City of Franklin:

Roadway Enhancement Master Plan

HNTB

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FRANKLIN 17 99 TENNESSEE

HNTB

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The City of Franklin Engineering Department established the guiding principals for the development of the Roadway Enhancement Master Plan. The HNTB design team completed the development of the conceptual designs for priority roadways and the design guidelines. The Franklin Public Transportation Committee provided the public forum for review and comment on the design concepts and guidelines.

2. Introduction

2-1. Foreword

2-2. Purpose of the Guidelines

2-3. Goals and Objectives

2-4. The Planning Process

2. Introduction

2-1. FOREWORD

The City of Franklin Roadway Enhancement Master Plan is the end result of a planning process that included gathering background material, documenting roadway elements, and touring priority roadways throughout the city. Community participation was also an integral component of the planning process. Questionnaires and an open discussion about the city's community character and theme helped to facilitate an understanding of the community's needs and preferences.

The information acquired from this entire process provided an understanding of the character and identity that are unique to the City of Franklin. This identity is based on the community's heritage, history, nature, and pasture land. Understanding Franklin's unique identity aided in the development of the design guidelines and conceptual enhancements for Franklin's roadways. These guidelines and conceptual enhancements are presented in the following document.

2-2. PURPOSE OF THE GUIDELINES

The design and construction of roadways has, historically, been a utilitarian exercise. From the earliest recorded history, roads were built for either military or commercial purposes. The earliest design objective was to create a long straight, flat surface to make the movement of troops and commercial goods easy and efficient. In many ways this basic premise continues to drive the design of our roadways today.

Roadways have become a significant part of our contemporary lives. An average city in the United States will have up to 15% of the land area dedicated to streets and roads. A city such as Franklin, with nearly 2000 acres of land area within its boundaries, has nearly 300 acres of land dedicated to streets and roads. The realization of the impact of this land use on the design and character of the city has been a driving force behind the Roadway Enhancement Master Plan.

Just as the appearance and character of the front door of a home provides a first impression of its owners, roads often provide the first impression of a city. In today's urban environment, an automobile driver often has little or no impression of change when traveling between cities. Typically, a simple green sign is all that marks a change from one city to the next. In many cities, the singular character of the McDonalds restaurant, Wal-Mart, Exxon Station, houses, schools, and apartments have resulted in the absence of a true sense of "place."

Franklin is different. Franklin was developed around a strong historical core, steeped in southern hospitality, Civil War memorials and battlefields, and natural beauty. As the city has grown and suburbanized, this character has remained strong. In order to maintain this strength of character, design guidelines have been implemented requiring development to go beyond the basic corporate brand building design. The city's residents also recognize the importance of its roadways as the "front door" to their community. This recognition that roadways play a critical role in defining the image and aesthetics of the community has led to the development of The Roadway Enhancement Master plan.

The Roadway Enhancement Master Plan builds upon this strength of character, creating an aesthetic theme for the roadways within the city. This is not a "Gateway" plan. Instead of treating only a single point of entry to the city, this Master Plan treats the roadways similar to the way we treat our entry foyers to our home. The design guidelines establish a citywide theme and design character that not only highlights gateways to the city, but also provides a sense of "place".

2-3. GOALS AND OBJECTIVES OF THE ROADWAY ENHANCEMENT MASTER PLAN

The following goals and objectives were developed to guide the project from inception to completion and will continue to be used to guide the design process.

- DEVELOP AN OVERALL THEME FOR THE CITY.
  - Incorporate history and the Civil War into design elements.
  - Establish design elements that stand the test of time.
- ESTABLISH RIGHT-OF-WAY DESIGN GUIDELINES FOR THE CITY.
  - Coordinate with other governing agencies.
  - Develop a document for use by private and public entities.
- DEVELOP A PALETTE APPROACH TO GUIDE FUTURE ROADWAY DESIGN.
  - Group design elements that work well together.
  - Identify design features that can be easily utilized throughout the roadway system

2-4. THE PLANNING PROCESS

The planning process for the Roadway Enhancement Master Plan began with a community tour and careful assessment of the unique character of Franklin. This assessment included visiting the Williamson County Historical Society, City Library, and Heritage Foundation. In addition, the design team assessed the communities that surround Franklin as a means of finding points of differentiation.

CITY OF FRANKLIN THEME

A theme is defined as a recurring feature that evokes feelings of pride from the residents. Two major themes that define the City of Franklin have been determined during the planning process. The first is nature & agriculture; and the second is American Classic/Historic.

Nature and Agriculture. The first theme that defines Franklin is Nature and Agriculture. Natural and agricultural features are predominant and recurring within Franklin. The Harpeth River, Roper's Knob, and horse pastures are woven into the very fabric of the city. It has been determined that the design of right-of-way features and landscaping should evoke a more natural feel in order to reinforce this theme. For example, clustering a mixture of plant materials strategically within a roadway can help draw attention to natural features or highlight a greenway crossing point. Design objectives to reflect the theme of nature and agriculture are as follows:

- Accentuate Natural Features.
- Focus on predominant features.
  - Harpeth River
  - Pastures
  - Tree lined streets
- Use a variety of plant materials that reflect the diversity of the region

American Classic/Historic. The second theme that defines Franklin is American Classic/Historic. The City of Franklin is literally steeped in heritage and history. Over the past 200 years, residents and city leaders have taken great pains to preserve and celebrate both. New residents are drawn to Franklin both for its contemporary land development in the Cool Springs neighborhood and the history and heritage that permeates the community. This recurring theme translates into the built environment by way of natural stone in dry-stack walls and monuments and formal planting areas that are set against manicured lawn borders. The classic/historic design theme for the city should be reflected in the public right of way.

2. Introduction

The following design criteria have been established in order to reflect the American Classic/Historic theme:

- Classical design
- Formality
- Natural stone in monuments and dry-stack walls
- Formal planting areas set against a manicured lawn
- Materials that stand the test of time
- Design in context with surrounding land uses and reflecting the high design standards set forth for private development.

PALETTE CONCEPT

The design guideline document provides the designer a palette of options to use when developing plans for roadway improvements. Palettes have been developed for two basic roadway types, suburban and urban. The palette design guideline provides a range of landscape, monument, and roadway furnishings available to the designer. These palette elements are then to be used in context with the theme of the city as well as the character of the roadway.

PRIORITY ROADWAYS

The development of these guidelines was based on the selection of five priority roadways within the city. These included suburban commercial, suburban residential, urban/historic, and interstate locations. These roadways provide a cross section of design elements that may be applied to other similar roadways within the City. The selected roadways are:

- Hillsboro Road from the Harpeth River (north of Mack Hatcher) to the northern city limit line
- Mallory Lane from Liberty Pike to Jordan Road
- 5th Avenue from the Five Points intersection to Del Rio Pike
- I-65 interchange with Cool Springs Blvd.
- I-65 interchange with Highway 96 (Murfreesboro Road)

APPLICATION OF THE THEMATIC APPROACH

These guidelines have been established as a framework that can be creatively applied to the design of roadway improvements within the city. Key features and landscape elements represent "theme" elements for the city and should be implemented in new designs. Furthermore, the design process must be executed with an understanding of existing conditions or context along the roadway corridor. New design elements must be introduced with sensitivity to these conditions and should highlight important civic and natural features.

It is key to the success of this master plan that these design guidelines become an important point of reference throughout the design and engineering process for roadways within the city. These guidelines require the design team to not only develop a well-engineered street, but more importantly to consider the role of the street within the community. The use of theme and design elements from the plan will help those involved to create pleasant public spaces for the City of Franklin.

The design team will utilize this document in the preliminary engineering phase as a palette for designing aesthetic improvements, as well as specifying the style of traffic control poles and other street furnishings. New design elements shall be specified and later carried forward into construction. The City, State and/or County design process should incorporate these guidelines into their design process for roadway projects located within the City of Franklin.

2. Introduction

TENNESSEE DEPARTMENT OF TRANSPORTATION COORDINATION AND PERMITTING

The Tennessee Department of transportation reviewed the Franklin roadway Enhancement Master Plan. The Transportation Department has provided their approval of this plan as a "conceptual" guideline for detail design. In addition the department has made it clear that conceptual approval does not provide approval of any specific item identified in the plan. Agreements and permits for the implementation of this plan will require the Department of Transportation to review and approve detailed design plans related to both landscape and other enhancement improvements that are proposed within the state right-of-way. The Department of Transportation provided other comments and suggestions that have been incorporated into this plan.

DESIGN LIMITATIONS

State roadways have specific legislation related to the use of landscaping, monuments, and type and style of signs and traffic control devices. The development of roadway enhancement plans for state roads within the city should begin with the development of agreements between the State and the City of Franklin. These agreements must address the city's responsibilities related to items such as maintenance, mowing, and safety. The agreements and the State's approval of design and construction plans for the roadway enhancements then become the permit for the project.

There are restrictions and limitations on planting and the placement of signs/monuments along state routes. Generally the state requires a thirty-foot clear zone from the edge of pavement on high volume/high speed roadways. On low speed urban roadways, the minimum thirty-foot clear zone may be reduced. Designers should refer to the AASHTO Roadside Guide for specific clear road requirements. Generally the state would prefer to have trees planted on the outside edge of the right-of-way rather than in a median. The state may make exceptions, depending on the location and type of plant material used. Safety, however, will be one of the primary factors in any and all design review. The design must take into consideration that both the state and city could be liable if a motorist should hit a tree or other aesthetic feature in the right-of-way. Thus it is in the best interest of both the state and city to cooperate and coordinate the design and construction of roadway enhancements. Items that must be addressed in the design process include: sight distance, the mature growth of trees, breakaway sign posts.

The use of monuments on State right-of-way is limited to a design that meets the Manual for Traffic Control Devices related to breakaway posts. The stone monuments proposed in the design guidelines do not meet this requirement. Thus, the City would need to either obtain property or easements adjacent to the ROW for the placement of monuments or alter the design of the monument to meet MUTCD requirements. Interchange design elements must meet additional approvals. This process has been outlined in the Design Guidelines section related to interchanges.

3. Design Guidelines

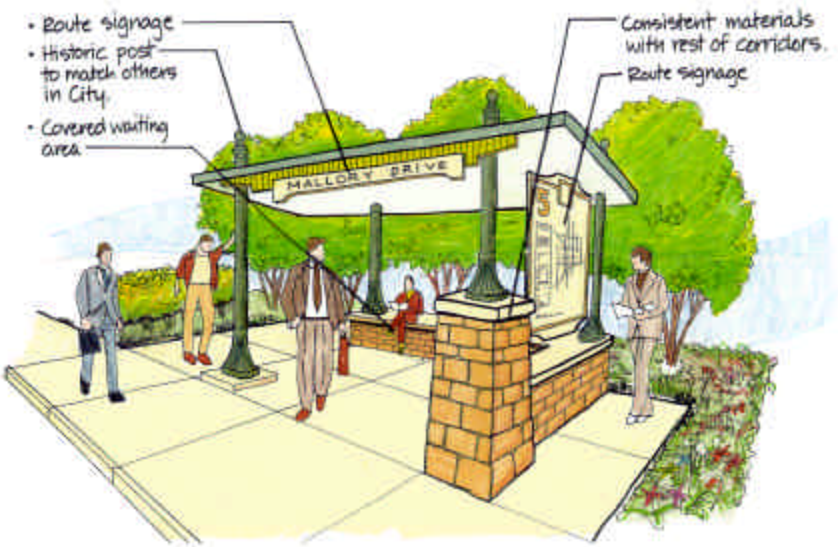
3-1. Urban/ Historic Roadways

3-2. Suburban Residential Roadways

3-3. Suburban Civic/ Commercial Roadways

3-4. Interstate Interchange Gateways

3-5. General Design Guidance



3. Design Guidelines

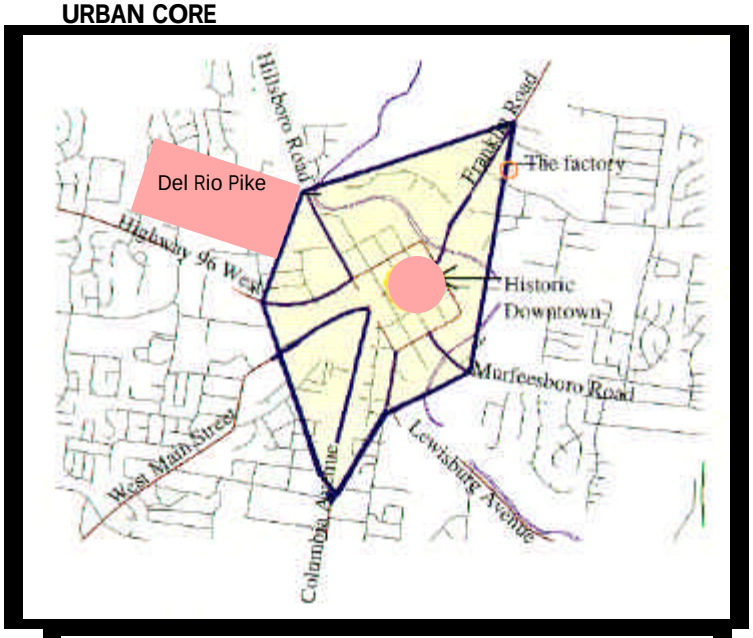
3-1. URBAN/HISTORIC ROADWAY DESIGN GUIDELINES

Urban roadways have their own unique character and style. The buildings along urban roadways are located close to the street, and often contain on-street parking and curb-lined sidewalks. The age of buildings along these roadways is typically more than 40 years old and often includes historic structures and features (either "designated" or "of significance"). The shaded yellow area in the map below reflects the area that is considered "urban core". The urban core is roughly three-quarters of a mile in all directions from the center of downtown. The highlighted roadways within the urban core have direct access to Historic Downtown Franklin. The design guidelines for urban/historic roadways should be followed along these roadways within the urban core. This distance may vary depending on the roadway and land use transitions along that roadway.

