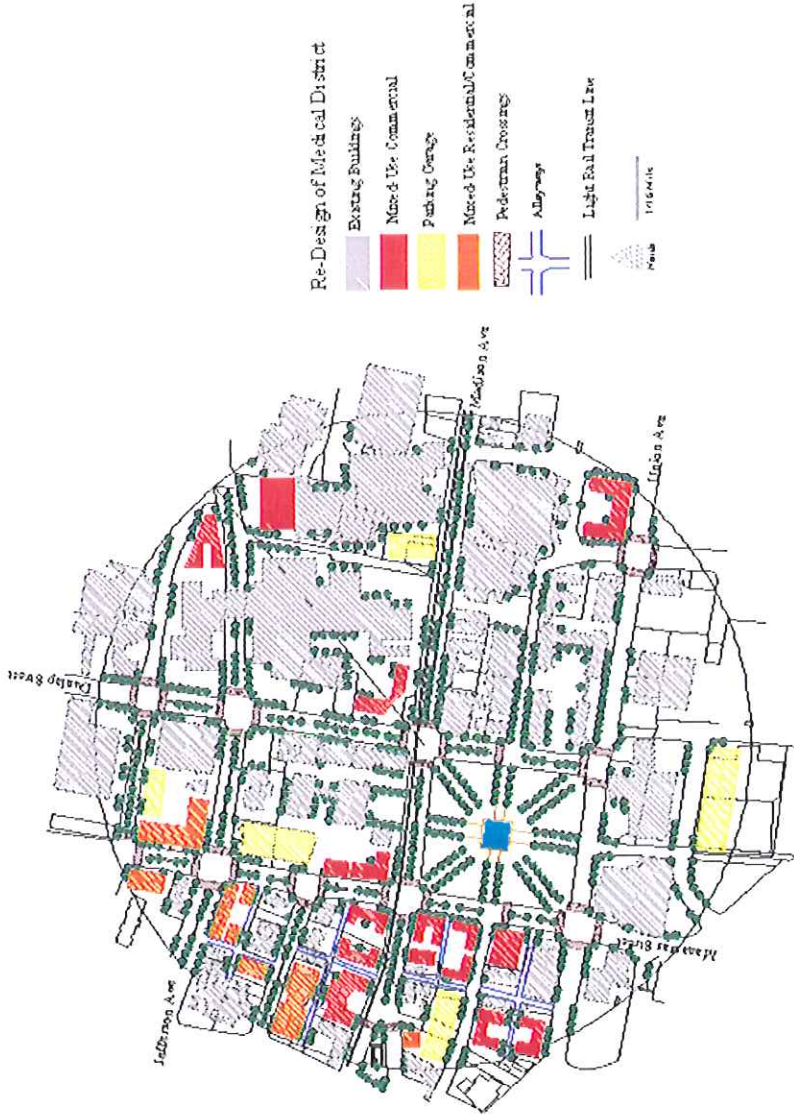
The design presented in this report for the Medical District is based on the transit village oriented. The three main ingredients for a transit-oriented development are design, density and diversity of uses. Each of these must be strengthened in the Medical District.

The Medical District is an employment center so it will not be required to offer a 50-50 balance of housing and jobs. However, it must still find ways to diversify the types of jobs that are located in the area. Currently the majority of land uses in the area are occupied by single-use medical and educational facilities. More mixed-use must be created to make the area a transit village.

The residential density must be increased. It will not be necessary to match the 35,000 jobs with room for 35,000 people to live. However, there must be an increase in dwelling units to encourage good design and street activity.

The design for the Medical District transit village, shown in Figure 35, was designed to meet the following criteria: maintain continuity of the street wall, respect the existing silhouette of buildings and landscape, prevent building masses that are out of scale, match and or complement building materials, respect existing rhythms of facades and spatial elements and enhance patterns of public space usage.

The plan filled lost space, created stronger edges and urban form, increased mixed use, encouraged parking garages with lower-level retail, strengthened the grid system, created pedestrian friendly-paths, tree-lined boulevards, tree-lined parking areas, better linked buildings, strengthened vistas, linked parks with green space, district linkage and increased residential units.



### The Plan

Figure 35 – The urban design plan for the Dunlap Station area is shown in the above drawing. The key points of the design are the in fill development in the western portion of the area, the creation of boulevards throughout the district, and the creation of pedestrian crosswalks at all main intersections. The design strengthens the street walls by creating in fill buildings that are set close to the street. The crosswalks make the area more pedestrian friendly. The western part of the area also has alleyways that will make the blocks shorter and make the area more pedestrian friendly. Several parking garages have been added to the area to make up for the surface parking lots that no longer exist.

## The Plan

The catalyst for change in the Medical District has been the addition of the light-rail transit stop located on the northeast quadrant of the intersection of Dunlap and Madison (See Figures 36 and 37). A surface parking lot currently occupies the pace. The station will include a variety of retail and office spaces and will include medicine and education as the theme of the design. The station will be one of several stops along the East Memphis-Germantown-Collierville line that runs from downtown Memphis east to Collierville.



The plan calls for the construction of many new buildings to fill underutilized space throughout the Medical District. The new structures will house mixed-use retail, office and residential uses. The buildings will be built to support the streetscape and improve the grid system and street wall.

The mixed-use buildings will be constructed throughout the district, but a majority of the construction will occur west of Manassas Street and Forrest Park. The area east of Manassas is currently a sea of surface parking lots that covers several blocks. Much of the parking will be replaced with a parking garage. Many of the new building designs will feature parking in the rear of the buildings with the buildings constructed to meet the edge of the street with little setback to maintain the street wall and increase public space for celebration.

The area east of Manassas has been designated the entertainment district. It will feature a large museum of medical history for the city, and a variety of restaurants and retail that play off of the presence of historic Sun

Studio that sits to the east. The entertainment district will showcase the sons of Sun Studio like Elvis Presley (See Figure 38). Visitors to the Medical District will then be within walking distance of one of Memphis' most noted assets – music. The entertainment district is also tied to the rest of the music tour of the city, all of which can be accessed via the new light-rail transit system. The entertainment district parking will take place in a human-scale-parking garage that has lower-level retail and office uses.

The plan also calls for in fill of parking structures with ground-level office and retail. Much of the retail will cater to the workforce of the area with shops and restaurants. The inclusion of these areas will encourage workers to stay in the area to enjoy lunch and dinner



*Figure 38 – The western part of the study area has been designated as an entertainment district. The in fill buildings in this area are designated for mixed uses. The entertainment uses will play off of Sun Studio which is located in the area. The transit will help to link this new entertainment district to existing districts in downtown.*

*Figures 36 – (Left Top) This photo shows the location of the proposed transit station. The view is looking northeast from the intersection of Madison and Dunlap. The location currently serves as a surface parking lot.*

*Figure 37 – (Left Bottom) This figure gives a close up look at the proposed station location. The area already features sidewalks and there are no existing buildings. The loss of surface parking is made up for in the various parking garages that are part of the redesign.*



during work hours. They will also be encouraged to walk to the entertainment district via the comfortable pedestrian paths that will be created with the new tree-lined boulevards. Madison, Dunlap, Manassas, Jefferson and Adams will all be turned into boulevards with trees down the median and along the sides to add beauty and protect pedestrians.

A large hotel will be added south of Baptist Memorial Hospital. A large number of visitors visit the Medical District yearly. The facility could be designed to meet the needs of those that would visit the area most and would allow for small medical conventions and workshops. It would also include an up-scale restaurant.

