May 2006

Garden District Station: A Proposal for Transit-Oriented Development in St. Louis

Charles Closser
University of Nebraska-Lincoln

Follow this and additional works at: http://digitalcommons.unl.edu/archthesis


http://digitalcommons.unl.edu/archthesis/19

This Article is brought to you for free and open access by the Architecture Program at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Theses from the Architecture Program by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
Garden District Station
A Design Proposal for Transit-Oriented Development in South St. Louis

A Terminal Thesis Project
Presented to the Faculty of the Graduate College and
the College of Architecture at the
University of Nebraska- Lincoln
In Partial Fulfillment of Requirements
For the Degrees, Master of Architecture and
Master of Community and Regional Planning

Under the Supervision of Professors:
Gordon Scholz, Thomas Laging, Rodrigo Cantarero

Lincoln, Nebraska
August, 2006

Castleman Circle, St. Louis

Charles Closser
For all her loving support, I dedicate this project to my loving wife.
ABSTRACT
The presence of light rail is increasing across the United States. This mode of transportation provides unique opportunities to serve as a catalyst for new developments and redevelopments. This document studies what types of redevelopment can be stimulated by the expansion of Metro Link (St. Louis’s light rail system) into the Gardens District. The information gathered is used to present urban design strategies and an architectural solution for a transit-oriented development.
Abstract

Section 1.0: Garden Station, An Overview
  1.1 Defining the Project Area
  1.2 Brief History
  1.3 Bi-State Development Company
  1.4 Current Developments and Future Plans for the Project Area

Section 2.0: Contemporary Transit Oriented Developments
  2.1 Contemporary Transit Oriented Developments
  2.2 St. Louis Case Studies
  2.3 Chicago Case Studies

Section 3.0: Analysis
  3.1 The Environs
  3.2 Zoning
  3.3 Demographics
  3.4 The Project Area: Potentials and Constraints

Section 4.0 Urban Design Strategies
  4.1 General Urban Design Strategies for Project Area
  4.2 Assembling Needed Parcels for Development
  4.2 Urban Design Proposals for the Garden Distric

Section 5.0 Design of Transit-Oriented Development
  5.1 Proposal and Recommendations for the Multi-Modal Station Design
  5.2 Development Program
  5.3 Architectural Proposal for the Garden Distric Multi-Modal Station

Section 6.0 Implementation
  6.1 Southwest Garden Housing Corporation
  6.2 Garden District Improvement Association
  6.3 Garden District Commercial Development Corporation

Bibliography
SECTION 1.0: GARDEN STATION, AN OVERVIEW

1.1 Defining the Project Area
1.2 Brief History
1.3 Bi-State Development Company
1.4 Current Developments and Future Plans for the Project Area

This section will accomplish step 1 in the methodology: study the existing conditions of the project area.
1.1 Defining the Project

1.1.1 Defining the Project Area

1.1.2 Defining the Project’s Major Goals

1.1.3 Defining the Project Methodology
1.1.1 Defining The Project Area

Refer to figure 1.1.1

The project area is generally bound by Interstate 44 on the north, Alfred Avenue on the east, Magnolia Avenue to the south, and Kingshighway Boulevard to the west. The project area is only a portion of the Garden District. The project area is approximately 150 acres of land (including street rights-of-way).

The neighborhoods that surround the project area are: The new Botanical Heights to the north, the historic Shaw to the east, the Southwest Garden to the west, and the Hill Neighborhood to the west.

1.1.2 Defining the Project’s Major Goals:

The outcomes of this project include:

- Studying the principles of a transit oriented development as they relate to a proposed inner city neighborhood transit stop in St. Louis, Missouri.
- Developing urban design strategies that adhere to the principles of the transit oriented development modeled laid out by the Urban Land Institute.
- Creating a plan that will help enhance the economic and the residential base, reduce traffic congestion, and make the Missouri Botanical Gardens more accessible for visitors.
- Designing a transit oriented development that integrates transit uses, residential uses, and commercial uses.

1.1.3 Defining the Project Methodology:

The methodology parallels the process used by an Urban Land Institute panel that studied transit-oriented developments in Chicago along the Green Line. The process is as follows:

Step 1: Study the existing conditions of the project area. (Section 1.0)

Step 2: Apply the Urban Land Institute’s model for a contemporary transit-oriented development. (Section 2.0)

Step 3: Identify the area’s major potentials and constraints. (Section 3.0)

Step 4: Propose relevant urban design strategies. (Section 4.0)

Step 5: Create a design solution to a transit-oriented development that integrates mixed uses including transit functions. (Section 5.0)

Step 6: Describe how to implement the transit oriented development. (Section 6.0)
Figure 1.1.1 Project Area: St. Louis City

Legend:
- **P**: Proposed Metro Link Stations
- **PM**: Existing Metro Link Stations
- **C**: Proposed Metro Link Line
- **CM**: Existing Metro Link Line
- **M**: Project Site

- **Airport to College Station (main line)**
- **Cross County Metro Link**
- **Interstate Highways**

- **New Botanical Heights Neighborhood**
- **Historic Shaw Neighborhood**
- **Southwest Garden Neighborhood**
- **Missouri Botanical Gardens**
- **Tower Grove Park**

- **2 mile**
- **3 mile**
- **1 mile**
1.2 Brief History

1.2.1 Rise and Decline of St. Louis City Rail Lines
1.2.2 Brief History of the Project Area
1.2.1 Rise and Decline of St. Louis City Rail Lines

The text of this section is derived and adapted from the City of St. Louis Community Information Network’s web site, 2002. Transportation. http://stlouis.missouri.org/government/heritage/history/transport.htm

Advent of the Railroad

Three events around 1850 affected the future of railroads in St. Louis. First, the state chartered the Pacific Railroad to cross Missouri from St. Louis and eventually connect with the Transcontinental Railroad. This new line connected St. Louis to San Francisco. Next, the federal government invested in railroad lines spanning the country. Last, disease provided the third impetus to railroad growth in St. Louis.

The Pacific broke ground on July 4, 1851, for its initial leg, with the first trains charged out of St. Louis in December, 1852. Additional lines followed. When the train reached Kansas City in 1865, it had traveled on 283 miles of track. The state had 893 miles of track in operation two years later.

Choutea’s Pond was infilled in 1852, because it was filled with waste, animal carcasses, and garbage. The land mass it created sat empty only briefly, until it was converted into a rail yard. The pond had become a prime connection between downtown and the route to the rest of the country.

Trains & The River

As the national economy grew, so did the railroads in St. Louis. At first, the river was crossed by ferry. Trains carrying goods west or materials east had to stop at the rail yards in St. Louis or East St. Louis. Wiggins Ferry Company carried the rail cars across the river, where they were again connected to locomotives for the rest of their journey. It consumed both time and money. The Eads Bridge was completed in 1874. A 4,880 foot-long tunnel underneath downtown opened the following year, connecting the bridge to the Mill Creek Valley without disrupting traffic. Smoke from the locomotives made the platforms under the streets of downtown unusable until Metro Link reopened the tunnel in 1993.

Freight & Passenger Stations

Cupples Station opened in 1891. Cupples handled most of the heavy wholesale trade in its warehouses (eighteen of them built over a thirteen-year period, ten of which remain) with its tunnel connections from the Eads Bridge via the Termina Railroad Association. $200 million in freight passed through Cupples Station by the turn of the century. 93,000 trains entered and left St. Louis annually by the 1920s.

Cupples Station handled freight well, but passenger travel was still problematic. The Union Depot opened in 1875, between 10th Street and 12th Street on Poplar Street. The amount of rail travel was underestimated and the depot was not adequate.
Union Station at 18th and Market Streets was built in 1894, and was the largest passenger station in the United States. It became a symbol of connection with the rest of the country for St. Louis travelers for eight decades. After World War II, train travel began to decline. As air travel and expressways made trains seem old-fashioned, rail travel and Union Station fell on hard times. Down to just six trains a day, Union Station closed on Halloween in 1978.

The Auto Era
Auto travel killed streetcars, literally. Cars went even faster and farther, and offered flexibility unknown to public transportation. Buses picked up some of the slack, but cities such as St. Louis remained auto-oriented. The last streetcar in St. Louis ran on the Hodiamont Line in 1966.

Abandoned Lines and Beyond
Three examples of adaptive reuses:

Union Station:
In the 1980s Union Station in downtown St. Louis was converted into an indoor mall, tourist attraction, office space, and hotels. The former rail lines under the massive train shed were removed. Now restaurants, a pond, and surface parking lots remain. Off to the side, several tracks were saved with original passenger cars.

Metro Link:
Electric rail travel experienced resurgence in the 1990s. The new Metro Link system, connecting East St. Louis and Lambert Airport, carries people through old TRRA tunnels, over the old Mill Creek Valley, and on track lines first laid more than a century ago.

Lofts:
In the 2000s Union Pacific moved more than 1000 jobs from St. Louis to Omaha, leaving behind a vacant corporate office building in downtown St. Louis. The McGowan Brothers acquired the building and converted the once offices into condominiums.

Street Railways
Streetcars did for cities in the nineteenth century what automobiles did in the twentieth: they made it easier for people to live farther from the core city and commute to work every day. First horse-drawn streetcars, or “herdics,” in 1859, facilitated suburbanization northward as well as the expansion already evolving toward Kirkwood. Cable-powered cars came in 1886, but the switch to electric streetcars transformed the system.

Residential neighborhoods sprouted on the city’s fringe with streetcar connections. These “streetcar communities,” or “bedroom communities,” relied on other parts of the city for employment and many services. It was a major step in moving population out from the core city, which eventually led to a growing population in St. Louis County at the expense of the city. Interurbans tied communities together from even farther afield. The Wabash Station on Delmar, completed in 1929, was once a transfer point for St. Louis passengers en route to Kansas City and Chicago.
1.2.2 Brief History of the Project Area

Agricultural Commons
The first St. Louisans began using what is now the Shaw Neighborhood as agricultural common fields in 1769. At the time they designated the area as the Prairie des Noyers or Meadow of the Walnut Trees. When the fields fell into disuse, other owners laid claim to them. The resulting disputes over ownership did not clear the federal courts until the 1830s. Until then, no one could safely take up ownership and begin to develop land in the Shaw area.

Henry Shaw
A hardware merchant named Henry Shaw shaped the Shaw Area. Arriving in St. Louis in 1819, he accumulated a fortune before he was 40 and decided to develop a botanical garden in St. Louis. By the mid-1850s, Shaw had acquired several large tracts of land in the area that now bears his name. In 1858, he began the construction of what became the Missouri Botanical Garden adjacent to his country home (named “Tower Grove”). The state of Missouri accepted the gift of Tower Grove Park in 1867.

Shaw’s garden and the new park became an important St. Louis attraction during the decade after the Civil War, and two of the city’s horse car lines extended tracks into the area. The opening of the Pacific Railroad (now the Missouri Pacific) along the northern edge of the area in the mid-1850s also inspired development. In spite of these developments, the Shaw area still seemed too far away from the city for a large number of St. Louisans to call it home.

Street Car Suburbs
The project area has a history of transit-oriented development. After the extension of the city’s boundaries from Grand Avenue to west of Forest Park in 1876, real estate developers paid more attention to the Shaw area. In the 1880s alone, more than 60 percent of all the house lots in the community were offered for sale. Some close-knit urban development began to occur, but most of the area awaited the arrival of the trolley car, which doubled and tripled the speed of travel between Shaw and the central business district.

After electric-powered transit arrived in the late 1880s, Shaw experienced a real estate boom. By the mid-1920s, the area was separated into four neighborhoods, now considered the Garden District. Almost all of the Shaw Neighborhood was developed, with the majority of the dwellings being two- and four-flat buildings. Although a few wealthy families occupied single family homes along Flora Avenue, most families were headed by white-collar workers who labored in the central business district and merchants of service employees from the shops and institutions along Grand Boulevard.

1930s to 1950s
In 1930 Shaw had residents from nearly all of St. Louis’s racial and ethnic nationality groups, many of whom were sons and daughters of city residents who purchased or rented their first home in the community. Through the Great Depression, most Shaw residents kept their jobs, but those who owned the residential structures made minimal repairs through hard economic times and the World War II.
After the War, Shaw building owners found it difficult to obtain loans on their structures, and in the prosperous decades after the war, the number of rental properties in Shaw increased, as many of those who could do so moved to newer housing. Generally, those who moved away were replaced by those with lower incomes.

Rebirth of the Garden District
Beginning in the mid-1970s, community residents and area institutions began to organize to regain some of the Shaw area’s faded elegance. The Missouri Botanical Gardens, the Roman Catholic Archdiocese of St. Louis and the St. Louis University Medical Center made efforts to stabilize the community areas around them. These efforts were matched by grass-roots community efforts like the Shaw Neighborhood Association, the Tiffany Community Association, and the DeSales Housing Corporation.

In the mid-1980s, the Shaw Neighborhood showed signs of vitality, with the coming of new residents, significant rehabilitation, new residential construction and active community organization, all contributing to the strengthening of the Shaw community.

Present and Beyond
The area has benefited greatly from federal and state historical tax credits. As of 2002, the historic Shaw Neighborhood had seen almost 40 percent of its building stock rehabilitated or renovated. This has caused property values to rise from an average of $60,000 to $180,000 from 2002 to 2005.

As of summer of 2005, the once declining McRee Town Neighborhood is rebuilding. Phase one was a successful pre-selling of all the lots in less than one day. The second of three phases is almost complete. The third phase is expected to be complete by 2008. The new neighborhood is called Botanical Heights. Lastly, the Missouri Botanical Gardens is expanding from beyond their confined campus. An education center, two new parking lots, and a bus terminal were just completed west of the main campus. The corner of Shaw Avenue and Vandaventer is the location of a proposed Metro Link transit stop with park-and-ride service.
1.3 Bi-State Development Company

1.3.1 Overview of Metro Bus and Metro Link
1.3.2 Shaw Metro Bus Center (park-and-ride)
1.3.3 Economic Impact of Metro Link on the St. Louis Area
1.3.4 Southside Study Area (Union Pacific Railroad Right-of-Way)
1.3.1 Overview of Metro Bus and Metro Link

The information in this section is from the Metro St. Louis Web site, available through the Bi-State Development Company. Web site: http://www.metrostl.org/
Refer to figure 1.3.1

Metro services almost 150,000 passengers per day, or approximately 5.77 percent of the St. Louis metropolitan area population per day. When the cross county extension opens later 2006, that percentage will increase to approximately 6.46 percent.