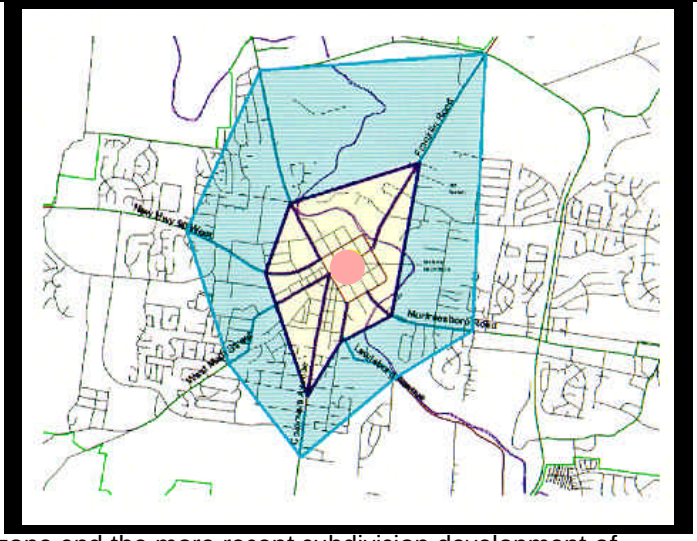
The roadways that would be considered "urban" include:

- Fifth Avenue
- Murfreesboro Road
- Columbia Avenue
- Natchez Street
- West Main Street
- New Highway 96

URBAN CORE



One example of an urban roadway is the Fifth Avenue corridor from 5 points to Del Rio Pike (a one-mile length). This length of roadway should reflect the urban design guidelines set forth in this document. North of Del Rio Pike, Fifth Avenue transitions to a residential suburban road. Thus, the design for this road should also transition. These transitions are defined in the map in the lower right by the blue shaded area. The transition zone is the area just beyond the urban core and defined by the confines of Mack Hatcher Parkway. Development in this area is considered the first tier suburban area of the city. The majority of the development dates from the mid to late 1960's through the early 1980's. Land use in this area is "suburban" in nature and would follow the design guidelines for aesthetic improvements to roadways.



The primary difference between the transition zone and the more recent subdivision development of the city is that there are homes fronting directly on the roadway and commercial business tends to have been developed along a narrow frontage of the road. There may be less right-of-way available than what would be found in the contemporary portion of the city.

3. Design Guidelines

MONUMENT ELEMENTS

Monuments shall be designed along urban/historic roadways in order to create special features such as:

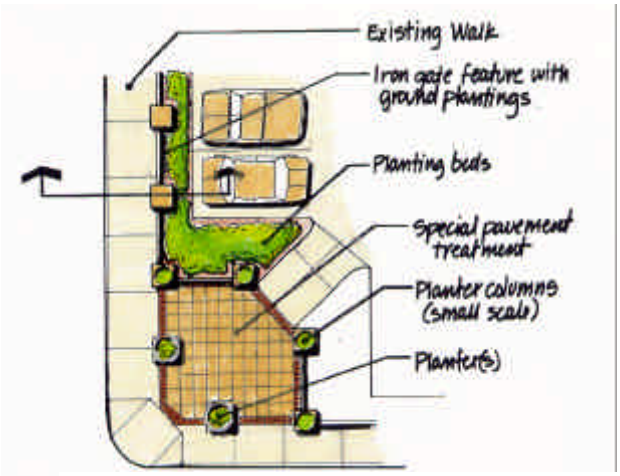
- Entry features
- Historic/Civic features
- Park features
- Focal points

For the purposes of these guidelines, a monument is defined as a stone column constructed of native Tennessee limestone. Stone monuments are used in a variety of ways along the roadways. For example, they are used as gateway features, as median pieces, and as cornerstones. Monuments may be used alone as freestanding elements, or in combination with other amenities such as ornamental fencing, stone retaining walls, cast-stone planters, light posts, banner posts, sign plates, and even sculpture.

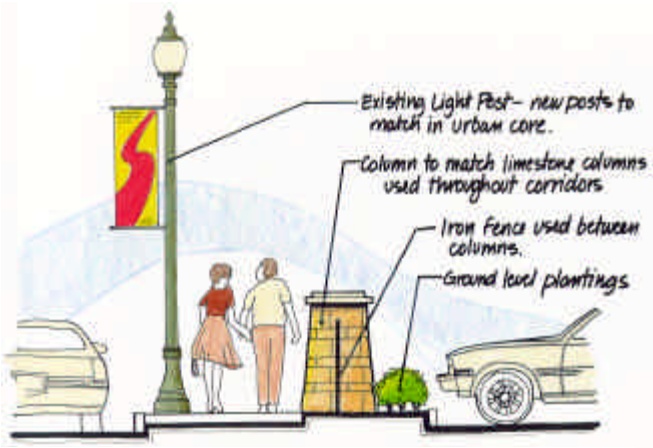
The scale and placement of monuments within urban roadways requires a thorough understanding of the roadway and surrounding land uses. Monuments should be combined with wrought iron fencing and/or small stone retaining walls in order to screen parking areas.

INTERSECTIONS AND CROSS SECTIONS

The urban roadway often contains a narrow right-of way. Therefore, the design must make full use of the little space available in order to enhance the character of the streetscape. Intersections shall be treated as special pedestrian spaces. Aesthetic appeal and pedestrian scale is achieved along the streetscape by the use of narrow planting beds, small scale planter columns, iron fencing, and banners.



PLAN OF TYPICAL INTERSECTION ALONG AN URBAN ROADWAY



SECTION OF TYPICAL INTERSECTION ALONG AN URBAN ROADWAY

LANDSCAPE MATERIALS

The use of plant material is an important component of the roadway in urban/historic areas of the city. The pattern established in the core of downtown should be used to guide the design of roadway enhancements on streets designated as urban in character. Designing with large quantities of plants in urban settings can be difficult due to limited right-of way and higher intensity land uses. Therefore, street trees are typically the dominant features of the urban roadway. The location of street trees should be formal with regular spacing on either side of the roadway. The mature growth height of the trees will also be limited by overhead utilities. Species such as Saucer Magnolia, White Flowering Crabapple, and Redbud are trees that are acceptable to be placed under overhead power lines according to the guidelines of the Middle Tennessee Electric Membership Corporation. Shrubs and perennial plants should be used to accent monuments, screen undesirable features, and generally improve the visual experience of driving, walking, or bicycling down the roadway. Ornamental plantings may be limited to long narrow raised beds along the edge of the sidewalk or around street trees. Retaining walls should be designed in a manner that will allow climbing plants to grow on the wall. This will help reduce the mass and add variety to the roadway. The design and placement of plants along urban roadways must be coordinated with adjacent land uses and businesses. Landscape materials should not overpower buildings and business signs (considering mature growth). A successful landscape design should compliment and accent the overall streetscape.

URBAN/HISTORIC ROADWAYS LANDSCAPE PALETTE

STREET TREES	ORNAMENTAL TREES	SHRUBS	PERENNIALS/ GROUNDCOVERS	VINES
RED MAPLE	DOGWOOD	FRINGE TREE	DAYLILY	RED WOODVINE
WHITE ASH	BLACKHAW VIBURNUM	VIRGINIA SWEETSPIRE	TENNESSEE CONEFLOWER	WISTERIA
HONEYLOCUST	ALLEGHENEY SERVICEBERRY	OAKLEAF HYDRANGEA	BLACKEYED SUSAN	HONEYSUCKLE
SWAMP WHITE OAK	HAWTHORNE	VIBURNUM	TURF	
YELLOWWOOD	STAR MAGNOLIA	RED TWIG DOGWOOD		
LITTLELEAF LINDEN	SWEETBAY MAGNOLIA	WINTERBERRY HOLLY		
BUR OAK	AMERICAN SHADE TREE	WITCH HAZEL		
SEEDLESS SWEETGUM	DURAHEET RIVERBIRCH	HYDRANGEA		

3-2. SUBURBAN RESIDENTIAL ROADWAY DESIGN GUIDELINES

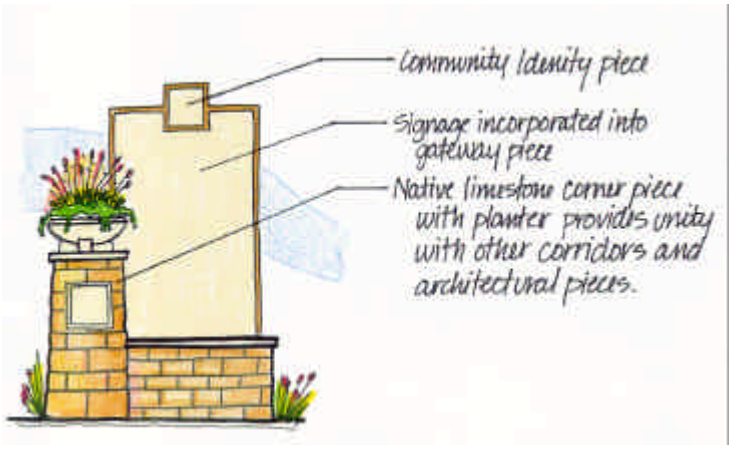
A wide right-of-way and generous building setbacks characterize suburban residential roadways. Land use along suburban residential roadways is primarily residential with some neighborhood commercial service uses at intersection points. These roadways may also include pastures, parks, schools, and hillsides that act as "edge" elements of the road. An "open feel" due to lineal green space in the right-of-way, characterizes suburban roadways. The design of suburban residential roadways should accent important features and take advantage of the wide ROW for plantings and other special features.

MONUMENT ELEMENTS

Monument elements highlight special and unique features along the roadway. Examples of special and unique features include:

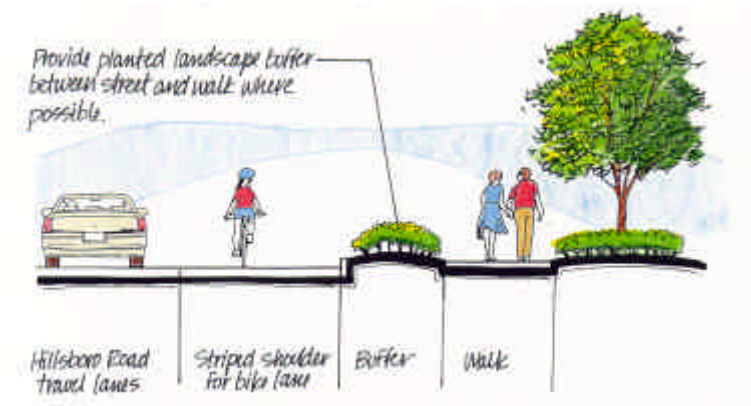
- An entry point (or a historical) city limit point.
- A special civic or public place such as an area where a greenway crosses a roadway
- An important natural feature or view along the roadway

The placement of monuments must not conflict with existing subdivision monuments and signing. The designer should first identify the location of existing monuments prior to adding monuments to the roadway. In addition, as new portions of the city develop there should be coordination between city monuments and proposed monuments for new subdivisions.

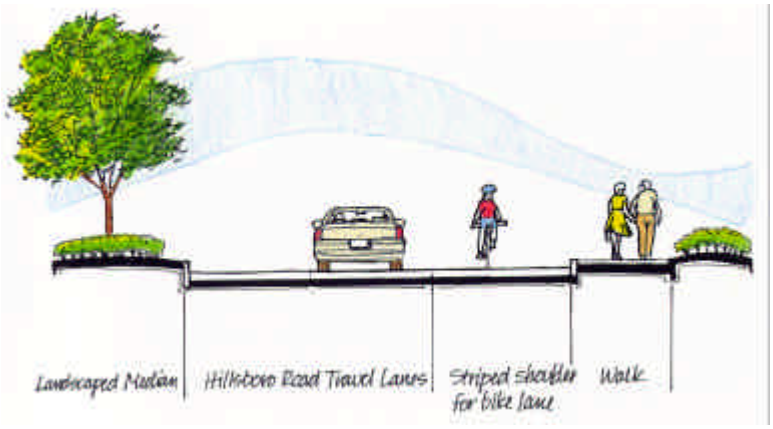


CROSS SECTIONS

For residential/suburban roadways, the preferred design cross-section includes a parkway strip between the pavement curbline and the pedestrian sidewalk. This allows for greater pedestrian safety as well as the ability to soften the edge of the roadway with landscape material. There will be instances where sidewalks are either existing along the curbline or the terrain will not allow a parkway separation for the sidewalk. In these instances an alternative cross-section has been provided. Bike lanes shall also be provided, when necessary and where sufficient space allows.



TYPICAL RESIDENTIAL/SUBURBAN CROSS-SECTION WITH LANDSCAPE BUFFER



ALTERNATIVE RESIDENTIAL/SUBURBAN CROSS-SECTION

LANDSCAPE MATERIALS

Suburban residential roadways accommodate a wide range of landscape materials and designs. Plantings shall be designed to accent monuments, screen undesirable features, and generally improve the experience of driving, walking, or bicycling down the roadway. Fragrant and flowering plants such as the Fringe Tree should be used in areas where pedestrian traffic is anticipated. Designs along suburban residential roadways should utilize a combination of species, in an arrangement that provides for interest and color throughout the year. Landscape designs along curvilinear roads should lead the eye through a sequential experience. Intersections provide an opportunity to cluster flowering shrubs and other plants in a manner that adds beauty and interest to the space. Embankment areas should be planted with natural grasses and perennial flowers such as the DayLily. These plantings helps stabilize the slope, reduce maintenance, and add interest to the roadway. Retaining walls may be planted with climbing vines, reducing their mass and adding variety to the roadway. Median areas are often the only areas where trees can be planted due to overhead utilities. Landscaped medians should combine trees, shrubs, and native grasses/perennial flowers with hardscape features such as sections of dry stack walls.

