

COMPREHENSIVE PLAN 2000

Draft



City of Waco



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TABLE OF CONTENTS

Section 1: BASELINE ANALYSIS

Previous Planning Efforts	1-1
The 1983 Comprehensive Plan	1-1
A Context for Planning	1-5
Relationship of the City to the Region	1-6
Surrounding Communities	1-6
Area Lakes and Rivers	1-6
<i>Plate 1-1: WACO AND THE SURROUNDING REGION</i>	<i>1-7</i>
Area Colleges	1-7
Physical Factors Influencing Development	1-9
<i>Plate 1-2: ENVIRONMENTAL AREAS</i>	<i>1-8</i>
Natural Features	1-9
Environmental Analysis	1-9
Floodplain Analysis	1-13
Aquifers	1-13
Hydrological Features	1-13
The Bosque Escarpment	1-14
Climate	1-14
Endangered Species	1-15
Man-Made Features	1-16
Demographics and Housing Profile	1-19
Population Growth	1-19
TABLE 1-1: Population Change - City of Waco	1-19
TABLE 1-2: Population Change - McLennan County	1-20
Population Change of Surrounding Communities	1-20
TABLE 1-3: Population Change of Nearby Communities	1-21
TABLE 1-4: Population Change of Suburban Communities	1-22
TABLE 1-5: Regional Growth Comparison	1-23

Projected Growth Rates	1-23
TABLE 1-6: Projected Population Growth - City of Waco	1-24
TABLE 1-7: Projected Population Growth - Metropolitan Planning Organization Study Area	1-24
Race & Ethnic Distribution	1-25
TABLE 1-8: Race and Ethnic Distribution from 1983-1990 - City of Waco	1-25
TABLE 1-9: Race and Ethnic Distribution Projection - Waco Metropolitan Statistical Area	1-26
Age Distribution	1-26
TABLE 1-10: Age Composition and Distribution - City of Waco	1-27
Educational Attainment	1-27
TABLE 1-11: Educational Attainment - City of Waco	1-28
Household Income Levels	1-28
TABLE 1-12: Household Income - City of Waco	1-28
Existing Housing Profile	1-29
TABLE 1-13: Total Number of Dwelling Units - City of Waco	1-29
TABLE 1-14: Housing Type - 2000 - City of Waco	1-30
TABLE 1-15: Number of Building Permits – City of Waco	1-30
TABLE 1-16: Year of Construction for Housing Structures – 1990 - City of Waco	1-31
TABLE 1-17: Housing Value of Owner – Occupied Housing Units - 1990 - City of Waco	1-32
TABLE 1-18: Renter- Versus Owner-Occupied Units - City of Waco & Peer Communities	1-33
TABLE 1-19: Renter- Versus Owner-Occupied Units - City of Waco & Surrounding Communities	1-34
TABLE 1-20: Contract Rent - 1990 - City of Waco	1-34
Exterior Housing Condition	1-35
<i>Plate 1-3: EXISTING HOUSING CONDITIONS</i>	1-36
TABLE 1-21: Exterior Housing Condition - 1999 - City of Waco	1-37
TABLE 1-22: Housing Condition Percentages - City of Waco & Peer Communities	1-37
 Current Incentives for the Improvement of Local Housing	 1-38
Beautification Loan Program	1-38
Residential Rehabilitation Loan Program	1-38
New/Acquisition Housing Loan Program	1-38
Emergency Grant Repair	1-39



Home Ownership Assistance Program	1-39
Interim Construction Loan Program	1-39
Local Economy and Employment	1-40
TABLE 1-23: Employment Projections – Metropolitan Planning Organization Study Area	1-41
TABLE 1-24: Employment by Occupational Category - City of Waco	1-42
TABLE 1-25: Employment by Industry - 1990 - City of Waco	1-43
Existing Land Use Characteristics	1-44
Land Use Methodology	1-44
TABLE 1-26: Existing Land Use - City of Waco	1-46
Existing Land Use Analysis	1-47
<i>Plate 1-4: EXISTING LAND USE</i>	1-48
TABLE 1-27: Land Use Comparison - City of Waco and Selected Peer Communities	1-49
Existing Land Use Pattern	1-50
Existing Zoning Characteristics	1-51
Residential Districts	1-52
TABLE 1-28: Zoning District Acreage - City of Waco	1-52
Special Districts	1-53
General Development Standards	1-54
<i>Plate 1-5: WACO ZONING MAP (Reserved for inclusion later)</i>	1-55
Community/Urban Design	1-57
The Traditional Downtown	1-58
Older Residential Areas	1-58
Highway-Oriented Commercial Corridors	1-59
Industrial Areas	1-59
Development Adjacent to Lake Waco	1-59
<i>Plate 1-6: URBAN DESIGN ELEMENTS</i>	1-60
Development in the Brazos River Corridor	1-61
Baylor University	1-62

Section 2: GOALS AND OBJECTIVES

Introduction	2-1
Establishing a Shared Vision	2-1
Goals & Objectives	2-2
Economic Development: Employment, Business Growth & Tourism	2-3
Physical Form of the City	2-4
Transportation and the Thoroughfare Network	2-8
Infrastructure & Utility Systems	2-10
Public Facilities and Services	2-12
Fiscal Responsibility	2-13
Quality of Life	2-14
Housing, Historic Preservation, & Community Livability	2-16
The Environment	2-18

Section 3: THE THOROUGHFARE PLAN

Introduction	3-1
Functions of Thoroughfare Planning	3-1
The Regional Traffic Circulation System	3-2
The Local Traffic Circulation System	3-2
The Functional Classification System and Thoroughfare Standards	3-3
Illustration 3-1: <i>Functional Classification System</i>	3-3
TABLE 3-1: Roadway Functional Classifications and General Planning Guidelines	3-4
Freeways	3-5
Major Thoroughfares or Arterials	3-5
Illustration 3-2: <i>Type A: Initial Principal Arterial</i>	3-6
Illustration 3-3: <i>Type A: Ultimate Principal Arterial</i>	3-6

Illustration 3-4: <i>Type B: Minor Arterial</i>	3-7
Collector Streets	3-7
Illustration 3-5: <i>Type C: Major Collector With Curb & Gutter</i>	3-7
Illustration 3-6: <i>Type C: Major Collector Without Curb & Gutter</i>	3-8
Illustration 3-7: <i>Type D: Minor Collector</i>	3-8
Local Street	3-8
Illustration 3-8: <i>Type E: Local Street</i>	3-9
Collectors and Arterials With Bicycle Lanes/Routes	3-9
Illustration 3-9: <i>Type A: Exclusive Bikeway & Walkway</i>	3-9
Illustration 3-10: <i>Type B: Bikeway & Walkway Constructed Together</i>	3-10
Illustration 3-11: <i>Type C: Bikelane Constructed as Part of the Roadway</i>	3-10
Level of Service and Traffic Capacity	3-10
TABLE 3-2: Definition of Level of Service for Roadway Links	3-11
The Thoroughfare Plan	3-12
Thoroughfare Planning Issues	3-12
Illustration 3-12: <i>Driveway Openings</i>	3-14
Illustration 3-13: <i>Widths, Radii and Spacing of Driveways</i>	3-15
Plate 3-1: <i>PROPOSED THOROUGHFARE PLAN – WACO</i>	3-16
Illustration 3-14: <i>Driveway Configurations</i>	3-17
A Multi-Modal Transportation System	3-18
Thoroughfare System Recommendations	3-19
Relationship Between Thoroughfares & Neighborhoods	3-20
TABLE 3-3: Thoroughfare Recommendation: Continuous Outside Loop	3-21
TABLE 3-4: Thoroughfare Recommendation: North-South Connection	3-21
Plate 3-2: <i>PROPOSED THOROUGHFARE PLAN – OUTER AREAS</i>	3-22
TABLE 3-5: Thoroughfare Recommendation: Key Roadway Extensions	3-23
Transportation Planning Policies	3-24
Thoroughfare Implementation	3-25

Section 4: HOUSING STRATEGIES

Introduction	4-1
Housing and Neighborhood Areas	4-1
Recommended Housing Strategies	4-2
Neighborhood Preservation	4-2
Housing Rehabilitation & Maintenance	4-3
Property Clearance and Redevelopment	4-3
Development Guidance	4-4
Housing Strategies for Waco	4-4
Need for Public Awareness	4-4
Residential Preservation and Design Districts: A Strategy for the Inner City	4-5
<i>Plate 4-1: RESIDENTIAL STRATEGIES</i>	4-6
Housing Types and Intensities	4-9
Affordable Housing	4-9
Housing Policies	4-10
Available Housing Programs	4-11
Community Development Block Grant Program (CDBG)	4-12
HOME Investment Partnership Program (HOME)	4-12
Community Housing Development Organizations (CHDOs)	4-12
Emergency Shelter Grant Program (ESG)	4-12
Habitat for Humanity	4-13
Community Development Corporation	4-13
Additional Information	4-13

Section 5: PUBLIC FACILITY MASTER PLAN SUMMARY

History	5-1
Executive Summary & Facility Plan Assumptions	5-1
Building Standards	5-1
<i>Plate 5-1: EXISTING PUBLIC FACILITIES</i>	5-2
Facility Plan Recommendations	5-3
TABLE 5-1: Capital Improvement Program Project Recommendations	5-4
<i>PLATE 5-2: SELECTED MAJOR CIP PROJECT LOCATIONS</i>	5-6
Conclusion	5-7

Section 6: INFRASTRUCTURE

Water Supply	6-1
Raw Water Supply	6-1
TABLE 6-1: Projected Water Usage – City of Waco & McLennan County	6-2
FIGURE 6-1: Brazos “G” Regional Planning Group	6-2
CHART 6-1: Water Use Average Day – Current Per Capita Usage	6-3
CHART 6-2: Water Use Average Day – Brazos “G” Projection With Conservation	6-3
CHART 6-3: Population Projections – Brazos Region “G”	6-3
Raw Water Quality	6-4
CHART 6-4: Number of Cows in Erath and Hamilton Counties	6-5
CHART 6-5: Nutrient Loading Sources at Site BO070	6-7
<i>Plate 6-1: LAKE WACO WATERSHED QUALITY ISSUES</i>	6-8
TABLE 6-2: OSSF Report	6-10
Summary of Water-Related Issues in Waco	6-11
Water Treatment & Distribution	6-12
Water Treatment	6-12
Water Distribution & Storage	6-13

<i>Plate 6-2: PRESSURE PLANES & WATER MAINS</i>	6-14
CHART 6-6: Waco Only - Water Treatment Plant Capacity Requirements – Peak Day At Current Per Capita Peak Rate	6-15
CHART 6-7: McLennan County Area - Water Treatment Plant Capacity Requirements, Uniformly Phased in 2000-2050	6-15
<i>Plate 6-3: EXISTING WATER SYSTEM (SCHEMATIC)</i>	6-16
<i>Plate 6-4: DISTRIBUTION RECOMMENDATIONS</i>	6-18
TABLE 6-3: Storage Capacities	6-19
Distribution Recommendations	6-19
References for the Water Supply Portion of This Section	6-20
Wastewater Treatment	6-20
Wastewater Collection	6-20
<i>Plate 6-5: BRA SEWER LINES</i>	6-21
<i>Plate 6-6: EXISTING WASTEWATER SYSTEM (SCHEMATIC)</i>	6-22
Wastewater Collection Recommendations	6-25
<i>Plate 6-7: MAJOR WASTEWATER MAINS AND RECOMMENDATIONS</i>	6-26
References for the Wastewater Treatment Portion of This Section	6-27
Stormwater	6-28
Flood Control	6-28
Stormwater Management/Erosion Control	6-28
<i>Plate 6-8: FLOODPLAINS</i>	6-30
Stormwater Recommendations	6-31
Urban Expansion, Development Standards, and ETJ Issues	6-31
General	6-31
TABLE 6-4: Approximate Relative Development Cost	6-32
<i>Plate 6-9: SERVICE AREA MAP/CCN MAP</i>	6-34
<i>Plate 6-10: AREAS RECEIVING ALL OR PART OF WATER SUPPLY FROM SURFACE WATER</i>	6-36

Section 7: PARKS, RECREATION & OPEN SPACE MASTER PLAN SUMMARY

Introduction	7-1
The First Phase	7-1
The Second Phase	7-1
Five-Year Action Plan Recommendations	7-3
High Priorities	7-3
Moderate Priorities	7-5
<i>Plate 7-1: PROPOSED FUTURE PARKS PLAN</i>	7-4
Low Priorities	7-5
Other Recommendations	7-5
Park Dedication	7-5
The Existing Park Plan	7-5
The Use of Retention/Detention Ponds	7-6
Conclusion	7-7

Section 8: THE FUTURE LAND USE PLAN

Introduction	8-1
Land Use Compatibility	8-1
<i>Plate 8-1: FUTURE LAND USE PLAN – WITHIN THE CITY OF WACO</i>	8-2
Land Use Quantity	8-3
Future Population Increase	8-3
<i>Plate 8-2: FUTURE LAND USE PLAN – OUTER AREAS</i>	8-4



Future Land Use Requirements	8-5
TABLE 8-1: Projected Population Growth – City of Waco	8-5
Future Land Use Plan Recommendations	8-6
Recommended Future Land Uses	8-6
TABLE 8-2: Land Use Projections – City of Waco	8-7
TABLE 8-3: Ultimate Future Land Use – City of Waco	8-8
TABLE 8-4: Ultimate Future Land Use – City of Waco’s ETJ	8-9
Land Use in the ETJ Area	8-12
Future Land Use Map Interpretation Policies	8-13
Future Land Use Policies	8-14

Section 9: COMMUNITY IMAGE GUIDELINES

Note: There are numerous illustrations throughout this section that help to graphically describe the recommendations made therein.

Introduction	9-1
The “Livable” Community	9-1
Urban Design Elements	9-2
Opportunities for the Improvement of Existing Neighborhoods	9-2
Site Design Criteria for New Residential Development	9-5
New Urbanism & Traditional Neighborhood Design (TND)	9-11
The Establishment of Linkages	9-14
TABLE 9-1: Proposed Gateway Linkages	9-15
TABLE 9-2: Proposed Neighborhood Linkages	9-18
TABLE 9-3: Proposed Commercial & Industrial Linkages	9-19
<i>Plate 9-1: COMMUNITY IMAGE ELEMENTS</i>	9-20
The Use of Special Zoning Districts	9-26
Recommended Design Guidelines for Non- Residential Development Throughout the City	9-29
<i>Plate 9-2: PROPOSED COLLEGE & UNIVERSITY DISTRICT AREAS</i>	9-30
Related Policies	9-38
Conclusion	9-38



Section 10: ANNEXATION & GROWTH MANAGEMENT

Introduction	10-1
Purpose	10-1
Annexation & Growth Management Strategies	10-1
Goal 1	10-2
Goal 2	10-3
Goal 3	10-6
Recommended Growth Areas	10-6
<i>Plate 10-1: RECOMMENDED GROWTH AREAS</i>	<i>10-7</i>
<i>Plate 10-2: ANTICIPATED GROWTH AREAS (in relation to Infrastructure)</i>	<i>10-8</i>
Growth Areas in Relation to Infrastructure	10-9
Conclusion	10-10

Section 11: IMPLEMENTATION STRATEGIES

Introduction	11-1
The Plan as a Guide for Daily Decision-Making	11-1
Comprehensive Plan Amendments & Periodic Review	11-2
Community Involvement	11-3
Implementation Strategies	11-3
Capital Improvements Programming	11-4
Administrative Processes	11-4
Recommendations for Implementation	11-4
Recommendations	11-5

LIST OF PLATES

Section 1: Overview and Baseline Analysis

Plate 1-1: Waco and the Surrounding Region	1-7
Plate 1-2: Environmental Areas	1-8
Plate 1-3: Existing Housing Conditions	1-36
Plate 1-4: Existing Land Use	1-48
Plate 1-5: Waco Zoning Map (<i>reserved for inclusion later</i>)	1-55
Plate 1-6: Urban Design Elements	1-61

Section 2: Goals & Objectives – No Plates Within this Section

Section 3: The Thoroughfare Plan

Plate 3-1: Proposed Thoroughfare Plan – Inner Area of Waco	3-16
Plate 3-1: The Thoroughfare Plan – Outer Areas	3-22

Section 4: Housing Strategies

Plate 4-1: Residential Strategies	4-6
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Section 5: Public Facility Master Plan Summary

Plate 5-1: Existing Public Facilities	5-2
Plate 5-2: Selected Major CIP Project Locations	5-6

Section 6: Infrastructure

Plate 6-1: Lake Waco Watershed Quality Issues	6-8
Plate 6-2: Pressure Planes & Water Mains	6-14
Plate 6-3: Existing Water System (Profile Schematic)	6-16
Plate 6-4: Distribution Recommendations	6-17
Plate 6-5: BRA Sewerlines	6-21
Plate 6-6: Existing Wastewater System Schematic	6-23
Plate 6-7: Major Wastewater Mains and Recommendations	6-27
Plate 6-8: Floodplain	6-29
Plate 6-9: Service Area Map/CCN Map	6-34
Plate 6-10: Areas Receiving All or Part of Water Supply From Surface Water	6-36

Section 7: Parks, Recreation and Open Space Master Plan Summary

Plate 7-1: Proposed Future Parks Plan 7-4

Section 8: Future Land Use Plan

Plate 8-1: Future Land Use Plan – Within the City of Waco 8-2
Plate 8-2: Future Land Use Plan – Outer Areas 8-4

Section 9: Community Image Guidelines

Plate 9-1: Community Image Elements 9-20
Plate 9-2: Proposed College & University District Areas 9-29

Section 10: Annexation & Growth Management

Plate 10-1: Recommended Growth Areas 10-8
Plate 10-2: Anticipated Growth Areas 10-9

Section 1

BASELINE ANALYSIS



City of Waco



Comprehensive Plan 2000

PREVIOUS PLANNING EFFORTS

The 1983 Comprehensive Plan

The Comprehensive Plan that Waco adopted in 1983 was the third major Plan adopted by the City. The first Plan, adopted in 1958, dealt primarily with infrastructure and the development process to be followed within the city. The second Comprehensive Plan, written in 1967-1968, discussed the “image” of the city, and established specific ways in which to improve the older areas of Waco. The 1983 Comprehensive Plan describes the following as some of the significant improvements that were initiated and undertaken as a result of the 1967-1968 Comprehensive Plan:

- ♦ Establishing Lake Brazos and the adjacent park corridor;
- ♦ Rehabilitating older neighborhoods;
- ♦ Expanding Baylor University; and
- ♦ Constructing the Waco Convention Center.

The “Goals for Waco” project was established in 1975 for the purpose of exploring citizen input regarding the desired direction of the City. Two main ideals for Waco to follow were agreed upon during this process: 1) concentration on a new “image” of the city, and 2) continued emphasis on quality in existing, previously developed areas, as well as in areas experiencing growth. The 1983 Comprehensive Plan was then initiated as an implementation measure, to further the ideals for the

City that were established during the “Goals for Waco” project.

The elements discussed within the 1983 Comprehensive Plan are similar to those discussed within this Comprehensive Plan, including transportation, parks and open spaces, public facilities, housing and future land use. Following is a discussion of the issues related to the elements of the 1983 Comprehensive Plan, and some of the relevant recommendations made in response.

TRANSPORTATION

Major issues related to the Transportation Plan within the 1983 Comprehensive Plan included:

1. Improving arterial streets in the areas around Valley-Mills, Lake Air Drive, and Sanger Avenue, and within the Texas Central industrial district area;
2. Proposing new street construction in the southwestern area of the city;
3. Retaining major rail lines;
4. Retaining and financing transit service, and,
5. Improving pedestrian access.

The major emphasis within the Transportation Plan was on improving existing streets within Waco.

PUBLIC WORKS (INFRASTRUCTURE)

The three major utility systems, water, wastewater (i.e. sewer), and storm drainage, were all recognized as needing major improvements, both within the city of Waco and in potential growth areas. Recommended water improvements included the following:

1. Investigating alternatives for expanding the water supply;
2. Expanding the Mount Carmel Water Treatment Plant and renovating the Riverside Plant;
3. Improving the distribution system to correct areas experiencing low-pressure; and,
4. Providing adequate service to growth areas.

Recommended wastewater improvements included the following:

1. Constructing the Brazos River Authority (BRA) regional wastewater treatment plant;
2. Phasing out/removing the treatment plant located along University Parks Drive;
3. Constructing a new trunkline along Cottonwood Creek to relieve overloading and to provide services to the southwestern area; and,
4. Making improvements necessary to correct problems within existing service areas.

More general recommendations were made regarding storm drainage. A new approach utilizing floodplain conservation and retention/detention techniques was recommended. The concept of this recommendation was to reduce both public and private costs related to storm drainage.

PARKS AND OPEN SPACE PLAN

The development of the area surrounding Lake Brazos as a major recreational area within the city was identified as a top priority, and therefore, it was recommended that the City concentrate its efforts in this area. With the principal intent of improving the park system in existence at the time of the Plan, the following recommendations were also made:

1. Improve Cameron Park;
2. Construct a new athletic complex; and,
3. Provide community recreation centers, senior citizens programs, and swimming facilities through joint ventures with quasi-governmental entities, such as schools and churches.

PUBLIC FACILITIES

Within the Plan, it is recognized that a “conservative approach” has been taken in terms of the construction of additional public buildings. Only

three new facilities were recommended:

1. A special events center;
2. A City Hall annex; and
3. An addition to the police facility.

HOUSING

A major issue at the time of the 1983 Comprehensive Plan was the challenge of maintaining existing, aging housing in a manner acceptable to the quality image that the City was striving to preserve and perpetuate. It was recognized that Waco had invested considerable funding and effort toward improving housing within the city, but the need to strengthen local housing programs remained. Several recommendations were made with the intent of guiding the City toward a consistent, continual process of maintaining the existing housing stock, including the expansion of the City's code enforcement program to ensure the following:

1. Code enforcement measures at the time a housing unit is sold;
2. Annual or biannual inspection of rental units; and
3. A loan program to help with code compliance.

Recommendations were also made regarding the need for incentive programs structured to encourage infill housing and mortgage lending, with the latter designed to promote home ownership.

LAND USE PLAN

Priorities for growth were established within this section of the 1983 Comprehensive Plan for the following areas:

1. Infill in existing neighborhoods;
2. Development in the area around Loop 340;
3. Development in the Southwest Corridor beyond Loop 340;
4. Development in the Steinbeck Bend area;
5. Development in the Southwest/Harris Creek area;
6. Development in the Southwest/Bull Hide Creek area;
7. Development in the China Spring area; and
8. Development in the Speegleville area.

It was recognized that growth within the first four areas (referenced above) would be easily accommodated, whereas growth within the other areas would require expansion of the City services in existence at the time. It was recommended that Waco undertake cost-benefit analysis prior to any provision of service in these outer areas.

It is stated within the Land Use Plan that three basic principles were followed in the formulation of the Plan and the recommendations made therein. Those principles, especially applicable to the first four growth areas discussed above, are as follows:

1. Waco should emphasize and encourage the strengthening of existing neighborhoods through infill housing efforts, code enforcement, etc.;
2. Importance should be placed on the development of high quality residential neighborhoods in the outer, undeveloped areas. High quality commercial and industrial development should be established along highly visible corridors, specifically along Interstate Highway 35 and Loop 340. Continuing development of the Lake Brazos Corridor should also be of primary importance to the City.
3. Implementation strategies for the improvement of existing neighborhoods, through the use of the Land Use Plan, include:
 - ♦ Securing land use plan proposals for each neighborhood;
 - ♦ Improving existing commercial areas experiencing deterioration;
 - ♦ Improving existing public facilities, specifically roadways.

QUALITY OF URBAN ENVIRONMENT

This portion of the 1983 Comprehensive Plan explored ways in which Waco could improve the visual quality of local areas. Specific recommendations made include:

1. Upgrading the visual quality of entranceways into the city and along major thoroughfares;
2. Implementing a tree-planting program;
3. Ensuring high quality residential and non-residential development through ordinances and plan review processes;
4. Expanding and making more visible the positive influences of community features, such as Lake Brazos, Baylor University, and McLennan County Community College.

ENERGY STRATEGY

During the late 1970's and early 1980's, people throughout the country as well as in the city of Waco experienced large increases in energy costs in a short period of time; this is often referred to as the "Energy Crisis". This challenging time caused many cities to explore ways in which energy resources could be more efficiently used. Within this section of the 1983 Comprehensive Plan, the following strategies were recommended to increase awareness and endorse energy conservation on a city-wide basis:

1. Initiate educational programs for the purpose of improving energy efficiency in new construction;

2. Initiate educational programs for the purpose of improving energy efficiency in existing structures;
3. Continue energy improvements in City facilities; and,
4. Provide guidelines through City regulations to encourage energy-efficient construction.

an annual basis, thereby ensuring the continual improvement/replacement of City facilities.

IMPLEMENTATION

The recommendations made within the 1983 Comprehensive Plan would have had no real effect on the future of Waco, and would not have been able to guide the City to where it is today without strategies specifically designed to implement the recommendations made therein. Following are the key implementation strategies outlined within the Plan:

1. Alter the City Zoning Ordinance and related Zoning Map to reflect Comprehensive Plan recommendations;
2. Alter the City Subdivision Ordinance to reflect Comprehensive Plan recommendations, specifically those regarding design standards and administrative processes related to development.
3. Continue to utilize the Capital Improvements Program to prioritize the implementation of Comprehensive Plan recommendations;
4. Alter the Capital Improvement Programming process by requiring it to be updated on

A CONTEXT FOR PLANNING

The Baseline Analysis is an assessment of the current physical and socio-economic characteristics of a community. A continuation of previous City of Waco planning efforts, specifically the Comprehensive Plans of 1958, 1967 and 1983, the Baseline Analysis provides general insight into the city's urban pattern and the opportunities and constraints facing the community as it seeks to shape its future form. It is the context for planning. An analysis of the following is presented in this Comprehensive Plan:

- ♦ Relationship of the City to the Region,
- ♦ Physical Factors Influencing Development,
- ♦ Demographic Profile,
- ♦ Existing Housing Characteristics,
- ♦ Economy and the Workplace,
- ♦ Existing Land Use,
- ♦ Utilities and Infrastructure,
- ♦ Parks and Open Space, and
- ♦ Community/Urban Design.

Each section contains information pertaining to the subject matter as well as graphic support, as appropriate. Also included within the Baseline

Analysis report is the identification of other issues that should also be addressed in the formulation of the Comprehensive Plan. The Baseline Analysis provides documentation of basic information about the community, which then forms the foundation of the comprehensive planning process in Waco. It presents an overview of the city's physical, social and economic characteristics as well as general insight into the community's urban pattern. The primary objective of the Baseline Analysis is to document current conditions in the city of Waco, and to identify various opportunities and constraints the community must consider in addressing and shaping its future form and character. The secondary objective of the Baseline Analysis is to ensure that the information being used in the planning process accurately portrays the community and its needs.

RELATIONSHIP OF THE CITY TO THE REGION

The city of Waco is located in the central region of Texas, approximately 100 miles south of Dallas and approximately 100 miles north of Austin. The city is traversed by Interstate Highway 35, which crosses the state in a north-to-south direction, passing through Dallas, Austin and San Antonio to its southernmost point at the U.S./ Mexico border in Laredo.

Surrounding Communities

County seat of McLennan County, Waco is the most populated city in the region. It is surrounded in a clockwise direction by the city of Hillsboro to the north, Groesbeck to the east, Marlin to the southeast, Temple directly to the south, Killeen to the southwest, and Gatesville directly to the west.

Suburban areas surrounding Waco include the cities of Lacy Lakeview and Bellmead to the north, Robinson to the southeast, Hewitt and Lorena to the south; and the cities of Woodway and McGregor to the southwest. The city of Beverly Hills, which lies south of Waco's downtown area, is surrounded by the city of Waco (refer to **Plate 1-1**).

Area Lakes and Rivers

Two significant bodies of water are located within the city of Waco: Lake Waco and the Brazos River.

Located in the midwestern area of the city, Lake Waco serves the city's and surrounding communities' water needs. The lake covers 7,279 acres, and has a storage capacity of more than 33 billion gallons of water. In addition to its water storage and flood control functions, Lake Waco, with its 60 miles of shoreline and 12 square miles of water surface, invites many types of leisure activities such as camping, hiking, biking, swimming, fishing, and boating.

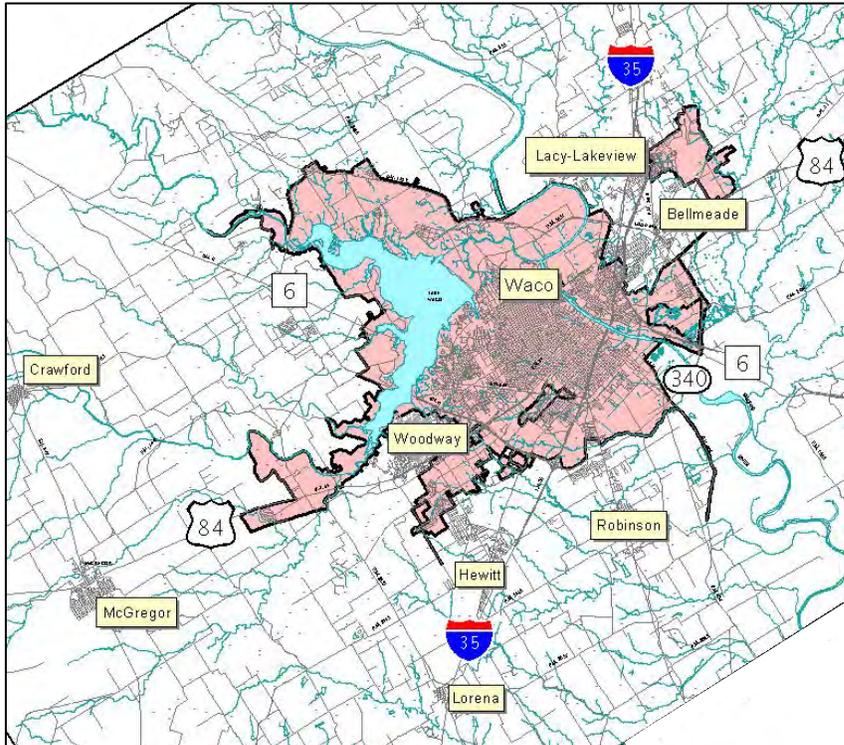


Plate 1-1:
WACO AND THE SURROUNDING REGION

The other significant water body in Waco is the Brazos River. The Brazos River originates in the Texas Panhandle, traverses through the heart of Waco's Central Business District, and continues in a southeasterly direction through Waco to the Gulf of Mexico, near Freeport, Texas. Approximately 2,060 kilometers (1,280 miles) in length, the Brazos' extensive reach supplies 6.75 billion gallons of water a year to cities, farms and ranches, industry, and mining operations.

Control and efficient utilization of this resource has been affected through the construction of a series of dams along the river's course. Two of them, the Possum Kingdom Dam, northwest of

Waco, and the Whitney Dam, approximately 35 miles northwest of Waco, have reservoirs of substantial size and import to the region.

The City of Waco's construction of a low-water dam on the Brazos River created, within the city's corporate limits, a town lake along the Bosque and Brazos Rivers. Beginning at the city limits to the north, the Brazos winds in a south-westerly direction. Joined by the lower Bosque, it flows through the Brazos River Corridor's Park-Residential, Urban,

and University-Cultural Districts to the low water dam in the southeastern part of the city. Like Lake Waco, the Brazos is utilized throughout the year for recreational activities such as boating, swimming, picnicking, hiking and sailing. Both water resources are treasured assets to the city.

Area Colleges

Three educational institutions in the Waco/McLennan County area offer citizens of the city and surrounding communities ample opportunities to pursue higher education.



2000 Waco Comprehensive Plan ENVIRONMENTAL AREAS

Legend

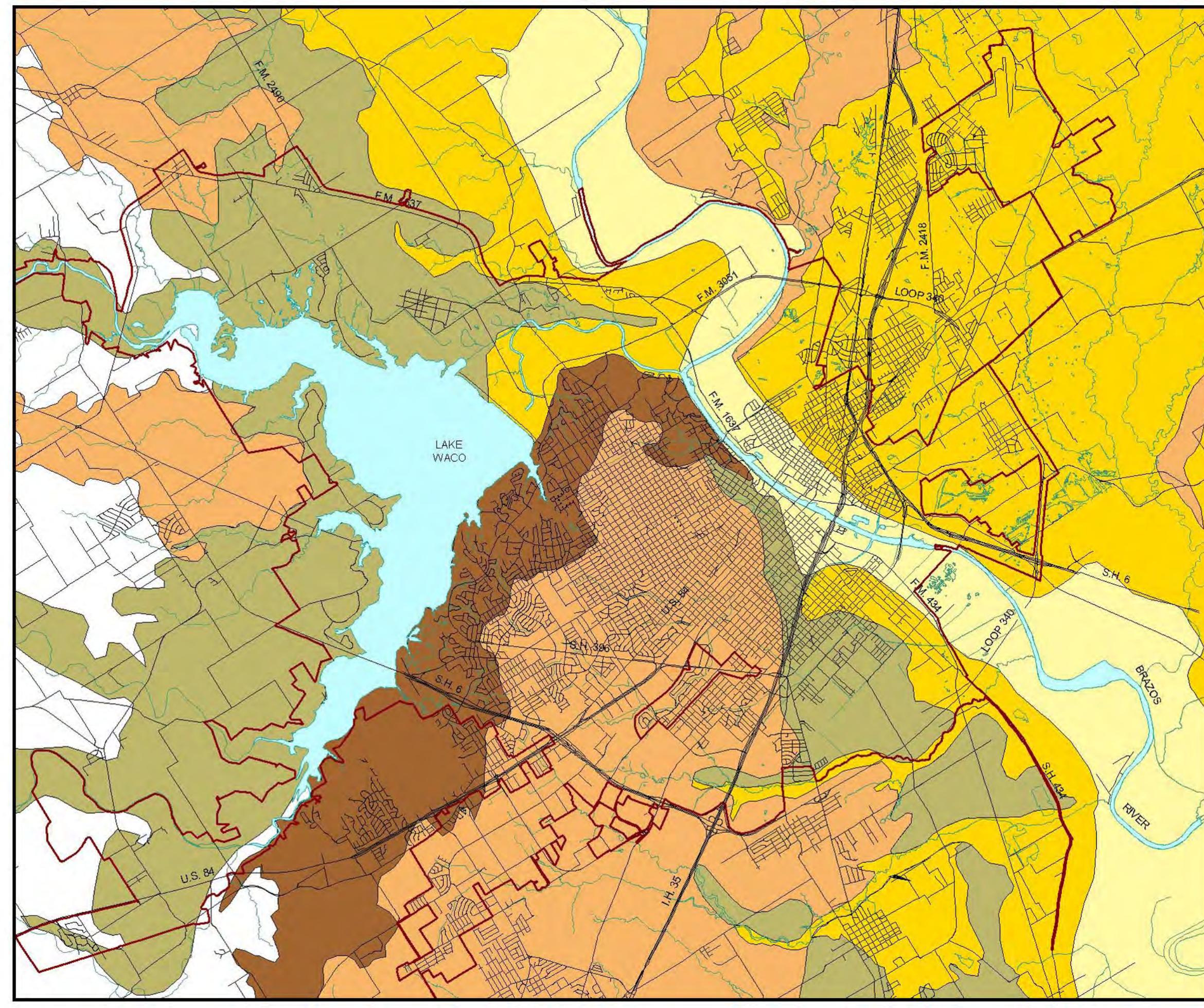
- Area 1: The Brazos Floodplain
- Area 2: Bastsil-Gholson Soils
- Area 3: Lewisville-Branyon-Burleson Soils
- Area 4: Austin Chalk
- Area 5: The Bosque Escarpment

Detailed explanation of each area is included in the Baseline Analysis text.

 Waco City Limits



PLATE 1-2



Baylor University is an accredited private institution that offers numerous degree programs at undergraduate and graduate levels. Located on 432 acres along and adjacent to the Brazos River in the south-central area of the city, Baylor has an average enrollment of more than 13,000 students, most of whom reside in the city of Waco.

In the northwest part of the city, near the confluence of the Bosque and Brazos Rivers, is the 200-acre campus of McLennan Community College (MCC). Approximately 10,000 students a year attend this accredited institution that offers various associate degree programs in the arts and sciences, as well as specialized workforce development training such as construction trades.

Texas State Technical College (TSTC/Waco) is the largest residential technical college in the nation. TSTC has built a reputation as a technical education leader specializing in emerging technologies. With a student-to-faculty ratio of 16:1 and hands-on, individualized instruction, TSTC serves approximately 4,000 students a year.

PHYSICAL FACTORS INFLUENCING DEVELOPMENT

Natural Features

The community's environmental setting – its geology, topography, soils, vegetation, and wildlife – influences a wide spectrum of human activity and development patterns. Similarly, human activity, land use, and development trends may impact the natural environment, negatively or positively. Knowledge of the current state of the natural environment and assessment of the potential long-term effects of land use supplements the comprehensive planning process and supports short-term decision-making.

Environmental Analysis

The gently rolling uplands of the Texas Blackland Prairie located between the Brazos and Bosque Rivers is one of the primary areas of urban development in the city of Waco, according to the *Environmental Atlas for McLennan County*¹⁻¹. Lake Waco, the Bosque Escarpment, and the Brazos River have been identified as significant environmental features that affect land use and development patterns. Other environmental features that influence development are geological formations, underlying geology, soil types, floodplains, aquifers, climate, vegetation, and endangered animal and/or plant

¹⁻¹ Information in this section from the “Environmental Atlas for McLennan County”, published by the University of Baylor, Department of Geology in Spring, 1992.

species (refer to **Plate 1-2**). Based upon geographic characteristics, five distinct areas within Waco have been identified as follows.

AREA 1: THE BRAZOS FLOODPLAIN

The Brazos floodplain extends along the Brazos River from the northwest to the southeast portion of the city. The topography in this area is generally flat due to the leveling effect of flooding waters and past deposits of alluvial sediments. Vegetation consists of open prairies, cultivated fields and a variety of trees including cottonwood, willow, pecan, elm, live oak, bur oak, sycamore and hackberry.

Deep alluvial soils and an abundance of water support large deciduous trees and an abundance of grassland that sweeps to the terrace scarps.

Soils associated with this area are of the Weswood-Yahola-Ships series. Brown to reddish brown in color, these soils are composed of a silty surface underlain by calcareous clay or fine sandy loam. The geological content is Brazos Alluvium, recent sediment that consists of loose siliceous gravel, buff to red in color, or of compacted, sandy silts or clays.

The mostly sandy soils and gravel in the bedrock indicate good infiltration characteristics and adequate drainage potential. However, in those areas where the soil composition is mostly silt or clay, there is a tendency toward pooling and/or frequent flooding. Overall, the soils and the bedrock in this area manifest high shrink-swell potential, low-bearing capacity, and very low-slope stability. Although the

bedrock has high erosion potential, the soils are less susceptible to erosion because of the relatively flat – between 350 and 450 feet above sea level – thickly vegetated topography.

Because of the high risk of flooding, development in this area should be closely monitored. **Area 1** is especially suitable for open space/greenbelt preservation, and less intensive, more passive land uses, such as parks, golf courses, hike and bike trails.

AREA 2: BASTSIL-GHOLSON SOILS

Broad bands of land on both sides of the Brazos River comprise **Area 2**. Adjacent to **Area 1**, the topography includes both flat land and gently rolling hills, with vegetation generally consisting of post oaks in savannahs or thickets, and occasional grasslands.

The droughty, sandy Bastsil-Gholson soil consists of a brownish, fine, sandy loam surface underlain by reddish sandy or yellowish clay. Geological content includes reddish brown silts, sands, and gravels, the latter of which are occasionally cemented. Some dark brown clays may also be found in this area.

High permeability of the soil and bedrock and the presence of adjacent slopes indicate fairly good drainage conditions. Both the soils and the bedrock suggest low shrink-swell potential, with low-to-moderate

bearing capacity and slope stability. Erosion potential is moderate due to high infiltration (permeability) and gentle slope characteristics (approximately 450 to 550 feet above sea level).

In general, the natural features within this area evidence suitability for urban development. Construction projects should be evaluated on a case-by-case basis, however, especially in areas where development has been limited.

AREA 3: LEWISVILLE-BRANYON-BURLESON SOILS

Broad swaths of land to the north and west of Lake Waco are designated as **Area 3**. Patches of this geological type can also be found in the central part of the city adjacent to **Area 2** (refer to **Plate 1-2**). The topography is generally flat, with gentle slopes of between 450 to 550 feet above sea level that decrease as the floodplain is approached. Vegetation consists of open land covered by brush and grasses and a predominance of oak trees. Other trees, widely scattered, include hackberry, mesquite, live oak, ash, pecan and cottonwood.

The dark brown, crumbly soil and dark gray clay associated with this area are of the Lewisville-Branyon-Burleson series. Geological content is a mix of white-to-tan limestone gravels and reddish brown clay, underlain with bedrock of calcareous limestone terraces.

While the soils – predominately, swelling clays with slow infiltration capacity – and relatively flat topography would indicate poor drainage characteristics and high shrink-swell potential, the limestone gravel bedrock denotes high permeability, good drainage, and low shrink-swell potential. It also suggests a moderate bearing capacity and slope stability. The high infiltration characteristics of the bedrock and the flat topography limit the potential for erosion, making the area generally suitable for urban development. Based upon individual site conditions and the type of construction planned, particular parcels may require special design and construction techniques. In some cases the physical characteristics of particular parcels may restrict development.

AREA 4: AUSTIN CHALK

Covering a large portion of the city, this area's topography ranges from relatively flat to gently rolling land (from approximately 500 to 600 feet above sea level). Vegetation consists of farmland and open land of mostly grass or tall prairie grasses, throughout which are scattered elm, mesquite and hackberry trees.

Soils associated with this area are of the Austin-Fairlie-Houston Black Series. Dark to grayish brown and calcareous, these soils are underlain by brown, silty clay over chalk or clay. The geological content is mainly Austin Chalk, which appears in

alternating beds of chalk and marl. Weathered surfaces may appear buff to white in color, while freshly exposed surfaces are more of a bluish-gray color.

The physical features of this area make it suitable for construction and more intensive urban development. While the clay soils indicate high shrink-swell potential, the crumbly Austin soils, underlain by limestone and chalk bedrock, indicate lower shrink-swell and moderate drainage potential, and a higher bearing capacity. The potential for erosion is low to moderate on account of the gentle topography and characteristics of the soil types.

AREA 5: THE BOSQUE ESCARPMENT

Situated east of Lake Waco, this area includes the Bosque Escarpment. Spanning a northeast to southwest direction, the escarpment's topography is characterized by moderate-to-steep slopes of 450 to 600 feet above sea level. Steepest at the northeast end, the slopes soften and decrease toward the southwestern reach of the formation. Vegetation along the scarp consists mainly of cedar brush, mesquite and grassland.

Soils in the area are of two series: Stephen-Eddy and Houston Black-Heiden-Ferris. The Stephen-Eddy soils are mostly shallow, and consist of a brownish-gray silty clay over a layer of platy or gravelly chalk fragments. The soils of the Houston Black-Heiden-Ferris series consist of a

dark gray to dark grayish brown calcareous clay over olive-grayish brown clay. Geological content includes Austin Chalk, South Bosque Shale and Lake Waco Shale. The Austin Chalk occurs as an exposed linear band at the top of the Bosque Escarpment. The South Bosque Shale appears as a narrow band spanning the upper slopes of the west facing. The Lake Waco Shale is a thin sloping outcrop found between the limestone-capped hills that run northeast to southwest along the Escarpment.

Low-to-moderate shrink-swell potential and moderate infiltration potential are found in the Stephen-Eddy soils and the Austin Chalk. High-to-very-high shrink-swell and very slow infiltration potential are exhibited by Houston Black-Heiden-Ferris, South Bosque Shale, and Lake Waco Shale.

The area's sloping topography allows for good drainage capacity but a high propensity for erosion due to the shallowness of the soils and the slope of the bedrock. However, the Austin Chalk found along the upper parts of the escarpment demonstrates high bearing capacity and resistance to erosion.

With outstanding views and generally adequate bedrock that can support construction, this area is highly desirable for urban development. However, the presence of steep slopes, faults and fractures along the shale/chalk lines make application of special design considerations essential. Because of the area's unique geological features and beauty, "view conservation" for public use and

enjoyment would suggest restriction of certain types of development. Fragile and pristine, this area is part of the Brazos River Corridor Overlay Zone.

Floodplain Analysis

Floodplain areas within the city of Waco are associated with the Lake Waco reservoir, the Brazos River and the Bosque River. The Brazos River contains approximately 19,000 square miles of drainage basin above Waco (specifically north and west of Waco); the Bosque River, a major tributary of the Brazos River, contains almost 1,000 square miles of drainage basin above Waco.

Private development around Lake Waco, the Bosque River, and the upper reaches of the Brazos River has not been extensive. One reason is that many of the areas have been reserved for public use. However, land adjacent to portions of the Brazos River within the city has been and continues to be developed for commercial, residential and Industrial uses. Such intensive development in and around the floodplain has immediate negative consequences, such as an increased stormwater runoff and decreased pervious surface area. Moreover, continued intensive development increases the potential of flood occurrences both downstream and crossriver from the developed areas. Policy should be designed to deal with the potential problems associated with increased development along the river.

Aquifers

About 80 percent of the land mass in the state is underlain with aquifers from which approximately 56 percent of the state's current water usage is derived. Specifically, nine major and twenty minor aquifers provide water to the state. The Trinity Group aquifer supplies municipal and domestic water to the Waco/McLennan County area. Formations comprising this aquifer are of the basal Cretaceous-age "Trinity Group" and include the Twin Mountains, Glen Rose and Paluxy formations. Extensive development of land in the Trinity Aquifer's recharge zone has resulted in declining water levels.

Hydrological Features

Lake Waco is the principal reservoir and primary source of municipal water for the city of Waco and nearby communities. Located along the western boundary of the city, Lake Waco collects water from the Bosque River, a tributary of the Brazos River. The reservoir was enlarged in 1965 for the purposes of water conservation and flood control. Currently, the lake consists of a conservation service area of approximately 7,270 acres, and a conservation storage capacity of approximately 151,900 acre-feet. The construction of an additional five feet to the dam will address both future water supply and flood control needs. Due to the fact that Lake Waco provides the city and the surrounding area with water, protecting the water quality within the lake is a major

concern; this is further discussed in the *Infrastructure Plan* Section of the Comprehensive Plan.

A scenic area, Lake Waco is a site of multiple recreational activities, including hiking, biking, water activities and picnicking. In tandem with the City's plans for a network of interconnecting parks, recent construction by the Corps of Engineers of a hike-and-bike trail on the dam will not only enhance the value of existing developments in the Lake Waco area, but will encourage quality development throughout the city.

The Brazos River is the third largest in the state of Texas. It is also the longest river lying between the Rio Grande and Red Rivers. Arising at the confluence of the Double Mountain and Salt Fork in Stonewall County, the Brazos River travels through Waco to its destination, the Gulf of Mexico near Freeport, Texas – a total distance of 932.2 miles. The Brazos' drainage area is approximately 42,800 square miles; its annual runoff along the lower channel exceeding five million acre-feet per year. This body of water, which courses through the city in a northwest-southeast direction, is not only an aesthetic asset to the community, but it supplies one of the principal reservoirs, Lake Waco, through a tributary, the Bosque River. The expansive floodplain of the Brazos traverses the center of the city, providing an excellent opportunity for the continued development of attractive green areas, public spaces, parks and linear trails. Coordinated quality development is envisioned for

the Brazos River Corridor through Overlay Zoning ordinances and guidelines for development.

The Bosque Escarpment

A linear geologic formation along the South Bosque River and Lake Waco, the Bosque Escarpment is the most striking environmental feature in the city. The scarp consists of two major structural units: Austin Chalk and South Bosque Shale. As part of the Balcones Fault zone, the Bosque Escarpment's steep slopes are the result of faults, evidenced by as much as 260 feet of vertical displacement. Spectacular views both from below and from atop the formation attract people to this area and encourage public and private investment. However, the challenging topography, geologic characteristics and pristine fragility of the area impose both aesthetic and economic constraints to development.

Climate

The climate of an area may limit or advance various types of development. An industry that requires large open storage areas, for example, will not choose to locate in a community which experiences frequent or prolonged heavy rainfall; an industry which needs large quantities of water will not typically locate in an arid region. In determining the type of development the City wants to attract, climate must be considered in the

identification and recruitment of prospective investors. The following is a summary of climatic conditions and meteorological data for the Waco/McLennan County area excerpted from the *Texas Almanac*:

- ◆ Mean maximum temperature in July: 97 degrees
- ◆ Mean minimum temperature in January: 34 degrees
- ◆ Highest recorded (record) temperature: 112 degrees
- ◆ Lowest recorded (record) temperature: (-)5 degrees
- ◆ Last average freeze date (Spring): March 16
- ◆ First average freeze date (Fall): November 24
- ◆ Average length of growing season: 253 days
- ◆ Average annual precipitation: 32.0 inches
- ◆ Texas 109-year average annual precipitation (1888-1996): 28.1 inches

FOR THE WACO AREA:

- ◆ Number of days maximum temperature is 90° and above: 108.5 days/year
- ◆ Number of days minimum temperature is 32° and below: 35.2 days/year
- ◆ Mean annual snowfall: 1.5 inches
- ◆ Relative humidity at 6:00 a.m. CST: 83%
- ◆ Relative humidity at 12:00 noon CST: 57%
- ◆ Mean annual wind speed: 11.3 miles per hour

- ◆ Percent possibility of sunshine: 63%

Endangered Species

Endangered and threatened plant and animal species are identified as those at risk of extinction. Protection includes natural habitat maintenance – keeping the habitat intact and free of man-made disturbances to the greatest extent possible – and informed and careful planning and decision making, especially in terms of sensitivity to potential negative effects from other activities/ developments.

While the existence of endangered or threatened plant and/or animal species may constrain specific types of development in an area, it may also encourage overall better-coordinated, quality development.

Endangered species in McLennan County are listed as follows:

BIRDS:

- ◆ Bachman's Sparrow
- ◆ Bald Eagle
- ◆ Henslow's Sparrow
- ◆ Interior Least Tern
- ◆ Black Capped Vireo
- ◆ Western Burrowing Owl
- ◆ Golden Cheek Warbler

FISHES:

- ◆ Smalleye Shiner

MAMMALS:

- ◆ Note: No endangered or threatened species.

REPTILES:

- ◆ Texas Horned Lizard
- ◆ Timber/Canebrake Rattlesnake

Man – Made Features

Major transportation routes, special-area corridors, and extraterritorial jurisdiction are significant factors influencing urban development patterns.

MAJOR TRANSPORTATION ROUTES

County seat of McLennan County and the most populated city in the surrounding area, Waco enjoys an enviable geographic position of being situated in the heart of Texas, approximately 100 miles south of Dallas, 100 miles north of Austin, and at the apex of a triangle formed with the cities of Temple and Killeen. Waco’s location and the configuration of major transportation routes that serve the region make Waco/McLennan County an area primed for growth.

How a community develops its infrastructure depends in great measure upon its boundaries, both natural and man-made. Boundaries may both define a community and demarcate its development patterns. Some of the features that mark and identify the Waco area include Lake

Waco to the west, the Brazos River in the center of the city, the railroads, and the Waco Regional Airport that is located in the northwestern area of the city. Thoroughfares provide access not only to local traffic, but also to regional traffic from adjacent communities and from throughout the state. Within Waco five thoroughfare corridors serve as major transportation routes:

- ◆ Interstate Highway 35;
- ◆ South Loop 340 (State Road 6);
- ◆ State Highway 84 (Waco Drive);
- ◆ State Highway 298 (Franklin Avenue); and
- ◆ State Highway 396 (Valley Mills Drive).

Interstate Highway 35 is the major conveyor of regional traffic through the city. State Road 6 enters Waco at the southwest corner, becoming Loop 340 in the southern part of the city. South Loop 340 (State Road 6) circumvents the city with access to the loop at the south part of the area to the north and on the eastern side of Waco. Providing north-south access, State Highway 84 (Waco Drive) traverses Waco. Another north-south access route is State Highway 298, Franklin Avenue. A branch of State Highway 84, State Highway 298 parallels Waco Drive. Entering Waco from the south via the suburb of Robinson is U.S. Highway 77. The east-west traffic corridor providing movement through the center of the city is State Highway 396, Valley Mills Drive.



While access through the city via north-south direction is sufficient, the number of thoroughfares in Waco that convey traffic east-west are limited.

Metropolitan Transportation Plan

Waco, its suburbs, and the cities of McGregor and Lorena, constitute the Waco Metropolitan Area (WMA); planning efforts for the WMA are coordinated by the Waco Metropolitan Planning Organization (MPO). In a recently published report by the MPO, *The Metropolitan Transportation Plan: 2000 Update*, an assessment of the area's current and projected transportation needs for the next 25 years, the MPO submits that with the trend toward decreasing automobile occupancy and increasing automobile availability, the WMA will experience steady increases in traffic through the year 2025. Without new construction, an estimated 80 percent of the roads in the area will be unable to provide acceptable levels of service. A series of 72 projects, prioritized in order of importance, are presented. The report adds that continued planning and coordination among municipalities, the Texas Department of Transportation (TxDOT) and other state agencies is paramount if the area's future transportation needs are to be met. (Refer to *The Transportation Plan* Section of the Comprehensive Plan).

Mass Transit Availability

The Waco Transit System, which currently consists of thirteen 35-passenger coaches, six 12-passenger vans, and three trolleys, has been owned by the City of Waco since the mid-1980's. As demand for mass transit is expected to increase, the City of Waco has plans in place to meet its future transportation needs (refer to *The Transportation Plan* Section of the Comprehensive Plan).

RAILROAD ROUTES

Railroads have historically played a key role in attracting industrial development. While the Waco's industrial sector's reliance upon rail service has declined over the years, numerous manufacturing-based industries in the city depend greatly upon rail transport. Two remaining lines, owned by Union Pacific, continue to provide freight service to the area. An important resource in maintaining the viability of local industry, rail service in Waco remains an essential inducement to future industrial development. The availability of passenger train service is limited. Currently, Amtrack's service does not extend to Waco; the closest city to Waco that Amtrack serves is McGregor, which is approximately 20 minutes from Waco (refer to *The Metropolitan Transportation Plan: 2000 Update* and the *Transportation Plan* Section of this Comprehensive Plan).

EXTRA-TERRITORIAL JURISDICTION

Extra-territorial jurisdiction (ETJ) is the land area that an incorporated city may legally annex for the purpose of planning and accommodating future growth and development. The Texas State Legislature has established the amount of land annexable by a municipality as based upon the city's population size. The city of Waco's ETJ extends five miles outward from its corporate limits. It shares corporate boundaries with other municipalities to the north and southwest. The cities of West, Bellmead and Lacy-Lakeview lie to the north of Waco; the cities of Woodway, Hewitt and Robinson are adjacent to the southwestern corporate limits of the city. The city of Lorena is south of Hewitt along Interstate Highway 35. Waco's corporate limits completely surround one small community, Beverly Hills.

The City of Waco has executed legal agreements to establish the boundaries and ETJ with each of its neighboring cities. While some of the adjacent land cannot be immediately annexed, the agreements help to ensure the availability of adequate land within the city's corporate limits and ETJ to accommodate the projected long-term growth of the city.

URBAN CORRIDORS

Special corridor designations may be established for special areas of a city for the purpose of preserving their unique character or promoting specific types of development and activities.

These designations are generally created through implementation of area-specific policy and ordinances, and development of special design guidelines and/or incentive programs.

Through amendment of its Zoning Ordinance²⁻², the City of Waco has designated three areas in the city as special urban corridors: the Brazos River Corridor Overlay District, the College and University Overlay District, and the Neighborhood Conservation District.

The Brazos River Corridor Overlay District covers an area of approximately 8.5 square miles of land adjacent to the river, a linear expanse of approximately 10-12 miles. The intent of the special corridor designation includes preservation of the area's unique character, stabilization of specific areas within the Corridor; and promotion and coordination of public and private quality development and investment. Specific areas of development encouraged in the Corridor include quality recreational, convention/tourism, cultural, residential, business and educational enterprises.

The College and University Overlay District encompasses areas that are in close proximity to college/ university campuses in the city. The special district designation was established to promote higher development standards and uses which are appropriate, compatible and complementary to the college/ university setting.

²⁻² Further discussion of these districts is included in the Existing Zoning Characteristics section of the Baseline Analysis.

The Neighborhood Conservation District was established to preserve the character and appearance of older residential areas, to promote infill development as well as a variety of new housing; and to maintain and enhance a desirable neighborhood environment in form and scale. This special district designation has been applied to the Sanger-Heights Neighborhood.

population of approximately 2.5 percent between 1960 and 1970; the decline directly related to the closing of James Connally Air Force Base, a major area employer. By the next census count, however, Waco's population had increased by over six percent. By 1990 the population had increased 2.3 percent. Estimates for 1999 reflect a higher rate of growth at over six percent, which is an increase of 6,410 persons.

DEMOGRAPHICS & HOUSING PROFILE

Population Growth

The city of Waco has experienced relatively steady growth, with the largest increase, over 50 percent, occurring between 1940 and 1950, as reflected in **Table 1-1**. The city experienced a slight decline in

An examination of growth in the surrounding area reveals that Waco's vitality directly impacts that of the county and region. The information in **Table 1-2** indicates that McLennan County has, with the exception of the period between 1960 and 1970, experienced steady growth during every decade since 1930. The 1960-1970 population decline for the county reflects Waco's decline in population during that same period.

Table 1-1
POPULATION CHANGE
City of Waco, Texas

Year	Population	Population Change	Percent Change
1920	38,500		
1930	52,848	14,348	37.3%
1940	55,982	3,134	5.9%
1950	84,706	28,724	51.3%
1960	97,808	13,102	15.5%
1970	95,326	-2,482	-2.5%
1980	101,261	5,935	6.2%
1990	103,590	2,329	2.3%
1999 ⁽¹⁾	110,000	6,410	6.2%
2004 ⁽²⁾	118,303	8,303	7.5%

Source: U.S. Census

⁽¹⁾ Angelou Economic Advisors, Inc., Waco Economic Plan, August 1999.

⁽²⁾ Easy Analytical Software, Inc.

**Table 1-2
POPULATION CHANGE
McLennan County, Texas**

Year	Population	Population Change	Percent Change
1950	130,194		
1960	150,091	19,897	15.3%
1970	147,553	-2,538	-1.7%
1980	170,755	23,202	15.7%
1990	189,123	18,368	10.8%
1999 ⁽¹⁾	206,265	17,142	9.1%
2004 ⁽¹⁾	212,803	6,538	3.2%

Source: U.S. Census

⁽¹⁾ Easy Analytical Software, Inc.

Population Change of Surrounding Communities

While Waco is the largest city in the area, several other cities in the region are increasing in population. The city of Killeen is the second most populous city in the region. With an expected population of over 80,000 people in 1998, Killeen has experienced the greatest increase in population over the last 40 years. Since 1960 to 1998 it has grown by over 60,000 people. The activity and expansion of Fort Hood has direct bearing upon Killeen's rapid and phenomenal growth (refer to **Table 1-3**).

population, specifically just under 50,000 in 1998. It was the second largest city in population until 1980 when it was surpassed by the city of Killeen. Temple has maintained its level of growth, although it has been slower than that of several of the surrounding cities.

The other communities in the region are relatively small. Hillsboro, north of Waco on Interstate Highway 35, has a population of approximately 10,600 people. The community of Marlin, southeast of Waco on State Highway 6, has a population of just below 6,400 people.

Among the cities surrounding Waco, the city of Temple has the third largest

**Table 1-3
POPULATION CHANGE OF NEARBY COMMUNITIES
1960-1998**

City	1960	1970	1980	1990	1998⁽¹⁾
Hillsboro	7,402	7,224	7,397	10,145	10,673
Marlin	6,918	6,651	7,099	6,386	6,344
Temple	30,419	33,431	42,483	46,109	49,427
Killeen	23,377	35,507	46,296	63,535	80,720
Waco	97,808	95,326	101,261	103,590	110,000 ⁽²⁾

Source: U.S. Census

⁽¹⁾ U.S. Census Population Estimates as of 7/1/98.

⁽²⁾ Angelou Economic Advisors, Inc., Waco Economic Plan, August 1999.

The population changes of several of the incorporated communities adjacent to Waco are noted as follows (refer **Table 1-4**).

The smallest incorporated community in the immediate area is Lacy-Lakeview. Located just northeast of Waco, this city's population has recently experienced a large increase due primarily to the absorption of the town of Northcrest in 1998.

Robinson, located southeast of the city of Waco, is the largest incorporated community in terms of acreage. The cities of Bellmead and Woodway, smaller than Robinson geographically, surpass Robinson's population of

8,000. However, Robinson's current growth rate closely correlates with Woodway's, at 2.7 and 2.4 percent respectively.

The fastest growing suburb is the community of Hewitt. Located southeast of Waco, Hewitt has experienced a growth rate of over 11 percent from 1970 to its projected population in 1998. With a population of approximately 570 people in 1970, Hewitt was the smallest community in the vicinity. By 1980 it had grown to 5,247, which is approximately nine times its 1970 population. By 1990 the city's population was just under 9,000.

Table 1-4
POPULATION CHANGE OF SUBURBAN COMMUNITIES
1960-1998

City	1960	1970	1980	1990	1998 ⁽¹⁾	Growth Rate ⁽³⁾
Lacy Lakeview	2,272	2,558	2,752	3,617	6,305	3.3
Bellmead	5,127	7,698	7,569	8,336	8,403	0.3
McGregor	4,642	4,365	4,513	4,683	4,834	0.4
Woodway	1,244	4,819	7,091	8,695	9,471	2.4
Hewitt		569	5,247	8,983	10,718	11.1
Robinson	2,110	3,807	6,074	7,111	8,112	2.7
Lorena	277	406	619	1,158	1,409	4.5
West	2,352	2,406	2,485	2,515	2,586	0.3
Beverly Hills	1,728	2,289	2,083	2,048	2,133	-0.3
Waco	97,808	95,326	101,261	103,590	110,000 ⁽²⁾	0.5

Source: U.S. Census

⁽¹⁾ Waco Metropolitan Transportation Plan 2000.

⁽²⁾ Angelou Economic Advisors, Inc., Waco Economic Plan, August 1999.

⁽³⁾ Calculated as an average percentage of growth from 1970 to estimated population in 1998.

The city of Waco experienced modest from 1970 to 1999, a growth rate of about 0.5 percent. A population of 110,000 was projected for 1998. Relative to the population of the county as a whole, the population of Waco accounts for approximately 50

percent of the county's population. This is a decrease from the 1960 percentage of 65 percent and reflects the increasing rate of growth occurring outside of the city (refer **Table 1-5**).