The Metro Bus fleet consists of more than 450 buses operating on 75 bus routes. On a daily basis, Metro Bus vehicles travel more than 52,000 miles, make more than 3,800 trips, and carry nearly 100,000 customers.

The Metro Link light rail system was added to the public transit system in 1993 and in 2005 carried approximately 50,000 riders a day. The Metro Link runs a distance of 34 miles from Lambert International Airport to College Station in Illinois. There are 22 stops on the Metro Link. Seventeen stations are park-and-ride lots that hold approximately 8,500 cars.

The cross county expansion is due to open in 2006. It will add 12 miles of rail line. The alignment will be on the Missouri side of the St. Louis metro area. When completed, an additional nine stations will be added to the system. Two stations will also offer park-and-ride service. The original rail line will have a connection to the new alignments at the Forest Park Station. It is estimated that an additional 22 new vehicles will be need to handled the expected 18,000 new riders per day.
Figure 1.3.1 Metro Bus and Metro Link Alignments
1.3.2 Shaw Metro Bus Center (park-and-ride)

Refer to figure 1.3.2

The Shaw Metro Bus Center is located at 4501 Shaw Avenue between Kingshighway and Vandeventer in the Southwest Gardens Neighborhood. The site was cleared in March 2005. Since then, a park-and-ride bus station was erected. A proposed Metro Link Station will be built on the site by the year 2025. The property is currently owned by the Missouri Botanical Gardens.

Refer to figure 1.3.1

The park-and-ride station is serviced by three bus routes:

- The Shaw- South Hampton #80
- The Union Garden Shuttle #13
- The Lindenwood #92
1.3.3 Economic Impact of Metro Link on the St. Louis Area

The information in this section is an adapted version of the text obtained from the East-West Gateway Council of Government’s Gateway Blueprint Model Workshop 2005: Effect of Light Rail Stations on Land Use.

The University of Illinois at Urbana-Champaign created the Land Use Evolution and Impact Assessment Model also known as LEAM. The process is illustrated in figure 1.3.3. Federal money was allocated for a major study to understand the impacts of three major scenarios on the St. Louis metropolitan area. Within this study the effect of light rail stations on land use was investigated. The model gives an insight into the impact the earliest Metro Link line has had on St. Louis already, and predicts how it will continue to impact the region as a whole. The study demonstrates that light rail does impact development and is a catalyst for economic development over time.

The LEAM process begins with planners and stakeholders identifying the local factors that drive land-use change in a region. Using that information, a region-specific model is then developed, while the planners and stakeholders identify the future policy scenarios they would want to explore. In the case of the light rail, LEAM worked side-by-side with East-West Gateway, the regional planning group that oversees transportation and environment issues in the St. Louis Metropolitan Area.

Figure 1.3.3 The LEAM Process brings local stakeholder together to describe issues and specific concerns that may have an impact on, or be affected by, land use changes over time.

Courtesy of Gateway Blueprint Model Workshop 2005: Effect of Light Rail Stations on Land Use
Figure 1.3.4 shows the LEAM results of analyzing property values and development numbers along side with the light rail line. This map illustrates how the location of new transit stations affected the levels of new or adaptive reuse development. From this map, we can see that the light rail system has the effect of concentrating development (with more development occurring closer to the urban core). The darker shades of grey represent more attractive locations and lighter shades represent less attractive locations. According to LEAM, the results appear to show the impact of light rail as a positive one. Locations in Missouri that lie between downtown St. Louis and Lambert Field are very attractive, based on their proximity to stations that have high ridership.

The land uses adjacent to Metro Link stations follow a pattern typically depicted in figure 1.3.5. Locations that are very attractive in terms of access to rail stations have a higher likelihood of being commercial uses. As distance from the rail station increases, the likelihood of finding residential and commercial uses become about the same. Commercial uses become more dominate beyond this distance, but at the greatest distance from the rail station, residential land uses are more dominant.
1.3.3 Southside Study Area (Union Pacific Railroad Right-of-Way)

The LEAM project was a preliminary study to determine whether Metro Link expansion along the Union Pacific Railroad right-of-way would have a major impact and how it would be aligned. The study found that this proposed extension would have a major impact on St. Louis transportation. The project area was chosen in part to be the proposed Metro Link expansion along this right-of-way.

The text of this section is derived and adapted from Metro St. Louis’s Major Transportation Analysis (2005). Refer to figure 1.3.6

Use of Union Pacific Railroad right-of-way for light rail would extend Metro Link service from downtown into south St. Louis County. This would provide a high level of connectivity with the existing and newly completed Metro Link system, as well as a connection to a light rail expansion proposed for the north areas of St. Louis. The project area is on the proposed south side expansion line.

Some issues that are addressed in sections 4.0 and 5.0 of this document are:
- Existing land uses and former railroad corridors, primarily at surface level.
- It has modest land cost and minimal potential for displacement of residences and businesses.
- Provides access to key activity centers in south St. Louis.
- Offers great potential for transit-oriented development and neighborhood revitalization.

Alignment / Alternate Alignments (refer to figure 1.3.6)

From existing Metro Link at either the Grand Metro Link Station or along Tucker Boulevard south along on the following alignments:
- Chouteau Option: south and west along Tucker Boulevard (12th Street) or 14th Street and Chouteau Avenue to the Union Pacific Railroad right-of-way.
- Lafayette Option: south and west along Tucker Boulevard (12th Street) or 14th Street and Lafayette Avenue to the Union Pacific Railroad right-of-way
- Union Pacific Option: South along the Union Pacific Railroad right-of-way

The three options converge on the Union Pacific Railroad right-of-way near its intersection with Lafayette Avenue. The alignment then follows the rail right-of-way south to approximately the intersection of Bayless Avenue and I-55. The alignment then follows one of the following alignments:
- Union Pacific South Option: South along the Union Pacific Railroad right-of-way to the Cross County Metro Link extension.
- I-55 Option: South along I-55 right-of-way to the Cross-Country-Metro Link extension.
Figure 1.3.6 Southside Alignment Study
Courtesy of Gateway Major Transportation Investment Analysis 2005

Legend:
- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Cross County Metro Link Extension-2008

- Airport to College Station (main line)
- Cross County Metro Link
- City Limit
- Interstate Highway
- Project Site

Land Use Legend
- Residential
- Commercial
- Industrial/Utility
- Institution
- Park/Recreation
- Vacant/Agriculture
- Study Area Boundary

- Connection to Northside Alignment
- Union Pacific North Option
- Chouteau Option
- Lafayette Option
- I-55 Option
- Union Pacific South Option
- Cross County Station

• Garden Station, An Overview • Contemporary Transit-Oriented Development • Analysis • Urban Design Strategies • Design of Transit-Oriented Development • Implementation •
1.4 Current Developments and Future Plans for the Project Area

1.4.1 Public
1.4.2 Private/Public Partnerships
1.4.3 Private Developments
1.4.1 Public
St. Louis City Strategic Land Use Plan:
The last time St. Louis City adopted a city-wide land use plan was in 1947. In 2004 St. Louis City’s Planning and Urban Design Agency proposed a new land use plan. The plan was prepared by professional land use planners based upon continuing consultation with the city’s 28 aldermen. The new strategic plan intended to fulfill three major functions listed below:

- This new Strategic Land Use Plan is intended to improve the quality of life for those who live and work in St. Louis by encouraging appropriate types of development and preservation in clearly defined locations.
- To provide direction for those who wish to make new investments in our City, and;
- To provide stability and opportunities for those who already live, work and build their businesses here.

Adopted by the City’s Planning Commission on January 5th, 2005, this straightforward Land Use Plan will become the basis for additional planning and development initiatives involving collaboration between elected officials, City departments, neighborhood residents and developers. These future initiatives are expected to include public improvement plans, detailed neighborhood level plans, and tailored rezonings.

The Planning Commission and the Planning and Urban Design Agency look forward to working with everyone to use this Plan in a way that advances the quality of life in the city of St. Louis and builds upon the spirit of adventure and accomplishment that has characterized the city throughout its history.

1.4.2 Private/ Public Partnerships
Garden District Commission:
Botanical Heights Neighborhood (Urban Renewal Project)
In 1997 the Missouri Botanical Gardens initiated community based planning in an effort to reshape the former McRee Town Neighborhood into the new Botanical Heights Neighborhood. Some of the major reasons that McRee Town was declared blighted and redeveloped were as follows. Between 1970 and 2000, the population in that neighborhood had decreased by 44%. And by 2000, the number of residential units had decreased by 25% and the vacancy rate had increased to over 34%. Crime was also a heavy issue. The neighborhood had a violent crime index of 10 out of 10. In its worst span between 1993 and 1994 there were 20 shootings that left 8 people dead. In short, McRee Town was largely a run-down transient neighborhood. It no longer had the critical mass of viable housing that would make it feasible for owner- occupants to maintain their property value; the neighborhood required a total overhaul. It also had an adverse negative impact on surrounding neighbors. The purpose of that process was to formulate a plan to strengthen and stabilize McRee Town into the Botanical Heights Neighborhood and the surrounding three neighborhoods of Shaw, Tiffany Heights, and Southwest Gardens, in both the short-term and the long-term. The Garden District Commission was developed as the agency to
implement the recommendations of the plan.

Missouri Botanical Gardens (future expansion):
In August of 2005 the Planning Director of St. Louis City was contacted by the Missouri Botanical Gardens Development Division to formulate a plan for the potential retail development of their properties located along Shaw Avenue in the project site. As of September of 2005, the preliminary plans were complete for the submittal and review process of the city and owners. The plan allows for the growth of a future Metro Link Station; at the time of this project the site plan is not available for public dissemination.

Chouteau Pond Greenway Plan:
In 2004 HOK revealed a greenway plan that would connect the metropolitan area’s parks. The project site was listed as a possible incubator for bio-technology firms. The Missouri Botanical Gardens and Tower Grove Park were also listed as destinations that could be linked into the larger Metropolitan Plan.

1.4.3 Private Developments
From 2002 until 2006, there has been a renewed interest in the project area’s location. Home values have increased in the city an average of 42%. The project area has done better. In the neighborhoods surrounding the project area a large number of buildings have been restored:

- 75% of McRee Town is to be replaced with new construction.
- 40% of the historic Shaw has been rehabilitated.
- 33% of the Southwest Gardens neighborhood has been rehabilitated.
This section will accomplish step 2 in the methodology: Identify the Urban Land Institute’s Model of a Contemporary Transit Oriented Development. Also included are four case studies of transit-oriented developments to examine how modern examples were executed.
2.1 Contemporary Transit-Oriented Developments

In the following section, data has been obtained from The Next American Metropolis, by Peter Calthorpe, 1995.

2.1.1 An Overview: Planning Principles
2.1.2 Recommendations for the Core Commercial Uses Inside a Transit-Oriented Development
2.1.3 Recommendations for the Residential Areas Inside a Transit-Oriented Development
2.1.4 Recommendations for Public Spaces Inside a Transit-Oriented Development
2.1.5 Recommendations for the Secondary Areas Outside a Transit-Oriented Development
2.1.6 Street and Circulation System
2.1.7 Transit System
2.1.8 Pedestrian and Bicycle System
2.1.9 Parking Requirements

The literature on transit-oriented development was developed in the 1990s by the “new urbanism” movement in planning. This section presents a model of typical transit-oriented design as suggested by the Urban Land Institute. The principles behind the transit-oriented development are discussed.
2.1.1 An Overview: Planning Principles
Refer to figure 2.1.1
A contemporary transit-oriented development is typically created near a new commuter train line in a larger urban center. In the language of transportation and land use planning, transportation-oriented developments (TODs) refer to any development project located within a 1/4 mile to 1/3 mile radius of a transit station whose development program and design relates to the transit station. Planners who use the expansion of transportation systems that incorporate a focus on viable neighborhoods, mixed used developments, and pedestrian orientation are transit-oriented planners. The characteristics of transit stations and transit-oriented development planning principles are outlined below. (The New Green Line Chicago, Illinois, Urban Land Institute Panel Report, 1995)

Transit Station Characteristics:
A summary of the transit station characteristics derived from ‘new urbanism’ and as mentioned in the report, ‘The New Green Line, Chicago, 1996’, by the Urban Land Institute Panel are as follows:

- The station should be designed to be an important and architecturally highlighted feature of the community.
- Safety and security should be the main criteria of the transit station.
- The station should be outwardly oriented and be an important part of the street life.
- Ample space and landscaping.

Transit-Oriented Development Planning Principles:
A summary of the transit-oriented development planning principles as derived from ‘new urbanism’ and as mentioned in the report, The New Green Line, Chicago, 1996, by an Urban Land Institute Advisory Panel are as follows:

Viable Neighborhoods:
- **Compact and Walkable:** Size is usually limited to five minutes and in some cases, to a ten minute walk.
- **Mix of Uses Projects:** All essential needs, including homes, schools, recreation facilities, shops (retail and commercial), employment centers, service, and institutional uses.
- **Mix of Housing Types:** Small- lot single family houses, town houses, multi-family buildings accompanied with retail, commercial, service, and institutional uses. The housing density should be 15 to 40 units per acre.

Grid Street System:
- **Muti-modal Streets:** should be designed for buses, cars, bikes, and pedestrians.
- **Pedestrian-Oriented Neighborhood Viable Core Commercial**

Viable Core Commercial
- **Vertical Mixed- Use Projects:** First floor retail with residential or commercial units above the retail space.
- **Planning:** The ‘Neighborhood Core’ is the main public space surrounded by public uses.
Figure 2.1.1: A Transit-Oriented Plan diagram. Note that the walking distance from the periphery to the center has been increased from 1/4 mile to 2000 feet. (source: Common Place: Toward Neighborhood and Regional Design, Douglas Kelbaugh, page 128)
2.1.2 Recommendations for the Core Commercial uses Inside a Transit-Oriented Plan

This section describes a land use diagramed in figure 2.1.2.

The commercial uses include the retail, offices, transit stop, schools, day-care, and community center. High density commercial uses ‘Ring’ the core area. Recommendations are as follows:

Core Commercial Size:
- The area is a mix of first floor retail, office, and commercial space.
- Core commercial sites must occupy a minimum of 10% of the total transit-oriented development area.
- The plan must allow for a minimum of 10,000 square feet for retail space.

Core Commercial Intensities:
- Structured parking is strongly encouraged to promote density.
- A .35 floor-to-area ratio minimum should be provided for office uses; a .30 minimum for retail uses.

Building Setback:
Setbacks should be minimized by allowing only 15 feet to 20 feet maximum.

Building Facades:
- Building facades should be varied and articulated to provide scale, interest, and diversity within the development.
- Pedestrian ways should provide window shopping through the use of street level retail and large windows as frontage.
- Reflective glass and glass curtain walls are discouraged.

