waco mpo

US BUSINESS 77 CORRIDOR STUDY

Innovative approaches
Practical results
Outstanding service

US BUSINESS 77 CORRIDOR STUDY

Prepared for:

Waco Metropolitan Planning Organization

Under a Contract with the

City of Waco, Texas

November 3, 2016

Prepared by:

FREESE AND NICHOLS, INC.
2711 N. Haskell Ave., Suite 3300
Dallas, TX 75204
214-217-2200

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Waco Metropolitan Planning Organization Technical Committee – FY 2016

Ms. Katie Allgood Special Projects Coordinator, City of Hewitt
Mr. Michael J. Bolin, P.E. Director of Transportation Planning & Development, TxDOT
Mr. Keith Bond City Manager, City of Lacy-Lakeview
Ms. Liz Bullock, P.E. Transportation Planning Administrator, TxDOT
Ms. Megan Campbell, AICP Planner, Transportation Planning & Programming Division, TxDOT
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Mr. Clint Peters, AICP Planning Services Director, City of Waco
Mr. Jed Sulak, P.E. Consultant / Vice President, City of Bellmead / BSP Engineers, Inc.
Mr. Everett "Bo" Thomas City Manager, City of Bellmead
Mr. Solomon Thomas, P.E. Waco Area Engineer, TxDOT

Project Steering Committee

Committee Member and Affiliation

Clint Peters, AICP, City of Waco Planning
Dwayne Banks,Marilyn's Gift Gallery
Everett 'Bo' Thomas, City of Bellmead
Jeanette Bell, Northeast Riverside Neighborhood Association
Jimmy Hunter, Pastor, Toliver Chapel Baptist Church
Joe Rodriguez, Cen-Tex Hispanic Chamber of Commerce
John Hendrickson, Waco Transit
John Nickell, Nickell Metalsmiths
Karl 'Rock' McNair, Baylor University
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Kristofor Norberg, City of Waco Traffic
Christine Miller, City of Waco Traffic
Laveda Brown, Cen-Tex African-American Chamber of Commerce
Megan Henderson, Waco Downtown Development Corp
Michael Bolin, P.E., TxDOT - Waco District
Solomon Thomas, P.E., TxDOT - McLennan Area Engineer
Tom Dahl, P.E., City of Waco Engineering

Planning Organization Staff Project Management
Chris Evilia, AICP, Director, Project Manager
Annette Shepherd, Transportation Planner

Freese and Nichols, Inc. Consultant Team
Kevin St. Jacques, P.E., PTOE, PTP, Project Manager, FNI
Concept Development & Planning – Public involvement subconsultant
Toole Design Group – Concept planning subconsultant
Catalyst Commercial – Market study subconsultant
GRAM Traffic Counting – Data collection subconsultant

EXECUTIVE SUMMARY

BUS 77 is 70 years old and in the coming years will need major maintenance and reconstruction. The intent of the Corridor Study is to determine whether the corridor should remain as a freeway or whether the long-term design should be something different. The study has engaging residents living near the corridor as well as business and property owners adjacent to the corridor.

Initial Concepts from Public Workshop - Based on public input, stakeholder interviews, and brainstorming sessions during team work sessions during a four-day public workshop, initial concepts were developed for the corridor and presented to the public. Some of the key corridor features that emerged out of the public workshop include:

- Boulevard Design – Typically with four travel lanes, landscaped open ditch median and curbed edge of roadway that allows drainage to pass through to open ditches in the right-of-way. The shoulders of the roadway would be removed except where needed for the benefit of property access;

- Drainage – The existing open ditch drainage for the corridor would be retained. The existing center median drainage would be retained for the majority of the corridor for ease of implementation. The removal of the paved shoulders would reduce the impervious area of the roadway allowing more of the rainfall to percolate into the soil before running off along the corridor. A Low Impact Design (LID) approach to the drainage design is envisioned, with a portion of sediments retained before entering the drainage culverts and ditches;

- Access Control - Access management would enhance the safety of the corridor by strategic locations, spacing, design and operation of driveways and median openings. Due to the length of roadway without cross streets, driveway access directly onto the travel lanes would be allowed, but with a minimum spacing of about 100 feet. To the extent possible, driveways should be strategically placed and parking areas shared among adjacent developments to facilitate the provision of median openings at important points of access;

- Special Use Parallel Roads - While some are retained for specific sections, most of the existing service roads would be removed or modified to provide enhanced access and circulation, reduce maintenance cost, and allow additional ROW for pedestrian and bicycle facilities; and

- Special Intersection Treatments - Several intersections and multilevel interchanges have become functionally obsolete or overly complex. With the initial concepts suggesting a boulevard type design, several of these intersections would be redesigned to fit the new character of the corridor. Three multi-level intersections back to grade (at US 84, Orchard Lane and Marlin Highway), and several intersections are proposed for enhanced safety and operation through the truncation of the parallel roadways at the intersection and the introduction of roundabout traffic control.

Notably, the corridor would be modified from its current appearance as a higher speed highway into a moderate speed major arterial roadway.