3. Design Guidelines

Suburban residential roadway designs shall be designed in a naturalistic manner, reflecting the importance of the natural setting as a city-wide theme. This is accomplished by the utilization of native species and naturalistic planting schemes, along with a sensitivity to the existing natural and man-made surroundings.

SUBURBAN RESIDENTIAL ROADWAY LANDSCAPE PALETTE

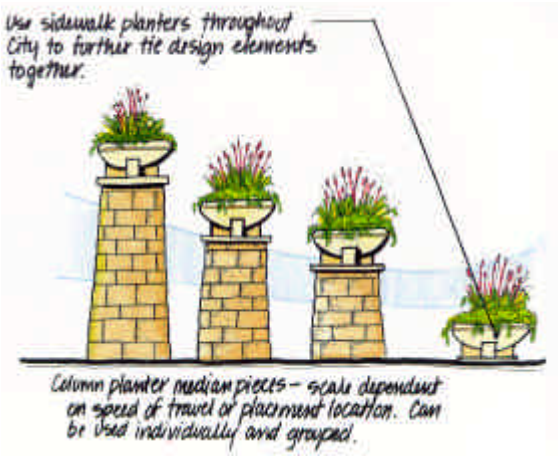
STREET TREES	ORNAMENTAL TREES	SHRUBS	PERENNIALS/ GROUNDCOVERS	VINES
RED MAPLE	DOGWOOD	FRINGE TREE	DAYLILY	WISTERIA
WHITE ASH	BLACKHAW VIBURNUM	VIRGINIA SWEETSPIRE	TENNESSEE CONEFLOWER	HONEYSUCKLE
HONEYLOCUST	ALLEGHENEY SERVICEBERRY	HYDRANGEA	ASTER	
SWAMP WHITE OAK	HAWTHORNE	VIBURNUM	COREOPSIS	
YELLOWWOOD	STAR MAGNOLIA	RED TWIG DOGWOOD	RED SWITCH GRASS	
LITTLELEAF LINDEN	SWEETBAY MAGNOLIA	WINTERBERRY HOLLY	TURF	
BUR OAK		WITCH HAZEL		
SEEDLESS SWEETGUM				

3-3. SUBURBAN CIVIC/COMMERCIAL ROADWAY DESIGN GUIDELINES

Suburban commercial corridors can vary significantly in character. Early suburban commercial corridors developed during the late 1960's to late 1970's. Large numbers of curb cuts, numerous property owners, and varying lot sizes typify these early suburban commercial roadways. Contemporary commercial/civic roadways, on the other hand, have been developed under a greater number of guidelines. An example of a contemporary commercial/civic roadway is Mallory Lane. This commercial roadway has been developed based on a wide right-of-way, the inclusion of grass medians, predetermined driveway locations, and predetermined building setbacks. These features allow for landscaping and special monuments within the right-of-way. Oftentimes, green spaces such as civic spaces, parks, and conservation properties are located along these suburban civic/commercial corridors.

MONUMENT ELEMENTS

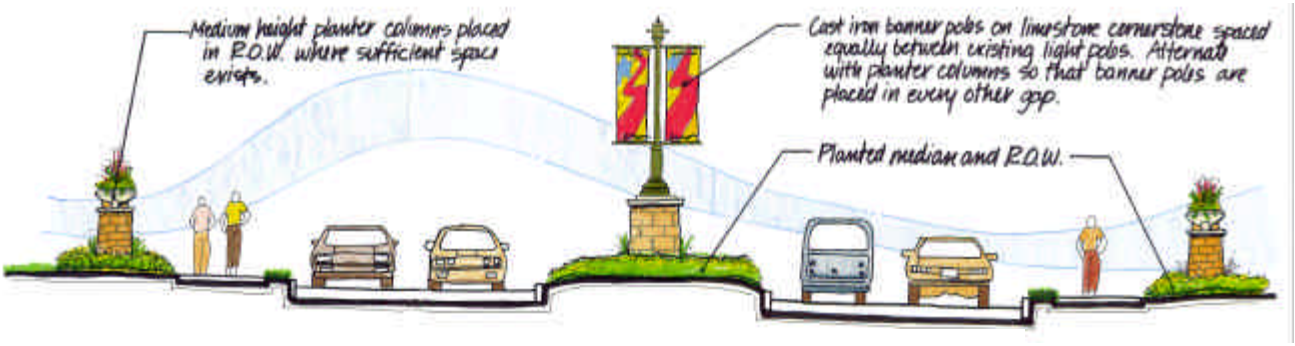
Monument elements require careful planning and design. They must not conflict with commercial business signs. Monument elements should highlight special and unique features along the roadway such as conservation areas, civic/public buildings, and special features such as trail or greenway locations. Monuments shall be scaled according to their surroundings and according to the speed of the travel along the corridor. Monuments may be used individually or grouped. Monuments with banner arms may also be used to promote civic and special events either on a citywide basis or for activities within the roadway area.



CROSS-SECTIONS

For civic/commercial suburban roadways, the preferred design cross-section includes a parkway strip between the pavement curbline and the pedestrian sidewalk. This allows for greater pedestrian safety as well as the ability to soften the edge of the roadway with landscape material. Medians and Rights-of-way shall be planted in a unified design. Special features along the suburban civic/commercial roadway include planter columns and cast iron banner poles on limestone cornerstones.

3. Design Guidelines



TYPICAL SUBURBAN CIVIC/COMMERCIAL CROSS SECTION

LANDSCAPE MATERIALS

Landscape material takes on a different role along commercial/civic roadways. These designs must take into consideration that there is significant competition for the attention of the roadway user. Often, the user is searching for a business or shop in high volume traffic conditions. Landscape plantings should serve as a backdrop to "wayfinding" and directional signing. It should screen out views of large parking lots but not obscure buildings or business signs. Landscaping should be carefully placed to help improve the quality of the drive, rather than add to the visual competition along the roadway.

Roadway medians are an excellent opportunity for incorporating low growing native plants and small monuments/drystack walls as accents to the road. Intersections may be defined with landscaping and drystack walls at the quadrants. Simple wildflower plantings along the right-of-way at park and/or conservation areas help to reduce maintenance and provide a visual gateway for the park areas. All of these elements help to maintain and promote a unified theme for the City of Franklin.

SUBURBAN CIVIC/COMMERCIAL LANDSCAPE PALETTE

STREET TREES	ORNAMENTAL TREES	SHRUBS	EVERGREEN TREES	PERENNIALS/ GROUNDCOVERS	VINES
RED MAPLE	DOGWOOD	VIBURNUM	BERKII E. RED CEDAR	DAYLILY	RED WOODVINE
WHITE ASH	BLACKHAW VIBURNUM	RED TWIG DOGWOOD	WHITE FIR	TENNESSEE CONE.	WISTERIA
HONEYLOCUST	HAWTHORNE	WINTERBERRY HOLLY	WHITE PINE	BLACKEYED SUSAN	HONEYSUCKLE
SWAMP WHITE OAK	STAR MAGNOLIA	WITCH HAZEL	SPRUCE	WILDFLOWER MIX	
YELLOWWOOD	SWEETBAY MAGNOLIA	HYDRANGEA		YARROW	
LITTLELEAF LINDEN	AILLEGHENEY			RUSSIAN SAGE	
BUR OAK	SERVICEBERRY			ASTER	
SEEDLESS				RED SWITCH GRASS	
SWEETGUM				TURF	

3-4. INTERSTATE INTERCHANGE GATEWAYS

The interstate is Franklin's high-speed transportation link to the nation. These gateways require a special design approach. Their scale is monumental, and the people who view these interchanges are traveling at high speeds. Thus, the design elements must be scaled to accommodate these factors. In addition to the issue of scale, interchanges are "gateway" points to the city. The design of gateway interchanges should create an entry statement that relates to key destinations within the city. Franklin's I-65/Highway 96 interchange leads into the historic downtown area. Therefore, the design elements should reflect this urban/historic character of the city. Another example is the I-65 Cool Springs Blvd interchange at I-65. This is an entry point to a suburban/contemporary area of Franklin. Design elements should be used to reflect these differences.

MONUMENT ELEMENTS

Monuments can be used as gateways to the city. However, the development of monuments within the interchange right-of-way presents significant challenges for approval through the Federal Highway Administration and Tennessee Department of Transportation. Generally the development of monuments within the interstate has not been approved. There are some examples of this type of development in other states that can be used as case studies. These include: I-4 in Orlando, North Carolina Expressway Project, and I-64 in St. Louis. In all of these examples the monument development was protected by the installation of 501 barriers (Jersey barriers).

The conceptual design of monuments along the interchange takes on a very different approach than all other roadway types. The objective is to establish and promote a citywide theme that is firmly based in history. They also provide a base for the development of public art as a major element in the gateway design.

Monument elements need to be "overscaled" in order to insure that they are visible and distinguishable in the context of a high-speed interstate interchange. All monuments used in the interchange area will have a consistent theme utilizing limestone and traditional masonry techniques for construction. The development of the monument should, whenever possible, be designed with the existing topography and should not necessitate significant topographic or drainage adjustments.

I-4 IN ORLANDO

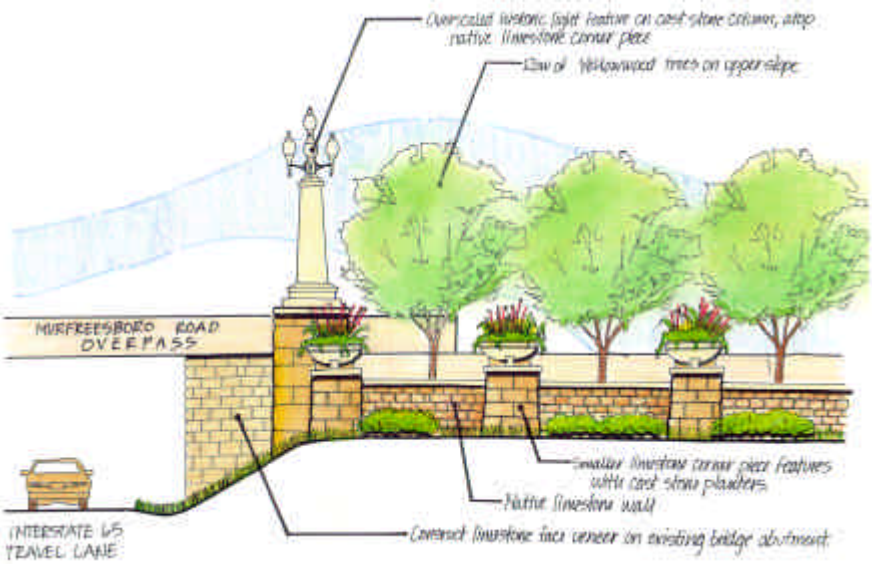
SAFETY CONSIDERATIONS AT INTERCHANGE LOCATIONS

There are three primary guidelines related to the development of roadway aesthetic improvements and safety. The first is sight distance, the second is median structures, and the third is signs and monuments.

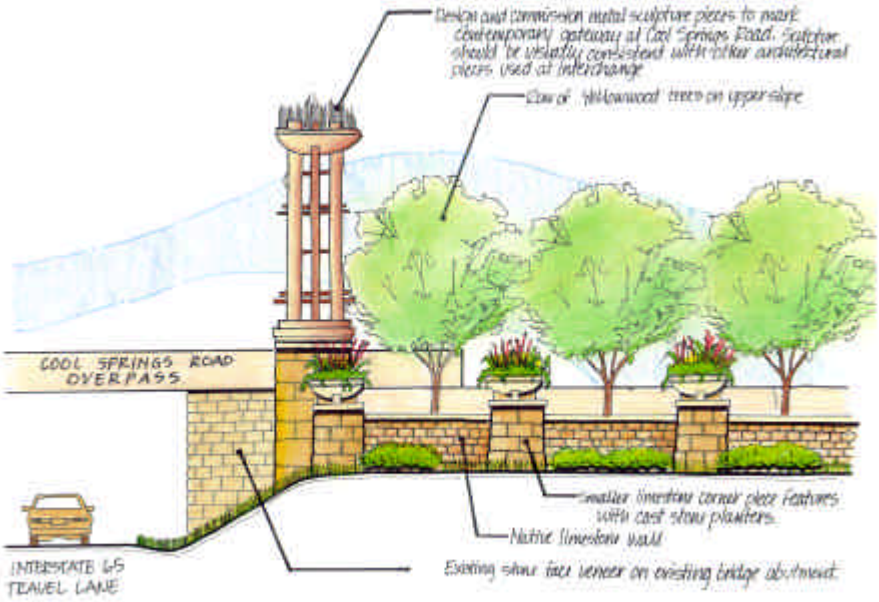
Safety in interchange enhancement design requires special attention. Due to the speed and volume of traffic traveling on the interstate and ramp systems, all monument structures (and large caliper trees) must be placed outside the minimum clear zone. Jersey style, or "501" barriers may be used. An alternative to barrier walls is the use of a berm designed in a manner that will slow and deflect vehicles away from monument structures.

Trees planted within the interchange field area must be placed in a manner that, at mature height, no part of the tree would touch the mainline/ramp pavement if it were to fall. This safety feature will place design restrictions on the type and placement of trees.

Sight Distance is an important component that affects design aesthetics. This must be a consideration along the main line, the ramps, and at points where ramps intersect with local roadways. The location of monuments and plant material (at mature growth height) cannot obstruct or obscure the motorist's view of on-coming traffic. In addition, these features cannot obstruct or obscure directional or regulatory signage related to the operation of the interstate main line, ramp system, as well as the local roadway that intersect with the ramps.