Core Commercial Building Entries:
- Entries are oriented toward the streets, plazas, and parks.
- When sides exist with no entries, buildings should have display areas.
- Single entry malls are discouraged.
Core Commercial Parking:
- Structured and on-street parking are encouraged.
- Parking is at the rear of the buildings.

Core Commercial Upper Story Uses:
Upper stories are devoted to residential and office uses.

2.1.3 Recommendations for the Residential Areas Inside a Transit-Oriented Development:
This section describes a land use diagramed in figure 2.1.3.

The location should be in an area where there is a strong market for medium-to high-density housing. Examples of housing types in this area include apartment buildings, condominiums, town homes, and row housing. The concept that housing is located within a short walking distance from the core commercial and the transit stop should be expressed in the transit-oriented plan by the following:

Density:
- Neighborhood TODs: The population standard is approximately 7 to 10 persons per acre.
- Urban TODs: The population standard is approximately 10 to 15 persons per acre.

Facades:
- No blank walls or series of garage doors are permitted.
- The buildings should be varied and articulated.

Building Setbacks:
- The setback is a minimum of 10 feet to 15 feet from the property line.
- Garages should be recessed five inches minimum from the front façade.

Building Entry:
The entrance should be oriented to the street or it must be visible from the street.
2.1.4 Recommendations for Public Spaces Inside a Transit-Oriented Development

This section describes a land use diagramed in figure 2.1.4

Public spaces include parks, plazas, public buildings and public services. These areas should complement the transit stop to maximize benefits of the space. Several issues should be considered, as follows:

Where to Locate Public Space:
- The public spaces are centrally located and are the focus of the neighborhood.
- Public space should be suitable for informal gatherings and public events.

Transit Plaza:
The plaza is usually located between the core commercial and the surrounding residential or office areas.

Public Space Sizes:
- Village parks are one to four acres in size and are located within town blocks of the residential area.
- Neighborhood parks are five to ten acres, with large playing fields located at the edge of a transit-oriented development or adjacent to schools.
- Village greens are usually 1 to 3 acres in size.
2.1.5 Recommendations for the Secondary Areas Outside a Transit-Oriented Development

This section describes a land use diagramed in figure 2.1.5.

The secondary areas are no farther than one mile from the core. There are lower residential and commercial densities as compared to the ‘Neighborhood Core’ (section 2.1.2) and the residential ‘Ring’ (section 2.1.3). The uses contained here are: low-density residential, public schools, and community parks. The employment-generating businesses located in the secondary area included: park-and-ride lots, day care, small convenience stores, and public recreational facilities.

2.1.6 Street and Circulation System

Refer to figure 2.1.1

The street and circulation system is composed of multiple and parallel routes provided over key areas. Streets are to be interconnected, bike friendly, and pedestrian friendly. Some key issues to consider for design are as follows:

Minimize travel lanes, width and speeds:
Eight feet to ten feet wide travel lanes with 15 miles per hour speed limit should be provided to insure safety at the transit stop and in the residential areas.

Commercial Streets:
These streets will provide a pleasant shopping environment with good pedestrian access, slow traffic speeds, and on-street parking.

Connector Streets:
They link the secondary areas to the core commercial areas and create a network of alternative routes from the neighborhood to the center.

Local Streets:
The travel lanes should be narrow with parallel parking allowed to slow down traffic.

Alleys:
Alleys provide access to parks, connector streets, residential and commercial areas.
On-Street Parking:
Parking lanes are seven feet to eight feet wide and are provided on all streets. Parallel parking is the preferred system used on the street.

Sidewalks:
A minimum of five feet width is required for all sidewalks.

Streets and Bikeways:
Direct connections are provided to the core commercial area.

Street Trees:
- Shade trees are required on all streets with 30 feet on center.
- Trees are used to frame and unify streets.

2.1.7 Transit System
The transit system is the most important piece in the development. The following are recommendations:

Transit Stop Location:
- The transit stop is located centrally and adjacent to the core commercial area.
- The transit stop is a nodal development and not a strip development.
- Feeder bus stops should be located in the secondary areas.
- The feeder stops are located along the connector streets and adjacent to parks and public facilities to tie into the larger overall system.

Transit Stop Facilities:
- A lively and inviting environment should be created.
- Comfortable waiting areas are provided at the station.
- Drop-off zones and parking lots should not interfere with pedestrian access.

Transit Line:
The transit line serves the residential neighborhoods and the employment centers.

2.1.8 Pedestrian and Bicycle System:
Important destinations are linked by bikeways. Pedestrian crosswalks are provided, and under-crossings or bridges are avoided. Pedestrian routes are located on all streets.

2.1.9 Parking Requirements
Requirements of Parking Lots:
- The maximum parking lot size should not exceed 3 acres.
- Large lots should be visually and functionally segmented.
- A maximum frontage of 75 feet is required on a pedestrian oriented street.
- Structured and below-grade parking is encouraged.
- Parking space is located behind buildings.
- Businesses should be encouraged to share parking areas.
- Parking lot landscaping should be mandated; after ten years of landscape growth, 70% of the lot should be shaded.
2.2 St. Louis Case Studies

2.2.1 Existing Conditions: Delmar Loop, University City
   2.2.1.1 Area Major Potentials and Constraints:
   Delmar Loop
   2.2.1.2 Lessons Gained from Area: Delmar Loop

2.2.2 Existing Conditions: Forest Park Station
   2.2.2.1 Area Major Potentials and Constraints:
   Forest Park Station
   2.2.2.2 Lessons Gained from Area: Forest Park Station

Four existing transit-oriented developments were selected to study what might be appropriate action for designing a real life transit-oriented development. In section 2.2 the two studies located in St. Louis are examined in an attempt to understand the local conditions.

The two stations recently built on the Green Line in Chicago were also selected. These two case studies are discussed in section 2.3.

The criteria for analyzing these case studies include the following questions:

- What are the key lessons to be learned?
- What can be made applicable to the project area?
2.2.1 Existing Conditions: Delmar Loop, University City

Reasons for selecting the Delmar Loop as a case study example are:

- It is a successful example of a revitalized commercial district.
- Delmar Loop is an attractive place with a lively commercial and active pedestrian area.
- The development may reveal aspects or characteristics that can be carried over to the physical and economic condition of the project area.
- The development may illustrate how to maintain continuity of urban space, scale, and overall character.
- The Delmar Loop is an example of how a local and tourist attraction relates to a Metro Link Station.

Refer to figure 2.2.1

Delmar Loop, also known as ‘The student village’, is a 10-block business area between 5600-6600 blocks (refer to figure 2.2.1). The east end of the Delmar Loop has expanded into the city of St. Louis. The city limits are marked by a statue. The west end of the Loop is marked by the Civic Plaza and the Lion’s Gate. (University City Brochure, 2005).

The Loop experienced a severe loss of population and disinvestment during the 1960s. The Loop is an urban renewal project of the 1960s. Sidewalks were renovated and landscaped, street trees planted, and walled parking lots created as a part of the project proposal. The Loop is designated as an historic district on the National Register of Historic Places. Most of the buildings were constructed between the years 1914 to 1930. The buildings have retained their original appearance and ornamentation. Tivoli Theater is a shining example of a $2 million restoration.

The ‘University City Sculpture Series’ is a collaboration between the University City and Washington University School of Art, wherein the Municipal Commission on Arts and Letters awards funds to students from the sculpture department to design and build temporary installations of public art. (University City Brochure, 2005)

The following site observations were made:

Pedestrian Environment:

The following elements make the pedestrian experience enjoyable and interesting:

- Well-lit neon and florescent signs enliven the place by night; business signs are attractive.
- The Loop has great street lighting.
- The street landscaping and furniture delineate interesting outdoor restaurant spaces.
- The pedestrian walkways are shaded.
- Auto speeds are restricted to 25 miles per hour for pedestrian safety; safe pedestrian crossing is provided at stop lights.
- Tivoli Theater generates night-time activity for restaurants.
Figure 2.2.1 Existing Land Use Conditions: Delmar Loop

Legend:
- **P** Proposed Metro Link Stations
- **M** Existing Metro Link Stations
- **C** Proposed Metro Link Line
- **S** Existing Metro Link Line
- **A** Project Site
- **N** Airport to Calle (main line)

Land Use Legend:
- **Pink** Neighborhood Commercial Area
- **Yellow** Neighborhood Development Area
- **Green** Neighborhood Preservation Area
- **Yellow-Orange** Opportunity Area
- **Pink** Regional Commerce Area
- **Blue** Recreational and Open Space Preservation and Development Area
- **Blue-Gray** Specialty Mixed Use Area

- Garden Station, An Overview
- Contemporary Transit-Oriented Development
- Analysis
- Urban Design Strategies
- Design of Transit-Oriented Development
- Implementation
**Mixed Land Uses:**
The Delmar Loop consists of a wide range of mixed land use activities. It has more than 75 specialty shops, award winning restaurants, art galleries, health food store, bike shops, record stores, book stores, boutiques, and an open air market that attracts people of all ages.

**Scale:**
The street is approximately 80 feet wide, with two lanes and on-street parking on both sides of the street. Shop fronts are on both sides of the street and abut the sidewalks. The street is flanked by 1, 2, or 3 story buildings on either side (Refer to figure 2.2.2).

**Investor Incentives:**
Local, state, and federal programs offer tax increment financing, low- interest loans, and tax credits that can be used for acquisition, renovation, and building upgrading.

The Loop is a special business tax district. The property owners and business operators pay additional tax. The tax money is used for landscaping, street cleaning, maintaining sidewalks, advertising, marketing, light and security programs, organizing promotional events, and installing uniform awnings on storefront businesses. *(University City Brochure, 2005)*

**Parking:**
Reasonably sized parking lots are intermittently located in-between the buildings. This gives visual relief and helps break up the monotony of the space. The parking lots are located within comfortable walking distances from most points in the Loop.

**2.2.1.1 Area Major Potentials and Constraints: Delmar Loop**

*Area’s Major Potential:*
- There are over 75 specialty shops (refer to figures 2.2.1, and 2.2.3).
- This is a desirable residential location with easy access to the Metro Link and Metro Bus lines.
- There is easy access to employment centers.
- The community has strong leadership.
- There is a strong potential that a street car line will be built on Delmar Avenue.
- To the north of the Delmar Station, there are vacant sites that can be used for infill development.
Area’s Major Constraints:

- The population to the northeast of the Delmar Station has experienced serious disinvestment.
- There is deteriorated building stock in the area to the northeast of the Delmar Station (refer to figure 2.2.4).
- A concentration of low-income housing exists adjacent to the transit station.
- Locals and tourist alike share a perception of crime and safety problems.
- The Street-scapes are damaged to the east of the Delmar Station.

2.2.1.2 Lessons Gained from Area: Delmar Loop

- The Loop attracted residents and investors by using street tree planting, sidewalk renovation, and landscaping.
- Community policing was introduced. The crime rate was lowered. As a result, there is safety and security in the area.
- **Mixed Land Use:** The Loop’s diverse range of specialty shops, eclectic restaurants, and galleries attracts people of all ages. Similar mixed use activities must be encouraged within the project area, and the uses that are most needed or useful for the Garden District and connection to the Hill Neighborhood should be made a priority.
- **Scale:** The sidewalk widths in the Loop were widened and more street trees added. The existing and new buildings were built with zero lot lines and a strong pedestrian scale. Metered parking is available on both sides of the street.
• **Pedestrian Environment:** The traffic speed limit along Delmar was restricted to 25 miles per hour. This provided the ability to have safe pedestrian crossings at junctions, good street lighting, interesting sidewalks with landscaping and street furniture, and shop fronts with extended uniform awnings.

• **Parking:** Well distributed surface parking lots were provided to the rear, and there is plentiful on-street parking. A parking garage was erected with at-grade retail.

2.2.2 Existing Conditions: Forest Park Station

Reasons for selecting Forest Park as a case study example are:

- Similarity to project area in demographics, location to a major park, and major attractions.
- The relationship of the Forest Park Station to the surrounding area offers useful lessons for application of the proposed Garden District Station (see sections 3.0 and 4.0).

Refer to figures 2.2.5 and 2.2.10

At the station entrance is an information booth, a kiss-and-ride (car drop-off and pick-up point), and a bus stop. Across the street, there is a park-and-ride lot that provides adequate parking space for transit riders. A pedestrian crossing at the stop light is provided to access the parking lot and a commercial strip. A corner grocery store is located at the stop light. This arrangement enables the riders to buy groceries, get to the parking lot, and head home. The Forest Park History Museum acts as a focal point at the end of the road as one travels south from the station.

*Mixed Use Land:*

The Forest Park Station area consists of a mix of retail along DeBaliviere Avenue. The range of uses varies from a corner grocery to clothing shops. The transit stop is also adjacent to Forest Park, one of St. Louis’s major attractions.

*Scale:*

The scale is not uniform throughout. The streets are approximately 100 feet wide, with four lanes and a turning lane. Parallel parking is not allowed. Some buildings are sited on the front property line, while others are set back with parking in the front. The buildings
range in height from single story to four stories.

Pedestrian Environment:
There is something to be desired for a pedestrian environment. While street trees and sidewalks exist, so do front surface parking lots and multiple curb cuts. There is no parallel parking and no uniform storefronts.

Parking:
Reasonable-sized parking lots are intermittently located in-between and in front of the buildings. The park-and-ride lot for the Metro Link provides parking for 200 cars and is located across to the west of DeBaliviere Avenue.

2.2.2.1 Area Major Potentials and Constraints: Forest Park Station

Area’s Major Potential:
- The new cross county Metro Link line will also stop at this location (refer to figure 2.2.7).
- This is a desirable residential location with easy access to the Metro Link and Metro Bus lines.
- There is easy access to employment centers.
- There is a strong potential that a trolley street car line will connect this area to the Delmar Loop.
- This area of the city has the second highest median household income level at $64,000 per year. This is an indicator of a strong retail potential.
- This area is very dense with an approximate population of 15,000 within a one mile radius.
Area’s Major Constraints:

- The population to the north of the Forest Park Station has experienced serious disinvestment in the neighborhood.
- Crime is imported from the surrounding neighborhoods (refer to figure 2.2.8 and 2.2.9).
- A concentration of low income housing exists adjacent to the transit station.
- Locals and tourists alike share a perception of crime and safety problems (refer to figure 2.2.8 and 2.2.9).
- The Street-scapes are not uniform (refer to figure 2.2.3, 2.2.4, 2.2.6).