Corridor Illustrative Design - The initial corridor concepts developed during the four-day project workshop were further refined by the project team to develop an end to end illustrative design of the corridor. While developing the conceptual design, the team evaluated existing adjacent land uses, access driveways, median openings, intersection layouts, location of service roads, area traffic circulation and the general provisions for open-ditch drainage. A set of 14 sheets were prepared to describe the illustrative design and are presented in Chapter 4 of this report.

Implementation Strategy - The proposed BUS 77 corridor modifications vary significantly across the seven-mile corridor, with varying land use character zones each having a unique set of issues that require unique transportation access and circulation treatments. Recommendations are provided for segments of independent utility that can be prioritized for early implementation as funding is identified, most notably those that would provide important safety benefits for relatively low capital cost. Other recommended corridor enhancements would be larger in scope, complexity and/or cost and will be dependent on the implementation of related or prerequisite roadway improvements.

1.0 INTRODUCTION

1.1 BACKGROUND

The Waco Metropolitan Planning Organization, Texas retained Freese and Nichols, Inc. (FNI) to conduct a corridor study along US Business 77 (BUS 77) located in McLennan County. The limits of the study corridor extend from I-35 interchange near Elm Mott to the Brazos River near the south end as shown in Figure 1. The study corridor is approximately 7 miles long and traverses through the cities of Waco, Bellmead and Lacy Lakeview.

1.2 HISTORY OF THE CORRIDOR

The BUS 77 corridor was designed in the late 1940's and constructed in the early 1950's as the main highway connecting Waco to the Dallas/Fort Worth (DFW) region. Approximately 15 to 20 years later, Interstate Highway 35 was constructed parallel to BUS 77 becoming the main north-south highway between DFW & Austin/San Antonio. During and shortly after construction of IH-35, several large traffic generators located in close proximity to the corridor, including Connally Air Force Base and General Tire, ceased operations creating economic hardships within adjacent neighborhoods that persist to the present day. Traffic volumes are currently at between 15 and 30 percent of capacity, partly due to the shift in traffic to IH-35 and partly due to the continuing economic hardships for neighborhoods served by BUS 77.

Due to the age of the facility, some structural problems for both pavement and bridges have been noted and addressed by TxDOT in the recent past. In addition, the design section of the facility does not meet current TxDOT geometric design standards for highway facilities. It is anticipated that at some point in the planning horizon of the MPO (Year 2040) this facility will need to be fully reconstructed.

The MPO financial forecast, identified within Connections 2040: The Waco Metropolitan Transportation Plan, indicates that future revenues will be insufficient to reconstruct this facility in its current design. In addition, the MPO estimates that future revenues region wide will be insufficient to maintain the current state highway system within McLennan County. As a result, the MPO is interested in studying whether this facility can be reconstructed such that the number of lanes and structures along the corridor can be reduced thereby reducing the reconstruction and long-term maintenance costs of this facility. In addition, the MPO is also interested in studying different design alternatives that may serve as a catalyst for economic redevelopment of the neighborhoods along the corridor.