Table 1-5
REGIONAL GROWTH COMPARISON
1960-1998

Year	Population of Waco	Population of McLennan County	Percentage of Waco in McLennan County
1960	97,808	150,091	65.2%
1970	95,326	147,553	64.6%
1980	101,261	170,755	59.3%
1990	103,590	189,123	54.8%
1999	110,000 ⁽¹⁾	206,265 ⁽²⁾	53.3%

Source: U.S. Census

⁽¹⁾ Waco Economic Development Plan, Angelou Economic Advisors, Inc., 1999.

⁽²⁾ Easy Analytical Software, Inc.

Projected Growth Rates

Three potential growth rates have been calculated for the city of Waco (refer **Table 1-6**); these rates vary from one to two percent. The data upon which the projections were based included a review of building permit issuances from 1991 to 1996, during which time an average of 350 residential building permits per year were issued¹⁻³.

Plan A, the most conservative projection, calculated at a growth rate of one percent, estimates a population of 137,000 people in the year 2020. Based upon the aforementioned data, the number of building permit issuances correlating with this population is an average of 380 per year. Plan B uses a 1.5 growth rate. In this scenario, Waco is expected to grow to a population of 129,000 by 2010, and 150,000 by 2020. To achieve this growth, an average of 570

building permits would be issued per year. Plan C projects a year 2020 population of 165,000, an aggressive projection in light of the fact that such growth has historically taken fifty years to achieve. While it is unlikely the city would experience such growth, the establishment of large businesses or industries in the community could stimulate a greater rate of growth for the city.

In summary, the 1.5 percent growth rate of Plan B is the most realistic scenario. Although the city has grown at a slower rate than 1.5 percent over the past few decades, continuing economic development opportunities and a healthy local economy suggest that this is a reasonable possibility during the next twenty years.

¹⁻³ Does not include multi-family building permits; the number of residential building permits issued in 1997 and 1998 were lower than the stated average.

**Table 1-6
PROJECTED POPULATION GROWTH
City of Waco, Texas**

Year	Plan A 1.0% Growth Rate	Plan B 1.5% Growth Rate	Plan C 2.0% Growth Rate
1980 ⁽¹⁾	101,261	101,261	101,261
1990 ⁽¹⁾	103,590	103,590	103,590
1999 ⁽²⁾	110,000	110,000	110,000
2000	111,000	111,600	112,000
2005	117,000	120,000	123,000
2010	123,000	129,000	135,000
2015	130,000	138,000	150,000
2020	137,000	150,000	165,000
Building Permits Per Year⁽³⁾	380	570	780

Source: ⁽¹⁾ U.S. Census.

⁽²⁾ Waco Economic Development Plan, Angelou Economic Advisors, Inc., 1999.

⁽³⁾ Based on 3 persons per household and a 90% occupancy rate.

**Table 1-7
PROJECTED POPULATION GROWTH
Metropolitan Planning Organization
Study Area**

Year	Population
1997 ⁽¹⁾	168,034
2005	178,639
2015	193,499
2030	213,215

Estimated Growth Rate: 0.72%

Source: Wilbur Smith & Associates, Inc.

⁽¹⁾ Texas State Data Center.

The Texas State Data Center (TSDC) estimated that the population of the Waco Metropolitan Statistical Area (MSA) was approximately 168,034 in 1997 (refer to **Table 1-7**). In a 1999 Metropolitan Planning Organization (MPO) report, the population projection for 2030 was estimated at approximately 213,215 people, forecasting an average expected growth rate from 1997 to 2030 of approximately 0.72 percent.



Race and Ethnic Distribution

Between the 1980 and 1990 Census, there were relatively minimal changes in the racial and ethnic distribution percentages for the city (refer to **Table 1-8**). Hispanic and Caucasian segments displayed the greatest increases at five and 6.7 percent respectively. The “Other” race category, which includes Asian, Aleutian, Eskimo, Indian, and Pacific Islander ethnicities, increased by approximately three percent; the African-American population increased by almost two percent.

by the 2000 Census the “minority” population in Waco will have increased to over 50 percent of the overall population. In another study of counties and Metropolitan Statistical Areas (MSAs) conducted by the Texas State Data Center, a similar distribution was found (refer to **Table 1-9**).

In a report compiled by the City of Waco Department of Planning Services,¹⁻⁴ race and ethnicity trends documented from 1970 and projected to the year 2000 reflect a decrease in the Caucasian population and an increase in all other population segments. However, an examination of the longer view, from 1970 to 1990 reveals a trend of increasing African-American and Hispanic populations (specifically, a doubling of the Hispanic population since 1970), and a decreasing Caucasian population. If these trends continue,

Race/Ethnicity	1983 ⁽¹⁾		1990 ⁽²⁾	
	Number	Percent ⁽³⁾	Number	Percent ⁽³⁾
Other	6,336	6.2%	9,539	7.9%
Hispanic ⁽⁴⁾	11,264	11.1%	16,722	13.9%
Black/African-American	22,011	21.7%	24,010	20.0%
White/Caucasian	61,808	60.9%	70,041	58.2%

Source: ⁽¹⁾ Information based on Table 12, City of Waco Comprehensive Plan 2000, written September, 1983.

⁽²⁾ U.S. Census.

⁽³⁾ Percent based upon total population; due to the inclusion of Hispanic origin in any race percent, total will not equal 100.0%.

⁽⁴⁾ Hispanic origin can be of any race.

¹⁻⁴ Information obtained from “1996 Data Trends and Development Report,” prepared by the Department of Planning Services in July of 1996.

**Table 1-9
RACE AND ETHNIC DISTRIBUTION PROJECTION
Waco Metropolitan Statistical Area**

Race/Ethnicity	2000		2015		2030	
	Number	Percent ⁽¹⁾	Number	Percent ⁽¹⁾	Number	Percent ⁽¹⁾
Other	2,705	1.3%	4,971	2.1%	9,566	3.7%
Hispanic ⁽²⁾	31,480	15.2%	49,659	21.1%	71,974	27.8%
Black/African-American	33,862	16.3%	43,108	18.4%	51,513	19.9%
White/Caucasian	139,123	67.2%	137,143	58.4%	125,780	48.6%

Source: Texas Data Center.

⁽¹⁾ Percent based upon total population; due to the inclusion of Hispanic origin in any race percent, total will not equal 100.0%.

⁽²⁾ Hispanic origin can be of any race.

Age Distribution

Table 1-10 reflects the age distribution of Waco's populace. With the exception of the labor force population, there were no major changes in age group distribution between 1980 and 1990. The Young age group (0-14 years), the High School (15-19 years), the College/New Family (20-24 years) and the Elderly age group (65 years and over) remained stable, varying by only two percentage points between the 1980 and 1990 census.

The greatest change occurred among those considered to be of employable age: the Prime Labor Force group (25-44 years) and the Older Labor Force (45-64 years). The former

group, which grew five percent from 1980 to 1990, accounted for almost 27 percent of the overall population in 1990. The Older Labor Force, decreasing slightly (3.5 percent) from 1980 to 1990, accounted for just over 15 percent of the total population in 1990. Together, these labor force groups represented over 40 percent of the total 1990 population of Waco. The increase in the Prime Labor Force population may indicate the healthy state of the Waco's economy.

The Elderly population in Waco, while representative of only 14 percent of the total population, is still a higher proportion than that of the state of Texas, which is approximately 10 percent. Young and High School age groups comprise a relatively large portion of the overall population,

specifically approximately 30 percent. Significant changes in the youngest and oldest population groups warrant attention, as these groups generally require specialized services and facilities, including, schools, daycare, parks, recreational facilities, and specialized housing.

Educational Attainment

Educational attainment is one of the most important factors in determining the capability of a community to provide a trained workforce. In general, educational levels of the Waco population are below state averages.

In 1990 the percentage of Waco's citizens having attained a high school education was slightly more than 55 percent; with approximately 20 percent of the population without a high school degree. The state of Texas' average of high school graduates in 1990 was 72.1 percent

Table 1-10
AGE COMPOSITION AND DISTRIBUTION
City of Waco, Texas

Age Group	1980		1990	
	Number	Percent	Number	Percent
Young (0-14 years)	20,260	20.0%	21,281	20.5%
High School (15-19 years)	11,127	11.0%	9,877	9.5%
College, New Family (20-24 years)	14,303	14.1%	13,598	13.1%
Prime Labor Force (25-44 years)	21,978	21.7%	27,658	26.7%
Older Labor Force (45-64 years)	19,162	18.9%	15,860	15.3%
Elderly (65 and over)	14,431	14.3%	15,316	14.8%
Total	101,261	100.0%	103,590	100.0%
Median Age	27.8 years		28.9 Years	

Source: U.S. Census

(refer to **Table 1-11**). The percentage of Waco citizens having an Associate or a Bachelor's degree in 1990 was 12 percent, compared to the statewide average of 20.3 percent. In general, across the state the number of people attaining some level of higher education is increasing, a trend that may also be reflected in Waco's 2000 Census.

Table 1-11
EDUCATIONAL ATTAINMENT - 1990
City of Waco, Texas

Level Attained	1990	Percentage of Total Population (103,590)
Less Than High School	21,350	20.6%
High School Graduate	18,675	18.0%
Some College, No Degree	22,136	21.4%
Associate or Bachelor's Degree	12,337	11.9%
Graduate or Professional Degree	3,824	3.4%
Total	78,322	75.3%

Source: U.S. Census {Note: For persons 16 years of age and older.}

Household Income Levels

Another important factor of the Baseline Analysis, particularly for retail trade and personal services, is family income. The figures showing household income for the city of Waco are shown in **Table 1-12**.

The median household income level for Waco in 1989 (\$17,852) was significantly below the median household income for the state (\$27,016). The number of Waco households having incomes greater than \$25,000 was 37 percent, and those earning over \$50,000, represented 11 percent of the population (refer to **Table 1-12**).

Table 1-12
HOUSEHOLD INCOME
City of Waco, Texas

Income Level	1990⁽¹⁾	1999⁽²⁾
\$0-14,999	17,164	13,141
\$15,000-24,999	7,781	10,897
\$25,000-34,999	5,537	6,911
\$35,000-49,999	4,643	5,213
\$50,000-74,999	2,683	4,120
\$75,000-99,999	838	2,349
\$100,000 or more	760	2,411
Total Number of Households	39,406	45,042
Median Income	1989⁽¹⁾ 17,852	1998⁽²⁾ 23,608

Source: ⁽¹⁾U.S. Census

⁽²⁾Easy Analytic Software, Inc., as of 1/1/99.

The Metropolitan Planning Organization, (MPO) in a recent report, projected household income levels by Traffic Analysis Zones (TAZs). These projections, for 2005 to 2030, were initially based on a projected income for 1997 of \$21,151 for the MPO Study Area, provided by the Texas Data Center. The average income for the area is not expected to encounter any drastic changes.

However, the median income projection could be altered by the effects of any number of economic variables such as inflation, employment, and service costs in the area. "The income forecasts are the most tenuous of the data presented, as national, regional, and local economies will greatly impact incomes."¹⁻⁵

Existing Housing Profile

From 1980 to 1990, the total number of dwelling units in Waco grew by approximately 5,193 units. During the same period, the number of persons per household decreased slightly (refer to **Table 1-13**). This might suggest a lower population density; however, this statistic correlates with both national and state trends toward fewer numbers of persons per household. In 1990 Waco's persons-per-dwelling unit average was slightly less than Texas' statewide average.

Table 1-13
TOTAL NUMBER OF DWELLING UNITS
City of Waco, Texas

Year	Persons per Dwelling Unit	Number of Dwelling Units
1980	2.75	39,895
1990	2.61	45,088
1999 ⁽¹⁾	2.62	45,575

Sources: U.S. Census

⁽¹⁾Dunkin, Sefko & Assoc., Inc., Land Use Survey, conducted in 01/99.

HOUSING INVENTORY

Waco has a predominance of single-family residences (66.5 percent of the total housing stock), according to the most recent housing survey, which was conducted in 1999. Duplexes and town home units account for about 4 percent of the single-family residences. Multi-family dwelling units account for approximately 32 percent of the city's residences (14,830 units), with manufactured homes representing less than six-tenths of one percent (293 units) of the total housing stock (refer to **Table 1-14**).

¹⁻⁵ Information obtained from "1996 Data Trends and Development Report", prepared by the Department of Planning Services in July of 1996.

**Table 1-14
HOUSING TYPE - 1999
City of Waco, Texas**

Housing Type	Number	Percent
Single-Family, Duplex & Town Home	30,978	66.5%
Multi-Family	14,830	31.8%
Manufactured Home	293	0.6%
Other	474	1.0%
Total	45,575	100.0%

Sources: Dunkin, Sefko & Assoc., Inc., Land Use Survey, conducted in 01/99 & City of Waco Planning Department.

**Table 1-15
NUMBER OF BUILDING PERMITS
City of Waco, Texas**

Year	Total Number of Building Permits Issued		
	Single-Family	Duplex	Multi-Family
1997	138	18	202
1998	171	16	389
1999	202	20	20

Source: City of Waco

Between 1990 and 1999 the number of housing units in Waco increased by approximately 490 units (refer to **Table 1-13** and **Table 1-14**). During 1999, building permits for single-family residences exceeded those issued for single-family residences each of the previous two years. Conversely, the number of building permits issued in 1999 for multi-family units experienced a marked decrease (refer to **Table 1-15**). The increase in single-family units is a positive trend.

AGE OF HOUSING UNITS

Just over 50 percent of the housing units in the city of Waco were constructed prior to 1960 (refer to **Table 1-17**). According to the 1990 Census, approximately 30 percent of the housing structures were built between 1960 and 1980, and approximately 20 percent have been constructed since 1980. The city experienced a building boom between 1950 and 1959, a period during which almost 26 percent of the total housing stock was constructed.

Construction occurring between 1980 and March 1990 (7,800 units) exceeds the number of units constructed from 1960 to 1969, and from 1970 to 1979. Although the housing stock in Waco is aging, most of the structures are in relatively good condition, as will be discussed later within this Baseline Analysis.



Table 1-16
YEAR OF CONSTRUCTION FOR HOUSING STRUCTURES - 1990
City of Waco, Texas

Year of Construction	Number	Percent
Before 1939	5,428	12.0%
1940 to 1949	5,684	12.6%
1950 to 1959	11,643	25.8%
1960 to 1969	7,481	16.6%
1970 to 1979	7,048	15.6%
1980 to 1984	4,936	10.9%
1985 to 1988	2,723	6.0%
1989 to March 1990	145	0.3%
Total	45,088	100.0%
Median Structure Age	1960	

Source: U.S. Census

HOUSING VALUES

Availability of affordable housing affects the physical environment, quality of life, and stability of a community. A widely accepted ratio in terms of affordable living is that approximately one-third of a family's gross income should be expended on shelter. **Table 1-18** describes the housing value for occupied dwelling units in Waco per 1990 census data.

A large number of affordable housing units are available in Waco. The median housing value is approx-

imately \$42,000, which is a moderate amount for a home in the current market. Most of Waco's occupied dwelling units are in the \$30,000 to \$49,999 range. Almost 30 percent of the housing units are valued between \$50,000 and \$99,999, and fewer than 20 percent are above \$100,000. However, projections indicate that housing costs are increasing. In a report published by the Department of Planning Services¹⁻⁶ new homes constructed in 1995 averaged \$100,000, an increase of almost 20

¹⁻⁶ Information obtained from "1996 Data Trends and Development Report", prepared by the Department of Planning Services in July of 1996.

percent over the previous year. By June 1996, the average value of a new home had risen to approximately \$107,000.

Table 1-17
HOUSING VALUE OF OWNER-OCCUPIED HOUSING UNITS - 1990
City of Waco, Texas

Housing Value	Number	Percent
Less than \$19,999	2,283	13.4%
\$20,000 to \$29,999	2,610	15.3%
\$30,000 to \$49,999	5,435	31.9%
\$50,000 to \$99,999	5,068	29.8%
\$100,000 to \$149,999	957	5.6%
\$150,000 to \$249,999	394	2.3%
\$250,000 to \$399,999	215	1.3%
\$400,000 or more	54	0.3%
Total	17,016	100.0%
Median Housing Value	\$41,800	

Source: U.S. Census

TENURE (RESIDENCY)

The length of time people reside in a community influences to some degree the physical environment of the community. Occupancy of a structure over a long period tends to ensure regularity of maintenance, which, in turn, affects the appearance of not only the individual structure, but of the neighborhoods in general. Because rented structures generally experience occupancy changes more than owner-occupied structures, an examination of the number of rental-occupied versus owner-occupied units is necessary to

assess the condition of Waco's housing stock.

Due to the presence of three institutions of higher education – McLennan Community College, Texas State Technical College, and Baylor University - Waco has a large transient population. An examination of data in **Tables 1-18** and **1-19** reveals a trend of increasing renter-occupied units versus owner-occupied units.

The city's percentages of renter-occupied dwellings exceed those of



Table 1-18
RENTER- VERSUS OWNER-OCCUPIED UNITS
City of Waco & Peer Communities

City	1980 ⁽¹⁾		1990 ⁽¹⁾		1999 ⁽²⁾	
	Renter-Occupied Percentage	Owner-Occupied Percentage	Renter-Occupied Percentage	Owner-Occupied Percentage	Renter-Occupied Percentage	Owner-Occupied Percentage
Tyler	41.1%	58.9%	47.2%	52.8%	43.0%	57.0%
San Angelo	37.8%	62.2%	40.8%	59.2%	38.5%	61.5%
Wichita Falls	37.9%	62.1%	40.6%	59.4%	39.1%	60.9%
Beaumont	36.6%	63.4%	39.9%	60.1%	37.0%	63.0%
Lubbock	41.3%	58.7%	44.7%	55.3%	41.6%	58.4%
Waco	46.8%	53.2%	53.5%	46.5%	50.0%	50.0%

Source: ⁽¹⁾ U.S. Census

⁽²⁾ Easy Analytic Software, Inc., estimate as of 1/1/99

peer communities. According to the U.S. Census data, the city's renter- and owner- occupancy percentages in 1980 were more closely correlated with Lubbock, which is also a college/university city. However, by 1990 the city's renter-versus-owner-occupied unit rates had reversed; there was increase in the number of renters (53.5 percent) and a decrease in the number of homeowners (46.5 percent). Despite the similarities with other cities that are described as peer communities, Waco continued to have the higher rate of renter-occupied than of owner-occupied dwellings.

Compared to surrounding communities, the only city to surpass Waco in renter-occupied dwellings was Killeen, according to the 1980 Census data. However, by 1990 these percentages had reversed, with

Killeen's owner-occupied rate climbing to almost 60 percent (refer to **Table 1-20**). Similarly, Waco's renter-versus-owner ratio remains above the state average of 39 percent renter-occupied units (compared to Waco's 53.5 percent), and 61 percent owner-occupied units (compared to Waco's 46.5 percent).

Although a 1999 projection (shown in **Table 1-19**) indicates a 50/50 ratio of renter-verses-owner occupancy in Waco, it is expected that Waco will continue to have a slightly higher rental percentage than other peer communities, according to a 1996 report by the Department of Planning Services¹⁻⁷. The trend from 1970 (40 percent renter-occupied rate) to 1980 (47 percent renter-occupied rate); and

¹⁻⁷ Information obtained from "1996 Data Trends and Development Report", prepared by the Department of Planning Services in July of 1996.

**Table 1-19
RENTER- VERSUS OWNER-OCCUPIED UNITS
City of Waco & Surrounding Communities**

City	1980 ⁽¹⁾		1990 ⁽¹⁾		1999 ⁽²⁾	
	Renter-Occupied Percentage	Owner-Occupied Percentage	Renter-Occupied Percentage	Owner-Occupied Percentage	Renter-Occupied Percentage	Owner-Occupied Percentage
Hillsboro	37.3%	62.7%	38.4%	61.6%	34.3%	65.7%
Groesbeck	28.4%	71.6%	34.5%	65.5%	31.6%	68.4%
Temple	39.9%	60.1%	47.1%	52.9%	44.3%	55.7%
Killeen	58.8%	41.2%	41.5%	58.5%	58.9%	40.7%
Marlin	35.2%	64.8%	37.2%	62.8%	36.2%	63.8%
Waco	46.8%	53.2%	53.5%	46.5%	50.0%	50.0%

Source: ⁽¹⁾ U.S. Census

⁽²⁾ Easy Analytic Software, Inc., estimate as of 1/1/99

the subsequent 1990 data (53.5 percent renter-occupied rate) indicates that by the 2000 Census, the proportion of rental units in the

Semester of 1999.

city may surpass 60 percent. The City should make every effort to serve the transient/student population and simultaneously strive to provide affordable housing to its permanent residents.

As previously mentioned, Waco has a high student population that contributes to the high percentage of rental-occupied units. Specifically, it is important to note that Baylor University had 13,334 students enrolled, McLennan County Community College had 5,611 students enrolled, and Texas State Technical College had 3,735 students enrolled in the Fall

**Table 1-20
CONTRACT RENT - 1990
City of Waco, Texas**

Contract Rent Per Month	1990 ⁽¹⁾		1999 ⁽²⁾	
	Number	Percent	Number	Percent
Less than \$300	11,332	54.6%	5,741	25.6%
\$300 to \$499	7,284	35.1%	10,862	48.5%
\$500 to \$749	1,203	5.8%	4,254	19.0%
\$750 to \$999	194	0.9%	738	3.3%
\$1,000 or more	18	0.1%	74	0.3%
No Cash Rent	708	3.4%	714	3.2%
Total	20,739	100.0%	22,383	100.0%
Median Contract Rent	\$281 per month		\$322 per month	

Source: ⁽¹⁾ U.S. Census

⁽²⁾ Easy Analytic Software, Inc., as of 1/1/99.

RENTAL RATES WITHIN THE CITY

Median rental rate value is representative of the average cost required within a city to obtain adequate shelter. Based upon the assumption that approximately 30 percent of family income is expended for shelter, a family with the median income of \$17,852 (median income in Waco for 1990; refer to **Table 1-12**) could afford a rental rate of approximately \$450 per month. According to estimates of contract rental rates for 1990 (refer to **Table 1-20**), approximately 15 percent of rental units in Waco require over \$450 per month. It appears that the majority of families earning the median income of \$17,852 would be able to rent housing. However, the combination of variables – inflation and other economic factors, including family size – could alter the assumption. This data should be updated when the 2000 Census statistics are available.

Lower income families are often forced to occupy housing units that are considered below acceptable community standards. The "filtering down" process, which occurs as a natural progression of older (but sound) housing units transferring to lower income families when they are vacated by families moving into new and larger units (or for other reasons), is a usual result of aging housing. The age of many older structures will influence their desirability as a dwelling unit as well as the number of units available for the "filtering down" process. The availability of newer

units for low-income families is an issue in evaluating Waco's housing policies.

Exterior Housing Condition

In 1999 a housing inventory was conducted to determine the physical condition of Waco's single-family housing stock and to identify blighted areas. The majority of the city's housing stock was found to be in good condition. Four categories were used to classify the exterior physical condition of the housing as follows (refer to **Plate 1-3**):

TYPE 1: *Good and sound condition*

Structures are either new or are older units that are in sound physical condition and are being maintained.

TYPE 2: *Housing in need of minor repair*

Structures are in need of minor repair, which could be performed by the occupant. Examples of repair include painting of trim or exterior surfaces, replacement of small trim areas, or other similar minor repairs.

TYPE 3: *Housing in need of major repair*

Structures are in need of major repairs that would not normally be able to be undertaken by the occupant. Generally, structures are in various stages of deterioration, including such elements as sagging roofs, missing shingles, and similar minor repairs.



2000 Waco Comprehensive Plan HOUSING CONDITIONS

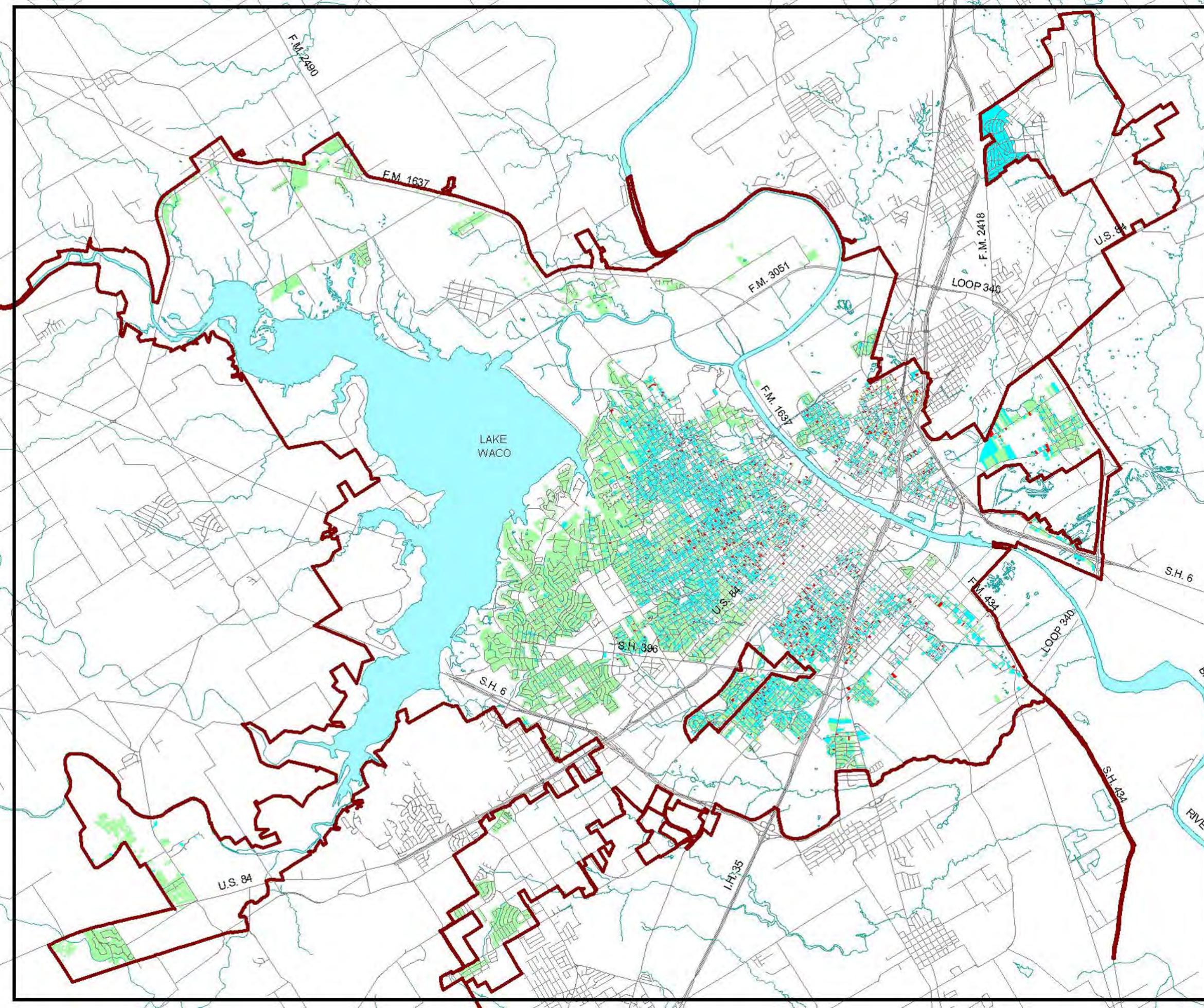
Legend

- Sound Dwelling
- Dwelling in need of Minor Repair
- Dwelling in need of Major Repair
- Dilapidated Dwelling

Waco City Limits



PLATE 1-3



TYPE 4: Dilapidated

Structures are considered to be inadequate as dwelling units. Major structural deficiencies are apparent; rehabilitation of structures is questionable.

Table 1-21
EXTERIOR EXISTING HOUSING CONDITION
- 1999
City of Waco, Texas

Structure Type	Number	Percent
Type 1	17,448	58.99%
Type 2	10,614	35.88%
Type 3	1,418	4.79%
Type 4	100	0.34%
Total	29,580	100.00%

Source: Dunkin, Sefko & Assoc., Inc., Land Use Survey, conducted in 01/99.

The majority of the single-family housing units in the city are in good condition. Approximately 59 percent and 36 percent were rated Type 1 and 2, respectively; slightly more than 5

percent were designated as Type 3 or 4. The latter units were concentrated in the central, older downtown area in the far northern portion of the city. Although there are no major concerns regarding the overall condition of Waco's housing stock, the large percentage of dwellings designated as Type 2 housing could deteriorate into the Type 3 condition if maintenance issues are not addressed (refer **Table 1-21** and **Plate 1-3**).

In comparison with peer cities, the overall condition of housing in Waco is relatively good, and is similar to that of other communities. The city has a slightly lower percentage of Type 1 units and a slightly higher percentage of Type 2 units, as **Table 1-22** shows. However, the city's Type 3 units (approximately 4.7 percent) correlate closely with the cities of Tyler and Midland, which are at 4.7 and 5.9 percent respectively. Waco has fewer units in the Type 4 category than any other city, with the exception of Copperas Cove (refer to **Table 1-23**).

Table 1-22
HOUSING CONDITION PERCENTAGES
City of Waco & Peer Communities

Structure Type	Tyler	Irving	Midland	Copperas Cove	Waco
Type 1	67.0%	21.3%	69.8%	81.8%	58.9%
Type 2	27.9%	76.4%	23.7%	16.7%	35.8%
Type 3	4.7%	1.9%	5.9%	1.4%	4.7%
Type 4	0.4%	0.4%	0.5%	0.1%	0.3%

Source: Dunkin, Sefko & Assoc., Inc.

CURRENT INCENTIVES FOR THE IMPROVEMENT OF LOCAL HOUSING

The City of Waco's housing initiative includes a number of incentive programs designed to provide home improvement and home ownership assistance to qualified applicants. Following are brief summaries of some of these programs.¹⁻⁸

Beautification Loan Program

Designed to assist homeowners with repairs, cleanup, and basic exterior improvements to their dwellings, the Beautification Loan Program targets "Impact Areas," where new and/or rehabilitative construction is being assisted and/or monitored by the City of Waco Housing and Community Development Services Department. Eligibility requirements are based upon income; specifically, families or individuals with incomes that are 80 percent or less of the median income for Waco may qualify for this program. Income guidelines issued by the federal Housing and Urban Development Department require annual adjustment of the median income by the City.

¹⁻⁸ All information about the Housing Programs in Waco was obtained directly from either the City itself, or from the City's Housing and Community Development Services Department.

Residential Rehabilitation Loan Program

Initiated in 1999 by the City Housing and Community Development Services Department, this loan program is designed to assist in the prevention and elimination of deterioration and influences that cause blight; the larger goal being the preservation and restoration of stable, viable and environmentally pleasing neighborhoods. Eligibility requirements are based upon income; families or individuals with incomes that are 80 percent or less of the median income for Waco may qualify. Program stipulations are as follows: (1) that the projected cost of the improvement is not greater than the rehabilitation value of the structure; (2) that the structure pass an environmental control inspection; and (3) that the owner has received no other type of grant or loan from the City within a 10-year period, unless otherwise approved by the City Manager.

New/Acquisition Housing Loan Program

This program, established in 1999, assists prospective homeowners with qualifying fees, down payments, and closing costs for a wide array of properties including single-family dwellings, duplex or fourplex units, condominiums, cooperative units and town homes. Eligible applicants must have incomes that fall within a certain bracket (i.e., 80 to 120 percent of median income for the city). Maximum loan amounts are inversely

related to family income; for example, a family with the aforementioned income would be eligible for a loan of up to \$7,000, but a family with an income of below 50 percent of the median income would be eligible for a loan of up to \$15,000. Interest rates vary from zero to three percent.

Emergency Grant Repair Program

This grant program assists homeowners with the costs related to home repair conditions that may be considered emergency situations, (i.e., that may affect the health, safety and welfare of citizens). Requiring a referral by a Health, Fire, Police or Code Inspector, the loan assistance is considered by the City of Waco Loan Committee, which then determines if the situation meets its criteria. Eligible applicants are homeowners whose dwellings are located in any area of the city, whose property taxes are currently paid, and whose annual income does not exceed 80 percent of the median family income of the city. Stipulations on the type of repair allowable limit the grant availability to repairs related to the roof, plumbing, or electrical system of the structure. Other types of repair may be considered on a case-by-case basis.

Home Ownership Assistance Program

Designed to assist first-time homeowners who are regular, full-time employees of the City of Waco,

this program provides interest-free mortgage loan assistance restricted to \$15,000, or to 20 percent of the cost of the home, whichever is less. Eligibility requirements further stipulate that the borrowers must be employed by the City for at least three years. Structures that meet the requirements of the program include single-family dwellings that consist of no more than four units, condominiums, cooperative units or town homes.

Interim Construction Loan Program

Under this program, both the prospective homeowner and the homebuilder must qualify for the construction loan. The eligibility requirement of the prospective homeowner is a family income not to exceed 80 percent of the median family income of the city of Waco. Further, a letter of verification by a permanent lender must be provided. The builder must also be pre-approved by the City of Waco, along with all plans and specifications for construction. The loan amount is limited to 100 percent of the cost of the home, 110 percent of the appraised value of the home, 100 percent of the verification letter amount, or \$75,000. The interest rate on this type of loan is three percent or less.

LOCAL ECONOMY AND EMPLOYMENT

Employment opportunities¹⁻⁹ are critical to the city's continued, sustained growth. As jobs are created by incoming industry and the labor pool expands to meet the demand, more industry is attracted to the area.

The total labor force in 1990 was 41,429 people. A 1999 study of employment trends and Waco's employment characteristics conducted by Angelou Economic Advisors, Inc. (AEA) found that the city has enjoyed moderate employment growth since 1990. On average, between 1990 and 1998, 650 jobs per year have been created; the labor force having grown at a compounded annual rate of approximately 15 percent. However, in 1997 the overall population growth rate was only 0.07 percent. A comparison of 13 thirteen other Texas communities' growth rates during the period of 1990 through 1998 found Waco ranked at tenth place¹⁻¹⁰. While Waco's employment opportunities increased by about 5,200 jobs during the period, Waco was still behind the average gains of peer communities by about 2,000 jobs.

Waco's employment growth over the last ten years is largely attributable to a strong manufacturing base. Recent trends, however, suggest an increase in service sector opportunities and a slight decrease in manufacturing employment. The service sector jobs in Waco represent approximately 25 percent of the local economy or 29,000 employees, according to the AEA report. This sector remains largely non-technology based, the technological sector having grown incrementally over the last ten years. This distinction is reflected in the Waco MSA's labor costs; in 1997 Waco's wage levels were lower than the state average for every job category. With the exception of the "Industrial Machinery Mechanics" category, trends show a steady increase in service sector employment.

Waco has significant concentrations of employment in the computer equipment, food processing and housing and construction sectors in comparison with peer cities and the state. However, the medical supplies and healthcare sectors find the city comparable with about half of the peer communities studied, with a significant number of Waco residents employed in the healthcare sector.

Less developed than in peer cities are Waco's Business and Professional Services, Logistics and Distribution, Communications Equipment, and Software Development/Multimedia/Data Processing industry clusters. AEA notes that the weak availability of labor in these areas may be attributed to Waco's image as a

¹⁻⁹ A more in-depth analysis of the employment trends in the City of Waco can be found in the City's Economic Development Plan, written by Angelou Economic Advisors, Inc. in September of 1999. All information for this summary is contained therein.

¹⁻¹⁰ A listing of these peer communities, along with their employment trends, can also be found within the Economic Development Plan.

“conservative community,” that is, the young, tech-trained workforce prefers to live and work in larger metropolitan areas, which compete for this highly specialized labor pool.

Tables 1-23 and **1-24** reflect Waco’s employment characteristics and trends in employment opportunities from 1990 to 1999. Projected employment indicates a steadily expanding economy anticipated to sustain 81,000 jobs by 2030, with an estimated 9,000 additional jobs developing between 2005 and 2030.

The above discussion is significant in that it describes the employment characteristics of the people who live

in Waco. In 1990, 41,429 residents of Waco were employed either in the city of Waco or the surrounding region. **Table 1-23** and **Table 1-24** describe employment by the various local industries and by occupation, respectively, for the citizens of Waco.

Table 1-26 shows the projected employment of the Waco MPO Study Area. The number of people the area is able to support in terms of employment is expected to grow at a steady rate. By the year 2030, the employment market in the area is expected to increase to over 81,000 jobs, an increase of approximately 9,000 jobs between 2005 and 2030.

Table 1-23
EMPLOYMENT PROJECTIONS
Metropolitan Planning Organization Study Area

Structure Type	2005	2015	2030
Basic	31,872	37,149	38,283
Retail	15,926	14,952	16,167
Service	24,253	23,953	26,555
Total	72,051	76,054	81,005

Source: Wilbur Smith Associates, Inc.

Table 1-24
EMPLOYMENT BY OCCUPATIONAL CATEGORY
City of Waco, Texas

Occupation	1990 ⁽¹⁾		1999 ⁽²⁾	
	Number	Percent	Number	Percent
Managerial and Professional Specialty	10,067	24.3%	11,984	26.0%
<i>Executive, administrative, managerial</i>	3,903	9.4%	4,929	10.7%
<i>Professional specialty occupations</i>	6,164	14.9%	7,055	15.3%
Technical, Sales, Administrative Support	12,542	30.3%	12,788	27.7%
<i>Technicians and related support</i>	1,278	3.1%	1,086	2.4%
<i>Sales</i>	4,726	11.4%	5,243	11.4%
<i>Administrative support (includes clerical)</i>	6,538	15.8%	6,459	14.0%
Service	7,372	17.8%	8,840	19.2%
<i>Private Household</i>	312	0.8%	529	1.1%
<i>Protective Services</i>	695	1.7%	784	1.7%
<i>Other Services</i>	6,365	15.4%	7,527	16.3%
Other Occupations	11,448	27.6%	12,473	27.1%
<i>Farming, forestry, and fishing</i>	620	1.5%	688	1.5%
<i>Precision production, craft, and repair</i>	4,023	9.7%	4,150	9.0%
<i>Machine operators, assemblers, and inspectors</i>	6,805	16.4%	7,635	16.6%
Total	41,429	100.0%	46,085	100.0%

Source: ⁽¹⁾ U.S. Census

⁽²⁾ Easy Analytic Software, Inc., as of 1/1/99.

Table 1-25
EMPLOYMENT BY INDUSTRY - 1990
City of Waco, Texas

Industry	1990	
	Number	Percent
Agriculture, Forestry, & Fisheries	617	1.5%
Mining	34	0.1%
Construction	2,099	5.1%
Manufacturing	6,517	15.7%
<i>Non-Durable Goods</i>	3,370	8.1%
<i>Durable Goods</i>	3,147	7.6%
Transportation	1,473	3.6%
Communications and Other Public Utilities	791	1.9%
Wholesale Trade	1,682	4.1%
Retail Trade	8,015	19.3%
Finance, Insurance and Real Estate	2,599	6.3%
Business and Repair Services	1,771	4.3%
Personal Services	1,632	3.9%
Entertainment and Recreational Services	629	1.5%
Professional and Related Services	12,039	29.1%
<i>Health Services</i>	4,154	10.0%
<i>Educational Services</i>	5,019	12.1%
<i>Other Professional and Related Services</i>	2,866	6.9%
Public Administration	1,531	3.7%
Total	41,429	100.0%

Source: U.S. Census

EXISTING LAND USE CHARACTERISTICS

A community's land use pattern evolves in response to the requirements of growth: the activities and needs of residents for retail, commercial, recreational, industrial, and residential areas, and efficient thoroughfare systems. How land is developed and redeveloped derives from public/private decision-making processes that occur within the context of an area's natural, physical attributes and constraints.

The interrelationships of existing and future land uses shape the character, livability and development potential of a community for many years to come. The facilitation and distribution of goods and services, for example, are affected by land use patterns. An orderly, planned, compact land use arrangement can be served and accessed more easily and efficiently than a random, scattered arrangement of unrelated uses. The City should continue its commitment to planned development with periodic assessment of past, existing and future uses, trends and needs.

The most recent land use survey (acreage/usage by differing types of land use) conducted during the preparation of this plan is depicted in **Table 1-26**. Some portions of the city are more completely urbanized, where little new, additional development is expected to occur; in other portions of the city, "infill" development and some redevelopment have occurred. In still other

areas, such as those along State Highway 84, substantial growth potential exists. **Plate 1-4** reflects in general the existing land use pattern in Waco as of September, 1999.

Land Use Survey Methodology

In 1999, a parcel-by-parcel land use survey was conducted by automobile for all areas within Waco's city limits (refer to **Table 1-27** and **Plate 1-4**). Each parcel, color-coded, was documented as follows:

RESIDENTIAL USES:

Single-Family Residences:

One-family dwellings and related accessory buildings,

Duplex Residences:

Structures with two attached, but separate, residences,

Town Home Residences:

Structures with more than two attached, but separate, residences that are usually on individually platted lots,

Multiple-Family Residences:

Apartments, rooming houses and related accessory buildings,

Manufactured Homes:

A prefabricated home that may or may not be movable that is located on an individual lot that is used as a dwelling;

PARKS AND OPEN SPACES:

Parks, playgrounds and public open space;

PUBLIC, SEMI-PUBLIC, AND RELATED USES:

Schools, churches, cemeteries and public buildings;

OFFICE USES:

Professional/administrative Offices, doctors, dentists, real estate, architects, accountants, secretarial service, etc.;

RETAIL USES:

Retail stores, shops and personal service establishments, shopping centers, service stations and any associated off-street parking facilities;

COMMERCIAL USES:

Commercial amusements, building materials yards and open storage, automobile garages and sales lots, automobile body repair, warehouses,

telecommunications and broadcasting towers and facilities, wholesale establishments, sale of used merchandise and welding shops;

LIGHT INDUSTRIAL:

Manufacturing firms involved in processing, assembling, warehousing, research and development, and incidental services.

HEAVY INDUSTRIAL:

Heavy manufacturing such as brick plants, animal processing, oil refineries and the like.

VACANT BUILDINGS

Structures previously used for purposes such as office, retail, commercial, or industrial space, but the buildings no longer have tenants. Subject to deterioration, these structures' status should be documented as soon as possible after they are vacated in order that any subsequent change in their condition be monitored in order to avert or remedy any deterioration that may lead to blight.

Source: Dupkin, Sefton & Associates, Inc.
 Based upon the total number of acres currently within the Waco City limits.

⁽²⁾ Based upon an estimated population of 110,000 people in 1998.

⁽³⁾ Estimated percentage.

Table 1-26

EXISTING LAND USE
City of Waco, Texas

Land Use Category	Acres	Percent ⁽¹⁾	Number of Acres Per 100 People ⁽²⁾
Residential Use	8,667	14.28%	7.92
<i>Single-Family</i>	7,666	12.63%	7.09
<i>Duplex</i>	156	0.26%	0.15
<i>Town Home</i>	60	0.10%	0.03
<i>Multi-family</i>	706	1.16%	0.62
<i>Manufactured Home</i>	32	0.05%	0.03
Parks/Open Space	1,509	2.49%	1.22
Public/Semi-Public	3,570	5.88%	3.04
Office	269	0.44%	0.28
Retail	800	1.32%	0.73
Commercial	2,133	3.52%	2.11
Light Industrial	913	1.51%	0.54
Heavy Industrial	180	0.30%	0.06
Vacant Buildings	148	0.24%	0.13
Parking	88	0.15%	0.07
Total Developed	18,278	30.12%	16.10
Rights-of-Way ⁽³⁾	15,640	25.78%	32.91
Lakes/Rivers	8,251	13.60%	7.50
Vacant ⁽³⁾	18,509	30.50%	
Within City Limits	60,678	100.00%	

PARKING:

Any large area designated for public and/or private parking, usually off-site parking;

purposes (ranching or farming). Land dedicated to public use for street and alley rights-of-way whether open or closed to use;

VACANT/RIGHTS-OF-WAY:

Vacant land having no apparent use or land used for agricultural

LAKES/RIVERS:

Acreage attributed to Lake Waco and the Brazos and Bosque Rivers.



Existing Land Use Analysis

As shown by **Table 1-26**, more land acreage has been developed for residential purposes than for any other land use, with approximately 8,700 acres, or 14 percent of the overall acreage within the city.

Single-family residences account for this high percentage (12.5 percent of the total acreage of 7,800.) Multi-family units account for approximately one percent, or 680 acres of land in the city. Duplex, town home and manufactured home residences account for less than one-half of one percent of the city's total acreage. Almost 3,340 acres, or 5.3 percent, of land acreage in the city is used for public and semi-public purposes. Two colleges campuses and numerous public facilities account for the high percentage. Approximately 2,320 acres, which is four percent of the city's acreage, is used for commercial purposes. From the data presented, it is clear that the land within the city is used primarily for residential development with diverse other uses accounting for the balance.

It is important to note that developed acreage is less than that which remains undeveloped or vacant (refer to **Table 1-26**). Approximately 17,700 acres, or almost 30 percent of Waco's land is developed, while land that is vacant or is designated as right-of-way accounts for 57 percent of the total, or 36,205 acres. Some land areas are not developable or are not feasible for development, including designated floodplains, areas with steep slopes, or areas that are environmentally fragile.

In addition, the city's total acreage includes 8,000 acres – 13 percent of the total land acreage – that is covered with water. These include Lake Waco, and the Bosque and Brazos Rivers, which are aesthetically, recreationally and functionally incalculable assets to the city.

Another method of analyzing land use is by ratio, that is, the number of acres used for each type of land use category compared to population (refer to **Table 1-26** and **Plate 1-4**). The population base utilized in the ratio method of land use analysis is 110,000¹⁻¹¹. An examination of the community's goals and objectives can be used to estimate future land use demands and needs. As the majority of the acreage in the city is dedicated to residential uses, retail uses are comparatively minimal, at approximately 0.73 acres per 100 persons. The accepted average for retail usage is approximately 0.5 acres per 100 persons. Waco's higher figure reflects the out-of-city consumers that frequent the city for goods and services; travel to Waco is facilitated by many several highway systems, especially Interstate Highway 35.

¹⁻¹¹ Information obtained from the City of Waco's Economic Development Plan, written by Angelou Economic Advisors, Inc. in September of 1999.



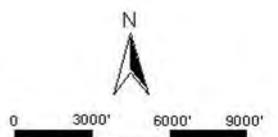
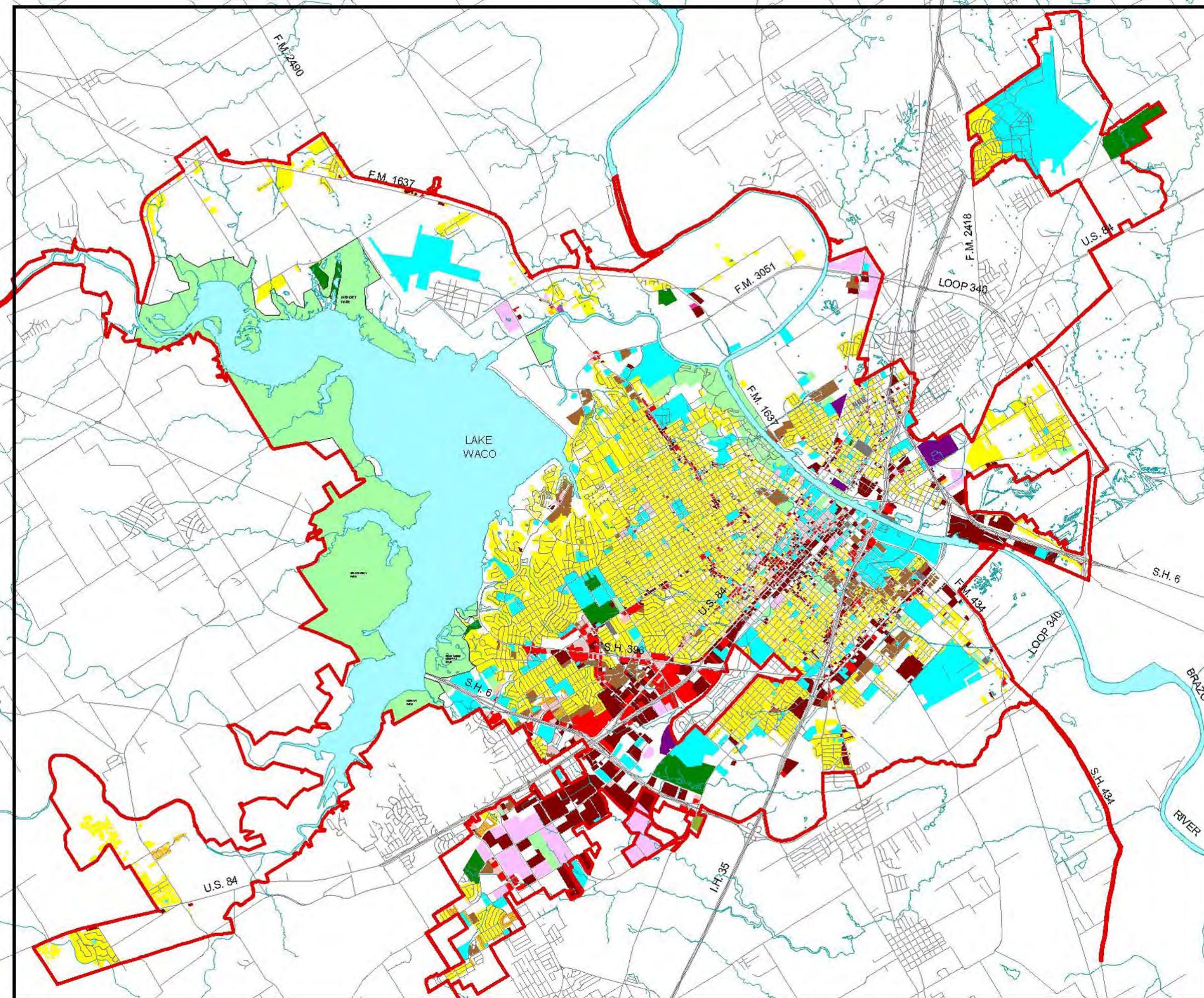
2000 Waco Comprehensive Plan EXISTING LAND USE

Legend

- Single-Family
- Duplex
- Town Home
- Multi-Family
- Manufactured Home
- Public/Semi-Public
- Parks/Open Space
- Golf Course
- Retail
- Commercial
- Office
- Light Industrial
- Heavy Industrial
- Vacant Building
- Parking
- Lake/River
- Vacant



 Waco City Limits



DUNKIN SEFKO & ASSOCIATES, INC.
URBAN PLANNING CONSULTANTS
DATE: 10 DECEMBER 22, 2000

A “quality of life” indicator, parks and open space account for approximately 1.2 acres per 100 persons, a figure which is slightly above the accepted average ratio of one acre per 100 persons. However, in terms of dedicated community and metropolitan park acreage, the results are more ambiguous. The National Recreation and Park Association (NRPA) guidelines (outlined in detail in the *Waco Comprehensive Parks, Recreation, and Open Space Master Plan* prepared for the City by Carter-Burgess Consultants in 1998¹⁻¹²) suggest that Waco has a deficit in the recommended ratios for community and metropolitan parks. According to the study, the city has only 16 percent of the recommended community park acreage and 55 percent of the recommended metropolitan park acreage. However, the report adds, “when evaluating Waco’s total park acreage, not including regional parks and special use areas owned by the Corps

Table 1-27
LAND USE COMPARISON
City of Waco and Selected Peer Communities

Land Use Category	Percent of Total Acreage		
	Waco ⁽¹⁾	Tyler ⁽²⁾	San Angelo ⁽³⁾
Residential Use	14.28	25.70	22.80
<i>Single-Family</i>	12.63	23.70	20.60
<i>Duplex</i>	0.26	0.40	0.60
<i>Town Home</i>	0.10	0.10	0.03
<i>Multi-family</i>	1.16	1.40	1.00
<i>Manufactured Home</i>	0.05	0.30	0.60
Parks/Open Space	2.49	0.70	11.60
Public/Semi-Public	5.88	6.30	7.60
Office	0.44	1.20	0.40
Retail	1.32	2.90	2.00
Commercial	3.52	4.30	2.30
Light Industrial	1.51	0.60	1.00
Heavy Industrial	0.30	0.60	1.50
Parking	0.15		0.10
Total Developed	30.12	42.30	49.30
Rights-of-Way	25.78 ⁽⁴⁾	27.30	17.90
Lakes/Rivers	13.60		4.50
Vacant	30.50	30.40	28.30

⁽¹⁾ Information contained in Table 29 of this document.
⁽²⁾ Based upon a land use survey conducted in 1998, contained in the 1999 Tyler Comprehensive Plan.
⁽³⁾ Based upon a land use survey conducted in 1993, contained in the 1994 San Angelo Comprehensive Plan.
⁽⁴⁾ Estimated percentage.

Source: Dunkin, Sefko & Associates, Inc.

of Engineers, Waco falls just over the recommended guidelines.”

¹⁻¹² Additional information pertaining to *Waco Comprehensive Parks, Recreation, and Open Space Master Plan* is contained within the Parks and Open Space section of the Comprehensive Plan.



The percentages of the various types of land uses within Waco closely correlate with the percentages of its peer communities, including the cities of Tyler and San Angelo (refer to **Table 1-27**). Specifically, in the residential category, the percentage of single-family residences in Waco is slightly below those of the other two cities. However, all other residential percentages are within two-tenths of one percent among the rates of all three communities. Similarly, acreage used in each city for public/semi-public, commercial and retail purposes are also comparable – within a few tenths of a percentage point – among the three communities.

Existing Land Use Pattern

In summary, the features of existing land use patterns in the city of Waco are as follows:

- 1) Residential land use accounts for the largest percentage of land use in the city.
- 2) Multi-family dwelling units comprise the second-largest residential land use, at 681 acres, just above one percent of the total acreage of the city.
- 3) The residential land use is evenly distributed throughout the city.
- 4) Lots for residential land use are relatively small in the older sections of Waco, mainly in the central portion of the city. Residential lots increase in size in

the newer areas of residential development, primarily in the northern and western portions of the city.

- 5) Manufactured homes comprise a small percentage of residential land use in Waco, with just 31 acres, or approximately one-half of one percent of the total land acreage of the city.
- 6) Parks and open space land use constitutes 2.49 percent of the city's total acreage.
- 7) The number of acres used for parks and open space per 100 persons is just above the average at 1.2 acres. An assessment¹⁻¹³ conducted in 1998 confirmed that the city's ratio falls within guidelines established by the National Recreation and Park Association (NRPA).
- 8) Acreage used for public/semi-public purposes (i.e., municipal services, churches, cemeteries, schools, etc.) is 5.4 percent of the total, or 3,340 acres.
- 9) A very small amount of land is used for the office category (308 acres or approximately one-half of one percent of the total land acreage in Waco).

¹⁻¹³ Waco Comprehensive Parks, Recreation, and Open Space Master Plan, Carter-Burgess Consultants.

- 10) Retail land use in Waco, at .73 acres per 100 persons or approximately 1.2 percent of the total acreage in the city, is slightly above the generally accepted average of 0.50 percent.
- 11) The relatively high percentage of retail land usage may be related to the presence of a major Texas thoroughfare, Interstate Highway 35, and other highway systems that make Waco easily accessible to surrounding communities.
- 12) Acreage used for commercial purposes in the city is approximately 3.7 percent of the total.
- 13) Land used for commercial purposes is located primarily along the major thoroughfares in Waco, which include Interstate Highway 35, State Highway 6, U.S. Highway 84/Waco Drive, Valley Mills Drive, and other regional highways leading into the city.
- 14) The amount of vacant land slightly exceeds the amount of developed land in Waco. Approximately 28.5 percent of the city's total acreage is developed; 33 percent remains vacant.
- 15) In the vacant category are a large number of platted residential lots, the majority of which are located in the central and northern areas of the city.

16) The city has a considerable amount of vacant land within its extra-territorial jurisdiction (ETJ).

17) Several bodies of water lie within the city's jurisdictional limits: Lake Waco, located in the mid-west part of the city; a portion of the Bosque River in the northwest; and a large portion of the Brazos River, which winds through the center of the city. All have implications for land use, and all are tremendous assets to the community.

EXISTING ZONING CHARACTERISTICS

Zoning is primarily a tool used to implement a community's land use objectives. Therefore, it can also be stated that zoning is used to implement the guidelines outlined in a city's Comprehensive Plan, because the Comprehensive Plan is directly related to a community's land use objectives. The fact that these three elements, (1) a community's land use objectives, (2) zoning, and (3) the Comprehensive Plan, are interrelated should be expressed in a city's land use policies.

The following table (**Table 1-28**) is a listing of the current zoning districts in the city of Waco, and the amount of acreage designated to each district. All were approved on September 16th of 1986.

Table 1-28
ZONING DISTRICT ACREAGE
City of Waco, Texas

ZONING DISTRICT	ACREAGE	PERCENTAGE
Residential Districts	26,534.7	68.71%
R-1A : Single-Family Detached (Low-Density)	607.1	1.57%
R-1B : Single-Family Detached (Moderate Density)	23,092.6	59.80%
R-1C : Single-Family Detached (Unusual Site Development)	16.1	0.04%
R-2 : Single-Family Attached (Moderate Density)	1,932.6	5.00%
R-3A : Multiple-Family (Moderate Density)	42.5	0.11%
R-3B : Multiple-Family (Higher Density)	241.8	0.63%
R-3C : Multiple-Family (Urban Setting)	183.8	0.48%
R-3D : Multiple-Family (High Density)	0.5	0.00%
R-3E : Multiple-Family (Highest Allowable Density)	417.7	1.08%
Commercial Districts	3,523.9	9.12%
C-1 : Community Commercial District (Adjacent to Multi-Family Areas)	5.4	0.01%
C-2 : Community Commercial District (Accessibility to Major Thoroughfares, Adjacent to Multi-Family Areas)	905.4	2.34%
C-3 : General Commercial District (Variety of Non-Residential Uses)	2,367.0	6.13%
C-4 : Central Commercial District	145.0	0.38%
C-5 : Service Commercial District	101.1	0.26%
Office Districts	2,226.6	5.77%
O-1 : Community-Oriented Office District (Adjacent to Residential Areas)	92.3	0.24%
O-2 : Office District (Adjacent to High-Density Residential Areas)	1,988.7	5.15%
O-3 : Office Limited Commercial District (Nonresidential Setting)	145.6	0.38%
Industrial Districts	5,606.8	14.52%
M-1: Office and Restricted Industrial District	297.2	0.77%
M-2: Light Industrial District	4,861.8	12.59%
M-3: General Industrial District	447.8	1.16%
Planned Unit Districts (PUD)	723.3	1.87%

Source: City of Waco Zoning Map

Special Districts (Sec. 28-796)

The following are several special overlay districts created by the City of Waco for unique areas in need of specific design standards.

(1) SPECIAL DISTRICT BRAZOS RIVER CORRIDOR

The purpose of this special district is the addition of an overlay zone to ensure orderly development of the Brazos River corridor as a center for quality recreation, convention, tourism, residential, and office facilities. The ordinances applying to this district are designed to preserve the character of the Corridor, to promote continued private development in the area, and to maximize opportunities to ensure sustained public and private investment.

Regulations in this special overlay district apply to each parcel of land within it. Any regulations imposed by other district classifications also apply.

Permitted uses include all of those allowed within the base district; however, several types of land uses are expressly prohibited within the overlay district. They include, but are not limited to, manufactured homes, self-storage warehouses, several types of manufacturing processes, and outside open storage.

Buildings constructed in the Brazos River Corridor District cannot be within 25 feet of the Brazos River,

Martin Luther King, Jr. Boulevard, and University parks Drive. In addition, no more than 80 percent of the lot area on each parcel may be covered by impervious surfaces.

(2) SPECIAL DISTRICT COLLEGE AND UNIVERSITY

The purpose of this overlay district is to provide for development in locations having close proximity to educational facilities; the development should be related to characteristic uses and activities associated with college and university environments. This ordinance promotes both flexible site development and higher quality development in general.

Every parcel of land in this special district is subject to the regulations of the district. Because this is an overlay district, regulations imposed by other district classifications also apply.

Permitted uses include all of those allowed under the base district zoning regulations. In addition, R-3 District office and retail uses are permitted on the ground floor of any structure within this district.

Yard setbacks may be reduced for structures in this overlay district that are subject to restrictions imposed by R-3B, R-3C, R-3D, R-3E or O-2 Districts. This flexibility is intended to encourage the maintenance of more usable open space and preservation of existing vegetation.

(3) SPECIAL DISTRICT NEIGHBORHOOD CONSERVATION

The purpose of this district designation is to encourage maintenance of older residential areas and to promote infill and a variety of new housing developments in existing neighborhoods, thereby enhancing the residential environment in quality and scale.

Regulations also apply to each parcel of land in the district. Regulations imposed by the base district also apply.

Permitted uses include all of those allowed within the base district. In addition, attached single-family dwellings, duplexes and townhouses of not more than four units are permitted. Expressly prohibited in this district are automobile sales.

General Development Standards

(1) PARKING, LOADING & SITE ACCESS REQUIREMENTS IN NON- RESIDENTIAL DISTRICTS

- ◆ All parking lots and driveways are required to be graded for proper drainage & provided with an all-weather surface, as approved by the City engineer.
- ◆ Minimum driveway dimension requirements are as follows: not less than 16 feet or more than 36 feet in width.

- ◆ Minimum width of emergency access lanes is 16 feet. Lanes must be unobstructed and clearly marked.
- ◆ Off-street parking requires minimum dimensions as follows: width of 12 feet, length of 45 feet, and height of 15 feet.

(2) SITE COVERAGE & OPEN SPACE REQUIREMENTS

- ◆ Maximum coverage of the site in all Office districts is 85 percent of the total lot area.
- ◆ Maximum coverage of the site in all Commercial and Industrial districts, except the C-4 district, is 90 percent of the total lot area.
- ◆ Maximum coverage of the site in all Residential districts and for residential uses in the O-2 district is 75 percent of the total lot area.
- ◆ Usable open space accessible to residents: not less than 50 percent of total lot area not covered by structures and paved areas.

(3) LANDSCAPING REQUIREMENTS

- ◆ Site work permits are required, except in single-family residential districts.
- ◆ All open spaces on the site are required to be permanently landscaped; all cuts and fills are required to be restored through the planting of appropriate vegetation.