URBAN/HISTORIC INTERCHANGE MONUMENT



SUBURBAN/CONTEMPORARY MONUMENT

LANDSCAPE MATERIALS

The landform and soil within interchange areas will pose a different challenge than the soil in other right-of-way areas in the city. Soils will tend to be more compacted, rocky, and well drained. Plants recommended for interchange locations must be hardy, drought tolerant, and low maintenance. The landscape design within interchange areas should begin with a 15 to 20 foot grass area along the edge of the mainline and ramp shoulder areas. The large open field area within an interchange loop or ramp should then be planted with native wildflowers. The slope area directly in front of the monument feature should be planted in a combination of native grasses and creeping juniper. This provides a foreground for the monument feature. Trees such as the Yellowood and Cedar should be planted behind the monument as a background.

INTERSTATE INTERCHANGE GATEWAYS LANDSCAPE PALETTE

STREET TREES	ORNAMENTAL TREES	SHRUBS	EVERGREEN TREES	PERENNIALS/ GROUNDCOVERS	VINES
SUMAC	DOGWOOD	VIBURNUM	BERKII E. RED CEDAR	DAYLILY	RED WOODVINE
BLACK LOCUST	BLACKHAW VIBURNUM	RED TWIG DOGWOOD	WHITE FIR	TENNESSEE CONE.	HONEYSUCKLE
KENTUCK COFFEETR.	HAWTHORNE	WINTERBERRY HOLLY	WHITE PINE	BLACKEYED SUSAN	
YELLOWWOOD	AMERICAN HOLLY	WITCH HAZEL	SPRUCE	WILDFLOWER MIX	
PIGNUT HICKORY	SWEETBAY MAGNOLIA	HYDRANGEA	BALD CYPRUS	YARROW	
OZARK WITCHHAZEL	AILLEGHENEY	VIRGINIA SWEETSPIRE		RUSSIAN SAGE	
SEEDLESS	SERVICEBERRY	BLACK CHOKEBERRY		ASTER	
SWEETGUM	INKBERRY HOLLY			RED SWITCH GRASS	
	DEVIL'S WALKINGSTICK			NATIVE GRASS MIX	
	REDBUD			GOLDENROD	
				COREOPSIS	
				TURF	

3-5. GENERAL DESIGN GUIDANCE

LANDSCAPE GUIDANCE

Landscape designs should be guided by the following design parameters:

- Use landscape treatment to enhance visual quality of corridor.
- Use landscape treatment as an unifying element that ties the entire corridor together.
- Use landscape treatment to visually connect the main corridor to secondary streets.
- Develop planting schemes that reinforce the character of the corridor.
- Use landscape treatment to buffer unsightly views such as parking lots or utility structures.
- Use landscape treatment to buffer corridor noise from adjoining properties, especially where residential areas exist along a corridor.

MONUMENTS AND GATEWAYS

The use of monuments should be guided by the following design parameters:

- Identify key entry points into and throughout the corridor.
- Use design features to create gateway statements.
- Establish a hierarchy of entry and gateways (for example: interstate gateway, neighborhood gateway, etc.).
- Include both pedestrian and vehicular-scaled entry experiences at all gateways.
- Coordinate gateway elements and other design elements to provide a sequence of entry into the community.
- Utilize the provided palette of design materials to unify all gateway features.
- Coordinate gateway signage with other signage used throughout the corridor.
- Design gateway corridors to promote pedestrian use.

GREENWAYS/BIKEWAYS/PEDESTRIAN WAYS

Greenways, Bikeways, and pedestrian ways are important design features within the right-of-way. When properly designed, these transportation elements promote the use of alternative transportation in a manner that is safe and pleasant for the user. The following general guidelines are included to guide the design:

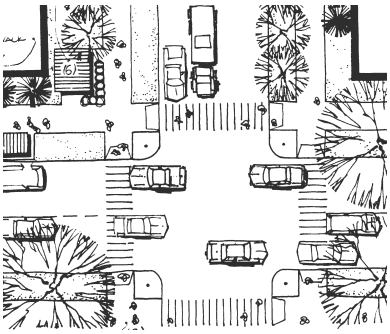
- Encourage separation of pedestrian and bicycle paths.
- Encourage the development of on-street bicycle routes to enhance function of corridor.
- Encourage the development of off-street bicycle paths and greenways where sufficient ROW exists.
- Provide amenities such as bike racks along corridor to encourage bicycle use.
- Encourage pedestrian and bicycle connections from the corridor to existing regional bicycle facilities and greenways.

Areas where a roadway intersects a greenway, bikeway, and/or pedestrian way are important locations from a design perspective. The primary function of the design process is to help accentuate these areas and highlight the fact that different modes of transportation will be interacting at the location. This can enhance the overall safety of the transportation system.

3. Design Guidelines

SIDEWALKS AND PEDESTRIAN CROSSING AT INTERSECTIONS

The design of sidewalks and pedestrian crossings at intersections should be guided by the following parameters:



- Use sidewalks to create a pedestrian network.
- Use sidewalks as a defining feature of the corridor.
- Design the pedestrian areas at intersections to create inviting public spaces.
- Create crosswalks and generous pedestrian spaces at intersections.

LIGHTING

There is an adequate level of general roadway lighting throughout the City of Franklin. Thus, lighting is not a primary component of the design guidelines. The following general guidelines for lighting along roadways should lead the design process:

- Use lighting to provide interest, variation, character, and identity.
- Use lighting to provide vehicular and pedestrian safety.
- Use pedestrian level lighting on walks to encourage pedestrian activity in corridor.
- Use ornamental lighting elements to reinforce theme or character of corridor.

There are specific lighting fixtures that have been approved for use within the City of Franklin by the Middle Tennessee Electric Membership Corporation. These fixtures should be incorporated into the design for roadways as follows:

- Urban/Historic - Acorn Style Fixture and 16 foot Decorative Pole
- Suburban Residential Pedestrian Lighting - Teardrop Post Light
- Suburban Residential Street Lighting - Shoe Box Fixture and 30 foot Square Pole
- Suburban Civic/Commercial Pedestrian Lighting - Teardrop Post Light
- Suburban Civic/Commercial Street Lighting - Shoe Box Fixture and 30 foot Square Pole

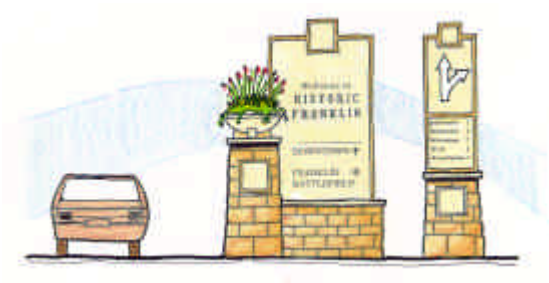
Care should be taken in coordinating the location of street and pedestrian light fixtures in relation to plants in the right-of-way. The placement of plants (considering their mature growth height) should not obstruct lighting. The designer must keep in mind plant height and spacing in relation to the location of light fixtures.

SIGNS & WAYFINDING

Signs and traffic control devices are one of the most prevalent design elements of the roadway. The first and foremost purpose of signs and traffic control devices is for the safe, efficient movement of vehicles. Sign boards, posts, and signals must meet the design requirements per the current Manual of Uniform Traffic Control Devices (MUTCD). Signs and traffic control devices should also be utilized as design elements that reinforce Franklin's theme and distinguish the city from other surrounding communities. The design of signs needs to reflect the city's commitment to history and heritage while continuing to provide the roadway user accurate information. The following general design guidelines should be used in relation to signs and traffic control devices:

- Use signage as a defining element for establishing a theme for Franklin.
- Establish a visual character consistent with other street amenities.
- Develop a hierarchy of sign types and purposes.
- Develop guidelines to control new private signage along corridor.

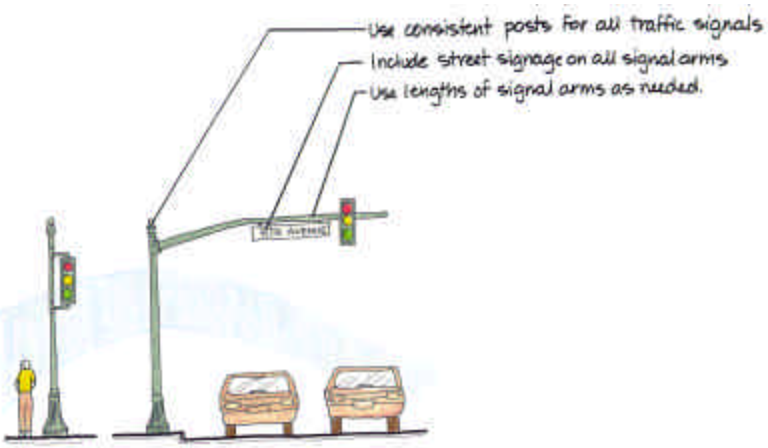
WAYFINDING SIGNS



ORNAMENTAL SIGNS

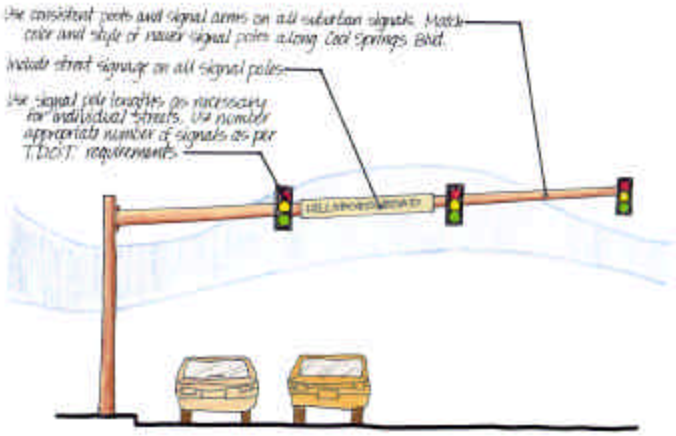
TRAFFIC SIGNALS

Traffic signals will follow a hierarchy, one style for urban/historic areas, and a second style for suburban residential/commercial roadways. Mast arm and stand alone style traffic signal along urban/historic roadways will reflect the historic style of the signals used for downtown. Signals along suburban residential/commercial roadways shall match the color and style of newer signal poles along Cool Springs Blvd. It is important that these styles remain consistent.



URBAN/HISTORIC TRAFFIC SIGNALS

3. Design Guidelines

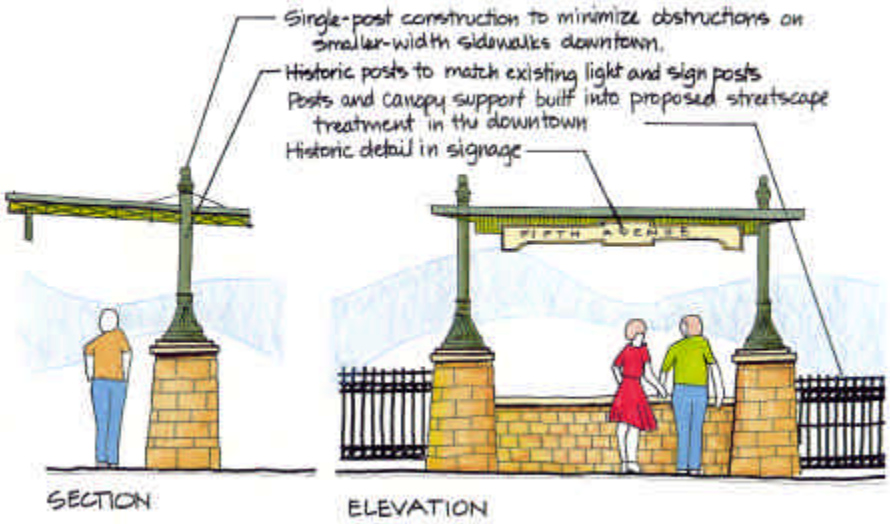


SUBURBAN RESIDENTIAL/COMMERCIAL TRAFFIC SIGNALS

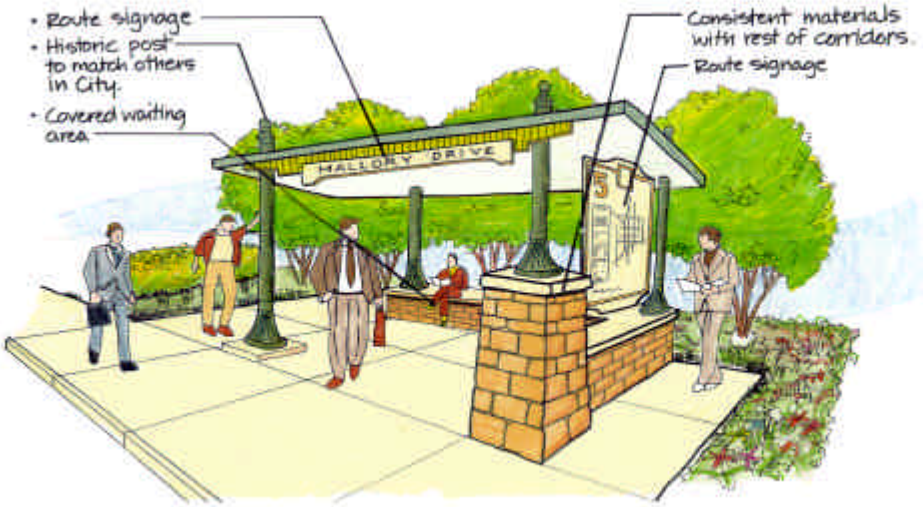
TRANSIT STOPS

There are proposals for providing bus service within the City of Franklin. Typical transit stops are depicted below to help guide the design of the future transit system in Franklin.

Transit connections and bus stops are important design elements of a community. A transit stop must be linked with other transit stops. They must also be thoughtfully designed and located to function at the human scale. The ideal location for a transit stop is integrated with a neighborhood retail center. They must be protected from the weather and have clearly posted schedules indicating origin and destinations. These stops can also be used for less formal car and van pools.