The plan works to solve the problems identified in Part II by filling in the lost and underutilized space with uses that will enhance the transit village and make workers, residents and tourists less automobile dependent.

### Spatial Analysis

The plan introduced in the above section references many of the problems that were identified when using the figure-ground, linkage and place theories to analyze the area. The Spatial Theory section of Part III will look at how the design addressed and plans to correct the problems that were understood in Part II. Each theory is individually addressed in this section.

### Figure-Ground

The figure-ground relationship problems found in Part II were one of the largest

problems found. The proliferation of parking spaces and lack of buildings created problems with urban scale, street walls, landscaping and the identification of public space. Figure-ground was used in the design to fill the holes with usable space that catered to the transit village concept.

As shown in the design section the entertainment district has been planned for the area west of Manassas. Human-scale buildings that feature a mix of retail, office and other uses will replace the surface parking lots that dominate the area. The largest structure in the entertainment district will be the Memphis Medical Museum. The new buildings will respect the current silhouette of buildings, be of human scale, will create defined public places, and create a more organized figure-ground relationship.

The lost space in front of The Med weakens the street wall along Madison. The design fills that space with hospital extensions, the transit station, a multi-level parking garage with ground-floor retail and office and a series of landscaped green pockets. The improvements will create a diverse ground-level public space and encourage more pedestrian activity. It will also make automobile trips less necessary. The transit station area is currently a parking lot. The new structure will make room for landscaped parking in the rear and a variety of office and retail uses in the building.

Because the area will always be dependent upon automobiles, the parking spaces lost with new buildings will be replaced by parking garages. The garages will be to scale with their neighboring buildings. The ground-floor retail



Figure 39 – This figure shows a close up of the alleyways that are proposed for the entertainment district. The alleyways serve to strengthen the grid pattern and make the area more human scale.

and office will be used to encourage pedestrian activity.

The vast areas of lost space cannot all be filled with new buildings. Many pocket parks have been created to fill parking lots or other underutilized areas. These pocket parks are discussed more in the linkage theory section.

Even in areas where the street wall would be enhanced with new buildings, new trees will be placed to line the street. The streets will be converted to boulevards, as noted in the design section. The tree-lined boulevards will strengthen the street wall, improve the landscaping, prevent building masses that are out of scale, help bring down the scale of large buildings and create a defined public space. They will also serve as protection from the sun in the hot Memphis summer.

The grid will be strengthened in the entertainment district by adding alleys and access streets that are consistent to the grid. The grid will take pressure off of major intersections and also give the buildings organization (See Figure 39).

The filling of the lost space with usable buildings will strengthen the organization of the urban area. It establishes a hierarchy of spaces of different sizes that are individually enclosed by ordered directionally in relation to each other. The fabric of the Medical District is made stronger and better organized. The organization, especially in the entertainment district, creates better-organized grid system that shows order.

### Linkage

The circulation of the area will be enhanced by the new design by creating better-defined street walls, increasing landscaping, strengthening the grid and identifying public space. The design links the park, station, entertainment district, office, retail, educational and medical uses. While the figure-ground is thought to be the fabric of the area, and was strengthened by the design, the links are the glue or stitches that hold the fabric together.

The design plan enhances grid pattern of streets that in the entertainment district that will improve access and connections to other parts of the Medical District. The tree-lined streets will improve the connection between buildings as well. Safety will be added for pedestrian wanting access to points of interest points by adding the tree-lined medians and tree-lined sidewalks. Pedestrian crosswalks have also been added to main intersections as a way of increasing the linkages in the area. The crosswalks will also increase safety for pedestrians traveling in the area (See Figure

40). The trees add a protective wall between pedestrians and automobiles.

### Place

The medical district suffers from a lack of place. The large-scale hospital and educational facilities have stripped the area of much of its history by tearing down old treasures and replacing them with a sea of asphalt. To enhance place, the design examines the history and culture of the area (See Figure 40). Four main aspects are addressed by the design: the rail transit, grid pattern, medicine and music.

**Rail Line** – Rail transit was once the primary means of travel to the Medical District. As documented in Part II, the automobile now dominates the transportation means of the area. A piece of the area's culture will return with an increased use of rail transit.

**Grid** – Baptist Memorial Hospital, The Med and UT-Memphis interrupted the grid street system to the east of Dunlap by constructing large-scale facilities in the path of roadways. The hospitals redirected the roadways around the expanded hospitals. Many alleys and streets have been closed or altered decreasing the effectiveness of the grid and diminishing the historical quality of the street pattern.

The grid pattern will be strengthened to the west of the park in the entertainment district. The district will replace the vast parking. The design creates new alleys and access roads. Moving parking to the garages and rear parking strengthens the street wall and increases pedestrian activity on the street. The grid is the traditional form of the street system in the area



Figure 40 – Pedestrian crosswalks are a key ingredient to the transit village design plan. The proposed crosswalks are made of brick and are raised. This helps to differentiate them from the street and also helps to slow traffic in the area. The crosswalks make the area safer for pedestrians and helps to increase linkages in the area.

and acknowledging that history will help strengthen the district's historical character.

**Museum and Park Medical Theme** – The history of medicine in Memphis has been well documented over the years. The Memphis Medical District has become nationally known. Many great medical discoveries have occurred in the Medical District. The medicine and medical education will be celebrated in the new Medical Museum in the entertainment district. The multi-floor facility will feature historical artifacts and memorabilia to tell the story of the history of medicine in Memphis and west Tennessee.

The Medical theme will be carried into Forrest Park too. The park would be renamed to celebrate the history of medicine in Memphis. Sculptures of the fathers and mothers of medicine in Memphis would be the centerpiece of the park.

*Entertainment District* - Sun Studio currently sits as an island of musical history in the sea of medical buildings in the Medical District. With the history of the studio and the Memphis music heritage that is celebrated throughout the nation, it seems only natural that the area surrounding the studio capitalizes on the tourist attraction's success. With the new transit system, the site will be linked with the many other cultural exhibits in Memphis such as the Beale Street Historic Area and South Memphis.

The goal of the design is to give workers and residents a place to eat, relax and be entertained. The goal also strives to bring in more tourists to the area. By creating an entertainment district around the Sun Studio area, the merchants can capitalize on the tourists who normally visit the studio as well as the thousands of tourists who visit the Medical Center each year. Restaurants, music clubs, and gift shops would line the ground level throughout the area, while offices, residences and hotels would occupy the top floors.

The urban design plan celebrates the history and culture of the Medical District by focusing on its connections to medicine, education, music and rail transit. Each aspect is made apparent in the design. The history and culture of the Medical District is unique. The plan creates place by concentrating on those things that are unique.

### Market Analysis

The demographic make up of the Dunlap Station area as it currently stands is made up

primarily of young professionals with no children and older adults who have reached retirement age. The densities of the Dunlap Station area are low due to the fact that most of the uses in the district on non-residential medical uses.

The Dunlap Station area currently serves as an employment center in the Memphis area. Transit villages, although usually thought of as mixed use with a balance of jobs and housing, can be primarily single use if it serves as a center for that specialized use. The problem, however, is the fact that for a transit village to be successful there should be people coming in and out of the area 24 hours a day. This could be accomplished through the types of in-fill development that are chosen to go into the area.

The plan for the Dunlap Station area included in fill that is focused on mixed uses. The primary uses of the in fill development are residential and commercial, specifically retail and entertainment uses. These types of development could ensure that people are continuously using the rail to come in and go out of the area. Also, adding residential uses to the area will increase the density of the area and therefore make creating a transit village more feasible.