2.2.2.2 Lessons Gained from Area: Forest Park Station

- The park-and-ride lot and bus stops should have strong visible signage.
- An information booth and kiss-and-ride is provided to make the commuter experience easier.
- A corner grocery store and convenience retail store come in handy for a rider.
- The Forest Park Station is one of the few multi-modal stations in the city.
Figure 2.2.10 Existing Land Use Conditions: Forest Park Station
2.3 Chicago Case Studies

2.3.1 California Lake Station, Chicago
   2.3.1.1 Existing Conditions
   2.3.1.2 Area Major Potentials and Constraints
   2.3.1.3 Transit Service Recommendations
   2.3.1.4 Implementing Transit Oriented Development
   2.3.1.5 Station Area and Station Design Recommendations

2.3.2 Garfield Boulevard Station, Chicago
   2.3.2.1 Existing Conditions
   2.3.2.2 Area Major Potentials and Constraints
   2.3.2.3 Implementing Transit Oriented Development
   2.3.2.4 Station Area and Station Design Recommendations

2.3.3 Lessons Gained from Area: Chicago Case Studies

California/Lake and Garfield Boulevard Station are two station areas in Chicago. They have been examined in depth by the Urban Land Institute panel. Transit-oriented development principles have been applied to each of the two proposals.

Reasons for selecting the two examples:

- Site conditions for the two case studies are similar to the Missouri Botanical Garden Station area.
- Both case studies deal with inner city areas around a transit stop.
- The case studies will reveal transit-oriented development principles that have been applied to the site areas.
2.3.1 California Lake Station, Chicago

2.3.1.1 Existing Conditions
The information in this section contains factual data and the information is a revised version of the case from The New Green Line, Chicago, Illinois- A 1995 ULI Report.

Refer to figure 2.3.1
Population (1995): 35,000 with 40% under 18 years of age
Median household income: Below $15,000 (City median household income is approximately $26,000).

The California/Lake Station is located south of Kinzie Industrial corridor in the East Garfield Park Neighborhood. Kinzie is the largest of Chicago’s west side industrial corridors, in terms of employees. The station area is marked by vacant lots and abandoned buildings. It is characterized by severe physical blight. Its working population is 23,600, with more than half employed in the Kinzie corridor.

2.3.1.2 Area Major Potentials and Constraints
Area’s Major Potential:
- Kinzie Industrial Corridor: 675 acres and 13,612 employees
- A desirable residential location with easy access to two rail transit lines (Green Line and Blue Line)
- Easy access to job centers
- Strong community leadership
- Large number of vacant sites for infilling

Area’s Major Constraints:
- Declining population
- Deteriorated building stock
- Concentration of low-income household group
- Crime and perception of crime and safety problems
- Damaged Street-scapes

2.3.1.3 Transit Service Recommendations
- Provide complementary bus service for Blue Line
- Conduct market evaluation to identify travel patterns and concentration of travel.

2.3.1.4 Implementing Transit-Oriented Development
Step One: The top priority is to attract people by developing and rehabilitating residential units. First, establish a rental market, and then establish a for-sale housing market.
- Develop a typical transit-oriented development density of 15 to 40 units per acre and establish mixed-income rental units.
- Promote single family housing with attached rental units over garages, and multi-unit projects on larger parcels of land.

Step Two: Once the residential base is well established, neighborhood retail/no space commercial businesses (convenience store, pharmacy, coffee shop etc.) should be introduced. Land should be made available to public and private organizations for low prices. Tax delinquent property should also be made available.
Figure 2.3.1 Existing Land Use Conditions: California Lake Station
2.3.1.5 Station Area and Station Design Recommendations

Refer to figure 2.3.2

- Collect sufficient funds and make California/Lake Station a focal point of the area.
- Add a clock tower to reinforce the station’s landmark quality
- A small transit plaza should be lined with convenience and retail services. They should architecturally relate to the station structure.
- Station and plaza lighting should serve decorative and security purposes.

2.3.2 Garfield Boulevard Station

2.3.2.1 Existing Conditions

Refer to figure 2.3.5

The information in this section contains factual data and the information is a revised version of the case from, The New Green Line, Chicago, Illinois- A 1995 ULI Report. Refer to figure 3.3.4

Population (1995) : 15000
Median household income : $8,403 (City median income is approximately $26,000)

The Garfield Boulevard Station is located adjacent to the Washington Park. The area around the Station was a well established residential neighborhood 40 years ago with a population of 30,000. Since then, the neighborhood has had severe loss in population and disinvestment in housing stock, and businesses. At present, two thirds of the area is vacant and has abandoned buildings that were once commercial establishments. The Washington Park police district tops the ranking list for major crimes in Chicago.

2.3.2.2 Area Major Potentials and Constraints

Area’s major potentials:
- The station is located near Washington Park, which is Chicago’s largest park.
- Garfield Boulevard is a popular scenic corridor that attracts lively commercial and pedestrian activity.
- Houses and multi-family buildings facing the park along Martin Luther King Drive are already being preserved and rehabbed.
- The station is in close proximity to University of Chicago.
- Opportunities for rehabilitation exist.

Area’s Major Constraints:
- There is a high unemployment rate.
- The crime rate is high.
- Low-income groups are concentrated in this area.
- Abandoned buildings and vacant land are a major issue.
- Lack of job-generating retail and commercial activities perpetuates disinvestment in the neighborhood.

2.3.2.3 Implementing Transit-Oriented Development

Step One: The top priority is to attract people by developing and rehabilitating residential units. First, establish a rental market, and then establish a for-sale housing market.

Develop a typical transit-oriented development density of 15 to 40 units per acre and establish mixed-income rental units. Promote single family housing with attached rental units over garages, and multi-unit projects on larger parcels of land.

Step Two: Once the residential base is well established, neighborhood retail/ commercial businesses (convenience store, pharmacy, coffee shop, etc...) should be introduced. Land should be made available to public and private organizations for low prices. Tax delinquent property should also be made available.
2.3.2.4 Station Area and Station Design Recommendations:

Refer to figures 2.3.3 and 2.3.4.

- Develop a strong residential base that is followed by neighborhood retail and commercial land use.
- To build the residential base, a mixed-income rental market that includes renovated and rehabilitated buildings needs to be established first. This should be followed by the for-sale housing units, multi-unit projects, and single family housing with attached rental units over the garages.
- In order to stimulate businesses, vacant land and tax delinquent properties should be made available to public and private organizations for low prices.
- Make the train station the focal point of the development.

2.3.3 Lessons Gained from Area: Chicago Case Studies

- Both case studies illustrate that in order to make a successful transit-oriented development, top priority should be to develop a strong residential base that is followed by retail and commercial.
- To build the residential base, a mixed-income rental market that includes renovated and rehabilitated buildings needs to be established first. This should be followed by the for-sale housing units, multi-unit projects, and single family housing with attached rental units over the garages.
- In order to stimulate businesses, vacant land and tax delinquent properties should be made available to public and private organizations for low prices.
- Convenience and retail service facilities architecturally relate to the station and existing neighborhood.
- Station lighting should be provided for decorative and security purposes.
- Community policing should be introduced in the station area for safety and security.
Figure 2.3.5 Existing Land Use Conditions: California Lake Station
3.1 The Environs
3.2 Zoning
3.3 Demographics
3.3 The Project Area: Potentials and Constraints

This section will accomplish step 3 in the methodology, identify the area’s major potentials and constraints.
3.1 The Environs

3.1.1 Residential Land Uses
3.1.2 Commercial Land Uses
3.1.3 Institutional Land Uses
3.1.4 Industrial Land Uses
3.1.5 Project Area Access

This section deals with the physical characteristics of housing, commercial, industrial, and institutional uses in the project area. Refer to figure 3.1.1 to see a general land use map of St. Louis City and the Project Area.
Figure 3.1.1 General Land Use: St. Louis City
3.1.1 Residential Land Uses

City-Wide Housing Observations:
Refer to figure 3.1.4

- Most neighborhoods conform to the city grid.
- Residential areas are buffered from major arterial streets with the other land uses.
- The Southwest Gardens neighborhood is isolated by large industrial tracks to the west, Missouri Botanical Gardens to the east, Interstate 44 to the north, and Tower Grove Park to the south.

Typical Single Family Housing Observations (project area):
Refer to figure 3.1.2

- Houses are typically approximately 25 feet in width and sit on approximately 30’ x 120’ lots.
- Houses are two stories in height.
- Garages and dumpsters are accessed in the alley.
- On-street parking is allowed and usually needed.

Typical Multi-Family Housing Observations (project area):
Refer to figure 3.1.3

- Apartment buildings are typically approximately 40 feet in width and sit on approximately 50’ x 120’ lots.
- Buildings range from two to three stories in height.
- Setbacks are at minimum. Front yards are small.
- Garages and dumpsters are accessed in the alley.
- Many of the original garages have been removed.
- Many of the living units are elongated (“shot-gun”) in plan
- On-street parking is allowed and usually needed.
Figure 3.1.4 St. Louis Residential Land Uses
3.1.2 Commercial Land Uses

St. Louis City Commercial Land Uses:
Refer to figure 3.1.5
The city delineates commercial land uses on its land uses maps into two categories. Neighborhood commercial is typically situated by nearby residences and business. Typical examples are small grocers, coffee shops, and corner stores. The typical size of stores in this category is less than 10,000 square feet. Regional commercial is accessed by customers from the larger metropolitan area. Typical examples are big box retail stores and car lots. The average square footage of these stores is above 10,000 square feet.
Observations:
• Regional commercial uses are located at major intersections.
• Regional and neighborhood commercial uses complement, rather than compete against, each other.
• Most regional commercial uses are located in “power centers” or are large automobile dealerships.

Neighborhood Commercial Land Uses on Shaw Avenue:
Refer to figures 3.1.5 and 3.1.6
Observations:
Much of the “local commercial” actually services visitors to the Missouri Botanical Gardens:
• The area is served by three “boutique shops” and two restaurants.
• The Southwest Gardens Neighborhood is disconnected from the Hill Neighborhood.

Neighborhood Commercial Land Uses on Vandeventer Avenue:
Refer to figures 3.1.5 and 3.1.7
Observations:
• The local commercial complements the industrial; for example, there are three print shops.
• The strip retail center is fronted by a surface parking lot.
• The lack of landscaping creates discontinuity in the development.
• This is not a pedestrian or bike friendly street.
• There is no real connection to the Hill Neighborhood.

Project Area Regional Commercial Land Uses:
Refer to figures 3.1.5 and 3.1.8
• Don Brown Chevy is the only regional development inside of the project area.
Figure 3.1.5 St. Louis Commercial Land Uses
Figure 3.1.6 Neighborhood Commercial Land Uses Along Shaw Avenue

- Midwest Reality on the Left, Office Space on the right
- O’Connell’s Pub and Restaurant
- Antique Building Materials Dealer
- Castlemen Circle (Local Landmark)
- Gringo Jones on the left, The Bug Store on the right
- World’s Fair Donuts
- Little Shop on the Corner
- Missouri Botanical Garden’s Office Spaces
Figure 3.1.7 Neighborhood Commercial Land Uses Along Vandeventer Avenue

- Consolidated Truck and Caster
- Meadows Machine Parts
- Warehouse
- Strip Retail
Figure 3.1.8 Regional Commercial Land Uses

- Garden Station, An Overview
- Contemporary Transit-Oriented Development
- Analysis
- Urban Design Strategies
- Design of Transit-Oriented Development
- Implementation
3.1.3 Institutional Land Uses

*St. Louis City Institutional Land Uses:*

*Refer to figure 3.1.9*

The City of St. Louis defines institutional land use by the non-taxable status carried by the owner of the property. Some examples include churches, schools, universities, business incubators, etc.

Observations:

- Major institutions in St. Louis are located towards the center of the city along the I-64 corridor.
- Institutions often are surrounded by open space or located near open space.
- Many major institutions are located near mixed-use districts.

*Project Area’s Institutional Land Uses:*

*Refer to figures 3.1.9 and 3.1.10*

- The Missouri Botanical Gardens are expanding along Shaw Avenue west of the main campus.
- The off-campus buildings of the Missouri Botanical Gardens have a strong relationship to the street or neighborhood.
- The fences and gates give the impression of danger in the area.
- Meda P. Washington High School is a strong example of civic architecture.
Figure 3.1.9  St. Louis Institutional Land Uses

Legend:  
- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Project Site

Land Use Legend:
- Institutional Uses

- Garden Station, An Overview
- Contemporary Transit-Oriented Development
- Analysis
- Urban Design Strategies
- Design of Transit-Oriented Development
- Implementation
Figure 3.1.10 Institutional Land Uses

- Commerce Bank Educational Center - Missouri Botanical Gardens
- Monsanto Research Lab - Missouri Botanical Gardens
- Meda P. Washington Education Center
- Off-site Surface Parking Lot - Missouri Botanical Gardens
- On-site Surface Parking Lot - Missouri Botanical Gardens
- South Kingshighway Library Branch
- Main Entry to Missouri Botanical Gardens

GARDEN DISTRICT STATION

- Garden Station, An Overview • Contemporary Transit-Oriented Development • Analysis • Urban Design Strategies • Design of Transit-Oriented Development • Implementation
3.1.4 Industrial Land Uses

St. Louis City Industrial Land Uses:

Refer to figure 3.1.11

Observations:

- Industrial land uses are situated adjacent to transportation corridors.
- The heaviest industrial land uses are along the river and in between Interstate 44 and Interstate 64.
- St. Louis’s industries are in decline. The area in light grey in figure 1.3.11 depicts former industrial sites or declining industrial sites.

Project Area’s Industrial Land Uses:

Refer to figure 3.1.12

- The industrial activity is considered light manufacturing and distribution.
- In patches to both the north and south of the study, vacant land has become available but remains zoned for industrial use.
- The industrial activity in the project area is limited to two very large parcels of land on the west side of Vandeventer.
Figure 3.1.12 Industrial Land Uses
3.1.5 Project Area Access

Automobile Access (refer to figure 3.1.15):
- Interstate 44 access is located inside of the project area, a seven minute drive to the Central Business District
- Interstate 64 access is located within a mile of the project area.
- Vandeventer Avenue and Kingshighway Boulevard are major arterial streets carrying heavy traffic loads.
- Shaw Avenue is the major collector street into the Southwest Garden Neighborhood and the Shaw Neighborhood.
- A well defined street grid has been established.