Reserved for Plate 1-5
CITY OF WACO ZONING MAP
(To Be Included At A Later Date)

- ◆ Property which abuts public rights-of-way (except alleys) require boundary landscaping. Applicable districts: Office, Commercial, and Industrial districts.
- ◆ Landscaping is required for all parking lots containing ten or more spaces. Required ratio is as follows: ten square feet of landscaped area must be provided for every 400 feet of parking space area.
- ◆ Interior parking lots must be landscaped with trees and border vegetation.
- ◆ Trash containers in multi-family and nonresidential areas are required to be completely screened on three sides, with solid fencing of wood or masonry construction and a minimum height of seven feet.

(4) SCREENING REQUIREMENTS

- ◆ Screening is required along all lot lines in Office, Commercial, or Industrial districts where property abuts an R district; and in R-3 districts where property abuts R-1 and/or R-2 districts.
- ◆ Screening is required to be either a solid wood fence or masonry wall at least six feet in height. It can also be an all-season landscaped screen four feet in width, planted densely with deciduous and evergreen shrubs and trees, that have an initial height of 3 feet but shall attain a height of 6 feet within 36 months of installation.
- ◆ Mechanical equipment on the roof, ground or building must be screened from public view with materials that are harmonious with the building; or the equipment must be positioned in such a manner as not to be visible from any public street.

(5) SIGN REQUIREMENTS (ARTICLE VIII)

- ◆ All signs with flashing, moving or rotating lights or signs resembling traffic control signs are prohibited.
- ◆ Political signs are allowed in all districts, with the exception of the Brazos River Corridor Overlay District.
- ◆ Signs on and projected over buildings are restricted, except as attached on-premises signs and subject to certain guidelines.
- ◆ Signs on public rights-of-way are prohibited.
- ◆ Temporary signs are allowed as construction, development or real estate signs with certain restrictions. Signs promoting openings and or occasional sales are allowed on a temporary basis.
- ◆ Permits are required for all signs that are larger than 10 square feet or with a height greater than 8 feet, for illuminated signs, for signs with moving elements and for signs projecting more than 18 inches from any wall, roof, parapet or eave.

- ◆ All government signs, constructed in accordance with applicable requirements, are allowed in all districts.
- ◆ Specific types of signage including on-premise, off-premise, mobile, and highway control zone signage are subject to detailed sign standards.

The implementation of the majority of Waco's current land use-based policies can be effected through existing zoning ordinances. However, a thorough examination of current zoning ordinances should be undertaken to ensure the implementation of recommendations issuing from this Comprehensive Plan.

COMMUNITY/URBAN DESIGN

Waco's urban character is a contrast of the old and the new, the city's development patterns reflecting the evolution from traditional to modern urban design. Both the contrasting relationship of old and new, and the process of development of the city's commercial corridors are two of the most significant characteristics of the urban layout of Waco today. Not unlike other older central Texas cities, Waco's traditional residential and commercial core is dominated by retail and commercial land uses which have developed along the city's thoroughfares. The original grid pattern of the central city and single-family residential neighborhoods contrast with newer curvilinear

residential street patterns and more concentrated non-residential areas. This has created a perceptible division between the older areas in the eastern and northern portions of Waco and newer development toward the western and southern areas of the city. Several significant urban elements are shown on **Plate 1-6**. A city of great diversity and historical charm, Waco has a unique community fabric shaped by numerous facets symbolic of its evolution and heritage, including the following:

- ◆ The Downtown District;
- ◆ Historic Structures;
- ◆ Older Residential Areas;
- ◆ Newer Residential Areas;
- ◆ Highway-Oriented Commercial Corridors;
- ◆ Industrial Areas;
- ◆ Development Adjacent to Lake Waco;
- ◆ The Brazos River Corridor;
- ◆ Baylor University;
- ◆ McLennan Community College;
- ◆ Texas State Technical College;
- ◆ Heart of Texas Fairgrounds;
- ◆ Waco Regional Airport; and,
- ◆ Cameron Park and Zoo.

Other important urban design elements include the transportation corridors (shown on **Plate 1-6**), public and semi-public institutions such as the Waco Civic Theater, Waco Convention Center, and major viewsheds over Lake Waco. The major community components are further described in the following text.

The Traditional Downtown

The Central Business District/Downtown Waco area is identified on **Plate 1-6** as the traditional core of the city. While the district experienced decline during past decades, as did many other downtowns across the nation, Waco's downtown has been enjoying a resurgence of growth and prosperity. The incorporation of economic development incentives and other programs have helped this area to become competitive. Numerous restaurants, businesses, hotels, and government offices have located to the downtown area within the last ten years. Some residential uses such as 'loft' apartments have created renewed interest among students and young professionals in relocating to the downtown. While some areas and their edges will continue to require more intensive development efforts, the opportunities for both residential and non-residential uses continue to advance the Central Business District and Downtown Waco as a viable site for residential, business, cultural, tourism, and recreational activity. Some of Downtown Waco's features include the following:

- ◆ Suspension Bridge;
- ◆ Indian Spring Park;
- ◆ Martin Luther King, Jr. Park;
- ◆ ALICO Building;
- ◆ City Hall;
- ◆ McLennan County Courthouse;
- ◆ Convention Center Complex;
- ◆ Dr. Pepper Museum;
- ◆ Historic churches;
- ◆ Old Waco High School;
- ◆ Mary Avenue Warehouse Area;

- ◆ Hippodrome Theater;
- ◆ Historic Railroad Depot and Freight Station;
- ◆ Paul Quinn Campus; and,
- ◆ Historic Homes and Museums.

Older Residential Areas

Typically, traffic corridors traverse the older residential neighborhoods in Waco, which are interspersed among non-residential areas. Developed during Waco's initial growth period, which occurred prior to the 1960's, these older neighborhoods, historical reminders of Waco's past, are being revived and preserved. Characterized by one-story single-family residential units on small lots, with mature trees and sidewalks fronting wide streets, these older residential areas offer opportunities for first-time homeowners and those who appreciate the character of the older neighborhood. Other smaller multi-family residential units, organized as gated complexes of two- to three-story buildings arranged around courtyards offer charm, seclusion, and convenience.

Residents of these older areas are served by a variety of nearby retail services. There are also many public parks and open spaces. While a few large parcels of undeveloped land are available, there are many vacant lots scattered throughout the older neighborhoods.

The older residential areas, like the downtown, are important design elements of the city's urban character. The preservation and renewal efforts

being expended on them are indicative of the city's improved well-being.

Highway-Oriented Commercial Corridors

Numerous transportation corridors in Waco have experienced an explosion of highway-related commercial development over the years. These "corridors," which primarily serve regional areas, create the predominant image of Waco. The automobile-oriented design, composed at a time when the City had minimal development and few design standards to soften the cumulative effect of uses, has become a *mélange* of visual clutter. Intensively and extensively developed with hotels/motels, restaurants, and other service-related retail and commercial establishments, as well as industrial sales and service facilities, the view suffers further from the multiplicity of large, barren parking lots, lack of screening of service/maintenance areas; and bigger and brighter signage to attract customers from fast-moving lanes of traffic.

These corridors have also created visual and physical barriers within the city, isolating neighborhoods and rendering areas inaccessible except by automobile. Multiple lane roadways, which are difficult to cross, are further compromised by widened frontage roads, large footprint buildings surrounded by enormous parking lots, high-speed traffic, and an absence of sidewalks. The following corridors are typical of this type of roadway development in Waco:

- ♦ Interstate Highway 35;
- ♦ U.S. Highway 77;
- ♦ Franklin Avenue;
- ♦ La Salle Avenue;
- ♦ Valley Mills Drive; and,
- ♦ Waco Drive.

Industrial Areas

The pattern of development of industry in Waco reflects a concentration of industrial enterprises in the northeastern and southern portions of the city. Today, these areas are sites of major employment. Because of the availability of large tracts of land, it can be expected that industry will continue to find the area attractive. The creation of campus-like settings to attract corporate venues may make the area even more attractive to corporations. *The Waco Economic Development Plan* outlines potential recruitment strategies to attract various employment sectors. How Waco's major industrial areas develop will influence the types of industrial uses/employers it will be able to attract.

Development Adjacent to Lake Waco

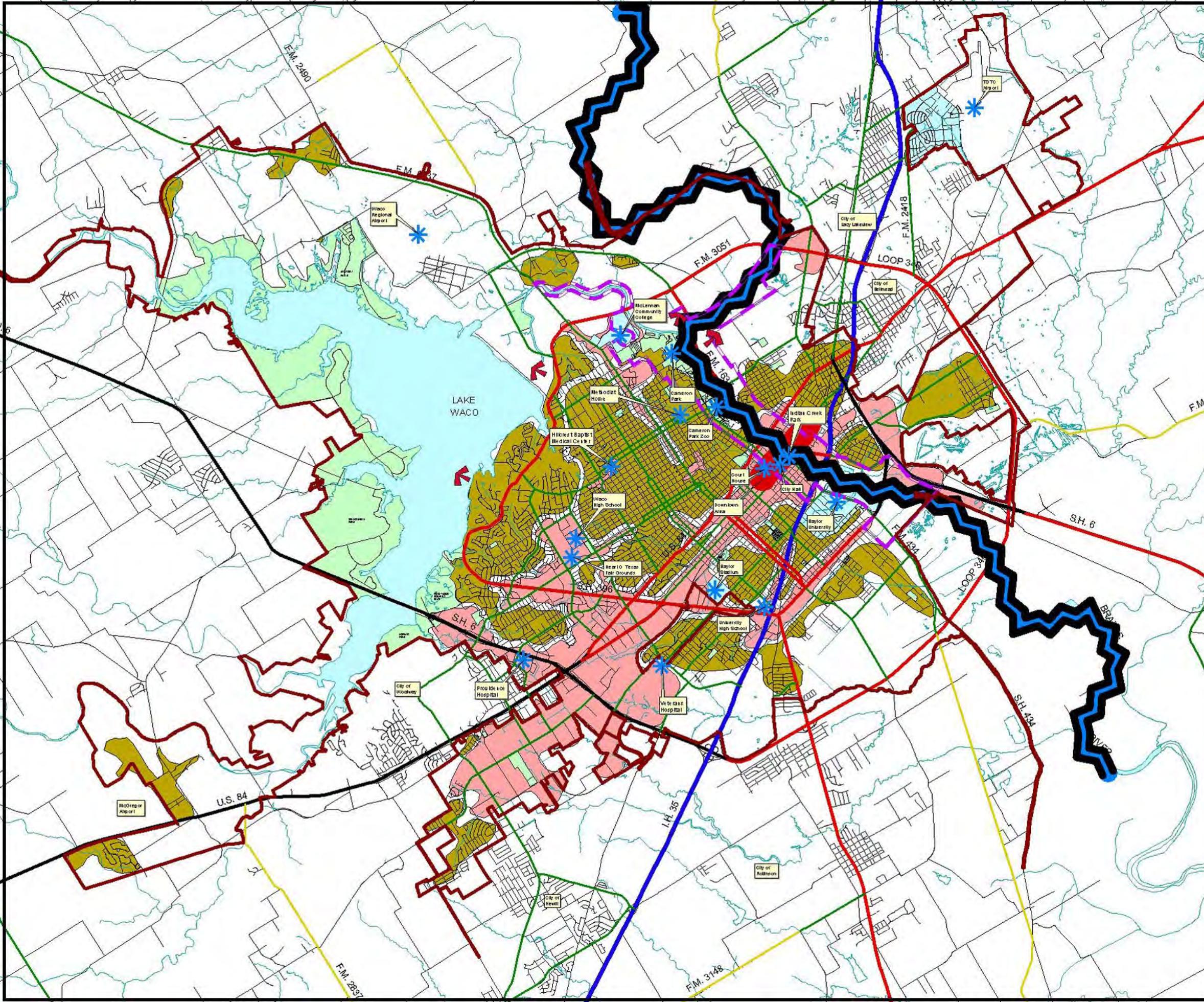
Valued for its recreational opportunities and beauty, as well as being the primary source of municipal water for the city (see the *Infrastructure* Section), Lake Waco is one of the most important natural features in the region. Recreational



2000 Waco Comprehensive Plan URBAN DESIGN ELEMENTS

Legend

-  Downtown Area
-  Scenic Views
-  Major Institution (Public Areas)
-  Brazos River
-  Residential
-  Baylor, TSTC, McLennan College
-  Non-Residential
-  Park Areas
-  River Corridor
-  Interstates
-  Freeways
-  Principal Arterials
-  Minor Arterials
-  Rural Major Collectors
-  Waco City Limits



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DUNKIN SEIKO & ASSOCIATES, INC.
URBAN PLANNING CONSULTANTS
DATE: 9 DECEMBER 22, 2000

areas existing near the lake include parks operated by the Corps of Engineers, country clubs, the City of Waco Park, and public and private marinas and golf courses.

A concentration of low-density residential areas dominates much of the eastern portion of Waco. The western portion of the city and its ETJ area adjacent to the lake is an attractive area for new residential development. Challenges to the City will be the balancing of demands for development and recreational interests with the issues of water availability and quality.

Development in the Brazos River Corridor

The Comprehensive Land Use Plan written in 1983 recommended that the Brazos River Corridor be carefully developed as the centerpiece of Waco. The City has taken major steps to accomplish that goal. The Brazos River Corridor Development Plan, prepared by Downtown Waco, Inc., identified several physical and economic improvements to enhance the preservation and development of this natural feature. The Development Plan establishes comprehensive policy recommendations for three geographic areas along the Brazos River: (1) The Park-Residential District; (2) The Urban District; and (3) The University-Cultural District. All three areas extend along either side of the Brazos River from Lake Shore Drive to Baylor University and the low-water dam. The Corridor Development Plan also sets forth

recommendations/actions for the management of the development of the Corridor. Recently, Downtown Waco, Inc. presented to the City Council a set of comprehensive *Guidelines for Development*. Approved by Council, the guidelines are one component of a comprehensive marketing and management strategy to ensure coordinated, quality development of the Brazos River Corridor.

Some of the Plan recommendations are presented as follows:

- 1) Consider the natural and manmade beauty of the area. The Brazos River Corridor is topographically diverse, offering a medley of cliffs, escarpments and plains. Encourage developers to respect and protect existing topography, architectural character and desirable vegetation.
- 2) Utilize the plan review process to ensure generous green space in the district.
- 3) Connect the various waterfront activities/facilities through a series of walkways, bike trails, and street systems.
- 4) Place a high priority on development with a strong orientation toward tourism and nighttime activities.
- 5) Address problems of deteriorating and vacant buildings and inappropriate uses.

- 6) Address the issue of public access. Encourage the extension of the riverwalk on both sides of the river.
- 7) Work with owners of under-utilized, undervalued properties in the Corridor to enhance the attractiveness of their properties.
- 8) Place a high priority on new, market-rate residential development, and quality rehabilitation of deteriorating housing stock and architecturally compatible residential infill.
- 9) Encourage water-dependent and water-enhanced land uses, which preserve and capitalize upon the natural beauty of the area.
- 10) Utilize the existing Planned Unit Development review process to manage mixed-use development.
- 11) Recognize and optimize the development potential of the east side of the river.
- 12) Utilize marketing, public participation and targeted incentives to encourage commercial retail establishments, restaurants, urban-scale residences, cultural amenities and public recreation.
- 13) Provide drinking fountains, benches and bike racks along the trail system.

- 14) Improve better parking areas within the Corridor through better signs, landscaping, and direct access to pedestrian walkways.

Many cities across the country have successfully developed their river corridors as economically viable centers for tourism, commerce, culture and residential sites. As one of the most pristine rivers in the state, the Brazos River should be cautiously developed. The City should seek the highest quality development to maximize the full potential of the Brazos River Corridor to the benefit of Waco and the region.

Baylor University

The area surrounding Baylor University consists of a large percentage of multi-family dwelling units necessary to support the large student population of almost 14,000 students. The saturation of the area with multi-family housing has impacted nearby neighborhoods which were originally single-family. Baylor University recognizes its impact upon the community, and is coordinating efforts with the City on issues concerning Baylor's growth and future needs and the City's redevelopment efforts in areas adjacent to the campus.

Section 2

GOALS & OBJECTIVES



City of Waco



Comprehensive Plan 2000

INTRODUCTION

The Comprehensive Plan establishes the goals and objectives that will help shape and direct Waco's growth and development for the next ten years and beyond. Based upon the goals and objectives presented in this Section, subsequent implementation policy recommendations discussed in Section 11 of the Plan address "how" the community can achieve its vision.

ESTABLISHING A SHARED VISION

The Plan is premised upon a shared vision of the community. Appointed by elected City officials to represent the community at large, members of the Comprehensive Plan Steering Committee and the Vision 2020 Committee set forth to articulate the long-term vision of Waco which:

Firmly establishes Waco as a progressive and safe community, dedicated to maintaining and improving the quality of life for all its citizens, to preserving its unique character and natural resources, and to promoting excellence in education, through economic development and orderly growth.

This vision statement reflects the unique characteristics and values of the community. In the context of the community's desire to maintain a high standard of living and quality of life, the vision reflects a concept of how Waco will look in the next few decades. Among those ideals shared by the community are the following:

- ◆ Promotion of community safety and security;
- ◆ Preservation, enhancement and redevelopment of the downtown area;
- ◆ Promotion of affordable living, including a variety of housing choices for all age groups & income levels;
- ◆ Development of Waco as a "full life cycle" community;
- ◆ Support of efficient and orderly growth/ development;
- ◆ Development of a reasonable tax structure and stable tax base;
- ◆ Development of progressive and proactive public policy;
- ◆ Encouragement of quality shopping, personal services and medical facilities;
- ◆ Development of attractive facilities and opportunities for tourism;
- ◆ Creation of a "home town" atmosphere;
- ◆ Expansion of recreational and entertainment opportunities for groups of diverse age and ability;
- ◆ Support of well-maintained public facilities and infrastructure;

- ◆ Advancement of diverse and progressive economic opportunities;
- ◆ Encouragement of racial and cultural harmony;
- ◆ Promotion of excellence in education and vocational opportunities;
- ◆ Strengthening of community beautification and enhancement efforts (i.e., civic pride);
- ◆ Preservation and protection of natural resources and habitats, (i.e., rivers, lakes, wetlands, areas of mature tree cover, etc.);
- ◆ Support of responsive and responsible governance;
- ◆ Advancement of citizens' professional and personal enrichment;

GOALS & OBJECTIVES

The goals and objectives comprise the framework from which policy and implementation methods are developed.

GOALS are general statements pertaining to the City's desired physical, social and economic environment. Goals represent the standards for quality of life in the community, and are the framework for policy and development decisions.

OBJECTIVES articulate the types of activities required to achieve the stated goals.

POLICIES clarify the City's position on specific objectives and encourage specific courses of action that must be taken to achieve those objectives. Public policy establishes the parameters and standards of the objectives, against which subsequent actions may be measured and evaluated. The City's policies and implementation strategies activate adopted recommendations derived from the Comprehensive Plan.

The goals and objectives formulated through the comprehensive planning process apply to the following areas:

- ◆ Economic Development: Employment, Business Growth & Tourism;
- ◆ Physical Form of the City;
- ◆ Transportation and the Thoroughfare Network;
- ◆ Infrastructure and Utility Systems;
- ◆ Public Facilities and Services;
- ◆ Fiscal Responsibility;
- ◆ Quality of Life;
- ◆ Housing, Historic Preservation and Community Livability;
- ◆ The Environment;



Economic Development: Employment, Business Growth & Tourism

GOAL 1: Provide a stable, high quality economic environment that encourages high employment levels in order to fully utilize the region's human and educational resources (refer to the *Waco Economic Development Plan*, Appendix A).

Objectives:

- 1.01 Define “economic development” and the roles of the various partners in the economic development process.
- 1.02 Develop an economic development policy/strategy consistent with the City's desire to manage growth and its effects.
- 1.03 Support public and private sector initiatives that promote Waco as a premier business and tourism site.
- 1.04 Encourage economic development strategies that complement and advance land use objectives for various geographic areas of Waco.
- 1.05 Develop strategies to retain existing businesses in Waco.
- 1.06 Utilize strategies to attract desirable new business enterprises to Waco (i.e., marketing campaigns that highlight the qualities and assets of the community).
- 1.07 Provide quality housing, neighborhoods and community facilities and services to attract and retain business and industry (i.e., utilities, transportation systems, etc.).
- 1.08 Encourage and develop employment opportunities for all segments of Waco's population.
- 1.09 Reassess and revise, as necessary, the City's economic development and incentive policies (i.e., business expansion, retention, relocation, etc.).
- 1.10 Develop/revise participation policies for infrastructure improvements to ensure that the planning of economic development objectives for specific areas receive input of the affected citizens (i.e., plans established for special designated districts).
- 1.11 Develop economic development strategies to encourage reinvestment within areas of the city that are historically and/or culturally significant, such as the downtown area.
- 1.12 Increase funding for economic development activities.

1.13 Promote Waco's role as the regional distribution and merchandising center, as well as the center for processing and distribution of agricultural products, for the central Texas region.

1.14 Advance interjurisdictional cooperation and coordination in economic development efforts (i.e., with various Chambers of Commerce, McLennan County, surrounding counties and nearby communities, etc.).

1.15 Increase educational opportunities for all Waco citizens through the utilization of all educational institutions (i.e., continuing education, work-study programs, financial assistance, G.E.D. programs, customized training; night and weekend curricula, etc.).

1.16 Ensure that local economic development efforts take into consideration the long-term availability of water, both locally and regionally.

GOAL 2: Establish and promote Waco as a recreational, cultural, convention and tourism center in the central Texas region (refer to the *Waco Economic Development Plan*, Appendix A).

Objectives:

2.01 Develop new recreational, cultural, and tourism oppor-

tunities and attractions that transform Waco into an attractive tourist destination city.

2.02 Develop new funding alternatives and resources to promote tourism and recreation venues.

2.03 Develop a promotional and publicity strategy to inform residents and visitors of current attractions and special events.

Physical Form of the City

GOAL 3: Provide opportunities for coordinated, well-planned growth and development, while retaining the Waco's "central city" character. (refer to the *Future Land Use Plan*, Section 8).

Objectives:

3.01 Maintain a continuous, coordinated planning process that involves citizens, stakeholders, City Council, City boards/commissions, City departments, and other public and private entities in policy development and decision-making.

3.02 Encourage the efficient use of land in the provision of essential public infrastructure and facilities.



- 3.03 Promote the future development of a variety of high quality land uses to support the residential, employment, business, governance and leisure needs of the citizenry.
- 3.04 Utilize the Future Land Use Plan in daily decision-making regarding land use and development proposals.
- 3.05 Adhere to adopted polices and guidelines pertaining to specific districts, areas, and uses when reviewing zoning and development requests (for example, historic preservation guidelines, guidelines for the conservation of ecologically sensitive areas; development guidelines for transitional and infill areas; and the Brazos River Corridor development guidelines, etc.).
- 3.06 Determine appropriate locations for future residential and nonresidential development, while considering existing neighborhoods and natural features.
- 3.07 Develop strategies to arrest and reverse deterioration within transitional neighborhoods and to maintain and preserve stable neighborhoods.
- 3.08 Create transitions and buffer areas between residential and nonresidential areas and other incompatible land uses.
- 3.09 Include in the planning process as appropriate educational institutions (McLennan Community College, Texas State Technical College, TSTC, Baylor University; and the Waco Independent School District, etc.)
- GOAL 4:** Encourage development of quality residential housing throughout the city that is responsive to the diverse housing market needs of the community (refer to *Housing Strategies*, Section 4).
- Objectives:**
- 4.01 Establish design criteria for single-family and/or multi-family developments that incorporate environmental features that address issues of health and safety and promote a sense of pride and well being among the residents (i.e., landscaping and site design standards, etc.).
- 4.02 Identify areas on the Future Land Use Plan appropriate for a variety of residential densities.
- 4.03 Preserve and protect single-family neighborhoods from high traffic volumes, congestion and through traffic generated by commercial and high-density residential areas.

4.04 Develop comprehensive density strategies to ensure that infrastructure systems (e.g., water, waste-water, roadways, etc.) will be adequate to accommodate future growth and development.

GOAL 5: Promote high standards for the development of non-residential uses responsive to the market and economic development needs of the community (refer to the *Future Land Use Plan*, Section 8).

Objectives:

5.01 Adopt development and design guidelines and overlay zoning districts if appropriate, for nonresidential properties located along the city's major arterials, including but not limited to Interstate Highway 35, U.S. Highways 77 and 84, and State Highway 6.

5.02 Designate additional areas suitable for future commercial, industrial and/or business park development within the city.

5.03 Develop and strengthen design guidelines that address the establishment of transition and buffer zones between nonresidential developments and residential neighborhoods.

5.04 Implement a system of oversight and management that addresses the upgrading of deteriorating commercial and

industrial areas within the city.

GOAL 6: Promote coordinated growth and physical expansion of the city (refer to the *Future Land Use Plan*, Section 8).

Objectives:

6.01 Adopt a vision statement that reflects the City's desire for quality core development vs. the trend toward outward expansion. Develop a comprehensive growth strategy for the long-term development of the community.

6.02 Plan for continued growth quality development in the ETJ that improves the City's overall quality of life and economic viability.

6.03 Incorporate sensitivity to existing neighborhoods and natural features into all development planning (i.e., Lake Brazos, Lake Waco, Bosque and Brazos Rivers, Mammoth Site, etc.).

6.04 Continue cooperative efforts (e.g., coordination in site planning, school locations, traffic flow patterns, etc.) with the Waco Independent School District and with local colleges and universities in planning for adequate facilities to serve the educational needs of the City's growing population and its diversified work force.



6.05 Develop financing strategies to absorb the costs of growth of the city and the ETJ.

6.06 Ensure orderly, manageable growth into outlying/ETJ areas through the programmed extension of infrastructure (e.g., water, wastewater, streets, etc.).

GOAL 7: Promote the development of existing vacant properties (particularly infill parcels) within the city of Waco (refer to *Housing Strategies*, Section 4).

Objectives:

7.01 Explore various alternatives and programs for infill development within the city's Downtown area and older residential neighborhoods; reference specific development plans, (i.e., the Brazos River Corridor Plan).

7.02 Ensure the enforcement of City codes adopted to protect the public health, safety, and welfare, (i.e., removal of hazardous/unsightly structures and junk, mowing high grass and weeds, litter control, etc.).

GOAL 8: Continue proactive planning efforts in the redevelopment of the city's Central Business District to preserve its heritage, character, and image as the "heart" of the city, thereby increasing community pride, while creating an environment that is

conducive to revitalization (refer to the *Future Land Use Plan*, Section 8).

Objectives:

8.01 Promote public and private re-investment in the downtown area to ensure its long-term economic viability, and preserve its heritage and "central city" character as a site of social interaction, commerce, and entertainment.

8.02 Encourage restoration, renovation and adaptive reuse of historic and other significant structures.

8.03 Consider development/ strengthening of special guidelines for the downtown area that address historic preservation and other downtown issues (i.e., streetscape enhancements), thereby promoting downtown as a center for commerce, while preserving its historical and architectural character.

8.04 Continue to coordinate downtown enhancement and preservation efforts with merchants' and property owners' association.

8.05 Support public/private partnerships and creative initiatives for the downtown area such as walking museums, street vending, creative re-use of vacant structures, enhancement of open spaces for public assemblies and functions, etc.

GOAL 9: Utilize the Brazos River Corridor Development Plan to continue proactive planning efforts for the development of that special area (refer to the *Brazos River Corridor Development Plan*).

Objectives:

9.01 Develop the Brazos River Corridor as a center for quality recreation, convention, tourism, housing and office facilities.

9.02 Ensure quality development within the Corridor through adherence to special District ordinances and guidelines.

9.03 Encourage amenities within the Corridor that will enhance the quality of the human environment as well as the pedestrian scale of the area.

9.04 Provide adequate security and lighting within the Corridor to encourage night-time, as well as daytime, use of facilities.

9.05 Encourage residential and infill development in the Corridor.

9.06 Promote the development of quality office facilities within the Central Business District of Waco.

9.07 Enlist the support of a variety of groups in the community to promote and support development of the Brazos River

Corridor, while maintaining the “one-stop shop” single-point-of-contact management of development concept.

GOAL 10: Coordinate planning for the enlargement of Lake Waco and development of the lakefront (refer to the *Future Land Use Plan*, Section 8).

Objectives:

10.01 Expand Lake Waco, and carefully plan for ideal, quality development along the lakefront.

10.02 Continue to pursue the effort of raising Lake Waco’s water level.

Transportation and the Thoroughfare Network

GOAL 11: Provide a transportation system that will effectively and economically serve the community’s existing and projected travel needs (refer to the *Transportation Plan* element, Section 3).

Objectives:

11.01 Maintain a continuous, coordinated transportation planning process that addresses long-term needs while facilitating short-term problem solving.



- 11.02 Define "adequacy" standards for the transportation system, and address capacity deficiencies on major highways and arterials (i.e., Interstate Highway 35, Highway 185, Loop 340, etc.).
- 11.03 Plan roadways to ensure adequacy of the thoroughfare systems relative to projected future needs (i.e., traffic impact analysis for larger projects, etc.).
- 11.04 Identify and plan for various roadway types based upon how they are expected to function and upon expected build-out traffic volumes.
- 11.05 Promote compatibility between roadway alignments/improvements and the environment, character and land use patterns of the community.
- 11.06 Ensure consideration of transportation efficiency in new development proposals.
- 11.07 Minimize disruption of residential areas by minimizing traffic volumes and by planning that incorporates efficient dispersion of traffic to and from neighborhoods.
- 11.08 Include transportation system considerations in the development review process for the planning and alignment of future roadways, and prioritize safe, efficient on-and off-site access and vehicular circulation.
- 11.09 Develop a unifying "theme" or other visual concept for consistent streetscape treatment of appropriate thoroughfare rights-of-way, medians, and intersection corner areas.
- 11.10 Continue reconstruction and improvement of existing streets.
- 11.11 Explore traffic "calming" strategies to slow vehicular circulation, particularly within residential neighborhoods and the downtown area.
- 11.12 Develop funding alternatives for street improvements and/or replacement.
- 11.13 Coordinate transportation planning with regional and intercity entities as appropriate (i.e., TXDOT, McLennan County, neighboring cities, the Waco Metropolitan Planning Organization, etc.).
- GOAL 12:** Optimize mobility and decrease dependency upon the automobile by encouraging multi-modal, public transportation, and travel demand reduction alternatives (refer to the *Transportation Plan* element, Section 3).

Objectives:

- 12.01 Encourage multi-modal transportation options (i.e., pedestrian access, bicycling, inline skating, equestrian, water craft on rivers and lakes, etc.).
- 12.02 Encourage pedestrian activity and safety by improving and expanding the City's sidewalk system.
- 12.03 Encourage other modes of transportation by providing for alternatives to the automobile, wherever possible.
- 12.04 Encourage residential development in close proximity to colleges, universities and local major employers.
- 12.05 Pursue travel reduction initiatives (e.g., car- and van-pooling, flexible work schedules, telecommuting, etc.) that decrease dependency upon the single-occupancy vehicle.
- 12.06 Continue to examine the role of the Waco Regional Airport and railroad transportation in the context of long-term development planning.
- 12.07 Ensure that the City of Waco is in a position to actively participate in the location decisions of any future high-speed rail route.

Infrastructure & Utility Systems

GOAL 13: Ensure that utility and infrastructure systems (e.g., water supply, wastewater treatment, storm drainage, etc.) will adequately serve present and future residents and businesses (refer to *Infrastructure*, Section 6).

Objectives:

- 13.01 Define standards to ensure adequate levels of service for public utility infrastructure systems:
 - 1.) Water treatment, storage and distribution;
 - 2.) Wastewater collection and treatment;
 - 3.) Storm water management and erosion control (including non-point source pollution prevention).
- 13.02 Provide utilities and infrastructure to all residents and businesses in the most efficient, equitable and fiscally responsible manner possible.
- 13.03 Develop capital recovery tables/schedules to ensure the efficient fiscal management and oversight of utility services.



- 13.04 Incorporate the Future Land Use Plan and related projections to help plan for future needed infrastructure improvements.
- 13.05 Encourage new development in areas currently being served by utilities and infrastructure, or in areas where such utility extensions are economically feasible.
- 13.06 Anticipate future water and sewer service demands in areas currently not being served; develop a plan for those anticipated demands.
- 13.07 Extend infrastructure facilities into newly developing areas in an efficient and cost-effective manner.
- 13.08 Encourage the timely, efficient provision of services by private/franchise utilities (telephone, gas, electricity, cable, etc.) to developing areas. Utility lines should be placed underground, and providers should use shared conduits, wherever possible.
- 13.09 Continue cooperative efforts with the Brazos River Authority to protect and improve water quality.
- 13.10 Waco should pursue enabling legislation for the management of development in the unincorporated areas surrounding Lake Waco.
- 13.11 Continue to pursue the effort of raising Lake Waco's water level in order to ensure the City's continued ability to provide water, both locally and within McLennan County.
- 13.12 Schedule regular plan review, and update capital recovery mechanisms to recoup new development infrastructure costs.
- 13.13 Use the development review process to coordinate development and the provision of essential public infrastructure and utilities to developing areas.
- 13.14 Continue monitoring and programming for the repair and replacement of aging infrastructure systems.
- 13.15 Develop guidelines and other mechanisms to ensure that storm water runoff and potential non-point source pollution problems and development density will not adversely affect floodplains or other properties. Development guidelines should incorporate density objectives.
- 13.16 Continue to pursue the effort of raising Lake Waco's water level in order to ensure the City's continued ability to provide water, both locally and within McLennan County.



13.17 Develop a long-range conservation plan for water availability for Waco and the CCN area to ensure that there is at least a 50-year water supply.

13.18 Coordinate planning with McLennan County and other jurisdictional entities (water and utility districts, etc.) to ensure long-term provision of adequate utility services for Waco's residences and businesses.

Public Facilities & Services

GOAL 14: Ensure public services and facilities (i.e., police and fire protection, library services, administrative facilities, etc.) meet the present and future needs of the community (refer to the City's *Facility Master Plan* and the summary contained within this Comprehensive Plan, Section 7).

Objectives:

14.01 Define standards for adequate response/service levels for public services and facilities:

- 1.) Police protection;
- 2.) Fire protection and emergency medical services;
- 3.) Library services;
- 4.) Solid waste management;
- 5.) Public administrative facilities;
- 6.) Public transportation and accessibility.

14.02 Provide public services and facilities to all residences and businesses in the most efficient, equitable and fiscally responsible manner possible.

14.03 Use the Future Land Use Plan and future population and employment projections to forecast needs for public services and administrative facilities.

14.04 Encourage new development within areas that are already served by necessary public services and facilities, or where the provision of such services is feasible.

14.05 Co-locate public facilities with other municipal facilities or with those of other quasi-governmental jurisdictions (i.e., school districts, etc.) wherever possible.

14.06 Continue developing a system of easily accessible, highly visible libraries to serve the ultimate population of Waco; establish the new central library as the hub of the City's public library system.

14.07 Utilize recycling and other solid waste management techniques that are fiscally practicable feasible and environmentally responsible.

14.08 Continue efforts to support the cultural arts.



- 14.09 Improve public safety and security especially within neighborhoods and commercial and tourism areas.
- 14.10 Continue and strengthen coordination with the Waco Independent School District, and other educational entities.
- 14.11 Promote the public education system and encourage citizen involvement in the public school system.
- hensive Plan are reflected in City staffing, real property acquisitions, infrastructure improvements, and facility construction and maintenance.
- 15.03 Ensure fiscal responsibility, efficiency, and innovation etc., in governance and in the funding of capital improvements.
- 15.04 Strive for efficient use of land that positively adds to the City's tax base.

Fiscal Responsibility

GOAL 15: Ensure that future community facility and service needs are met through sound long-range and fiscal planning (refer to the City's *Facility Master Plan* and the summary contained within this Comprehensive Plan, Section 7).

Objectives:

- 15.01 Utilize recommendations contained within the Comprehensive Plan to inform the decision-making process of long- and short-range capital improvement projects (streets, water, sanitary sewer, storm water management, procurement of major equipment, construction of public facilities, etc.).
- 15.02 Ensure that the priorities established by the Compre-

- 15.05 Ensure the future economic stability through continued recruitment of new business and industry in the context of planned development, and by locating them within certain areas to help support and subsidize the overall tax base.

GOAL 16: Maintain the strong financial position of the City of Waco through sound fiscal planning and careful budgeting of needed public improvements and facilities (refer to the City's *Facility Master Plan* and the summary contained within this Comprehensive Plan, Section 7).

Objectives:

- 16.01 Maintain a responsible and fiscally strong operating budget, and balance the provision of public services and facilities with available revenues, wherever possible.

16.02 Implement an annual capital improvements program based on the Comprehensive Plan to underwrite the cost of needed capital projects.

Quality of Life

GOAL 17: Promote community awareness of the city as a great place to live. Encourage pride through beautification projects and bold urban design practices. Advance Waco's image and identity as a "community of excellence" in the spheres of commerce, recreation, leisure, education and lifestyle (refer to *Community Image Guidelines*, Section 9).

Objectives:

17.01 Establish urban design standards to enhance the visual appeal of the city's streetscape, landscape, signage, right-of-ways, etc.

17.02 Create attractive, visual "gateways" at principal entry points to establish a design "theme" and image/identity for Waco.

17.03 Initiate projects designed to improve the appearance of the Interstate Highway 35 corridor, particularly at the gateways into Waco.

17.04 Support planning alternatives and studies that promote the image and identity of the Central Business District.

17.05 Encourage a stronger sense of "community" and "belonging" through urban design. Reinforce Waco as "home town," and adopt initiatives that instill a strong sense of civic pride and participation among citizens.

17.06 Support public/private participation and cooperation in beautification and maintenance initiatives, e.g., adopt-a-street; adopt-a-tree; adopt-a-lot, cleanup projects, etc.

17.07 Make pedestrian walkways more people-oriented adding features such as kiosks, water fountains, etc.

17.08 Increase public awareness, involvement and support of urban design initiatives. Feature community campaigns and initiatives on the City Cable, highlighting various projects, e.g., creative uses of space for public use, adopt-a-projects, etc.

17.09 Utilizing urban design and guideline criteria, employ the development review process to evaluate private projects.

17.10 Increase public awareness of community assets (lakes and rivers, libraries, parks,



historic/cultural and educational resources, tourist attractions, shopping areas, etc.) through media, such as community newsletters, public bulletin board postings, publications and newspaper articles, the Internet, and public cable television, etc.

17.11 Enforce City codes and regulations pertaining to property maintenance, upkeep and appearance, e.g., the mowing of high grass and weeds, the removal of debris clutter, and litter; the removal of inoperative vehicles from streets, etc.

GOAL 18: The residents and visitors to Waco should feel safe from crime, injury and other physical and psychological harm (refer to the City's *Facility Master Plan* and the summary contained within this Comprehensive Plan, Section 7).

Objectives:

18.01 Provide adequate police and fire protection.

18.02 Encourage the design of safe neighborhoods.

18.03 Provide adequate lighting and visibility to enhance safety in public places.

18.04 Provide for needs of the physically challenged through careful design of public places and facilities.

18.05 Incorporate safety and security provisions into the development review process.

GOAL 19: Create pedestrian and bicycle linkages between residential neighborhoods, parks, schools and colleges, public administrative facilities and other activity centers, where physically and fiscally possible (refer to the *Transportation Plan*, Section 3, and the *Community Image Guidelines*, Section 9).

Objectives:

19.01 Create and maintain hike-and-bike trails wherever possible to connect residential areas with schools and parks and local services.

19.02 Encourage the creation of pedestrian and bicycle linkages in large private developments.

GOAL 20: Support Waco's prominence as a center for health care/human services in the central Texas region (refer to the City's *Facility Master Plan* and the summary contained within this Comprehensive Plan, Section 7).

Objectives:

- 20.01 Support local and regional hospital and health care facilities.
- 20.02 Encourage the provision of health care facilities and other services to all citizens regardless of age, income, or state of health.

**Housing, Historic Preservation,
& Community Livability**

GOAL 21: Be a full life-cycle city (refer to the *Housing Strategies*, Section 4).

Objectives:

- 21.01 Provide appropriate housing to accommodate all age groups.
- 21.02 Target residential developments with amenities that reflect the diversity of the population, e.g., community centers, safe walking trails, playgrounds, community gardens, etc.
- 21.03 Encourage home ownership and long-term residency.

GOAL 22: The City should protect and improve existing housing units and residential areas, as needed (refer to the *Housing Strategies*, Section 4).

Objectives:

- 22.01 Identify “special need” populations and plan development that offer a variety of amenities, i.e., ramped entries; single-level, wide entries, etc. for senior citizen developments, etc.
- 22.02 Support neighborhood beautification projects to bolster civic pride and encourage reinvestment within established residential areas (home improvement initiatives, clean-up campaigns, xeriscape demonstration projects, etc.).
- 22.03 Promote incentives and strengthen programs to assist economically distressed owner-occupants in meeting housing code requirements.
- 22.04 Provide infrastructure needed to support redevelopment of various design features and basic functions associated with community livability, including sidewalks, streets, alleyways, water provision, sewer provision, stormwater drainage, and parks and open space.
- 22.05 Preserve and stabilize existing neighborhoods. Promote initiatives and incentives to encourage “infill” development of vacant residential lots and redevelopment of sub-standard housing units in existing neighborhoods.



22.06 Protect and retain the City's existing stock of affordable housing as appropriate, and encourage the development of additional affordable housing units that are architecturally compatible with the neighborhoods in which they are being constructed.

GOAL 23: Ensure the orderly, attractive and economically stable development of new residential neighborhoods (refer to *Housing Strategies*, Section 4, and the *Future Land Use Plan*, Section 8).

Objectives:

23.01 Develop density and locational criteria for new multi-family and single-family residential uses within the city, considering land-use compatibility, traffic generation, noise levels, and aesthetics.

23.02 Incorporate site planning of developments to ensure the availability of land adequate to meet the projected needs of future population groups (i.e., diversity of ages, income, social needs, etc).

23.03 Stimulate diverse, innovative and affordable housing developments.

23.04 Aspire to the best design innovation and planning for residential developments.

23.05 Reinforce the "neighborhood" concept, in both a sociological sense and physical sense through residential developments that feature elements such as: linkages between neighborhoods, walkways to schools, parks, and neighborhood shopping areas.

23.06 Explore design alternatives for residential subdivisions (including "neo-traditional", "clustering" and "coving" concepts, as well as gated subdivisions) and their applicability within Waco.

23.07 Develop and expand programs to assist owner-occupants with economic hardships that may be incurred during efforts to meet housing code requirements.

23.08 Promote "neighborliness" and reduce polarization within the community by encouraging economically and racially balanced residential development. Consider development incentives that advance a mix of housing types and lot sizes.

23.08 Create additional incentives for the development of infill housing (particularly in transitional areas).

23.09 Encourage the development of moderately priced housing units to allow greater flexibility in housing choices.

GOAL 24: Preserve and maintain Waco's places of historical and cultural significance (refer to the *Future Land Use Plan*, Section 8).

Objectives:

24.01 Continue efforts to encourage and promote the preservation of historically significant structures (such as the train depot near Elm Avenue).

24.02 Implement the Historic Landmark Ordinance.

The Environment

GOAL 25: Encourage conservation and protection of important natural features and resources in the community (refer to *Infrastructure*, Section 6, and *Community Image Guidelines*, Section 9).

Objectives:

25.01 Conserve and protect ecologically sensitive areas through adoption of density guidelines that encourage the preservation of natural vegetation and slopes.

25.02 Conserve natural areas of vegetation along flood plains, within heavily forested areas, within park and open space areas, and around the lakes.

25.03 Encourage public enjoyment and provide public access to open space and natural areas.

25.04 Establish and maintain high standards for ground and surface water quality.

25.05 Restrict development in flood-prone areas; regulate development around local aquifer recharge zones.

25.06 Establish and protect green space and natural areas along existing floodways, within the 100-year flood plain, and along the edges of lakes and rivers.

25.07 Develop conservation and design incentives for developments in or adjacent to areas characterized by constrained geologic, slope or soil conditions.

25.08 Respect areas with steep slopes and/or scenic views, and provide public access to scenic overlook points wherever possible.

25.09 Encourage and promote water conservation through use of native plant materials, xeriscape techniques, and public service announcements and awareness campaigns.



Section 3 TRANSPORTATION PLAN



City of Waco



Comprehensive Plan 2000

INTRODUCTION

Due to its strategic location within the state, and the configuration of major transportation routes that serve the region, Waco is often referred to as a central city within Texas. As county seat of McLennan County and the most populated city in the surrounding area, Waco is primed for growth.

The ability of major metropolitan areas to accommodate growth is largely dependent on the efficiency of the transportation system. One of the most important aspects of a city's urban structure is how efficiently goods and people are moved throughout the community. Waco's physical location, economy and development pose challenges to efficient transport. Increasing congestion, especially along the Interstate Highway 35, affects the circulation of traffic adjacent to and surrounding the corridor. Other major transportation corridors, specifically, State Road 6 and State Highways 84, 298 and 396 pose similar challenges.

Transportation planning, and the importance of coordination among jurisdictions and with the Texas Department of Transportation (TxDOT) were discussed in a previous section. The Metropolitan Planning Organization's recently-completed master plan, the Metropolitan Transportation Plan, presents projections of regional transportation needs for the next 25 years, and prioritization of projects required to address those needs.

A comprehensive thoroughfare system capable of accommodating expanding vehicular traffic volumes is critical to the sustained growth and planned development of the city.

FUNCTIONS OF TRANSPORTATION PLANNING

The thoroughfare system is one of the most visible and permanent elements of the urban structure. As alignments and rights-of-way of major transportation routes are established and adjacent properties developed, making changes to the system becomes almost impossible.

The Transportation Plan is a guide for the integration of developments and roadways into a unified, coordinated transportation system. The Plan depicts not only the existing network of roads, but also anticipates the roads and thoroughfares necessary to ensure efficient movement of traffic throughout the community. The Plan is one of the few measures the City can implement in its ETJ.

The Transportation Plan works in tandem with the Future Land Use Plan, which identifies potential growth areas and traffic circulation needs. As a circulation blueprint or framework, the Transportation Plan is a functional hierarchy of roadways and thoroughfare systems. A guide for the programming of projects (i.e., prioritizing, budgeting and scheduling), the Transportation

Plan documents current and projected roadway alignments, capacities, and rights-of-way needs.

existing thoroughfares continue to provide adequate north-south access through and within Waco.

The Regional Traffic Circulation System

Five major traffic corridors have been identified within Waco as follows: Interstate Highway 35, South Loop 340 (State Highway 6), U.S. Highway 84 (Waco Drive), State Spur 298 (Franklin Avenue), and State Loop 396 (Valley Mills Drive.)

Interstate Highway 35 serves as a regional north-south travel corridor. Also providing north-to-south access is State Highway 84, which traverses the center of the city as Waco Drive. A branch of State Highway 84, State Highway 298 (Franklin Avenue) parallels Waco Drive to the southeast. South Loop 340 allows circumvention of the city via a north-south loop on the eastern side of Waco. State Highway 6 enters the southwestern area of Waco, becoming Loop 340 in the southern portion of the city. An east-to-west corridor, State Highway 396 (Valley Mills Drive) provides movement through the south-central area of the city.

The city has adequate transportation access in the north-south direction. The main challenge is the provision of additional east-west thoroughfares to accommodate growth in those areas. A second but no less important challenge is to ensure that the

The Local Traffic Circulation System

Many of Waco's retail and commercial businesses are near old highways original to the modern system, close to the downtown area. Numerous streets provide local traffic distribution. Steinbeck Bend Drive, Herring Avenue, 4th and 5th Streets, Bosque Boulevard, Lake Air Drive, 18th Street, University Parks Drive and Gholson Road are some of the most heavily traveled streets in Waco. During peak traffic times, these streets are often congested.

Most of the local traffic patterns are generated by the following entities or activities:

- ◆ Major employers in the area;
- ◆ Local schools (i.e., elementary, middle and high schools);
- ◆ McLennan Community College, Baylor University, and Texas State Technical College;
- ◆ Medical facilities, such as Hillcrest Baptist Medical Center, Providence Health Center, and the Waco Regional Veterans Administration/Hospital;
- ◆ Shopping and other retailing centers;



- ◆ Governmental (city, county, state and federal) centers and facilities; and,
- ◆ Public areas such as the Heart of Texas Fair Grounds, the Cameron Park Zoo, local museums, other public places and parks.

Arterials and major thoroughfares are continuous linkages designed to convey heavier volumes of traffic. These roadways should have fewer intersections and curb cuts (driveway openings) that impede traffic flow. Collector streets are major and minor streets that access arterials and adjacent land uses. Local streets provide the greatest access to adjacent properties, but they function poorly in mobility. Conversely, principal arterials provide mobility, but because of the speed and volume of traffic, access to adjacent roads and properties is limited (refer to **Table 3-1**).

FUNCTIONAL CLASSIFICATION SYSTEM & THOROUGHFARE STANDARDS

The Transportation Plan is based upon a road classification system that depicts the function of every roadway in the thoroughfare system. Roadway types include freeways, major arterials, collectors, and local streets (refer to **Table 3-1**).

A transportation plan should complement land use planning and subdivision design. The diversion of traffic from neighborhoods is an example of how good traffic management planning affects the long-term stability of land use

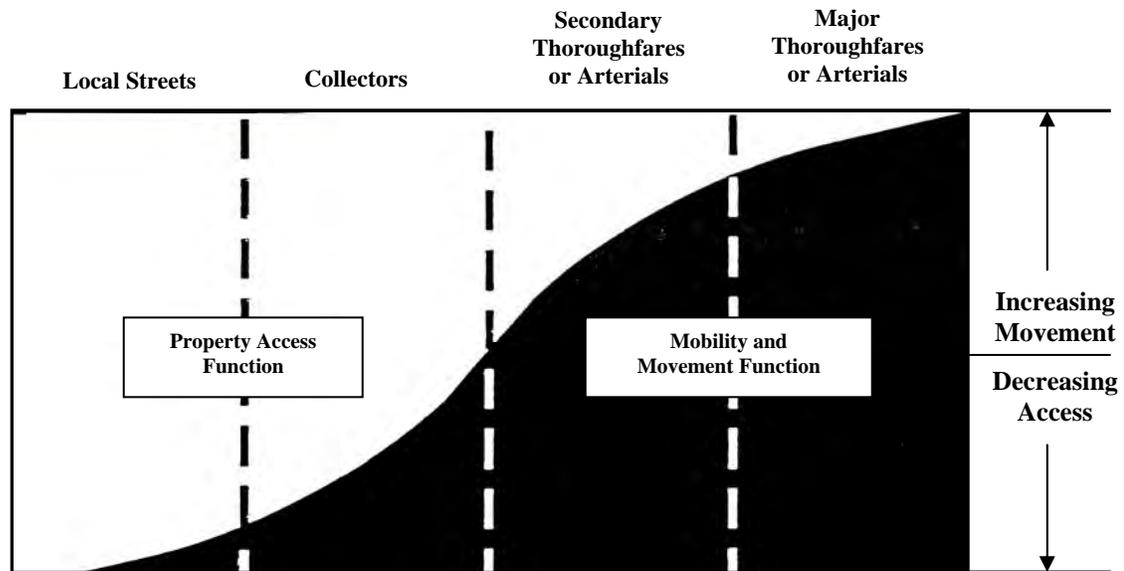


Illustration 3-1
FUNCTIONAL CLASSIFICATION SYSTEM



**Table 3-1
ROADWAY FUNCTIONAL CLASSIFICATIONS AND GENERAL PLANNING GUIDELINES**

CLASSIFICATION	Function	Continuity	Approx. Spacing	Direct Land Access	Minimum Roadway Intersection Spacing	Speed Limit (mph)	Parking	Comments
FREEWAY AND EXPRESSWAY (Interstate Highway 35)	Traffic Movement	Continuous	4 miles	None	1 mile	60 to 70mph	None	Supplements capacity and arterial street system, and provides high-speed mobility.
ARTERIAL / MAJOR THOROUGHFARE (Valley Mills Drive)	Moderate distance inter-community traffic; Land access should be primarily at intersections	Continuous	1/2 to 1 1/2 ¹ miles	Restricted -- some movements may be prohibited; number & spacing of driveways controlled; May be limited to major generations on regional routes.	1/8 mile 1/4 mile on regional route	35 to 45 mph	None	"Backbone" of the street system.
COLLECTOR (Colcord Avenue)	Collect / distribute traffic between local & arterial streets; Direct land access; Inter-neighborhood traffic movement.	Not necessarily continuous May not extend across arterial.	1/4 to 1/2 ² mile	Safety controls; limited regulation. Residential access prohibited; commercial access allowed with shared driveways.	300 feet	30 mph	Limited	Through traffic should be discouraged.
LOCAL (Tennessee Avenue)	Land Access Sidewalks	None	As needed	Safety controls only.	200 feet	30 mph	Permitted	Through traffic should be discouraged.

¹ Spacing determination should also include consideration of (travel projections within the area or corridor based upon) ultimate anticipated development.

² Denser spacing needed for commercial and high-density residential districts.

³ Spacing and intersection design should be in accordance with state and local thoroughfare standards.



patterns. Other benefits from transportation planning include fewer urban land parcels dedicated to streets, increased property values, and decreased traffic accidents (refer to **Table 3-1**).

It is recommended that neighborhoods be developed between arterials and collector streets so that traffic may be diverted from residential areas. Minor collector streets should not be used as cut-through routes, but should be configured to penetrate the neighborhoods to collect and distribute light traffic. Good subdivision design should orient homes to local streets, not collectors.

Freeways

Freeways are high-capacity highways with eliminated or significantly reduced direct access to adjacent properties. Ingress and egress to these thoroughfares are controlled by widely spaced access ramps and interchanges. Access to and egress from these roadways is through frontage roads, as on Interstate Highway 35.

Many sections along the Interstate, (specifically through San Antonio, Austin, and Dallas) are significantly congested. Two key factors have contributed to increased traffic on the Interstate: the passage of the North American Free Trade Agreement (NAFTA) and the fact that the highway links three major metropolitan cities. With the exception of accidents or other

impediments to traffic flow, no major congestion has occurred in the Waco segment of Interstate Highway 35. The City should, however, continue to support the planned future expansion of this freeway in order to avoid the congestion that plagues other metropolitan areas.

Major Thoroughfares or Arterials

The primary urban conveyance system consists of principal arterials that function as distribution channels of high-volume traffic between major activity centers (commercial centers, neighborhood developments, etc.). State Highway 396 (Valley Mills Drive), Loop 340, and State Highway 84 (Franklin Avenue) are examples of principal arterials.

Continuous, direct alignment of thoroughfares is essential, as high volumes of traffic (15,000 to 40,000 vehicles per day) are interconnected with interchanges and freeways. Thoroughfares are usually punctuated by intersections or exchanges at approximate one-mile intervals depending upon the terrain. Safety considerations necessitate that access from adjacent property be minimized by limiting the number and locations of curb cuts. Shared entrances to commercial and retail facilities should be used when possible (refer to **Illustrations 3-12, 3-13, and 3-14** within this section).

The minimum arterial/thoroughfare cross-section consists of four moving lanes, two for each direction. Right-of-way requirements for major thoroughfares range from 100 to 120 feet. Frequently, four lanes may be constructed within the full right-of-way, leaving a wider median than would be provided a six-lane thoroughfare. This larger median reserves space for the addition of two inside lanes when needed. Principal arterials are often divided to allow separate left-turn lanes of adequate stacking capacity (allowance for the alignment of vehicles in the turn lane). Medians may also provide opportunities for landscaping and other aesthetic treatments. A functional categorization of streets and thoroughfares in Waco follows.

The minimum right-of-way for a principal arterial is 132 feet. The initial construction of a principal arterial should incorporate a wide median, as shown in **Illustration 3-2**, which could be narrowed when additional lanes are later needed. The ultimate principal arterial dimensions are shown in **Illustration 3-3**, with a narrowed median of 16 feet. Wherever possible, a divided roadway section (i.e., incorporation of a raised median) is recommended. In addition, no on-street parking should be permitted on these types of thoroughfares.

TYPE "A" PRINCIPAL ARTERIAL

Equipped to serve 40,000 vehicles daily, the Type "A" principal arterial (see **Illustration 3-2** and **Illustration 3-3**) consists of 6 lanes (three lanes in each direction). Right-of-way ranges from 108 to 132 feet. The center median, generally 16 feet in width, may be of two types, either the "lay down"(painted) type or a raised type. The flat median offers ease of access by emergency vehicles. The raised, curbed median creates a divided roadway, which is considered safer than an undivided roadway in lessening the potential for head-on collisions.

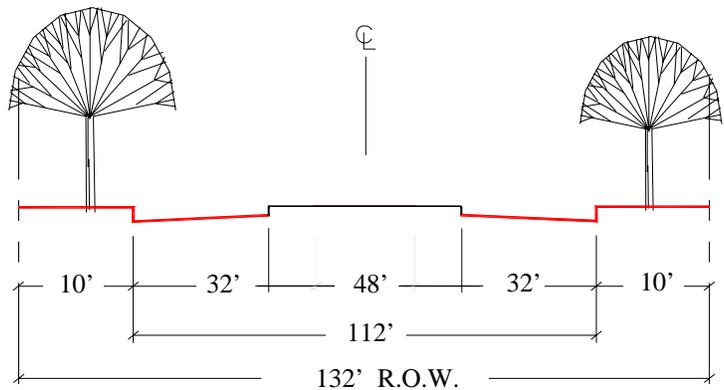


Illustration 3-2
TYPE A: INITIAL PRINCIPAL ARTERIAL

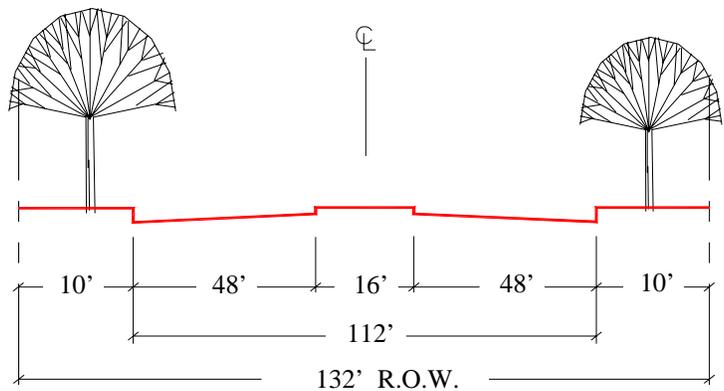


Illustration 3-3
TYPE A: ULTIMATE PRINCIPAL ARTERIAL

TYPE "B" MINOR ARTERIAL

The Type "B" arterial is capable of servicing 20,000 to 25,000 vehicles per day. It consists of four lanes, and it may be divided or undivided. Right-of-way ranges from 84 to 108 feet. The median is 14-16 feet wide. A total of four lanes (two on either side of the median) require 25 feet in each direction, or 50 feet total. This minor arterial may be utilized as a collector street in industrial parkways. **Illustration 3-4** shows the cross-section for Type "B" minor arterials with 84 feet of right-of-way. It should be noted that the City has a wider minor arterial designation with a right-of-way of 108 feet.

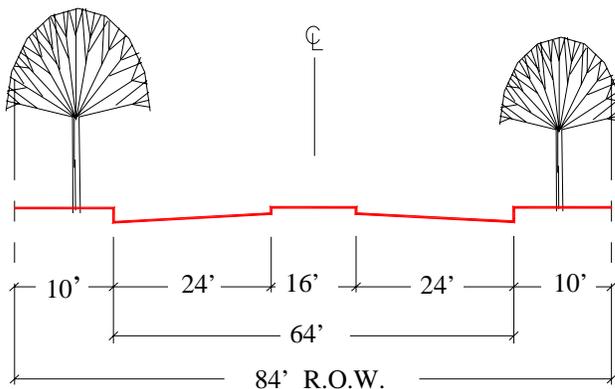


Illustration 3-4
TYPE B: MINOR ARTERIAL

Collector Streets

The collector street distributes traffic from local access streets (i.e., from residential developments to major arterials). Collector streets can be configured to discourage through-traffic movement by using offset

intersections or curvilinear street design. Collectors may be used as streets internal to industrial areas, adjacent to multifamily areas, or to access elementary schools.

Collector streets consist of two lanes. Right-of-way ranges from 60 to 70 feet, with pavement width ranging from 40 to 60 feet. Typical collector right-of-way in residential developments is 60 feet, which can accommodate two moving lanes and on-street parking.

TYPE "C" MAJOR COLLECTOR

Type "C" major collector streets are low to moderate volume facilities whose primary purpose is to collect traffic from smaller streets within an area and to convey it to the nearest principal or secondary arterial. The average daily traffic volume for this type of street is approximately 10,000 to 15,000 trips per day. The Type "C" major collector street

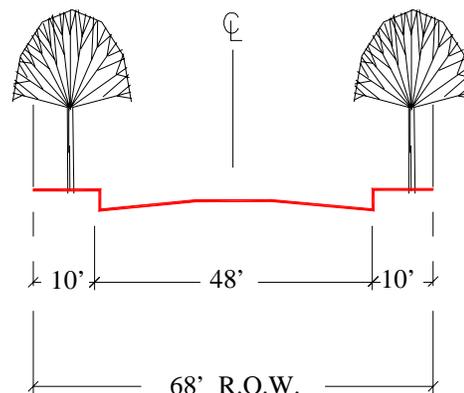


Illustration 3-5
TYPE C: MAJOR COLLECTOR
WITH CURB & GUTTER

provides for 68 feet of right-of-way with 48 feet of paving. This standard may be used as a traffic collection facility within industrial or commercial areas. **Illustrations 3-5 and 3-6** show cross-sections of Type "C" major collectors, with and without curb and gutter, respectively.

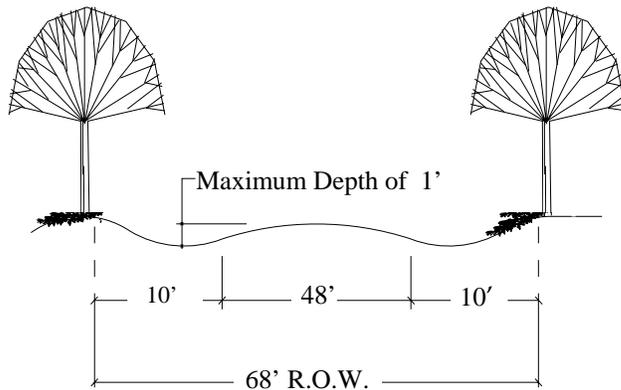


Illustration 3-6
TYPE C: MAJOR COLLECTOR
WITHOUT CURB & GUTTER

TYPE "D" MINOR COLLECTOR STREET

Type "D" minor collector streets are low-to-moderate volume carriers that conduct fewer than 10,000 vehicles per day. They convey traffic from residential streets to principal or secondary arterials. Where the collector street intersects an arterial street, right-of-way can be "flared" with an additional width of pavement to accommodate traffic onto the arterial, or to receive vehicles from the arterial. The Type "D" collector street requires 60 feet of right-of-way to accommodate two lanes and

incidental on-street parking, with a minimum setback of 10 feet, as shown in **Illustration 3-7**. The Type "D" collector – usually less than one mile in length – is also often used as a local street within an industrial or commercial area.