By utilizing the loss space for in fill the densities that are needed for a transit village to be successful can be achieved. The increase in residential and commercial uses will have the effect of creating 24-hour traffic in the area. Therefore, even though the primary function of the area will remain as an employment center, the diversity of uses will ensure the success of the transit system. The employees of the area

as well as others that live and work in surrounding areas can utilize the commercial uses.

### Policy Analysis

To make transit villages work in the City of Memphis several changes need to be put in place. Public policy regarding subdivisions and zoning, need to be revised to allow for this type of development to occur.

### Zoning

Zoning currently governing the area does not allow for mixed use. The only way to achieve a mixed-use development within the current system is the planned development. The style of development allows for a diversification of uses in projects that are designed to be unified and cohesive. This style of development is extremely popular with developers in the East Memphis area. An overlay zone would be possible that allows for mixed uses around transit centers on the transit lines. Allowance of this will cause the property values near the stations to be elevated, making them ideal locations for commerce.

### Overlay Zoning

The overlay-zoning category could be added to the current zoning in the city of Memphis. This method would be easier for developers to build under instead of rezoning the property to a Planned Development. The zoning category would state what requirements

are needed in the zone including setback and height restrictions. Other current overlay zones in Memphis are the Evergreen Historic District and The South Main Historic District. If an overlay zone were created, a special board would regulate the district similar to the Landmarks Design Review Commission that reviews Evergreen and the CCC Design Review Committee that oversees the design of new projects in the CBID, including the South Main Historic District.

#### **Special Transit Village District**

Another option would be the creation of a new zoning district. The district would allow the special characteristics needed for a transit village. Used appropriately at each transit stop, it could help to create an efficient transit system and transit metropolis.

#### **Subdivision ordinance**

The subdivision ordinance would have the setback requirement relaxed to allow for buildings to be built up to the property line to allow of a continuation of the edge. A increase in the number of dwelling units per acre would also allow for developers to market the properties and increase the density to create a market for the businesses located there. The trade off fore the increase in density could be the contribution of the developer to open space and public amenities.

#### **Employer Participation**

With the large number of workers employed in the medical center, the potential for developers to cooperate with the employees to offer incentives is possible. One of these incentives could be offering discounts on rent to persons that are employed in the area. Another method could be companies rewarding their employees that use transit with extra days off or drawings for gifts such as free dinners and prizes. Another method is companies providing workers travel vouchers and monthly transit passes to discourage the use of their personal vehicles.

Policy changes are needed to allow for the transit village to grow. Rewriting the zoning codes to have an overlay district would be a good alternative to the traditional zoning. The alternative of expanding the subdivision ordinance to increase the density is a necessary option. The most important item is the support of businesses to provide incentives to make the location attractive to workers and to use transit. Political support of the changes needed is essential to creating a transit village in the Dunlap Station area.

#### **Conclusion**

The Dunlap Station area, with a few changes, could become a properous transit village. The fact that the area is an employment center for Memphis and the remainder of the metropolitan area makes it a good candidate for a transit village. The high number of persons coming into the area could

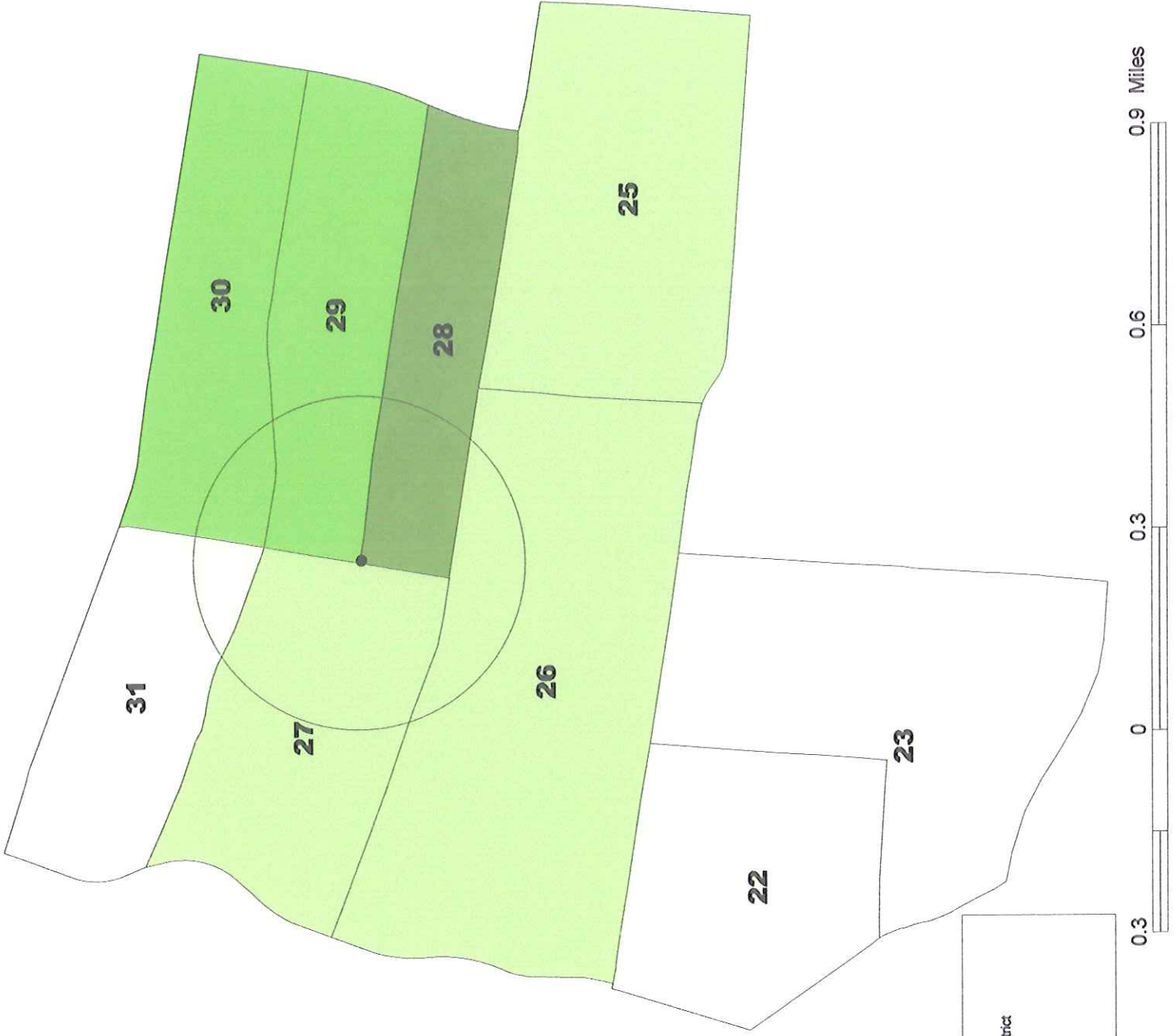
support a transit stop in the area. The plan calls for an increase in residential land uses which will help the area become a 24-hour village.

Transit villages could work in Memphis if the leaders are willing to back the idea. Citizens must also be convinced to use the rail as an alternative to driving.

In order for a transit plan to be successful lost space should be filled, areas should be designed to be more pedestrian friendly, and areas should be developed at human scale. Simply putting a transit line through a neighborhood does not make a successful transportation system. The people in an area must be connected to the transit line. It takes a transit village to make a successful transit stop. Many transit villages connected together create a successful transportation system.