Pedestrian Access (refer to figure 3.1.16):
- Interstate 44 is elevated and is only able to be crossed at a few intersections.
- Vandeventer Avenue and Kingshighway Boulevard are dangerous arterial streets to cross. There are crosswalks at intersections.
- There is a weak pedestrian connection between the Hill Neighborhood and the project area.
- Shaw Avenue and Alfred Avenue are moderately safe streets to cross, and the crossings at most intersections are pedestrian friendly.

View Access (refer to figures 3.1.13 and figure 3.1.14):
The view corridor along Shaw Ave includes the South Grand Water Tower (National Historical Registry of Historic Places).

Noise Impacts on the Project Site (refer to figure 3.1.17):
- Interstate 44 is a very heavily traveled with trucks and cars. Noise levels are very high.
- Vandeventer Avenue and Kingshighway Boulevard are very heavily traveled arterial streets. These streets act as thoroughfares for cars and trucks alike. These roads are moderately loud, and are very loud at major intersections.
- Light rail operates at tolerable noise levels, but still impacts neighbors. The new Station and rail line will be tolerable, but efforts should be made to shield noise.
Figure 3.1.15 Area Access Map
GARDEN DISTRICT STATION

Figure 3.1.16 Pedestrian Street Crossing Study for the Project Area

Legend:

- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Project Site

- Dangerous Intersection
- Very Loud Intersection
- Very Loud
- Moderately Loud
- Tolerable

Note: The interior neighborhood streets are assumed to be a safe crossing for pedestrians.

- Moderately safe for pedestrians to cross.
- Unsafe for pedestrians to cross.
- Unable for pedestrians to cross.

Figure 3.1.17 Noise Analysis Study of the Project Area

- Missouri Botanical Gardens
- Southwest Garden Neighborhood
- Historic Shaw Neighborhood
- Tower Grove Park
- New Botanical Heights Neighborhood

- Vandeventer Ave
- Alfred Ave
- I-44
- Shaw Ave
- Magnolia Ave

- Very Loud Intersection
- Very Loud
- Moderately Loud
- Tolerable

- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Project Site

Note: The interior neighborhood streets are assumed to be a safe crossing for pedestrians.

- Moderately safe for pedestrians to cross.
- Unsafe for pedestrians to cross.
- Unable for pedestrians to cross.
3.2 Zoning

3.2.1 Residential Districts
3.2.2 Commercial Districts
3.2.3 Industrial and Unrestricted Districts

Refer to figure 3.2.1

The major areas of concern for the project area are land uses, parking, and height regulations. The revised zoning ordinance outlined is defining the districts that lie within the project area and the districts that are adjacent to the project area. The four district types are residential, commercial, industrial, and unrestricted.

The text of this section is derived and adapted from the St. Louis City Revised Code Title 26 (Zoning Chapter)
Figure 3.2.1  Zoning Map: St. Louis City

Legend:
- A- Single Family Zone
- B-Two Family Zone
- C-Multiple Family Zone
- D-Multiple Family Zone
- E-Multiple Family Zone
- F- Neighborhood Commercial Zone
- G- Local Commercial and Office Zone
- H- Area Commercial Zone
- J- Industrial Zone
- K- Unrestricted Zone

Legend:
- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Project Site
- Airport to College Station (main line)
- Cross County Metro Link
- Interstate Highways

- New Botanical Heights Neighborhood
- Tower Grove Park
- Missouri Botanical Gardens
- Historic Shaw Neighborhood
- Southwest Garden Neighborhood
- Vandeventer Ave
- Alfred Ave
- Project Site
- Proposed Metro Link Line
- Existing Metro Link Line
- Legend:
- Airport to College Station (main line)
- Cross County Metro Link
- Interstate Highways

- A- Single Family Zone
- B-Two Family Zone
- C-Multiple Family Zone
- D-Multiple Family Zone
- E-Multiple Family Zone
- F- Neighborhood Commercial Zone
- G- Local Commercial and Office Zone
- H- Area Commercial Zone
- J- Industrial Zone
- K- Unrestricted Zone
3.2.1 Residential Districts in the Project Area

Refer to figure 3.3.2

The following uses are allowed in the “A” single family dwelling unit.

- Single-family dwellings. Any dwelling is so defined as a single-family residence because it is a house in which eight or fewer unrelated mentally or physically handicapped persons reside, and may also include two additional persons acting as house parents or guardians who need not be related to each other or to any of the mentally or physically handicapped person residing in the home. The home may not be within 1,250 feet of another such home or dwelling.

- Two-family dwellings which comply with the area and parking regulations of the “B” two-family dwelling district where 40% or more of the frontage of a street is occupied by either two-family, semi-detached two-family or multiple-family dwellings.

- Conversion town houses

- Home occupations

- Publicly owned parks, playgrounds and libraries and privately owned parks and playgrounds wherein no service is rendered, or activities conducted, as a business.

- Accessory structures and uses customarily incidental to any of the above uses except that, if the accessory structure is a garage, it shall only be a private garage that is located not less than 60 feet from the front line nor less than four feet from any side lot line nor exceeding 12 feet in height nor occupying more than 30 percent of a rear yard.

- Temporary buildings for use incident to construction work shall be removed upon the completion or abandonment of the construction.

- Signs

- Baby sitting center

The following are conditional uses are allowed in the “A” single-family dwelling unit

- Bed and breakfast guest house, subject to additional provisions

- Bed and breakfast homestay, subject to additional provisions

- Cemeteries

- Churches

- Farming and truck gardening

- Governmental buildings

- Greenhouses, providing no product is sold on the premises

The following uses are allowed in the “B” two-family dwelling unit:

- Any use permitted in the “A” single-family dwelling district

- Two-family dwellings

- Semi-detached two-family dwellings or multiple-family dwellings for not more than four families, which comply with the area and parking regulations of the “C” multiple-family dwelling district, where 40 percent or more of the frontage of a street is occupied by semi-detached two-family or multiple-family dwellings

The same conditional uses for “A” single-family dwelling unit are allowed.
The following uses are allowed in the “C” multiple-family dwelling unit:

- Any use permitted in the “B” two-family dwelling district
- Town houses that front wholly and directly upon a public street
- Multiple-family dwellings
- Parks or playgrounds

The following conditional uses are allowed in the “C” multiple-family dwelling unit:

- Any uses eligible to be a conditional use in the “B” two-family dwelling district
- Bed and breakfast inn, subject to the additional provisions
- Day care centers

The purpose of the “D” multiple-family dwelling district is to maintain older medium density residential districts, to preserve older architectural styles while encouraging a harmonious intermingling of other structures, and to provide for an increased variety and intermixture of uses free from other uses except those both compatible and convenient to the residents of such district. The acceptable uses are as follows:

- Any use permitted in the “C” multiple-family dwelling district
- A canopy, open at the sides, may be provided in the required yard space of any building, for the shelter of persons entering such building from the street or other designated point of disembarkation from vehicles
- Accessory structures and uses customarily incidental to any of the above uses
- Temporary buildings for use incidental to construction work, which buildings shall be removed upon the completion or abandonment of the construction.

The following neighborhood commercial retail uses, provided that the use is confined to the first floor or basement of the main building:

- Art galleries and studios
- Bakery shops
- Barber and beauty shops
- Book, magazine, and stationery stores
- Drug stores
- Dry cleaning pick-up stations (not having on-site processing)
- Financial institutions
- Florists
- Gift shops
- Hardware stores
- Greenhouses
- Hotels
- Nursing and convalescent homes, children’s homes, and homes for the aged
- Professional and general offices not exceeding 3,500 square feet
- Rooming and boarding houses, halfway houses, and penal institutions; including group homes and residential-custodial
care facilities, residential facilities for treatment of alcohol and other drug abuse (except for current users of illegal drugs or addicts of a controlled substance), and homes in which nine or more (or such other lesser or greater number as state law may in the future mandate) unrelated mentally or physically handicapped persons reside.

The purpose of the “E” multiple-family dwelling district is to establish and preserve medium density residential districts, including some high density commercial and residential uses, free from other uses except those of such district. The acceptable uses are as follows:

- Any use permitted in the “D” multiple-family dwelling district
- Hotels
- Accessory structures and uses customarily incidental to any of the above uses
- Temporary buildings for use incident to construction work, which buildings shall be removed upon the completion or abandonment of the construction

The following conditional uses may be allowed in the “E” multiple-family dwelling district, subject to provisions:

- Any use eligible to be a conditional use in the “D” multiple-family dwelling district
- Bakery shops
- Barber and beauty shops
- Book, magazine, and stationery stores
- Butcher shops
- Dry cleaning pick-up stations (no on-site processing)
- Dry goods shops
- Drug stores
- Financial institutions
- Florists
- Funeral parlors
- General offices
- Gift shops
- Grocery and other retail stores not exceeding three thousand five hundred (3,500) square feet
- Hardware stores
- Hobby and toy shops
- Pet shops
- Professional offices
- Similar neighborhood commercial uses

Parking Space Requirements for Residential Districts

Parking for single and multiple dwellings:
Dwelling shall provide space in the main building, in an accessory building, or on the lot occupied by the main building, sufficient to accommodate one motor car for each dwelling.

Parking for hospitals:
Any hospital shall provide parking space within 500 feet of the main building sufficient to accommodate one parking space for every two beds plus one space for every doctor on the maximum shift.
Parking for places of assembly:

- Any arena, auditorium, meeting room, or other structure used principally as a place of public assembly, shall provide parking space within 1,000 feet of the main building or structure sufficient to accommodate one parking space for every three seats based on the maximum seating capacity, except as noted herein.
- Any school, public or private, including vocation/technical schools shall provide parking space sufficient to accommodate one parking space for every classroom and office, plus one space for every five students over 16 years of age.
- Any church shall provide parking space sufficient to accommodate one parking space for every four seats (one seat equals two feet of bench or pew length).

Parking for parks and public recreation:

- Any athletic field or diamond used principally as a place of public recreation shall provide parking space sufficient to accommodate ten parking spaces for every diamond or athletic field, or one space for every four seats, whichever is greater (one seat is equal to two feet of bleacher length).
- Any gymnasium without bleachers or fixed seating shall provide parking space sufficient to accommodate one parking space for every 150 square feet of floor area.

Height Regulations for Residential Districts

“A” Single-Family and “B” Two-Family Dwelling Districts:

No building hereafter erected shall exceed two and one half stories or 35 feet in height unless two side yards of not less than ten feet in width are provided, in which case a building may not exceed three stories or 45 feet in height. Any church, school or governmental building may be erected to a height not exceeding 85 feet, provided that front and rear yards are increased in depth and the side yards are increased in width beyond that area regulation 1 foot for each foot of height that the building exceeds 35 feet.

“C” Multiple-Family Dwelling District:

Dwellings and accessory structures may not exceed a height of three stories and 45 feet, unless 40 percent or more of the dwellings or accessory structures having the same frontage are higher, in which case a height equal to or less than that greatest height may be used. Any church, school, governmental building or hospital may be erected to a height not exceeding 85 feet, providing the side yards are increased in width beyond the area regulations one foot for each three feet of height that the buildings exceeds 35 feet.

“D” Multiple-Family Dwelling District:

Dwellings, hotels and their accessory structures may not exceed a height of three stories and 45 unless 40 percent or more the structures having the same frontage are higher, in which case
a height equal to or less than the greatest height may be used. Any church, school, governmental building or hospital may be erected to a height not exceeding 85 feet, providing the side yards are increased in width beyond the area regulations one foot for each 5 feet of height that the building exceeds 35 feet.

“E” Multiple-Family Dwelling District:

Buildings may exceed eight stories or 100 feet in height provided they are set back from the side yard regulations one foot for each five feet of additional height above 8 stories or 100 feet. The required set-back may be provided at the base to permit a vertical structure without physical set-back in the upper stories, or the set-back may be provided at any one or
Figure 3.2.2 Residential Districts

Legend:

- P: Proposed Metro Link Stations
- M: Existing Metro Link Stations
- PM: Proposed Metro Link Line
- MM: Existing Metro Link Line
- Project Site
- A: Airport to College Station (main line)
- C: Cross County Metro Link
- I: Interstate Highways

Land Zoning Legend:

- A: Single Family Zone
- B: Two Family Zone
- C: Multiple Family Zone
- D: Multiple Family Zone
- E: Multiple Family Zone

- Garden Station, An Overview • Contemporary Transit-Oriented Development • Analysis • Urban Design Strategies • Design of Transit-Oriented Development • Implementation

72
more floor levels to govern the permitted height above such set-back.

3.2.2 Commercial Districts

Refer to Figure 3.2.3

The purpose of the “F” neighborhood commercial district is to establish and preserve commercial and professional facilities that are especially useful in close proximity to residential areas. The district is designed to provide convenient shopping and servicing establishments for persons residing in the immediate neighborhood to satisfy those basic home and personal shopping and service needs which occur frequently and so require retail and service facilities in relative proximity to places of residence, so long as such uses are compatible with and do not detract from adjacent residential uses.

The acceptable uses are as follows:

- Any use permitted in the “E” multiple-family dwelling district
- Art galleries and studios
- Bakery Shop
- Barber and beauty shops
- Bed and breakfast guest house
- Bed and breakfast homestay
- Bed and breakfast inn
- Bookstores
- Butchershops
- Computer stores
- Drug stores
- Dry cleaning stations (not having on-site processing)
- Financial institutions
- Florists
- General offices
- Grocery and other retail stores
- Hardware stores
- Professional offices
- Shoe repair shops
- Video and record stores
- Mixed uses which include any of the permitted residential and commercial uses
- Accessory structure and uses customarily incidental to any of the above uses
- Temporary buildings for use incident to construction work, which buildings shall be removed upon the completion or abandonment of the construction.
- Any permitted use exceeding 3,500 square feet provided it is not within a commercial structure to be erected, enlarged, structurally altered or moved.

The following conditional uses may be allowed in the “F” neighborhood commercial district:

- Any use eligible to be a conditional use in the “E” multiple-family dwelling district
- Bar and taverns
- Package liquor stores
- Parking lots
- Private clubs or lodges
- Restaurants and carry-out restaurants
Theaters

The purpose of the “G” local commercial and office district is to establish and preserve areas that accommodate a wide range of businesses catering to the personal and home needs of the general public and to provide for employment activity and service to the public which does not detract from nearby residential uses. The acceptable uses are as follows:

- Any use permitted in the “F” neighborhood commercial district
- Bars and taverns
- Dyeing and cleaning works
- Laundries
- Milk distributing and bottling plants
- Package liquor stores
- Printing shops
- Restaurants other than carry-out restaurants
- Tinsmith or sheet metal shops
- Wholesale business

The following conditional uses are allowed in the “C” multiple-family dwelling district:

- Any use eligible to be a conditional use in the “F” neighborhood commercial district
- Any permitted or conditional use which utilizes a sales or service window or facility for customers who are in cars except those carry-out restaurants permitted

Height regulations for Commercial Districts

No building shall exceed 3 stories or 50 feet in height. Churches, schools, public buildings, hospitals and institutions may be erected to a height exceeding not 85 feet. For dwellings the area regulations are the same as those in the “D” multiple-family dwelling district.