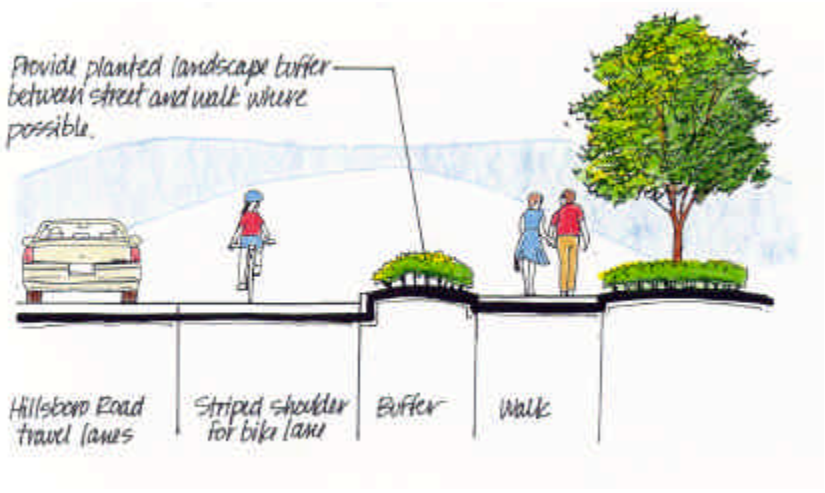


URBAN TRANSIT STOP



SUBURBAN TRANSIT STOP

4. Implementation



4. Implementation

The adoption of the Roadway Enhancement Master Plan as a design guideline policy for the City of Franklin should be split into two components. The first is to adopt the guidelines as they relate to all roads under city jurisdiction. The second is to undertake a process to establish agreements with the State of Tennessee as these design guidelines relate to roads that fall under Tennessee Department of Transportation jurisdiction.

The Roadway Enhancement Master Plan focuses on five priority roadway locations in Franklin. However, it is important to note that the design guidelines have been developed for use on all major arterial roadways throughout the city. Specifically these guidelines pertain to all streets that are eligible for state/federal funding as noted in the City of Franklin Major Thoroughfare Plan.
These design guidelines are a companion document for all engineering design projects undertaken for roadways within the city. They provide a palette of design options for use when improving, extending or constructing new roadways/interchanges within the City.

EXISTING ROADWAYS

Transportation system improvements made to existing roadways (for example a road widening or intersection improvement) will incorporate the Roadway Enhancement Masterplan Guidelines into the overall improvement as a design, and construction budget item.

NEW OR EXTENDED ROADWAYS

Transportation system improvements that extend, or construct new roadways will incorporate the Roadway Enhancement Masterplan Guidelines into the overall improvement as a design, and construction budget item

FUNDING OPTIONS

Developer Improvements.

It is recommended that the developer responsible for making intersection and/or roadway improvements related to a commercial, industrial, or residential development should incorporate these guidelines as a part of those improvements.

Capital Improvement Program.

The City of Franklin, through it's annual Capital Improvement Program can establish an annual fund for implementing phased improvements on roadways identified as "priority roadways".

Federal Enhancement Funding.

The city should apply for funding through the Federal Transportation Enhancement Program. Funds received through this source would be leveraged against funds identified in the CIP.

Special Funding.

The city should consider the development of a cooperative roadway redevelopment program. This program would be based on establishing a public/private partnership between land owners, business owners/lessors and other stakeholders for the sole purpose of improving and redeveloping segments of roadway with a focus around a unifying character that is in concert with the city-wide theme. This planning process would establish the district, boundaries, and zones that would enable the City to pursue a variety of capital improvement sources such as: Special Taxing Districts, Tax Increment Financing, CDBG, CIP, Enhancement, State Industrial or Economic Development.

4. Implementation

SCHOOL AND COMMUNITY PROGRAMS

Establishing cooperative planting and maintenance programs with local community garden clubs and schools provides a methodology of establishing and maintaining roadway landscaping. This relationship helps to foster pride of ownership.

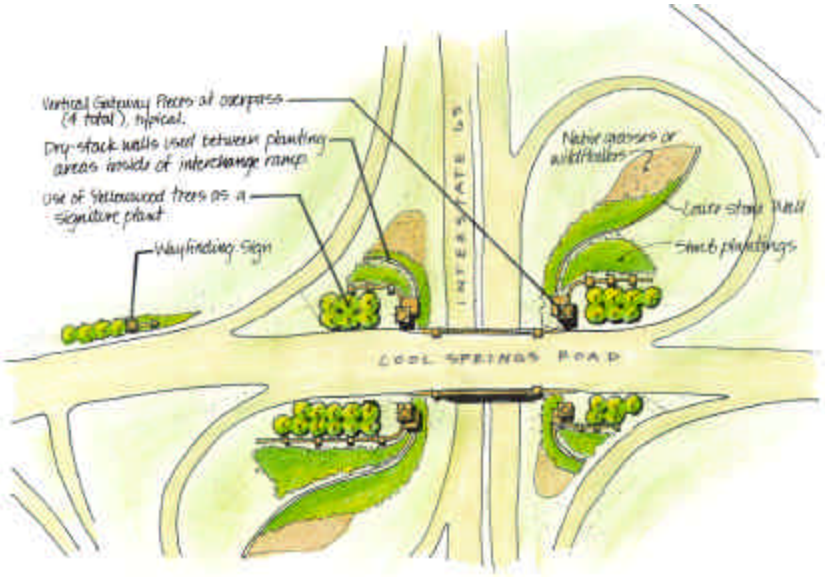
Appendix A: Existing Conditions Presentation Boards

A-1. Hillsboro Road Study Area

A-2. Mallory Lane Study Area

A-3. I-65 and Cool Springs Blvd. Study Area

A-4. I-65 and Highway 96 Study Area



A-1. HILLSBORO ROAD STUDY AREA

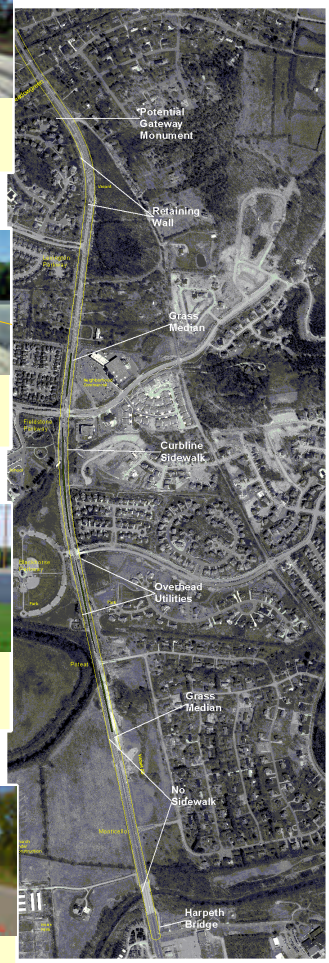
Existing Conditions

Looking southbound at the beginning of the retaining wall.

Curb-line sidewalks with potential bicycle lane.

Large, grass median, landscaping opportunity.

Harpeth River Bridge note wide shoulder.



General Conditions Issues

Hillsboro Road:
From - Meadowgreen to - The Harpeth River Bridge

- *Roadway Length-2 miles*
- *Recently reconstructed*
- *4-lane major arterial*
- *Grass median (partial)*
- *Center turn lane*
- *Curbline Sidewalks (partial)*

- *Pedestrian tunnel at the intersection of Fieldstone Parkway.*

- *Neighborhood monuments located at park areas along Hillsboro Road.*

- *Overhead utilities on both sides.*

- *Recent reconstruction provides opportunity to establish theme and character reflecting the City of Franklin.*

Retaining wall.

HILLSBORO ROAD STUDY AREA

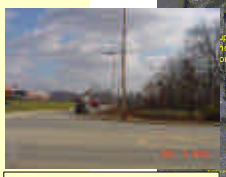
HNTB

Roadway Enhancement Master Plan -
City of Franklin, TN

A-2. MALLORY LANE STUDY AREA

Existing Conditions

Jordan Road bridge detail



Jordan Road intersection

General Conditions/Issues

Mallory Lane:
From - Jordan Road
to - Liberty Pike

Roadway Length-1 mile
Less than 10 years old
4 lane major arterial
Curb cuts pre-set
Grass median
Sidewalks have small (1')
parkway space to curb.
No monuments

Overhead utilities run parallel to the roadway.

Bridge near Jordan Road features natural stone face

Existing street lighting and signal arms are considered appropriate.

Centennial High School Sign

Paw Print painted on pavement

MALLORY LANE STUDY AREA

HNTB

Roadway Enhancement Master Plan -
City of Franklin, TN

A-3. I-65 AND COOL SPRINGS BLVD. STUDY AREA

Existing Conditions

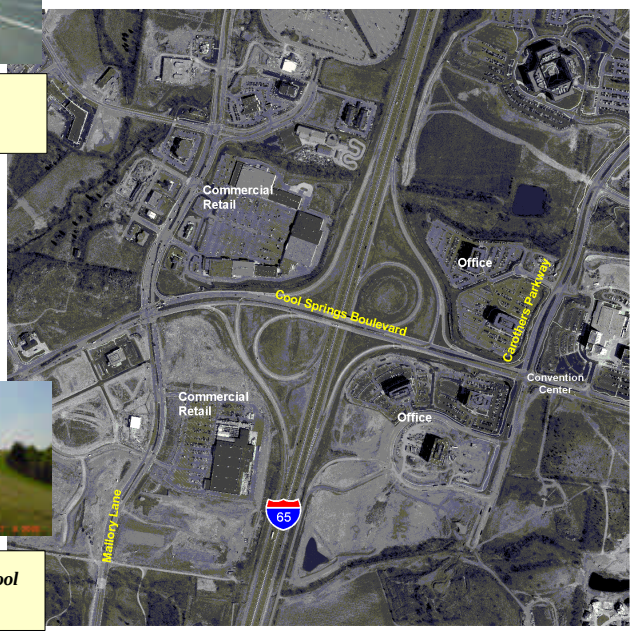
Grass area at the west bound Cool Springs Blvd. exit ramp.

General Conditions/Issues

Cool Springs Boulevard:
At the I-65 Interchange

Main Line 4 lane interstate highway interchange
Trumpet Style interchange
High volume of traffic
Development of office and retail occurring around interchange.
Anticipate signalization at ramp terminals
Existing bridge includes a split rock façade
Opportunities for City Sign and landscaping
Large open areas between ramps
Development around interchange is under 5 years old
Cool Springs Boulevard is "themed" including extensive landscaping, signing and signal arms, use of monuments and dry-stack walls.

Facing south on I-65 Cool Springs Blvd. entrance ramp area.



Westbound exit to Cool Springs Blvd.

I-65 & COOL SPRINGS STUDY AREA

HNTB

Roadway Enhancement Master Plan -
City of Franklin, TN

A-4. I-65 AND HIGHWAY 96 STUDY AREA

Existing Conditions

I-65 westbound ramp to Hwy. 96.

Hwy 96 intersection with I-65 exit ramp.

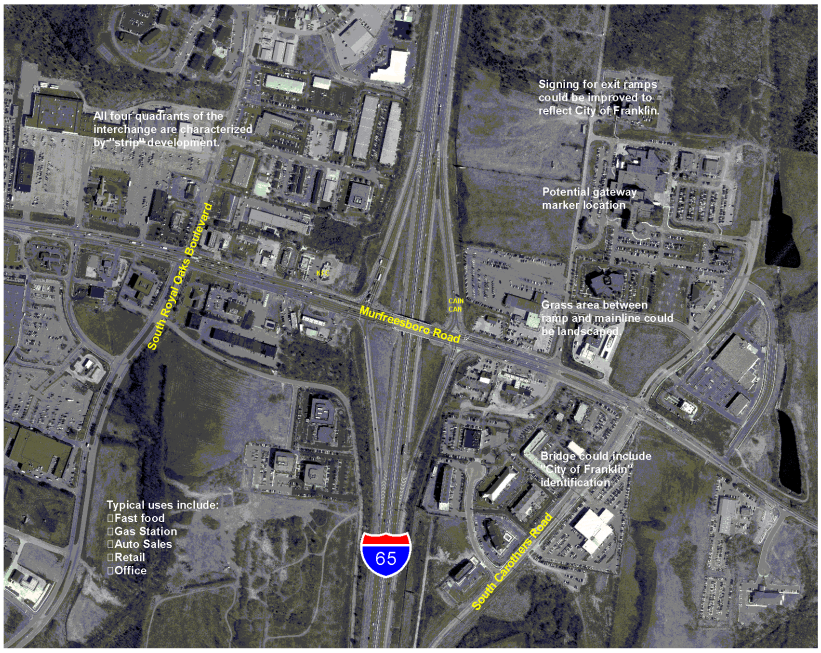
General Conditions/Issues

I-65 & Highway 96 (Murfreesboro Road): Interchange locations

4 lane interstate main line.
Heavy traffic volume on both the interstate and major arterial.
Bridge provides opportunity for City identification.
Large grass area between ramps provides opportunity for landscaping and "theme" development
There is a large area of ROW adjacent to Kentucky Fried Chicken on the northwest quadrant of the interchange. This could be developed for City identification.

Public roadway signing and gateway features could define this area for the City of Franklin.

Private signs, on commercial property, along with extensive overhead utilities make it hard to distinguish between commercial businesses.