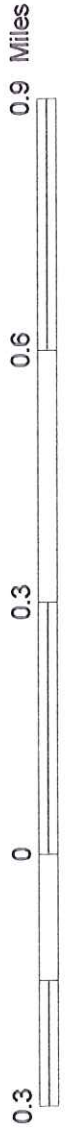
Dunlap Station Study Area Demographic Profile

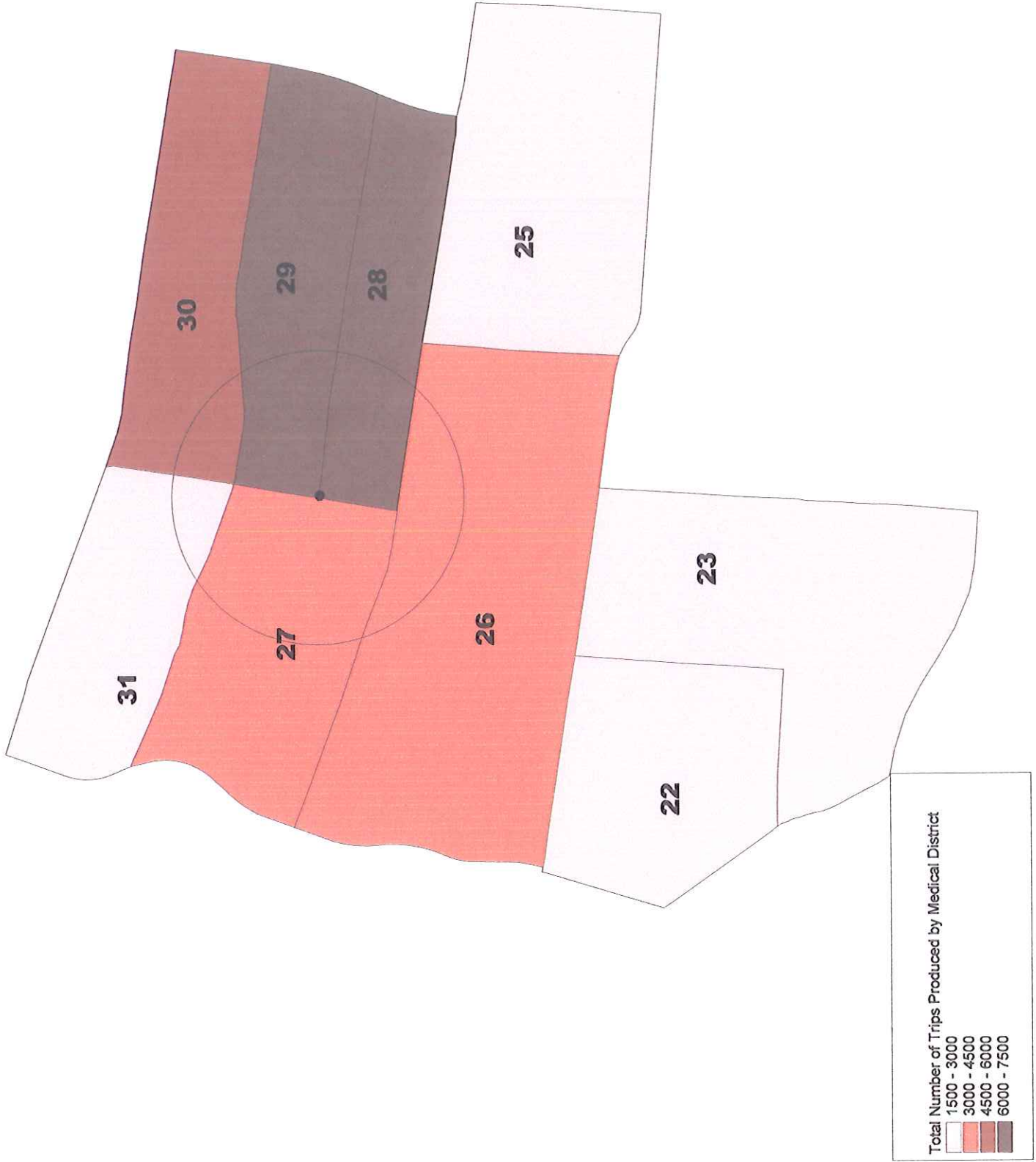
	Population	Housing Units	Owner Occupied	Renter Occupied	Density (HU/	Per Capita Income	Families	Persons in Families	Households	Persons in Households	Mode of Transportation to Work							
											Drove Alone	Carpooled	Bus	Bicycle	Walk	Other	Employed	Unemployed
Census Tract 37																		
Block Group 1	262	57	0	57		2471	20	75	52	107	0	10	0	0	21	0	38	4
Total	262	57	0	57			20	75	52	107	0	10	0	0	21	0	38	4
Census Tract 38																		
Block Group 1	721	0	0	0		10805	0	0	0	0	0	0	0	0	0	0	0	0
Block Group 2	980	683	9	601		8636	63	138	633	741	133	46	28	0	134	9	350	35
Total	1701	683	9	601			63	138	633	741	133	46	28	0	134	9	350	35
Census Tract 39																		
Block Group 1	1020	763	10	708		9628	130	313	763	993	287	87	45	0	65	20	495	17
Block Group 2	1033	666	0	646		5517	100	250	653	853	287	66	0	0	59	6	425	12
Total	2053	1429	10	1354			230	563	1416	1846	574	153	45	0	124	26	920	29
Census Tract 40																		
Block Group 1	145	137	0	137		4403	0	0	145	145	0	0	0	0	0	0	0	0
Block Group 2	233	223	10	202		4671	26	78	199	251	6	0	5	0	13	0	24	12
Total	378	360	10	339			26	78	344	396	6	0	5	0	13	0	24	12
Area Total	4394	2529	29	2351			339	854	2445	3090	713	209	78	0	292	35	1332	80