Parking Regulations for Commercial Districts:

- Retail stores with more than 3,000 square feet shall provide parking space sufficient to accommodate 1 motor car for each 700 square feet of floor area in excess of 3,000 square feet which is actually used for the selling of merchandise.
- Banks and office buildings with floor area of more than 7,500 square feet shall provide parking space sufficient to accommodate one motor car for each 1,250 square feet of floor area in excess of 7,500 square feet which is actually used for banking purpose or for offices.
- Restaurants, bars, taverns, and exhibition halls with more than 1,000 square feet of floor area shall provide parking space sufficient to accommodate one motor car for each 200 square feet of floor area in excess of 1,000 square feet which is actually used by patrons or customers for such purposes.
- Theaters shall provide parking space sufficient to accommodate one motor car for each 12 seats.
- Mortuaries and funeral homes shall provide parking space sufficient to accommodate three motor cars for each chapel or parlor.
- Dance halls shall provide parking space sufficient to
Figure 3.2.3  Commercial Districts
accommodate one motor car for each 100 square feet of floor area used for dancing.

### 3.2.3 Industrial and Unrestricted Districts

*Refer to Figure 3.2.4*

The following conditional uses are allowed in the “J” Industrial dwelling unit:

- Abattoir
- Acetylene gas manufacture
- Acid manufacture
- Ammonia
- Bleaching powder
- Chlorine manufacture: arsenal; asphalt manufacture or refining automobile body or fender repair shops
- Automobile salvage yard
- Blast furnace
- Boiler works
- Brick, terra cotta or tile manufacture
- Candle manufacture
- Celluloid manufacture
- Cement, gypsum, lime or plaster-of-paris manufacture
- Dexedrine, glucose and starch manufacture
- Distillation of bones, coal or wood, dye stuff manufacture (not including chemical dyes)
- Emery, emery cloth and sand paper manufacture
- Fat rendering
- Fertilizer manufacture
- Fireworks or explosive manufacture or storage
- Flour and grain milling
- Forge plant
- Fuel manufacture
- Gas manufacture or storage
- Glass manufacture
- Glue, gelatin or size manufacture
- Incineration, reduction or dumping of garbage, dead animals, offal or refuse
- Iron, brass, copper or steel foundry or works
- Lamp black manufacture, match manufacture
- Meat packing
- Motor fuel pumping, oilcloth or linoleum manufacture
- Oiled goods manufactured from raw materials
- Ore reduction
- Paint materials manufacture
- Paper and paper pulp manufacture
- Petroleum products refining
- Potash or washing soda manufacture
- Pyroxylin manufacture
- Rock crushing
- Rolling mill
- Rubber or gutter perch manufacture
- Salt works
- Saw mill
- Smelting or refining of metals
- Soap manufacture from refuse
- Stockyard, corral or pen
• Stone mill or quarry
• Storage of barrels, bottles, iron, junk, rags or scrap paper
• Stove or shoe polish manufacture
• Tar roofing or water proofing manufacture
• Tobacco manufacture or treatment
• Used car lots, car leasing or car rental lots
• Vinegar, sauerkraut or pickle manufacture
• Wool pulling or scouring
• Yeast manufacture

In the unrestricted district, all land uses are permitted. Only a few uses are permitted under condition circumstances. Those uses are as follows:
• Acid manufacture
• Cement, lime, gypsum, or plaster-of-paris manufacture
• Fireworks, exposures, manufacture or storage
• Fertilizer manufacture and potash refining
• Fuel manufacture
• Garbage, offal, or dead animals, reduction or dumping
• Glue manufacture, fat rendering, or distillation of bones
• Petroleum refining
• Salvage storage, wholesaling or retailing
• Stockyards or abattoir

*Height Regulations for Industrial Districts and Unrestricted Areas*
Buildings may exceed 8 stories or 100 feet in height provided they are set back from the side yard regulations 1 foot for each 5 feet of additional height above 8 stories or 100 feet. The required set-back may be provided at the base to permit a vertical structure without physical set-back in the upper stories, or the set-back may be provided at any one or more floor levels to govern the permitted height above such set-back.

*Parking Regulations for Industrial Districts and Unrestricted Areas*
The size and type of building determines the amount of parking.
Figure 3.2.4 Industrial and Unrestricted Districts
3.3 Demographics

The information in this section is from St. Louis City’s Geo Processing Wizard, available through the St. Louis Planning and Urban Development Agency.

Web site: http://stlcin.missouri.org/citydata/newdesign/index.cfm
The population within a one-mile radius of Vandeventer Avenue and Shaw Avenue:

- The population was 17,215 in 2000 according to U.S. Census data.
- The area has strong racial diversity as follows: 52% African American; 43% Caucasian; 1% Asian; and 3% two or more races.
- The area is composed of mainly younger people: 30% are under the age of 18; 25% are between the ages of 19 and 39; 26% are between the ages of 40 to 64; and 9% are over the age of 65.

The education levels within a one mile radius Vandeventer Avenue and Shaw Avenue:

- The education levels in the project area are below national averages.
- School completion levels are as follows: 27% did not complete high school; 46% did not complete college; and 20% completed an associate’s degree or higher.
- 1.5% of the population has a professional or graduate degree.

The expenditures within a mile radius from the project area:

- There are more then 15 indicators of consumer expenditure profile. The annual household income is $36,064. The average annual total consumer expenditures for the area is $274,145,687.

The home ownership rates within a one mile radius of Vandeventer Avenue and Shaw Avenue:

- In 2000 the area had a 17.56% vacancy rate; 1,549 living units were vacant.
- Home ownership in 2000 was low; 2911 of the living units were owner occupied, and 4,358 were rental units.
- The percentage of the population who were home owners in 2000 was 33%.
3.4 Project Area Potentials and Constraints

3.4.1 Project Area Potentials

3.4.2 Project Area Constraints

This section deals with Step 3 of the Methodology, identify the area’s major potentials and constraints.
3.4.1 Project Area Potentials

Refer to figures 3.4.1 and 3.4.2

The project area has an opportunity to draw from the Missouri Botanical Gardens in the following ways:

- Missouri Botanical Gardens is located adjacent to the project area and has 750,000 visitors annually.
- The Metro Link will help commuters connect to the Gardens by offering a transportation alternative.
- Because the demographics of visitors to the Missouri Botanical Gardens suggest they are of above average income; a retail component does exist.
- There are opportunities to use the Commerce Bank Educational Center to develop a stronger relationship with the surrounding neighborhood.
- The Monsanto Center can be used as a strong symbol in the transit-oriented plan.
- The park-and-ride bus service can be expanded easily to include light rail.

The project area has an opportunity to connect the Garden District to other key areas of the city in the following:

- It is close the historic Tower Grove Park.
- The project area is in close proximity to the successful Botanical Heights Neighborhood, an urban renewal project (shows a market for new construction)
- The project area offers access to major employment centers.
- The project area is adjacent to the Historic Shaw Neighborhood.

- It is close to the successful Hill Neighborhood, known for its Italian heritage and restaurants.
- The site is within three miles of major St. Louis landmarks: St. Louis University Medical Campus, Cardinal Glenon Children’s Hospital, Tower Grove Park, and the Missouri Botanical Gardens.
Figure 3.4.1 Area Potentials Map

- Garden Station, An Overview
- Contemporary Transit-Oriented Development
- Analysis
- Urban Design Strategies
- Design of Transit-Oriented Development
- Implementation
Figure 3.4.2 Major Employment, Education Centers and Recreation within a 3-mile Radius of the Project Area

- Washington University Medical School
- Barnes Jewish Hospital
- Forest Park
- Washington University Main Campus
- Central Business District
- Grand Center
- St. Louis University Main Campus
- St. Louis University Medical Campus
- Cardinal Glennon Children’s Hospital
- Reservoir Park
- South Grand Business District
- Missouri Botanical Gardens
- Tower Grove Park
- Sublette Park
- Meda Washington Education Center
- St. Louis Public Library

Legend:
- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Project Site

- Major Employment
- Education Centers
- Parks and Recreation

- New Botanical Heights Neighborhood
- Historic Shaw Neighborhood
- Tower Grove High School
- Missouri Botanical Gardens
- Washington University Main Campus
- Missouri Botanical Gardens
- Washington University Medical School
- Central Business District
- Grand Center
- St. Louis Public Library
- Meda Washington Education Center
- Pershal Associates
- Royal Paper
- Monsanto Research Center
- The Hill Neighborhood
- New Botanical Heights Neighborhood
- Tower Grove Park
- Parks and Recreation
3.4.2 Project Area Constraints

Refer to figures 3.2.3

The project area has several constraints as follows:

- The Metro Link crossing will be at grade.
- The project area has challenging edges and boundaries.
- Crime and perception among outsiders of an unsafe area.
- Cleared sites.
- Under-maintained sidewalks and unattractive storefronts create a poor quality image of the place.
- The residents of Shaw Neighborhood and Botanical Heights Neighborhood lack retail and commercial facilities such as, cafes, shops, services, and professional offices.
- In some areas of the project area, small land parcels are owned by different landowners, and acquisition of land for larger redevelopment projects poses a challenge.
- The noise level from the Interstate highway can be heard and felt within 400 feet.
- The intersection of Vandeventer Avenue and Shaw Avenue is not pedestrian friendly, and poses a challenge for pedestrian crossing.
- Within a one-mile radius of the Station Site there is a low homeownership rate.

Figure 3.4.3 Constraints of Project Area
SECTION 4.0: URBAN DESIGN STRATEGIES

4.1 General Urban Design Strategies for the Project Area
4.2 Assembling Needed Parcels for Development
4.3 Urban Design Proposals for the Garden District

This section will accomplish step 4 in the methodology, propose the urban design strategies.
4.1 General Urban Design Strategies for the Project Area

In the following section, principals from The Next American Metropolis, by Peter Calthorpe, 1995 have been applied (section 2.1).

4.1.1 Garden Station: Planning Principles
4.1.2 Core Commercial Land Uses
4.1.3 Residential Land Uses
4.1.4 Recommendations for Public Spaces Inside a Transit-Oriented Development
4.1.5 Parks
4.1.6 Recommendations for the Secondary Areas Outside a Transit-Oriented Development
4.1.7 Street and Circulation System
4.1.8 Parking
4.1.9 Urban Continuity
4.1.10 Office/ Employment
4.1.1 Garden Station: Planning Principles

Refer to figure 4.1.1

The diagram of a contemporary transit-oriented development was overlaid to scale on the project area. Because the project area is an existing neighborhood, land use is not cut and dry. The design proposal will be derived from the principals outlined in section 2.0.

The project area will use the expansion of transportation systems to incorporate a focus on the neighborhood. This will be accomplished by mixed used developments, and pedestrian orientation land uses. The characteristics of the Garden Station Transit Center are outlined as follows:

Transit Station Characteristics (see section 5.0 for station design):
- The station should be designed to be an important and architecturally highlighted feature of the community.
- Safety and security should be the main criteria of the transit station.
- The station should be outwardly oriented and be an important part of the street life.
- Ample space and landscaping.

Transit-Oriented Development Planning Principles:
A summary of the transit-oriented development planning principles as derived from ‘new urbanism’ and as mentioned in the report, The New Green Line, Chicago, 1996, by an Urban Land Institute Advisory Panel are as follows:

Viable Neighborhoods:
- Compact and Walkable: Size is usually limited to five minutes and in some cases, to a ten minute walk.
- Mixed Uses Projects: All essential needs, including homes, schools, recreation facilities, shops (retail and commercial), employment centers, service, and institutional uses.
- Mixed Housing Types: Small-lot single family houses, town houses, multi-family buildings accompanied with retail, commercial, service, and institutional uses. The housing density should be 15 to 40 units per acre.

Grid Street System:
- Muti-modal Streets: should be designed for buses, cars, bikes, and pedestrians.
- Pedestrian-Oriented Neighborhood: Everyday needs are within a five minute walk.

Viable Core Commercial
- Vertical Mixed-Use Projects: First floor retail with residential or commercial units above the retail space.
- Planning: The ‘Neighborhood Core’ is the main public space surrounded by public uses.
Figure 4.1.1: A Transit-Oriented Plan diagram overlaid to scale on the project site.
(Source: Common Place: Toward Neighborhood and Regional Design, Douglas Kelbaugh, page 128)
4.1.2 Core Commercial Land Uses

Refer to figure 4.1.2

The project has a potential for a retail market. The following recommendations are encouraged:

- Regional developments should be encouraged along Vandeventer Avenue.
- Don Brown Chevrolet should be retained in the area as it serves as the north anchor of Automobile Row.
- Vandeventer Avenue should be used to form a connection between the Southwest Garden Neighborhood commercial district and the Hill Neighborhood’s commercial district.
- Along Shaw Avenue, land uses such as cafes and boutiques should complement the Missouri Botanical Gardens.
- Shaw Avenue should strongly connect the Missouri Botanical Gardens to the transportation center. The connection should be made in a dumb-bell fashion: the transit center as one anchor and the Gardens as the other. Boutiques and cafes along Shaw Avenue will pull the ends together.
- A nursery should be placed on the Garden’s grounds along Shaw Avenue.
4.1.3 Residential Land Uses

Refer to figure 4.2.5

It is essential to have a residential base in a mixed-use development to ensure twenty-four-hour activity in the transit-oriented development neighborhood. The follow are recommendations for residential use in the project area:

Density:

- The population should match existing residential land use standards of approximately 15 to 20 persons per acre.

Infill Housing:

- No blank walls or series of garage doors are permitted.
- The buildings should be varied and articulated.
- Infill buildings should match existing architectural context. (refer to figure 4.1.3 and figure 4.1.4)
- Abandoned buildings should be replaced or rehabilitated depending on their condition.
- Infill condominiums and apartment developments should be placed at corners where possible.
- At the corner of Vandeventer Avenue and Shaw Avenue two mid-rise towers should be erected (refer to section 5.0).