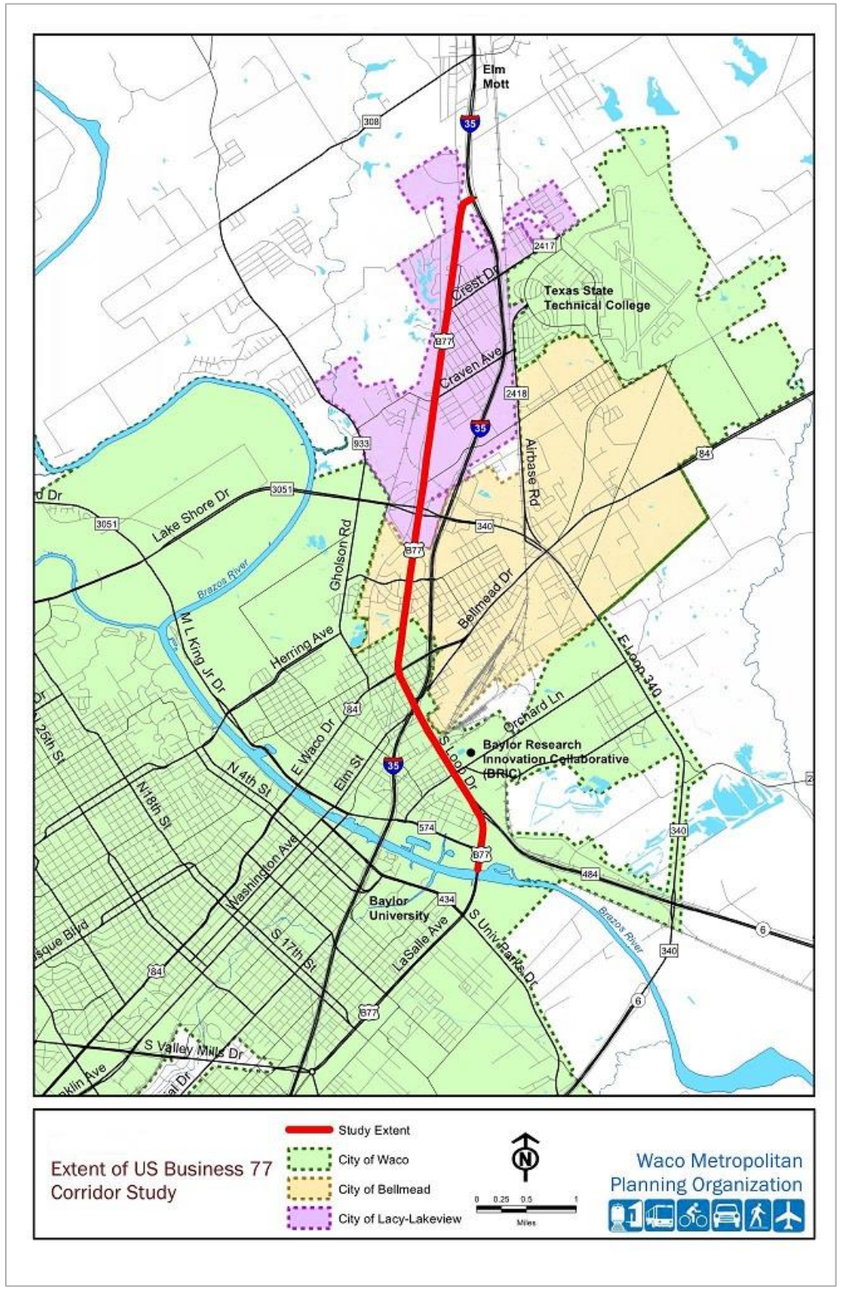


Figure 1. Limits of BUS 77 Corridor Study

1.3 PURPOSE OF THE STUDY

The purpose of this study is to develop and evaluate feasibility of design alternatives that would:

- Reduce the number of lanes and structures along the corridor thereby reducing future maintenance costs;
- Provide multi-modal solutions for the corridor; and
- Provide context sensitive solutions that would serve as a catalyst for economic development of the neighborhoods along the corridor.

1.4 REVIEW OF REGIONAL PLANS

As part of the data gathering task of the study, various regional plan documents were obtained and reviewed to document pertinent information regarding existing and future improvement plans that relate to BUS 77 corridor. Findings from the review of plans and documents are discussed below:

1.4.1 Waco MPO Thoroughfare Plan (2012)

The Waco MPO Thoroughfare Plan updated in year 2012 identified context-sensitive solutions (CSS) project opportunities. The CSS projects were identified in consultation with community stakeholders and MPO Technical Committee members. The list identified the following BUS 77 related projects:

- **BUS 77:** Revitalize the urban community by converting the facility and the original freeway concepts to an at-grade, medium speed boulevard, and by connecting Lake Brazos Parkway with Marlin Highway;
- **BUS 77 from US 84 to Loop 340:** Convert from minor arterial to a boulevard to improve mobility and foster economic development; and
- **Potential Redevelopment Area (former General Tire site) around SR 6 and BUS 77:** Explore a public-private partnership with Baylor to plan and build multimodal local street networks that improve connectivity and accessibility throughout this subarea.

1.4.2 Imagine Waco: A Plan for Greater Downtown Waco

The Greater Downtown Waco Plan was initiated and supported by a public-private partnership with an intention "to capture the interest and momentum in the downtown area and create a vibrant core that evokes memories from the past while guiding growth into the future". Under the Transportation System section of the Plan, various potential gateways and critical intersections within the Greater Downtown were identified. The list included two gateways along BUS 77; one at I-35 and another at Waco Drive. As described in the plan, "gateways welcome visitors and orient them upon entering a different section of a city, at intersections or neighborhood boundaries".

1.4.3 Connections 2040: Waco Metropolitan Transportation Plan

Connections 2040: The Waco Metropolitan Transportation Plan (MTP), is the 25-year plan that outlines the mobility needs for the Waco Metropolitan Area. Under Section 6 - Needs and Gap Analysis of the document, arterials and expressways with the greatest excess capacity in year 2010 are identified. The list identifies the following segments of BUS 77 that are operating well below their design capacity:

- S. University Parks Drive to Marlin Highway;
- I-35 to US 84; and
- Marlin Highway to Orchard Lane.

These sections are near the southern end of the study corridor. According to the plan, travel patterns and changes in adjacent land use have resulted in BUS 77 being underutilized. As a result, the I-35 reconstruction plans developed by TxDOT call for the I-35/BUS 77 interchange to be reconstructed as a simple diamond design with the elimination of the direct connects ramps and elimination of the third level of the interchange that provided the through lanes of BUS 77 with a grade separated crossing of I-35.

The 2035 projected LOS along the entire length of the corridor is anticipated to be acceptable except for the section between Loop 340 and US 84, which is anticipated to be marginal.

The majority of the corridor is not directly served by the Waco Transit System Fixed Route Network. Route 7 – East Waco uses a small southern section of BUS 77 between I-35 and Orchard Lane. No bicycle facilities currently exist along the corridor.