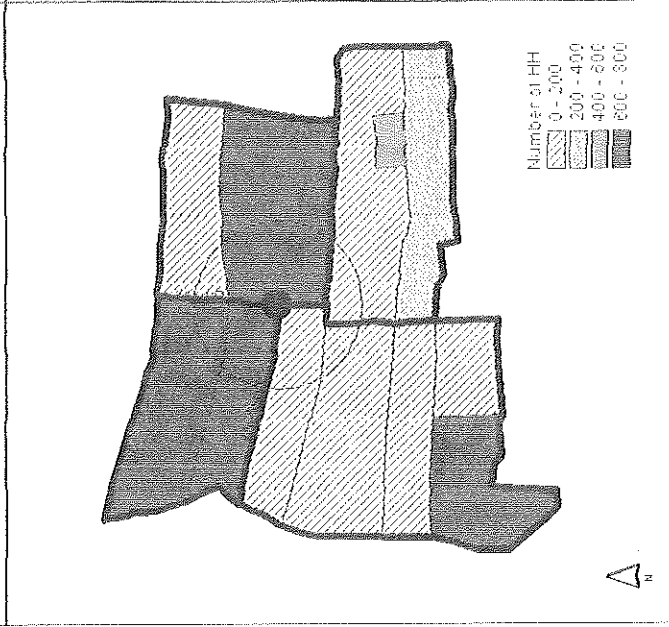
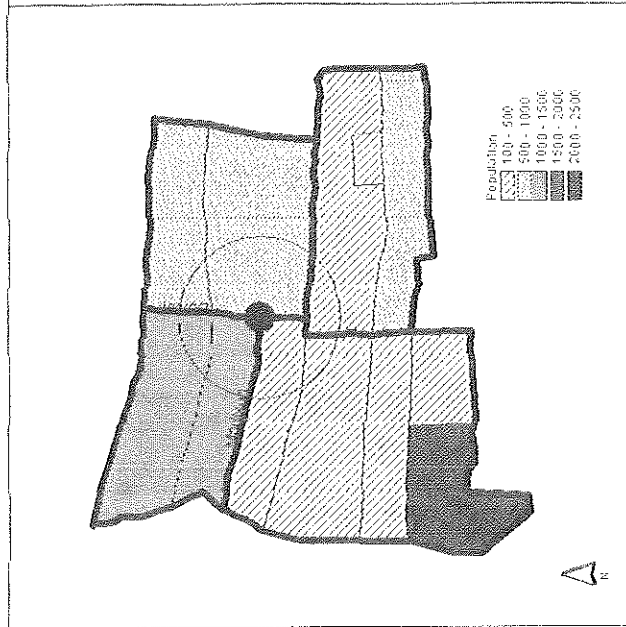
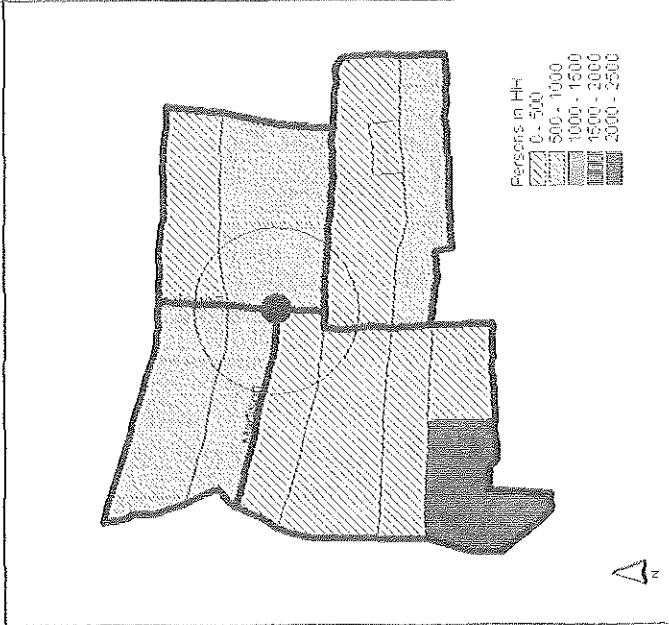
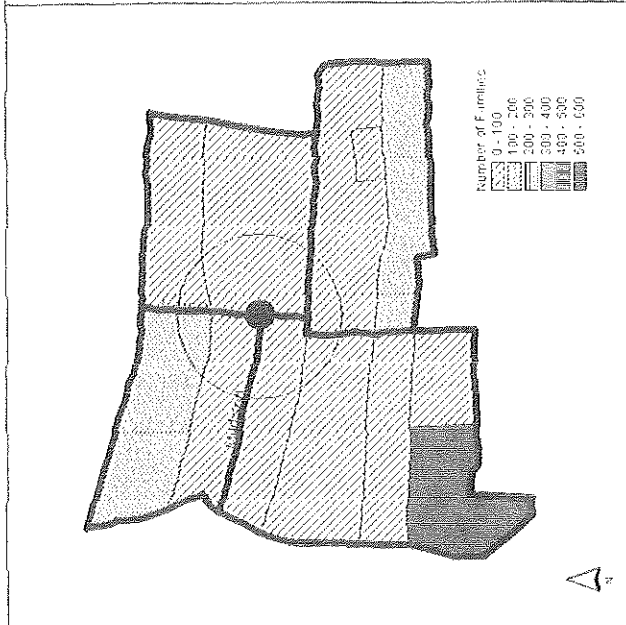
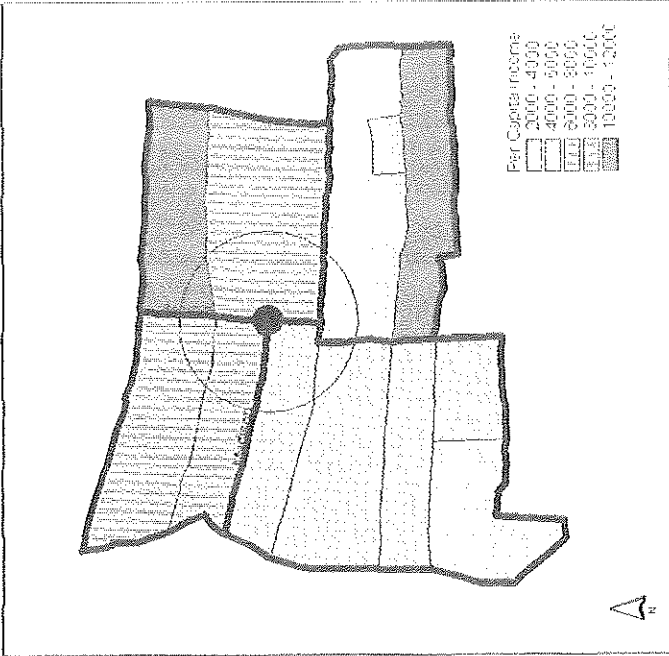
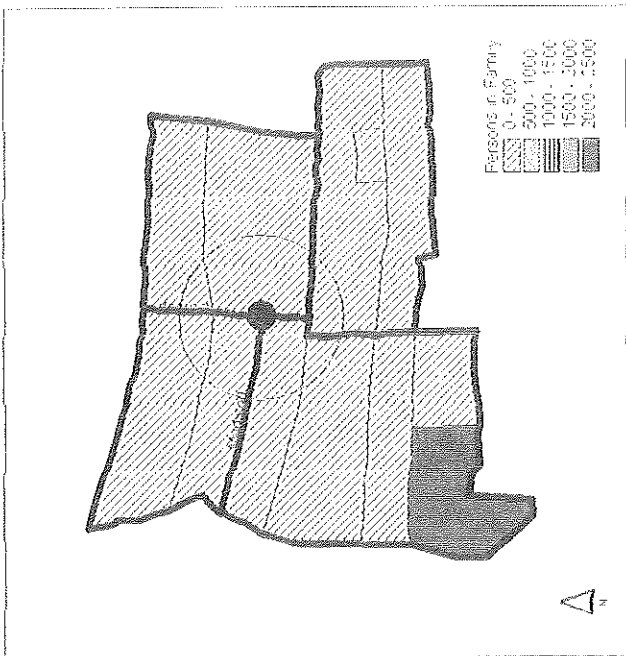