Building Setbacks:

- The setback is a minimum of 10 feet to 15 feet from the property line.
- Garages should be located in the rear and front the alley.
**Homeownership:**

- A market base should be created for low-income and moderate-income rental units for the general public; this can be achieved through federal and state affordable housing programs.
- Opportunities should also be created for home ownership by converting a large portion of rental duplexes and four-plexes into condominiums or town homes. This will stabilize the neighborhood population and help to raise the median income.
4.1.4 Recommendations for Public Spaces Inside a Transit-Oriented Development

This section describes a land use diagramed in figure 4.1.6

Public spaces include parks, plazas, public buildings and public services. These areas should complement the transit stop to maximize benefits of the space. Several issues were considered, as follows:

Where to Locate Public Space:
- The public spaces are distributed throughout the project area and are the focus of the neighborhood.
- Public space should be suitable for informal gatherings and public events.

Schools and Learning Centers:
The project area includes one school, and a learning center used by the Missouri Botanical Gardens. The following recommendations are made to create a strong connection between these institutions and the project area:

Commerce Bank Learning Center:
Refer to figures 4.1.6 and 4.1.7
- The corner of Kingshighway Boulevard and Shaw Avenue is an opportunity to expand the Commerce Bank Learning Center.
- Relocate the loading dock on the current Commerce Bank Learning center to the back of the facility.

Media P. Washington School (refer to figure 4.1.8):
- A visual connection with Media P. Washington School should
be form with any new development (refer to figure 4.1.10).

- A day care service is provided at Media P. Washington School located en route to the transit stop or within the core commercial area.

Missouri Botanical Gardens:
Refer to figure 4.1.3 and 4.1.11
A strong connection between the Gardens and the project area can be created by the following:

- Align the main entrance to the Missouri Botanical Gardens with the street grid.
- Add two neighborhood entrances to the Gardens, so residents can easily walk rather than drive.
- Remove at least one surface parking lot from the Botanical Gardens grounds to force patrons to park off-site. Remember people are willing to walk the 74 acres; they will walk one more block to park.
- Encourage more “little boutique” shops to locate in the area, because they truly add to the experience of approaching and leaving the Gardens.
- Diminish the prevalence of institutional uses by building a “wall of development” on the north side of Shaw Avenue. This will add variety to the street. The visitors to the Gardens will experience this area as an event, rather then just a pathway to a destination.
• Remove the fencing that surrounds the Monsanto Building and soften the edges of the sidewalk using landscaping (refer to figure 4.1.10).

4.1.5 Parks

Residential Park:
• The roof on the park-and-ride garage should be transformed to a private park for the residents of the development (refer to section 5.0).

Transit Plaza:
The plaza is will be located on Shaw Avenue (refer to section 5.0).

Figure 4.1.10 Media P. Washington School

Figure 4.2.11 Recommended Public Space Land Uses
4.1.6 Recommendations for the Secondary Areas Outside a Transit-Oriented Development

This section describes a land use diagramed in figure 4.1.12. The secondary areas are no farther than one mile from the transit station. The existing residential and commercial densities are to remain lower as compared to the 'Neighborhood Core' (section 4.1.2) and the residential 'Ring' (section 4.1.3). The uses contained here are: low-density residential, public schools, and community parks. The existing employment-generating businesses located in the secondary area included: manufacturing, day care, small convenience stores, small offices, light industrial, and public recreational facilities.

4.1.7 Street and Circulation System

Refer to figures 4.1.13, 4.1.14, 4.1.15, 4.1.16. A good transportation plan is one that improves mobility, encourages the use of public transport and reduces the use of private vehicles. The Garden District will be a walkable center that allows for easy access to the multi-modal station and different land uses. The following are ways to accomplish this goal:

- Traffic should remain at 25 m.p.h on all non-arterial streets and interstate highways.
- Traffic should be reduced to 25 m.p.h on Shaw Avenue.
- Neighborhood and connector streets should have two traffic lanes and on-street parking on both sides of the street. Arterial streets should not allow parking, but landscaping should be used to shield the pedestrian.
- All the streets should be pedestrian-oriented and should have

Figure 4.1.12 Recommended Secondary Area Land Uses

Legend:
- Proposed Metro Link Stations
- Existing Metro Link Stations
- Proposed Metro Link Line
- Existing Metro Link Line
- Project Site
- Secondary Areas

New Botanical Heights Neighborhood
Southwest Garden Neighborhood
Missouri Botanical Gardens
Beyond 2000 Feet
Secondary Area
safe pedestrian crossings at junctions, good street lighting, attractive signage, and planted trees. Sidewalks should be designed to be interesting and attractive.

- Sidewalks should promote first floor retail uses that encourage pedestrian traffic.
- To attract people, the design should create safe, lively, pedestrian areas that include activities such as entertainment, food services, sidewalk cafes, well located rendezvous points, and necessary pedestrian amenities.
- Security while walking to and from the station is a prime concern. The pedestrian environment along Shaw Avenue should be provided with good lighting, community policing, and first floor retail.
- Bus transfer points should have visible signage; convenient and safe transfer points; and comfortable and well sheltered waiting areas. Information on bus routes should be made available.
- Open lots and parking lots should have a brick or stone wall treatment (with a height of three feet maximum) along the lot line. This will visually distinguish the border of the existing use from the pedestrian sidewalks. It also helps to create continuity in the urban space.

Commercial Streets:
These streets will provide a pleasant shopping environment with good pedestrian access, slow traffic speeds, and on-street parking.
Local Streets:
The travel lanes should be narrow with parallel parking allowed to slow down traffic. The recommended speed limit is 20 miles per hour. Refer to figure 4.1.13, for the location of streets, and figure 4.1.14, for a typical cross section.

Collector Streets:
Inside the project area the travel lanes should narrow with parallel parking allowed to slow down traffic. The recommended speed limit is 25 miles per hour. Refer to figure 4.1.13 for the location of streets, and figures 4.1.15 and 4.1.16 for typical cross sections.

Streets and Bikeways:
Direct connections are provided to the core commercial area.

On-Street Parking:
Parking lanes are seven feet to eight feet wide and are provided on all streets. Parallel parking is the preferred system used on the street.

Sidewalks:
A minimum of five feet width is required for all sidewalks.

Alleys:
Alleys provide access to parks, connector streets, residential and commercial areas.
Street Trees:
- Shade trees are required on all streets with 30 feet on center.
- Trees are used to frame and unify streets.

4.1.8 Parking
The recommendations for parking is as follows:
- The park-and-ride lot should adopt the concept of a multiple use program and maximize its use by sharing different uses and attracting different people at different times. For instance, transit rider parking, office and retail parking during the day time, as well as parking for restaurants, and the Missouri Botanical Gardens and entertainment activities by night and on the weekends.
- The park-and-ride lot should provide adequate bike storage and a convenience store.
- A system of well distributed shared surface parking lots should be provided to the rear of developments where possible.
- There should be plentiful on street parking.
- Parking garages should be erected at key intersections and include street level retail.

4.1.9 Urban Continuity
Refer to figure 4.1.17
“A 1:2 ratio is the minimum desirable ratio of height to width for good street spatial definition. The peripheral glimpse of sky equals the amount of visual field devoted to the street wall. The 1:2 ratio provides sufficient spatial containment to permit the creation of intense 3-d space.” (Richard Hedman, Andrew Jaszewski Fundamentals of Urban Design).

Urban continuity can be achieved in the project area by applying the following:
- In order to achieve a good spatial definition, a 1:2 ratio of the height of the buildings to the width of the street should be obtained.
- The ratio is achieved by building up the urban fabric on the north side of Shaw Avenue.
- The proposed section for Shaw Avenue not only creates a pedestrian scaled environment, but also helps maintain the urban continuity that adheres to the existing scale and the street image.
4.1.10 Office/Employment

Refer to figure 1.1.18

Office and employment are already existing. This land use type is within an acceptable tolerance for walking distance when compared to the contemporary transit-oriented development model.
4.2 Assembling Needed Parcels for Development

4.2.1 Land Acquisition in the City of St. Louis

4.2.2 Land Acquisition Plan
4.2.1 Land Acquisition in the City of St. Louis

Refer to section 4.2.2 for the Land Acquisition Plan

The Garden District Commission has been successful in their urban renewal efforts of the new Botanical Heights Neighborhood. The Commission should be allowed to continue their success of rehabilitating the Garden District as a whole. The project site possesses an interesting opportunity for this group. The Commission is already in control of a large percentage of parcels along Shaw Avenue and should further pursue development of the Shaw Avenue corridor in a way that will encourage a strong relationship between the Botanical Gardens and its neighbors.

To obtain the remaining parcels needed along Shaw Avenue between the Gardens and the Monsanto Center, a redevelopment corporation could be formed to focus on the area generally bound by the Frisco Rail Line to the north, Alfred on the east, Magnolia Avenue to the south, and Kingshighway Boulevard to the west. The redevelopment contains approximately 150 acres of land (including street right-of-ways).

There are two approaches in the eminent domain process including: the state redevelopment statute, Chapter 353, and the redevelopment statute, Chapter 99/100. Both of these redevelopment statutes are very similar because both require the preparation of a master plan for development. The difference between the two statutes lies on who or which party takes charge of implementing the master plan.

For Chapter 99/100, the City of St. Louis is be the responsible entity, while with Chapter 353, the Garden District Commission would be the responsible entity.

These redevelopment statutes grant the corporation implementing the project power to buy and sell, or relocate, the land ownership to accomplish the redevelopment of an area. If the proposed master plan has a definite strategy and a strong point to make the area a better place, the law will make the changes happen even though there are owners against it. The law is enforced by the power of eminent domain.

Whichever approach the redevelopment corporation chooses to use for the Shaw Avenue and Vandeventer Avenue area, the most important point is that the City of St. Louis has to approve it and lend their power of eminent domain to the developer. Once implementation of the plan is under way, there are other requirements that the redevelopment corporation must meet to ensure the project is successfully completed.
4.1.2 Land Acquisition Plan Using Chapter 99/100

[Map showing land acquisition plan with annotations for land controlled by the Garden District Commission and land to be assembled under Chapter 99/100]
4.3 Urban Design Proposals for the Garden District

4.3.1 Option 1

4.3.2 Option 2
Figure 4.3.1 Option 1
Figure 4.3.1 Option 2
SECTION 5.0: DESIGN OF TRANSIT-ORIENTED DEVELOPMENT

5.1 Proposal and Recommendations for the Multi-Modal Transit Station Design

5.2 Development Program

5.3 Architectural Proposal for the Garden District Multi-Modal Station

This section will accomplish step 5: Create a design solution to a transit-oriented development that integrates mixed uses including transit functions.
5.1 Proposal and Recommendations for the Multi-Modal Transit Station Design

5.1.1 Station
5.1.2 Transit Plaza
5.1.3 Tree Planting
5.1.4 Streetscape
5.1.5 Decorative Features
5.1.6 Building Form and Massing
5.1.7 Materials

The information in this section is obtained from Hamid Shivani’s “The Urban Design Process”, and applied to the project site.
5.1.1 Station:
The follow are recommendations for the multi-modal station design:

- The development should have a strong visual presence and should have a compatible visual relationship with the surrounding neighborhood.
- The main entry should be along Shaw Avenue. This should encourage a strong pattern of pedestrian travel along the north side of the street.
- Station and plaza lighting should be provided such that it serves both decorative and security purposes.
- Facilities that should be provided are: Water fountains, soda machines, restrooms, adequate seating arrangements; large canopies at the platform to provide additional shade and shelter from sun, rain and snow; good security at the entry and exit points of the station; landscaping; proper signage; and lighting.

5.1.2 Transit Plaza:
The follow are recommendations for the transit plaza design:

- Provide a transit plaza, and to reinforce the station’s landmark quality, use innovative architecture to create a symbol.
- Make provision for a kiss-and-ride drop-off at the transit plaza and in front of the station structure.
- Convenience and retail services should be located at the transit plaza.
- Outdoor cafes, street vendors, and outdoor public events should be encouraged at the plaza.

5.1.3 Tree Planting:
The follow are recommendations for tree planting:

- Tree planting should be the first essential part of an urban design plan.
- Distinctive tree types and planting patterns can be used to provide a physical identity of the place.
- Planting of deciduous trees would ensure sun penetration during the cold winter months.
- Trees should be planted at 25 foot intervals along the street edge.

5.1.4 Streetscape:
The following are recommendations for the streetscape around the multi-modal station:

- The quality of street environment depends on its design: selection and siting of items such as paving, lighting, litter bins, seats, planting and fencing. It is important that they all relate to one another by careful planning and installation. The design should help make the area attractive by night.
- Display advertising should be sensitively handled and treated as a welcome addition the street scene.
• Street level uses should be encouraged, like retail shops, restaurants, and entertainment activities that create high levels of pedestrian activity.
• Sidewalks, street furnishings, roadside curbs, pedestrian ramps, etc. should be designed to allow safe and efficient use of the pedestrian spaces by the handicapped and the general public.
• A landscape and a streetscape palette of street furnishings and lighting should be established for the district to identify itself; for screening and landscape treatment of undesirable visual elements; and for differentiating the order and importance of streets.

5.1.5 Decorative Features:
Decorative features are important elements of the street scene. The following are recommendations and treatments of decorative features:
• The concept of Arts in Transit by the Bi-State Development Agency is highly recommended. The Arts in Transit is a program provided by the Bi-State to display public art at transportation centers.
• Water fountains add a relaxing atmosphere to a plaza.
• Murals help enliven a dull area and discourage graffiti.

5.1.6 Building Form and Massing:
Building form plays a crucial role in defining a place. The facade of a new building has to relate harmoniously and compatibly with the Garden District and the historic Shaw Neighborhood.
• Guidelines for the building form and massing should be prepared for the project site.
• The criteria for the building and massing of the district should encompass height, massing, floor area ratio, scale, proportion, street-lined setbacks, style, materials, textures, color, lighting, and storefront design.
• New buildings should be designed to be compatible with the existing buildings in terms of scale, window and door proportions, materials, color and important cornice lines.
• Residential Development: New construction should be compatible with the existing residential stock in terms of height, massing, materials and, opening proportions.
• Commercial Development: A traditional storefront architecture with awnings made of canvas material is recommended for the first floor of all commercial developments.