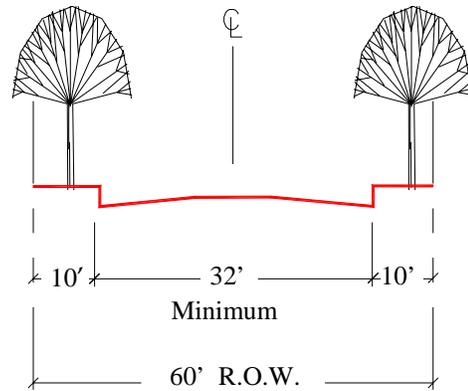


Illustration 3-7
TYPE D: MINOR COLLECTOR

Type "E" Local Street

Structured to convey lighter traffic volume (approximately 500 vehicles per day), the Type "E" local street consists of two lanes, 28 feet wide, with a total right-of-way of 50 feet, as **Illustration 3-8** shows. These streets are designed to discourage cut-through traffic in residential areas. They may be curvilinear, cul-de-sac, discontinuous, looped, or in a court-type of configuration.

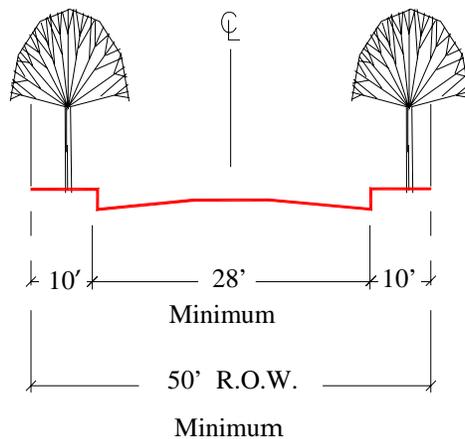


Illustration 3-8
TYPE E: LOCAL STREET

Collectors and Arterials With Bicycle Lanes/Routes

Roadways can be designed to include bicycle lanes. This would require acquisition of extra rights-of-way. The Metropolitan Planning Organization (MPO) has updated a bicycle and pedestrian master plan that should be examined when planning roadway construction or improvements. Waco has several natural drainage or creek areas that could be used for an off-street trail system, but it will likely be

necessary to utilize roadway rights-of-way in many locations in order to create a bike trail system that connects various areas of the community. In many areas, the use of street pavement and/or right-of-way for bicycle transportation purposes will be possible if the roadways are properly sized and designed. For collectors or arterials that are designated as part of the bicycle route system, extra right-of-way may be required to accommodate bike lanes. This will be discussed further later within this Transportation Plan.

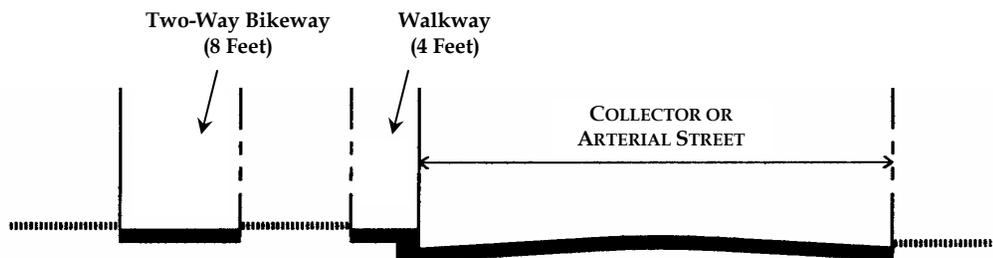


Illustration 3-9:
TYPE A: EXCLUSIVE BIKEWAY & WALKWAY



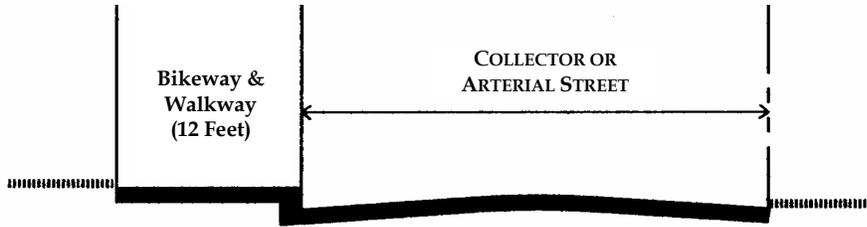


Illustration 3-10:
TYPE B: BIKEWAY & WALKWAY CONSTRUCTED TOGETHER
 (Separated by curb & grade change)

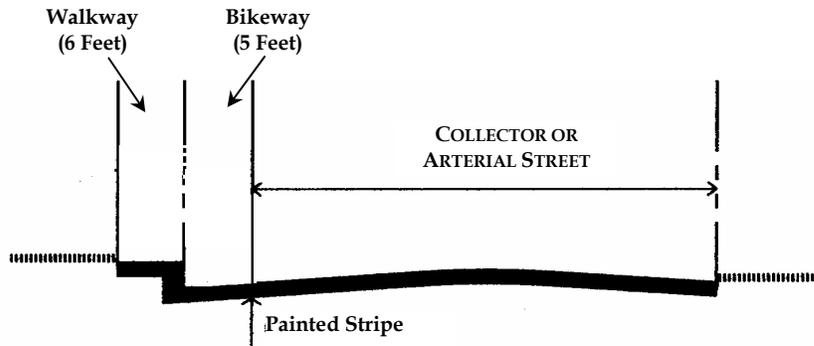


Illustration 3-11:
TYPE C: BIKELANE CONSTRUCTED AS PART OF A ROADWAY
 (On same grade as roadway)

LEVEL OF SERVICE & TRAFFIC CAPACITY

Capacity is generally defined as the volume of traffic that a roadway can serve. *Level of Service* (LOS) takes into consideration various elements related to capacity, including speed, travel time, traffic impediment conditions, and mobility (refer to **Table 3-2**). Roadway linkages refer to actual lengths of road, the usual measure of which is the distance

between intersections. A study conducted by the Waco Metropolitan Planning Organization (MPO) rated roadway linkages in the city and the surrounding area during peak hours of operation. The rankings range from "A" (optimum flow) to "F" (poorest traffic congestion). A Level of Service of "C" is considered the minimal recommended for roadway design.

Table 3-2
DEFINITION OF LEVEL OF SERVICE FOR ROADWAY LINKS

LEVEL OF SERVICE (LOS)	DESCRIPTION	EXAMPLE
A and B	Light, free-flowing traffic volumes. Virtually no delays with smooth progression of traffic, and speed is generally unaffected by other vehicles. Slight decline in the freedom to maneuver from A to B.	Residential or rural streets.
C	Basically satisfactory to good progression of traffic, but at that point where individual drivers become affected by interactions with other vehicles. Light congestion, and speed is affected by the presence of other vehicles.	Urban thoroughfares at off-peak hours
D	High density, but stable, traffic flow. Speed and freedom to maneuver are restricted. Small increases in traffic flow will cause significant operational problems. This LOS is generally used to justify thoroughfare improvements.	Secondary CBD streets at peak hours.
E	Operating conditions at or near capacity level. All speeds are reduced to low, but remain relatively uniform, meaning generally not stop-and-go. Operations at this level are usually unstable, because small increases will cause severe speed reductions.	Primary CBD streets at peak hours.
F	Forced flow. Heavy congestion. Total breakdown with stop-and-go operation. Queues (i.e., vehicle stacking) at intersections on these lengths may exceed 100 vehicles.	Downtown areas usually in larger cities at the A.M. or P.M. peak hours.

Source: North Central Texas Council of Governments



According to the MPO's recent Metropolitan Transportation Plan³⁻¹, numerous roadways in the city fall into the "D" through "F" range of service levels. The "F" level occurs when traffic capacity has been exceeded, as characterized by "stop-and-go" or sporadic flow. In transportation planning, peak-time LOS conditions must be considered when prioritizing potential projects. The MPO's Plan recommends 35 short-term and 34 long-term roadway development and improvement projects for the region. The City of Waco should continue coordinating its efforts with the MPO when developing project plan budgets and schedules.

THE TRANSPORTATION PLAN

A good transportation plan should (1) reflect community goals, (2) provide efficient, continuous traffic routes, (3) complement expected land use patterns and characteristics, (4) integrate with both the regional freeway/ highway and arterial systems, and roadway systems of surrounding local jurisdictions, (5) respect topographical features, and (6) be adaptable to accommodate changing conditions and trends.

³⁻¹ Waco Metropolitan Transportation Planning Organization. *Metropolitan Transportation Plan: Mobility 2025, 1999.*

Transportation Planning Issues

A number of issues must be considered in the process of developing a transportation plan. The plan must be compatible with the City of Waco Future Land Use Plan and requirements of growth. A transportation plan must address the integrity of existing centers of commerce and residential areas. It must consider barriers and obstacles, man-made and natural. Similarly, the plan must balance functions of the thoroughfare system through efficient moving of traffic, and facilitate access requirements. It must consider interconnectivity, alignments, and rights-of-way issues for future expansion. The transportation plan must also incorporate realistic methods of implementation within the context of budgeting constraints.

The following recommendations are presented in consideration of policy development for the City of Waco Transportation Plan:

1. **Maintaining an adequate, appropriate and efficient roadway network.**

In anticipation of population growth and increased traffic, a transportation plan is recommended, depicted in **Plates 3-1** and **3-2**. These diagram the connectivity and continuity of the City of Waco's thoroughfare system, and should serve as a guide for roadway placement and rights-of-way dedication. The roadway network should include a hierarchy of streets, each



classification designed to serve an appropriate function. Adherence to the transportation plan ensures that attention is paid to variables including: the balance of volume and speed, access, public safety, construction and maintenance costs, and impacts upon adjacent development.

2. Coordinating roadways and adjacent development.

Land use and roadway planning are closely linked. Just as inappropriate land uses can reduce the effectiveness of adjacent roadways, poorly planned roadways can reduce the viability of adjacent land uses. Inappropriate zoning, various types of development activity, the existence of older roadways that now carry higher traffic volumes than originally intended, and continually changing traffic patterns have negatively impacted the City’s traffic management program. The City should ensure that adequate access (driveway) spacing standards are implemented for land uses located on arterial and collector streets in order to promote a smooth flow of traffic and to minimize the impact of individual developments on the safe and efficient function of these roads (refer to **Illustrations 3-12, 3-13, and 3-14**).

3. Cost-effective infrastructure investment.

Building and maintaining an efficient street network requires significant investment of local resources. Careful planning is needed to ensure that Waco makes the most cost-effective investments in its street network. Funding is usually based upon general obligation funds and impact fees. Other sources of funding that could be considered include the designation of roadway improvement districts, and the employment of special assessments. The City, of course, should continue its coordination efforts with TxDOT and the County in order to maximize the potential for shared financing, especially in outlying areas of the city.

4. Network for non-automotive transportation.

Our nation relies heavily on automobiles, and therefore, alternative modes of transportation have often been neglected during the planning process. Through appropriate design and planning, the City could develop a system of trails, paths, and lanes to encourage walking, cycling or other forms of alternative transportation. Not only could the overall physical health of the community benefit from increased alternative modes of transportation, the overall quality of life and environment of the community would also be enhanced. Recommendations for



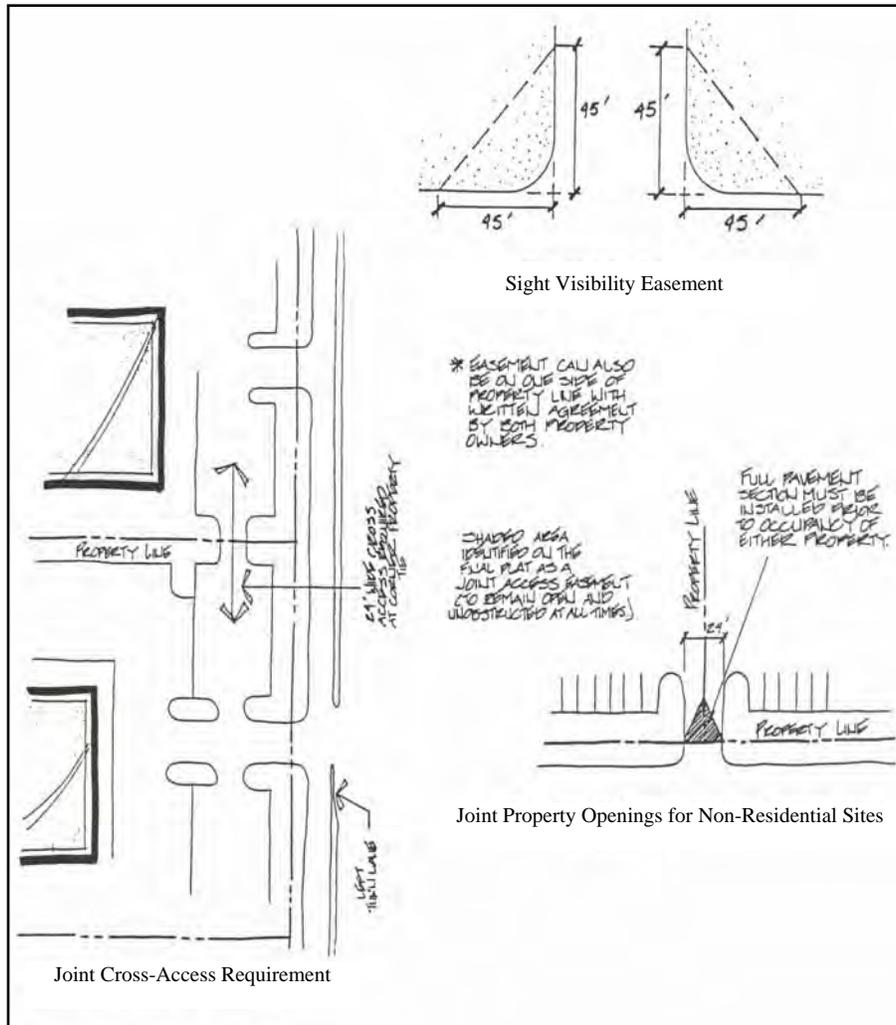


Illustration 3-12
DRIVEWAY OPENINGS

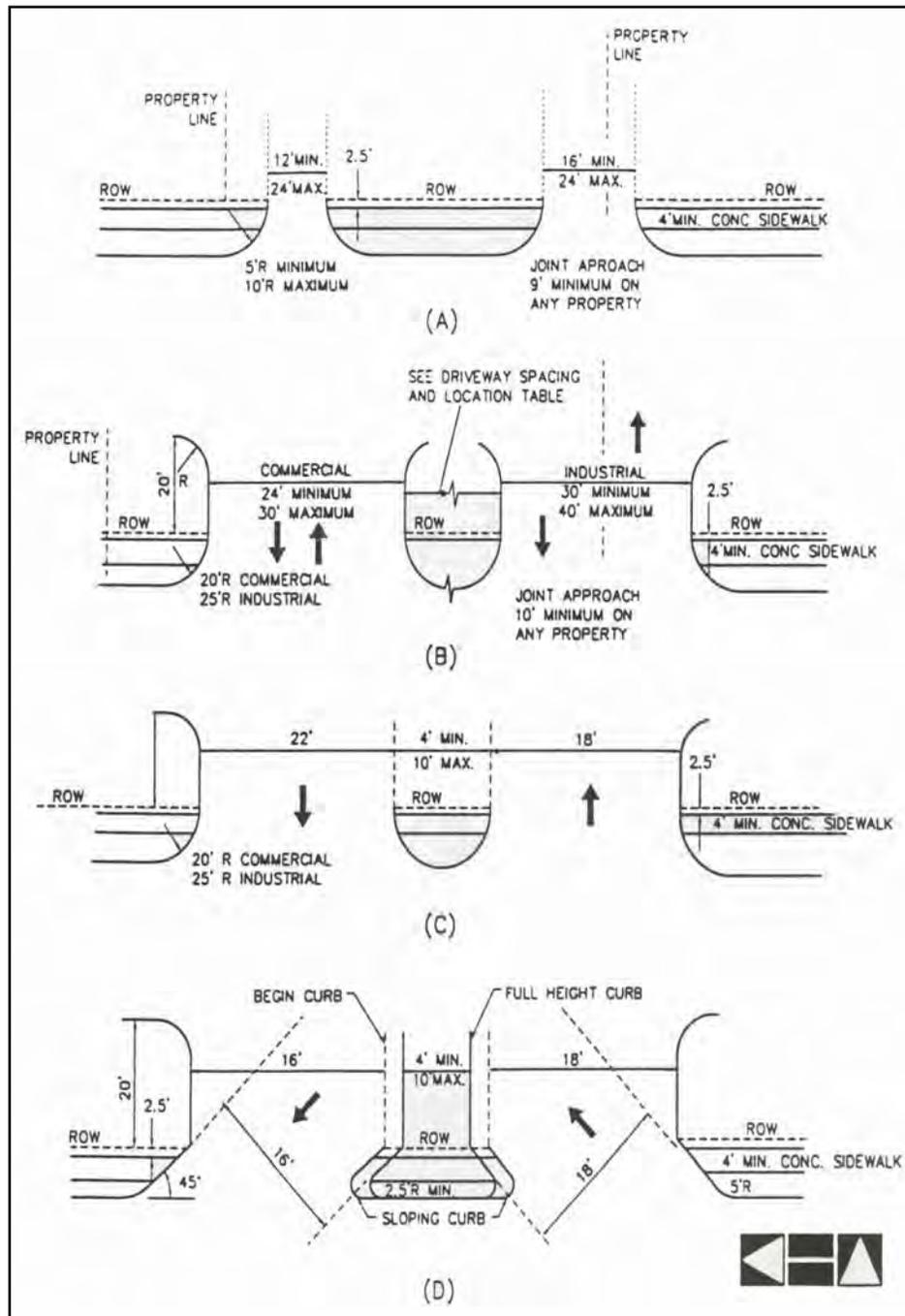
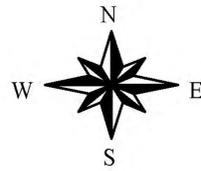


Illustration 3-13
WIDTHS, RADII AND SPACING OF DRIVEWAYS

Plate 3-1 Thoroughfare Plan

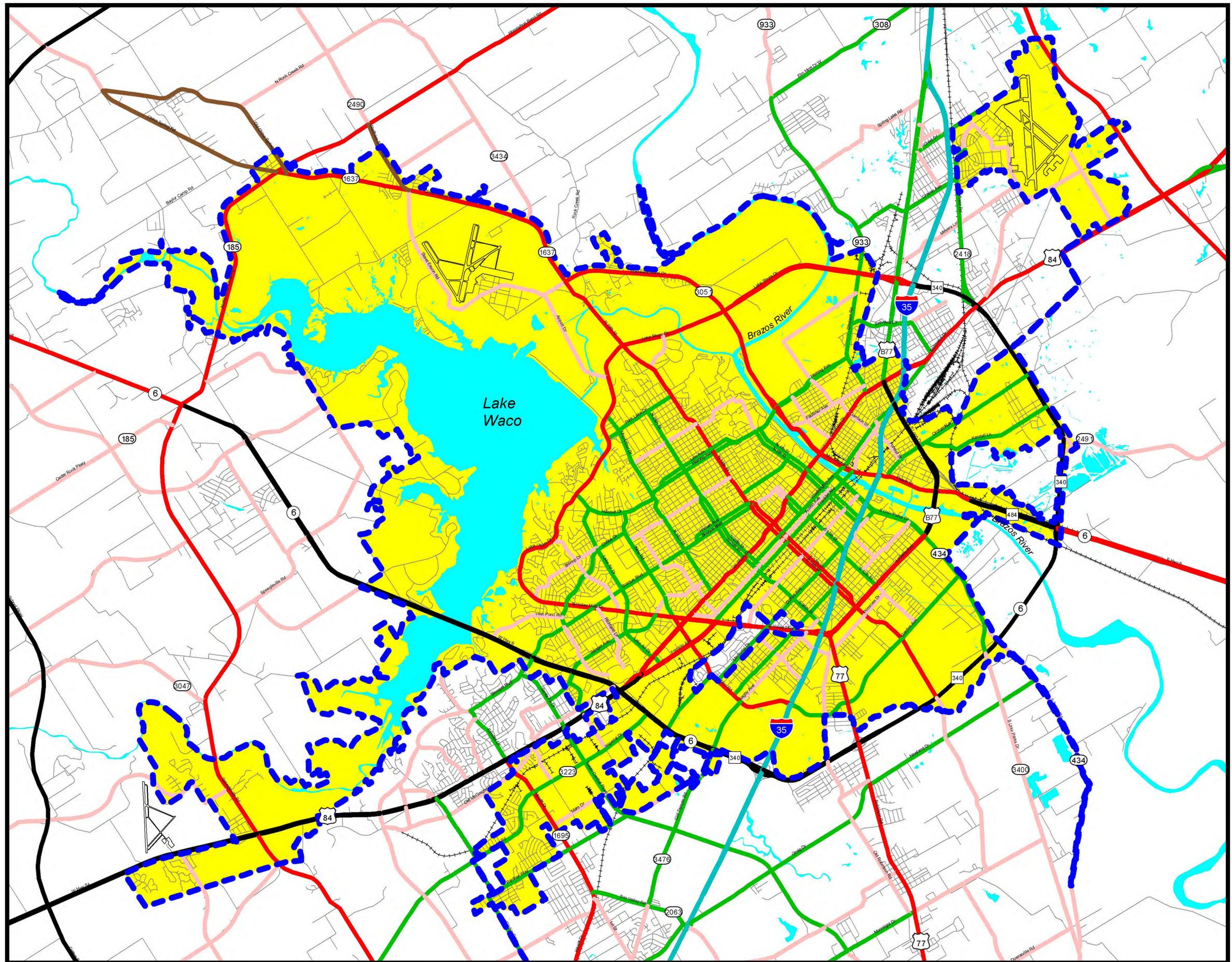
2000 Waco Comprehensive Plan

- Waco City Limits
- Thoroughfare Classifications
 - Interstates
 - Other Freeways
 - Principal Arterials
 - Minor Arterials
 - Rural Major Collectors
 - Other Collectors
- City of Waco



0.5 0 0.5 1 1.5 2 Miles

August, 2001



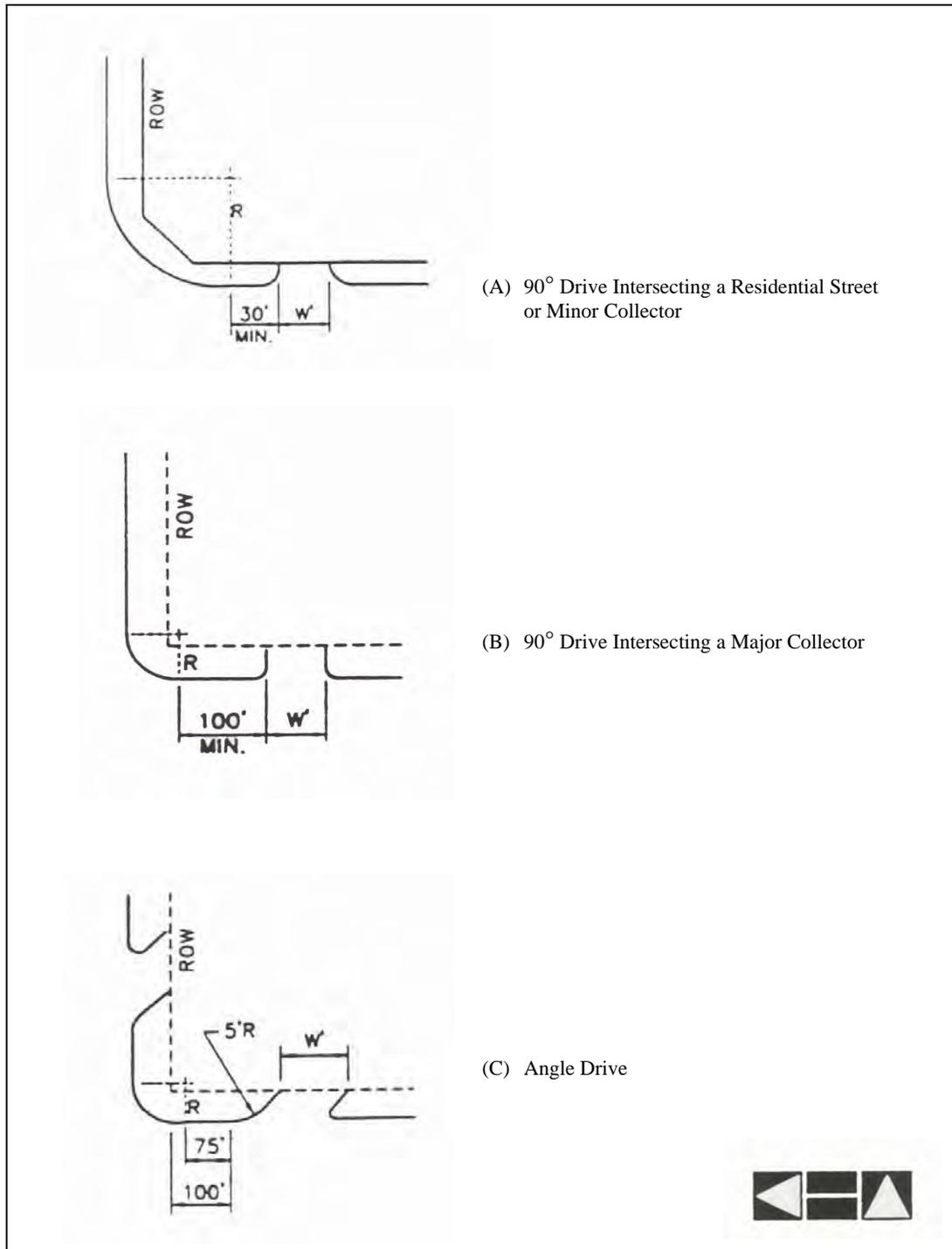


Illustration 3-14
DRIVEWAY CONFIGURATIONS

a pedestrian and bicycle circulation system are discussed in detail within the *Bicycle and Pedestrian Master Plan*, written for the City of Waco in conjunction with the MPO in 1996³⁻².

5. Regional access around Lake Waco.

While Lake Waco offers many advantages to the city, it is also a transportation barrier. The cost of bridging the lake is extremely high. An important planning and development issue will be finding efficient, alternative routes to move increased traffic around the Lake.

A Multi-Modal Transportation System

Significant to the success of a comprehensive, efficient transportation system is the inclusion in the planning process of other methods of transport (i.e., biking, walking, mass transit, and air travel). A review of the current status of transportation modes available in Waco follows.

IMPLEMENTING A BICYCLE & PEDESTRIAN SYSTEM

Many opportunities for hiking and biking exist in Waco, which has a vast array of natural trails and creek

areas that could be developed as part of an off-street trail system (i.e., Cameron Park). However, a *comprehensive* multi-modal system requires both greater connectivity with city streets, and provisions for safety. High-speed thoroughfares and commercial drives, freeways, raised medians, and a lack of sidewalks discourage alternative forms of transportation.

Pedestrian walkways should be required for all new site plans and redevelopment plans, especially for projects located near the Central Business District, along arterials or major collector streets, and in areas where sidewalks are already in place. As previously mentioned, the City of Waco has recently completed a master plan for pedestrian and bicycle circulation. The City should implement this plan incrementally, beginning with acquisition of rights-of-way as appropriate.

Biking and walking, for reasons of health, recreation, or necessity, are alternative forms of transportation the community should encourage. The college/university environment, the Brazos River Corridor, the Central Business District and, most recently, the addition of a hike/bike trail by the Corps of Engineers along Lake Waco, invite many opportunities for alternative modes of bicycle and pedestrian transportation (refer **Illustrations 3-9** through **3-11**).

³⁻² Carter-Burgess, in association with Bowman Melton Associates, Inc. *Waco Urbanized Area: Bicycle and Pedestrian Master Plan*, January 1996.



MASS TRANSIT

The Waco Transit System (WTS) has been owned by the City of Waco since the mid 1970's. Public transit is provided by WTS within the city's corporate limits. WTS includes a fleet of 21 revenue vehicles: 35 passenger buses, five 12- to 19-passenger paratransit mini-buses, and three rubber-tired trolleys. Ten fixed routes operate hourly between the hours of 5:30 a.m. and 6:30 p.m. on weekdays, and from 6:30 a.m. to 6:00 p.m. on Saturdays. Fixed routes originate downtown and end at various points throughout the city. Approximately 2,400 passengers boarded per day on weekdays during 1997.

In order to maximize ridership, increase revenues, and prepare for future transportation needs, the City of Waco and the MPO undertook a study of the WTS in 1998. The resulting Transit Route and Schedule Study³⁻³ recommended terminating some routes with low ridership, adding eight new routes, and expanding numerous existing routes. Mass transit services are needed to and from the outlying communities of Bellmead, Lacy-Lakeview, Beverly Hills, Hewitt and Robinson.

As Waco expands its jurisdictional boundaries, the mass transit needs of developing areas must be incorporated into the planning process. Newly annexed land along Highway

84 and areas possibly annexed in the future must be considered in terms of growth potential and employer needs.

AIR TRANSPORTATION

Three airports serve the Waco area. Waco Regional Airport, located in the northwest area of the city, just north of Lake Waco, is the primary facility. It is served by two carriers, American Eagle and Continental Express, which provide air service to Dallas/Fort Worth and Houston, respectively. Approximately 48,700 people utilized air service from Waco Regional in 1997, according to the Waco MPO. The other airports providing service to the area are the Texas State Technical College (TSTC) Airport, formerly Connally Air Force Base, and the McGregor Airport. TSTC is also the site of several aviation-related industries. Local private pilots also utilize the McGregor Airport and the Waco Regional Airport.

Thoroughfare System Recommendations

As noted in the introduction, the purpose of a transportation plan is to guide the prioritization, budgeting and scheduling of projects, and the purchase of necessary rights-of-way. The transportation plan is a circulation blueprint that ensures inter-connectivity of new and existing roadways. In general, it is

³⁻³ Detailed information on mass transit in Waco can be found within the *Transit Route and Schedule Study*, prepared by LKC Consulting Services, Inc., June 1998.

recommended that linkages between existing roadways be constructed. Specifically, the development of two outer loops is recommended in order to provide the following:

- ◆ Alternative access between U.S. Highway 84 and Interstate Highway 35;
- ◆ Alternative circulation access for local residents, especially as Downtown Waco becomes more congested and as construction is begun on Interstate Highway 35;
- ◆ Management of development west of Lake Waco;
- ◆ Better access to and from the Waco Regional Airport; and,
- ◆ Alternative future commercial trucking routes.

Their proposed locations and linkages are described in **Tables 3-3, 3-4** and **3-5** and are shown graphically on **Plates 3-1** and **3-2**.

Relationship Between Thoroughfares & Neighborhoods

A "neighborhood" is an assembly of subdivisions. *Webster's New World Dictionary* defines it as a community or area, especially with regard to some characteristic or point of reference. The best way to find it is to ask people. "People walk their dogs through their neighborhood but

rarely beyond it"³⁻⁴. Typically, neighborhood parks, recreational centers and elementary schools are situated near the center of the neighborhood. Occasionally, churches are located within the neighborhood, but most often they are located peripherally, near a thoroughfare. As places of safety and community, where one can "walk the dog," and where children can play in their yards or neighborhood parks, neighborhoods should experience the least vehicular traffic possible.

Planned residential design and "traffic calming" techniques can be employed to protect the integrity of existing neighborhoods and new developments. For example, internal neighborhood streets may be arranged in a discontinuous, curvilinear pattern to discourage cut-through traffic. Facilities, such as churches and shopping centers which provide services beyond the immediate neighborhood, and which periodically generate heavy traffic and parking congestion should be located at the edge of neighborhoods, near intersections of major thoroughfares. Most vehicular traffic should be concentrated within the major arterial roadway system and collector streets.

³⁻⁴ Neuhaus, Richard J. and Peter Berger. *To Empower People: The Role of Mediating Structures in Public Policy*, 1980.



**Table 3-3
THOROUGHFARE RECOMMENDATION: CONTINUOUS OUTSIDE LOOP
City of Waco, Texas**

A continuous loop around Waco, outside of Loop 340, will help connect the city to surrounding communities.

From	To	Direction
U.S. Highway 77	F.M. 1860	Eastern (south of Waco)
F.M. 1860	State Highway 6	Northeastern
State Highway 6	F.M. 2491	Northeastern
F.M. 2491	U.S. Highway 84	Northern
U.S. Highway 84	F.M. 308	Northern
F.M. 308	Intersection of IH-35 and Ross Road	Northern (south of the city of Ross)
Ross Road	F.M. 933	Western
F.M. 185	State Highway 6	Southwestern
Intersection of F.M. 185 and State Highway 6	U.S. Highway 84	Southern
U.S. Highway 84	IH-35	Southeastern
IH-35	F.M. 2837	Eastern
F.M. 2837	U.S. Highway 77	Eastern

NOTE: Existing Rights-of-way should be utilized in the construction of these proposed connections whenever possible.

Source: Dunkin, Sefko & Associates, Inc.

**Table 3-4
THOROUGHFARE RECOMMENDATION: NORTH-SOUTH CONNECTION
City of Waco, Texas**

A continuous connection between the areas to the northwestern and southwestern areas around Waco.

From	To	Direction
Intersection of F.M. 1858 and F.M. 933	F.M. 2490	Western (north of Waco)
F.M. 2490	F.M. 1637	Southwestern
F.M. 1637	State Highway 6	Southwestern
State Highway 6	F.M. 3047	Southern
F.M. 3047	Intersection of F.M. 2188 and U.S. Highway 84	Southern
F.M. 2188	F.M. 2113	Southern
F.M. 2113	IH-35	Southeastern

NOTE: Existing Rights-of-way should be utilized in the construction of these proposed connections whenever possible.

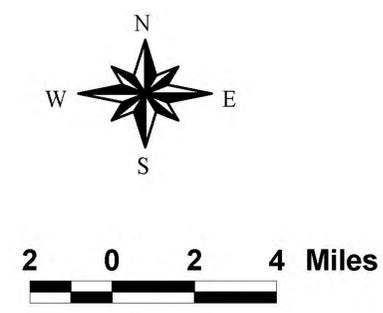
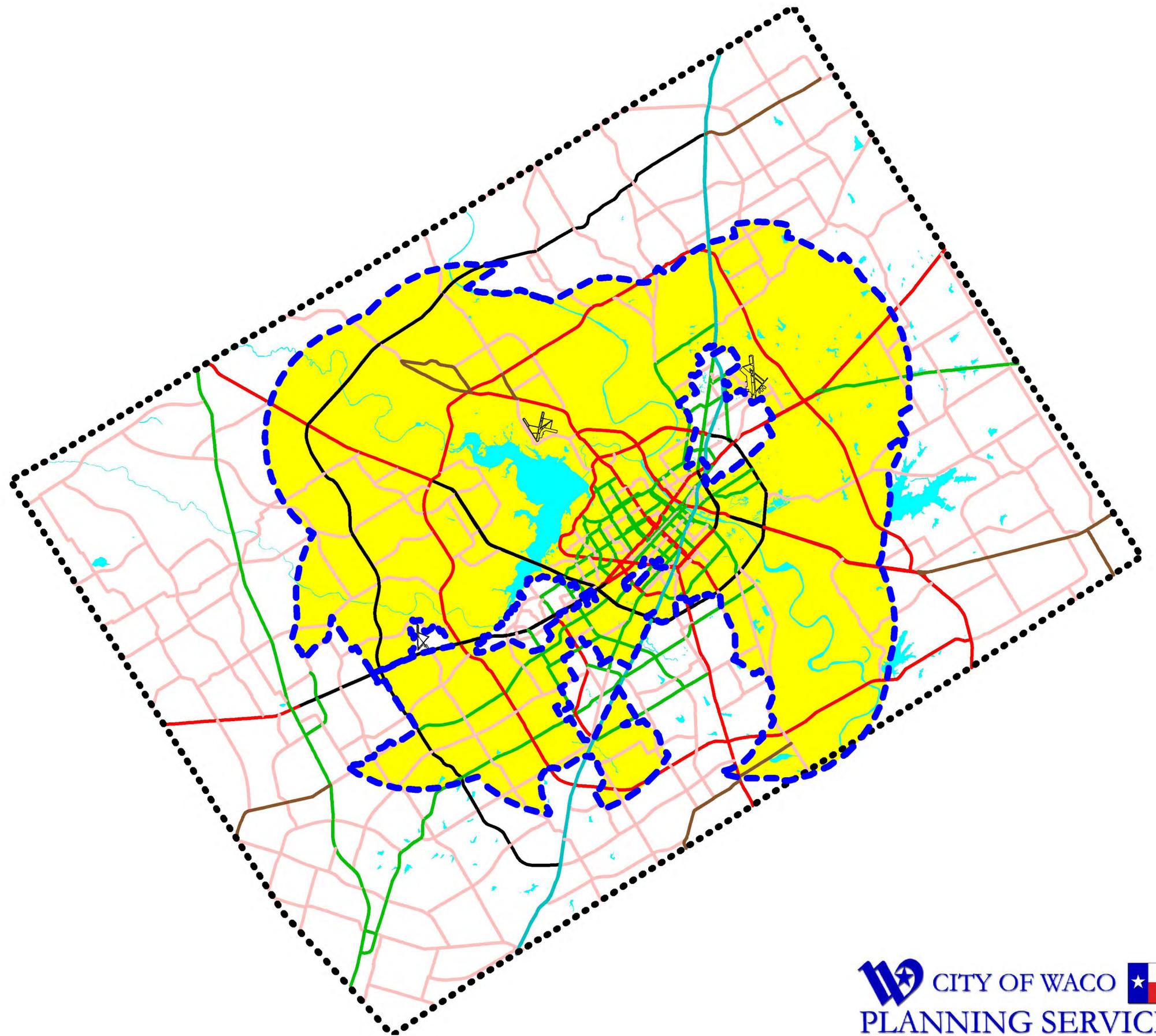
Source: Dunkin, Sefko & Associates, Inc.



Plate 3-2 Thoroughfare Plan for the Waco ETJ

2000 Waco
Comprehensive Plan

-  Waco ETJ Boundary
- Thoroughfare Classifications**
-  Interstates
-  Other Freeways
-  Principal Arterials
-  Minor Arterials
-  Rural Major Collectors
-  Other Collectors
- Waco ETJ**
- 



August, 2001

Table 3-5
THOROUGHFARE RECOMMENDATION: KEY ROADWAY EXTENSIONS
City of Waco, Texas

Several small connections facilitate better movement within and around Waco.

Project	Goal	Location
Expansion of Flat Rock Road	Creation of a complete connection between F.M. 185 and F.M. 1637	North of Lake Waco
Expansion of Farmiller Road	Creation of a complete connection between U.S. Highway 84 and Warren Road	South
Expansion of Kramer Pass	Creation of a complete connection between F.M. 2837 and IH-35	South

NOTE: Existing Rights-of-way should be utilized in the construction of these proposed connections whenever possible.

Source: Dunkin, Sefko & Associates, Inc.

The City of Waco Thoroughfare Plan (refer to **Plate 3-1** and **Plate 3-2**) is recommended as the framework for future residential development and infill development areas. It is designed to accommodate new residential development while protecting the integrity of existing development. Guidelines, including a hierarchy of streets/functions, should be developed to minimize traffic in residential areas.

Through careful preplanning of neighborhood areas, and with the cooperation of developers, the recommended major and secondary thoroughfare circulation systems can be implemented.

Attaining the levels of transportation efficiency and effectiveness envisioned by the Thoroughfare Plan will require cooperation among all levels of government responsible for highway and thoroughfare development. The construction of major thoroughfares in and near Waco has resulted from joint planning and cooperation among City, County, State and Federal entities. The City should continue its coordination efforts with other jurisdictions, as appropriate, regarding the financing and construction of future projects. Additionally, the City's thoroughfare planning should be incorporated in the subdivision platting process provisions for the attainment of



rights-of-way. Chapter 395 of the Texas Local Government Code addresses the issue of developer participation in the construction of roadways. The City should consider developing participation policies for roadway construction, such as the road assessments, or impact fees.

Transportation Planning Policies

Standards and criteria for consistent design practices in new roadway development and redevelopment are based upon transportation-related planning studies and an analysis of existing conditions. Proposed changes and recommendations for future thoroughfares are predicated upon the goals and objectives formulated during the comprehensive planning process.

Recommended policies to guide Waco's transportation planning are as follows:

1. Adopt the Transportation Plan (graphically shown on **Plates 3-1** and **3-2**) as a guide to determine, classify, locate, and schedule roadway development and improvements. Specifically, clear policy direction should be established for all levels of review so that the preliminary plat, final plat, site plan and/or zoning case will be in compliance with plan objectives.
2. Utilize the recommended function and design characteristics illustrated in the transportation plan in conjunction with *Community Image Guidelines* and Subdivision Ordinance specifications.
3. Maintain a minimum level of service (LOS) standard of "C" as described in **Table 3-2**. This standard should be employed in the development review process for all transportation proposals.
4. Develop a long-term, incremental project implementation program that incorporates the budgeting, prioritization, and scheduling recommendations presented in this comprehensive plan.
5. Establish a policy for developer participation in project financing (i.e., construction of off-site streets or street improvements necessary for access to their developments) and implement this through specific provisions of the City's Subdivision and Zoning Ordinance.
6. Continue to seek joint funding initiatives for transportation planning with TxDOT, the MPO, and other local jurisdictions, such as surrounding communities and McLennan County.
7. Review and update the City Transportation Plan on an annual basis. *(Changes corresponding numbers)*

8. Establish a comprehensive approach to street development and design through guidelines that include provisions for ADA-accessible pedestrian walkways and amenities, bike lanes, equestrian pathways, signage, lighting and air quality and aesthetic enhancements. Encourage citizen participation in planning (i.e., street-widening projects).
9. Explore alternatives for increasing roadway capacity prior to initiating roadway expansion or widening in residential areas.
10. Limit the locations of commercial and other nonresidential land uses that generate high volumes of traffic to arterial streets and thoroughfares.
11. Except as specifically approved by the City within special districts, require adequate on-site parking in all development plans. Implement this policy through specific provisions in the City's Subdivision and Zoning Ordinances.
12. Continue to incorporate Plan recommendations into all transportation projects in order to further the effort of establishing a comprehensive multi-modal circulation system.
13. Continue plans to improve and expand an efficient system of mass transit, addressing the issues of air pollution, traffic congestion and mobility needs of citizens.
14. Establish policy for acquiring necessary rights-of-way when development requires property replatting.

Thoroughfare Implementation

In the implementation of its thoroughfare development, the City of Waco has relied upon three sources of funding: (1) the construction of facilities solely funded by the City; (2) joint participation with other jurisdictions, i.e., the County and/or the State; and (3) developer participation. While cities may continue to require road construction and participation assistance from developers under certain circumstances, including assistance with water and wastewater plants and thoroughfares, recent changes to Chapter 395 of the Texas Local Government Code necessitate review and possible revision of current administrative processes related to roadways. The City should examine these changes in order to ensure that it continues to maximize its opportunities in planning and development processes.

Recommended actions in the administration of the Transportation Plan are as follows:



(1) Coordination of Capital Improvements

As applicable, coordination with TxDOT and/or McLennan County for the joint planning and cost-sharing on projects is recommended. Where the City assumes sole responsibility for the construction and financing of transportation needs, a long-term (20-30 year) plan for the incremental construction and financing of projects is recommended.

(2) Subdivision Control

The subdivision of land into building sites represents the first step in the development of urban land uses and the creation of potential traffic generators. Rights-of-way must be acquired at the time of subdivision platting to guarantee the provision of adequate thoroughfares and the value, stability, and character of the area in development **Specifically, as individual plats are approved, right-of-way must be dedicated in concert with the recommendations and schematics set forth in the Transportation Plan.** Especially important is the planning and reservation of rights-of-way in the ETJ as specific roadways are planned and sited.

(3) Zoning and Land Use Control

All zoning and land use changes must be made within the context of existing roadways as well as planned thoroughfares (i.e., those described within the Transportation Plan). The City must ensure that rights-of-way for thoroughfares are commensurate with the envisioned land uses.

(4) Building Lines

To ensure the orderly and uniform development of thoroughfare frontage and thoroughfare function, the establishment of building setback lines by ordinance is recommended in order to accommodate acquisition and expansion of rights-of-way as needed and as appropriate.

(5) Other Considerations

It is recommended that design and technical standards be adopted to ensure the uniform administration of project development in the areas of access controls along major arterials (i.e. joint or shared access to mitigate traffic congestion), and sight and visibility standards. It is further recommended that the City adopt a policy of assessing impact fees as the community continues to expand and develop.



Section 4 HOUSING STRATEGIES



City of Waco



Comprehensive Plan 2000

INTRODUCTION

Waco is a community of people who care about their homes. The purpose of this section of the Comprehensive Plan is to address the present character and quality of neighborhoods in Waco. The Plan discusses strategies for the stabilization and rehabilitation of deteriorating housing stock and the preservation of older neighborhoods, as well as guidelines for new residential development.

HOUSING & NEIGHBORHOOD AREAS

For purposes of urban planning, a neighborhood is a residential area in the community with boundaries demarcated by thoroughfares, collector streets, or other man-made or natural features. The neighborhood may vary in size from several blocks to 900 acres. Yet, a neighborhood is much more than the sum of its physical structures. A neighborhood is also defined by a sense of community and quality of life enjoyed by its residents. Good housing occupied by proud residents comprises a healthy neighborhood, regardless of its geographic terrain. A neighborhood is the setting in which residents may develop a sense of belonging, through their interactions, common interests, and by simply “being neighbors.”

Each neighborhood is unique, and it is that uniqueness which makes neighborhoods difficult to define with any degree of precision. However, for residential development and planning purposes the following factors should be considered:

- ♦ Physical condition of housing units;
- ♦ Opportunities for social interaction;
- ♦ Careful and strategic placement of public and retail land uses;
- ♦ Proximity to schools, churches, and recreational facilities;
- ♦ Accessibility to emergency services such as fire, medical and police;
- ♦ Adequate lighting and other features which foster the feeling of safety;
- ♦ Continued investment in public and private property to stabilize property values;
- ♦ Acceptable level of owner-occupied dwelling units;
- ♦ Condition of public facilities and infrastructure serving the area; and
- ♦ A sense of “community” and “belonging” among residents.

A successful neighborhood is the creation of a sustainable environment where ongoing investment in property is supported by public investment in schools, parks, greenspace, and infrastructure, where there are opportunities for social interaction, where there is accessibility for pedestrians, bicyclists and

vehicles, and where distinctive characteristics are apparent, which give an area a unique identity.

RECOMMENDED HOUSING STRATEGIES

The quality and livability of Waco's neighborhoods are integral to the community's overall character and quality.

Upkeep and maintenance of both private and public property are critical to neighborhood viability and sustainability. Maintenance of neighborhoods and facilities also affects the larger community. If left unabated, blighted areas create a 'ripple effect,' which impedes other civic objectives, including such actions as economic development and private investment.

Thus, it is in the public interest to maintain the highest possible housing quality and environmental character within each neighborhood area. Cooperative action by property owners, tenants, the municipality and volunteers will be required to maintain and upgrade the quality of housing. The City of Waco has recognized the need to address areas where housing stock is deteriorating and/or where structures are beyond rehabilitation. As outlined in the "Housing" chapter of the *Baseline Analysis* Section, the City of Waco's Housing and Community Development Services Department has initiated several programs to elevate the condition of housing to

acceptable levels; specifically, four "Impact Areas" within the central city where neighborhoods are in various states of decline have been targeted.

The following four strategies aim to encourage owner-occupied housing, promote maintenance and/or rehabilitation of aging housing; and to address redevelopment/infill issues. The Impact Areas are delineated on **Plate 4-1**, along with the areas designated for each housing strategy described.

Neighborhood Preservation

One of the greatest assets of the community is the large number of historic structures within the city's older neighborhoods. These reminders of Waco's proud heritage give the city a sense of history and continuity that is unique and worthy of preservation.

In areas where sound, quality housing and a reasonable complement of community facilities exist, a preservation strategy is appropriate. The purpose of the Neighborhood Preservation Strategy is to sustain and protect existing desirable conditions through enforcement of local statutes such as zoning ordinances, building codes, and other applicable regulations intended to protect the public health, safety and welfare of the community. Neighborhood Preservation includes the provision and maintenance of adequate utilities, and community



facilities, such as parks, playgrounds, schools and streets. Preservation efforts should minimize the need for future rehabilitation programs. As part of normal planning, community development, and code enforcement, the Neighborhood Preservation strategy can be furthered by appropriate City departments.

Housing Rehabilitation and Maintenance

The Housing Rehabilitation and Maintenance strategy is appropriate where the housing units are substantially sound, but are in need of minor repairs. “Minor repairs” are defined within this section as repairs that can be accomplished without excessive cost to the property owners, or can generally be achieved by the property owners themselves.

Approximately 10,000 structures, or 36 percent of the City’s housing stock, fall into this category, described in the *Baseline Analysis* section as “Type 2” units. “Type 3” units, which require more intensive repair and are at risk of further deterioration, may also be addressed by this strategy. Currently 1,400 “Type 3” units in the city are appropriate for rehabilitation. Other units have declined so severely as to be subject to clearance programs (discussed below).

Due to the fact that housing rehabilitation programs have an area-wide focus, it is important that community support be solicited through (1) establishment of an organizational structure and process to clarify goals and ensure accountability; (2) procurement of financial assistance; (3) consultation with property owners needing assistance; and, (4) establishment of a system for feedback and continued contact with property owners to encourage continued maintenance of the structures.

Property Clearance and Redevelopment

Redevelopment is the demolition, removal, or clearance of structures and preparation of the lot for new construction (usually residential). Redevelopment is necessary when housing reaches such a state of deterioration that rehabilitation becomes unfeasible.

As noted in the *Baseline Analysis* section, a recent survey of obsolete dwelling units (in which exterior conditions only were considered) found only 100 structures out of 30,000 single-family units, or 0.3 percent, that were considered beyond the point of rehabilitation and therefore needed clearance action. Funding for clearance and redevelopment is limited. It is recommended that the City consider increasing its allocation for clearance and infill development.

Development Guidance

The standards for new residential development should be high enough that maintenance and preservation strategies become necessary only over time. Development guidance, either during the stages of zoning change or subdivision approval, provides City staff with an opportunity to ensure that the City's commitment to quality will be reflected in residential design and development of lasting value and stability. The enforcement of the City's Subdivision Regulations, Zoning Ordinance, building codes and minimum housing standards is critical to the maintenance of housing stock and to the high standards of community development to which the City is committed.

Housing Strategies for Waco

The majority of housing in the city is amenable to preservation, rehabilitation, maintenance or development guidance strategies. **Plate 4-1** depicts the recommended housing strategies for the city at large and for the Impact Areas located in the central part of the city. Each area has been targeted based upon one or a combination of the four strategies. Due to the fact that almost 95 percent of the housing units in Waco are classified as Type 1 or Type 2, severe strategies (such as clearance and redevelopment) are not necessary on a large scale. **Plate 1-3** (in the "Baseline Analysis" section) shows the overall condition of

existing housing units within Waco. It is recommended that the Type 2 units that have been identified (10,000 units) be immediately addressed for several reasons:

- ♦ The structures will contribute to Waco's future stock of affordable housing. New housing of equal size and quality could not be constructed and sold at the same price ranges of these units.
- ♦ Over a period of time, these areas can further deteriorate, such that preservation or rehabilitation will no longer be an option
- ♦ Many of these homes are part of Waco's architecturally significant and/or historic homes inventory.
- ♦ If the deterioration of housing/neighborhoods is not addressed, the decline may migrate to surrounding areas.
- ♦ The overall image or "quality of life" of the community can be enhanced through consistent oversight and action targeted on areas of decline.

Need for Public Awareness

A potential problem is the City's high rate of renter-occupied units (approximately 50 percent). It is critical that maintenance and code enforcement programs be coordinated with owners and landlords.



For property owners who need assistance, the City should continue to develop and administer programs through which owners and volunteers may upgrade housing (i.e., neighborhood clean-up and light maintenance programs). As previously mentioned, the majority of houses can be upgraded through painting and other minor repair work, maintenance that can be addressed by volunteer organizations. The City can coordinate the allocation of resources based upon prioritization and scheduling of the units in each area designated for rehabilitation (refer to **Plate 4-1**).

Currently, flexible loan programs for rehabilitation and/or reconstruction of housing stock are available through the City's Housing and Community Development Services Department. These programs are described in detail in the "Housing" chapter of the *Baseline Analysis* Section. However, since many families are unable to qualify for financial assistance due to poor credit histories or lack of financial experience, a City department, agency or other appropriate organization should be available to offer expertise and guidance to homeowners or prospective homeowners needing low-interest loans. As part of the City's neighborhood revitalization efforts, this service could be provided at no charge for homes located within one of the designated infill areas.

The City, then, should work closely with financial entities in the community. A commission or coalition representing City staff, local financial institutions, Community Housing Development Organizations (CHDO's), and faith-based organizations should be created to help residents secure assistance in the purchase, maintenance, rehabilitation or reconstruction of housing.

It is recommended that the City initiate an aggressive public awareness campaign in order to inform residential property owners about the loan programs available for rehabilitation and reconstruction of homes. If citizens are aware that financial assistance may be available for upkeep and maintenance, the City may be able to divert some of the funds dedicated to 'red tagging' and demolition to renovation or replacement of substandard housing.

Residential Preservation and Design Districts: A Strategy for the Inner City

Waco has a large inventory of historic homes representative of the architectural and cultural history of the community. The neighborhoods in which they exist are distinguished from other neighborhoods by their character and charm. The integrity and uniqueness of older residential neighborhoods are irreplaceable. When stabilized and made secure, these neighborhoods attract families and invite reinvestment into the area.



2000 Waco Comprehensive Plan RESIDENTIAL STRATEGIES

Legend

1 - Neighborhood Preservation

This strategy is to sustain and protect existing desirable conditions through enforcement of local statutes such as zoning ordinances, building codes, and other applicable regulations intended to protect the public health, safety and welfare of the community.

2 - Housing Rehabilitation & Maintenance

This strategy is appropriate where the housing units are substantially sound, but are in need of minor repairs, defined within this section as repairs that can be accomplished without excessive cost to the property owners, or can generally be achieved by the property owners themselves.

3 - Clearance and/or Redevelopment

This strategy is necessary when housing reaches such a state of deterioration that rehabilitation becomes unfeasible. A very small number of units were considered beyond the point of rehabilitation and therefore are in need of clearance action.

4 - Development Guidance

This strategy is intended to be used either during the stages of zoning change or subdivision approval, and should provide City staff with an opportunity to ensure that the City's commitment to quality will be reflected in residential design and stability.

5 - Austin Ave. Conservation & Design District

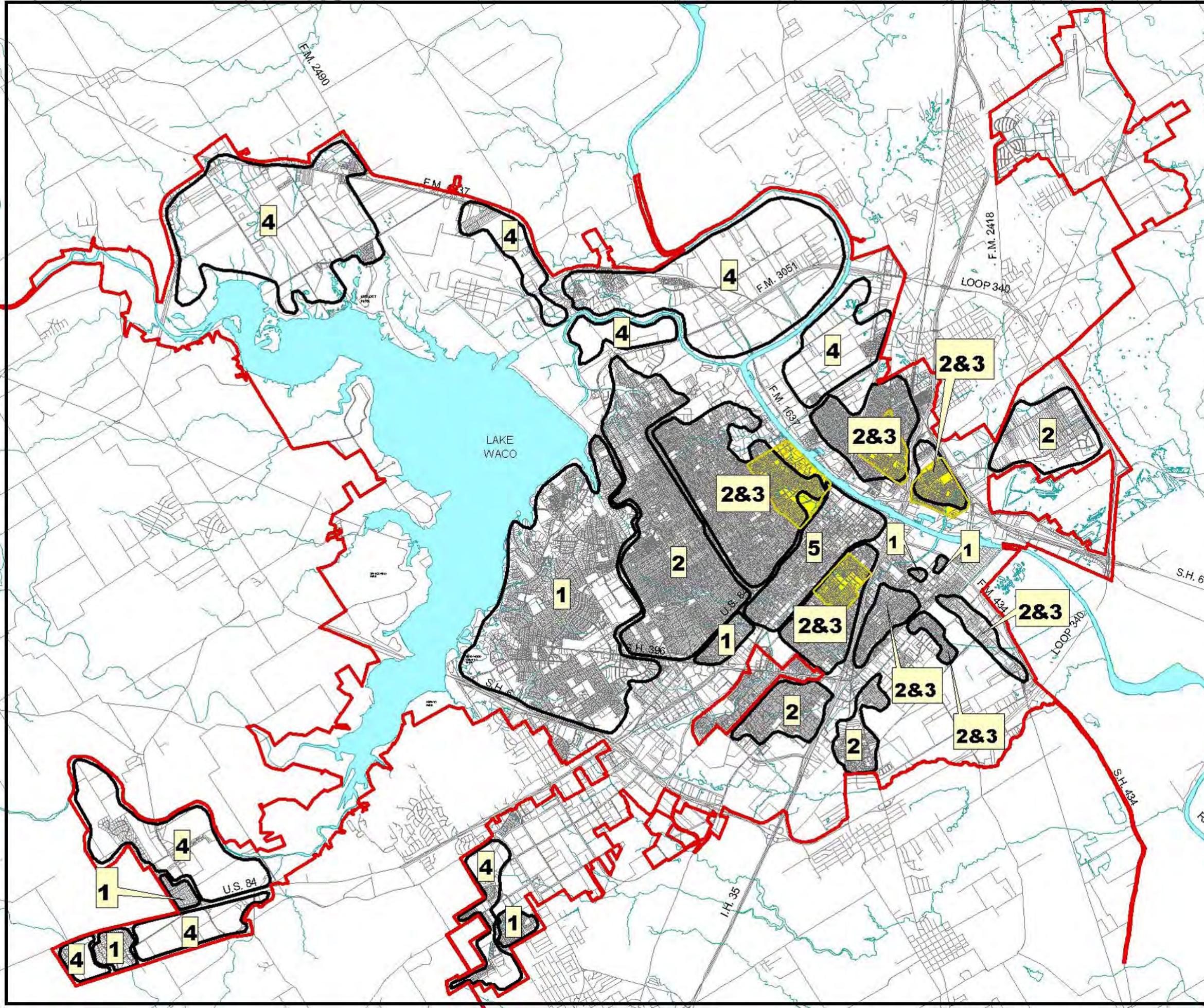
This zoning designation is recommended in order to protect and conserve the character of neighborhoods which may not have a predominance of 'historic' or 'architecturally significant' areas, but which do have an ambiance that distinguishes it from other neighborhoods.

Housing Impact Areas

City Limit



PLATE 4-1



It is recommended that the City consider the establishment of a Neighborhood Conservation Overlay Zoning District. While the City's present Conservation District designation focuses on density ratios in relation to architecturally and historically significant structures, the Neighborhood Conservation Overlay Zoning District would emphasize design and development standards for structures. The Neighborhood Conservation Overlay District concept is as follows:

- ◆ The district designation would be amenable to areas of architectural, historical, archaeological and/or cultural significance and public benefit. It does not necessarily have to include a 'majority' of individual, historically significant structures.
- ◆ The district could be expanded to accommodate infill development that correlates with and complements the general character and identity of the area. A review process that examines the architectural style of every structure would not be applicable.
- ◆ Development standards and overall building design, rather than specific architectural characteristics, would be reviewed.
- ◆ Benefits of establishing a Neighborhood Conservation Overlay Zoning District include:

- Buildings need not meet state or national design standards.
- Preservation of existing neighborhood character and identity.
- Identification and establishment of the broad design elements of the area that give the area its unique character (examples include street design, building setbacks/heights, basic architectural design elements, etc.).
- Provide suggestions on architectural renovation and maintenance, and can provide incentives and strategies for rehabilitation.

The purpose of the Neighborhood Conservation Overlay Zoning District is to complement areas and structures that are currently protectively zoned, including previously identified historic structures. The expanded preservation district will ensure the area's existing scale and "sense of community" through the establishment of standards related to compatibility, including elements such as building design and setbacks for new infill development. It would stabilize the neighborhood, for example, through oversight of height, scale, and materials, though not necessarily architecturally specific features. The following criteria for the Neighborhood Conservation Overlay Zoning District are recommended:

◆ Requirements pertaining to infill development:

- Structures should be required to have the same setbacks as adjacent existing buildings.
- Building heights of structures should be limited to the same approximate height as existing adjacent structures.
- The distance between structures must be the same as that of adjacent structures.
- The basic shape and form of the facades should be compatible with the existing overall neighborhood façade design.
- Roofs and pitches should be similar or complementary to extant structures in the neighborhood.
- Exterior design/construction should be compatible with adjacent or nearby historic structures.
- Prototype floor plans, elevations, and examples provided by the City would guide development for the district.

◆ Requirements pertaining to existing structures:

- Exterior modifications to existing facades should be consistent and compatible with the character and style of the existing facades if the structure is identified as an historically or architecturally significant structure.
- Additional guidelines should be developed for renovation or expansion of existing structures.

In summary, the conservation district is recommended to supplement current conservation districts. This zoning designation is designed to protect and conserve the character of neighborhoods which may not have a predominance of ‘historic’ or ‘architecturally significant’ areas, but which do have an ambiance that distinguishes it from other neighborhoods.

One area that is currently suitable for such a district is the area encompassed by North 5th Street to the northeast, Franklin Street to the southeast, 26th Street to the southwest, and Waco Drive to the northwest. This “Austin Avenue Corridor” could be developed and used to create a better identity for, and an increased recognition of, this area. **Plate 4-1** shows the location suggested for the Austin Avenue Conservation and Design District.



Housing Types and Intensities

The availability of a mix of residential densities and housing types in the city provides residents a range of choice in location and affordability. In accordance with the *Future Land Use Plan* and the *Transportation Plan* (sections 3 and 8, respectively), residential development opportunities range from single-family to multi-family. A gradient of zoning categories further distinguishes specific features and requirements (refer to “Existing Zoning Characteristics” within the *Baseline Analysis*, Section 1). For example, medium- and high-density housing is situated near major thoroughfares and public services/facilities to accommodate larger pockets of population. Conversely, low-density residential areas may be adjacent to thoroughfares, but are less likely to be penetrated by arterials and major collector streets.