The plan recommended several strategies: one of them being "maximize system efficiency" with the goal to utilize excess capacity, downsize while accommodating future mobility needs to reduce maintenance costs, and implement operational strategies to avoid need for future highway widening. BUS 77 facility within the current study limits was identified as one of the priority corridors under this strategy to conduct a corridor study "to determine whether facility should be reconstructed in current design or as a boulevard design".

1.5 OPERATIONAL DATA COLLECTION

1.5.1 Existing Roadway Geometry

The geometry and functional classification of the BUS 77 corridor vary significantly within the study limits. The north section of the corridor between I-35 and US 84 is classified as minor arterial with four travel lanes, discontinuous service roads, and a variety of median designs. South of US 84, the corridor is designed as a freeway facility with four to six lanes, continuous two lane frontage roads and grade separated interchanges. Following paragraphs describe the various existing geometric and traffic control features throughout the study corridor.

Median treatment:

A grassy median of varying width exists between I-35 and Avenue C near the north end. South of Avenue C, there is a two-way left-turn lane (TWLTL) in the center until about 500 feet north of UPRR railroad. Further south, the median again changes to grassy median until about 800 feet north of Behrens Circle. South of Behrens Circle to the beginning of the freeway cross-section north of US 84, the median changes to TWLTL. Drainage inlets are located in the median of the roadway throughout the corridor. South of US 84, there is no median between the northbound and southbound travel lanes except for the section south of Marlin Highway.

Service roads:

Discontinuous parallel service roads are present throughout the corridor. Service roads parallel to the arterial section of the study corridor north of US 84 are two lanes wide and allow two-way operation. These roads provide access to the adjacent residential development and businesses along the corridor. The access between the service roads and the main travel lanes is not well defined, with several uncontrolled access locations throughout the corridor. South of US 84, BUS 77 changes to a freeway configuration with one-way service roads that are mostly two-lane wide. Between I-35 and Orchard Lane, the service roads are discontinuous with U-turns at the UPRR crossing.

Intersection control:

Most intersections along BUS 77 north of US 84 are at-grade unsignalized crossings with uninterrupted flow along BUS 77. Signalized intersections exist at intersections of Loop 340 and Behrens Circle. South of US 84, the corridor is designed as a freeway facility with grade separated roadways at US 84, I-35, Orchard Lane, Loop 484/Marlin Highway, and MLK Jr. Boulevard.

1.5.2 Historical Traffic Data

Historical Annual Average Daily Traffic (AADT) data collected by TxDOT along BUS 77 were obtained and analyzed to understand historical traffic trends at various locations along the corridor. Table 1 summarizes the AADT from 2010 to 2014 at six locations along the corridor. The data indicates reduction in traffic along the corridor over the past five years with overall negative growth rate of -1.4%.

Table 1. Historical Annual Average Daily Traffic along BUS 77

Location along BUS 77	Historical AADT - TxDOT					Growth Rate
	2010	2011	2012	2013	2014	
South of Spring Lake Road	4,800	6,000	4,500	2,761	4,260	-2.8%
North of Meyers Lane	9,200	10,800	8,700	8,784	8,464	-2.0%
North of Lake Shore Drive/Loop 340	9,300	10,500	8,500	8,888	8,599	-1.9%
South of Lake Shore Drive/Loop 340	11,200	12,400	11,100	11,718	11,471	0.6%
North of W. Waco Drive (US 84)	13,500	14,300	11,300	11,392	11,594	-3.5%
South of S. MLK Jr Boulevard (Hwy 574)	7,400	6,900	6,900	6,199	7,737	1.1%
					Average=	**-1.4%**

Traffic volumes vary significantly by location along the corridor. AADT data collected in 2014 show lowest volumes (4,260) near the north end of the study corridor. Further south, the traffic increases to the highest volume near W. Waco Drive (US 84) to 11,594, and reducing to 7,737 near the southern end at MLK Jr Boulevard. Figure 2 shows a comparison of historical AADT at various locations along BUS 77.

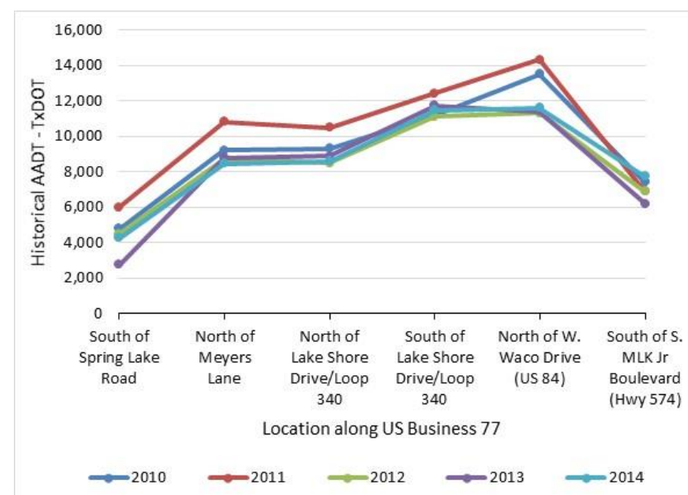


Figure 2. Comparison of Historical AADT at Locations along BUS 77

1.5.3 Existing Traffic Counts

Existing traffic counts were collected along BUS 77 corridor as part of the corridor study by FNI. Intersection Turning Movement Counts were collected on Tuesday, Wednesday or Thursday, during the AM peak period (7:00 am to 9:00 am) and the PM peak period (4:00 pm to 6:00 pm) at the following locations:

- BUS 77 @ E. Crest Drive/FM 2417;
- BUS 77 @ Craven Avenue;
- BUS 77 @ Loop 340/Lake Shore Drive (divided intersection);
- BUS 77 @ Behrens Circle;
- BUS 77 @ Waco Drive/US 84 (four intersections);
- BUS 77 @ Orchard Lane; and
- BUS 77 @ Martin Luther King (MLK) Jr. Boulevard.

Additionally, directional 24-hour counts were collected at 12 locations at the BUS 77 interchange with Marlin Highway to capture traffic counts for all movements.

1.6 DEMOGRAPHIC TRENDS

The population of City of Waco and McLennan County has been growing at a similar rate over the last decade with an annual growth rate of 1%. Over the same period, population of Cities of Bellmead and Lacy Lakeview grew with a rate of 0.7% and 1.3%, respectively. Historical population between 1970 and 2010 are presented in Table 2.

Table 2. Historical Population Trend (1970 - 2010)

	Population					Growth Rate	
	1970	1980	1990	2000	2010	2000-2010	1970-2010
City of Waco	95,326	101,261	103,590	113,726	124,805	1.0%	0.8%
City of Bellmead	7,698	7,569	8,336	9,214	9,901	0.7%	0.7%
City of Lacy Lakeview	2,558	2,752	3,617	5,764	6,489	1.3%	1.3%
City of Northcrest	1,669	1,944	1,725				
McLennan County	147,553	170,755	189,123	213,517	234,906	1.0%	1.5%

Source: U.S. Census

Note: City of Northcrest merged with City of Lacy Lakeview in 1998.

1.7 LAND USE CHARACTERISTICS

While BUS 77 is the primary focal point within the study area, it is important to view the area more comprehensively, by examining adjacent residential neighborhoods as well as non-residential nodes located along the corridor. A key element to the successful implementation of improvements will be to consider the physical, economic and social characteristics of the corridor, and to create roadway scenarios that acknowledge the unique character zones that currently exist (see Figure 3).

In addition to physical enhancements, it is crucial to include and involve the diverse communities along the corridor. Social capital, such as the diversity that exists within the corridor, while not tangible, should be viewed as a tremendous asset. Communities are not only physical in nature, but also thrive when a distinct sense of cohesiveness or attachment exists. Planning for the future configuration of BUS 77 considers the corridor as a community asset with infrastructure amenities that inspire a variety of users.

Due to the varying nature of this corridor, a variety of character zones exist, including:

1.7.1 Commercial Corridor

- Emphasis on a mix of non-residential uses
- Identity-changing infill through catalyst sites
- Access management, slip lanes and transit pullouts
- Road and signage guidelines for image enhancement
- Low Impact Design and stormwater considerations

1.7.2 Rural Edge

- LID and stormwater enhancements
- Preserve critical views to showcase community assets

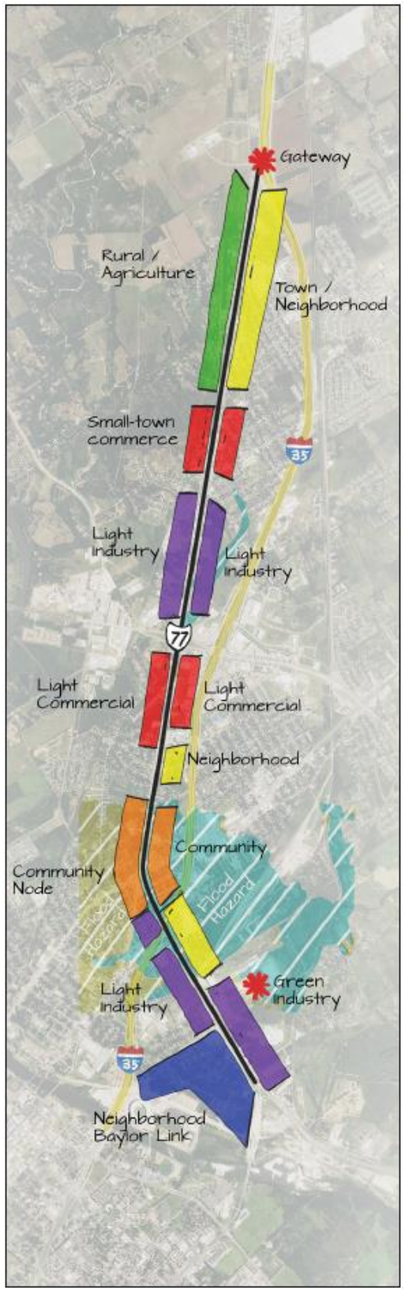


Figure 3. Corridor Character Zones

- Access management
- Promote nature through use of plant material and massing, and green edges