5.1.7 Materials:
• The exterior material used for the façade of any new development should be compatible with the dominant original materials used for buildings on Shaw Avenue. The materials are: brick masonry, granite, and wood for trim and other architectural features.
5.2 Development Program

5.2.1 Transportation Center
5.2.2 Retail/ Tourism Center
5.2.3 Amenities
5.2.4 Residential Units
5.2.5 Parking Garage

This project will promote a urban lifestyle of living, working, shopping, unity in a pedestrian precinct, and having multiple transportation options. This development makes this area a town-center in the middle of south St. Louis. The transit-oriented development will be on one edge of the community and the Missouri Botanical Gardens on the other. Some features of the transit-oriented development include:

- 1 Transit shop
- 1 Train station
- 1 Bus depot
- Bike lockers
- Approximately 15,000 square feet of boutique shopping
- Approximately 32,000 square feet anchor store
- Park-and-ride for bus and train services
- 94 housing units
- 6 luxury penthouses
- Tree-lined streets
- Roof-top park

Metro Bus - St. Louis
5.2.1 Transportation Center
- Integrated design into the transit-oriented development
- 1 train platform
- 3 bus platforms
- Skywalk from the park-and-ride to the train platform
- Convenience shop for bus and train waiting
- Bike lockers

5.2.2 Retail/ Tourism Center
Small Retail:
- Small boutiques and cafes ranging in size from 1,000 square feet to 5,000 square feet
- Restroom facilities
- Shared storage
- Shared services such as trash
- Indoor loading dock
- Shared parking
- Design to encourage strong pedestrian traffic on the street
- Preferred types of retail to include cafés, coffee shops, boutiques, antique stores, flower shops, or any other shop promoting the theme of the Garden District

Large Retail:
- 32,000 square feet
- Desirable corner location at a busy intersection
- Preferred development to be a “Barnes and Noble” or similar retailer

5.2.3 Amenities
Park and Recreation:
- 3 acre park for residents of the complex
- Full game court
- Putting greens
- 1/8-mile outdoor track
- Swimming pool
- Tanning deck
- Hot tub
- Indoor fitness room

5.2.4 Residential Units
Park Level Units (14 units):
- Up to 1,500 square feet of living space
- 1-bedroom to 3-bedroom apartments
- Porch and front entry
- Hardwood floors
- Designer kitchens and bathrooms
- 1 reserved parking spot per bedroom

Shaw Avenue Units (18 units):
- Single and two-bedroom apartments
- Up to 1,200 square feet of living space per unit
- Sun decks attached to all units
- Hardwood floors
- Designer kitchens and bathrooms
- 2 reserved parking spaces per unit
Tower Units (62 units):
- Mixed-income housing option
- Up to 1,500 square feet of living space
- 1-bedroom to 3-bedroom apartments
- Balconies
- Hardwood floors
- Designer kitchens and bathrooms
- 1 reserved parking spot per bedroom

Penthouse (6 units):
- Private entry
- 3,500 square feet
- Private balconies
- Custom designed
- 2 reserved parking spots per unit

5.2.5 Parking Garage
- Approximately 1,200 parking spaces
- 350 residential parking spaces
- 250 commercial parking spaces
- 500 park-and-ride parking spaces
- 100 community parking spaces for town center
5.3 Architectural Proposal for the Garden District Multi-Modal Station

Figure 5.3.1 Site Plan
Figure 5.3.2 Aerial Perspective of Project
Figure 5.3.4 Perspective from Shaw Avenue of Transit Center
Figure 5.3.5 Shaw Avenue Perspective
Figure 5.3.6 Street Level Plan
Figure 5.3.7 2nd Floor Plan (Shaw Avenue Units)
Figure 5.3.8 3rd Floor Plan (Vandeventer and Shaw Avenue Units)
Figure 5.3.9 4th Floor Plan (Park Level Units)
Figure 5.3.10 5th Floor Plan (Tower Units)
Figure 5.3.11 6th Floor Plan (Tower Units)
Figure 5.3.12 7th Floor Plan (Tower Units)
Figure 5.3.13 8th Floor Plan (Penthouse Units)
Figure 5.1.14 Shaw Avenue Elevation
Figure 5.3.15 Perspective Section Parallel to Shaw Avenue
Note: Project Area is shown depicting Option 2, refer to section 4.3.
Figure 5.3.2 Aerial Perspective of Project

Figure 5.3.3 Perspective of Sidewalk Along Shaw Avenue
Figure 5.3.4 Perspective from Shaw Avenue of Transit Center
Figure 5.3.7 2nd Floor Plan (Shaw Avenue Units)
Figure 5.3.8 3rd Floor Plan (Vandeventer and Shaw Avenue Units)
Figure 5.3.9 4th Floor Plan (Park Level Units)
Figure 5.3.10 5th Floor Plan (Tower Units)
Figure 5.3.12 7th Floor Plan (Tower Units)
Figure 5.3.13 8th Floor Plan (Penthouse Units)
Figure 5.1.14 Shaw Avenue Elevation
Figure 5.3.15 Perspective Section Parallel to Shaw Avenue
SECTION 6.0: IMPLEMENTATION

6.1 Southwest Garden Housing Corporation
6.2 Garden District Improvement Association
6.3 Garden District Commercial Development Corporation

This section identifies proposed mechanisms to carry out the objectives of the plan. Many of these will be needed in organizing the Garden District Commission as a whole and creating a cohesive district identity. This section will also accomplish step 6 in the methodology, describe how to implement the transit-oriented development, by suggesting the following:

- A multi-purpose housing corporation is suggested as the vehicle necessary to carry out the many and varied housing tasks designed to upgrade, improve, build, and redevelop strategic blocks and priority areas.
- An umbrella “Garden District Improvement Association” would provide a vehicle for concentrated and expanded roles in maintaining minimum housing standards and in marketing the neighborhood, as well as in communicating regarding social services and crime prevention activities.
- A Garden District Local Commercial Development Corporation would provide the mechanism and the incentives to generate increased and upgraded commercial development in the Garden District.
6.1 Southwest Garden Housing Corporation

6.1.1 Acquisition and Rehabilitation Assistance
6.1.2 Relocation and Rental Assistance
6.1.3 Capital Improvements
6.1.4 Neighborhood Trend Data
6.1.5 Housing Referral
6.1.6 Historic Characteristics

The Garden District is in need of a housing improvement/development mechanism to carry out housing-related strategies. This should take the form of a not-for-profit housing corporation, called the Southwest Garden Housing Corporation that host housing programs directly in target areas and less directly throughout the rest of the neighborhood. It would also serve as a catalyst for general improvement and upgrading of the housing stock throughout the area.

The corporation’s board of directors should represent a variety of Garden District interests, including each neighborhood, cultural and religious institutions, business concerns, and the general population. While the housing corporation would be representative and participatory, it must also be responsive, well-managed, and effective in its decision making processes. It would implement an established housing policy working within the confines of the city’s comprehensive plan.

Construction of Cross County Metro Link Line
6.1.1 Acquisition and Rehabilitation Assistance
The Southwest Garden Housing Corporation would assist prospective residents in acquiring properties for rehabilitation. Using money and programs at its disposal, assistance for making down payments or interest payments through conventional lending sources would be offered. Southwest Garden Housing Corporation would help the Garden District Improvement Association (see next section) to improve its housing referral list. Southwest Garden Housing Corporation would also be instrumental in recommending current and appropriate housing rehabilitation financing to property owners. Similarly, non-developer owners would be assisted in finding reputable contractors and material supplies dealers.

6.1.2 Relocation and Rental Assistance
The Southwest Garden Housing Corporation should be the source for technical and financial assistance to residents who are experiencing or are likely to experience displacement as a result, directly or indirectly, of the revitalization process.

Practices regarding displacement will conform to City policy. That includes minimizing the displacement of principally long-term, low-to-moderate income, residents who are uprooted either directly through the implementation of the housing programs or indirectly due to market conditions prevalent in, and a by-product of, revitalizing the neighborhood.

Neighborhood Stability
Strategies to encourage neighborhood stability, in addition to discouraging displacement, will require certain specific action programs including, but not necessarily limited to, the following:

Homeownership
Homeowner purchase/rehab loan assistance would be initiated by, or in concert with, the city and lending institutions.

Rental Assistance
Rental assistance is necessary and would be encouraged in two specific and priority circumstances: in-place tenancy and a relocation resource.

In-Place Tenancy
- The relatively low rent levels in older multifamily units pose potential problems for principally long-term tenants of the project area and do not bode well for general housing improvement, despite the potential for increased property values.
- Rental assistance for “in-place” tenants relieves pressure on the existing landlord to either sell to another party or to increase rents beyond the reach of the current tenants due to an increase in market demand. Rental assistance enables the landlord to improve the property, maintain current tenants, and increase the
rents to finance the improvement without, in most cases, any quantum change in the existing tenants’ current payments.

Relocation Resources:

- Developers who are assisted by the Garden District Commission would be encouraged, as part of their strategies, to facilitate re-housing for displaced tenants who are directly affected by the developer supported program.

- Relocation should be to a new location within the neighborhood whenever possible, as close as possible to the existing location.

- Relocation of senior citizens should be avoided whenever possible, but in all cases relocated seniors should be given first priority in newly constructed seniors housing developments in the neighborhood.

- Relocation assistance should only be used to supplement and enhance, not act as a substitute for, private developer efforts and funds where needed.

- Relocation should be a last resort if it results in the demolition or blighting of an architecturally or historically significant structure, unless said structure may be relocated (moved) intact.

6.1.3 Capital Improvements
The Southwest Garden Housing Corporation would be responsible for coordinating needed basic street right-of-way capital improvements with on-going housing activities.

6.1.4 Neighborhood Trend Data
The Southwest Garden Housing Corporation would undertake a regular program of collecting information regarding neighborhood trends (demographic and physical conditions) and would supply this data to realtors, financial institutions, and residents. Periodic building conditions surveys of the entire neighborhood or of selected portions, using minimum standards guidelines, is one source of data. Surveys of residents’ attitudes, problems, characteristics, and ideas will enable everyone to understand the people of the neighborhood and how they change over time. Annual surveys of this nature can be done through a neighborhood newsletter or newspaper.

6.1.5 Housing Referral
Currently, the Garden District does not publish a newsletter; however, one could be sent out that informs residents about available housing in the area. Similar information could be found on a future Web page that could be maintained by the city’s Community Development Agency. The Southwest Garden Housing Corporation, in conjunction with the Improvement Association, should create, upgrade, and maintain a housing referral list. Information would include unit sizes, locations, prices or rents, and even condition ratings based
on criteria of minimum standards. Names of owners, realtors, and recommended financing mechanisms and institutions could also be provided.

6.1.6 Historic Characteristics
The Southwest Garden Housing Corporation should offer its assistance in gathering requisite information to designate historic landmark structures and districts in the neighborhood. In addition, the Southwest Garden Housing Corporation should assess the financial and other benefits to property owners and the neighborhoods of historic designations.
6.2  Garden District Improvement Association

6.2.1 Marketing the Garden District
6.2.2 City Services
6.2.3 Social Services
6.2.4 Communication
6.2.5 Historic Characteristics
6.2.6 Organizational Characteristics

The Garden District Improvement Association should become the major force behind neighborhood physical and social improvements. The association should maintain oversight of the activities of the Southwest Garden District Housing Corporation, particularly by establishing policies which are implemented by the Southwest Garden Housing Corporation. The Garden District Improvement Association should also sponsor or coordinate a broad range of neighborhood activities and serve as the voice of the Garden District while maintaining a role as a forum for discussion of common issues and a promoter of the area.
6.2.1 Marketing the Garden District
A key to the Garden District’s positive future is attracting and retaining a strong market interest in the District as a desirable place to live and run a business. The Missouri Botanical Gardens should also consider playing a more active role in marketing the area by regularly provide updated lists of available housing and other pertinent data, produce advertising campaigns with the media, and educate active real estate agents and brokers of the area’s assets. Missouri Botanical Gardens’ Website, with key elements of the master plan and links to neighborhood association sites, housing referral sites, etc., is also recommended for a wider market base.

6.2.2 City Services
The Garden District Improvement Association should maintain regular contact with St. Louis city government agencies to keep open channels of communication. Problems with basic services or desires for special services can then be dealt with quickly and effectively.

6.2.3 Social Services
The Garden District Improvement Association can become a clearinghouse for social service information for the purpose of advertising services available to all district residents. In addition, The Garden District Improvement Association can publicize special events of area social agencies.

6.2.4 Communication
Publication of a Garden District newsletter and/or newspaper will assure that adequate information on all neighborhood activities is being shared by all residents.

6.2.5 Historic Characteristics
The Garden District Improvement Association should offer its voluntary assistance to gather information on historic designation potential.

6.2.6 Organizational Characteristics
The Garden District Improvement Association should have the following characteristics:

- A formalized process of certifying that block captains and representatives of designated institutions who are, or would like to be, on the board of directors are, indeed, residents of the district or are presently employed in the district.

- An elected executive committee should consist of a president, executive vice president (or president-elect), sufficient vice presidents to chair standing committees, treasurer, and recording secretary. All should serve at least staggered two-year terms.

- If possible, a paid staff position should be created (perhaps the executive vice president who would then not be elected).
6.3 Garden District Local Commercial Development Corporation

6.3.1 Organization

6.3.2 Marketing to and Attracting Businesses

6.3.3 Code Enforcement

The Garden District’s existing commercial areas and planned commercial areas have potentially positive futures as providers of neighborhood oriented goods and services, as well as locations for large companies serving regional and national markets. To assist in the marketing of the area for these purposes and in attracting appropriate private investment, several responsibilities of a local development company are recommended.
6.3.1 Organization
A Garden District Commercial Development corporation will serve the purpose of organizing Garden District merchants and other businesses into a formal group with the objective of pursuing common physical and marketing improvements which benefit each business. In all likelihood, however, it would contract with the Southwest Garden Housing Corporation and/or the Garden District Improvement Association for most office-related services. This would expand the funding base of one or both groups but, more importantly, it would offer business owners, through the local commercial development corporation, professional development experience at a cost considerably below the expense of maintaining a separate staff and office space.

6.3.2 Marketing to and Attracting Businesses
The Garden District can establish working relations with agencies capable of:

- Assistance in determining St. Louis area small business needs
- Attracting and directing businesses to the Garden District
- Encouraging existing businesses to improve their physical conditions to a level compatible with residential standards.

Business owners should cooperate with the Missouri Botanical Gardens to obtain market related information from the periodic neighborhood surveys in order to determine levels of satisfaction with goods and services offered and of the current perceptions and attitudes about the shopping and commercial areas, in general.

6.3.3 Code Enforcement
Existing St. Louis building, sign, and health standards should be enforced to stimulate many desirable improvements. An active, committed Garden District Commercial Development Corporation and the availability of low interest loans and other small business support programs will minimize the hardship of enforced improvements. Strict code enforcement, however, should be reserved for those businesses that do not make a commitment to upgrade. The optimal approach to commercial revitalization is via voluntary commitment that will strengthen each participating business.
BIBLIOGRAPHY


Stanley, Rollin. Director of Planning, City of St. Louis. Telephone interviews.