Currently, Waco’s housing mix consists of approximately 30 percent multi-family dwellings. This ratio is adequate in addressing the housing needs of city residents. Moreover, flexibility has been incorporated into the planned housing mix of the city, as shown by the *Future Land Use Plan* (refer to **Plate 8-1**); the Plan endorses the concept of high intensity residential land uses along major thoroughfares, with gradually less intensive residential land uses buffered from such thoroughfares. For example, an area can be planned for multi-family or apartment units adjacent to a major roadway, which buffer duplex units, which in turn

buffer single-family detached homes within the interior of the neighborhood development. In this way, a property owner can choose to develop a particular housing type, and diverse housing options will be available for future residents

Affordable Housing

Housing affordability remains a key issue for cities throughout the country. While the city of Waco offers a variety of housing types and densities, many residents of the community are unable to purchase or maintain a home (such as low-income young families, single working parents, and seniors on fixed incomes). It is recommended that the City conduct a survey to examine by age group the need for multi-family housing and rental properties to project housing needs of the future population.

The City may also experiment with prototype housing for lower-income families: homes that might be developed in ‘infill’ areas of a neighborhood, such as a Neighborhood Conservation Overlay District. The additional overlay district would ensure conformity of design and construction standards. The aforementioned public awareness campaign targeting development, rehabilitation and redevelopment of housing stock, the availability of grant programs, and the City’s commitment to affordable housing could provide the motivation needed to create a model of regional distinction within the city of Waco.

HOUSING POLICIES

Following are recommended housing policies for the City of Waco:

1. The Comprehensive Plan's *Future Land Use Plan* (refer to Section 8) should designate sufficient land for residential uses to meet the needs of the community's projected population, yet retain flexibility to accommodate other uses as needed.
2. The designated residential land use should be in proximity to areas where adequate services are currently available to meet the projected population growth over the next 20 years.
3. The City should establish a coalition of agencies to cohesively facilitate home ownership (including City departments, local financial institutions, non-profit housing agencies, faith-based organizations, etc.).
4. The City should undertake an aggressive public relations campaign related to local housing opportunities, including the availability of grant programs and financial assistance for rehabilitation and redevelopment projects.
5. Approved credit-counseling agencies should be identified or established in order to assist first-time homebuyers.
6. The City should continue to identify existing substandard housing units, and should encourage the revitalization and rehabilitation of these structures. The City should develop a framework for a consistent volunteer housing maintenance program for those areas identified for rehabilitation on **Plate 4-1**.
7. Code enforcement should operate concurrently with awareness and assistance programs for rehabilitation.
8. Awareness of the housing needs of senior citizens and support of housing designed for older citizens should be a priority.
9. Similarly, awareness and encouragement of housing that addresses the special needs of the physically challenged should be incorporated into the City's housing goals.
10. The City should identify areas appropriate for various of housing types including conventional single-family homes, patio homes, multi-family units, and areas for infill housing to ensure a range of housing alternatives for future population groups. The targeted ratios for various types of housing

- should remain at approximately the same levels as currently exist.
11. The City's Zoning Ordinance should include appropriate zoning districts that implement the residential density classifications recommended in the Plan.
 12. The City's development regulations should include mechanisms allowing for flexibility and innovation in design such that efficient land use and environmental sensitivity may be addressed.
 13. The City should consider additional incentives for infill development.
 14. Development and redevelopment in a neighborhood should be comprised of housing similar in density and compatible with existing homes in the neighborhood.
 15. The City should encourage the use of design techniques that promote housing compatibility between adjacent residential areas that have developed at different residential densities with different types of structures.
 16. The City should evaluate all development requests based upon the following ultimate mix and density of residential uses within a neighborhood area:
 - (a) Multi-family and other high density residential (over 10 units per acre) should be limited to 30 percent of the total expected, or ultimate, dwelling units within a given neighborhood area; An exception for areas near the campuses of colleges and universities should be made. High-density residential development, clustered around, and within walking distances of, campuses are preferred. Also encouraged is the continued conversion of warehouse and commercial structures in the downtown area to loft apartments.
 - (b) With the possible exception of college and university areas, all medium- and high-density residential developments should have principal access to a major or secondary thoroughfare; and
 - (c) Single-family housing areas should include a mixture of lot sizes.

AVAILABLE HOUSING PROGRAMS

The City of Waco should ensure that the following programs provide incentives for infill housing. Additional consideration for grant monies should be given to those entities intending to construct dwelling units similar in architectural scale and style to those currently existing in a neighborhood.



Community Development Block Grant Program (CDBG)

This type of grant can be used to revitalize neighborhoods, expand affordable housing and economic opportunities, and improve community facilities and services. A minimum of 70 percent of all the funds must be devoted to programs and activities that benefit low- and moderate-income individuals. The use of funds for housing programs is limited to housing rehabilitation, and to financing associated subsidies and/or guarantees. New construction is prohibited. Cities may use grants in a number of ways, including reconstruction or rehabilitation of housing, construction of public facilities (i.e., streets, water and sewer systems), provision of public services to youths, seniors or the disabled, and assistance for low-income homebuyers.

HOME Investment Partnership Program (HOME)

This program is administered by the Department of Housing and Urban Development (HUD) with funds allocated to states and local governments. The program was established to expand the supply of affordable housing for low- and moderate-income families. Funds can be used for acquisition, rehabilitation and new construction of housing, or for the provision of direct rental assistance to low-income families. Monies may also be expended for financial assistance

in the form of grants, deferred loans, amortized loans, and other HUD-approved financing mechanisms.

Community Housing Development Organizations (CHDO)

A CHDO is an organization that facilitates the purchase of affordable housing by low- and moderate-income families. Three organizations in Waco have been designated as CHDO's: Neighborhood Housing Services of Waco, Inc. (NHS), the Economic Opportunities Advancement Corporation (EOAC); and, Waco Habitat for Humanity. CHDO's have the authority to manage projects relative to particular properties and the type of construction or rehabilitation that will occur; terms of sale, or rent will be.

Emergency Shelter Grant Program (ESG)

This program is designed to assist the homeless population by initiating the process of independent living through the initial provision of emergency shelter and related social services. Grant monies may be used for the rehabilitation/conversion of structures for use as homeless shelters, or for the funding existing shelters' overhead costs and expenses. Local jurisdictions are required to meet a 50-50 match of grant funds.



Waco Habitat for Humanity

This is a 501(c)(3) nonprofit organization that builds and rehabilitates homes in partnership with low-income people. Houses, sold at no profit to pre-qualified, low-income families, are financed through no-interest mortgages. Mortgage payments are returned to a revolving fund, which is used to finance more construction. Pre-qualified homeowners are required to invest “sweat equity” hours into the Habitat project. The organization utilizes volunteer labor, monetary, and in-kind donations to build houses. This organization has already established a presence in Waco by being a key player in the “Raise the Roof Day”.

A community development corporation is organized under state charter and federal guidelines for 501(c)(3), private, non-profit corporations. Community development corporations generally rely upon fundraising efforts to capitalize its programs. Funding sources may also include CDBG or HOME funds from the local government or state grants. Community development corporations typically undertake smaller projects which are less profitable to a bank lender. The corporation may lend money directly or utilize the funds as a guarantee for conventional bank loans. Community development corporations usually have a clear, concise mission statement, a group of active community volunteers, and are managed by financially skilled, knowledgeable administrators.

Community Development Corporation

A community development corporation is a local, private, nonprofit corporation formed to address special needs of a community, such as the revitalization of lower- and moderate-income neighborhoods. The organization generally focuses on one or more of the following issues:

- ◆ Housing rehabilitation;
- ◆ Commercial business development; or,
- ◆ Social services.

Additional Information

It should be noted that additional information for available housing programs in Waco is available through the City’s Housing and Community Development Services Department.



Section 5
PUBLIC FACILITY
MASTER PLAN SUMMARY



City of Waco



Comprehensive Plan 2000

HISTORY

An initiative was started in 1999 to develop a facilities plan as a framework for efficiency to meet the growth and technological challenges evolving in the City of Waco. The plan began due to a requirement for a long-term view to more effectively use scarce facility dollars while meeting the City Council goals related to satisfying citizen needs and providing quality infrastructure. The current facility inventory consists of various facilities built over twenty years ago and consisting of a range of functional and physical conditions and located at sites across the City for a myriad of customer and employee support capabilities. This plan proposes to take advantage of opportunities for efficiencies by consolidating facilities with similar functions into new facilities, updating salvageable facilities to meet code and functional requirements and demolishing or selling obsolete facilities that are not practical to update.

Staff began to develop the elements needed for a long-term Facility Master Plan for all City of Waco buildings in the spring of 1999. These elements addressed the current status of City facilities, an overall assessment of needs, general standards for maintenance and construction, recommendations, and a Capital Improvements Program (CIP) that supports the recommendations. An inventory of City buildings was completed. There are 132 City buildings that are used

for administrative, field, customer, emergency, special event, production, cultural, exhibit, recreational, and service activities. The inventory is continuing to be updated as changes occur.

FACILITY PLAN ASSUMPTIONS

The Facility Master Plan is based on several assumptions, including the following:

1. Staffing level continue for facilities services to support elements of the plan.
2. Continued funding support for regular maintenance and repair of existing facilities through the CIP for key work requirements.
3. ADA compliance issues will be addressed during major repair projects and new construction; and an update study will be accomplished to refine cost estimates to meet the latest guidance.
4. Renovation and new construction projects will meet operational requirements and comply with applicable building, fire protection, safety, security, and ADA codes, and proposed City building standards.
5. New construction and major repair projects will incorporate high efficiency lighting and



HVAC systems, low maintenance features, technology upgrades, and structural flexibility for future organization changes.

6. For the purposes of a building inventory list for use with CIP program, the inventory will count buildings which have a functional activity located in them such as an office or shop, or provide direct support such as a storage building, and utilize building maintenance support from Facilities. Other minor buildings such as park restrooms, pavilions, picnic shelters, and lift stations are not counted since annual maintenance funds would normally be used.
7. The goal to reduce the number of City buildings will continue to be supported through a new construction for the consolidation or improved operations for City functions and the sale of marketable buildings.
8. Funds from sale of marketable facilities will continue to be available to aid in funding replacement facilities.
9. Obsolete facilities that are not marketable will be demolished as replacement facilities are constructed and the land is disposed as practical.

EXECUTIVE SUMMARY

The purpose of the facility master plan is to build on the current capital improvement program and to present a comprehensive vision over ten years for the development and maintenance of City of Waco facilities. It is intended to provide an integrated approach and a context for action planning and long-term funding strategies to deliver the right facilities when needed. It will complement the normal budget and Council approval process. This supports the Goals of Quality Infrastructure through maintaining an infrastructure that meets the needs of the City of Waco with efficient, clean, accessible, and safe facilities. Some objectives of the plan are:

1. Establish a framework for efficiency over a ten-year period to anticipate and track long-range facility need; be consistent with the City's planning goals and funding strategies; serve as a planning baseline for the annual budget and CIP development, and accommodate growth and technological change with facility projects programmed and delivered at the right time.
2. Update the facility master plan at least annually and continue to gather and consolidate functional inputs as new facility and budget information is generated.
3. Maximize efficient use of salvageable facility resources through a strong annual

- maintenance program with the steady investment of funds to implement the quality infrastructure goal.
4. Develop comprehensive facility resources to meet operational requirements and City goals and coordinate the development process with City and Council representatives.
 5. Provide facilities that will establish a positive environment for City employees and citizens and facilitate delivery of quality services.
 6. Incorporate requirements of building, safety, fire protection, security and ADA codes with new construction and major facility repair projects.
 7. Utilize facility space and energy efficiently, and incorporate capabilities in projects for future development and high technology improvements.
 8. Meet imminent facility needs effectively and efficiently without compromising the long-range plan.
 9. Streamline the number of City buildings by identifying buildings not needed for the long-term, by sales of marketable buildings, and by demolishing buildings that are obsolete or not marketable.
 10. Develop programs and proposals for upgrading salvageable buildings to ensure efficient use.
 11. Develop plans and proposals for new or consolidated facilities and renovations based on organizational and functional needs; avoid a cookie-cutter design approach and satisfy the individual requirements of the function in the context of City of Waco standards and goals.
 12. Develop timely funding strategies since projects will be contingent upon availability of varied funding such as cash reserves, reprogrammed bonds, bond sales, donations, grants, property sales, and other sources.

BUILDING STANDARDS

The development of planning and design building standards are intended to more efficiently and consistently convey the City of Waco requirements and preferences when developing a facility design for new construction or major repair projects. It is not intended to cover all details of a building, but is to be used as a reference and augment the Engineering Services Manual developed for road and utility infrastructure projects. It does not substitute for the technical competence expected of a design or engineering professional.

The proposed standards consist of five parts:

1. General conditions,
2. Site development,
3. Building development,
4. Specifications,
5. Other requirements.

The primary reference item for design will be the building standards once coordinated through the City of Waco departments. There are general principles that are incorporated and will be followed:

- ◆ Buildings will be designed for maximum structural flexibility to accommodate organizational changes and new technologies.
- ◆ Efficient space utilization in support of functional requirements will be the primary goal; one component of this goal to be considered always will be shared use of common resources and assets such as high-speed copier centers, main conference rooms, break rooms, and training areas.
- ◆ High efficiency lighting systems, low maintenance heating, and air conditioning (HVAC) systems and standard energy management systems will be incorporated into

all facilities for energy consumption and for better reliability of service.

- ◆ Site analysis will be conducted for factors that physically, environmentally, and aesthetically affect the site and the facility construction.
- ◆ Some planning items to be addressed are ease of traffic, impact on neighborhood, visibility view of and from the site, entrance to the building, landscaping considerations, future expansion options, utilities appearance, site layout for parking and access, pedestrian and vehicle circulation, security and fire protection features, outdoor lighting, and signage.
- ◆ The building design will incorporate high technology phone and computer network infrastructure support will sufficient cooling and power for future growth.
- ◆ The design will include an analysis to deliver the facility in a “turn-key” status. Besides the facility, the design will include requirements for future planning and procurement, phone and computer infrastructure, landscaping and other items so all items and cost are included. The City will retain the option to look at alternative procurement methods if cost becomes a factor.

CONCLUSION

The recommendations contained within the Facility Master Plan are intended to provide general guidance to the City of Waco. Detailed architectural evaluations should be completed prior to designing any new facility or modifying of any existing public facility, as endorsed by the “Building Standards” section of the Facility Master Plan. It should be noted that rapidly changing technology and operation methods often modify the spatial needs of municipal employees over time; the City of Waco should continue in its planning efforts in terms of ensuring that adequate City facilities exist to serve the citizens.



2000 Waco Comprehensive Plan EXISTING PUBLIC FACILITIES

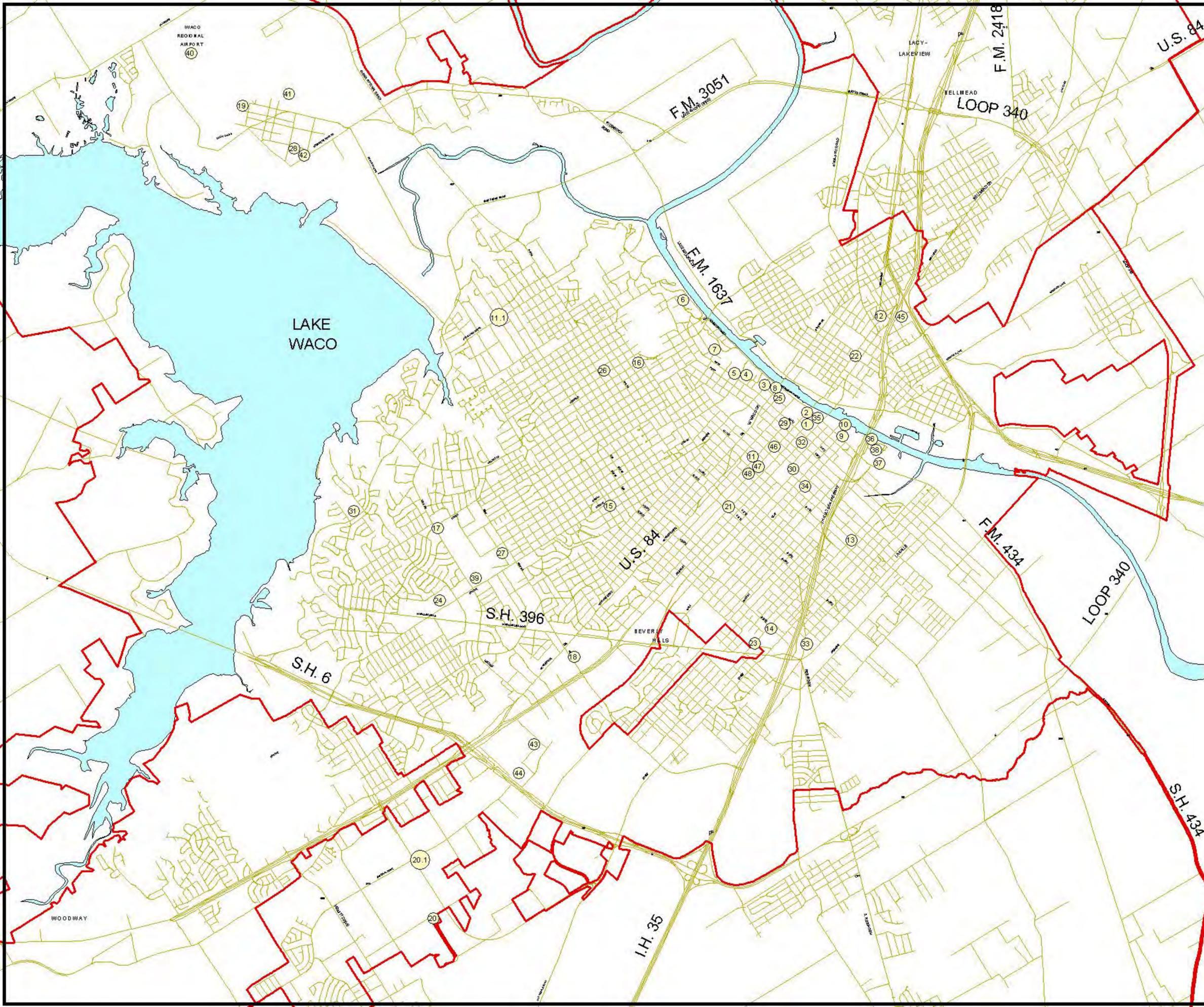
- 1 Waco City Hall
- 2 Convention Center
- 3 Health Complex
- 4 Colcord Complex
- 5 Water Utilities Office
- 6 Cameron Park Clubhouse
- 7 Cameron Park Zoo
- 8 Community Services
- 9 Fire Station #1
- 10 Fire Shop
- 11 Fire Station #2
- 11.1 New Fire Station #2
- 12 Fire Station #3
- 13 Fire Station #4
- 14 Fire Station #5
- 15 Fire Station #6
- 16 Fire Station #7
- 17 Fire Station #8
- 18 Fire Station #9
- 19 Fire Station #10
- 20 Fire Station #11
- 20.1 New Fire Station #11
- 21 Main Library
- 22 East Waco Branch Library
- 23 South Waco Library
- 24 RB Hoover Library
- 25 Police and Courts
- 26 Police Reporting
- 27 Police Station (Lions Park)
- 28 Street Department
- 29 Waco Transit Maintenance
- 30 Intermodal Transit Station
- 31 Mt. Carmel Water Treatment Plant
- 32 Water Office
- 33 Waco Humane Society
- 34 Waco Girls Club
- 35 Chamber of Commerce
- 36 Texas Ranger Hall
- 37 Sports Hall of Fame
- 38 Tourist Information Center
- 39 Waco Civic Center
- 40 Waco Regional Airport
- 41 Airplane Hangers
- 42 Police Pistol Range
- 43 Solid Waste Office
- 44 Engineering Service Center
- 45 Police Auto Impound Yard
- 46 Downtown Police College
- 47 WIC Office
- 48 Police DEU/City Records



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DUNKIN SEFFKO & ASSOCIATES, INC.
URBAN PLANNING CONSULTANTS
DATE: DECEMBER 22, 2000

PLATE 5-1

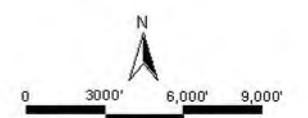




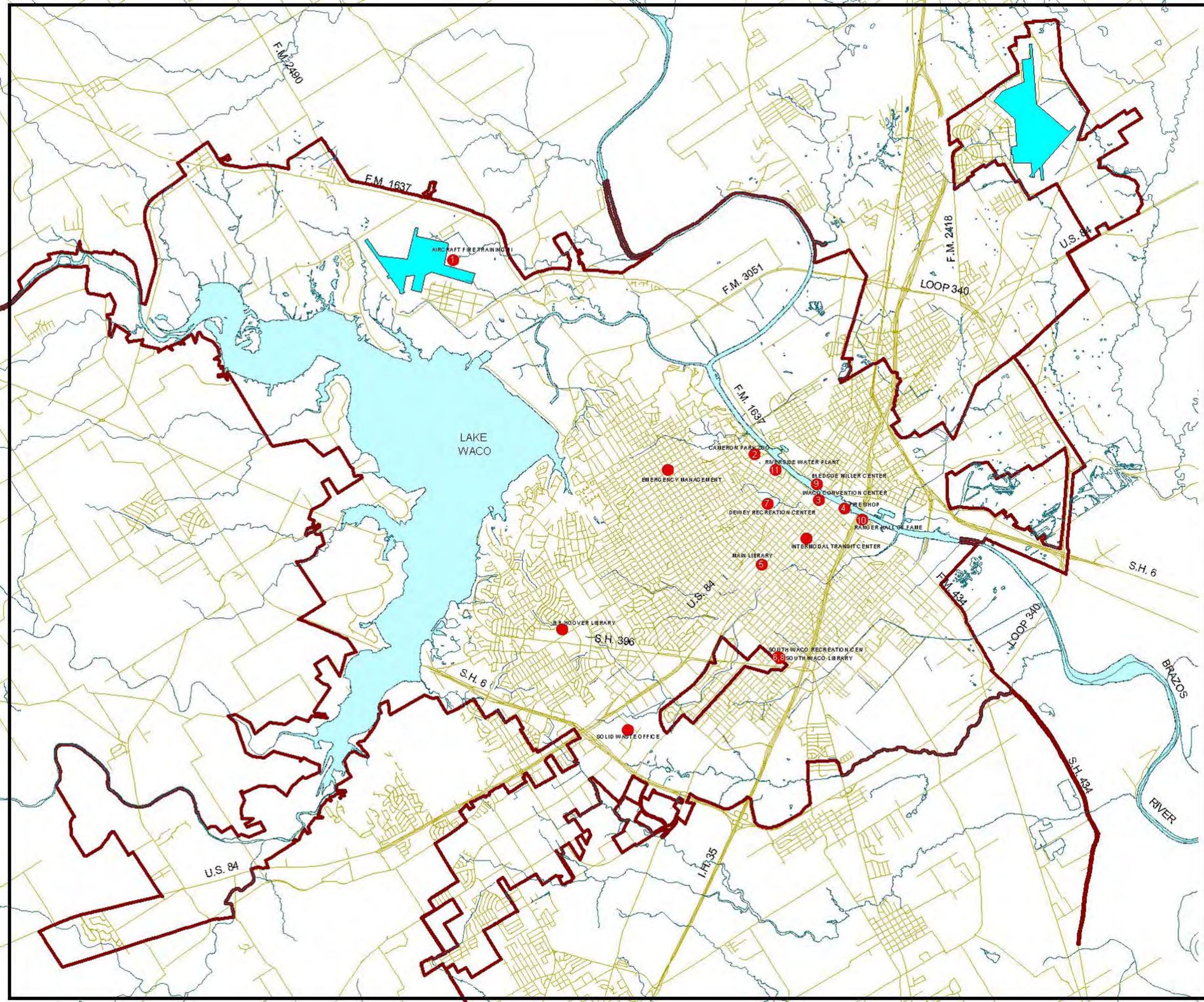
2000 Waco Comprehensive Plan SELECTED MAJOR CIP PROJECT LOCATIONS

- 1 - Aircraft Fire Training Pit
- 2 - Cameron Zoo
- 3 - Waco Convention Center
- 4 - Fire Services
- 5 - Central Library
- 6 - South Waco Library
- 7 - Dewey Recreation Center
- 8 - South Waco Recreation Center
- 9 - Bledsoe Miller Recreation Center
- 10 - Ranger Hall of Fame
- 11 - Riverside Water Plant

 Waco City Limits



DUKE & ASSOCIATES, INC.
PLANNING CONSULTANTS
DATE: DECEMBER 22, 2000



Section 6 INFRASTRUCTURE



City of Waco



Comprehensive Plan 2000

WATER SUPPLY

Raw Water Supply (Yield)

The water supply for the city of Waco and its satellite wholesale customers comes from Lake Waco, a reservoir formed by a dam constructed on the Bosque River below the confluence of the North, Middle, and South Bosque Rivers. The current lake was built under contracts executed in 1958 between the Corps of Engineers, the Brazos River Authority, and the City of Waco. This lake is a flood-control, water-supply, and recreation lake built by the Corps of Engineers with a conservation storage pool of 104,000 acre-feet up to an elevation of 455 feet (mean sea level). This 104,000 acre-foot of conservation storage has a firm yield of 52.7 million gallons of water per day on an annual basis. Plans are in process through a 1984 agreement with the Corps of Engineers, the City of Waco, and with the Brazos River Authority, to raise the top of the conservation pool by seven (7) feet, thereby increasing the storage to 191,962 acre-feet and the daily firm yield to 71.24 million gallons per day. Currently, on an average daily basis, the city of Waco uses approximately 25 million gallons from Lake Waco.

In June 1997, Governor George W. Bush signed into law Senate Bill 1 (SB1), a comprehensive water planning and management bill enacted by the 75th Texas Legislature. This comprehensive water legislation resulted in part from an

increased awareness of the vulnerability of Texas to drought and to the limits of existing water supplies to meet increasing demands as the population grows. The State's population is expected to increase from its current level of approximately 19 million people to more than 36 million people by the year 2050, and some areas of the State are already facing water shortages projected for the near future. **Table 6-1** shows the projected use of water within the city of Waco and within McLennan County, both with and without conservation methods.

With the passage of SB1, the Legislature put in place a "bottom up" water planning process designed to ensure that the water needs of all Texans are met as Texas enters the 21st century. SB1 calls for Regional Water Planning Groups (RWPGs) to be formed by individuals representing 11 interest groups; they are then responsible for preparing regional water plans for their respective areas. These plans describe how to conserve water supply, meet future water supply needs, and respond to future droughts in the planning areas. The Texas Water Development Board (TWDB) has established 16 planning areas, each of which is directed by its respective RWPG.

In accordance with SB1 (as amended), the 16 regional water plans must be completed and adopted by January 5, 2001, and the TWDB must approve and incorporate the plans into a comprehensive State water plan by January 4, 2002.

**Table 6-1
PROJECTED WATER USE
City of Waco & McLennan County**

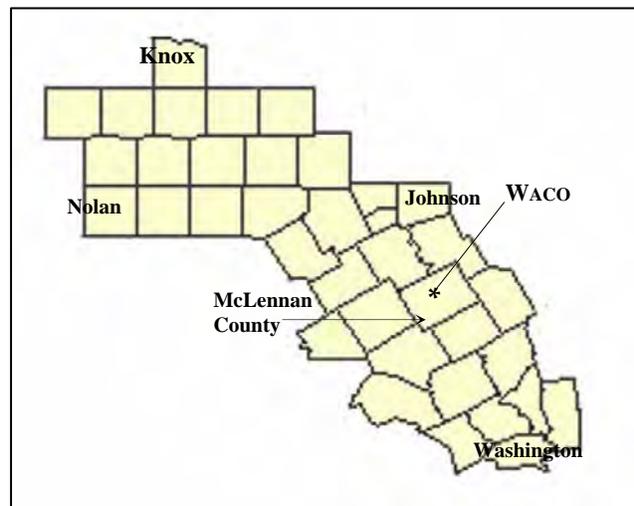
	CURRENT		2050 WITH CONSERVATION		2050 WITHOUT CONSERVATION	
	Population	Water Use Avg. MGD	Population	Water Use Avg. MGD	Population	Water Use Avg. MGD
Waco	110,024	25 MGD	192,621	35 MGD	192,621	44 MGD
McLennan County Total	229,369	40.5 MGD	348,194	53.5 MGD	348,194	61.5 MGD

The water plans will then be updated every 5 years. Waco and McLennan County, along with 37 other counties, are in what is called Brazos G Regional Planning Area, as shown in **Figure 6-1**.

BRAZOS “G” REGIONAL PLANNING AREA (REGION G)

The initial draft interim report projects that over a 50-year period, the Waco population will increase by 75 percent, which would be a total population of approximately 192,621 people. This report, which some water professionals feel will eventually have regulatory and financial impact, predicts that the water use of Waco will increase during this 50-year period by only about 40 percent, which would be an average of 35 million gallons per day (MGD). The report predicts that McLennan County will need a total of 53.5 MGD during the 50-year

planning period to serve a countywide population of 348,194. This prediction reflects a 52 percent growth in population with a 32 percent growth in water use. The charts shown on the following pages (**Chart 6-1, 6-2, and 6-3**) graphically illustrate the water usage and plant capacities for Waco, McLennan County, and the Brazos “G” Regional Planning Area.



**Figure 6-1:
Brazos “G” Regional Planning Group**



Chart 6-1:
Waco - McLennan County Water Use Average Day
Current Per Capita Usage

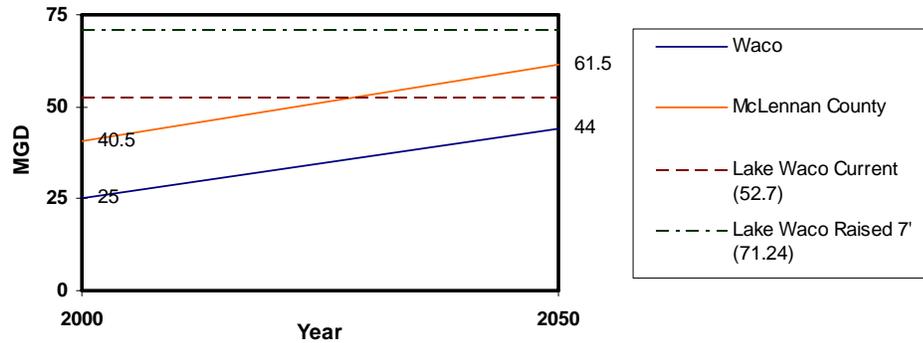


Chart 6-2:
Waco - McLennan County Water Use Average Day
Brazos "G" Projection With Conservation

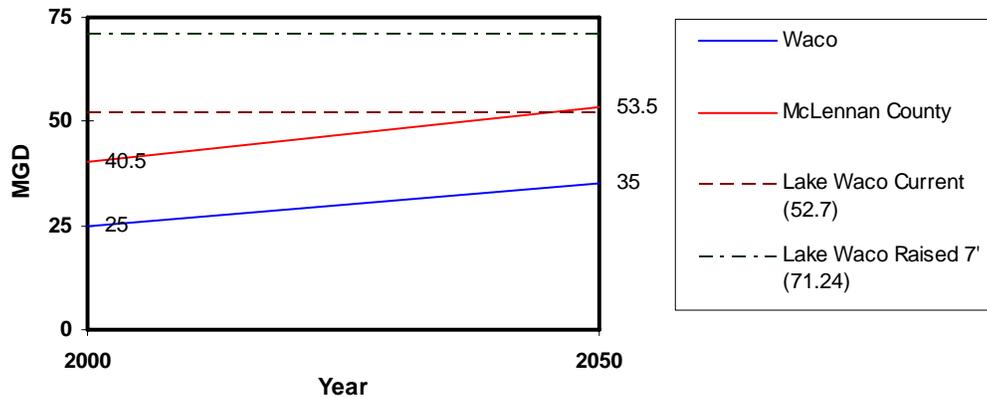
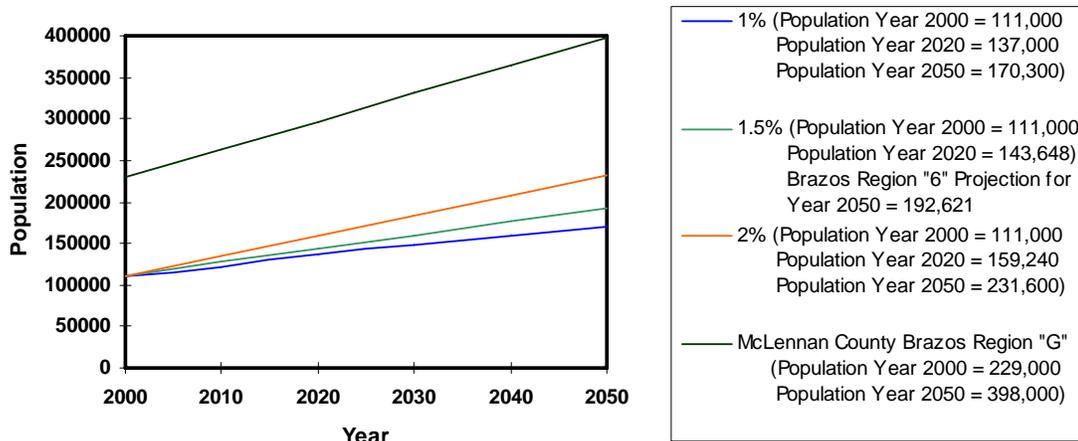


Chart 6-3:
Waco - Brazos Region "G" Population Projections



Historically, as our population has increased and become more urban, the use of water per capita has increased. The water plan currently being developed assumes a reversal of that trend due to conservation. This assumption, at this time, is unproven. The Region G report indicates that, for the Waco/McLennan County area, several small towns and 59 other water systems will need additional water during the planning period. Their systems are only supplied by well water, which has been declining in availability for the last thirty years.

If the small towns and other water systems receive treated water from Waco, and the Region G predictions are accurate, then Waco will use more water in 2050 than currently available without the raising of the Lake level by the proposed 7 feet. If the population predictions are accurate, and conservation does not occur as predicted, then Waco will use over 50 percent of the additional water acquired by raising Lake Waco, assuming that the surrounding areas are served by the City (see **Chart 6-3**).

For planning raw water supplies, a 50-year projection is not a long planning period. Unfortunately, the permit to raise Lake Waco has a time limit and will expire in the next few years if the work is not completed. Alternative water supply for the Waco area, other than raising Lake Waco, is not readily or economically available.

Large, rapidly growing urban areas such as the Austin area, the San Antonio area, the southwestern part of the DFW area, and the Houston area have significant political influence. Many of these areas have inadequate water supply. In the water industry, there is some concern that these entities may try to politically provide needed water to their areas by reallocating water from other areas through the Legislature. The leaders of the City of Waco must remain diligent in their care and protection of both the quality and the quantity of water in Lake Waco.

RAW WATER SUPPLY RECOMMENDATIONS:

1. Pursue raising Lake Waco to assure an adequate quantity of water from the area on a long-term basis.
2. Work at the state level to protect the water in Lake Waco from being reallocated.
3. Pursue short-term use of Lake Waco water by others as additional protection from reallocation.

Raw Water Quality

CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOS)

Lake Waco is located at the downstream end of several large, rural, agricultural watersheds, and is



bounded on one side by the urban environment of the city of Waco. The quality of the water in Lake Waco is directly influenced by rainfall through (1) the watersheds, (2) discharges from wastewater treatment plants, and (3) runoff from agricultural, industrial, and urban areas. Chemically, the water in Lake Waco has continually been of relatively high quality. Runoff from urban and agricultural lands has caused occasional organic loadings that have resulted in both taste and odor problems. During the latter part of the 20th century, the development of many highly concentrated dairy cattle operations in the North Bosque water shed and potential contamination from military sites in the South Bosque water shed have caused concern.

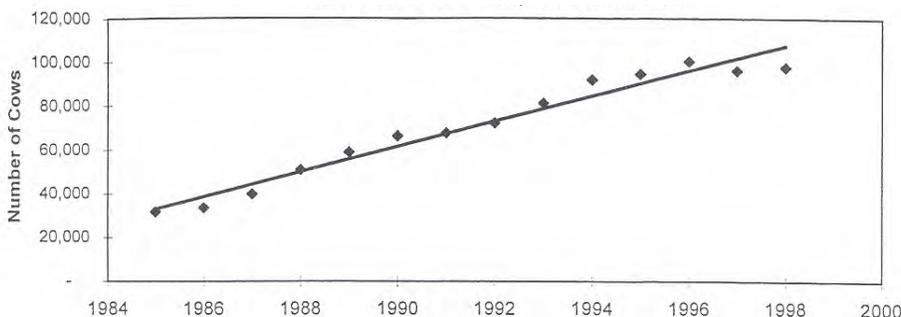
The upper North Bosque River watershed, during the latter part of the 20th Century, experienced phenomenal growth in the local dairy cow population. Dairies transformed into "feedlot" type of operations, wherein the cows stay in pens as opposed to fields and pastures. Hay and other types of feed are brought to the cows. The build-up of manure that cannot be absorbed by local area

feed lots has been one adverse result of this practice.

In 1990, the upper North Bosque River watershed was identified as an impacted watershed due to non-point source pollution (*according to the Texas Water Commission and the Texas State Soil and Water Conservation Board, 1991*). Point source pollution sources are wastewater treatment plants at similarly concentrated load points. Non-point sources are generally areas of heavy use, such as urban areas and dairy waste application fields.

Noticeable eutrophication of several small bodies of water within the watershed and elevated nutrient concentrations in tributaries to the North Bosque River support the need for a reduction in nutrient loadings to the North Bosque River. Phosphorus levels in particular appear to be the primary concern, with concentrations considerably above Texas Natural Resources Conservation Commission (TNRCC) screening levels (0.1 mg/L for orthophosphate-phosphorous and 0.2 mg/L for total phosphorus) at several stream and reservoir sampling sites within the watershed.

Chart 6-4:
NUMBER OF COWS IN ERATH AND HAMILTON COUNTIES
Based on 1985-1998 Milk Production Data



Because phosphorus is generally the limiting nutrient to algae growth in freshwater systems, continued phosphorus loadings to the upper North Bosque River watershed are likely to be problematic.

The continued loading of the North Bosque River with phosphorous, nitrogen, and possibly fecal coliform organisms and microscopic parasites, such as cryptosporidium and giardia cyst, are most likely to continue during rainfall events due to the large cow population of the area. These parasites are not currently found in Lake Waco; however, the City should remain aware of the possibility of these types of pollutants at some time in the future.

Most of the cow manure is disposed of through application to the surface of the rangeland or hay fields. Waste material that is not decomposed or incorporated into the soil is subject to washing away into creeks and streams during rainfall events. In this area, all creek and streams lead to the North Bosque River, which runs into Lake Waco. **Chart 6-5** represents recent studies during rainfall events on the pollution load and sources. Clearly, dairy farms in the North Bosque River watershed are a concern for the quality of water in Lake Waco.

Raw Water Quality Recommendations Related to Area Feedlots

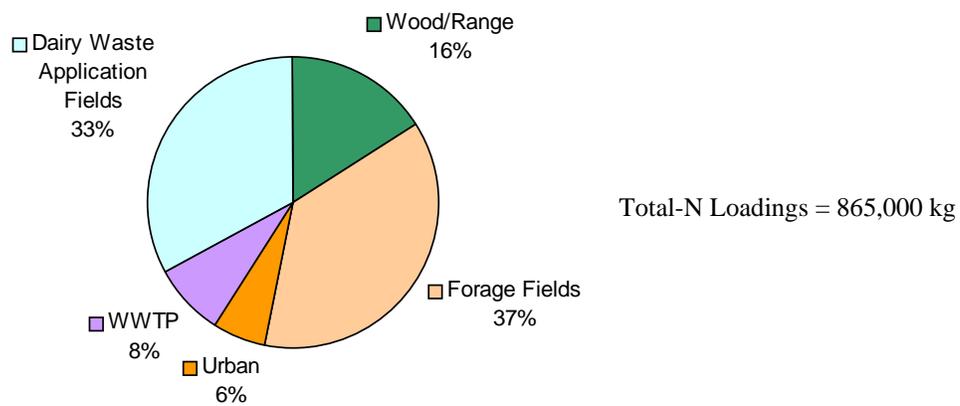
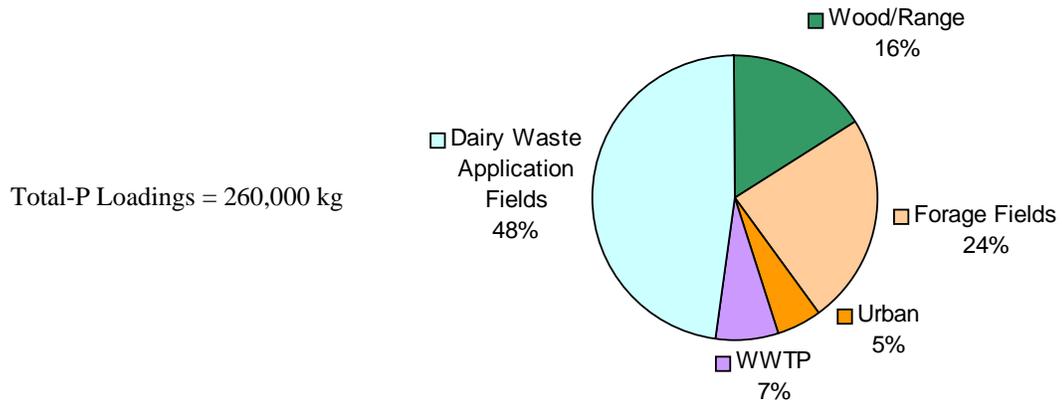
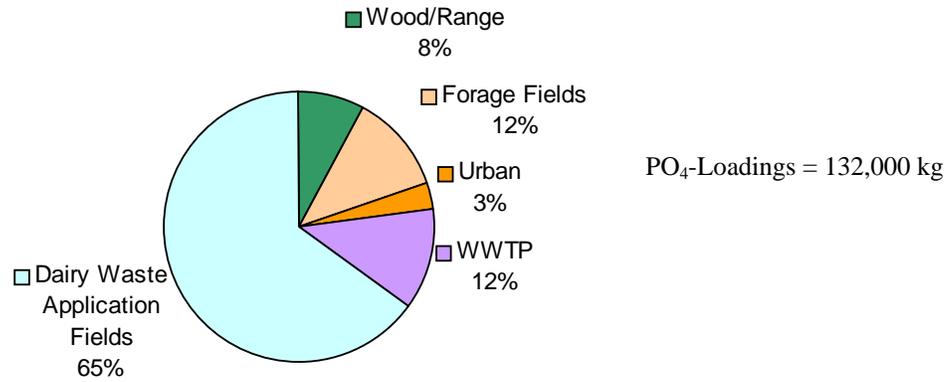
Predictions regarding agricultural pollution are: (1) the area cattle population is likely to increase, and (2) reductions in nutrients and bacteria are not likely for years or decades, if ever. Therefore, recommendations regarding concentrated animal feeding operations are as follows:

1. The City of Waco and McLennan County should continue to lobby for assistance from environmental regulators (EPA, TNRCC),
2. More nutrients, more algae, and more taste and odor concerns should be anticipated; treatment concepts, to act as barriers against these constituents, should be formulated.

PERCHLORATE

Another concern for the quality of water in Lake Waco is perchlorate pollution. The Naval Weapons Industrial Reserve Plant at McGregor (Hercules, Rocketdyne, etc.) is now closed as a weapons facility, and is being redeveloped as the McGregor Industrial Park. This plant stored, produced, and tested various weapons from the 1940's to the 1990's.

**Chart 6-5:
Nutrient Loading Sources at Site BO070**



The McGregor facility contains over 9,110 acres. Most of the facility is in either the South Bosque River watershed or the Harris Creek watershed and drains to Lake Waco. Approximately 20 percent of the facility drains to Station Creek, which runs into Lake Belton.

Perchlorates are formed by the burning of certain types of explosives and propellants, and there is a possibility that they are carcinogenic to humans. Perchlorates have been found in significant numbers by the City of Waco staff in Harris Creek and a tributary of the South Bosque River (95 and 105 ppb). A strong concentration of 190 ppb has been found in Station Creek. The current TNRCC interim action standard is 22 ppb.

An allowable level of perchlorates to be discharged to a tributary of a drinking water lake is not known at this time. Waco should continue to monitor streams flowing into Lake Waco. The industrial park with perchlorate contamination, sample sites showing perchlorates, and areas with concentrated animal feedlots are shown on **Plate 6-1**.

Raw Water Quality Recommendations Related to Perchlorates

The City of Waco should, along with other affected cities, continue to lobby for (1) the clean up of the McGregor facility, and (2) no discharge to be allowed into the

streams flowing into Lake Waco and Lake Belton that exceeds current State standards (22 ppb). The current TNRCC proposal is to authorize discharges that clearly exceed the current interim action standards.

ON-SITE SEWAGE FACILITIES (OSSF)

Another water quality concern has been the potential nonpoint source pollution from On-Site Sewage Facilities (OSSF). In recent years, the City of Waco and McLennan County have greatly reinforced the permitting, monitoring, and inspection program for OSSFs. Additionally, TNRCC has updated the regulations and requirements for installers and designers of OSSFs. The Waco-McLennan County program currently enforces the minimum TNRCC requirements. **Table 6-2** shows the number of OSSFs in Waco and McLennan County.

Historically, OSSFs (primarily septic systems) used underground disposal after rudimentary treatment of the waste. Underground disposal was a problem, and when the system was overloaded due to excess usage, poor soil absorption characteristics, wet weather conditions, or a combination of these, the partially treated wastewater would surface and become a health hazard, a nuisance, and a source of pollution, especially during rainfall events.

Many of the newer systems are very mechanical in nature. Most are aerobic as opposed to the old septic

Table 6-2
OSSF REPORT
City of Waco & McLennan County

	1998	1999
New	427	476
Alterations	73	100
No. Aerobic Surface Spray	310	354

systems. The aerobic systems use air compressors (blowers) or other mechanized devices to treat the wastewater. Due to the limited adjustments available in homeowner systems, and the tremendous variability in the strengths and volume of each individual waste stream, only rudimentary treatment should be expected on a continual basis. Maintenance requirements by individual owners are significantly more important in these modern systems.

One of the disposal systems approved in the recent set of rules imposed by TNRCC that was not allowed previously has become very popular in the Waco area. This disposal method is known as *surface spray*. The surface spray method is generally much less expensive to install than is an underground disposal system. The potential for non-point source pollution with surface spray method, especially during rainfall events, is great. Municipal wastewater irrigation systems have the equivalent of 3 months storage, so as not to irrigate during wet weather. The OSSF units, however, have no additional

long-term storage and operate on a timer, without regard for weather changes. **Table 6-2** shows the number of new units per year, the number of repairs per year, and how many of the new units use surface spray disposal.

Waco and McLennan County have made considerable progress in solving problems with on-site sewage facilities (OSSFs) during the last 40 years. Forty years ago, 55-gallon drums for septic tanks, 25-foot long drain fields, and pumps to pump out the septic tank onto the yard near the neighbor's property line during wet weather were common. The facilities required for an operational OSSF have been upgraded, but the use of OSSFs has also increased.

With the many soil conditions in McLennan County and the Waco area (heavy clay soils, thin clay soils underlain by rock, etc.) and water quality issues regarding Lake Waco, the enforcement of minimum state standards that were adopted on a state-wide basis is less than optimal. Many areas in Central Texas with similar concerns have adopted substantially more stringent requirements.



Raw Water Quality Recommendations Related to On-Site Sewage Facilities

1. Waco should consider developing a participation policy in terms of funding for long, oversized mains needed to connect subdivisions in outlying areas to the City of Waco wastewater collection system. A policy requiring later developers of the land between the existing system and a subdivision in an outlying area to contribute at the time development of that land takes place, thereby allowing participation by refund, should be incorporated by ordinance.
2. The City should require lots less than one-acre in size to have a wastewater collection system connected to a treatment facility permitted by TNRCC.
3. The City should require one- to two-acre lots that are not connected to a wastewater collection system permitted by TNRCC to have a minimum width of 200 feet, and to be served by an aerobic OSSF with underground disposal; Waco should also require the construction of a dry wastewater collection system in accordance with approved engineering plans to facilitate future connection to a central facility.
4. The City should require lots larger than two acres that are not connected to a wastewater collection system to have a width of greater than 250 feet, and to be served by an OSSF.

The OSSF may be either aerobic or septic, and if aerobic, may have either underground or surface disposal; in addition, a dry wastewater collection system should be constructed in accordance with approved engineering plans to facilitate future connection to a central facility.

Summary of Water-Related Issues in Waco

After the raising of Lake Waco by seven feet is accomplished, the city of Waco will have adequate raw water supply capacity through the year 2050. If the lake is not raised, and conservation does not occur, the 50-year supply is inadequate. The quality of the water provided by Lake Waco, while currently acceptable, must be protected from known problems in the future if the quality is not to be jeopardized. The potential threats to treated water from urban development, OSSFs, and dairy farms are primarily taste and odor. The recreational value of Lake Waco could diminish if the quality deteriorates due to massive algae growth or fish kills, both of which also cause severe taste and odor problems. The perchlorate problem is a health threat, but if appropriate treatment of the perchlorate problem occurs, that threat should diminish or be eliminated completely. Protection from pollution, by petroleum pipeline breaks, chemical truck accidents, etc., is a health concern that should be further evaluated. To date, the treated water from Lake

Waco has consistently met or exceeded all State and Federal drinking water regulations.

WATER TREATMENT & DISTRIBUTION

Water Treatment

The City of Waco has an intake structure near the dam in Lake Waco. This intake structure will allow Lake Waco water to flow through the dam in conduits. These conduits flow by gravity to the Riverside Water Treatment Plant located on the Brazos River adjacent to Cameron Park, and then flow to a raw water pump station that pumps Lake Waco water to the Mt. Carmel water treatment plant. These treatment plants must be able to meet not only *average* day requirements, but also *maximum* day requirements. For cities like Waco, the maximum day requirement is approximately 200 percent of the average day requirement.

The Mt. Carmel Water Treatment Plant was built in the early 1960's with an initial capacity of 20 million gallons per day (MGD). The Master Plan envisioned two additional 20 million gallon per day sections. In 1985 a second section was added, bringing the total treatment capacity at the Mt. Carmel Water Treatment plant to 40 million gallons per day. With current improvements, the Mt. Carmel Water Treatment Plant capacity is 42 MGD.

The Riverside Water Treatment Plant has been at its planned maximum capacity, 24 MGD, for decades. The total maximum day production of the two plants has been 60 MGD, out of their 66 MGD rated capacity.

The Waco Water Treatment staff is currently working to eliminate or reduce taste and odor problems caused by algae growth due to the nutrient loading from the dairy farms. The current basis of the water treatment process (coagulation, filtration, distribution) is an early 20th century process that really does not control taste and odor, chemical, pollution, or chlorine resistant organisms. Some additives are currently being used to reduce taste and odor problems with some success. Other treatment processes, developed in the latter part of the 20th century, cost more but offer more control of concerns related to taste and odor. The Riverside Water Treatment Plant has access to both Lake Waco water (through a 54" pipeline) and to the Brazos River water. If something catastrophic happened to Lake Waco, such as a gasoline or chemical spill, some advanced treatment processes could either clean the Lake Waco water, or treat the slightly saline Brazos River water to drinking water standards. The advanced treatment processes would work the same at Mt. Carmel, but only Lake Waco water is available to Mt. Carmel. The City staff is currently conducting and considering recommending pilot studies of several advanced procedures; these include (1) dissolved air floatation with granular activated carbon (GAC), which



improves taste and odor, and (2) ultra-filtration with GAC, which improves taste and odor and removes microscopic contaminants.

WATER TREATMENT RECOMMENDATIONS

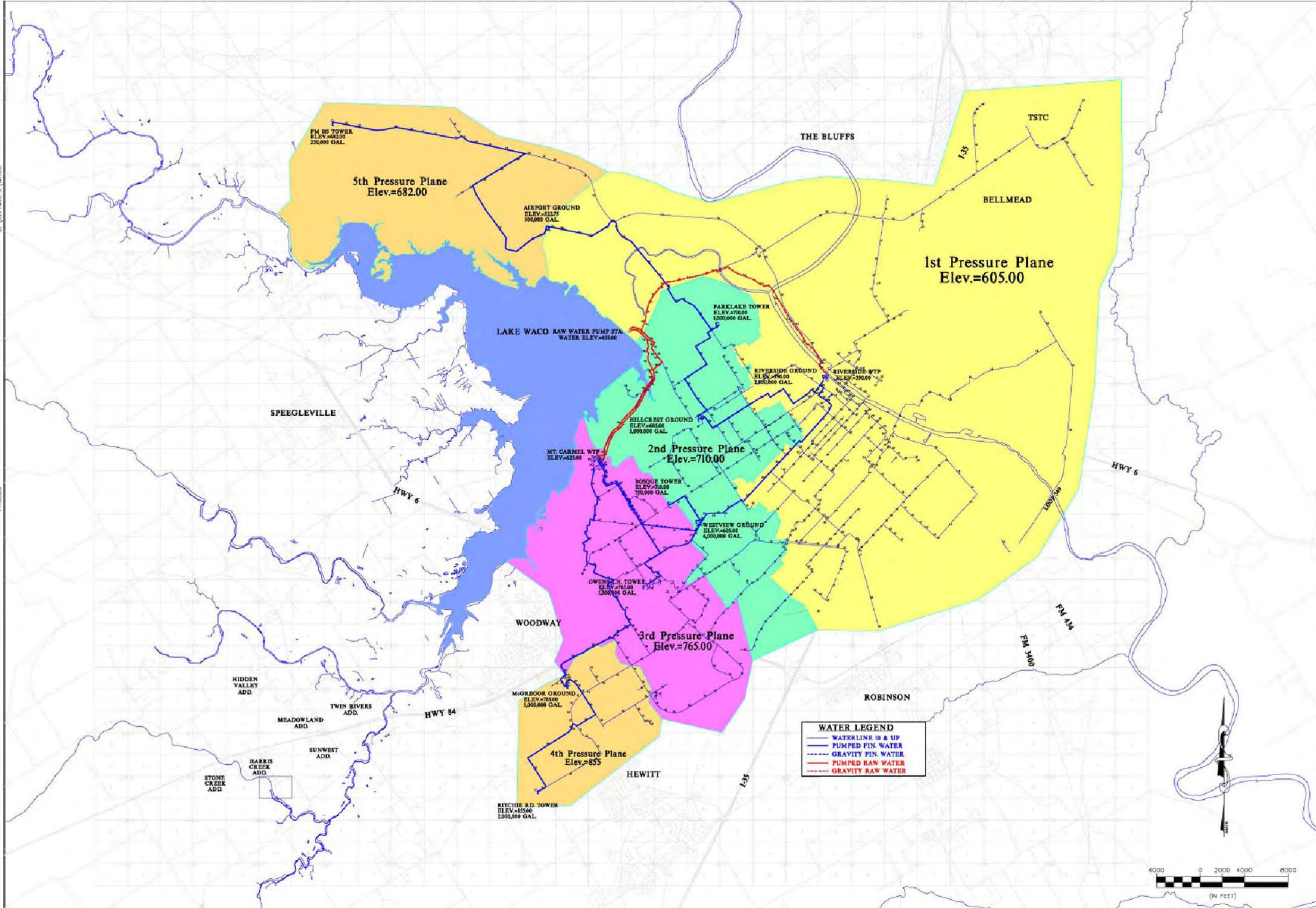
1. The City of Waco should continue working to select and install an advanced treatment process to control taste and odor before the current plants are overwhelmed. This is especially important given that taste and odor problems stemming from concentrated animal feeding operations (CAFOs), if and when they are solved, will take decades to fully correct.
2. The City should plan for a major enlargement of treatment capacity in the next 5 to 10 years, depending upon the rate of population growth.

Water Distribution & Storage

The City of Waco currently operates five separate pressure planes in the water distribution system; the system is illustrated graphically in **Plate 6-2**. **Charts 6-6** and **6-7** (page 6-15) show the water treatment plant capacity requirements for Waco and McLennan County, respectively.

FIRST PRESSURE PLANE

The largest of the five pressure planes is the first, which extends to the north and east, south and west from the Brazos River and the downtown area. The Riverside Treatment Plant is located in the first pressure plane. The first pressure plane is unique in that it has no visible elevated storage tanks. Underground storage tanks located at the Westview pump station and the Hillcrest pump station are located at such an elevation and piped such that they serve as elevated tanks for the first pressure plane. The Hillcrest ground storage is a 5.0 million-gallon tank, and the Westview ground storage is a 6.0 million-gallon tank. The Riverside Water Treatment Plant has a ground tank clear well with a capacity of 2.5 million gallons. This water flows by gravity from the Mt. Carmel Water Treatment Plant through a 33-inch pipeline to the Westview ground storage tank. The Riverside Water Treatment Plant pumps into the first pressure plane, thereby also filling the Westview storage tank and the Hillcrest storage tank. The control elevation, necessary to maintain pressure in the first pressure plane, at the Westview and Hillcrest ground storage tanks is an elevation of 605 msl.



NO.	DATE	REMARKS	BY

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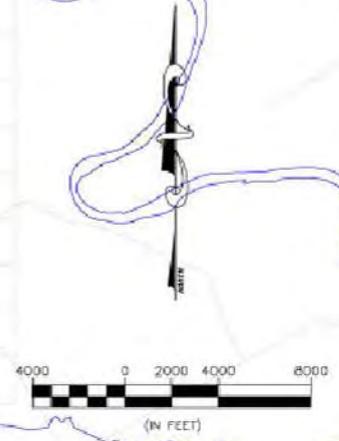
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CITY OF WACO
PRESSURE PLAINS & WATER MAINS

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WATER LEGEND

- WATERLINE 10 & UP
- PUMPED FIN. WATER
- - - GRAVITY FIN. WATER
- PUMPED RAW WATER
- - - GRAVITY RAW WATER



SECOND PRESSURE PLANE

Water to the second pressure plane is furnished by pumps at both the Hillcrest pump station and the Westview pump station. These facilities pump into the Bosque elevated tank and the Parklake

tower; the control elevation on these two towers is 710 msl. The Bosque tower holds 0.75 million gallons, and the Parklake tower holds 1 million gallons. The second pressure plane was created during the middle of the 20th Century.

Chart 6-6:
*Waco Only - Water Treatment Plant Capacity Requirements
Peak Day At Current Per Capita Peak Rate*

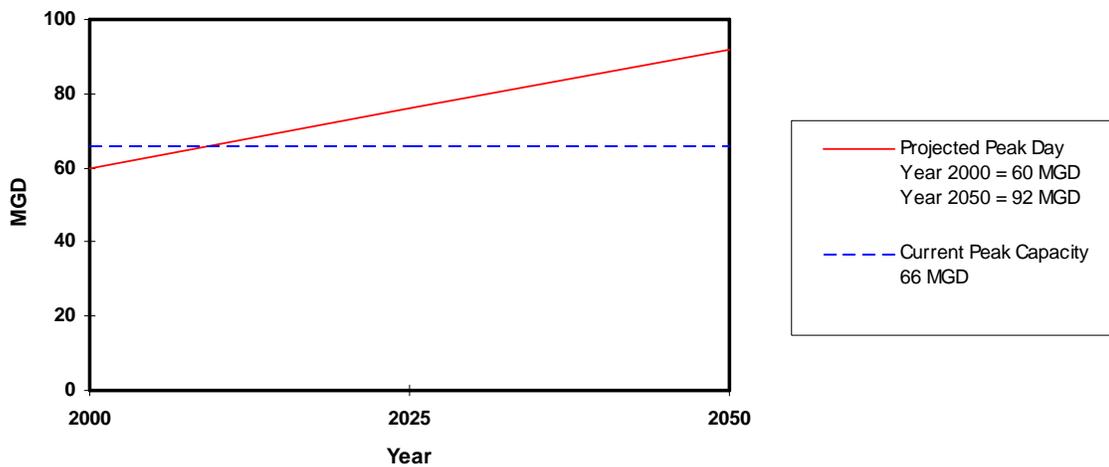
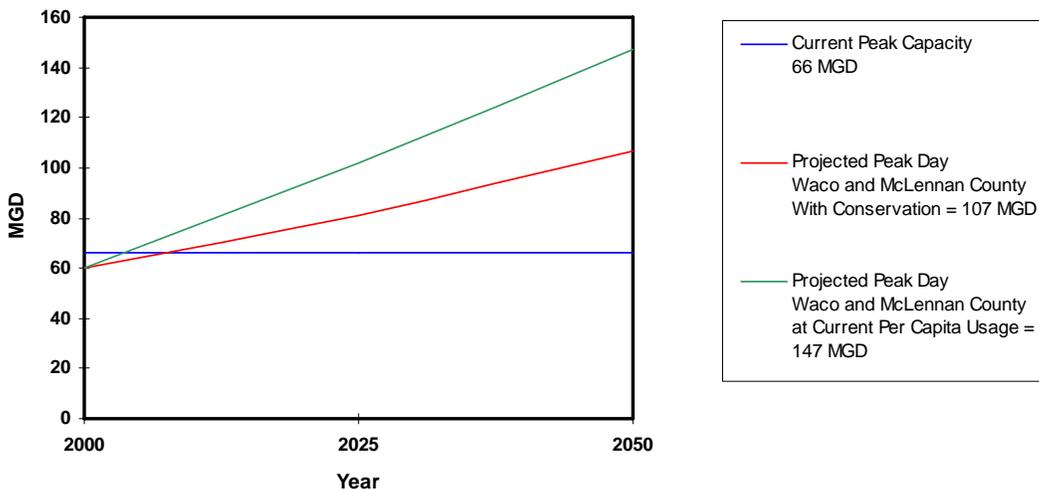
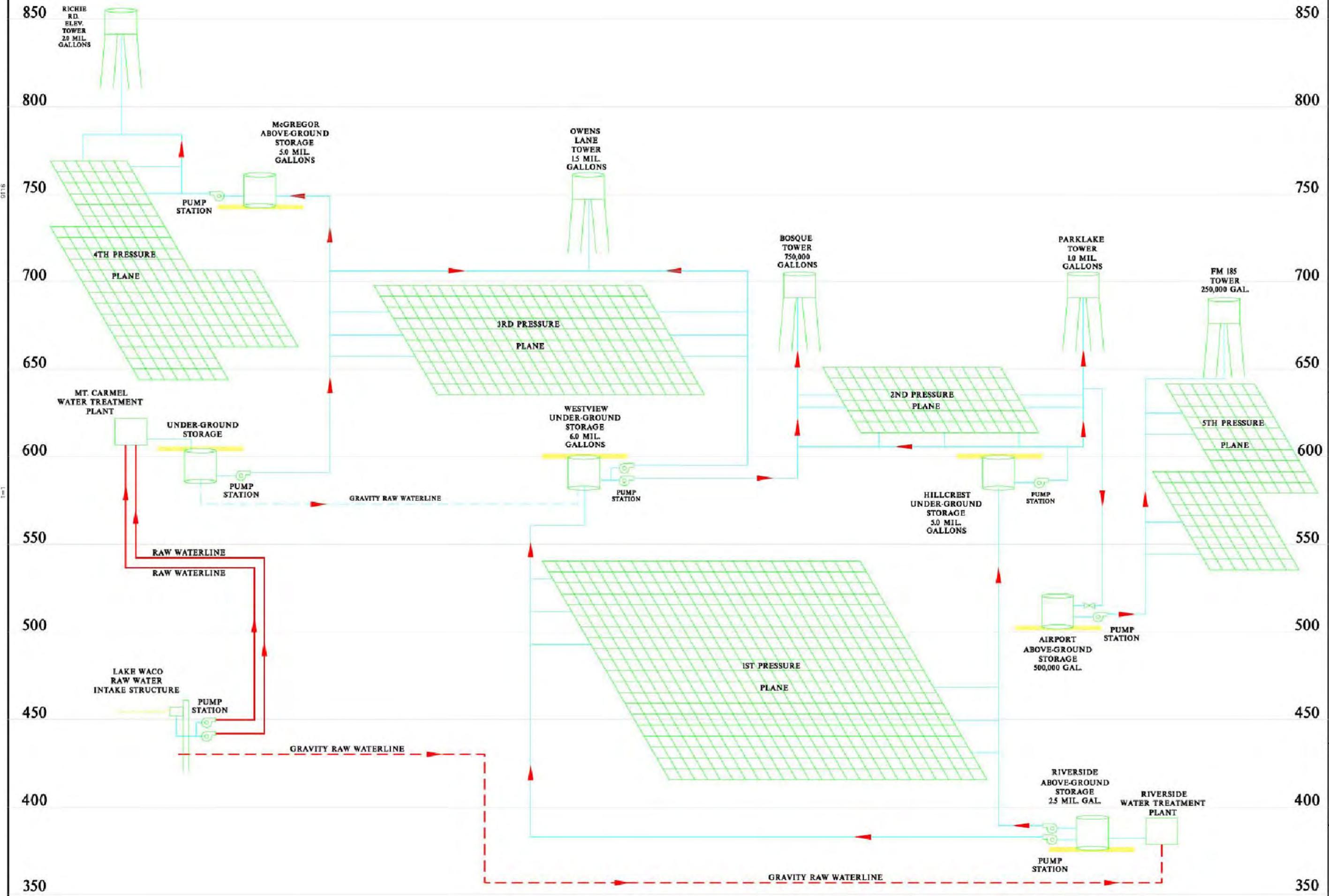


Chart 6-7:
*Water Treatment Plant Capacity Requirements (McLennan County Area)
Uniformly Phased in 2000-2050*





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CITY OF WACO
EXISTING WATER SYSTEM
PROFILE SCHEMATIC

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THIRD PRESSURE PLANE

Additional high-pressure pumps at the Mt. Carmel Water Treatment Plant and the Westview pump station supply water to the third pressure plane, filling the Owens Lane tower. Pressure is maintained in the third pressure plane from this tower, which has a control elevation of 675 msl. The Owens Lane tower holds 1.5 million gallons. The third pressure plane was created in the late 1960's or early 1970's.