1.7.3 Community Nodes and Neighborhood Centers

- Example Zone Location: BUS 77 near US 84 and the eastern edge of the Carver neighborhood
- Emphasis on both horizontal and vertical mix of land uses, with residential
- Removal of functionally obsolete highway bridges that impede development
- Incorporate identity-changing infill through catalyst sites; mixed with existing investments
- Balanced approach to both pedestrian, bicycle and vehicular movements and access
- Transit considerations and connections
- Buildings closer to street, with strong pedestrian realm connections for outdoor spaces
- Access management, slip lanes and parking management
- LID and stormwater enhancements
- Design guidelines and signage controls

1.7.4 Neighborhood Edge and Town Commerce

- Example Zone Location: Lacy-Lakeview and Northeast-Riverside Neighborhood
- Emphasis on residential uses and community servicing commercial
- Serves as neighborhood edge and promotes existing identity
- LID and stormwater enhancements
- Balanced approach to both pedestrian, bicycle and vehicular movements and access
- Access management
- Neighborhood branding reinforcement through signage, toppers and connectivity
- Pedestrian scale improvements, transit innovations
- Neighborhood urban design forms (wide green outside edges, landscape forms and sidewalks)

1.8 DRAINAGE

A separate drainage study is being conducted by the City of Waco to address drainage needs and issues for the entire city. It is anticipated that the output of the study will provide recommendations for relieving some of the drainage issues of this corridor. Many of the drainage outlets that transmit rainfall runoff from this area to the Brazos River are considered by local groups to be undersized. The area along BUS 77 near US 84 is lower than the surrounding area and is denoted on FEMA maps to be in the 100-year flood plain, as shown in Figure 4. A system of retention ponds and drainage culverts may be needed to address the drainage issues of the corridor such that potential development can occur at underdeveloped locations along the corridor.

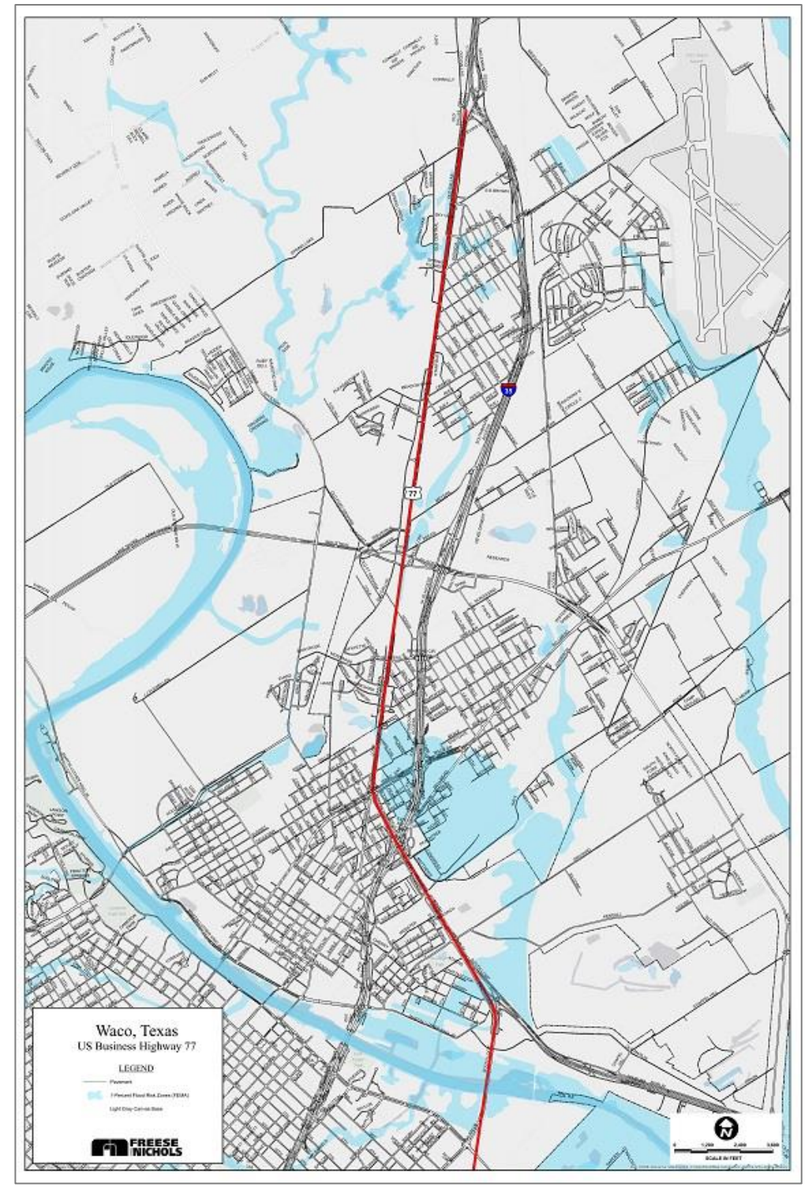


Figure 4. Map of Current FEMA 100-year Flood Plain along BUS 77 Corridor

2.0 PUBLIC INVOLVEMENT

In coordination with the Waco MPO, a Public Involvement Plan (PIP) was developed for the project. The PIP outlined goals, identified target audiences, determined vehicles for communication, and laid out a schedule of meetings including deployment and communication tools. A copy of the PIP is included in the Appendix A.