Total Number of Trips Attracted to Medical District

- 1000 - 4000
- 4000 - 8000
- 8000 - 12000
- 12000 - 16000
- 16000 - 20000



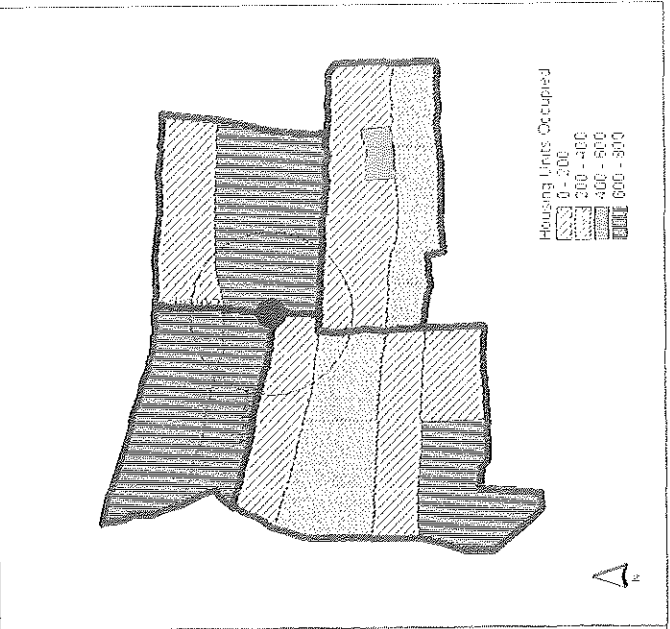
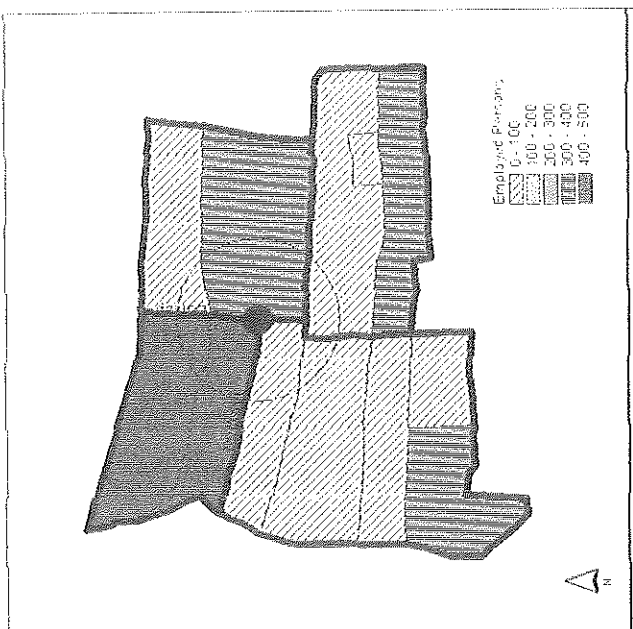
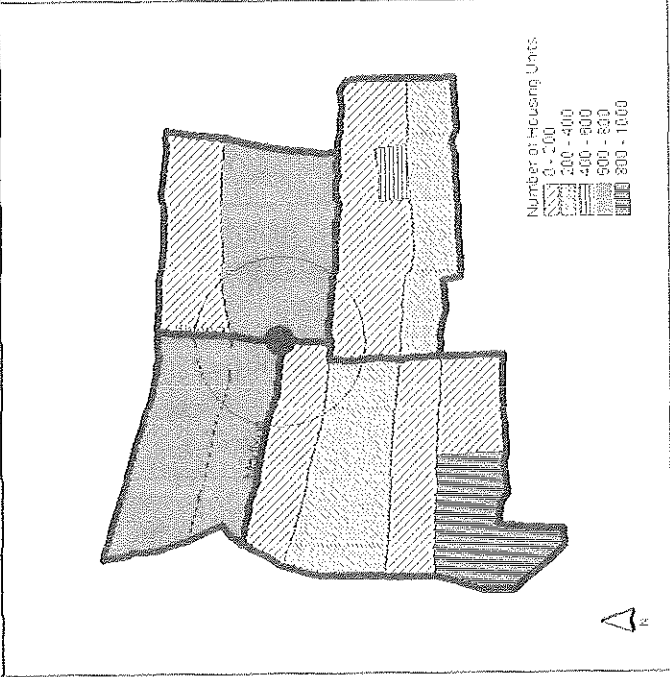
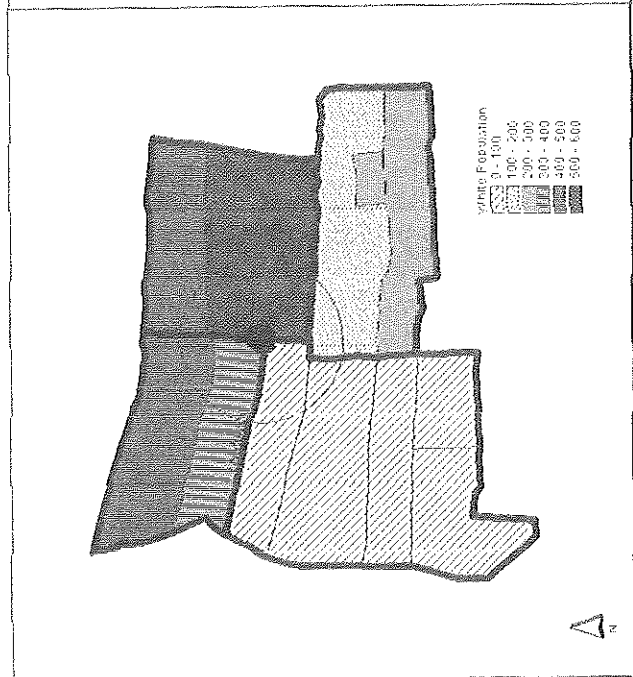
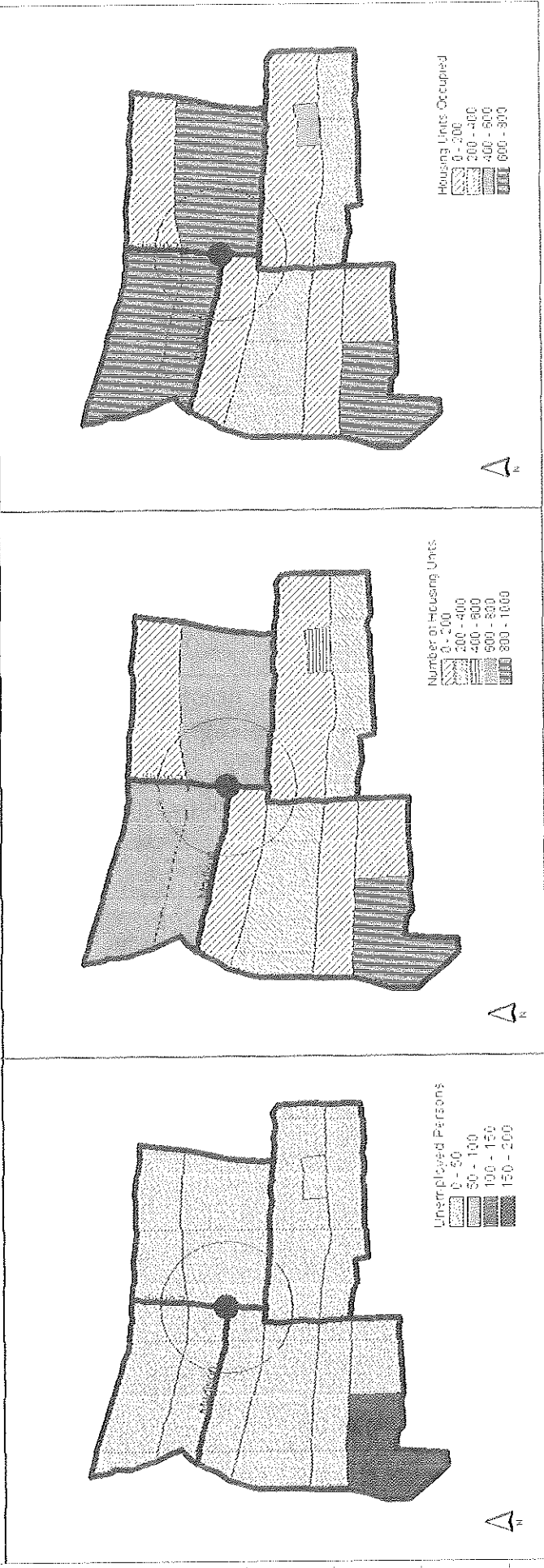
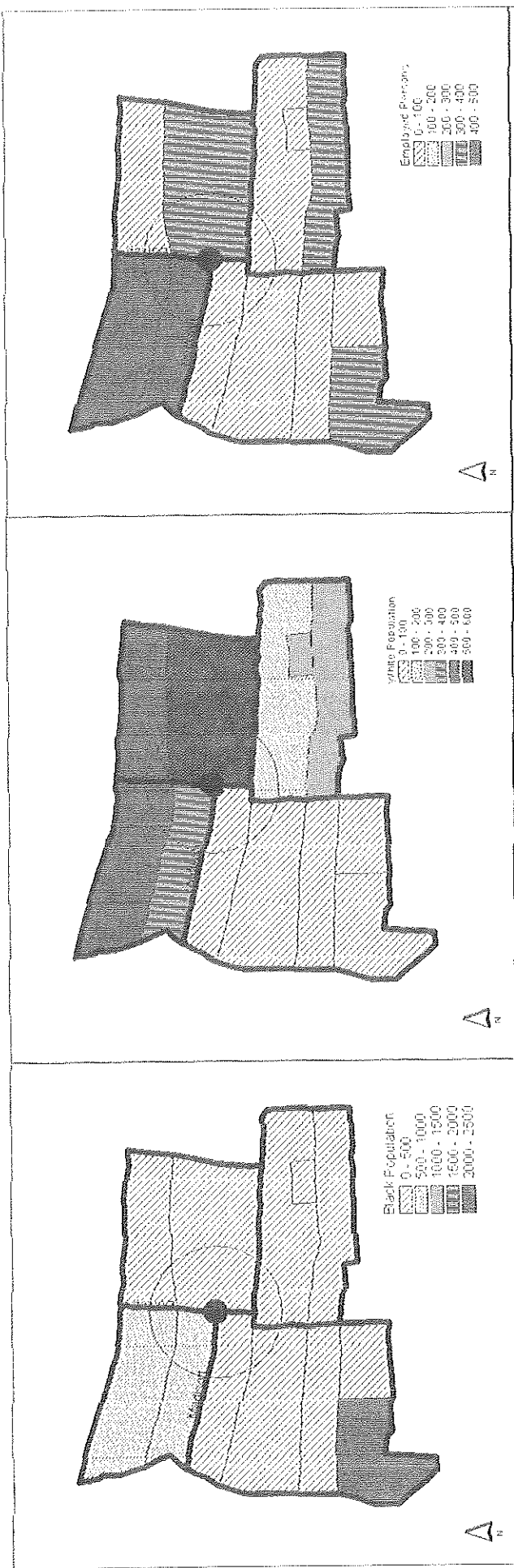