I-65 & Hwy 96 STUDY AREA

HNTB

Roadway Enhancement Master Plan - City of Franklin, TN

Appendix B: Conceptual Design Presentation Boards

B-1. Fifth Avenue Study Area

B-2. Hillsboro Road Study Area

B-3. Mallory Lane Study Area

B-4. I-65 and Cool Springs Blvd. Study Area

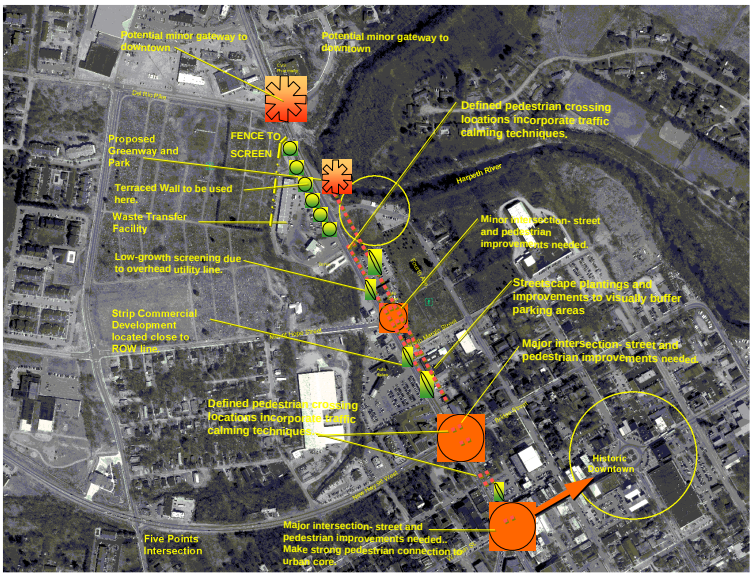
B-5. I-65 and Highway 96 Study Area

B-6. Conceptual Design Features

B-7. Conceptual Design Features

B-1. FIFTH AVENUE STUDY AREA

Conceptual Design



Typical Downtown Treatment

SECTION VIEW OF TREATMENT AT DOWNTOWN PARKING AREAS

PLAN VIEW OF TYPICAL DOWNTOWN PARKING TREATMENT

ELEVATION OF TYPICAL TREATMENT ADJACENT TO DOWNTOWN PARKING

Minor Gateways

TYPICAL MINOR GATEWAY TREATMENT

5th Avenue: Gateway to Historic Downtown:

Fifth Avenue provides the transitional space between the fringe gateways and the historic downtown urban core.

ISSUES:

- *Form a connection with the historic character of downtown, transitioning from the broader historical design references at the outer gateways to the more specific historic design vocabulary of the downtown area. Use smaller, more pedestrian scale materials that are visually consistent with materials used in other portions of the corridors.*

CONCEPTUAL DESIGN:

- *Bring larger-scale design concepts down to a more detailed and pedestrian scale.*
- *Use of locally significant materials: native Tennessee limestone, flagstone walls (dry-stack character), and cast stone planters.*
- *Use of pedestrian scale materials (smaller columns, planters, iron fencing, etc.).*
- *Develop special pavement treatments in appropriate areas.*
- *Enhance pedestrian orientation through the development of coordinated wayfinding signage.*
- *Seek creative ways to introduce street plantings for visual variety and buffering.*
- *Relocate and/or remove overhead utility lines.*
- *Enhance intersections with coordinated, historic signal poles, and encourage the placement of new light standards consistent with the historic features of the downtown area.*

HNTB

5TH AVENUE STUDY AREA

Roadway Enhancement Master Plan -
City of Franklin, Tennessee May 2001

B-2. HILLSBORO ROAD STUDY AREA

Conceptual Design

Hillsboro Road: Suburban Zone

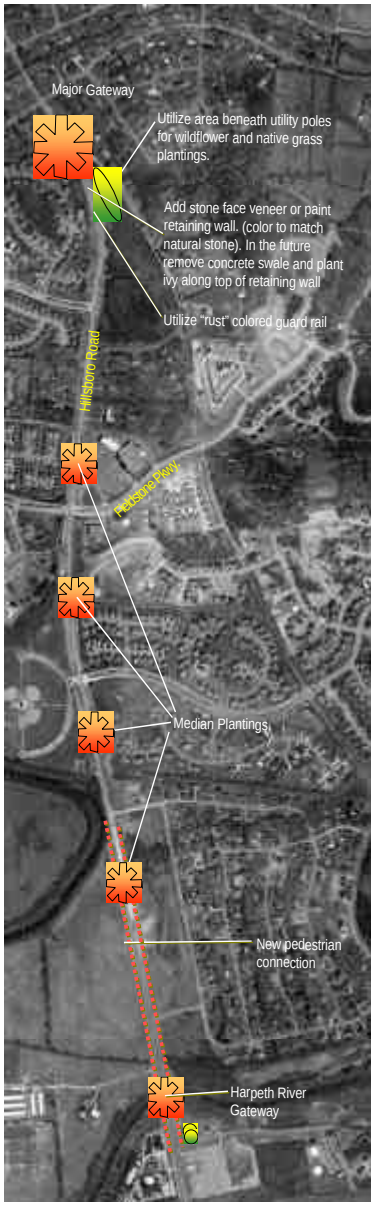
Hillsboro Road provides a northern entrance to the City of Franklin. Its setting is suburban, with a more rural feel than the other corridors.

ISSUES:

- *Form a connection with the historic character of downtown, while retaining the corridor's rural, suburban character.*

CONCEPTUAL DESIGN:

- *Use of locally significant materials: native Tennessee limestone, flagstone walls (dry-stack character), and white wood fencing. Limit creation of new walls so as not to compete with existing subdivision entrances.*
- *Enhance the pedestrian attributes of the corridor by establishing bike lane in existing shoulder and providing pedestrian walks where none currently exist.*
- *Use native plantings to enhance R.O.W. and medians.*
- *Replace existing overhead utility lines with new underground lines, and coordinate new lighting with other more suburban corridors.*



Proposed Pedestrian Improvements

EXISTING ROADWAY WITH SIDEWALKS ADJACENT TO CURB

EXISTING ROADWAY WITH LANDSCAPE BUFFER and PROPOSED WALK

Minor Gateway Concept

MINOR GATEWAY MARKER

HNTB

HILLSBORO ROAD STUDY AREA

Roadway Enhancement Master Plan -
City of Franklin, Tennessee

May 2001

B-3. MALLORY LANE

Conceptual Design

Mallory Lane: Civic and Commercial Connections

Mallory Drive is suburban in nature, but developing into a commercial corridor. Centennial High School establishes the southern portion as a civic space.

ISSUES:

- *Develop a prototypical treatment for civic zones*
- *Develop a prototypical treatment for commercial zones*
- *Provide visual connection with the historic character of Franklin*
- *Develop a means to integrate community into the physical design elements*

CONCEPTUAL DESIGN FOR CIVIC ZONES:

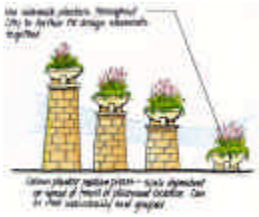
- *Use of banners that could promote downtown and other civic events such as special school activities. Banners also add color to corridor.*
- *Use of other median pieces to reinforce civic nature of corridor and to visually tie corridor to other corridors and sections of Franklin.*
- *Use of locally significant materials: native Tennessee limestone and flagstone walls (dry-stack character) where applicable.*
- *Extensive native plantings for use as both visual features and as buffers in medians.*
- *Tree plantings and place-markers in ROW where sufficient space exists.*

CONCEPTUAL DESIGN FOR COMMERCIAL ZONES:

- *Use ROW plantings to screen large expanses of parking and other undesirable views from the roadway. Use caution in the selection and location of plant material as not to restrict views of commercial buildings, signs, and entry/exit points.*
- *Where possible, coordinate signage efforts with developers in order to maintain consistent feel of of corridor.*

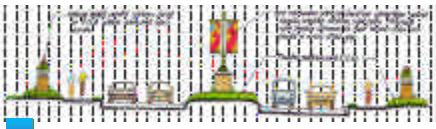
Median Placemarkers

MEDIAN PLACEMARKERS: Banner and Light Poles

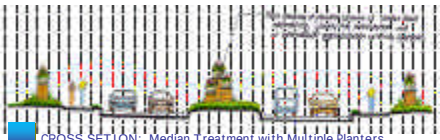


EXISTING ROADWAY WITH LANDSCAPE BUFFER and PROPOSED WALK

Typical Street Sections



CROSS SECTION: Median Treatment with Banner Poles and Lights



CROSS SECTION: Median Treatment with Multiple Planters

CROSS SECTION: Median Treatment with Planters

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MALLORY LANE AREA

Roadway Enhancement Master Plan -
City of Franklin, Tennessee

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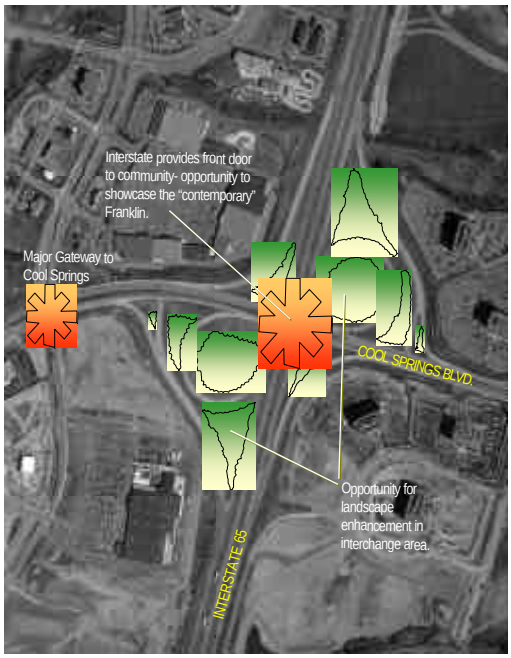
B-4. I-65 AND COOL SPRINGS BLVD. STUDY AREA

Conceptual Design



Northern Gateway: Contemporary Franklin

The interstate connections to Franklin offer two distinctively different faces of the community. The northern exchange represents the more modern and contemporary face of the City.

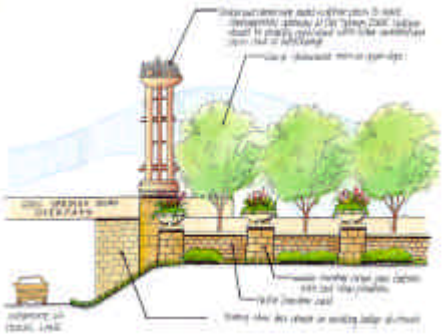
ISSUES:

- *Connect with the contemporary feel of Cool Springs Area, while maintaining design consistency with historic materials used elsewhere in the City of Franklin.*

CONCEPTUAL DESIGN:

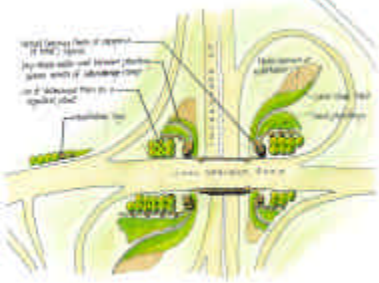
- *Use overscaled gateway features at interstate to capture travelers' views as they pass.*
- *Use of locally significant materials: native Tennessee limestone, flagstone walls (dry-stack character)*
- *Contemporary metals*
- *Native plantings throughout interchange area, highlighting the Yellowwood tree as a unifying element throughout the community.*

Overscaled Interstate Gateway Concept



INTERSTATE ENTRY STATEMENT FOCAL POINT & GATEWAYS CONCEPT FOR COOL SPRINGS INTERCHANGE "CONTEMPORARY FRANKLIN"

Conceptual Planting Scheme



TYPICAL SCHEMATIC PLANTING DESIGN FOR COOL SPRINGS INTERCHANGE AREAS

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COOL SPRINGS/I-65 AREA

Roadway Enhancement Master Plan -
City of Franklin, Tennessee

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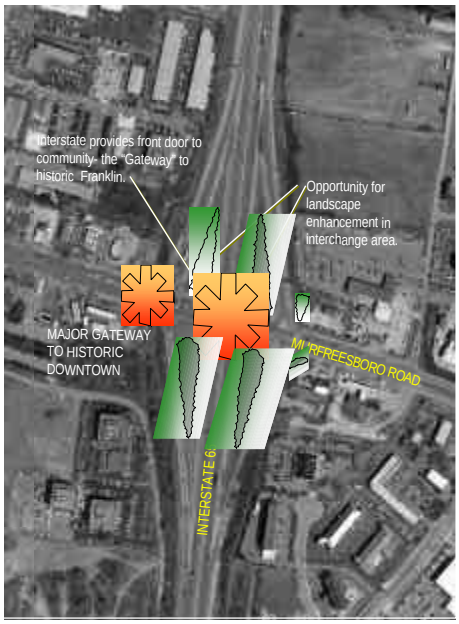
B-5. I-65 AND HIGHWAY 96 STUDY AREA

Conceptual Design



Southern Gateway: Historic Franklin

The interstate connections to Franklin offer two distinctively different faces of the community. The southern exchange represents the historic gateway to the City.