FOURTH PRESSURE PLANE

The fourth pressure plane, generally located southwest of U.S. Highway 84 and Texas Central Parkway, is served by a ground storage tank, a pump station on the Old McGregor Road, and an elevated tower on Ritchie Road. The ground storage tank on Old McGregor Road is filled by water from the Owens Lane tower in the third pressure plane system. Pumps at this location pump into the Ritchie Road tower, a 2 million gallon tower with a control elevation of 855 msl. This pressure plane was created in the early 1990's.

FIFTH PRESSURE PLANE

The fifth pressure plane serves the Waco Madison Cooper Airport area and the China Spring area. There is a ground storage tank at the airport that contains 0.5 million gallons. This tank is filled by water from the

first pressure plane. Pumps at this ground storage tank pump into the F.M. 185 water tower, which is a 0.25 million-gallon tower with a control elevation of 682 msl. This pressure plane is an expansion of the system that has served the Waco Madison Cooper Airport area since the World War II era. The system was connected to the central Waco system in the early 1970's, and the new pump station and line extensions were built in the late 1980's. **Plate 6-3** is a schematic diagram showing the relationship of the various pressure planes. **Plate 6-4** shows existing water mains and distribution recommendations. **Table 6-3** describes the water storage capacities for each pressure plane.

OBSERVATIONS REGARDING WATER DISTRIBUTION & STORAGE

Current problem areas in the system are (1) providing enough water to the Fourth Pressure Plane (Old McGregor Road ground storage), (2) maintaining water pressure during peak periods in the F.M. 185 elevated tank, (3) service to the area in and around Aviation Parkway and Texas State Technical College (TSTC), and (4) service to the Interstate Highway 35/Loop 340 area. The area served by the Fourth Pressure Plane is the largest growth area at this time. The majority of the treatment and distribution system is in good condition for current requirements. Improvements are in progress to extend service to the

Insert Plate 6-4:
Recommended Water Mains



recently annexed U.S. Highway 84 area. Some improvements will be needed for the TSTC area soon, and later to the China Spring area. A major transmission main improvement to support western expansion will be needed in the near future.

Totals, assuming 50 percent of Hillcrest ground storage and Westview Ground Storage to be elevated for the First Pressure Plane, and ground storage for the second pressure plane, are as follows:

Ground Storage: 21.5 MG

Elevated Storage: 11 MG

**Table 6-3
STORAGE CAPACITIES
City of Waco, Texas**

	GROUND STORAGE	ELEVATED STORAGE
First Pressure Plane		
Riverside Water Treatment Plant	1.5 MG	
Mt. Carmel Water Treatment Plant	8.0 MG	
Westview Ground Storage		6.0 MG
Hillcrest Ground Storage		5.0 MG
Second Pressure Plane		
Westview Ground Storage	6.0 MG	
Hillcrest Ground Storage	5.0 MG	
Parklake Tower		1.0 MG
Bosque Tower		0.75 MG
Third Pressure Plane		
Owens Lane Tower		1.5 MG
Fourth Pressure Plane		
Old McGregor Road Ground Storage	5.0 MG	
Richland Drive Tower		2.0 MG
Fifth Pressure Plane		
Airport Ground Storage	0.5 MG	
F.M. 185 Tower		0.25 MG

Distribution Recommendations

1. In the near future, Waco should establish a method whereby more water could be moved away from the Mt. Carmel Treatment Plant. One possible solution is to pressurize the 33" gravity main that runs from Mt. Carmel to the Westview Pump Station. This line now operates at a very low pressure. A slight increase in pressure with a low-head, high-volume pump would transport significant volumes of water. This fairly old main should be inspected for remaining life expectancy and strength prior to this conversion.
2. The western end of the Waco system will continue to develop and require mains and storage.
3. Several times a year, major industrial prospects consider developing land along South Loop 340 and Interstate Highway 35 South; significant improvements will be needed on South Loop 340 and Inter-



state Highway 35 South if any large industrial uses develop in these areas.

References for the Water Supply Portion of This Section

- ◆ Lake Waco/Bosque River Watershed Institute Report: Tarleton State University, Texas Institute for Applied Environmental Research, January 1998.
- ◆ Letter Report to John Hatchel, Texas Institute for Applied Environmental Research, July 6, 1999.
- ◆ OSSF Report, Water Utilities, Environmental Services, City of Waco, January 20, 2000.
- ◆ Draft Interim Report, Brazos County Regional Water Plan, HDR, December 1999.
- ◆ Brazos River Authority – Waco Contract, 1997.
- ◆ City of Waco, Study of the Regional Water Treatment and Distribution System, 1986.

WASTEWATER TREATMENT

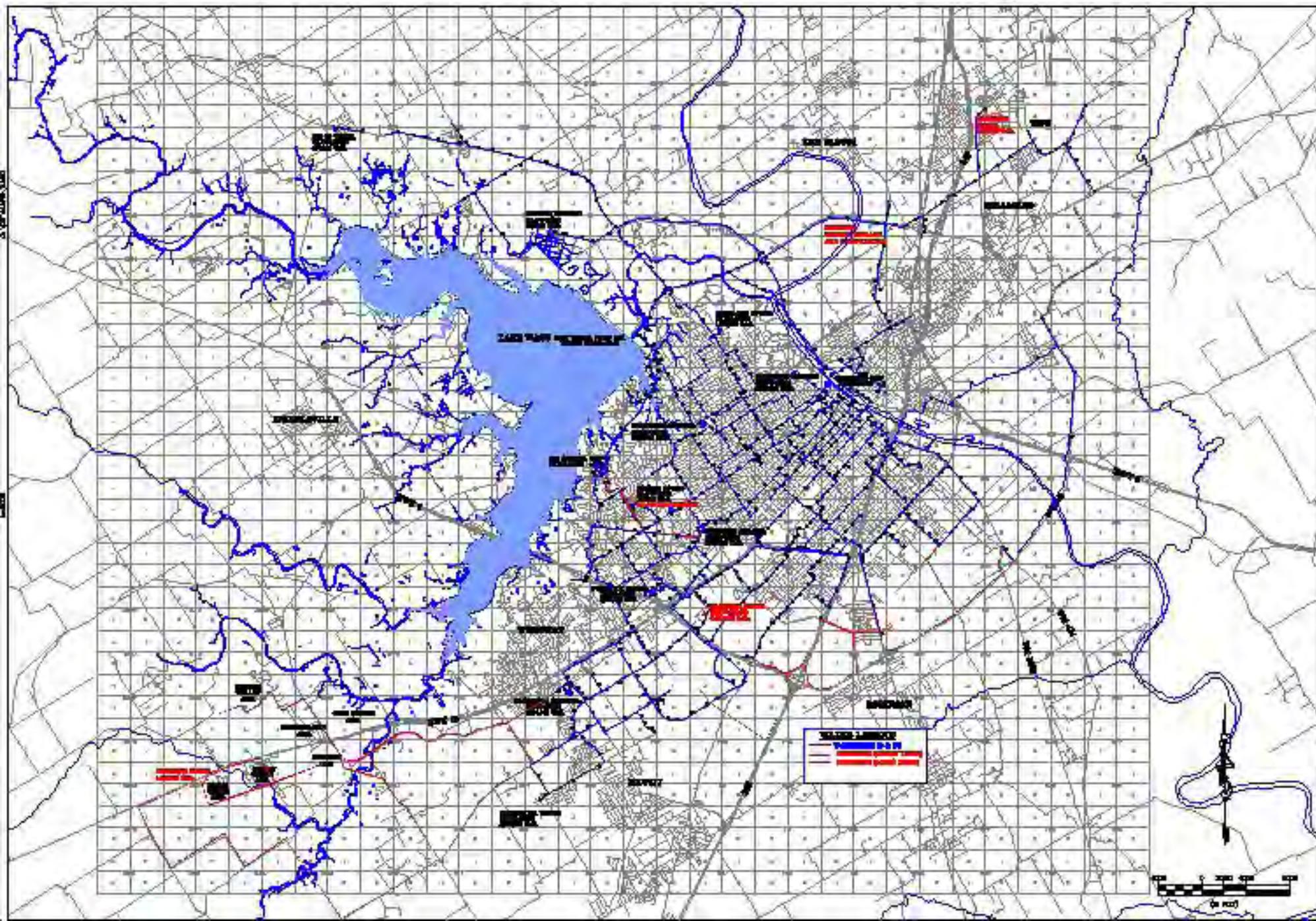
Wastewater treatment for the city of Waco and neighboring cities is provided at a central location off of FM 434 on the south side of Waco (near the Brazos River) by the Brazos River Authority (BRA). The regional wastewater treatment plant has a monthly average daily capacity

of 37.8 MGD. Texas Natural Resources Conservation Commission has a “75-90 rule” that requires planning for capacity expansion when 75 percent capacity is exceeded for three consecutive months. The current system exceeded 75 percent utilization during a wet weather period in 1997. Other than during that time, the system utilizes 50-60 percent of capacity. The Brazos River Authority also owns and operates several major interceptor sewers and sewage lift stations that serve as major collection facilities from the various cities. The Brazos River Authority facilities are shown on **Plate 6-5**.

Wastewater Collection

The City of Waco has an extensive wastewater collection system that serves nearly all of the current development area. The recently annexed areas to the west are not currently served. Waco has a number of large major basins and several small basins in the area of Lake Waco. The major basins generally drain towards the Brazos River or towards Lake Waco. In the Lake Shore Drive area, where there are a number of major ravines, there are many minor basins. **Plate 6-6** is a schematic showing how the basins are tied together with wastewater flows on their way to the regional wastewater treatment plant.



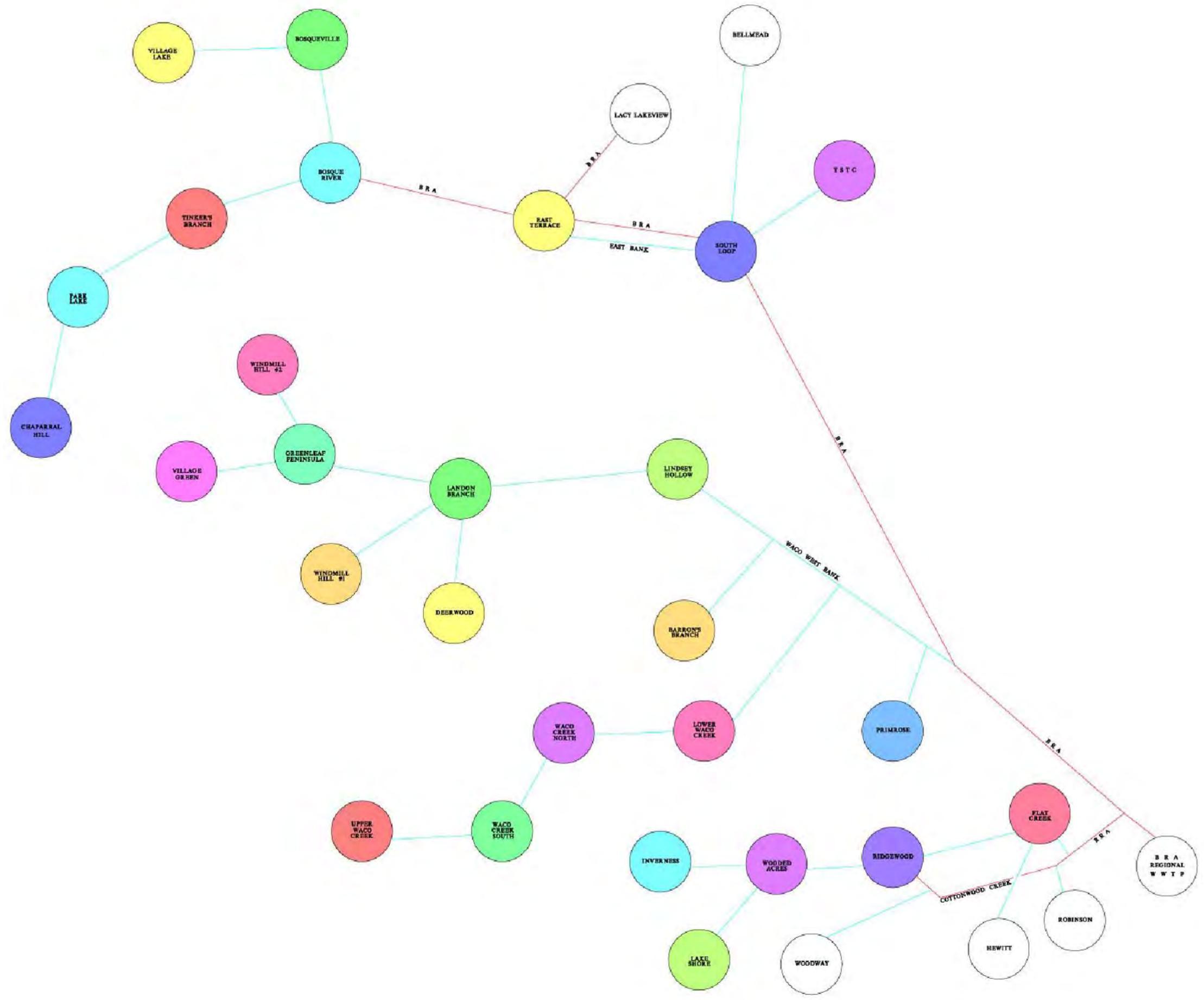


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BY: J. W. WILSON	CHECKED: J. W. WILSON

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The Professional Surveying & Mapping Company	
NO. 1000	WACO, TEXAS
DATE: 10/15/2010	PROJECT: WATER SERVICE
SCALE: 1" = 100'	DATE: 10/15/2010
BY: J. W. WILSON	CHECKED: J. W. WILSON

CITY OF WACO
 ROBERT J. BARNETT
 MAYOR

FOR INFORMATION
 WACO WATER UTILITY
 1000 W. WACO BLVD.
 WACO, TEXAS 76798



**CITY OF WACO
EXISTING WASTEWATER SYSTEM
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Basin One (Bosqueville) and Two (Village Lake) primarily serve the Steinbeck Bend, Waco Airport, and the China Spring areas. These facilities are fairly new and have capacity for growth. They tie into the Brazos River Authority (BRA) facilities near the Brazos River on Martin Luther King Boulevard. Basin Three (Bosque River), which serves the Lake Shore Drive and McLennan County Community College (MCC) areas, also ties in at this location. Basins Ten (Chaparral Hill), Nine (Park Lake), and Seven (Tinker's Branch), tie and pump into Basin Three (Bosque River). All of these basins are also relatively new and while nearly fully developed, there is some room for additional development. Existing facilities should have the capacity needed to serve this development.

The BRA east bank facilities continue downstream from Basin Three (Bosque River) into Basin Four (East Terrace). Basin Four (East Terrace) is substantially developed with heavy industrial users on the northern end. This area is mostly developed, with some minor exceptions in the residential areas and the industrial areas on the end of the system. These systems have been recently upgraded on the northern end in an attempt to handle peak demand from the wet industries located there. This area is limited in wet industrial development potential. The BRA west bank collector interceptors extend from area Four (East Terrace) into area Five (South Loop) and pump across the Brazos River by a major Brazos River Authority lift station located near La Salle Street

into the Brazos River Authority west bank system. The Texas State Technical College (TSTC) extension built by Waco ties into the BRA's system at the northern end of area Five (South Loop); this extension is relatively new and has substantial capacity. The TSTC campus is now served by this extension.

The BRA Cottonwood Creek interceptor connects to the west bank BRA system near the sewage treatment plant and extends up Cottonwood Creek into area Twenty-Six (Flat Creek). The city of Robinson is also connected to the BRA system at South 12th Street. The city of Hewitt is connected to the City of Waco facilities in area Twenty-Six (Flat Creek). Areas Seventeen (Inverness), Eighteen (Wooded Acres), Nineteen (Lake Shore), and Twenty (Ridgewood) are connected to the BRA lift station near State Highway 6 (the same lift station where the city of Woodway is connected); these areas are pumped into the BRA facilities in area Twenty-Six (Flat Creek). Seventeen (Inverness), Eighteen (Wooded Acres), Nineteen (Lake Shore), and Twenty (Ridgewood) are relatively fully developed and have adequate capacities. Area Twenty-Six (Flat Creek) is relatively undeveloped and capacities must be improved on a periodic basis. Currently, north Flat Creek, south Flat Creek, and the city of Hewitt pump over into the Cottonwood Creek interceptor. The BRA facilities in this basin have been enlarged once.

Ultimately, additional facilities may be needed. Future facilities may be located in more southerly basins, to relieve the BRA Cottonwood Creek mains when they again become loaded. The Brazos River Authority west bank system extends from the sewage treatment plant up to the area of La Salle Street. Basin Twenty-Five (Primrose) connects at this point. The Primrose Basin is not completely developed and has capacity for development in some areas.

The BRA system for Central Waco ends on the West Bank of the Brazos at La Salle Street. The remainder of the Waco collection system (from La Salle Street to Cameron Park, to Lake Shore Drive, to Valley Mills Drive) is an old system in a relatively fully developed area, and has in the past experienced inadequate capacity to handle wet weather flows. An extensive rehabilitation program is progress. Initial work in several basins is complete. Work also continues in other basins.

Rehabilitation of old collection systems is the preferred first alternative. Identifying areas to reduce excess flows, where possible, is the most economic alternative. If, after reducing flows, capacity problems on wet weather overflows remain, other alternatives must be considered. These include (1) new or parallel collectors, (2) larger lift stations and force mains, (3) redirecting flows to basins with spare capacity, (4) equalization basins to hold and release excess flows, and

(5) in some cases, stormwater treatment and discharge.

From the Brazos River Authority system at La Salle Street, the City of Waco system extends up the west bank of the Brazos. Basin 22 (Lower Waco Creek) connects to the west bank interceptor in several locations between La Salle Street and Franklin Avenue. This basin has experienced lack of capacity for wet weather flows.

Basin 23 (North Waco Creek) and 24 (South Waco Creek) connect into Basin 22 (Lower Waco Creek). The North Waco Creek Basin extends northwest to the area of Lake Air Drive and Cobbs. This basin has experienced lack of capacity in wet weather. Basin 24 (South Waco Creek) extends west to Loop 340 and Richland Mall area. This basin also has experienced wet weather problems.

Basin 27 (Upper Waco Creek) generally extends from near Lake Air and Valley Mills Drive up Lake Air to Cobbs, and up Valley Mills Drive to Charboneau. This basin connects to Basin 24 (South Waco Creek). This basin has some identified structural problems in the lower end of the basin and throughout the South Waco Creek Basin.



The City of Waco West Bank Interceptor, which has wet weather capacity and structural problems, continues from Basin 22 (Lower Waco Creek) up to Basin 21 (Barron's Branch) and Basin 8 (Lindsey Hollow). Basin 21 (Barron's Branch) has experienced wet weather capacity problems. Basin 8 (Lindsey Hollow) has significant wet weather problems. The problems are significant due to wet weather conditions in Lindsey Hollow, lack of capacity in the West Bank Interceptor, and a large volume of wastewater pumped into Lindsey Hollow from Basin 15 (Landon Branch).

Landon Branch has wet weather problems and receives wastewater from Basin 16 (Deerwood), Basin 13 (Windmill Hill #27), Basin 14 (Windmill Hill #1), Basin 11 (Greenleaf Peninsula), and Basin 12 (Village Green).

In general, recently completed extensions to new areas have ample capacity. The U.S. Highway 84 extensions, when completed, will have plenty of capacity. The Waco sanitary sewer system has wet weather capacity problems in several areas.

If proposed regulatory enforcement and documentation of: 1) adequate capacity; 2) proper management, operation, and maintenance; 3) prohibition of overflows; and 4) public notification of overflow, is adopted as is expected, and Waco is to comply and conform, then significant improvements are

required. Major areas of concern include:

1. The West Bank Outfall along the Brazos River,
2. Lindsey Hollow,
3. Lower and North Waco Creek,
4. Barron's Branch

The original master plan for the BRA Waco Metropolitan Area Regional Sanitary Sewer System envisioned future interceptors in West Waco down Flat Creek and Castleman Creek, as development occurred. The original West Waco Interceptor was to be installed along Cottonwood Creek. The original master plan was prepared in 1966-67.

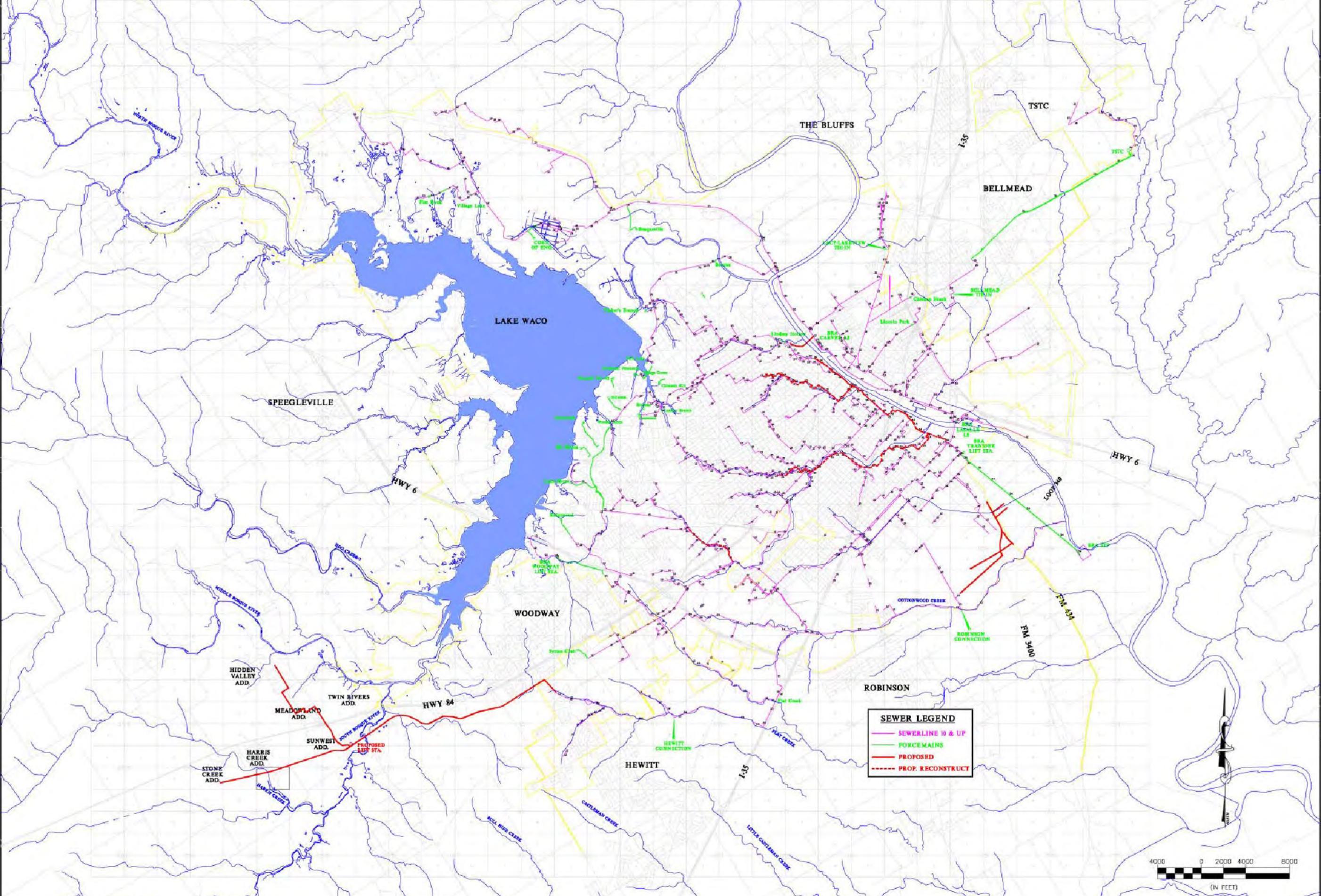
Thirty-four years later, there is, through a contract between Hewitt and Waco, wastewater being pumped from Bull Hide Creek to Castleman Creek, from Castleman Creek to Waco facilities in Flat Creek, which pumps to Cottonwood Creek. When the Waco-BRA State Highway 84 system is placed into service, wastewater will be pumped from the Harris Creek and South Bosque basins into Cottonwood Creek.

Wastewater Collection Recommendations:

1. An initial step would be to consider transferring the majority of the waste stream from Lindsey Hollow/upstream end of the West Bank Interceptor across the Brazos River into the BRA East

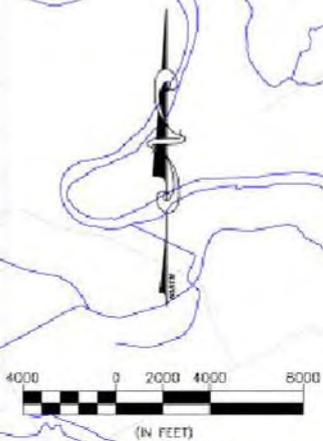
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SEWER LEGEND

- SEWERLINE 10 & UP
- FORCEMAINS
- PROPOSED
- - - PROP. RECONSTRUCT



CITY OF WACO
MAJOR WASTEWATER MAINS
AND RECOMMENDATIONS

The Wallace Group, Inc.
 Engineers ■ Architects ■ Planners ■ Surveyors

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- Bank Interceptor. The BRA East Bank Interceptor, below Herring Avenue, appears to have significant excess capacity. The Waco West Bank Interceptor is overloaded and the overloading contributes to the problems in the major basins, Lindsey Hollow, Barron's Branch, and Waco Creek, which connect to the West Bank Interceptor. Relieving the West Bank Interceptor would be the first step in the overflow problems in the older parts of the Waco sewer system.
2. After evaluating the benefit of reducing the flows in the West Bank Interceptor, capacity improvements in the major basins will still probably be a necessity.
 3. A new interceptor down a major creek west of Cottonwood Creek will eliminate a great deal of pumping. Prior to any major enlargement of the transfer facilities, an interceptor should be considered.
 2. Barron Branch Drainage Basin Infiltration and Inflow Reduction Project, GSW and Assoc., 1993.
 3. Landon Branch Drainage Basin Infiltration and Inflow Reduction Project, GSW and Assoc. 1994.
 4. North Waco Creek Drainage Basin Infiltration and Inflow Reduction Project, GSW and Assoc. 1994.
 5. Lower Waco Creek Drainage Basin Inflow and Infiltration Reduction Project, GSW and Assoc. 1997.
 6. Upper Waco Creek Drainage Basin Inflow and Infiltration Reduction Project, GSW and Assoc., 1997.
 7. Facility Plan for Wastewater Collection - Waco, URS, 1981.
 8. Brazos River Authority Triennial Report Waco Metropolitan Area Report Sewage System, HDR, 1998.

Wastewater recommendations are graphically depicted on **Plate 6-7**.

References for the Wastewater Treatment Portion of This Section

1. Wilson Creek Drainage Basin Infiltration and Inflow Reduction Project, GSW and Assoc. 1992.

STORMWATER

Flood Control

A map of the city of Waco shows the 100-year flood plains as delineated by the Federal Emergency Management Administration (FEMA) (refer to **Plate 6-8**). The City of Waco Engineering Services Division administers the floodplain regulations in Waco. FEMA only designates 100-year flood and greater floodplains, and discontinues the study area when a basin becomes smaller than one square mile in area (640 acres).

Most of Waco east of State Highway 6/Loop 340 was developed before the FEMA floodplain regulations were developed. The FEMA regulations require that all new habitat structures be at least one foot above the 100-year flood plain level, and that no encroachment be allowed in the floodway, which is considered to be the main water course that must be reserved to allow a 100-year flood to pass without raising that main water course by more than one foot.

Waco has had a widely respected Storm Drainage Design Manual since 1959. Unfortunately, most of Waco east of New Road was developed before 1959. Many areas of Waco Creek and Barron's Branch were developed with inadequate drainage. Many of the severe problems were addressed in the 1967 Capitol Improvement Program. Some homes in these areas, however, are subject to flooding.

In the last 15 to 20 years, some cities (Austin and College Station, for example) have adopted fairly detailed detention pond requirements intended for the purpose of flood control. These facilities are somewhat land intensive, have a capital cost, and if they are not maintained, they can lose their effectiveness. In many cases, depending upon the basin characteristics and even if the facilities are operating properly, little or no peak flood level reduction is realized. The City of Waco, like the majority of Texas cities, only requires detention on a case-by-case basis. Waco may need to expand their policy as case law changes.

Stormwater Management/Erosion Control

Two initiatives by the Environmental Protection Agency (EPA) have affected stormwater management in Waco. Both initiatives are derived from the Clean Water Act.

The first initiative is the designation, identification, and inventory of "wetlands" by the Fish and Wildlife Service. Every drainage way, many low-lying areas, and many stock tanks have been identified and declared "Wetlands of the United States." A wetland does not have to be wet, ever. The designation can be applied simply by the type of vegetation present, such as willow trees and certain weeds and grasses normally associated with excess moisture. Wetland regulations state "Persons intending to engage in



activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.”

Provisions exist to allow construction work, such as drainage improvements, in wetland areas. These procedures are time-consuming, costly, and not totally without negative consequences. In response to wetland issues, in some cases wide natural channels are being used that are calculated to carry the desired amount of drainage in lieu of improved drainage channels, leaving wetlands undisturbed.

The second initiative is the requirement for Waco to comply with a permitting system for stormwater discharges in the city. The Clean Water Act (CWA) provides that the stormwater discharges associated with industrial activity from a point-source to waters of the United States are unlawful unless authorized by a National Pollutant Discharge Elimination System (NPDES) Permit.

The proposed actions for the City of Waco require compliance activities from industries and construction sites. Industries, particularly industries with outside storage or outside operations, must be permitted. Construction sites totaling more than five acres, including all phases, must comply (this will be reduced to one acre in 2003). Contractors must use “Best Management Practices”

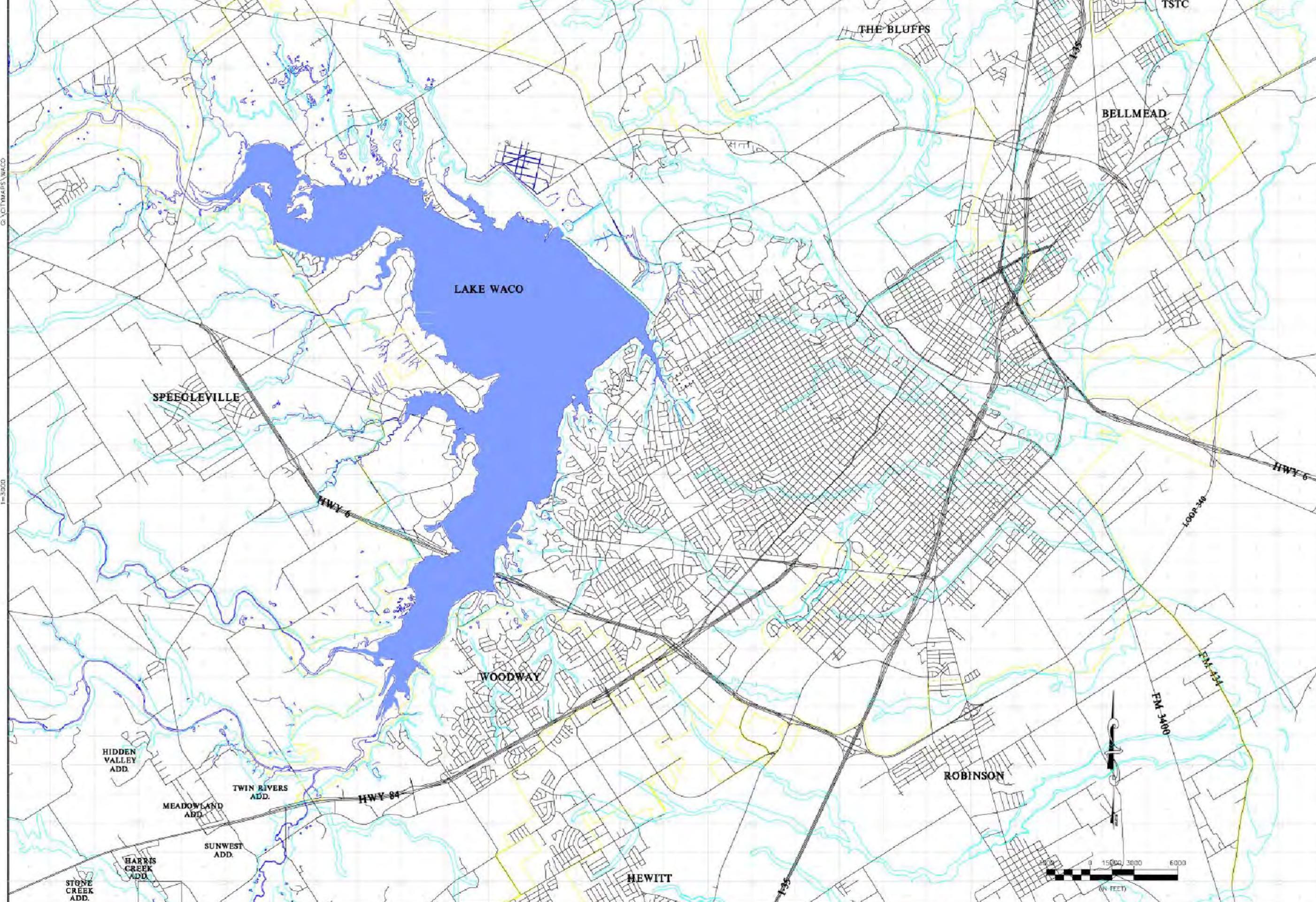
(BMPs) in controlling the quality of stormwater discharge from their project.

The EPA approval process involves months of testing stormwater run-off in selected streams. Waco is not required by EPA regulators to implement structural features in the permanent stormwater drainage system to improve the quality of the stormwater.

RECENT INITIATIVES

The U.S. Army Corps of Engineers is modifying city procedures for regulatory development in the wetlands and floodplains (refer to **Plate 6-8** for floodplain areas in relation to Waco) of the United States. Nation-wide permits may be limited to projects of 0.1 to 0.5 acres. Even these projects may require mitigation. Larger projects will involve the more extensive individual process. Apparently, projects in fringe areas of floodplains will require a Corps permit that will be processed only after approval by the Federal Energy Management Administration (FEMA).

Stormwater permitting requirements are being increased by the U.S. Environmental Protection Agency (EPA). Current proposals for residential construction require developers, lot owners, and homebuilders to all have permits; to conform to an overall Stormwater Pollution Prevention Plan (SWPPP); to follow Best Management Practices (BMPs); and to have an erosion control plan.



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CITY OF WACO
FLOODPLAIN

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Projects must have qualified personnel performing biweekly inspections and inspections following 0.5" or more of rainfall. Additional requirements include signs, stabilized construction vehicle entrances to clean mud from vehicles, and detention ponds for sites greater than 10 acres.

Stormwater Recommendations

1. The City should continue to ensure that development activities are in accordance with Texas Water Law and are not causing damage to lakes, rivers, tributaries, or down-stream properties due to an increase in runoff. If the receiving stream is not adequate for the increased runoff caused by proposed development, mitigating facilities should be required.
2. Waco should ensure that projects undertaken for the purpose of reducing flooding in older developed areas of the City should be funded on some schedule, based upon objective criteria

URBAN EXPANSION, DEVELOPMENT STANDARDS, AND ETJ ISSUES

General

STREETS

Since the implementation of Subdivision Ordinances in Texas in the mid-1950s, Waco has had a relatively successful development system. In 1957, the City of Waco adopted a basic requirement for roadway construction: a cement-stabilized base, a hot-mixed surface, curb and gutter, and storm drainage. Since 1957, through development of the private sector, and through construction and reconstruction programs by the City, hundreds of miles and thousands of blocks of city streets have been constructed. Normal city streets have a life span of approximately 20-30 years without reconstruction, if properly maintained. In the last 43 years, less than 1/2 of one percent of the streets that were constructed using these methods has required reconstruction. With reasonable maintenance, these streets have significant remaining life. Cement-stabilized base streets have served Waco very well.

Within the city of Waco, the standards for all types of development are relatively similar. Conversely, in Waco's ETJ area, most developments do not have curb and gutter and underground drainage or wastewater collection facilities. This represents tremendous

economic benefits to developers who are developing properties and building homes to compete with those inside the city of Waco. In most cases, in the ETJ, cement stabilized base and hot-mixed streets have been required. In some cases, under previous ordinances, flexible base streets have been constructed within the ETJ. Outside the ETJ, in the County, almost always streets are rural sections (i.e., no curb and gutter, no underground drainage) with flexible gravel base and a seal coat surface. Outside the ETJ, the water systems are normally rural water systems (2-inch to 4-inch, thin-walled PVC). **Table 6-4** outlines comparative general costs of development relative to City of Waco urban standards, to current ETJ standards, and to County standards.

Some contractors, in areas with no clay soil and with access to good

materials, are able to construct flexible base streets that will last 15 to 20 years (approximately 1/4 to 1/3 the expected life of cement-stabilized base streets). Several major developments have occurred with expensive homes, flexible-base streets, and rural water mains. The cost of maintaining and repairing streets and roads in the ETJ and the county area is borne by the county taxpayers, which includes Waco.

***Urban Development
Street Recommendations***

1. The City of Waco should continue to require “permanent” street construction in the city limits and the ETJ.
2. The City of Waco should work with the County to upgrade the county road requirements in new development.

**Table 6-4
APPROXIMATE RELATIVE DEVELOPMENT COST (1/3 to 1/2 Acre Lots)
City of Waco, Texas**

Type of Service	Urban Curb & Gutter, Cement Stabilized Base, Hot-Mix, Stormwater	Rural-ETJ, Cement Stabilized Base, Hot-Mix, Urban Water	Rural-County, Flexible Base, Seal-Coat, Rural Water
Street Base and Paving	30%	30%	15%
Curb & Gutter/Drainage	20%	0 (ditches)	1 (ditches)
Water	25%	25%	5%
Wastewater	25%	0 (OSSF)*	1 (OSSF)*
Relative Cost	100%	55%	20%

* OSSF costs are absorbed by the homebuilder at the time of homebuilding, not by the developer during the development of lots.



WATER

The City of Waco has a Certificate of Convenience and Necessity (CCN) for the city of Waco and for the city of Waco's ETJ, as it existed when the CCN was granted in 1977 (refer to **Plate 6-9** for a graphic description of service areas). The City of Waco is dually certified to serve its ETJ as it existed in 1977 with all of the other water systems that exist within that area having a certification. Waco is not dually certified to serve the city of Hewitt, city of Woodway, city of Bellmead, city of Lacy Lakeview, or the city of Robinson. Within the city of Waco, as it currently exists, are a few small water supply corporations and publicly held water systems. Immediately outside the city of Waco are a number of significant water supply corporations, along with several significant privately held water systems.

The CCN that Waco currently holds provides Waco both the *authority* to serve the CCN area (shown on **Plate 6-7**), and the *responsibility* to serve the CCN area. If these water systems become insolvent, a significant question would be: "Is Waco obligated to step in on an emergency- or a long-term basis and serve these areas?"

The City of Waco, through its water system and Lake Waco, currently serves all of Waco and provides a supplementary wholesale source to the cities of Woodway, Hewitt, Bellmead, and Lacy Lakeview. The cities and water systems to the

extreme west of Waco (McGregor and further west) are currently receiving surface water from Lake Belton. The city of Robinson and the city of Lorena currently receive surface water from the Brazos River and Lake Whitney. Refer to **Plate 6-10** for illustration of areas that receive the majority of their water supply from surface water. All of the other water systems receive all of their water from groundwater, including a majority of the water used by Woodway, Hewitt, Bellmead, and Lacy Lakeview. Groundwater in this area is clearly a declining and limited resource. The City of Waco is the logical regional wholesale provider to most of these systems.

There are approximately five categories of water systems in McLennan County outside of Waco. These can be described as follows:

1. Water systems in the ETJ of Waco that are likely to be annexed within the next 20-40 years.
2. Water systems in the ETJ not likely to be annexed, but likely to become wholesale customers.
3. Water systems in the ETJ not likely to be annexed, and not probable wholesale customers.
4. Water systems not yet in the ETJ, but probable wholesale customers; and,
5. Water systems not yet in the ETJ, and not probable wholesale customers.

**Insert Plate 6-9: Service Area
Map**



Water systems in the ETJ that are likely to be annexed should be more closely scrutinized by the City of Waco than any others. The City may encounter difficulties in annexing areas that are not served by City of Waco water systems when and if the annexed areas experience significant problems with their water service, especially considering that the annexed areas are likely to have subdivision development activity.

Currently, developments served by water systems in the ETJ are required to have minimum City facilities within the subdivision (i.e., 8-inch mains with fire hydrants). In most cases, the water system providing water to these subdivisions cannot meet fire protection requirements. They may, in fact, even have difficulty meeting peak-day domestic requirements.

Urban Development Water Recommendations

It is recommended that the following minimum activities be considered for water systems in the city limits or in the ETJ and areas likely to be annexed:

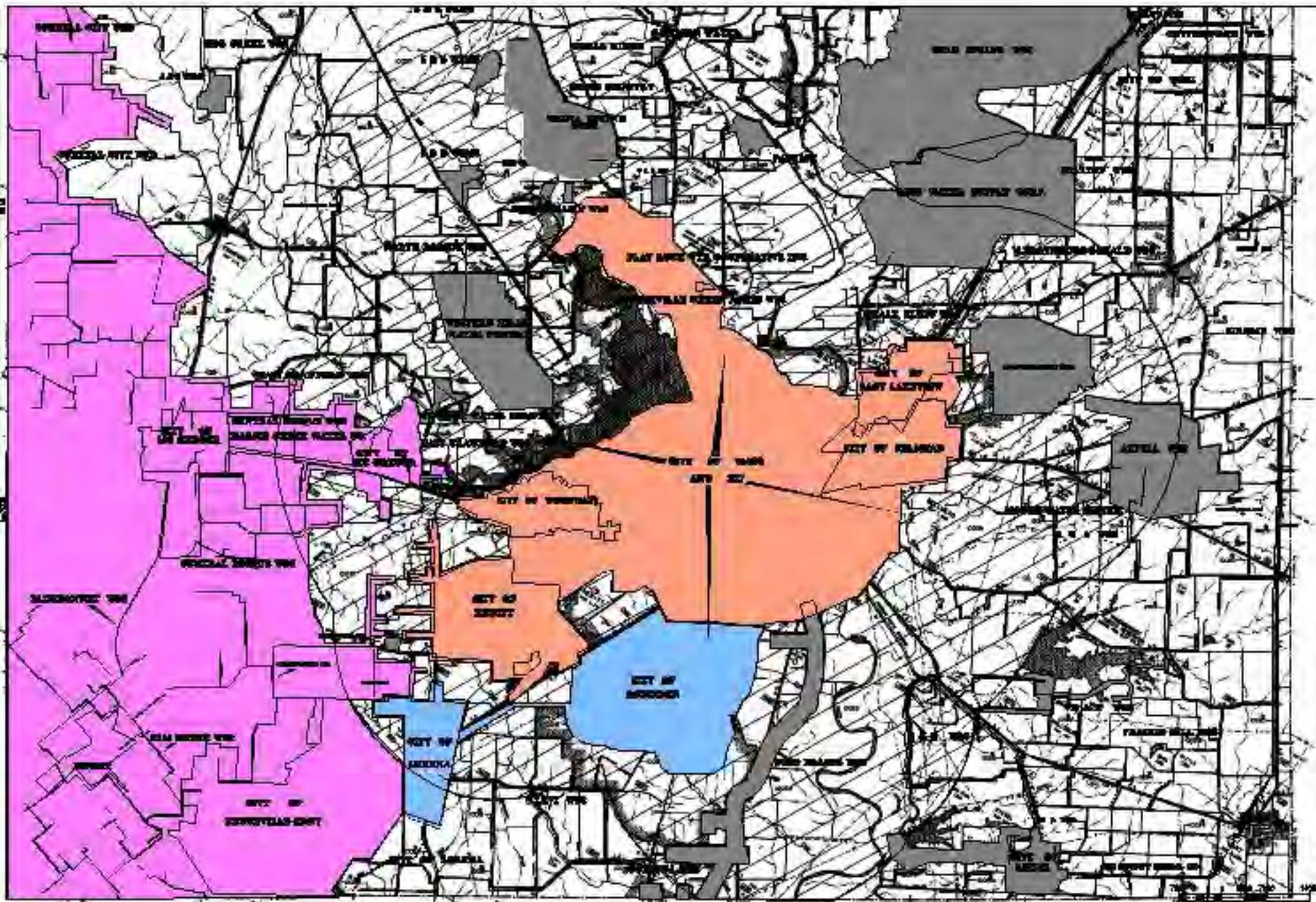
1. Absolutely ensure that these water systems meet all current minimum TNRCC standards.
2. Require substantial documented evidence that peak summer day requirements (which are often greater than TNRCC minimum requirements if the development is reasonably upscale) are met including future growth scenarios prior to approving new developments.
3. Consider requiring fire protection, at least for subdivision areas, to include minimum flow requirements and loss of electric power provisions.
4. Establish franchise fees for areas prior to their annexation.
5. Identify means of using the City of Waco's CCN as a growth management tool.
6. Waco should pursue enabling legislation for the management of development in the unincorporated areas surrounding Lake Waco.

The incorporation of the above requirements will ensure that these water systems meet standards of service that are relatively similar to those being provided to the customers of the City of Waco.

WASTEWATER

The City of Waco is currently extending wastewater service to recently annexed areas in order to protect Lake Waco. This would involve putting in wastewater collection systems where on-site sewage facilities (OSSFs) currently exist. Many of these OSSFs were installed prior to the current regulations. As has been previously stated, the current minimum regulations may not be satisfactory to protect individuals and water sources. The area between the North Bosque River and the Speegleville

Creek up to Highway 6, across to Hog Creek, to the Middle Bosque River (not including the recently annexed areas adjacent to Lake Waco) are a concern.



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 FAX: (303) 733-1001
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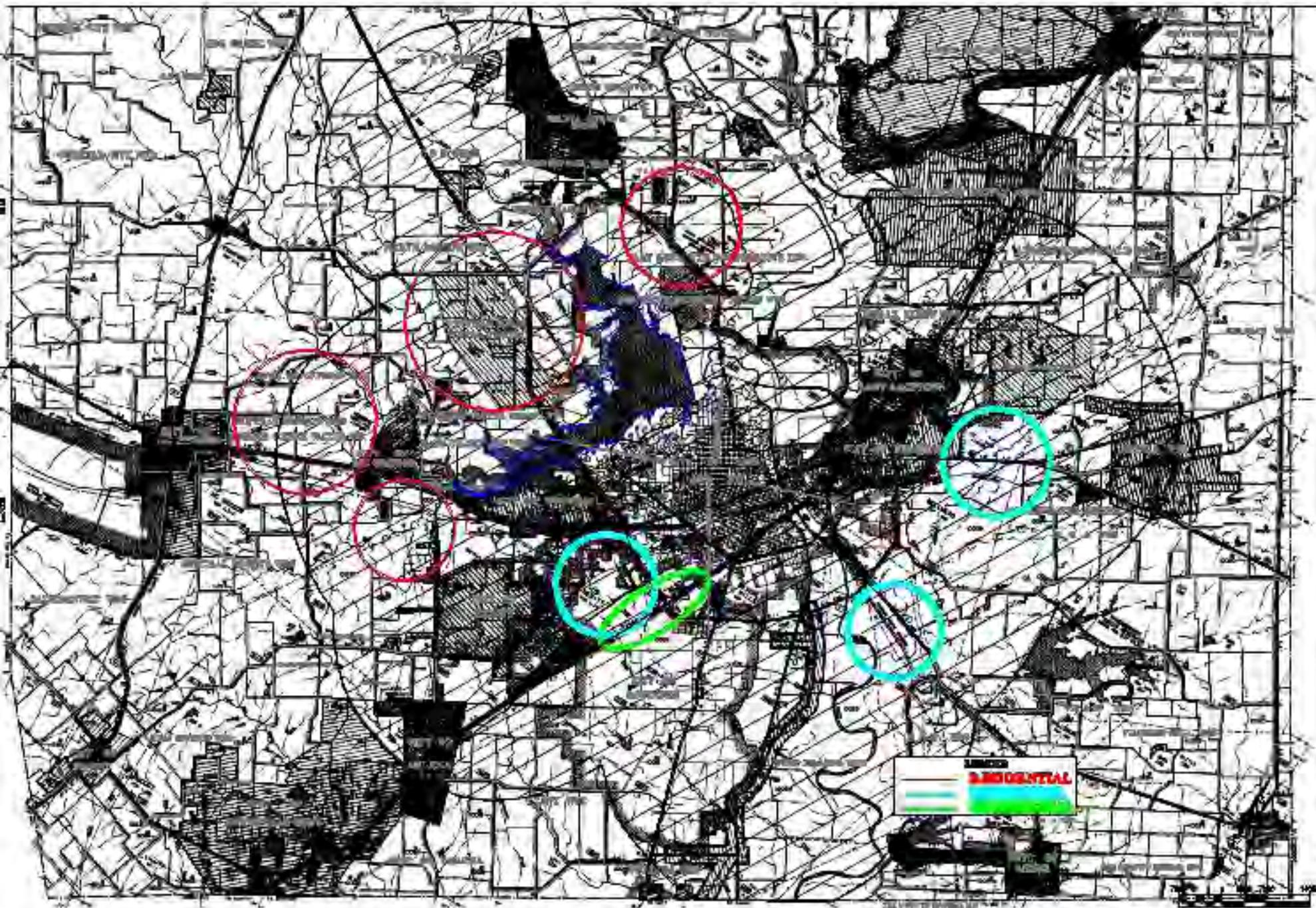
Rural water systems are adding many customers with on-site sewer facilities in this area. A comprehensive solution for OSSFs to be permanent satisfactory solutions is needed so that additional facilities do not have to be constructed. However, there are many OSSFs in these areas that were built on small lots prior to the implementation of current regulations. A long-term solution to the wastewater/OSSF needs in this area may become critical.

width of greater than 250 feet, must be served by an OSSF (if aerobic, either underground or surface disposal); the City should also require the construction of a dry wastewater collection system in accordance with approved engineering plans to facilitate future connection to a central facility.

Urban Development Wastewater Recommendations

1. The City should require lots that are less than one-acre in size to have a wastewater collection system connected to a treatment facility permitted by TNRCC.
2. The City should require lots that are one- to two-acres in size, and that not are connected to a wastewater collection system permitted by TNRCC, to have a minimum width of 200 feet, and to be served by an aerobic OSSF with underground disposal; the City should also require the construction of a dry wastewater collection system in accordance with approved engineering plans to facilitate future connection to a central facility.
3. The City should require lots that are greater than two-acres in size, and that are not connected to a wastewater collection system permitted by TNRCC, to have a





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Section 7
PARKS, RECREATION & OPEN SPACE
MASTER PLAN SUMMARY



City of Waco



Comprehensive Plan 2000

INTRODUCTION

In June 1998, Carter & Burgess, Inc. prepared a *Comprehensive Parks, Recreation and Open Space Master Plan* for the City of Waco. Carter & Burgess prepared this plan in two phases using a methodology as follows.

- ◆ Recreational programs offered by the private sector; and,

The City of Waco park system was then examined in relation to peer communities in Texas and to National Recreation and Park Association (NRPA) standards.

Needs were assessed by the National Service Research Group, associates of Carter & Burgess. Based upon focus group sessions and local citizen surveys, priorities for park facilities were determined.

THE FIRST PHASE

An inventory and supply analysis of existing parks and recreation facilities in the city was conducted that included:

- ◆ The public park and recreation areas owned by the City,
- ◆ Areas leased from U.S. Army Corps of Engineers, and
- ◆ “Joint-use” facilities owned by the Waco School District.

In addition, an inventory of the following was conducted:

- ◆ Land proposed for park dedication;
- ◆ Land targeted for disposal;
- ◆ Streams and rivers for potential development;
- ◆ Existing recreational associations and organizations;
- ◆ Recreational programs offered by the City;

THE SECOND PHASE

Using the information obtained during the first phase, a Five – Year Action Plan was written depicting the general location of recommended parks, and linkages between parks, recreation areas, and open spaces.

The Plan includes guidelines and recommendations to direct the acquisition, development and maintenance of parks, recreational areas, and open spaces. To facilitate plan implementation, budget estimates and a series of policy, ordinance and funding source recommendations were presented.



Findings

The 1998 Master Plan documents existing park acreage in the city of Waco as follows:

- ◆ 18 neighborhood parks with approximately 128 acres, which represents a ratio of 1.23 acres per 1,000 people based upon the 1996 population of 103,590 people. *The NRPA's neighborhood park standard for neighborhood parks is between 1.25-2.5 acres per 1,000 people.*
- ◆ 8 community parks totaling approximately 83.79 acres, which represents a ratio of 0.81 acres per 1,000 people. *The NRPA's community park standard is 5-8 acres per 1,000 people.*
- ◆ 9 metropolitan parks totaling 286.23 acres, which represents a ratio of 2.76 acres per 1,000 people. *The NRPA's metropolitan park standard is between 5-10 acres per 1,000 people.*
- ◆ City-owned regional park acreage of approximately 430.85 acres,
- ◆ Approximately 4,241 acres owned by the Corps of Engineers,
- ◆ 6 special-use areas of approximately 69.66 acres owned by the Corps of Engineers, and
- ◆ City-owned open space and greenbelt areas of approximately 226.74 acres.

Existing park facilities in Waco include:

- ◆ 16 baseball fields,
- ◆ 14 outdoor basketball courts,
- ◆ 1 football field,
- ◆ 29 pavilions/picnic shelters,
- ◆ 331 picnic tables,
- ◆ 29 playgrounds,
- ◆ 5 recreation center/indoor activity places,
- ◆ 25 soccer fields (league),
- ◆ 5 softball fields (league),
- ◆ 3 outdoor swimming pools,
- ◆ 39 tennis courts,
- ◆ 6.33 miles of trails (per 10,000 population), and
- ◆ 13 outdoor volleyball areas.

Waco citizens then suggested new parks/facilities and prioritized them as follows:

- ◆ Additional Outdoor Pool,
- ◆ Hike/Bike/Walk Trails,
- ◆ Playgrounds And Play Equipment,
- ◆ Additional Softball Fields,
- ◆ Outdoor Special Events Facility,
- ◆ Nature Trails,
- ◆ Upgraded Outdoor Pool,
- ◆ Indoor Pool,
- ◆ Benches/Seating Areas,
- ◆ Picnic Shelters/Tables,



- ◆ Additional Outdoor Basketball Courts,
 - ◆ Indoor Special Events Facility,
 - ◆ Community Recreation Center,
 - ◆ Additional Tennis Courts,
 - ◆ Additional Football Fields,
 - ◆ Additional Sand Volleyball Courts,
 - ◆ Large Outdoor Open Spaces,
 - ◆ Additional Parking,
 - ◆ Additional Practice Fields,
 - ◆ In-Line Hockey Court,
 - ◆ Concession Stands,
 - ◆ Additional Soccer Fields, and
 - ◆ Additional Baseball Fields.
- ◆ Develop new parks, with new playgrounds and play equipment, in previously underserved areas;
 - ◆ Upgrade facilities and equipment in existing parks;
 - ◆ Provide access to additional facilities through joint-use agreements with Waco Independent School District;
 - ◆ Construct a sports complex with additional softball fields;
 - ◆ Build a new outdoor special events facility;
 - ◆ Develop nature trails along drainage corridors and natural areas designated for preservation/conservation such as Waco Creek, Cottonwood Creek, Flat Creek, the Brazos and Bosque Rivers, and Lake Waco; and,
 - ◆ Construct a new public indoor pool complex.

FIVE-YEAR ACTION PLAN RECOMMENDATIONS

The *1998 Parks, Recreation and Open Space Master Plan* recommendations are as follows:

High Priorities

- ◆ Develop an additional outdoor swimming pool complex;
- ◆ Create hike/bike/trail linkages to existing and new parks, as well as to other municipal and recreation destinations;

Moderate Priorities

- ◆ Provide more benches and seating areas, picnic shelters and tables, outdoor basketball courts, tennis courts, football fields, and sand volleyball courts in all parks;
- ◆ Through joint-use agreements with Waco Independent School District, Baylor University, and McLennan Community College, utilize existing outdoor basketball courts, tennis courts and football fields;

- ◆ Develop a new centrally located Community Recreation Center to serve Waco residents; and,
- ◆ Develop a new Indoor Special Events Facility.

Low Priorities

- ◆ Identify options for acquisition of land for the development of large open spaces and parks;
- ◆ Develop additional parking areas at existing parks and ensure adequate parking in newly developed parks;
- ◆ Build new softball, soccer and baseball athletic practice fields; add additional soccer and baseball fields to existing parks;
- ◆ Through joint-use agreements with Waco Independent School District, Baylor University, and McLennan Community College, increase community access to existing soccer, softball and baseball fields and outdoor practice facilities.
- ◆ Add new soccer and baseball fields in newly developed parks.
- ◆ Construct a new in-line hockey court.
- ◆ Provide concession stands at all existing athletic complexes; upgrade existing concession facilities, as needed.

OTHER RECOMMENDATIONS

Park Dedication

Many cities across Texas have incorporated mandatory park dedication ordinances in order to help meet the increasing need for park space as development occurs and population increases. It is recommended that the City of Waco draft and adopt a park dedication ordinance into the City Subdivision Ordinance. The parkland acreage requirement could be based on either the number of units within the new development, or developers could pay a fee to a City park fund, in lieu of land dedication.

The Existing Park Plan

The 1998 Parks, Recreation and Open Space Master Plan delineated five planning zones by which specific recommendations were made. Since the Plan's adoption, interest in developing the area west of Lake Waco has grown. It is recommended that the City adopt a park dedication ordinance as soon as possible in order to ensure that new residents have adequate and convenient access to parks and open spaces. Accordingly, the City has added a new park planning zone to the existing *Parks, Recreation and Open Space Master Plan* that encompasses the area west Lake Waco (refer to **Plate 7-1**).



The Use of Retention/ Detention Ponds

The City has an opportunity to incorporate environmental elements such as retention/detention ponds into local parks areas. Serving the dual purposes of lessening degradation of the environment and creating aesthetic water feature amenities in park areas, the ponds' construction must accord with specific guidelines. The City's Parks and Recreation Department (PARC) has established preliminary recommendations for the construction of these ponds. Developers are required to follow the construction guidelines in order that the PARC can assume maintenance of the ponds after their official dedication to the City. The guideline recommendations are as follows:

- ◆ The pond must be part of a dedicated park;
- ◆ The dedicated land must be at least five acres;
- ◆ The dedicated land must include acreage that is above the 100-year flood plain, which may be utilized by the public for park and recreational enjoyment.
- ◆ Pond dimensions should be approximately 20 feet of horizontal to every one foot of vertical. Side slopes should be approximately seven feet of

horizontal to every one foot of vertical.

- ◆ The portion of the dedicated land above the 100-year flood plain and/or is part of the side slope of the pond must be developed with trees, turf and an irrigation system. Erosion controls approved by the City Engineering Department and PARC must also be incorporated into these areas.

Developers should have flexibility in the retention/ detention ponds' design process to create features that will complement park areas. For example, pond basins need not be rectangular in shape; design character that enhances the overall aesthetics of the park area is encouraged. It is imperative that guidelines be followed, so that the City and PARC may avoid the larger problem of maintenance issues in connection with the dedication of such retention/detention pond facilities. To ensure that the development of the design of the dedication will be harmonious and complementary to the project and an asset to the community, City staff and the developer's work on the project should be closely aligned.