Note:

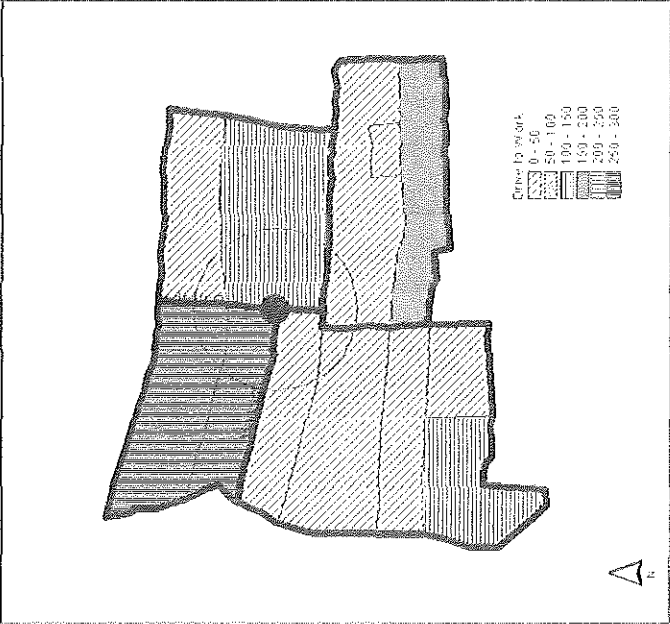
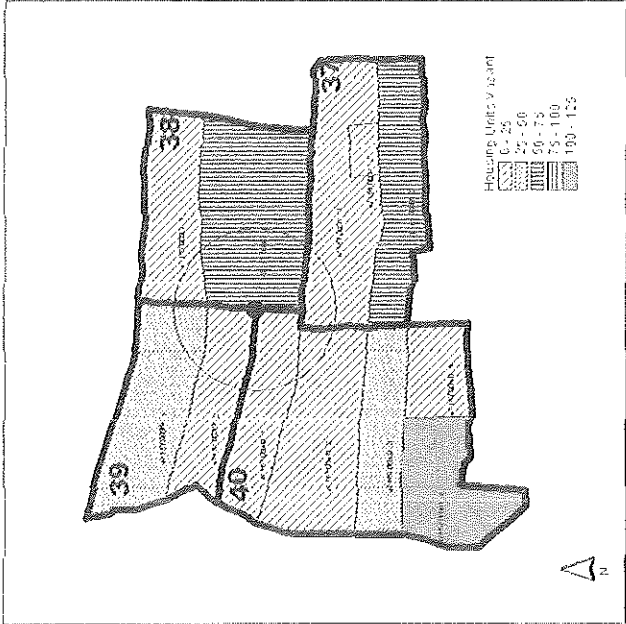
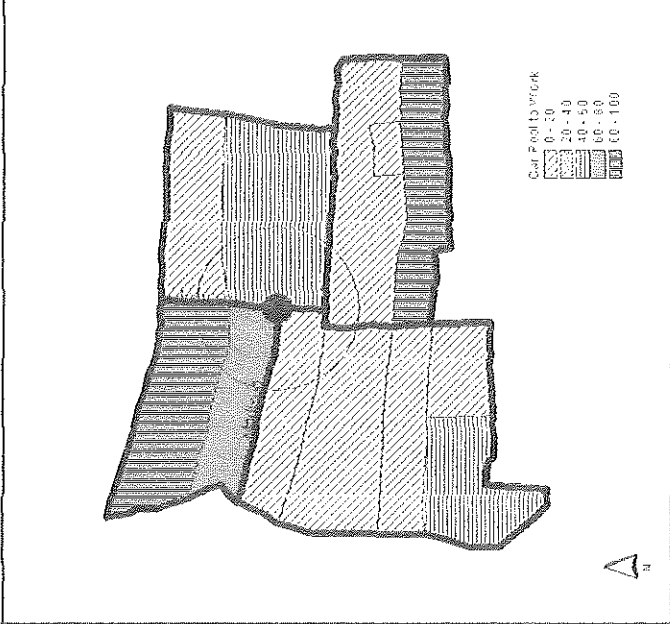
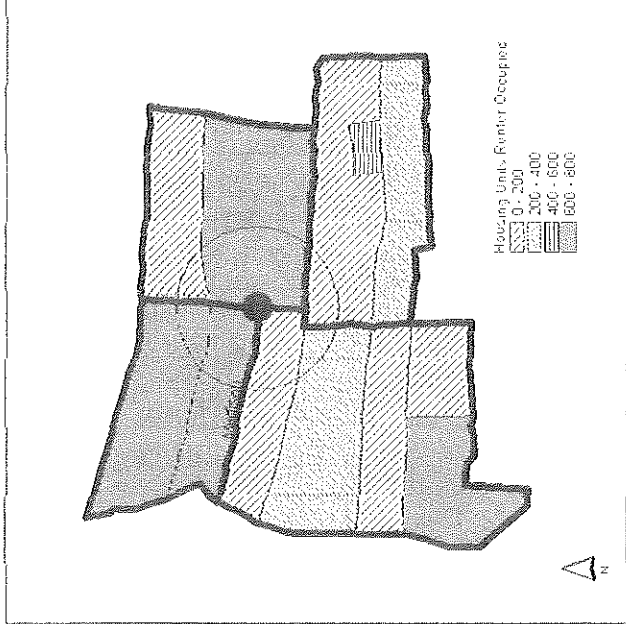
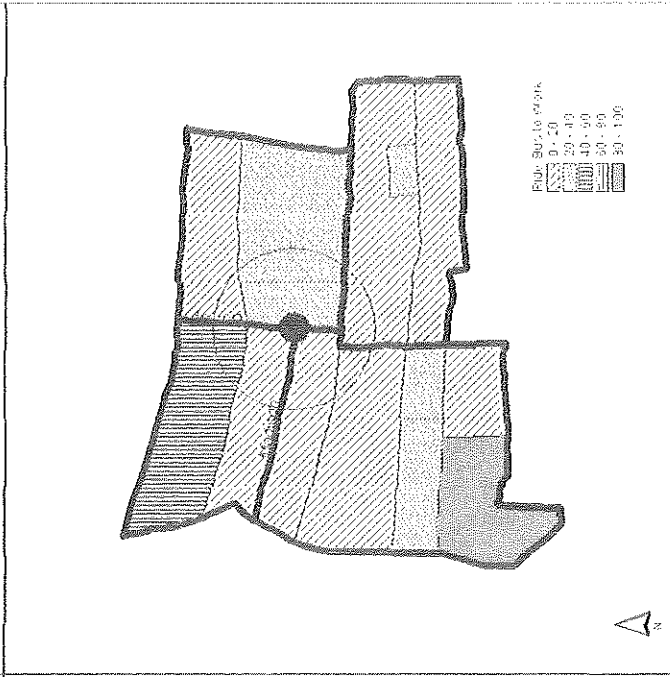
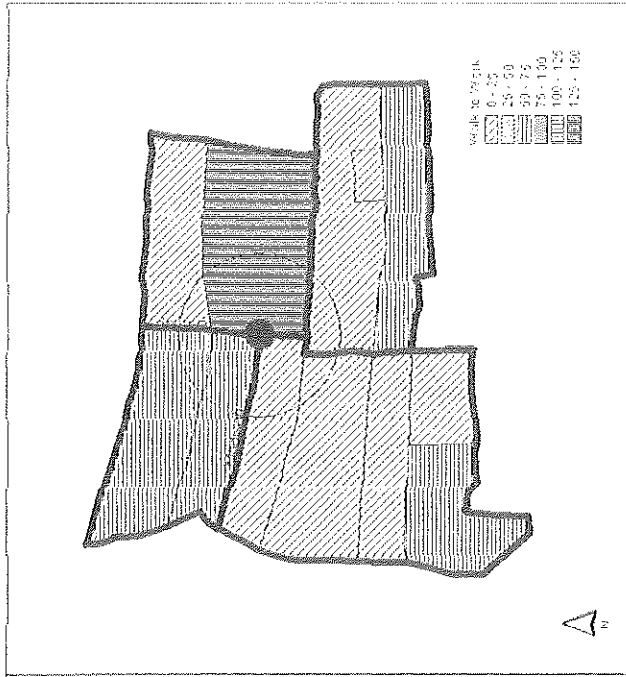
- Census Boundary
- Block Boundary
- Dunlap Station
- 1/4 Mile Radius