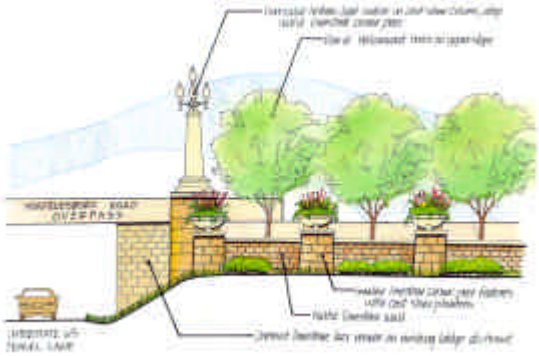
ISSUES:

- *Define historic character that connects interchange to historic downtown.*
- *Create sense of history through consistent use of materials that reflect historic nature of Franklin.*
- *Use pieces that have a connection with the Cool Springs interchange but is more historic in character.*

CONCEPTUAL DESIGN:

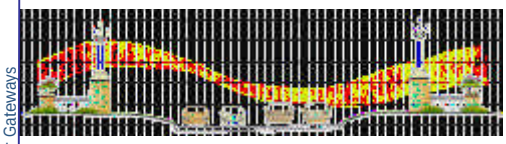
- *Use overscaled gateway features at interstate to capture travelers' views as they pass.*
- *Use of locally significant materials: native Tennessee limestone, flagstone walls (dry-stack character)*
- *Historic stone and iron light features*
- *Native plantings throughout interchange area, highlighting the Yellowwood tree as a unifying element throughout the community.*

Overscaled Interstate Gateway Concept



INTERSTATE ENTRY STATEMENT FOCAL POINT & GATEWAYS CONCEPT FOR MURFREESBORO ROAD INTERCHANGE "HISTORIC FRANKLIN"

Major Gateways



SECTION: MAJOR GATEWAY TREATMENT: MURFREESBORO ROAD

TYPICAL MAJOR GATEWAY ELEMENTS

I-65/HIGHWAY 96 AREA

Roadway Enhancement Master Plan -
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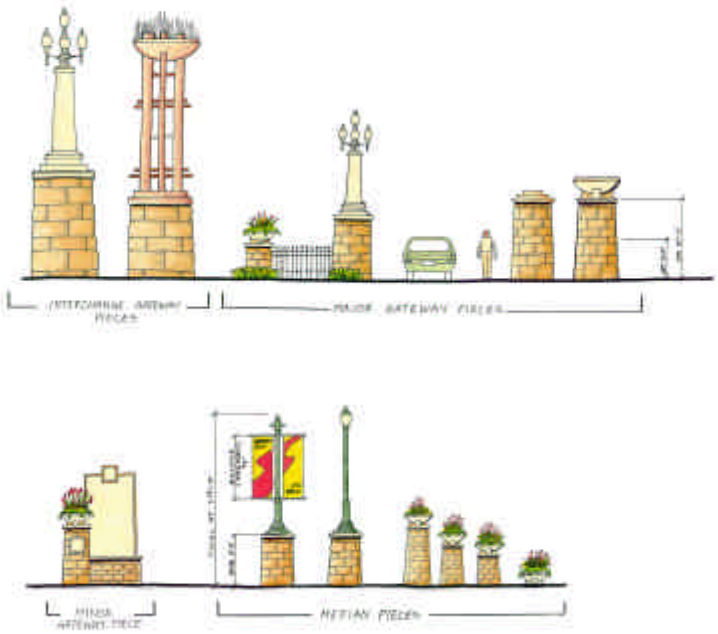
B-6. CONCEPTUAL DESIGN FEATURES

Conceptual Design

Scaled Elevations of Architectural Concept Pieces



RELATIVE SCALE OF CORRIDOR VERTICAL ELEMENTS

Wayfinding Signage Options

SIGNAGE TREATMENT AND ALTERNATIVE WAYFINDING SIGNAGE OPTIONS

Traffic Signals

URBAN TRAFFIC SIGNALS

SUBURBAN TRAFFIC SIGNALS

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Conceptual Design Features

Roadway Enhancement Master Plan -
City of Franklin, Tennessee

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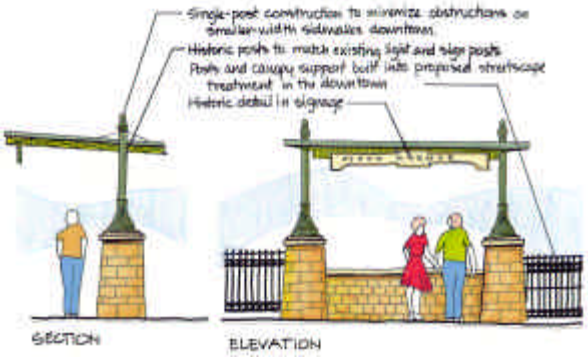
B-7. CONCEPTUAL DESIGN FEATURES

Conceptual Design

Future Transit Stops



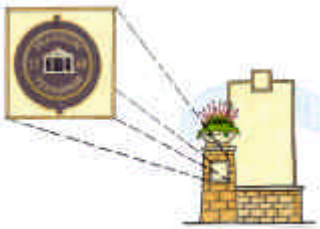
URBAN TRANSIT STOPS

SUBURBAN TRANSIT STOPS

Community Identity Concept

The City of Franklin should undertake a separate study to develop an appropriate community identity piece. Once developed, the piece will help further unify the community and create a comprehensive and recognizable symbol of the community. The piece can be used throughout the community on design elements to further tie to together both historical and contemporary improvements, as well as on City letterhead and other promotions throughout the community. Potential uses of identity piece:

- *Use on all wayfinding signage within community*
- *Use on interstate signage and other vehicular signage directing traffic to Franklin*
- *As a medallion, mounted on limestone cornerstone pieces used in all proposed gateway and median features (as shown in graphic on left).*



CONCEPT FOR COMMUNITY IDENTITY PIECE

HNTB

Conceptual Design Features

Roadway Enhancement Master Plan -
City of Franklin, Tennessee

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Appendix C: Plant Species List

Appendix C: Plant Species List

Throughout this document, combinations of plant materials have been suggested for use along each of the different types of roadways. The following list of plant materials provides general information about these plants and their individual requirements:

LANDSCAPE DESIGN SPECIES PALETTE – TREES								
NAME	TYPE	DESCRIPTION	LIGHT	HEIGHT/WIDTH	SOIL PREFERENCE	DRAINAGE	COMMENTS	FALL FOLIAGE
Basswood, American linden - Tilia americana	Tree over 50 ft. tall	Deciduous	Shade to partial sun	30 to 70 feet	Acid, lime OK, rich preferred	Moist, does not tolerate flooding	Pale yellow flower	Pale yellow
Black Locust, Robinia pseudoacacia L.	Tree 40 ft. tall	Deciduous	`	40 to 60 feet	Coarse or Fine Textured soil pH 4.59/8.19	precip min/max 16/65	`	`
Black oak - Quercus velutina	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	50 to 80 feet	Acid coarse, rich or poor, clay subsoil	Moist to dry intolerant of flooding	`	Yellow to gold
Blackgum - Nyssa sylvatiac	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	50 to 75 feet	Acid	Dry		Brilliant red
Cedar Cedrus sp. (Northern)	Tree	Coniferous	Medium to dense	60' tall 35' wide	Rich, well drained preferably acid		Picturesque, with bluish foliage and stiff branches that often droop slightly.	
Duraheat river Birch	`	`	`	`	`	`	`	`
Dwarf River Birch	`	`	`	`	`	`	`	`
Eastern hemlock Tsuga canadensis	Tree over 50 ft. tall	Evergreen	Shade to partial sun	60 to 70 feet can reach 100	Acid, rich	Moist	Pale yellow male flowers, pale green female flowers, early spring	`
Eastern red cedar, Juniperus viriginiana(Berkii - cultivar)	Tree over 50 ft. tall	Evergreen	Sun or Shade	40 to 50 feet max = 90'	Any, neutral to alkaline preferred	Dry	`	`
Emerald Sentinal Cedar	Tree over 50 ft. tall	Evergreen	Shade to partial sun	60 to 70 feet can reach 100	Acid, rich	Moist	Excellent shape and recommended for screen or background	`
Northern Red Oak	Tree 36 ft. tall	Deciduous	`	`	Fine textured soil pH Min/Max 4.3/6.5	precip min/max 32/80	`	`
Nutall Oak	`	`	`	`	`	`	Oaks are long lived	`
Post oak - Quercus stellata	Tree over 50 ft. tall	Deciduous	Sun	40 to 60 feet	Acid to neutral, poor	Dry	Oaks are exceelent shade trees	Brown
Red Maple	`	`	`	`	`	`	`	`
Red Maple - Acer rubrum	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	50 to 120 feet	Acid, rock, mud	Wet to dry	Best in water ways and creeks. Red flowers on males early spring	Orange red to purplish red sometimes pure yellow
River birch - Betula nigra	Tree over 50 ft. tall	Deciduous	Sun	50 to 90 feet	Acid, clay ok	Wet to moist	Dura-heat variety should be used	Briefly yellow in fall
Scarlet buckeye - Aesculus pavia	Tree	Deciduous	Shade to partial sun	20 to 25 feet tall	Acid, rich	Moist	Pale yellow	orange and gold

Appendix C: Plant Species List

LANDSCAPE DESIGN SPECIES PALETTE – TREES (CONT'D)								
NAME	TYPE	DESCRIPTION	LIGHT	HEIGHT/WIDTH	SOIL PREFERENCE	DRAINAGE	COMMENTS	FALL FOLIAGE
Shagbark hickory - Carya ovata	Tree over 50 ft. tall	Deciduous	Shade to full sun	50 to 90 feet	Slightly acid, rich, silt and clay	Moist to dry	Good Speciman Tree	Old gold in fall
Southern Red Oak Quercus falcata Michx	Tree 35 ft. tall	Deciduous	`	`	Fine textured soil pH Min/Max 4.8/7	precip min/max 35/50	`	`
Sweetbay Swampbay - Magnolia virginiana	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	60 Feet	Acid, poor to rich	Wet to moist	Creamy white, fragrant 3 to 6 inch blossoms	Medium green
Sweetgum - Liquidambar styraciflua (Round lobed)	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	60 to 120 feet	Acid to neutral, deep	Moist to wet	Good street tree	yellow, orange, red, and burgundy
Tulip poplar, tuliptree - Liriodendron tulipifera	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	75 to 100 feet	Acid to neutral, deep rich	Moist but never flooded	Good street tree	Yellow
Virginia Pine - Pinus virginiana	Tree over 50 ft. tall	Evergreen	Sun or Shade	30 to 40 feet can reach 100	Acid, poor, deep	Dry	Cinnamon male flowers, pale green female flowers, spring	`
White ash - Fraxinus americana (Seedless)	Tree over 50 ft. tall	Deciduous	Shade to full sun	50 to 120 feet	Acid, rich, deep preferred, lime OK	Moist tolerates brief flooding	`	gold, orange, and purple in early fall
White oak - Quercus alba	Tree over 50 ft. tall	Deciduous	Partial shade to full sun	50 to 100 feet	Acid, deep rich	Moist, well drained	Oaks are an excellent suburban street tree	orange-red to deep red in late fall
Willow Oak, Quercus phellos L.	Tree 60 ft. tall	Deciduous	`	60 to 100 ft.	Fine Textured soil pH 4.5/5.5	precip min/max 40/60	`	`
Winged Elm	`	`	`	`	`	`	Bark has "wings" adds interest to winter scenery.	`
Yellowwood - Cladrastis kentukea	Tree	Deciduous	Partial shade to full sun	20 to 35 feet	Limestone moderately acid ok	Moist	Tennessee Bi-Centennial Tree, has white blossoms	yellow

LANDSCAPE DESIGN SPECIES PALETTE – ORNAMENTAL TREES								
NAME	TYPE	DESCRIPTION	LIGHT	HEIGHT/WIDTH	SOIL PREFERENCE	DRAINAGE	COMMENTS	FALL FOLIAGE
Alder - Alnus serrulata	Flowering and Fruiting Trees over 15 feet tall	Deciduous	Partial shade to full sun	10 to 20 feet	Acid to neutral	Wet to Moist creeks and waterways	yellow	yellow/orange
Devils walkingstick - Aralia spinosa	Flowering and Fruiting Trees over 15 feet tall	Deciduous	Partial shade to full sun	15 to 20 feet	Acid, rich poor OK	Moist, tolerates seasonal flooding	White in 3 to 4 foot clusters	yellow to orange to purple
Dogwood (Cherokee Princess) Cornus kousa	Tree	Deciduous	Light	25' tall; 15' wide		Well Drained	White flowers, occasionally tinged with pink, borne atop foliage in late spring. Attractive red fruits.	Reddish
Flowering dogwood - Cornus florida	Flowering and Fruiting Trees over 15 feet tall	Deciduous	Partial shade to full sun	20 to 30 feet	Acid to neutral	Moist to dry	White	red
Fringetree - Chionanthus virginicus	Flowering and Fruiting Trees over 15 feet tall	Deciduous	Partial shade to full sun	20 to 35 feet	Very acid, acid rich preferred	Moist to dry	White	yellow to gold
Parsley hawthorn - Crataegus marshallii	Flowering and Fruiting Trees over 15 feet tall	Deciduous	Partial shade to full sun	20 feet	Acid, rich preferred	Moist	Whit sometimes with red anthers	Scarlet to wine
Redbud - Cercis canadensisvar	Flowering and Fruiting Trees over 15 feet tall	Deciduous	Partial shade to full sun	20 to 35 feet	Acid, lime ok	Moist to dry	Rosy purple	yellow
Serviceberry - Amelanchier arboreavar		Deciduous	Full to partial shade	10 to 20 feet	Acid	Moist to dry	White or flushed with pink	Yellow to apricot to mauve