CONCLUSION

The 1998 Parks, Recreation and Open Space Master Plan by Carter & Burgess provides an expenditure analysis for each action item addressed in the recommendation section. In addition, this Plan identifies policies, ordinances, and funding methods to facilitate Plan implementation.

Waco should continue its efforts to beautify the city by creating spaces for public enjoyment. New development should be prioritized and scheduled accordingly.



Section 8
FUTURE LAND USE PLAN



City of Waco



Comprehensive Plan 2000

INTRODUCTION

The Comprehensive Plan is a guide for development, implemented through zoning and subdivision ordinances and programs that address policy objectives. Throughout the comprehensive planning process, the community has identified important development issues. These, in turn, have been formulated into goals and objectives, and into policy and guideline recommendations – noted throughout the various sections of the Comprehensive Plan.

Future land use planning is a process by which a community can anticipate and accommodate change, and in a sense, shape its future. A composite of the Comprehensive Plan, the *Future Land Use Plan* is a framework. Its structuring elements are the various recommendations made within each respective section, such as the *Transportation Plan*, the *Housing Strategies*, from which the preferred pattern of development for the city of Waco is derived.

The Future Land Use Plan is not a plan unto itself, nor is it a zoning document, which deals with specific development requirements and specific parcels. Graphically depicted for use in conjunction with City policies and guidelines applied during the development plan review process, the *Future Land Use Plan* depicts the desired patterns of development identified throughout the comprehensive plan process. It is a comprehensive ‘footprint’ of the City’s vision for its future

composition. The Future Land Use Plan, as illustrated by **Plate 8-1** and **Plate 8-2**, is the composite of all the structuring elements of the Comprehensive Plan, which form the framework upon which the future land use pattern of the city can develop.

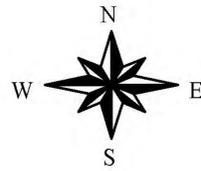
LAND USE COMPATIBILITY

The *Future Land Use Plan* provides direction to the overall configuration development will take. Compatibility of land use is the result of planning that interrelates many factors; it is not assured by zoning and subdivision ordinances alone. As noted above, zoning ordinances apply to specific conditions relative to specific parcels of land. The *cumulative* effect of zoning, however, may be negative. For example, the intense concentration of non-residential land uses along Highway 77, a major thoroughfare offering high visibility to commercial enterprises, demonstrates that well reasoned zoning may yield unintended consequences, such as visual clutter and increased traffic congestion.

Plate 8-1 Future Landuse Plan

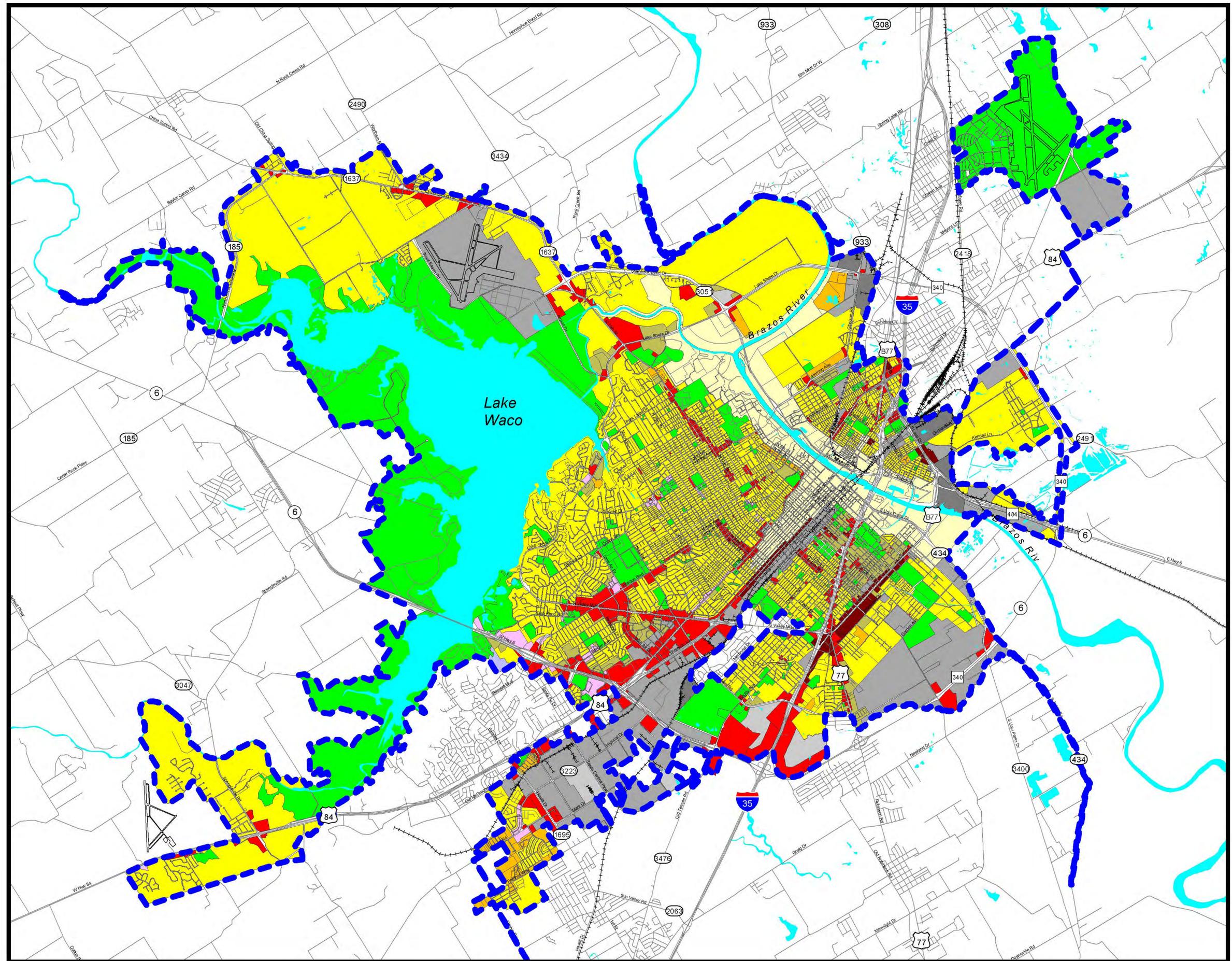
2000 Waco Comprehensive Plan

-  Waco City Limits
- Landuse Plan Designations**
-  Low Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Mixed Use
 -  Office Only
 -  Commercial and Office
 -  Service Commerical
 -  High Quality Office and Industrial
 -  High Quality Very Light Industrial
 -  General Industrial
 -  Public Semi-Public
 -  Planned Unit Developments



0.5 0 0.5 1 1.5 2 Miles

August, 2001



Taking into account the Comprehensive Plan goals for balanced development and unimpeded traffic circulation, the Future Land Use Plan guides the allocation of land uses in a pattern that will yield greater opportunity for compatibility of land use throughout the community. Specific techniques for harmonizing land uses are further discussed in the *Urban Design and Community Image* section of the Comprehensive Plan.

LAND USE QUANTITY

The Future Land Use Plan has been formulated with the objective of creating a balanced land use pattern. In order to maximize the benefits from the Future Land Use Plan, City planners must monitor the quantity of land allocated to a specific use, or “overzoning” may result. This occurs when more land is allocated to a specific use than is justified by demand. Overzoning can result in shortages of available land for other uses for which there is demand, depressed land values, and reduced tax revenues for the City. In addition, large tracts of vacant or underutilized land, subdivided to defray carrying costs, parcels rezoned to secondary (more marketable) uses, and incompatible land uses can result from overzoning.

It is difficult, if not impossible, to predetermine the amount of land that should be allocated to a specific use. In many cases, overzoning is dictated by contingencies, such as the

construction or expansion of thoroughfares, or the presence of man-made or natural barriers. These realities underscore the importance of a thorough plan review process that operates in conjunction with the Comprehensive Plan. **Plates 8-1 and 8-2** graphically depict preferred ratios for various types of land allocation.

FUTURE POPULATION INCREASE

Expansion of the housing inventory, including more affordable units, balanced with the availability of new employment opportunities will influence the rate of growth the city can expect over the coming decades.

Growth projections form the basis of planning decisions such as, how much land will be required to support a given population, and to what uses should land be allocated. As census information becomes available, analysis of the hard data may reveal population shifts or subtle demographic trends. For example, while present data suggests that Waco is decreasing in population relative to the growth of the county as a whole, overall demand for housing in the city is increasing. The trend toward smaller family size is translating into a demand for more housing, as more (smaller) family units seek housing. As new information becomes available and assumptions are modified, the *Future Land Use Plan* should be amended accordingly.

Plate 8-2 Landuse Plan for the Waco ETJ

2000 Waco
Comprehensive Plan

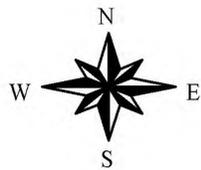
 Waco ETJ Boundary

 Local Retail

 Regional Retail

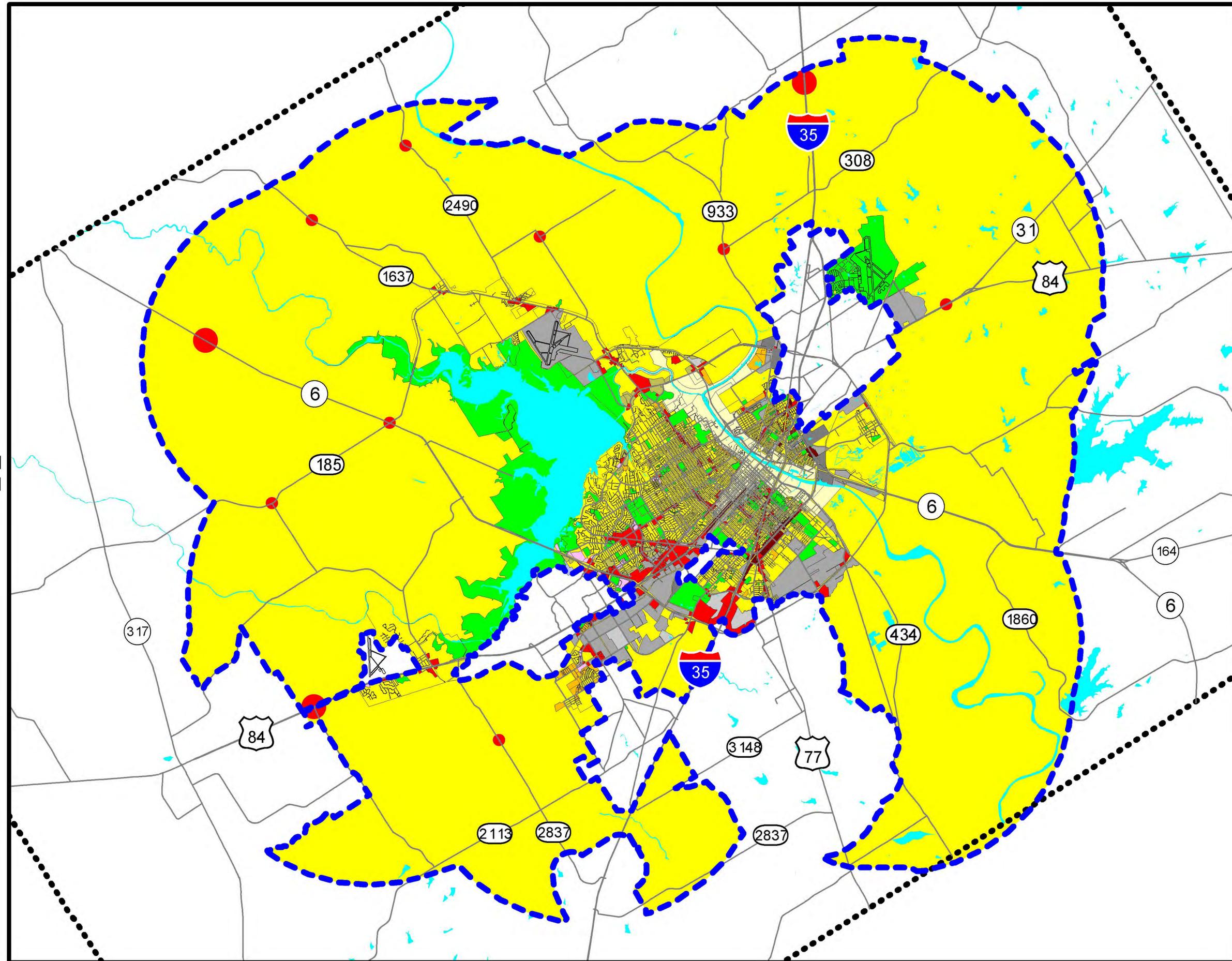
Landuse Plan Designations

-  Low Density Residential
-  Medium Density Residential
-  High Density Residential
-  Mixed Use
-  Office Only
-  Commercial and Office
-  Service Commerical
-  High Quality Office and Industrial
-  High Quality Very Light Industrial
-  General Industrial
-  Public Semi-Public
-  Planned Unit Developments



1 0 1 2 Miles


August, 2001



FUTURE LAND USE REQUIREMENTS

Based upon three population growth scenarios, shown in **Table 8-1**, the estimated acreage that will be allocated to particular types of uses as the population of Waco increases is shown in **Table 8-2**. Plan B, which projects growth at an annual rate of 1.5 percent, forms the basis of the population projections used to develop the *Future Land Use Plan* recommended for the City of Waco.

How much of a population increase could the city support within its present city limits? Assuming that

the current rate of residential development continues, with its present population of approximately 110,000, and with total land availability of approximately 58,917 acres, the city of Waco could accommodate a population increase of 25,000 residents.

Will Waco have enough land to support growth over the next twenty years? Assuming a moderate growth rate of 1.5 percent, by the year 2015, the city will have reached its maximum capacity or build-out population of 138,000. Taking that scenario further, by the year 2020 the population of the city of Waco is projected to be 150,000 (refer to **Table 8-1**).

Table 8-1
PROJECTED POPULATION GROWTH
City of Waco, Texas

Year	Plan A 1% Growth Rate	Plan B 1.5% Growth Rate	Plan C 2% Growth Rate
1980 ⁽¹⁾	101,261	101,261	101,261
1990 ⁽¹⁾	103,590	103,590	103,590
1999 ⁽²⁾	110,000	110,000	110,000
2000	111,000	111,600	112,000
2005	117,000	120,000	123,000
2010	123,000	129,000	135,000
2015	130,000	138,000	150,000
2020	137,000	150,000	165,000
Building Permits Per Year ⁽³⁾	380	570	780

Source: ⁽¹⁾ U.S. Census.

⁽²⁾ Waco Economic Development Plan, Angelou Economic Advisors, Inc., 1999.

⁽³⁾ Based on 3 persons per household and a 90% occupancy rate.



Land needed to support a population of 150,000, assuming future land use development at similar proportions as is currently occurring, is 60,000 acres (refer to **Table 8-2**). Of the 58,917 acres within the city's corporate limits today, approximately 30 percent is vacant or unused. Some land will not be developed, because of physical constraints (i.e., flood plain restrictions, etc). For planning purposes, it is assumed that approximately 10 percent of land area will remain vacant. Unless a higher density rate was to occur by 2020, the land within the city's current city limits could not support the projected population of 150,000.

By the year 2010, therefore, the city's corporate limits must be expanded in order to plan, budget and implement the required infrastructure programs necessary to support the population projected for the year 2020. The comparisons shown in **Table 8-2** facilitate a better understanding of the land use relationships shown on the Future Land Use Plan.

FUTURE LAND USE PLAN RECOMMENDATIONS

Tables 8-3 and **8-4** list the categories of land use by acreage for the city of Waco and its ETJ, respectively, based upon **Plates 8-1** and **8-2**. This graphic portrayal of land use objectives within the community has been blended with other components of the Plan such as parks/open space

and thoroughfares. Proposed land uses have been reflected not only for the existing city limits, but also within the city's ETJ. The following sections outline important features of Waco's *Future Land Use Plan*.

Recommended Future Land Uses

Most of the current land use category allocations/percentages will remain approximately the same proportionately as they now exist; however, in the next decades a few of the categories may experience adjustment based on market need. Land allocated to industrial uses, for example, is expected to increase. *The Waco Economic Development Plan*¹ of the Comprehensive Plan, discussed further in this section, has targeted light industry as Waco's major economic impetus. Moreover, the availability and suitability of land for industrial development, i.e., strategically located, proximity to infrastructure, etc., are other factors that will prompt a shift in demand for this particular land use. Other land uses may, conversely, shift downward. The requirements for traditional retail space, for example, may lessen on account of innovative development patterns (through the use of planned unit developments, for example). Also, the growth of Internet marketing (e-commerce) may impact traditional retail land use. Demand for warehouses near

⁸⁻¹ *Waco Economic Development Plan*, Angelou Economic Advisors, Inc., 1999.



transportation centers may be one result, for example, of local e-commerce entrepreneurship.

and **8-2** graphically depict the recommended land use patterns.

The following discussion of preferred land use allocation is based primarily upon current percentages of various land uses within the city,

**Table 8-2
LAND USE PROJECTIONS
City of Waco, Texas**

Land Use Category	Acres Per 100 Persons ⁽¹⁾	Future Acres Required	
		150,000 Persons	165,000 Persons
Residential Use	16.31	25,465	27,911
<i>Low Density</i>	15.07	23,605	25,866
<i>Medium Density</i>	0.32	480	528
<i>High Density</i>	0.92	1,380	1,518
Mixed Use	3.09	4,635	5,098
Public/Semi-Public ⁽²⁾	14.09	21,135	23,248
Commercial/Office	2.41	3,615	3,976
Office Only	0.29	435	478
Service Commercial	0.34	510	561
Office and Commercial	0.11	165	182
Light Industrial	1.75	2,625	2,888
Heavy Industrial	0.36	540	594
Planned Unit Development	0.05	75	84
Total Developed	38.8	59,200	65,020

⁽¹⁾ Based upon the number of acres per 100 persons listed in **Table 8-3**.

⁽²⁾ Includes Lake Waco, parks areas, and existing golf courses.

⁽³⁾ Acres per 100 persons based on the average industrial land use that a city can generally support.

Source: Dunkin, Sefko & Associates, Inc.

and upon future desired development scenarios. **Tables 8-3** and **8-4** list categories of land use allocations by gross acreage for the city of Waco and its ETJ, respectively. **Plates 8-1**



AGRICULTURAL AREAS

There are many areas within the city of Waco and its ETJ that are utilized for agricultural purposes; these areas are principally to the north and west of the city, including such areas as Steinbeck Bend. Characterized by rich, tillable soils, this prime farmland is predominant in the northern part of the city and ETJ. These areas' contribute to the region not only economically; they also serve as present reminders of Waco's past.

Conservation Easements

It should be noted that one way for the City to successfully protect these areas is through the use of conservation easements. A conservation easement is a way of purchasing development rights for land, in perpetuity, in exchange for the purchase price of that land. After establishment of the easement, no one may develop the property to which the easement is attached. The key advantage of conservation easements is that the landowner may realize the equity of the land without having to either sell it or develop it. The City could pursue the establishment of conservation easements directly, or through public/private partnerships. In addition, the City should coordinate with the County to adopt a surface mining ordinance to address existing and future surface mining operations and the reuse of such areas.

Table 8-3
ULTIMATE FUTURE LAND USE
City of Waco, Texas

Land Use Category	Gross Acres	Percent
Residential Use	22,501	38.19%
<i>Low Density</i>	20,791	35.29%
<i>Medium Density</i>	435	0.74%
<i>High Density</i>	1,275	2.16%
Mixed Use ⁽¹⁾	4,260	7.23%
Public/Semi-Public ⁽²⁾	19,447	33.01%
Commercial/Office	3,331	5.65%
Office Only	403	0.68%
Service Commercial	466	0.79%
Office and Commercial	145	0.25%
Light Industrial	7,810	13.26%
Heavy Industrial	491	0.83%
Planned Unit Development	63	0.11%
Total Acreage⁽³⁾	58,917	100.00%

⁽¹⁾ Includes the following categories of land use as shown on the Future Land Use Map: Mixed Use, River Corridor, and Austin Avenue Corridor.

⁽²⁾ Includes Lake Waco (6,961 acres), parks areas, and existing golf courses.

⁽³⁾ Includes an estimated 14,730 acres of rights-of-way (25% of the total acreage).

Source: Dunkin, Sefko & Associates, Inc.

LOW DENSITY RESIDENTIAL AREAS

One of the objectives of the Comprehensive Plan is the protection and preservation of existing neighborhoods and the development of new residential areas. Currently, only a moderate supply of attractive undeveloped vacant residential lots is available. This limitation accounts, in part, for the residential expansion to the west and outside the city limits of Waco.



Utilization of existing infrastructure and access to City services through an aggressive, innovative residential program of rebuilding, renovation, and rehabilitation of existing neighborhoods should be pursued and supported. It is equally important that land be available for traditional residential subdivision development in order for continued growth to be accommodated with the adequate provision of affordable, quality housing.

family to single-family residential development of 30 percent is satisfactory. Zoning ordinances should be regularly reviewed to ensure that this proximate ratio is maintained. In addition, the following guidelines for city-wide multi-family development are recommended⁸⁻²:

- ◆ The tract should be adjacent to a collector or major thoroughfare.
- ◆ The tract should not be less than ten acres in size.
- ◆ If the tract is adjacent to single-family residential dwellings, transition areas (greenspace, buffer areas, etc.) must be incorporated into the project.
- ◆ Access from the development to local residential streets or alleys should be prohibited.
- ◆ Based upon the density of the complex, an appropriate amount of usable open space should be required of multi-family residential developments.

Table 8-4
ULTIMATE FUTURE LAND USE
City of Waco's Extraterritorial Jurisdiction

Land Use Category	Gross Acres	Percent
Low Density Residential	200,684	98.13%
Retail	2,564	1.25%
General Industrial	1,250	0.61%
Total Acreage ⁽³⁾	204,498	100.00%

Source: Dunkin, Sefko & Associates, Inc.

MULTI-FAMILY AREAS

Approximately 30 percent of Waco's housing stock is multi-family. As noted in previous sections, Waco's three institutions of higher education attract large student populations that require housing in close proximity to campuses; thus there is a disproportionate density of multi-family housing in these areas. However, the overall ratio of multi-

COMMERCIAL AREAS

While essential to the continued growth and vitality of the community, commercial land uses should not be unattractive or diminish the value of adjacent retail or residential properties.

An abundance of commercial land uses blanket the frontage along major thoroughfares in the city of

⁸⁻² These standards may not be applicable to the college and university areas within Waco.



Waco. It is recommended that new commercial areas be oriented in proximity to existing nonresidential areas. Mixed-use development – office, light commercial, and retail – should be encouraged along major thoroughfares and as buffers between nonresidential and residential areas. Special site requirements such as spacious setbacks, additional landscaping with buffering or screening, should be implemented. Similarly, plan review scrutiny should be applied to parking and ingress/egress plans to ensure minimal roadway congestion. Design criteria, discussed in the *Community Image Guidelines* section, should be strictly enforced (i.e., signage, exterior lighting, specifications regarding wastewater runoff from parking lots, etc.). In addition, the locational criteria of telecommunications towers within the city should be carefully planned and monitored.

INDUSTRIAL AREAS

In a recently conducted survey of area industry, *The Waco Economic Development Plan* identified opportunities and strategies for continued growth and sustainable economic development. Light industrial uses were identified as target industries for Waco/ McLennan County, specifically in the areas of light manufacturing and related technology, logistics and distribution, medical services; and high-tech support, (software/telecommunications).

Waco has considerable land zoned for industrial use. The recruitment of “heavy industry” is a policy decision to be made by community leaders. The land use requirements for light and heavy industry are generally the same:

- ◆ Access to an existing or proposed major arterial;
- ◆ Access to a railroad or the airport;
- ◆ Relatively flat or gently sloping terrain;
- ◆ No negative impacts on existing or proposed land use in the vicinity; and/or
- ◆ A reasonably large assembly of land in one area.

Most industrial use areas identified by the Future Land Use Plan are located within the city limits in areas currently zoned for industrial and heavy commercial uses. Few new industrial areas have developed within the city limits, with the exception of a few expansions that have occurred.

SPECIAL USE AREAS

Brazos River Corridor

Several areas around the Central Business District (CBD) are appropriate for a mixture of uses. The zoning pattern – a combination of residential and non-residential uses - has developed on a lot-by-lot basis. The City has established an overlay



district for one of these areas, which encourages a mix of compatible land while advancing specific development objectives for the Brazos River Corridor.

With the adoption of the *Brazos Corridor Development Plan*, the City designated by ordinance over ten miles of the Brazos River Corridor, which includes parts of the CBD, as a Special Use Area. The “Brazos Corridor Overlay Zone” ordinances and guidelines, applied throughout the planning and review processes, have been implemented to insure coordinated quality development of this Special Use Area, the boundary of which is depicted on **Plate 8-1**.

Austin Avenue Corridor & Elm Street Corridor

Other historic corridors include the Elm and Austin Avenue Districts. The Elm Avenue Corridor is an historic area joining the east side of the Brazos River Corridor at old “Bridge Street”. Part of the Elm Corridor is included in the Brazos Corridor Overlay Zone. Several blocks of Elm Street, including the old railroad depot and warehouse, have the potential to serve as “gateways” to the Brazos River Corridor and as catalysts for development in this area. Specific recommendations for development may be referenced in the *Brazos Corridor Development Plan* (refer to Appendix A). The blocks of Elm Street outside of this Special Use Area are recommended for inclusion into the “Brazos River Corridor

Overlay Zone” as an extended secondary zone of the BRC or as some other type of Special Use Area designation.

The Austin Avenue Corridor is an area of historical significance and local charm. A concentration of stately homes and tranquil neighborhoods predominate a large part of the avenue. Proximity to the Central Business District and non-residential uses of the older residential structures has added to the ambiance of this gracious old area. An overlay zone designation providing both protection and development guidance for Austin Avenue is recommended.

Neighborhood Conservation

The City’s existing Neighborhood Conservation Overlay District has proven a successful model for the preservation of older neighborhoods where historic homes mark the grandeur of Waco’s past. To encourage maintenance and infill development or redevelopment of older residential areas, including a variety of housing that harmonizes in style and scale with the environment, the Neighborhood Conservation Overlay District guidelines and standards promote both revitalization and preservation of historically significant neighborhoods.

The establishment of a similar special district designation for areas where neighborhood identity is distinguished by other unique features (i.e., neighborhoods noted



for boulevards, bungalows, etc.) is also recommended (refer to the *Housing Strategies* section).

College and University District

College and university districts have their own flavor and uniqueness. While allowing some flexibility in site development requirements⁸⁻³, this Special Use Area designation imposes restrictions and guidelines that encourage an overall higher quality of development. Proposed boundaries for this district, with three varying degrees of density, are depicted on **Plate 8-1**.

Land Use in the ETJ Area

Plate 8-1 shows more detailed land use patterns for the city on a parcel-by-parcel basis. An increased challenge for cities in Texas arises in the areas surrounding corporate city limits due to the fact that most cities have zoning control only within their corporate limits. Therefore, a more definitive representation of the future land use pattern within the city of Waco is more applicable as a tool for guidance than a documentation of the future land use pattern outside the city limits where the municipal government has limited control. **Plate 8-2** shows the generalized land use pattern for the ETJ area.

As areas are annexed into the city, the Plan should be amended to address proposed development plans. It is recommended that areas outside of the city's corporate limits generally be allowed flexibility in the creation of future development plans. As future development plans are refined and unincorporated parcels are annexed into the city, the Future Land Use Plan should be amended to reflect these changes.

Due to the fact that Lake Waco is the primary source of drinking water for Waco, the City should do all it can to protect the quality and quantity of water in the Lake. Special legislation has enabled several Texas cities to control and manage land uses in adjacent unincorporated areas (see Hood County: Local Government Code Sections 231.221-231.231). In order to protect this irreplaceable resource, Waco should pursue enabling legislation for the management of development in the unincorporated areas surrounding Lake Waco.

INCONSISTENCIES BETWEEN DEVELOPMENT PROPOSALS & THE FUTURE LAND USE PLAN

At times, the City will likely encounter development proposals (inside the city's limits) that do not directly reflect the purpose and intent of the land use pattern shown on the Future Land Use Plan. Review of

⁸⁻³ Specific requirements are outlined in the Baseline Analysis section within the discussion of existing zoning regulations.



such development proposals should include the following considerations:

- ◆ Will the proposed change enhance the site and the surrounding area?
- ◆ Is the proposed change a better use than that recommended by the Future Land Use Plan?
- ◆ Will the proposed use impact adjacent residential areas in a negative manner? Or, will the proposed use be compatible with, or enhance, adjacent residential areas?
- ◆ Are uses adjacent to the proposed use similar in nature in terms of appearance, hours of operation, and other general aspects of compatibility?
- ◆ Does the proposed use present a significant benefit to the public health, safety and/or welfare of the community? Would it address a physical or social need of the community? Would it contribute to the City's long-term economic well being?

Development proposals inconsistent with the Future Land Use Plan should be examined within the context of the environment (i.e., physical changes, economic trends, etc.). It is, however, incumbent upon the applicant to provide evidence that the proposal meets the aforementioned considerations and supports community goals and objectives, as set forth in the City's Comprehensive Plan.

Future Land Use Map Interpretation Policies

Proper management of existing land use patterns addresses current needs. However, long-term, the City must envision what it will look like as annexation and extension of the ETJ occurs. As unincorporated parcels are annexed into the city, modifications may be necessary due to changing markets, economic trends and land use patterns, and unanticipated events. The Future Land Use Plan should be amended accordingly.

Rezoning or other development approvals for land uses not consistent with the Future Land Use Plan, or Comprehensive Plan, should not be approved until the Plan has been amended, as appropriate, to provide for such land uses.

If a rezoning request *is consistent* with the Plan, the routine review process would follow. Staff recommendation of the project to the Plan Commission or City Council must include notation in the staff report that the proposed request *is consistent* with the Plan. Other review criteria (i.e., traffic impact, compatibility with surrounding uses, etc.) would be applied as usual.

If a rezoning request *is inconsistent* with the Plan, but staff recommends approval, the *Future Land Use Plan* must be amended prior to approval of the request. It is the applicant's responsibility to justify the proposed rezoning, specifically, why it is an

improvement or is more consistent with surrounding land uses than recommendations presented in the Plan. In order to expedite the process of amending the *Future Land Use Plan*, the related amendment recommendation(s) may be forward-ed simultaneously with the rezoning request(s).

The Plan should be reviewed annually to insure that the document reflects all amendments made subsequent to its adoption.

Future Land Use Policies

The following recommendations are presented to guide Waco's future land use planning:

1. The City should utilize the Future Land Use Plan and the associated policies in this report to establish the general pattern of development within the community. This pattern of development should be implemented through adopted policies, enacted ordinances, and established guidelines (as appropriate) as recommended in the Comprehensive Plan.
2. The Future Land Use Plan provides the general description of land use categories, and the text in this report provides explanation of key components of the Plan. The Plan establishes the general pattern of

future land use, as appropriate, to achieve the community's goals and objectives. The Future Land Use Plan should be dynamic – flexible and responsive to changing land uses, development intensities, and impacts upon infrastructure.

3. Residential and nonresidential development areas should be identified to accommodate projected growth with adequate provision for market choice and flexibility.
4. Waco should plan areas for a variety of residential housing types and densities.
5. To support the community's economic development goals and strategies, industrial areas of sufficient size and with adequate access to infrastructure should be provided.
6. Preservation and protection of the community's neighborhoods should be pursued through planning oversight and development requirements.
7. Residential development projects adjacent to park or public open spaces should be designed to facilitate public access to and use of the park/recreational area, while minimizing potential conflicts between park users and residents of the neighborhood.



8. During project review, consideration should be given efficient service provision (utilities, lighting and security), compatibility of land use, and congruence with community character.
9. The City should encourage future patterns of development and land use that would reduce infrastructure construction costs and would make efficient use of existing and planned public facilities.
10. The official copy of the Future Land Use Plan map is on file at the City. The boundaries of land use categories as depicted on the official map should be used to determine the appropriate land use category for areas that are not clearly delineated on the smaller scale Future Land Use Plan contained in the Comprehensive Plan document.
11. In rezoning requests, density factors must comply with recommendations presented in the *Future Land Use Plan*. Plan review should include adjacent land uses, the nature of proposed development, and other relevant factors noted in the Comprehensive Plan.
12. Nonresidential development proposals should be evaluated according to the types of uses proposed, their compatibility with surrounding uses, and the ability of existing or planned infrastructure to provide adequate services to these uses.
13. The Planning Department should establish design standards and guidelines for industrial uses to ensure high quality, compatible design. Standards and guidelines should address elements including, but not limited to, minimum lot size, building scale, building setbacks, lighting, landscaping, screening and fencing, signage, internal circulation, and building materials.
14. The Planning Department should periodically evaluate its development review and approval process to ensure the following components are adequately addressed: (1) opportunity for public input as appropriate; (2) consistency of the process; and (3) compliance of the process with the goals, objectives and adopted policies recommended by the Comprehensive Plan.

The Future Land Use Plan is not the community's official zoning map. Rather, it is a guide to decision making in the context of the city's future land use patterns. The Future Land Use Plan should be used consistently and updated as needed, as the city's coordinated, quality development continues over time.

Section 9 COMMUNITY IMAGE GUIDELINES



City of Waco



Comprehensive Plan 2000

INTRODUCTION

The complex process of ordering the natural and man-made features of the community into a distinct community identity is an activity in which every citizen can participate. Daily decisions - to pick up litter from the sidewalk, to stroll through the park during the lunch hour, to participate in curb recycling efforts – contribute to Waco’s community image, its “sense of place.” Urban design principles facilitate the functional expression of community image, its ‘livability’. The effects of good urban design are tangible: attractive, carefully planned and executed development, as well as an enhanced environment that reinforces a sense of community among those who live there. The intangible effects of good urban design application include the sensory responses people have to their environment and to one another, the bolstered sense of well being and civic pride, an awareness of places, sights and sounds to be found within the community, and new opportunities for social interaction.

Urban design principles applied through urban planning processes benefit the community in numerous ways. The quality of the environment, both natural and man-made, is enhanced, as is the quality of life of those who live there.

The *Community Images Guidelines* Section of the Comprehensive Plan presents a foundation for the creative application of good urban design

principles and practices in Waco. It integrates urban design considerations into the City’s growth and development processes to create an attractive physical environment that complements the functional organization of the community and stimulates civic investment. Issues of appropriate housing densities and of various types of residential development design are presented. Methods of integrating residential and local retail components with pedestrian and neighborhood linkages, and opportunities for managing urban sprawl are also explored.

The creative application of specific urban design improvements, no matter how large or small, affects the community in positive ways. The *Community Image Guidelines* Section of the Comprehensive Plan offers recommendations for broadening and strengthening the city’s image as a community of quality and progress.

THE “LIVABLE” COMMUNITY

The physical appearance of a community and the overall impression it imparts are “livability” factors. The following areas represent opportunities available to the City to develop and strengthen Waco’s livability factors:

- ◆ Opportunities for the improvement of existing neighborhoods:



- Neighborhood Conservation Overlay District
- ◆ Site Design Criteria for New Residential Development:
 - Typical New Neighborhood/Subdivision Design
 - Clustering Principles
 - Multi-Family Design Guidelines
- ◆ New Urbanism and Traditional Neighborhood Design (TND)
- ◆ The Establishment of Linkages
- ◆ The Use of Special Zoning Districts
- ◆ Design Criteria for Non-Residential Development:
 - Site Design Criteria
 - Building Materials
 - Articulation of Building Facades
 - Signage
 - Landscaping
 - Screening
- ◆ Community Identity
- ◆ Related Policies.

Systematic review of current livability factors, derived from the Goals and Objectives identified by the Vision 2020 Commission and the Comprehensive Plan Steering Committee, should be made annually to reestablish and prioritize City initiatives.

URBAN DESIGN ELEMENTS

Residential dwelling units account for approximately fourteen percent of the land use in the city of Waco. Over sixty-six percent are single-family residences. The following discussion of urban design elements provides examples of preservation and restoration of existing neighborhoods, new residential development modeled after turn-of-the century traditional neighborhoods, and examples of best practices for multi-family residential development design.



ILLUSTRATION 9-1

Existing Residential Home in Waco, Landscaped With Xeriscape Materials

Opportunities for the Improvement of Existing Neighborhoods

Reminiscent of the charm and pace of turn-of-the-century life, Waco's older neighborhoods are unique. Not only are these older homes beautiful, visible reminders of Waco's past, but they cannot be replicated. The

ambiance of these older neighborhoods enhances the city with unique character and charm.

Recognizing the significance of older residential areas, the City of Waco has initiated programs to revitalize and restore them. The Sanger Heights Conservation Overlay District was initially established to ensure the harmony and compatibility of infill and renovated housing development with the existing architectural and historical character of the neighborhood. The Neighborhood Conservation District is one of three Special Zoning Overlay Districts established by the City to ensure quality, coordinated development and redevelopment through the establishment of special ordinances and guidelines.

NEIGHBORHOOD CONSERVATION OVERLAY DISTRICT

Existing Guidelines

- ◆ Established standards related to ***structures, specifically relationships and scale***, including:
 - Use of materials that are consistent with surrounding structures;
 - Continuity of major architectural elements, such as roof lines, length of walls, etc.;
 - Use of elements that harmonize with the architectural features or style of existing structures;

- ◆ Added a requirement that a minimum of 25 percent ***usable open space***, either public (common open space) or private be provided;
- ◆ Additional standards related to ***traffic and access***:
 - Provisions for ingress, egress and off-street parking must be compatible with the existing residential character of the neighborhood.

The establishment of this special overlay district is an effective strategy for maintaining and preserving older neighborhoods. It is recommended that the City strengthen the intent of the Special Area District designation by broadening the requirements. The guidelines should be expanded to include the following:

Recommended Additional Guidelines

- ◆ Require ***site plan review*** for all new construction;
 - Setbacks and other development standards, established by site plan, should be consistent with overall area objectives;
- ◆ Establish ***density requirements***:
 - Ensure that new infill housing is constructed at densities that conform with the existing character of the neighborhood;
- ◆ Establish guidelines for single-family residential development, including:

- **Architectural review** of new homes and renovated homes upon which alterations made represent 25 percent or more of their appraised exterior structure value;
- ♦ Allow the **consolidation of two lots** into one:
 - Pursue ways to expedite the platting process to encourage this;
 - All other standards for new construction would remain applicable, including compatible design and character requirements, as well as site plan and architectural review requirements;
- ♦ **Establish similar Special Area Districts** in other older neighborhood areas.

In addition to the inclusion of these guideline recommendations, it is recommended that the City set the standard for infill development/redevelopment by acquiring lots, constructing or renovating homes, and selling them. This recommendation is discussed in detail in the *Housing Strategies* section of the Comprehensive Plan.

Other ways in which the City of Waco can direct improvement efforts in older residential areas are described as follows:

- ♦ Marking neighborhoods with gateways/ entrances;
- ♦ Planting trees and landscaping along residential streets;

- ♦ Utilizing innovative paving materials, such as brick or patterned concrete;
- ♦ Constructing landscaped medians on residential streets or at the center of cul-de-sacs;



ILLUSTRATION 9-2

Existing Residential Street With Landscaped Median in Waco

- ♦ Incorporating a cohesive street lighting system to enhance visual quality and security of older residential areas;
- ♦ Burying existing utility lines to reduce visual clutter;
- ♦ Continuing City improvement projects in local neighborhood parks and recreation areas;
- ♦ Retrofitting pedestrian and bicycle facilities, like sidewalks, trails, benches, and bike lanes along residential roadways.

These improvements could be facilitated through the Capital Improvement Program (CIP), and through incentives programs (such as adjustment of density requirements

in exchange for site improvements, matching grant funds, etc.). Public/private partnerships and volunteer assistance could be encouraged.

An example of community participation is the “sign-your-support” program. For example, in return for financial support, citizens’ names are stamped into brick pavers used for construction/improvements of local streets. Another example is the signing of boards used in infill redevelopment projects. Working with existing neighborhood associations, the City and neighborhoods can be mutually supportive in identifying problems and opportunities, and working together to improve the community.

Site Design Criteria for New Residential Development

The design and character of residential neighborhoods are central to the overall image of the community. Design factors, whether applied to new residential developments or to older neighborhoods, are inherent in the creation of a visually attractive and cohesive community image. Such factors include the use of open space, adjacency compatibility, screening and landscaping, as well as the design layout of the subdivision itself; these should be carefully and collectively considered in the planning and design review process.

While the City should allow developers options appropriate to the development and marketing of their subdivisions, it should also strive to maintain continuity among the various residential subdivisions. Maintenance of older neighborhoods and quality design and development of newer residential areas are mutually beneficial, adding aesthetic and monetary value to the overall area.

TYPICAL NEW NEIGHBORHOOD/ SUBDIVISION DESIGN

As previously discussed, a neighborhood should be predominantly residential. It may be bounded by thoroughfares and collector streets, and/or by natural or man-made features such as creeks, fields, etc. Neighborhoods should include open space and should have access to churches, schools, retail areas, etc.

The blueprint of a neighborhood is the subdivision layout, that is, the arrangement of lots relative to internal streets and major thoroughfares. The orientation of lots is a major factor in the extent to which a neighborhood “feels” residential. Orientation of residential development along major thoroughfares also affects the general appearance of the neighborhoods and the image of community as whole.

The following is a discussion of the various types of residential layouts. These layouts are designed to protect



the neighborhood from intrusive traffic and to preserve it from decline, which can occur when neighborhoods are adjacent to or are too closely oriented to major arteries and thoroughfares.

As noted in the Future Land Use and Transportation Plans, nonresidential land uses, such as retail and other commercial uses, are best suited to areas adjacent to or along major arteries, thoroughfares or larger collector streets. Fronting residences on major arterials and thoroughfares reduces not only the efficiency of these roadways, (via driveway curb cuts, cross-streets, and access/ingress congestion) but poses potential traffic safety risks.

These residences are not only exposed to noise, traffic safety and parking problems, but, over time may decrease in value and/or submit

to urban pressures to convert from residential to office or retail uses.

Examples of residential lot arrangements designed to minimize disruption to neighborhoods and preserve the capacity and function of adjacent thoroughfares are shown in **Illustration 9-3**.

A preferred approach is to “side” residential lots onto major streets. This orientation provides views *into* the neighborhood, rather than onto the busy thoroughfare. This method of mediating the adjacency of major thoroughfares to residential developments is a plan design in which residences are oriented to parallel residential streets, thus “turning their backs” on the thoroughfares. Adequate setbacks (at least 15 feet deep), screening, and landscaping ensure privacy and buffer the neighborhood from traffic and noise.

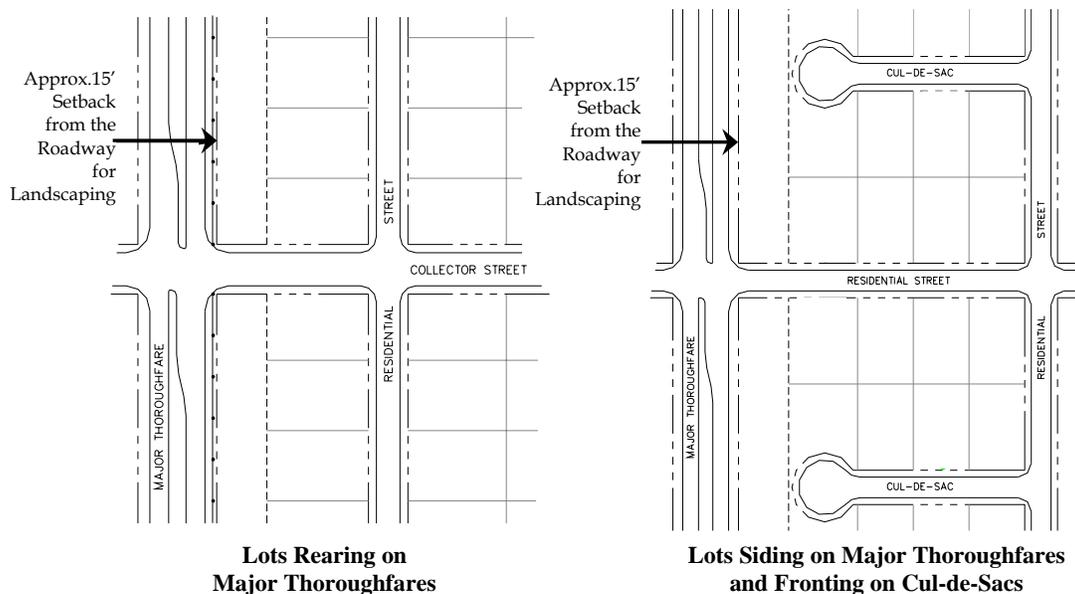


ILLUSTRATION 9-3
Single-Family Residential Lot Layouts Adjacent to Major Thoroughfares

The interior subdivision design should permit access but discourage through traffic. The technique of spacing or jogging the intersections of collector streets and subordinate roadways is another way of discouraging excessive traffic through the neighborhood and increasing security. (Refer to **Plate 3-1** in the *Thoroughfare Plan* section.)

Illustration 9-3 also shows how short, "open-" ended cul-de-sac streets may be used to create lots that do not have direct access onto a major thoroughfare. This technique offers a practical and economical way to protect the capacity of the

major thoroughfare, while preserving the integrity of the residential neighborhood. Another method of "siding", this design protects residential lots without screening walls. It is, therefore, one of the more practicable and desirable options utilized by developers. Alternating cul-de-sac streets with through collector streets that intersect with thoroughfares minimizes traffic congestion while maximizing land use.

The maximization of land is an important design factor. Lots should include at least 24 feet of frontage from residential streets, and impervious surface coverage should be minimized. **Illustration 9-4** depicts comparative examples of pavement (impervious cover) versus lot yield for several residential configurations adjacent to major thoroughfares.

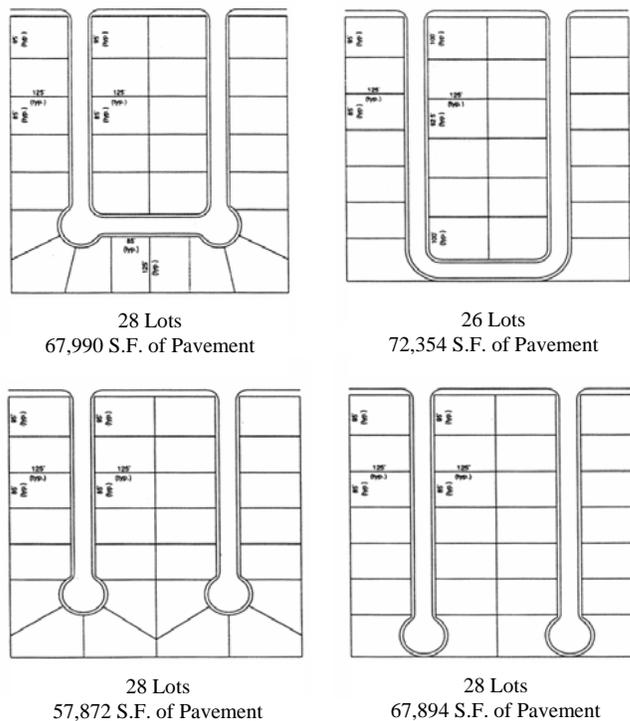


ILLUSTRATION 9-4
Comparison of "Pavement" vs. "Lot Yield"
For Suggested Residential Street
Configurations Adjacent to Major Thoroughfares

Illustration 9-5 shows a typical, generalized neighborhood layout, including proposed subdivision treatments and thoroughfare standards. Note that the thoroughfares that bound or frame the development are not allowed to penetrate the neighborhood. Instead, residences are buffered, and cul-de-sacs, designed to calm traffic circulation, are used to open up the neighborhood for limited access from interior streets.

It is essential that Waco develop additional design criteria for typical subdivision developments, such as:

- ◆ Developing a Tree Preservation Ordinance, limiting where and when trees may be removed and providing incentives for mature tree preservation;
- ◆ Requiring trees to be planted at a distance of 30 to 40 feet along both sides of residential subdivision streets;
- ◆ Requiring all housing units to have a two-car garage with off-street parking provisions in driveways, preferably with side- or rear-facing garages;
- ◆ Developing a street cross section for rural density neighborhoods. (Refer to the Type "E" Local Street within the *Thoroughfare Plan* section.);
- ◆ Requiring all lighting elements (i.e., street lighting, trail lighting) within neighborhoods to be low-intensity (without jeopardizing security), to minimize the potential of light pollution;
- ◆ Requiring sidewalks or pedestrian connections to be constructed in all new residential areas to encourage pedestrian circulation. Streetscape enhancements such as decorative lighting, benches, and planters should be required for all new subdivision plans.

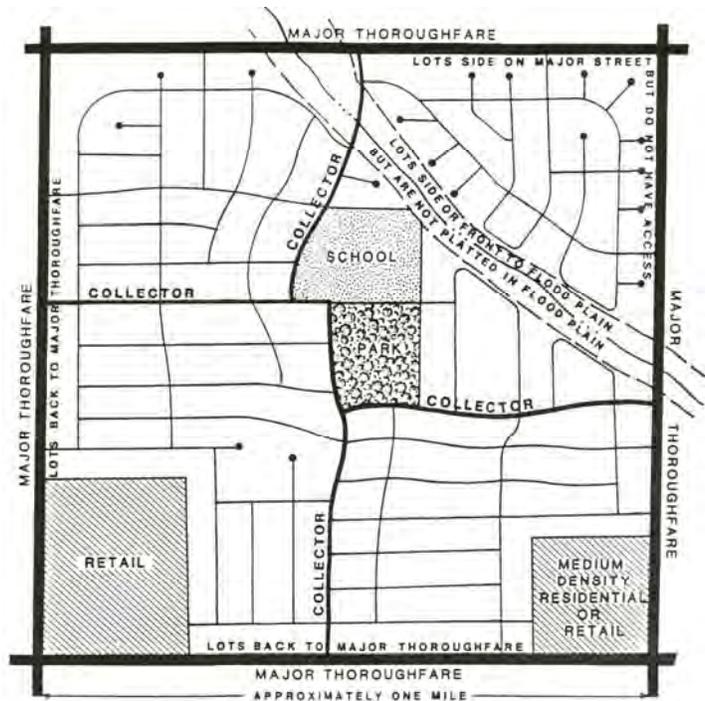


ILLUSTRATION 9-5
Typical Residential Neighborhood Layout

CLUSTER DESIGN

The clustering concept is an environmentally sensitive, pedestrian friendly design, which has been used in Europe for centuries. This design promotes the conservation of open space. Although houses are closely clustered at high densities in some sections of the development (often at higher densities than are normally allowed by most zoning ordinances), large pockets of planned open areas provide opportunity for social interaction and visual enjoyment. This type of development may be used in areas where the base density is relatively low, as the City could require the *average* density of the development to be low.

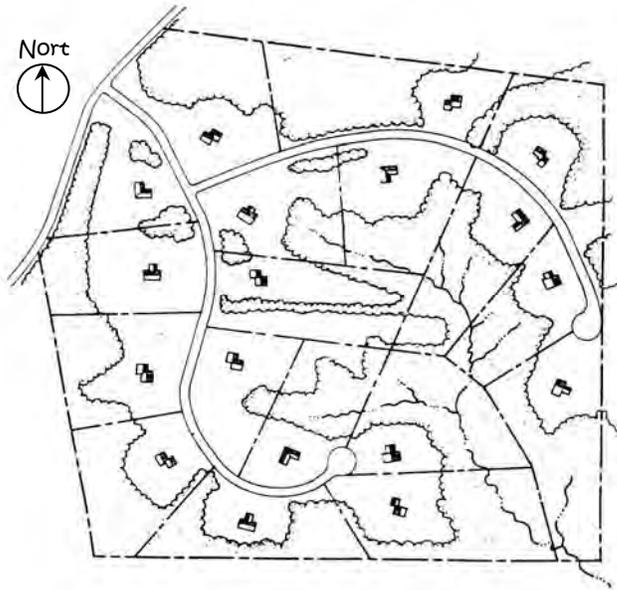


ILLUSTRATION 9-6

Typical Large-Lot Subdivision Design Without Provision of Open Space

The City of Waco could provide developers with incentives for the utilization of this design technique. For example, a “density bonus” allows developers to design at higher density levels in exchange for the provision of open space. Another incentive is to allow smaller street widths, which reduces the developer’s initial infrastructure development costs. In exchange, the neighborhood would benefit from the resulting pedestrian friendly streets. As previously discussed, the requirement of street amenities, attractive grading designs and materials (such as brick or cobbled stones) makes this concept an attractive alternative to the traditional grid pattern. Criteria for the clustering design model

should include the following:

- ◆ It should not be permitted on development tracts of less than 20 acres; tracts of this size do not allow for enough open space in relation to the reduced lot sizes (with fewer acres, the cluster concept would in fact be “high” density).
- ◆ Impervious surface coverage, including all roadways, driveways and building “footprints”, should not exceed 35 percent of the total tract acreage. Allowing a greater percentage of impervious cover would threaten critical drainage areas.
- ◆ The calculation of open space should not include areas currently protected by local ordinance, such as creek setbacks, floodplains, etc.

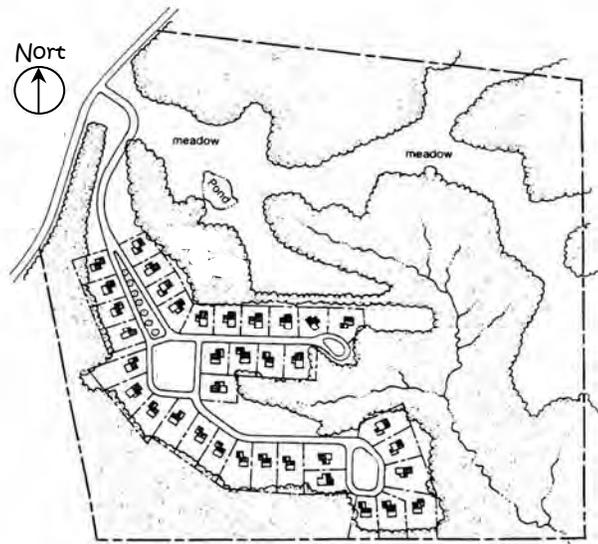


ILLUSTRATION 9-7

Preservation of Open Space Through Cluster Design

MULTI-FAMILY RESIDENTIAL DESIGN GUIDELINES

Certain areas within the city of Waco are suitable for multi-family development, as designated on the *Future Land Use Plan* and by the City Zoning Ordinance. Multi-family developments can be designed in ways that enhance the community. The following design guidelines are recommended for inclusion in the City’s Subdivision and Zoning Ordinances to ensure the development of high-quality multi-family land uses in areas designated by the *Future Land Use Plan*. These guidelines are especially applicable in the proposed College and University District areas, which are discussed within the “Special Zoning Overlay Districts” portion of this section of the Comprehensive Plan.

- ◆ Require 80 percent of the exterior finish to be constructed with masonry materials;
- ◆ Require façade offsets of at least 5 feet in depth for every 50-foot length of flat surface.
- ◆ Ensure that landscaping is in conformity with City Landscaping Ordinance;
- ◆ Require the construction of one covered parking space for each dwelling unit;
- ◆ Establish a limit of 16 dwelling units per acre, which could be increased under certain conditions, as provided in the “density bonus” description below;

- ◆ Provide a “density bonus” incentive for garages which are directly attached to the dwelling unit, for example:
 - Allow an increase in density of 18 units per acre (total) when 50 percent of the dwelling units are constructed with attached garages;



ILLUSTRATION 9-8
Multi-Family Land Use



ILLUSTRATION 9-9
Garages Attached To Multi-Family Units



ILLUSTRATION 9-10
Multi-Family Land Use

- Allow an increase in density of 20 units per acre (total) when 100 percent of the dwelling units are constructed with attached garages.
- ◆ Require the provision of usable open space and the protection of selected natural areas.
- ◆ Require integration of side-walks/walkways in order to further the City's objective of creating a pedestrian-friendly environment in Waco.
- ◆ Incorporate special parking criteria for multi-family development within the College and University Overlay District. (Refer to **Plate 9-2** for locations.) Mass transit and pedestrian access considerations should be integral to all development that occurs within the overlay district.

New Urbanism & Traditional Neighborhood Design (TND):

New Urbanism and Traditional Neighborhood Design (TND) are similar residential development models designed to encourage social interaction in a mixed use, pedestrian-friendly environment. The motivation for the New Urbanism movement is the intent to revive a sense of community in today's increasingly urbanized culture. Typical, traditional neighborhoods are laid out in grid patterns. Tree-lined streets, alleys, public squares, mixed-use neighborhood centers, and varying residential densities exemplify the average neighborhood. Pedestrians are welcome in the traditional neighborhood. The "new urbanism" and "traditional neighborhood design" concepts attempt to recapture the ambiance of early twentieth century American towns. The features that characterize TND could be easily integrated into Waco's urban form, specifically within the area designated "Priority 1" on **Plate 10-1**. Features include the following:

- ◆ **LIMITED IN SIZE (APPROXIMATELY 40 TO 250 ACRES)**

The optimal neighborhood size is an approximate radius of 1/4 or 1/3 of one mile.

- ◆ **PEDESTRIAN-ORIENTED ENVIRONMENT**

The entire area can be walked at an easy pace in approximately 5- to 10 minutes.

◆ **NARROWER STREETS**

A network of interconnecting streets and alleys, varied in size and form, and smaller than conventional streets are designed to calm traffic and provide character; as well as to encourage pedestrian circulation. (Note: parking restrictions may be necessary.);



ILLUSTRATION 9-11

Pedestrian-Friendly Elements

◆ **DENSITY**

Higher densities than are typical for conventional developments are encouraged. Structures have narrower setbacks, creating a more distinct street edge and definitive border between public and private spaces.

◆ **REGIONAL VERNACULAR ARCHITECTURE AND LANDSCAPING**

Similar in effect to the Conservation Overlay District, the New Urbanism/TND design reflects the history and culture of the surrounding region.

◆ **A CENTER OR FOCAL POINT**

The neighborhood has a central or significant area such as a public square, a courthouse, a school, i.e., a public facility or public building serving as the central or significant element of a neighborhood or community.

◆ **VARIETY OF HOUSING TYPES**

New Urbanism/TND developments include mixed residential housing, such as single-family

◆ **MIXED USES**

Differing land uses in close proximity include a variety of housing types, retail stores and services, and public facilities “mixed” together for residents’ convenience; these uses could be arranged around a public square or other physical focal point.



ILLUSTRATION 9-12

A Mixed-Use Pedestrian-Oriented Development



ILLUSTRATION 9-13

Focal Point and Pedestrian-Friendly Elements

homes, townhouses, condominiums and multi-family units, along with open spaces such as small squares, pocket parks, and greenbelts that invite pedestrian activity.

Oriented toward reducing urban sprawl and encouraging pedestrian activity, while facilitating the efficient provision of community facilities, the traditional neighborhood design (TND) could be developed on a small scale in several areas in Waco. However, large-scale implementation of the TND is not recommended due to the higher density requirement and the impermeability of large surface areas. The TND design should be limited to the area designated as “Priority 1” on **Plate 10-1**. This area is targeted for redevelopment and would provide an opportunity to introduce the TND concept as a model that could be easily

implemented in this area. Further, mixed-use development is also encouraged in the “Priority 1” area, specifically downtown. In addition, the Planned Unit Development District concept (PUD) would work well in conjunction with the TND. It is recommended that the City permit higher density within the “Priority 1” area as an incentive for development.

In this discussion of Neighborhood Design, it is clear that well designed, well ordered, safe and secure neighborhoods provide a setting for social interaction and a sense of well being and belonging to which all communities aspire. The key to the creation of sustainable neighborhoods, however, is the ongoing private/civic commitment to residential neighborhoods, supported by public investment in parks, greenbelts, pedestrian linkages, and infrastructure.

The Establishment of Linkages

The appearance of city streets and the physical form and condition of adjacent developments are some of the first images of the community that people notice. Overhead power lines, traffic signals, signs, light fixtures, plant materials, and street paving are some of the most noticeable physical aspects associated with the typical streetscape.



ILLUSTRATION 9-14

Typical Thoroughfare in Waco That Would Benefit From the Incorporation of a Landscaped Median

The City should improve the thoroughfares and upgrade the image of the community now, before additional deterioration occurs, and before population growth and new development gather momentum. Well maintained thoroughfares and rights-of-way are as important to the city's image as the sites and features tourists come to Waco to see.

To further this objective, several different types of "linkages" have been proposed for various roadways in the city. These thoroughfares, amendable to landscape and streetscape treatments, have been selected to convey common themes that symbolize "Waco" (refer to **Plate 9-1**). The following sections outline the different types of linkages proposed for the city.

GATEWAY LINKAGES

The roadways designated as Gateway Linkages are the most commonly traveled thoroughfares to and from Waco. They are often conveyers of the first, and sometimes only, impression of the community that travelers may experience. Most cities, however, lack visual individuality, especially as experienced from major interstate corridors. Homogeneity of style and similar development trends tend to create anonymity; one community looks like another. While larger cities may have less of a challenge than smaller ones in distinguishing their uniqueness, all communities want to convey a positive image, and their own "signature" or identity. The thoroughfares designated as Gateway Linkages are listed in **Table 9-1**, and are graphically depicted in **Plate 9-1**.

The Construction of Gateways

Many cities across Texas have communicated their identities through the construction and placement of special “gateway” features at the threshold of the city limits and at other strategic locations. They mark the geographical boundaries of a community and symbolize the community’s image of itself, its identity. For visitors and people traveling through the area, gateways provide an orientation to the city, a point of reference. Gateways impart a strong sense of ‘arrival’; they are

the first thing travelers see when they enter the community and the last impression they have when leaving.