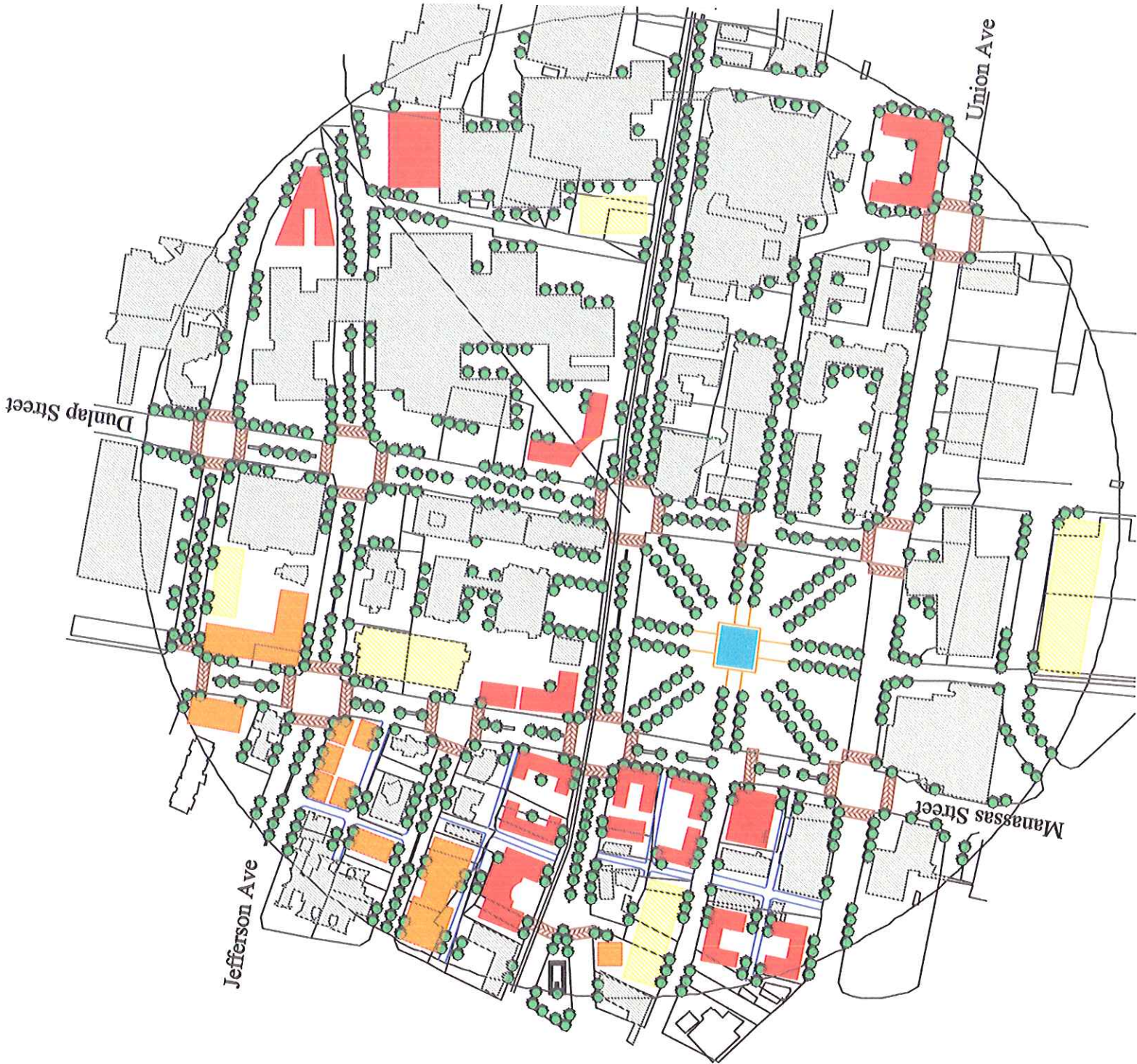
Note:

- Census Boundary
- Block Boundary
- Dunlap Station
- 1/4 Mile Radius



Note:

- Census Boundary
- Block Boundary
- Dunlap Station
- 1/4 Mile Radius



## Bibliography

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