Appendix C: Plant Species List

LANDSCAPE DESIGN SPECIES PALETTE- SHRUBS, VINES AND GROUNDCOVERS								
NAME	**TYPE**	**DESCRIPTION**	**LIGHT**	**HEIGHT/ WIDTH**	**SOIL PREFERENCE**	**Drainage**	**COMMENTS**	**FALL FOLIAGE**
Crape Myrtle Lagerstroemia indica	Shrub	11/2 to 2 inch flowers in 8 to 12 inch long clusters in late summer. White pink, red, and lavender blooms. Yellow or red leaves in fall. Bark peels	`	7' to 20'	Full sun; moist, rich, well drained soil	`	Resists pests and diseases. Prune in early spring before flowering Use in informal hedge or as specimen plant.	`
Kentucky Coffe Tree	`	`	`	`	`	drought tolerant	`	White blooms
Viburnum Sargent cranberry bush Viburnum sargenti	Shrub	Tiny white flowers in 2 to 3 inch wide clusters mid-spring, followed by red berries in fall.	`	12'	Full sun or partial shade; well drained soil	`	Very vigorous and hardy. Use in border, as a screen, or as a specimen.	`
Candytuft Evergreen candytuft, Iberis sempervirens	Ground Cover	Mass of white, 2-inch tall flower spikes cover dense, little dark green foot tall bushes in spring. Improved varieties bloom at intervals all season	Sun or light shade	`	`	`	Attractive all year. Needs lots of humus. Starts easily from seed or plants set for to five per square yard. Cut back after bloom or severe winter.	`
Clematis Big Petal Clematis macropetala	Vine	Large blue flowers with many sepal in spring.	`	`	`	`	Prune after flowering	`
American Smoke Tree	Multiple trunk species	`	`	`	`	`	Never allow European variety.	`
St Johns Wart (Sunburst)		3 to 4 foot tall	`	`	`	drought tolerant	Blue green	yellow blooms
Pussy Willow Korea rose gold Salix gracilistyla	Shrub	Twigs are covered with 1 to 2 inch long, silver pink catkins in early spring that gradually turn yellow with pollen	`	10'	Full sun; moist, well drained soil	`	Quick growing. Use as screen or in border.	`
Golden Elderberry	Shrub	`	`	`	`	`	Excellent in a natural setting	`
Oak leaf Hydrangia	Shrub	`	`	`	`	`	four season plant, provides varying colors all year.	`
Red Switch Grass Paanicum virgatum	Grass	`	Full sun	up to 6 foot tall	`	`	Cut 1 time in late spring. Leave stand through the winter to provide a backdrop to other plants.	`
Honeysuckle Lowicera semipervirens	Vine	`	a	`	`	`	`	`
Native bush honey suckle	low shrub	`	`	`	`	`	handles full sun and heat.	`
American Wisteria Wisteria frutescens (L.) Poir.	Vine	Native perennial	`	Growth up to 50 ft.	Coarse or fine soil pH 4/7	Precip min/max 40/60	shade tolerant	`
Black Locust (purple rose)	`	`	`	`	`	`	Excellent for interchange locations due to hardiness (used in strip mine reclamation)	`

Appendix C: Plant Species List

WILDFLOWERS AND NATIVE GRASSES

The following is a list of some appropriate species for native wildflower plantings:

- Red Corn Poppy/Flanders Poppy
  Papaver rhoeas (Papveraceae)
- Shasta Daisy
  Chrysanthemum maximum (Asteraceae)
- Dame's Rocket
  Hesperis matronalis (Brassicaceae)
- Black-Eyed Susan
  Rudbeckia hirta (Asteraceae)
- Blanketflower
  Gaillardia aristata (Asteraceae)
- Clasping Coneflower
  Rudbeckia amplexicaulis (Asteraceae)
- Plains Coreopsis/Calliopsis
  Coreopsis tinctoria (Asteraceae)
- Yellow Cosmos
  Cosmos sulphureus (Asteraceae)

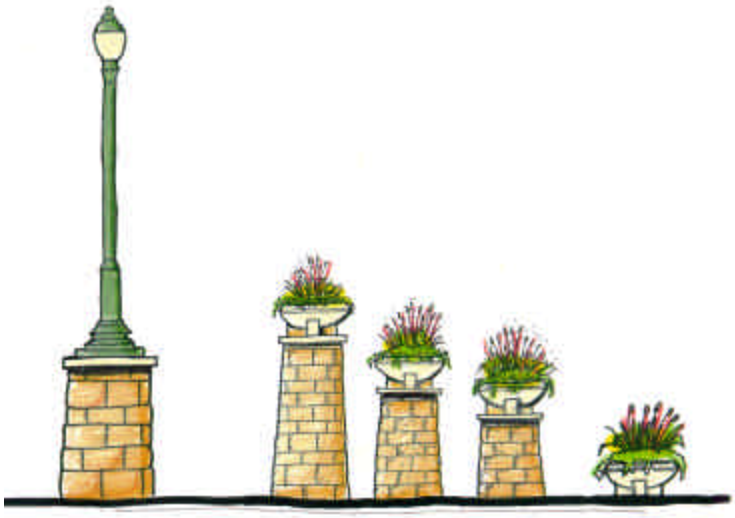
Another natural planting technique combines native grasses such as Winter Rye and Switch Grass with bulb flowers such as Day Lily, Jonquil, and Buttercup. These combinations are self-propagating and provide color throughout the year.

SOURCES

GARDENING WITH NATIVE PLANTS OF THE SOUTH, Sally Wasowski. Taylor Publishing Company, Dallas, Texas.

USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (http://plants.usda.gov) National Plant Data Center, Baton Rouge, LA 70974-4490.

Appendix D: Cost Estimates



Appendix D: Preliminary Cost Estimates

Preliminary cost estimates were developed to help guide the development of an on-going capital improvement program in order to implement the Roadway Enhancement Master Plan. Each roadway project has been divided into three phases. The first phase includes basic roadway improvements such as demolition, grading, irrigation, and plant materials. Phases two and three include additional improvements that are recommended. The second phase includes signs, pavement markings, and the installation of banner posts. The third and final phase includes the installation of gateways, street furnishings, and ornamental fencing. It is important to note that these preliminary cost estimates are for budgeting purposes only. They are based on an average that includes both material and labor. When new roadway enhancement improvements are proposed, these estimates must be updated and refined to reflect a more accurate budget.

URBAN/HISTORIC ROADWAYS COST ESTIMATE – MAY 2001

Urban/Historic Cost Estimates				
Tier I Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Grading and removal of existing features	LF	$14	5000	$70,000
Irrigation System	LSUM	$3	10000	$30,000
Tree planting deciduous	Each	$400	11	$4,400
Tree planting ornamental	Each	$250	8	$2,000
Shrubs	Each	$50	1000	$50,000
Perennials/Groundcover	SF	$10	1000	$10,000
Contingencies	10%	$16,640		$16,640
TOTAL PHASE I ESTIMATE (PER MILE)				$183,040
Tier II Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Wayfinding	Each	$800	4	$3,200
route and directional signage	Each	$500	10	$5,000
Pedestrian Pavement markings	LSUM	$1,000		$1,000
Misc. Planters	Each	$1,000	10	$10,000
Free-standing banner posts	Each	$5,000	30	$150,000
Banners & Accessories	Each	$1,000	30	$30,000
Contingencies	10%	$19,920		$19,920
TOTAL PHASE II ESTIMATE (PER MILE)				$219,120
Tier III Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Minor Gateways	Each	$12,500	1	$12,500
Misc. Street Furnishings	LSUM	$100,000		$100,000
Pavement enhancement at lots	SF	$10	1000	$10,000
Ornamental Fence with monuments	LF	$130	3000	$390,000
Contingencies	10%	$51,250		$51,250
TOTAL PHASE III ESTIMATE (PER MILE)				$563,750
TOTAL PROJECT COST ESTIMATE	**(PER MILE)**			**$965,910**

NOTE: 5TH Street cost estimate does not include burial/removal of overhead utility lines, new signals or traffic signal arms, or transit stations.

Project Length = 1 mile
Average cost per lineal foot of improvement = $91
This average cost is based on improvements to both sides of the street for the 1 mile roadway.

Appendix D: Preliminary Cost Estimates

SUBURBAN RESIDENTIAL ROADWAY COST ESTIMATE – MAY 2001

Suburban Residential Cost Estimate				
Tier I Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Grading and removal of existing features	LF	$14	5000	$70,000
Sidewalk	LF	$25	1000	$25,000
Tree planting deciduous	Each	$400	8	$3,200
Tree planting ornamental	Each	$250	4	$1,000
Shrubs	Each	$50	500	$25,000
Perennials/Groundcover	SF	$10	5000	$50,000
Contingencies	10%	$17,420		$17,420
TOTAL PHASE I ESTIMATE (PER MILE)				$191,620
Tier II Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Wayfinding	Each	$800	4	$3,200
route and directional signage	Each	$500	15	$7,500
Pedestrian Pavement markings	LSUM	$1,000		$1,000
Minor Gateway	Each	$12,500	2	$25,000
Retaining Wall Treatment	LSUM	$60,000		$60,000
Minor Gateway	Each	$12,500	4	$50,000
Contingencies	10%	$14,670		$14,670
TOTAL PHASE II ESTIMATE (PER MILE)				$161,370
Tier III Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Median Placemarkers	Each	$12,000	3	$36,000
Misc. Placemarkers	LSUM	$1,000	3	$100,000
Contingencies	10%	$13,600		$13,600
TOTAL PHASE III ESTIMATE (PER MILE)				$149,600
TOTAL PROJECT COST ESTIMATE (PER MILE)				**$502,590**

Project Length = 2 miles
Average cost per lineal foot of improvement = $48
This average cost is based on improvements to both sides of the street for the 2 mile roadway.

Appendix D: Preliminary Cost Estimates

SUBURBAN CIVIC/COMMERCIAL ROADWAY COST ESTIMATE – MAY 2001

Suburban Civic/Commercial Cost Estimate				
Tier I Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Grading and removal of existing features	LF	$14	50	$700
Irrigation System	LSUM	$50,000		$30,000
Tree planting deciduous	Each	$400	8	$3,200
Tree planting ornamental	Each	$250	4	$1,000
Shrubs	Each	$50	25	$1,250
Perennials/Groundcover	SF	$10	1000	$10,000
Contingencies	10%	$4,615		$4,615
TOTAL PHASE I ESTIMATE (PER MILE)				$50,765
Tier II Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Wayfinding	Each	$800	4	$3,200
route and directional signage	Each	$500	10	$5,000
Pedestrian Pavement markings	LSUM	$1,000		$1,000
Minor Gateway	Each	$12,500	2	$25,000
Free-standing banner posts	Each	$5,000	30	$150,000
Banners & Accessories	Each	$1,000	30	$30,000
Contingencies	10%			
TOTAL PHASE II ESTIMATE (PER MILE)				$214,200
Tier III Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Median Placemarkers	Each	$12,000	20	$240,000
Misc. Placemarkers	LSUM	$1,000	20	$100,000
Contingencies	10%	$34,000		$34,000
TOTAL PHASE III ESTIMATE (PER MILE)				$374,000
TOTAL PROJECT COST ESTIMATE (PER MILE)				**$638,965**

Project Length = 1 mile
Average cost per lineal foot of improvement = $61
This average cost is based on improvements to both sides of the street for the 1 mile roadway.

Appendix D: Preliminary Cost Estimates

CONTEMPORARY INTERSTATE INTERCHANGE COST ESTIMATE – MAY 2001

Contemporary Interchange Cost Estimate				
Tier I Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Grading and removal of existing features	LF	$14	4000	$56,000
Tree planting deciduous	Each	$400	20	$8,000
Tree planting ornamental	Each	$250	20	$5,000
Shrubs	Each	$50	400	$20,000
Perennials/Groundcover/Wildflowers	SF	$60	2000	$120,000
Contingencies	10%	$20,900		$20,900
TOTAL PHASE I ESTIMATE (PER MILE)				$229,900
Tier II Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Major Gateways- Limestone base	Each	$20,000	4	$80,000
Drystack Wall Sections	LF	$100	1000	$100,000
Wayfinding	Each	$800	6	$4,800
Upper Limestone Walls	LF	$600	200	$120,000
Contingencies	10%	$30,480		$30,480
TOTAL PHASE II ESTIMATE (PER MILE)				$335,280
Tier III Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Major Gateways - Sculpture	Each	$50,000	4	$200,000
Planter Columns	Each	$3,200	8	$25,600
Contingencies	10%	$22,560		$22,560
TOTAL PHASE III ESTIMATE (PER MILE)				$248,160
TOTAL PROJECT COST ESTIMATE (PER MILE)				**$813,340**

Interstate Quadrant Estimate (4)
Average Cost quadrant = $203,335
This average cost is based on improvements to each of the four quadrants of the interchange.
This average cost is based on improvements to both sides of the street for the 1 mile roadway.

Appendix D: Preliminary Cost Estimates

URBAN/HISTORIC INTERCHANGE COST ESTIMATE – MAY 2001

Urban/Historic Interchange Cost Estimate				
Tier I Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Grading and removal of existing features	LF	$14	4000	$56,000
Tree planting deciduous	Each	$400	24	$9,600
Tree planting ornamental	Each	$250	8	$2,000
Shrubs	Each	$50	120	$6,000
Perennials/Groundcover/Wildflowers	SF	$60	1000	$60,000
Contingencies	10%	$13,360		$13,360
TOTAL PHASE I ESTIMATE (PER MILE)				$146,960
Tier II Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Major Gateways- Limestone base	Each	$20,000	4	$80,000
Major Gateways - Cast Stone Column	Each	$20,000	4	$80,000
Major Gateways - Light Features	Each	$20,000	4	$80,000
Upper Limestone Walls	LF	$600	200	$120,000
Stone Venner Bridge Treatment	SF	$35	2000	$70,000
Contingencies	10%	$45,000		$45,000
TOTAL PHASE II ESTIMATE (PER MILE)				$475,000
Tier III Recommended features	**TYPE**	**DESCRIPTION**	**Quantity**	**Estimate**
Description	Unit	Unit Cost		
Planter Columns	Each	$3,200	12	$38,400
Drystack Wall Sections	LF	$100	1000	$100,000
Wayfinding	Each	$800	6	$4,800
Contingencies	10%	$14,320		$14,320
TOTAL PHASE III ESTIMATE (PER MILE)				$157,520
TOTAL PROJECT COST ESTIMATE (PER MILE)				**$779,480**

Interstate Quadrant Estimate (4)
Average Cost quadrant = $194,870
This average cost is based on improvements to each of the four quadrants of the interchange.
This average cost is based on improvements to both sides of the street for the 1 mile roadway.

OTHER FEATURE COST ESTIMATES – MAY 2001

Feature Description	UNIT	UNIT COST
Urban Transit Stops	Each	$4,800
Suburban Transit Stops	Each	$13,800
Wayfinding Sign on Monument	Each	$3,500