The location of gateways, or entry points, in and around Waco should be guided by several factors. The most heavily traveled roadways should be prioritized for gateway treatment, one for each entry/exit. Waco’s most heavily traveled roadway is Interstate Highway 35. Entry features should be located at the northeastern and southwestern corporate limits of the city along Interstate Highway 35. Other

**Table 9-1
PROPOSED GATEWAY LINKAGES
City of Waco, Texas**

FACILITY	FROM	TO
Bellmead Dr (US 84)	IH-35	State Highway 31
East Loop 340	Robinson Rd (US 77)	Bellmead Dr (US 84)
FM 3400	East Loop 340	University Parks Dr (FM 434)
IH-35	FM 2063 / FM 2113	North Loop 340
Karl May Dr	Steinbeck Bend Dr (FM 3051)	Waco Airport Terminal
Lake Shore Dr (FM 3051)	IH-35	M L King Dr
M L King Dr (including proposed)	Spur 484 (Old Marlin Hwy)	Lake Shore Dr (FM 3051)
New Rd	IH-35	North Valley Mills Dr
North Loop 340	Bellmead Dr (US 84)	IH-35
Robinson Rd (US 77)	Waco Circle	South Loop 340 / SH 6
South Loop 340	Waco Dr (US 84)	Robinson Rd (US 77)
State Highway 6	East Loop 340	State Highway 164
State Highway 6	North River Crossing (FM 185)	Waco Dr (US 84)
Steinbeck Bend Dr (FM 3051)	Lake Shore Dr (FM 3051)	Airport Dr / Karl May Dr
University Parks Dr (FM 434)	FM 3400	Herring Ave
US 84	Cotton Belt Pkwy (FM 2188)	South Loop 340 / SH 6
Waco Dr (US 84)	South Loop 340 / SH 6	IH-35

Source: City of Waco Planning Department



possible gateway sites include major intersections. Four intersections ideal for gateway treatment locations are: University Parks Drive and Interstate Highway 35; the intersection of East Waco Drive and Interstate Highway 35; the area near the intersection of New Road and Interstate Highway 35; and the intersection of Loop 340/State Highway 6 and Interstate 35. A gateway would also be effective in the southwestern area of the city, along State Highway 6 and West Waco Drive (U.S. Highway 84).

The design of entry points or gateways must both symbolize and project the community's identity. Gateways may be as simple as carefully sculpted landscape features with special signage (such as the Waco "W") or as elaborate as a water feature. Other elements may include lighting, fencing, paving patterns, or art/sculptural elements. Consideration should be given to



ILLUSTRATION 9-15

A GATEWAY LINKAGE: University Parks Drive

establishing a uniform design concept for all gateway treatment areas; however, there should be hierarchical distinction between major corridor and intersection gateways.

The effectiveness of gateways depends primarily upon the quality of design and placement strategy. Gateway design, size, boldness and scale depend upon the setting in which each entry feature will be placed and the traffic speed of the roadway from which it will be viewed. Gateways located at intersections must be placed in a way that does not conflict aesthetically with adjacent retail uses.



ILLUSTRATION 9-16

Example of City Gateway Treatments

Prioritization of funding and scheduling of construction of entry features are directly related to the number of viewers the gateway(s) will capture. Gateways are good public relations tools. Civic groups and businesses can assist in the funding of specific gateways and/or their maintenance, such as an “adopt a gateway” program. Solicitation of volunteers and donations might be sought through formal initiatives such as “adopt your gateway” programs.

OTHER TYPES OF LINKAGES



ILLUSTRATION 9-17

Example of a Community Gateway Treatment

The integrity and visual quality of other transportation corridors in Waco are also important to the overall perception of the city. Because of their locations, adjacent land uses, and general function the roadways listed in **Table 9-2** are proposed neighborhood linkages.

Neighborhood Linkages

Waco’s neighborhoods are, in essence, microcosms of the city itself. Like the city, their unique identities and sense of cohesiveness should be conveyed. It is also important to ensure that neighborhood areas are inviting to both residents and visitors, and that a sense of cohesiveness is conveyed.

Neighborhood linkages are corridors that should be pedestrian-oriented and inviting, allowing people to walk to corner stores and area parks. Special signage and other visual elements, such as landscaping and medians, should be used to mark the streets, parks, and other features.



ILLUSTRATION 9-18

A Neighborhood Linkage: Elm Avenue

**Table 9-2
PROPOSED NEIGHBORHOOD LINKAGES
City of Waco, Texas**

FACILITY	FROM	TO
Bagby Ave	S 12th St	University Parks Dr (FM 434)
Bagby Ave	South Loop 340 / SH 6	S 26th St
Bosque Blvd	State Highway 6	North Valley Mills Dr
Bosque Blvd / Homan Ave	N 17th St	New Rd
Chapel Rd	Hewitt Dr (FM 1695)	Ritchie Rd
China Spring Rd (FM 1637)	Steinbeck Bend Dr (FM 3051)	North River Crossing (FM 185)
Cobbs Dr	Bosque Blvd	New Rd
Colcord Ave	N 4th St	N 18th St
Crest Dr (FM 2417)	IH-35	TSTC Entrance
Elm Ave	M L King Dr	IH-35
Garden Ave (including proposed)	University Parks Dr (FM 434)	IH-35
Garrison St	Elm Ave	Faulkner Lane
Herring Ave / Lyle Ave	MacArthur Dr	Gholson Rd (FM 933)
Hillcrest Dr	MacArthur Dr	Lake Shore Dr
J J Flewellen St	Faulkner Lane	Herring Ave
Kendall Lane	Orchard Lane	East Loop 340
Lake Shore Dr	M L King Dr	North Valley Mills Dr
MacArthur Dr	Herring Ave	Lake Shore Dr
N 17th St / N 19th St	Austin Ave	Bosque Blvd
N 18th St / N 19th St	Bosque Blvd	Steinbeck Bend Dr (FM 3051)
N 25th St / N 26th St	Austin Ave	Herring Ave / Lyle Ave
N 41st St	Cobbs Dr	Hillcrest Dr
N 4th St / N 5th St	Waco Dr (US 84)	Herring Ave
New Rd	North Valley Mills Dr	Cobbs Dr
North Valley Mills Dr	Lake Shore Dr	Cobbs Dr
Orchard Lane	M L King Dr	Kendall Lane
S 16th St / S 18th St	East Loop 340	LaSalle Ave (US 77 Bus)
S 17th St / S 18th St (Loop 2)	LaSalle Ave (US 77 Bus)	Austin Ave
S 25th St / S 26th St	Bagby Ave	Austin Ave
S 8th St	Bagby Ave	IH-35

Source: City of Waco Planning Department



Commercial Linkages

Roadways in Waco designated as commercial linkages are generally highly traveled thoroughfares that are less likely to be utilized by pedestrians. Because of the high traffic volumes of commercial corridors, their visual quality is particularly important in conveying the image of the community. It is recommended that the following design features be incorporated into general layout of Waco's Commercial Linkages: landscaped medians and rights-of-ways, underground utilities, screening and buffering elements, increased setbacks, and high quality signage. **Table 9-3** lists the roadways that have been designated as Commercial Linkages, and they are illustrated on **Plate 9-1**.



ILLUSTRATION 9-19

A Commercial Linkage: Valley Mills Drive

Table 9-3
PROPOSED COMMERCIAL & INDUSTRIAL LINKAGES
 City of Waco, Texas

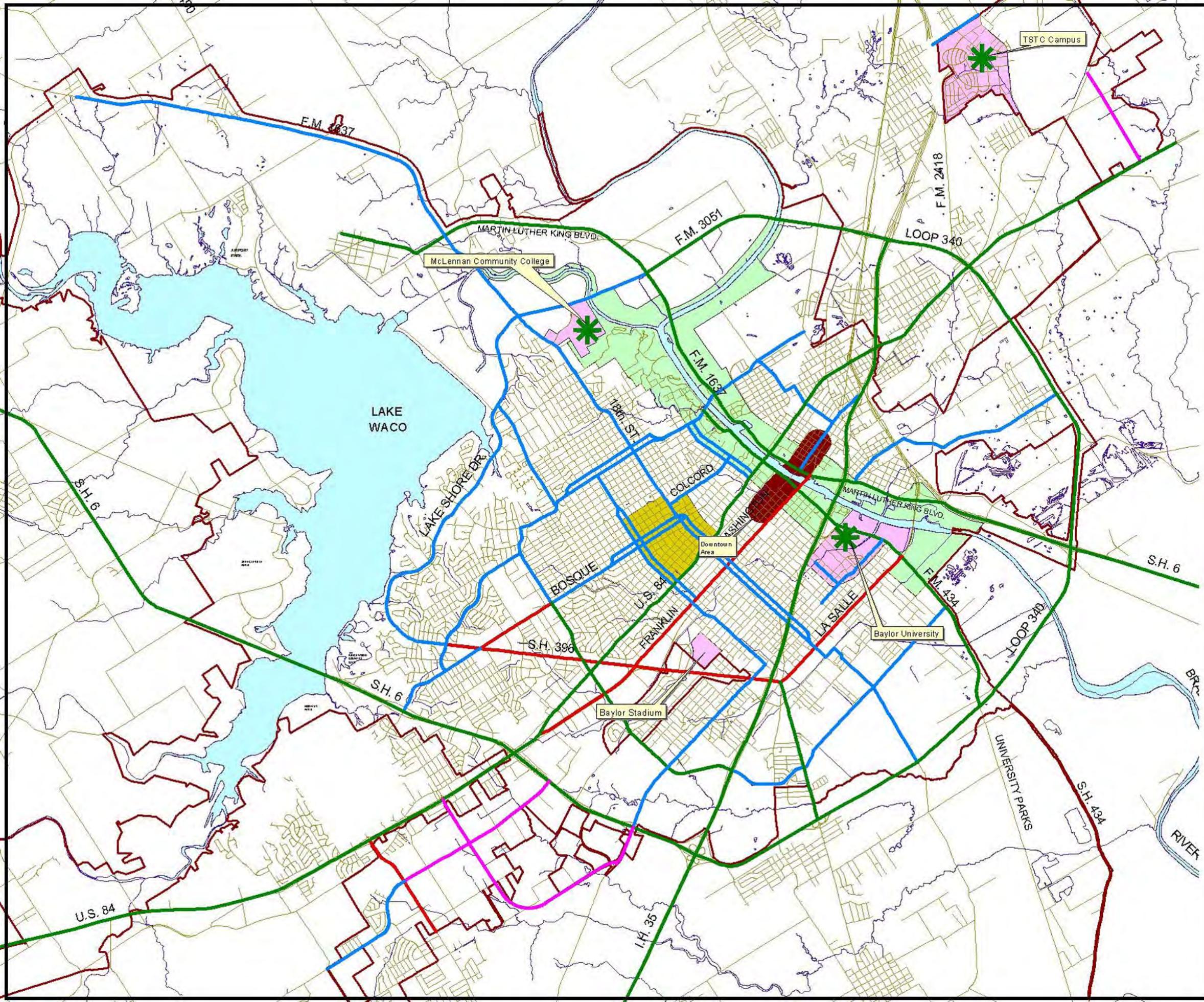
FACILITY	FROM	TO
Commercial Linkages		
Bosque Blvd	North Valley Mills Dr	New Rd
Franklin Ave	Waco Dr (US 84)	M L King Dr
Hewitt Dr (FM 1695)	US 84	Panther Way
LaSalle Ave (US 77 Bus)	Waco Circle	University Parks Dr (FM 434)
Valley Mills Dr	Cobbs Dr	Waco Circle
Industrial Linkages		
Aviation Pkwy	US 84	Ted Maehr Rd
Imperial Dr (FM 3223)	South Loop 340 / SH 6	Hewitt Dr (FM 1695)
Old Temple Rd (FM 3476)	Texas Central Pkwy	South Loop 340 / SH 6
Texas Central Pkwy	US 84	Old Temple Rd (FM 3476)

Source: City of Waco Planning Department





2000 Waco Comprehensive Plan COMMUNITY IMAGE ELEMENTS



-  Gateway Linkage
-  Neighborhood Linkage
-  Commercial Linkage
-  Industrial Linkage
-  College or University
-  Brazos River Corridor
-  Neighborhood Conservation District
-  College & University District
-  Central Business District
-  Waco City Limits





ILLUSTRATION 9-20

An Industrial Linkage: Texas Central

Industrial Linkages

Roadways designed as industrial linkages either currently have industrial land uses along them, or are located within areas designated for industrial land uses (refer to the *Future Land Use Plan, Plate 8-1*). The incorporation of visual elements along these linkages is similar to that which has been recommended for commercial corridors. The following roadways, listed in **Table 9-3**, have been designated as Industrial Linkages, as shown graphically on **Plate 9-1**.

ELEMENTS IMPORTANT TO ENHANCING LINKAGES

There are a number of ways that the City could begin to improve the visual quality and reduce visual clutter along the various linkages in Waco. Specific design criteria should be applied to all non-residential uses along the city’s designated major corridors, and

commercial and industrial linkages. It is important that these guidelines be included in the City’s Subdivision and Zoning Ordinances.

Unique Signage

Many cities across Texas have initiated street enhancement pro-grams for which have been designed unique banner signs touting special tourist sites, advertisements for unique areas of the city, historic areas, the City logo, special events, etc.

The community has recognized the benefits of these colorful heralds, incorporated into the city’s urban fabric several years ago by Downtown Waco, Inc. It is recommended that the City utilize this type of signage along its gateway linkages. Visitors and



ILLUSTRATION 9-21

Unique Signage in Downtown Waco



residents alike may be made aware that the area is special, well ordered, and unique.

Interstate Highway 35, a heavily traveled major state corridor, has been scheduled by the Texas Department of Transportation (TxDOT) for expansion in the near future. This represents an opportunity for the City to obtain assistance from the state for the incorporation of quality design elements into related infrastructure and rights-of way. The City of Waco should work closely with TxDOT to ensure that the expansion includes plans for landscaping, setbacks, imprints of the City logo into concrete supporting walls, etc. to enhance the view quality of the corridor and convey a positive image of the city.

Divided Medians

As traffic increases in Waco and the surrounding area, the City must continue its active involvement with the Metropolitan Planning Organization and TxDOT in the planning and construction of new roadways or improvements to existing roadways (refer to the *Transportation Plan* section).



Source: Bosse & Compton Assoc., Inc.

ILLUSTRATION 9-22

Typical Texas Highway Without Improvements



Source: Bosse & Compton Assoc., Inc.

ILLUSTRATION 9-23

Conceptual Illustration of a Highway With Proper Design Elements In Place

With increased traffic and congestion in the area, the need for divided medians has increased. As discussed in previous sections, divided roadways are safer; medians control traffic flow and protect the integrity of residential areas by limiting access to many collector streets. Medians also provide an opportunity to incorporate aesthetic treatments into the city's thoroughfare rights-of-way. The City should coordinate with TxDOT for the addition of landscaped medians to all newly constructed roadways as well as the retrofitting of existing roadways with

landscaped medians. Both form and function would be well served by the incorporation of landscaped medians in the city's major linkages



ILLUSTRATION 9-24

*Retail Area Setback From A Major Thoroughfare
Protecting the "View From The Road"*

Setbacks

All structures, parking and related buildings should be set back at least 15 feet from major roadways (from the edge of the street right-of-way line). This is especially important along Gateway, Commercial and Industrial Linkages. The elimination or reduction of visual clutter caused by adjacent expanses of concrete (parking lots) will be softened by the landscaped edge. In addition, increasing pervious surface areas may mediate some of the runoff from these areas.



ILLUSTRATION 9-25

Screening Wall Shields Refuse Containers From Public View

Placement of Accessory Elements

Gateway, Commercial and Industrial linkages should not be degraded by a hodgepodge of exposed storage areas, equipment, waste and/or loading docks. Care should be taken in the design and construction of facilities along the corridors to ensure that the view from the road is as attractive and well ordered as possible.

Loading areas should be located at the rear of the primary non-residential structure. They should be screened with a six- to eight-foot masonry wall, the effect of which is the shielding these areas not only from the "linkages", but also from adjacent land uses.

Refuse containers should also be placed at the rear of the primary non-residential structure, and should be screened with a masonry wall of a minimum height of six feet.

Parking for non-residential areas along the “linkages” should be placed to the side or to the rear of the site to shield these views from the corridors.

General Signage

The effective use of signage is one of the least expensive ways in which the City can establish a sense of cohesiveness and order along the corridor linkages. In addition to the provision of helpful information, uniform signage along the city’s thoroughfares would enhance the appearance of rights-of-way. It is recommended that monument style signage, of uniform height and construction (preferably, masonry) be established as the standard for corridor linkages. The creation of incentives for non-residential land use construction of monument signs is also recommended. For example, an incentive to encourage

construction of uniform signage, might include an allowance of more sign area than is generally permitted; or a reduction of the percentage of landscaping normally required may be given in exchange for the construction of preferred signage. In addition, shared signage between neighboring land uses should be encouraged.

Landscaping

The City should promote an abundance of landscaping along its corridor linkages. Many communities across the state have planted native Texas wildflowers along their highway rights-of-way. An expansive carpet of bluebonnets or other flowers indigenous to the area would provide a seasonal transformation of the major access corridors to and from Waco. For Gateway, Commercial and Industrial Linkages within the city, a required 15-foot setback should provide ample opportunity for the incorporation of a variety of landscaping features. Landscaping around monument signs and throughout the parking areas will greatly improve the appearance of large swaths of corridor. Further, it is imperative that the current Landscape Ordinance be enforced.



ILLUSTRATION 9-26

Monument-Style Sign With Multiple Users



ILLUSTRATION 9-27

Examples of Landscaped Highway Frontage in Texas

As discussed above, initial construction for the expansion of Interstate Highway 35, expected to begin in the near future, may open an opportunity for the City of Waco and the Texas Department of Transportation (TxDOT) to plan alterations and additions to highway frontage and infrastructure. The incorporation of artistic pavers at interchanges, landscaped medians and setbacks, and the impression of the City logo in concrete supporting walls will establish a sense of orderliness and identity of which the City can be justifiably proud.

Pedestrian Access

Ensuring the accommodation of pedestrian circulation is especially important within corridors designated as Neighborhood Linkages. Retrofitting older neighborhoods with pedestrian lanes, paths, and sidewalks may pose a challenge. However, the long-term benefits – the creation of a community of pedestrian-oriented neighborhoods – will outweigh the initial costs and effort.

The City should establish a program specifically designed to address this challenge. With a focus on high-pedestrian traffic areas, i.e., around parks, schools, and retail shopping areas, the City should plan and schedule projects targeting an equal percentage of older areas where pedestrian walkways have yet to be constructed or are in need of repair.

General funds, development impact fees, sales tax revenue, bond referenda, and the Capital Improvements Program (recommended in the *Implementation Plan* Section) are some of the funding avenues that can be examined. Reconstruction, replacement, or new construction should be performed on an as-needed basis. In addition, through Site and Plan Review processes for new developments, the City should ensure that it does not incur a disproportionate amount of the costs of pedestrian walkways and circulation systems.

Waco should make the provision of pedestrian access a priority in order to make the vision of a pedestrian-oriented community a reality.



ILLUSTRATION 9-28

Examples of Pedestrian Access Provided in Waco

Screening

Because major transportation corridors within the city designated as linkages are the most heavily traveled thoroughfares, views of them and from them should be mediated or enhanced in order to advance a desirable image of the community. Non-residential land uses along Gateway, Commercial and Industrial linkages, tend to have large open storage facilities, loading areas, and industrial-size refuse requirements. Screening of these accessory areas and structures is an effective way to shield views of exterior operations and functions of non-residential uses. It is recommended that these accessory areas be screened with masonry walls in

combination with appropriate landscaping to soften the view from the road and adjacent land uses. The various types of linkages, including Gateway, Neighborhood, Commercial, and Industrial Linkages are represented graphically on **Plate 9-1**.

The Use of Special Zoning Overlay Districts

The City of Waco has made significant strides in establishing stringent design guidelines and development criteria for its Special Zoning Overlay Districts. One of these districts, the Neighborhood Conservation Overlay District, was previously discussed within the “Opportunities for the Improvement of Existing Neighborhoods” portion of this *Community Image Guidelines* section.

The urban design recommendations made for the city’s neighborhoods and linkage corridors are based in part on the standards established for these special districts. A review of those guidelines follows.

BRAZOS RIVER CORRIDOR DISTRICT

This district was established to ensure quality development of the Brazos River Corridor, an 8.5 square mile area that traverses the center of the city. Sustainable development targeting recreation, tourism,

commercial, residential and office uses is encouraged. Preservation of the distinctive character, natural beauty, charm and ambiance of the Brazos River Corridor is ensured by the adoption by the City of the Brazos Corridor Development Plan and requisite Overlay District ordinances and guidelines. Some of the guidelines unique to this district include:

- ◆ A **25-foot setback** requirement for land uses adjacent to Martin Luther King, Jr. Boulevard and University Parks Drive;
- ◆ A requirement for **underground utilities**;
- ◆ Prohibition of **off-premise signs**, and stricter standards for **on-premise signs**;
- ◆ Requirements that **signage** must reflect the character, natural beauty and historic charm of the district. In addition, the type, shape, color, construction and materials must be compatible with the Brazos River Corridor Development Plan. Standards pertaining to sign area and height are also included;
- ◆ A provision for **pedestrian access** (20 feet in width) on the west side of the Brazos River between Franklin Avenue and Interstate Highway 35;
- ◆ Requirement that all **lighting** supports and fixtures must be compatible in design and appearance with the character of the area;
- ◆ Requirement that **refuse/waste containers** must be screened from public view by appropriately designed landscaping or fencing;
- ◆ Requirement that **loading docks** must be screened from public view through the use of landscaping or fencing, as above;
- ◆ A provision for **walkways**, constructed of concrete, masonry, or stone (wood or compacted granular materials allowed by approval from the City Plan Review Committee);
- ◆ Numerous requirements for **landscaping**.



ILLUSTRATION 9-29

Pedestrian Access Provided in the Brazos River Corridor District in Waco

COLLEGE AND UNIVERSITY DISTRICT

This overlay district was established with the intent to encourage high quality development through a system of density and site improvement incentives. Area boundaries have not as yet been formally determined. However, the purpose of the overlay zone designation and development guidelines is to direct a higher standard of development of projects in areas that are in close proximity to campuses.

Some of the guidelines that are unique to this district include:

- ◆ For Multi-Family Residential Districts or O-2 Office Districts, the reduction of yard *setbacks* is allowed with certain provisions, including:
 - **Placement of buildings** must maximize internal orientation of dwellings;
 - **Usable open space**, other than that required by the City, must be provided in the ratio of at least one square foot for every five square feet of residential floor area;
 - **Parking areas** located at the front of the development must be screened with a landscaped berm or landscaped masonry wall (other comparable materials may also be used);
 - **Pedestrian access** between frontages is required when land uses are located with frontage on more than one roadway.

It is recommended that *College and University District* be applicable to areas in and around the institutions of higher learning, their campuses and associated campus residential and non-residential. **Plate 9-2** shows the application of this concept around Baylor University. *Areas A, B, and C* represent areas in which varying degrees of density should be allowed, with *Area A* of the highest allowable density due to its proximity to the Baylor University campus, to *Area C* with the lowest allowable density due to its distance from the main campus.

It is further recommended that the City develop adjacency standards for these areas in order to ensure quality development and transition between the existing neighborhoods (which are predominantly single-family) and these areas of higher density. The following specific recommendations should be developed into guidelines for development within these areas:

- ◆ Increased landscaping and buffer treatment requirements for lots/parcels that abut single-family residential land uses;
- ◆ Requirement that parking areas will not negatively impact single-family residential uses, especially with regard to lighting and noise. Specifically require that automobile/vehicle headlights be screened such that an *opaque* visual barrier is created;

- ◆ Requirement that screening and landscaping elements will be utilized along the perimeter of parking areas adjacent to single-family residential uses;
- ◆ Requirement that structures will be limited to a height of one-story on lots less than one-half acre, or within 150 feet of single-family residential uses;
- ◆ Requirement that access to mass transit facilities must be provided for all development within these areas for the purpose of minimizing the traffic impact that densely populated areas often create.

The Special Zoning Overlay Districts have been revisited in this section in order to document the steps the City of Waco has taken to improve specific areas of the city. Their guidelines should serve as a general guide for some of the recommendations made in this Comprehensive Plan for the establishment of more intensive urban design standards throughout the city of Waco.

Recommended Design Guidelines for Non-Residential Development Throughout the City

The City of Waco should explore the following guideline recommendations for the development of non-residential areas. Many of the recommendations made are based upon the

guidelines currently in place for Waco's Special Overlay Zoning Districts. These recommendations should be incorporated into City Subdivision and Zoning Ordinances of Waco.

SITE DESIGN CRITERIA

Numerous site design criteria can be addressed by the private sector during the site plan review and development review processes. Often, the view from the street could be improved by better site design planning of the development. An overview of site design elements applicable to non-residential uses and specific recommendations for the city of Waco are presented below:

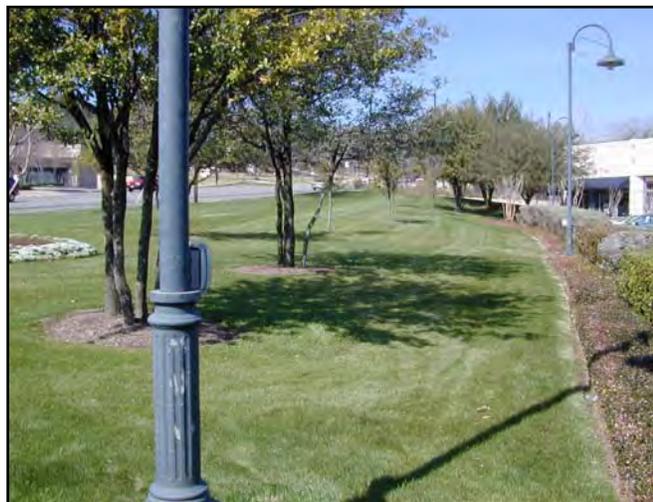


ILLUSTRATION 9-30

Retail Area With Wide Setback & Landscaping Enhances the "View from the Road"

**Insert Plate 9-2:
Proposed College &
University District Areas**

Building Setbacks

PURPOSE:

- ◆ Provide a positive visual image of Waco along all major thoroughfares.

SUGGESTIONS:

- ◆ All non-residential buildings and related accessory buildings constructed on any tract within the city located along any of the major thoroughfares should be set back from the roadway at a minimum distance of approximately 15 feet. Any required landscaping and/or screening elements should be placed within this 15-foot setback.

City may also require additional landscaping and/or screening elements to further shield parking areas from the view of those traveling along major thoroughfares.



ILLUSTRATION 9-31

Parking Behind Office Land Use: Not Visible From the Road, and Screened From Adjacent Residential Land Uses

Placement of Parking Areas

PURPOSE:

- ◆ Provide a positive visual image of Waco along all major thoroughfares.

SUGGESTIONS:

- ◆ Related parking areas/facilities for all non-residential uses located along any of the major thoroughfares should be placed either at the side or at the rear of the primary structure (away from the major thoroughfares) whenever possible. An exception to this requirement may be made when the protection of natural vegetation is necessary or when site constraints make such design impractical. The

Edge Treatments

PURPOSE:

- ◆ Provide a positive visual image of the city along all major thoroughfares.
- ◆ Provide buffering elements between residential and non-residential land uses.

SUGGESTIONS:

- ◆ Require all non-residential uses located along any of the major thoroughfares to landscape all frontages within the setback area.
- ◆ Screening walls should be required between non-residential and residential land



ILLUSTRATION 9-32

*Masonry Wall and Landscaping Treatments
Provide Screening*

uses. The non-residential use entity would be responsible for the construction and maintenance of the wall. The screening may be one of three types:

- A COMBINATION MASONRY AND WOODEN WALL – 6 feet in height, constructed with 50 percent masonry materials and 50 percent wood materials; all wood materials would have to be maintained in a state acceptable to the City of Waco;
- MASONRY WALL WITH LANDSCAPING – 6 feet in height, constructed of rock, brick or stone;
- WROUGHT-IRON WALL WITH LANDSCAPING – 6 feet in height with City-approved landscaping materials;

All landscaping undertaken by non-residential uses must comply with the requirements established by the Landscape Ordinance, which was

recently adopted by the City. In addition, when landscaping elements are used as the primary screening material or as part of a screening device, the following requirements should be included:

- (1) Each of the three screening alternatives must ensure the provision of a continuous, opaque screen within two years of initial planting, and
- (2) Earth berms may be used to provide additional screening to further shield the view from the road.



ILLUSTRATION 9-33

*Stone Wall and Trees Provide Screening Between Retail
Land Uses and A Major Thoroughfare*

Circulation

PURPOSE:

- ◆ Provide continuous pedestrian and vehicular access to all residential and non-residential areas throughout Waco (refer to the *Waco Urbanized Area Bicycle and Pedestrian Plan*).

SUGGESTIONS:

- ◆ Require all non-residential developers to consider pedestrian and vehicular access to and from adjacent land uses. The City may require the developer to construct a pedestrian walkway through the developing property that connects to existing sidewalks/ walkways or rights-of-way for sidewalks/ walkways on adjacent properties.
- ◆ Require cross-access between non-residential land uses (refer to **Illustration 9-34** and **Illustration 9-35**).

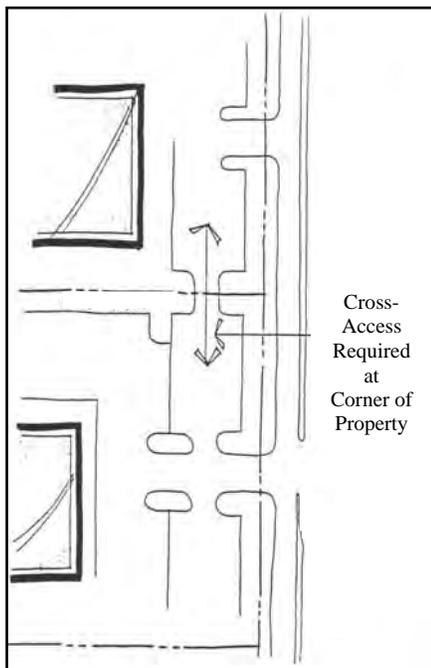


ILLUSTRATION 9-34
Example of Cross-Access Requirement Between Adjacent Non-Residential Land Uses

Layout of Structures

PURPOSE:

- ◆ Ensure the maintenance of the existing character of Waco.
- ◆ Maintain the existing integrity of water quality and stormwater runoff in the Waco area by reducing the percentage of impervious cover.

SUGGESTIONS:

- ◆ Encourage non-residential developers to construct small-scale, pedestrian-friendly areas with small building “footprints” (refer to **Illustration 9-36**), parking areas, and impervious sidewalk cover. Materials other than concrete may be used (such as gravel, which can both serve as a pedestrian walkway and provide drainage).

The City should create incentives for additional landscaping, thereby increasing the amount of pervious cover; in exchange, a reduction in the number of parking lot spaces would be allowed on a sliding scale basis⁹⁻¹.

⁹⁻¹ Buildings with a large amount of square footage often do not use all of their required parking spaces except at peak times of the year; the City should consider reducing the number of parking spaces required for large-scale buildings.

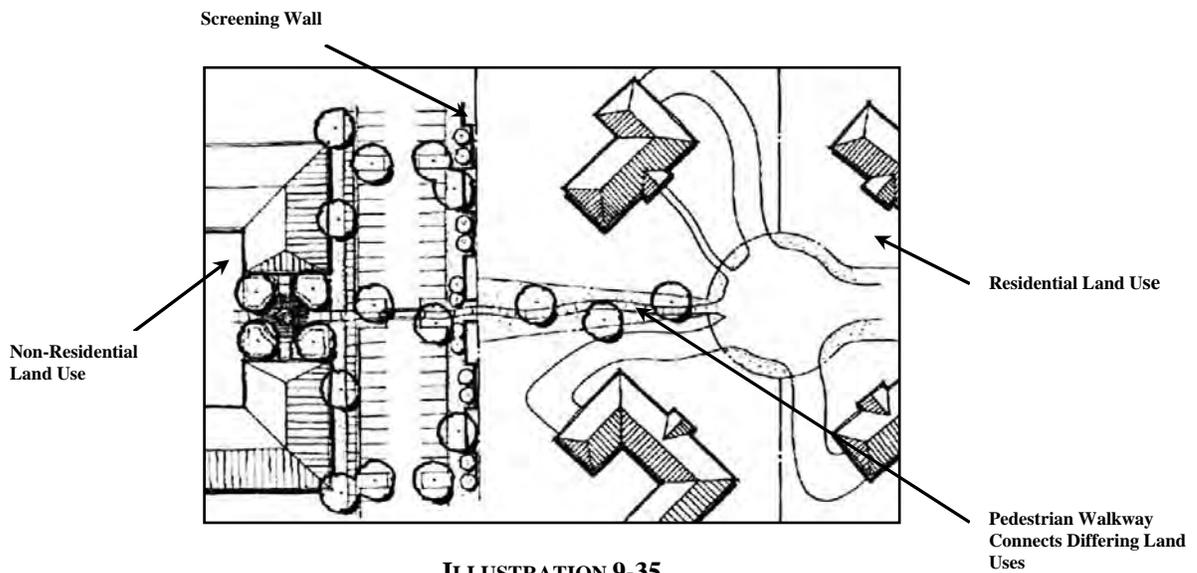


ILLUSTRATION 9-35
Allows Pedestrian Access Between Residential and Non-Residential Land Uses

Typical Retail Site Design With Large Building Masses

Retail Site Lay-Out With Less Building Mass Increases Visual Quality

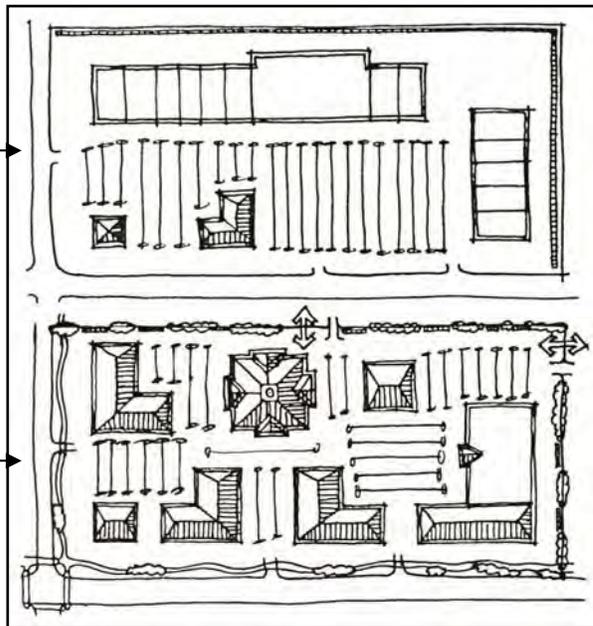


ILLUSTRATION 9-36
Site Design Guidelines Help To Enhance Retail Areas

Building Materials

PURPOSE:

- ◆ Ensure the aesthetic value of non-residential land uses.
- ◆ Create cohesiveness throughout the city by encouraging the use of building façade materials that contribute to Waco’s desired image and identity.

SUGGESTIONS:

- ◆ Include within the Zoning Ordinance a list of acceptable materials, unacceptable materials, and materials that require further examination, thereby requiring a Special Permit.
- ◆ Allow the use of materials other than masonry, or material of equivalent quality, by Special Permit.



ILLUSTRATION 9-37

Different Land Uses Designed With Various Types of Masonry Materials

Articulation of Building Facades

PURPOSE:

- ◆ Ensure the aesthetic quality of non-residential land uses, especially those that are larger in scale.



ILLUSTRATION 9-38

Façade Offset of a Major Retail Land Use

SUGGESTIONS:

- ◆ Require façade offsets of at least 5 feet in depth for every 50-foot length of flat surface.

Signage

PURPOSE:

- ◆ Create a sense of cohesiveness throughout the community, in congruence with the city’s desired image and identity as a well ordered, carefully design-ed, and attractive community.



ILLUSTRATION 9-39

Monument-Style Sign Enhanced With Landscaping Materials and Ground Cover

SUGGESTIONS:

- ◆ Encourage the use of monument signs, where applicable and feasible.
- ◆ Require the sign to be the same color as or similar to the color of the primary structure.
- ◆ Encourage shared signage.
- ◆ Construction of new highway billboards should be prohibited within the city.
- ◆ Encourage all non-residential developments to utilize monument-style signs that are proportional to the size and scale of the primary building structure. Maximum allowable height should be approximately eight feet. The City may allow construction of additional signs as an incentive if monument-style signs are used.
- ◆ Require the use of masonry materials as the primary building materials. Limit the use of wood materials to not more than 50 percent of the sign. All wood material must be satisfactorily maintained.

Landscaping

PURPOSE:

- ◆ Enhance the view and image of Waco, especially along the major thoroughfares.
- ◆ Contribute to the overall quality and visual appearance of individual non-residential developments.
- ◆ Contribute to the percentage of pervious cover within individual non-residential developments.



ILLUSTRATION 9-40

Non-Residential Land Uses Enhanced With Landscaping Materials and Ground Cover

SUGGESTIONS:

- ◆ Provide incentives to existing non-residential land uses to persuade them to comply with the newly adopted Landscape Ordinance (possible incentives could include: matching grant funds, tax abatement programs, and allowed reduction of parking areas in exchange for increased landscaping).
- ◆ Encourage the use of xeriscape techniques to reduce demands for watering and irrigation.

Screening and Location of Loading Areas and Outside Storage Areas

PURPOSE:

- ◆ Improve the appearance of the community as viewed from public streets and neighboring properties.
- ◆ Prevent public access to loading and storage areas.

SUGGESTIONS:

- ◆ Loading docks, service doors, and outside storage areas should be screened; they should not face onto or be visible from any thoroughfare.
- ◆ Loading docks and service areas should be located at the rear of buildings.
- ◆ When loading docks and/or outside storage areas are located in a side yard, they should be screened from adjacent properties and public rights-of-way through

the use of masonry walls in combination with land-scaping materials.

Screening of Refuse Containers

PURPOSE:

- ◆ Maintain and enhance the appearance of non-residential uses as viewed from public streets and neighboring properties (**Illustration 9-42**).
- ◆ Prevent public access to solid waste containers.

SUGGESTIONS:

- ◆ Limit the use of wood materials in screening walls to not more than 50 percent. Wood materials must be satisfactorily maintained.
- ◆ Solid waste containers should not be placed in parking space areas; proper access and appropriate vehicular circulation space should be provided for service trucks.



ILLUSTRATION 9-41

Screening Surrounding A Refuse Container

Related Policies

The following policies are recommended to inform decisions made during plan development and review processes as may be applicable to community image goals and objectives:

- ◆ Incorporate recommended public area improvements into the City's Capital Improvement Program.
- ◆ Use the recommendations proposed by the Comprehensive Plan to guide future development decisions.
- ◆ Use the City's planning and development regulations and review process to ensure that individual residential and non-residential development proposals make a positive contribution to the image of Waco as a whole.
- ◆ Integrate the recommendations made herein into the City's Zoning and Subdivision Ordinances, as applicable.
- ◆ Review and update all design-related ordinances and regulations at periodic intervals, in order to ensure their viability and continued contribution to the image and design of the city.

CONCLUSION

These guidelines are recommended for the improvement of the overall quality and image of Waco. As property is developed, the guidelines should be consistently applied in accordance with the stated goals and objectives pertaining to community image presented in this Comprehensive Plan.



ILLUSTRATION 9-42

Example of Wide Setback and Landscaping Within the Brazos River Corridor District in Waco

Section 10
ANNEXATION & GROWTH MANAGEMENT



City of Waco



Comprehensive Plan 2000

INTRODUCTION

As recently as 1994 the City has undertaken extensive review and analysis of annexation and growth management issues. The status of infrastructure, fiscal impacts of annexation, and recommended growth management strategies have been documented and some subsequently realized (i.e., along U.S. Highway 84). Key findings and recommendations of previous studies, including goals and objectives and related strategies, are incorporated within this Annexation and Growth Management Plan.

PURPOSE

Historically, the management of growth has been associated with annexation. Yet, the growth management concept is related to numerous development issues and strategies apart from annexation. For example, accommodating a growing population and broadening the tax base can be achieved through a well planned infill development and redevelopment program rather than through annexation.

This section of the Comprehensive Plan addresses two aspects of Waco's physical development: (1) infill development/redevelopment of the city's central core areas, and (2) expansion of existing city limits.

ANNEXATION AND GROWTH MANAGEMENT STRATEGIES

As noted in previous sections, by the year 2020, Waco, in its current configuration, will probably lack adequate acreage to accommodate a projected population of 150,000. Notwithstanding the utilization of available acreage within the city limits through infill development and redevelopment, additional land will be required

Moreover, challenges posed by new annexation laws will demand more intensive, long-term planning, budgeting and implementation processes that will affect the entire community. New legislation requires equal application of subdivision regulations within the ETJ. Full municipal services, including water and wastewater services, must be provided within two-and-a-half years of annexation. It would follow that the City's infrastructure be expanded into areas where growth is anticipated, and that the City should not provide utilities to an area unless annexation is imminent, in process or an agreement has been effected. Voluntary annexation would also be desirable.

However, the larger challenge is long-range planning that is responsive to new realities and change, but is simultaneously and equally effective in managing existing community infrastructure – specifically, planning for growth,



reinvestment, and revitalization of the inner city. If the city's projected growth is to be accommodated in a manner that incorporates desired "quality of life" features – sustainable economic development, diversity of housing, educational and employment opportunities, environmental integrity, and aesthetic appeal – a balanced plan of annexation and growth management is required.

The City's Economic Development Plan¹⁰⁻¹ recommends a two-tiered, balanced approach to city expansion and growth management. Complementing the long-range planning required for expansion of the city is the need for planning that incorporates older inner-city areas. This brings a "multiplier effect" to revitalization strategies, such as neighborhood preservation and the availability to citizens of a diversity of housing opportunities. Most of the areas amenable to this strategy have access to necessary utilities. Some areas may require additional incentive-based strategies, while others (i.e., special districts like the Brazos River Corridor, discussed in previous sections of this plan) are ideal for both revitalization and development. The catalytic effect of the resurgent interest and investment, including residential development, in downtown Waco attests to the success of balanced growth management.

The Annexation and Growth Management Plan for Waco consists of the following goals and objectives:

Goal 1:

Encourage growth, quality development, and redevelopment within the existing city limits of Waco. Utilize existing infrastructure and revitalize extant commercial and potential growth centers.

OBJECTIVES:

- 1.1** Employ various growth management strategies and implementation measures for different areas of the city, such as the city's center, urban neighborhoods, infill development areas, suburban growth centers, and low-density residential areas.
- 1.2** Promote development of the historic center, while emphasizing the uniqueness of special architectural and design features.
- 1.3** Coordinate with and support educational institutions' provision of educational and cultural opportunities for the diverse local population.
- 1.4** Coordinate the City's housing strategy with growth management objectives.

¹⁰⁻¹ Angelou Economic Advisors, Inc. *City of Waco Economic Development Plan*. September, 1999.



1.5 Target infill development in key areas and establish development criteria for each area.

1.6 Develop standards and criteria to allow small-scale light manufacturing, as appropriate, in residential infill areas.

1.7 Support primary and secondary education in the city, especially within the Waco Independent School District.

1.8 Encourage and facilitate development in areas where existing infrastructure is underutilized (i.e., identify potential inner-city growth centers).

1.9 Encourage the use of Planned Development Zoning to facilitate innovative projects. Utilize new inner-city development concepts such as “new urbanism and neo-traditional neighborhoods”.

1.10 Prioritize development of areas where there are vacant lots serviceable by existing sewer and water utilities. Establish guidelines and incentives for infill development.

Actions Required:

- Identify areas suitable for both commercial and residential infill development, and develop appropriate programs and/or incentives for implementation.

- Identify vacant tracts within the city’s corporate limits suitable for target industries and businesses referenced in the Economic Development Plan¹⁰⁻².
- Update policies that require urban density development for recouping costs of infrastructure expansion to specific areas. Develop guidelines for analyzing and evaluating low-density developments, weighing the environmental benefits as well as the fiscal impacts, and ensuring consistency with existing City growth management policies.

Goal 2:

Ensure orderly and timely city expansion through targeted annexation, efficient utility provision, and consistent development policies.

OBJECTIVES:

2.1 Develop a strategy for providing utility services within the city’s ETJ prior to or simultaneous with annexation.

Actions Required:

- Prior to annexation, coordinate and direct wholesale water contracts with other service providers (to the degree permitted by TNRCC)

¹⁰⁻² Angelou Economic Advisors, Inc. *City of Waco Economic Development Plan*. September, 1999.



to facilitate quality development in Waco's ETJ.

- Develop a funding strategy for acquisition of water and wastewater providers within the city's ETJ.
- Enact ordinances requiring consent of nearby residents prior to the formation of special districts (i.e., Mixed Use Development Districts).
- Enforce subdivision regulations in the city's ETJ areas.
- Enforce on-site sewer facility (OSSF) lot size requirements.
- Restrict the granting of variances or waivers to subdivision regulations to ensure quality development in the ETJ.
- Tailor the Capital Improvements Program (CIP) to implement growth management strategies.
- In accordance with the anticipated land uses delineated in the Comprehensive Plan, prioritize and schedule infrastructure/utility extensions.

- Explore "smart growth concepts", such as clustering, and other efficient minimal-acreage design strategies/standards.

2.2 Develop a comprehensive annexation strategy that identifies and prioritizes areas for future city expansion based upon established criteria.

Actions Required:

- Develop a system and specific criteria to identify growth centers and areas for future annexation (i.e., proximity to utilities, protection of corridors, rate of growth, development activity and trends, etc.).
- Continue to utilize fiscal impact analyses in determining the feasibility of annexation.
- Develop a rapid response to annexation of strategic areas that enables the City to facilitate and fast-track the provision of utilities, to negotiate annexation agreements with property owners over prospective land use, etc.

2.3 Encourage preservation of environmental resources in the city's extraterritorial jurisdiction (ETJ).



Actions Required:

- Establish policy and guidelines for the identification and protection, insofar as possible, of important landmasses, such as farm and ranchland.
- Utilize conservation easements to protect ecologically sensitive areas.
- Explore City acquisition of floodplain areas or encourage the designation of privately-owned floodplain areas for greenbelts, transition areas, and linear park corridors.
- Develop watershed management ordinances for key drainage basins.
- Adopt a surface mining ordinance for the City of Waco and explore its applicability in the ETJ.
- Add an Agricultural Zoning District to the Zoning Ordinance.
- Work with state representatives and state legislature in order to seek special legislation regarding the protection of the watershed area around Lake Waco.

2.4 Regulate development within the ETJ in a manner consistent with the City objectives for future city expansion and managed growth.

Actions Required:

- Consistently enforce the Subdivision Regulations outside the city's corporate limits.
- Increase on-site sewer facility (OSSF) lot size requirements.
- Avoid granting variances or waivers from the Subdivision Regulations that would tend to encourage substandard development within the ETJ.

2.5 Use the Capital Improvements Program (CIP) as a growth management tool, and tailor the CIP to meet adopted growth management strategies.

Actions Required:

- Prioritize needed capital improvements for targeted areas in the city and its ETJ (see Goal 1, above).
- Explore and evaluate possible funding alternatives for capital improvements:
 - 1) Impact fees,
 - 2) Improvement districts,
 - 3) General obligation funds.

Goal 3:

Encourage regional cooperation in development efforts.

OBJECTIVES:

3.1 Develop a county-wide database to monitor and track growth within the County and in adjacent cities.

Actions Required:

- Build data into the City's geographic information system (GIS); appoint a department/staff responsibility for the maintenance of the program.
- Identify sources of information to provide necessary input into the regional database.

3.2 Negotiate "spheres of influence" boundaries (i.e., areas of jurisdiction or responsibility) with neighboring incorporated areas, where possible.

Actions Required:

- Develop cooperative service agreements with McLennan County and cities in the County.
- Identify or confirm boundary agreements with adjacent cities.

3.3 Encourage regional economic development initiatives to attract business and industry to the area.

Actions Required:

- Utilizing the Economic Development Plan as a framework, develop a cooperative plan with surrounding cities and the county.
- Develop a list of targeted industries and employers to which to market and promote the region.

RECOMMENDED GROWTH AREAS

Plate 10-1 shows anticipated or potential growth areas. Priority areas are ranked in order of importance based on the preceding goals and objectives. Areas ranked "one" should be considered first for development, "two", second for development, and so forth. *Priority Area 1* is considered the most desirable areas for development or redevelopment because of the available infrastructure and economic development benefit for the inner city area. Other areas are based or predicated on two factors. First, they are in a location that is either currently experiencing growth or in which anticipated development projects are known. Second, although infrastructure may not be available in these areas, in many cases infrastructure can be extended

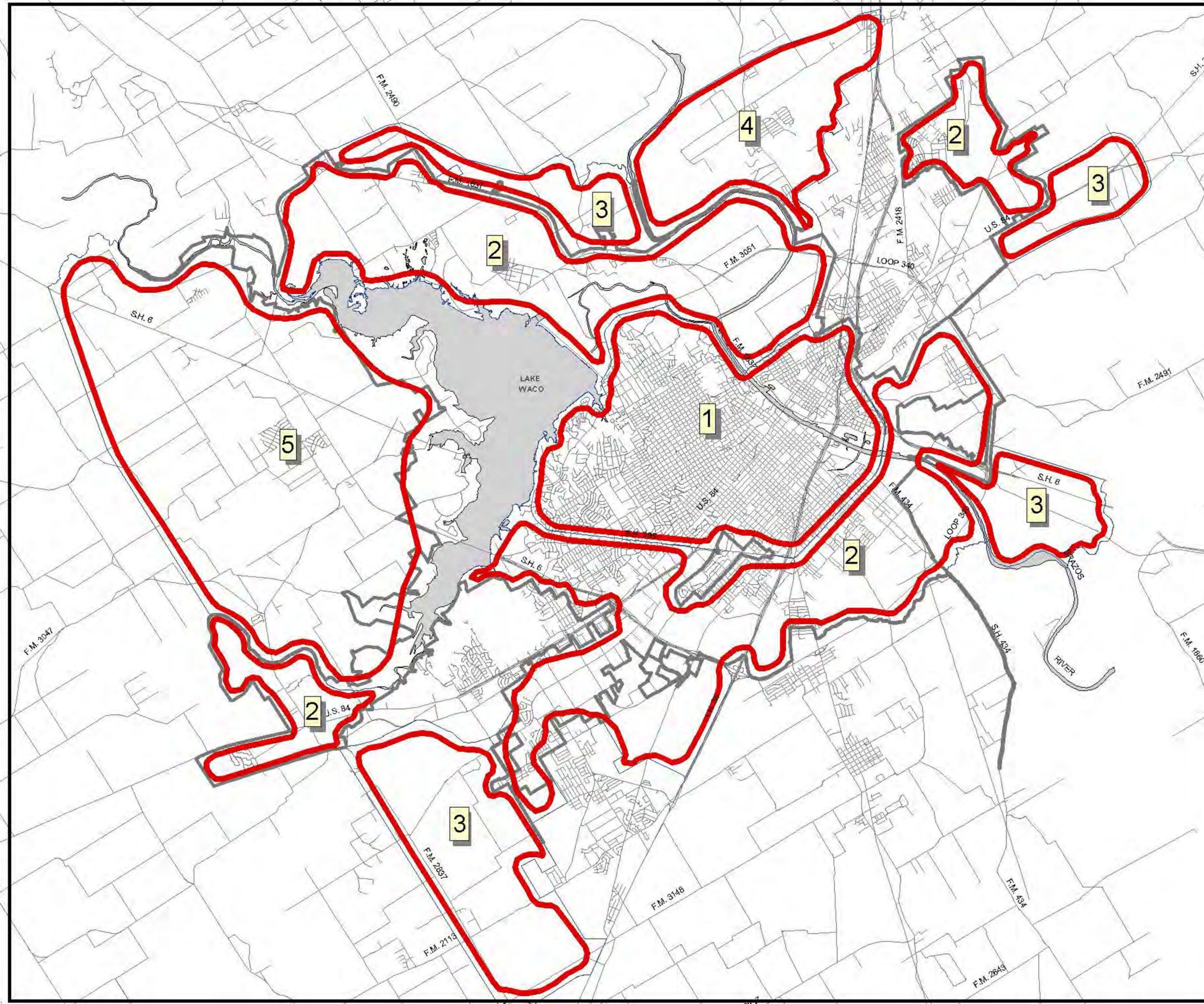


2000 Waco Comprehensive Plan **RECOMMENDED GROWTH AREAS**

Priority Areas

- 1 = First Priority
- 2 = Second Priority
- 3 = Third Priority
- 4 = Fourth Priority
- 5 = Fifth Priority

Detailed explanation of priority areas is included in the Annexation and Growth Management text.



from existing lines. Most of these areas will likely be residential, but a few will be non-residential. Major residential areas for potential growth include areas west and north of Lake Waco, such as the China Springs area and the Speegleville area, among others. The area south of U.S. Highway 84 and north of Hewitt also has great potential for residential growth. Non-residential areas for growth include areas along Highway 6, Loop 340 and Interstate Highway 35.

Waco's ETJ generally confines many area cities from expanding. It will be important for Waco to retain its ETJ rights in these growth areas if it wishes to expand. Other areas east and northeast of the city are less critical because terrain constraints and other issues will make it more expensive to develop in this area, thereby creating less market demand.

Growth Areas In Relation to Infrastructure

RESIDENTIAL

Currently, the U.S. Highway 84 area west of Waco is experiencing significant residential growth; this is likely to continue. Utility provision is being planned at this time to serve significant future capacity requirements. In addition, with scheduled highway improvements this area will have better access to Interstate Highway 35.

The area along Chapel Road west of Waco and north of Hewitt is experiencing growth. Waco water is available to most of this area, but wastewater access is very limited at this time.

The Speegleville area to the west of Lake Waco continues to grow. Growth is in two forms: subdivisions developed to City standards and multi-acre large-lot development. The area is served by rural or private water systems, all of which are on well water, and no wastewater service is available. The area around the China Spring highway is also a growth area. This area has some access to Waco water and Waco wastewater. The water system will need additional capacity in the future.

OFFICE/RETAIL/COMMERCIAL

The area around Loop 340 and Interstate Highway 35 is likely to be a mixture of office, commercial, and industrial growth. The area currently has very little water service.

INDUSTRIAL

The Texas Central Industrial District continues to attract new industry. Most of this area has reasonable access to major water and wastewater facilities. The major exception is at Interstate Highway 35 and Loop 340, where water service is generally nonexistent.

Another area where industrial prospects exist, and that will likely require provision of major raw water supplies and major power supplies, is located along State Highway 6, south of Loop 340. While this area has access to the Brazos River, shallow ground water, and major power lines, City of Waco water and wastewater facilities are not readily available. Refer to **Plate 10-2** for a graphic depiction of growth areas in relation to infrastructure.

Blended with these efforts are infill and development issues. The City should balance both efforts, which can be substantially different in terms of timing and funding strategies. Incentives will be necessary for some infill development, but will likely not be necessary for growth north of U.S. Highway 84, and north and west of Lake Waco.

CONCLUSION

To facilitate expansion, the City must use its Capital Improvement Planning Process (see Objective 2.5) to control its ETJ and future development. The ability to provide infrastructure improvements has often been the single most important issue in annexation, but it is now even more important. Most water service providers in the ETJ use groundwater as a source for their water supply. This practice is generally discouraged by the Texas Natural Resources Conservation Commission and not part of their long-range water planning. These systems generally are best suited to serve low-density (i.e. one-acre lot sizes or greater) development. If the growth areas are to develop at urban densities, the City of Waco may be able to better serve these areas long-term. Therefore, long-range infrastructure planning in the anticipated growth area is important.



Section 11

IMPLEMENTATION STRATEGIES



City of Waco



Comprehensive Plan 2000

INTRODUCTION

With the publication and adoption of this Comprehensive Plan document, the City of Waco has taken another important step in shaping the vision of the community. The updated Plan will provide a very important tool for City staff and civic leaders to use in making sound planning decisions regarding the long-term growth and development of the community. The various elements of the Plan are based upon realistic growth objectives and goals for the City of Waco resulting from an intense comprehensive planning process that involved citizens, City staff, elected and appointed officials, major stakeholders, business interests and the development community.

The future quality of life within Waco and the environment of the community will be substantially influenced by the manner in which Comprehensive Plan recommendations are administered and maintained.

The Comprehensive Plan should never be considered a finished product, but rather a broad guide for community growth and development that is always evolving and changing in scope.

Planning for the community's future is a continuing process. Unanticipated changes in the socioeconomic climate and development trends will occur from time to time, and subsequent adjustments will be required. The Comprehensive Plan is designed to be a dynamic tool that can be modified and periodically updated to keep it in tune with changing conditions and trends.

The effectiveness of the City of Waco's Comprehensive Plan can be realized through its utilization and maintenance as a dynamic document.

As changes occur and new data/trends become apparent (such as information from the 2000 Census), the Plan should be revised if it is to remain current and effective in meeting the community's decision-making needs for future growth and development.

THE PLAN AS A GUIDE FOR DAILY DECISION-MAKING

The current physical layout of Waco is a composite of past and present efforts expended by numerous individuals and groups. In the future, each subdivision that is platted, each home that is built, each new school, church or shopping center will represent an addition to the city's physical form. If planning is to be effective, it must guide every decision, from that of the private homeowner to the City Plan



Commission. The City departments' daily decisions pertaining to whether to surface a street, to approve a subdivision, to amend a zoning ordinance, to enforce a building code or to construct a new utility line, should be made in the larger context of the goals and objectives set forth in the City's Comprehensive Plan. Investments in Waco – public, civic, or private – will, over the years, be reinforced and enhanced by Waco's form, development pattern, and economic well being.

COMPREHENSIVE PLAN AMENDMENTS & PERIODIC REVIEW

The Comprehensive Plan is a dynamic planning document – responsive to changing needs and conditions. Plan amendments should not be made without thorough analysis of immediate needs and consideration of potential long-term effects.

The City Council, City Plan Commission and other City officials should carefully consider each proposed amendment to determine its consistency with the goals and objectives of the Plan and the long-term health and well being of the City of Waco.

At approximate one-year intervals, a periodic review of the Comprehensive Plan should be performed. Ongoing, scheduled reevaluations

will provide a basis for adjusting capital expenditures and priorities, and reveal changes and additions that should be made to the Plan in order to keep it current and viable.

It is recommended that the City Plan Commission conduct an annual meeting for the purpose of review of the Comprehensive Plan and preparation of an annual report for the City Council.

Items that require special attention should be examined in more detail, and changes and/or additions should be made accordingly. Through periodic reevaluations, the Plan will remain functional, and will continue to provide civic leaders effective guidance in decision-making processes. Periodic reviews of the Plan should include consideration of the following:

- ◆ The City's progress in implementing the Plan;
- ◆ Changes in conditions that form the basis of the Plan;
- ◆ Community support for the Plan's goals, objectives and policies;
- ◆ Changes in local, state and federal laws; and,
- ◆ Incorporation of various City plans or projects.

In addition to periodic annual review, the Comprehensive Plan should be thoroughly reviewed and updated every five years.



The review and updating process should begin with the formation of a citizen committee (similar to the Comprehensive Plan Steering Committee). Specific input should be sought from various entities, including property owners, neighborhood groups, civic leaders and major stakeholders, developers, merchants, and other citizens and individuals who are interested in the long-term growth and development of Waco.

COMMUNITY INVOLVEMENT

An informed, involved citizenry is essential to a democratic society. Citizen participation takes many forms, from meeting with a City Councilperson to serving on City boards and commissions. The broad range of perspectives and ideas that issue from public hearings helps City leaders, the City Plan Commission and the City Council make more informed decisions for the betterment of the community as a whole. The Comprehensive Plan is the product of a broad-based process.

IMPLEMENTATION STRATEGIES

There are two primary methods of implementing the Comprehensive Plan – proactive and responsive methods. Both must be used in an effective manner in order to successfully achieve the recommendations contained within the Plan.

Examples of proactive implementation methods include:

- ◆ Expenditure of funds through the Capital Improvements Program (CIP), to finance public improvements, e.g., public buildings, roadways, etc;
- ◆ Review and enforcement of the existing Zoning Ordinance;
- ◆ Review and enforcement of the existing Subdivision Ordinance;
- ◆ Coordination with the Metropolitan Planning Organization (MPO) and the Texas Department of Transportation (TxDOT) to influence roadway planning, funding, and construction; and,
- ◆ Drafting legislation that addresses growth management objectives.

Examples of responsive implementation methods include:

- ◆ Rezoning (i.e., because of a development proposal that would enhance the community);
- ◆ Site plan review;
- ◆ Subdivision review.

Specific implementation strategies for the City of Waco's Comprehensive Plan are described within the following sections.



Capital Improvements Programming

The Comprehensive Plan makes recommendations on the various public improvements that will be needed to accommodate growth and development envisioned for the city over the next 20 years or more. Many of the changes involve improvements that will be financed by future improvement programs. Specific recommendations pertaining to this will be included in a section (to be included later) dedicated to the City's Capital Improvements Program.

Administrative Processes

The Comprehensive Plan is a document professionally developed through a systematic and thorough planning process. It is also a tool that gives guidance to official review procedures. The usual methods for reviewing and processing zoning amendments, development and subdivision plans provide significant opportunities for implementing the Comprehensive Plan. Each decision concerning zoning, infrastructure development, and subdivision review should be evaluated in the context of the goals and objectives and recommendations presented in the Plan. Decisions inconsistent with the Comprehensive Plan should be accompanied by statements justifying the deviation, and actions initiated to amend the Plan accordingly. The function, effective-

ness and viability of the Plan depend upon its maintenance and utilization.

The subdivision of land is an area that will probably have the greatest effect on the overall design and image of the city. The physical form of the city is the result of the layout of streets, easements, alleys, and lots. Waco's physical form and infrastructure will be shaped by new developments and infrastructure demanded by growth, including changes effected by the implementation of the Transportation Plan. Both a proactive and responsive approach to Plan implementation will be required.

The importance of the plan review process cannot be overstated. Proposals for major thoroughfare rights-of-way, drainage easements, setbacks, etc. can be altered, adjusted, or abandoned during the review process. Once a subdivision of land has been filed and development has begun, it becomes a permanent, integral part of the urban fabric.

RECOMMENDATIONS FOR IMPLEMENTATION

Plan implementation is the activation and realization of recommendations presented herein. Methods to ensure implementation of the City of Waco Comprehensive Plan follow:



Recommendations:

Adopt an ordinance to mandate periodic updating of the Comprehensive Plan.

Amend the City Zoning Ordinance document to incorporate the guidelines, proposals, and standards recommended within the Comprehensive Plan.

Amend the City Subdivision Ordinance text to implement the guidelines, proposals, and standards recommended within the Comprehensive Plan.

Adopt review procedures to implement policies and guidelines not incorporated into or addressed by current codes and ordinances.

Prepare an annual report identifying new challenges, items for implementation, or items for further study; the City Plan Commission would prepare such a report with assistance from City staff.

Develop the Capital Improvement Program with the City Plan Commission; schedule and initiate programs recommended in this Comprehensive Plan.

Evaluate the feasibility of developing an impact fee ordinance (as prescribed by the Texas Local Government Code) to assist in the financing of capital expenditures (especially roadways) due to new development.

Establish a regular, proactive program of planning and coordination with the MPO and TxDOT for transportation and roadway planning, funding, and construction.

Provide to the City Council, the City Plan Commission, City Staff and citizens educational seminars relating to planning and zoning procedures.