2.1 PUBLIC WORKSHOP

A four-day project workshop was conducted with an intention of engaging the consultant team, stakeholders, and the community that helped develop alternative design scenarios and further influence the plan's recommendations. A series of stakeholder meetings, interviews, open house meetings, and consultant work sessions were conducted throughout the day. Public open house sessions were conducted each evening to present ideas and gather input to refine the working scenarios and further understand, consider, and communicate the alternative's strengths and weaknesses. The ideas and concepts generated during the work sessions were summarized and presented to the community for feedback in an open house meeting on the last day of the workshop. The schedule and invitation flyer for the workshop is included in the Appendix A.

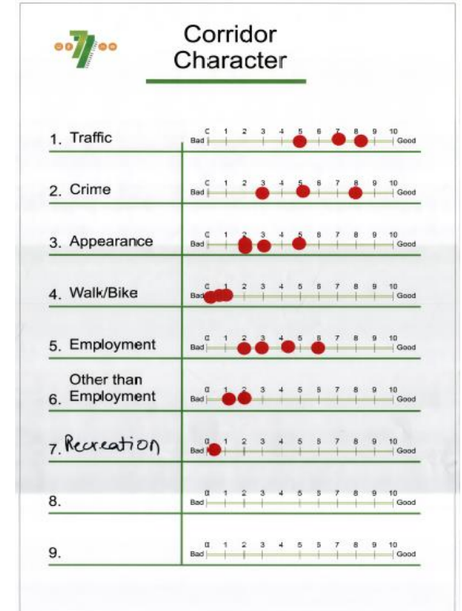
2.1.1 Public Workshop Kick-off Meeting: *Day 1*

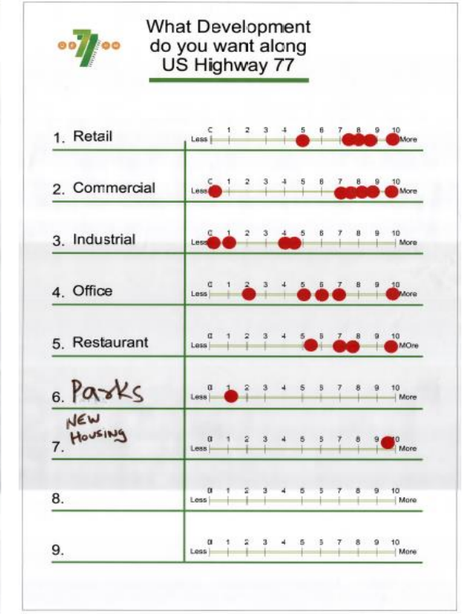
A public workshop kick-off meeting was conducted on February 1, 2016 from 6:00 PM to 8:00 PM at the City of Waco Multi-purpose Center. At the meeting, the MPO and consultant staff provided an overview of the project, and presented the project needs, opportunities, and constraints. Attendees were encouraged to participate in different activities (mapping exercises, working through different character elements, etc.), view project materials, and visit with project representatives about issues that are of concern to them. Feedback and input were collected through the use of charts, discussions, mapping exercises, and comment cards. Following paragraphs describe the public input on various issues relating the existing corridor character, vision of future development along the corridor and other issues relating the corridor. The meeting was attended by about 10 individuals that were not members of the project steering committee and consisted mostly of residents that live or work in areas south of Behrens Circle and west of I-35, according to the dot placed on the sign-in map indicating where they live or work in the corridor.

Corridor Character:

People were asked to rate various aspects of the corridor's existing character such as traffic flow, appearance, etc. on a scale of 0 to 10. The results are summarized as follows:

- Traffic: The score ranged from 5 to 8, with most respondents indicating that traffic congestion is not a major issue along the corridor but with some reservations about traffic safety or operations in general.
- Crime: The score ranged from 3 to 8, indicating mixed opinions about crime incidences in the study area.
- Appearance: The score ranged from 2 to 5, indicating that the appearance of the corridor is perceived to be not good.
- Walk/Bike: The score ranged from 0 to 1, indicating that corridor is very unfriendly for bicyclists and pedestrians.
- Employment: The score ranged from 2 to 6, indicating that a moderate level of employment opportunities exists along the corridor, but there should be more.
- Other than employment: The score ranged from 1 to 2, indicating that other than some employment, there are very few shopping, eating or entertainment destinations along the corridor.
- Recreation: The score ranged from 0 to 1, indicating that there are little or no recreational facilities along the corridor.





Type of development desired along the Corridor:

People were asked about how much of various types of development they would like to see along the corridor on a scale of 0 to 10; with a higher number indicating a higher interest in a particular type of development. The results are described below:

- Retail: The score ranged from 5 to 10, indicating a high preference for retail development.
- Commercial: The score ranged mostly from 7 to 10, indicating that a high level of interest in seeing more commercial development.
- Industrial: The score ranged from 0 to 5, indicating less desire for industrial development.
- Office: The score ranged from 2 to 10, indicating mixed opinions about office development.
- Restaurant: The score ranged from 5 to 10, indicating most people would like more restaurants.
- Parks: There was one write-in response, but indicating low interest in park development along the corridor with a score of 1.
- New housing: There was one write-in response with high desire for new housing with a score of 10.

Other issues:

Other issues identified by the public during the public workshop kick-off meeting include:

- Church Street/Elm Avenue access from BUS 77 and I-35
- Noise abatement from new ramps and service road along I-35
- Traffic cutting through neighborhoods to avoid I-35 congestion
- Need to make Elm Avenue a gateway, and provide better access from I-35
- Need walkable, livable, enjoyable, and sustainable neighborhoods
- Need more businesses; indicated that the area has no places.

Notably, the commercial and industrial elements of the corridor were not represented at this initial public meeting to discuss the corridor attributes and needs. Input and feedback from these corridor users were targeted for specific stakeholder discussions to attain their participation in the corridor assessment.

2.1.2 Stakeholder Interviews: *Day 2 through 4*

The project team conducted individual interviews of stakeholders and the general public throughout the workshop. Representatives of following agencies and business interests were interviewed:

- City of Waco
- City of Bellmead
- City of Lacy-Lakeview
- Toliver Chapel Baptist Church
- Northeast Riverside Neighborhood Association
- Connally ISD
- The Wallace Group (for developer)
- Waco Bike Club
- Waco Downtown Development Corporation
- Texas Department of Transportation
- Baylor University
- Flint Hills Resources
- Tymco and Mazanec Construction

During the interviews, the consultant team provided an overview of the corridor, and gathered input from the stakeholders on specific issues relating to access and mobility for people and freight, safety, planned development, future corridor vision, and other issues relating the corridor. Notes from individual stakeholder interviews are included in the Appendix.

2.1.3 Public Open House: *Day 2 and 3*

Two open house events were held on February 2 and 3, 2016 from 3:00 PM to 5:00 PM at the Texas Department of Transportation, Waco District Headquarters. The Open House meetings provided opportunity for the public to visit with the team, view the progress the team made during the work sessions, and provide input.

2.1.4 Public Workshop: *Day 4*

A public workshop meeting was conducted on February 4, 2016 from 6:00 PM to 8:00 PM at the City of Waco Multi-purpose Center. At this workshop, the consultant team presented the initial concepts for specific segments and key interchanges of the corridor, developed during the team work sessions. The concepts are provided in detail in Section 3.0 of this report. Following the presentation, the public were encouraged to view the concepts developed, ask questions, and provide comments to the project team. Also, the attendees were provided the information on key project contacts, and project website to provide additional comments related to the project and initial concepts developed during the workshop.

2.2 STEERING COMMITTEE MEETINGS

Three meetings were held with a Project Steering Committee (PSC) to provide input and feedback for the development of the corridor plan. The members of the PSC are listed in the Acknowledgements section at the front of this report.

Meeting #1 (January 2016) – Kickoff meeting to orient the PSC to the study scope and timeline and to discuss potentials, constraints and issues for the corridor from the viewpoint of the agencies represented on the PSC.

Meeting #2 (March 2016) – Meeting to review the information gathered and initial set of concepts developed during the weeklong project workshop held in February. Discussions included traffic performance of the concepts, business sensitivities along the corridor and potential traffic operations and development implications of the initial concepts.

Meeting #3 (September 2016) – Meeting to discuss the draft illustrative design for the corridor, from end to end, to assess the application of the concepts at particular points of interest along the corridor. Implementation strategies were discussed.

2.3 ADDITIONAL STAKEHOLDER MEETINGS

As the corridor illustrative design from end to end was nearing completion, the corridor concepts were brought back out to various corridor stakeholders, and introduced to some additional stakeholders, to allow for individual reviews of the implications of the planned corridor treatments on the existing and planned operations of local businesses and agencies. Either phone calls or personal meetings were held with the following entities to review the draft illustrative plan:

- Bellmead Chamber of Commerce
- Baylor University
- Connally ISD
- Flint Hills Resources Chemical Plant
- Greater Waco Chamber of Commerce
- Lacy Lakeview Chamber of Commerce

- Mazanec Construction
- Texas Department of Transportation
- The Wallace Group (on behalf of development interests along the extension of MLK Jr. Blvd.)
- Northeast Riverside Neighborhood Association
- Toliver Chapel Baptist Church
- Tymco
- Ergon Asphalt

2.4 FINAL PUBLIC MEETINGS

A set of three public meetings were held on September 14th and 15th, 2016 to review the draft illustrative design.

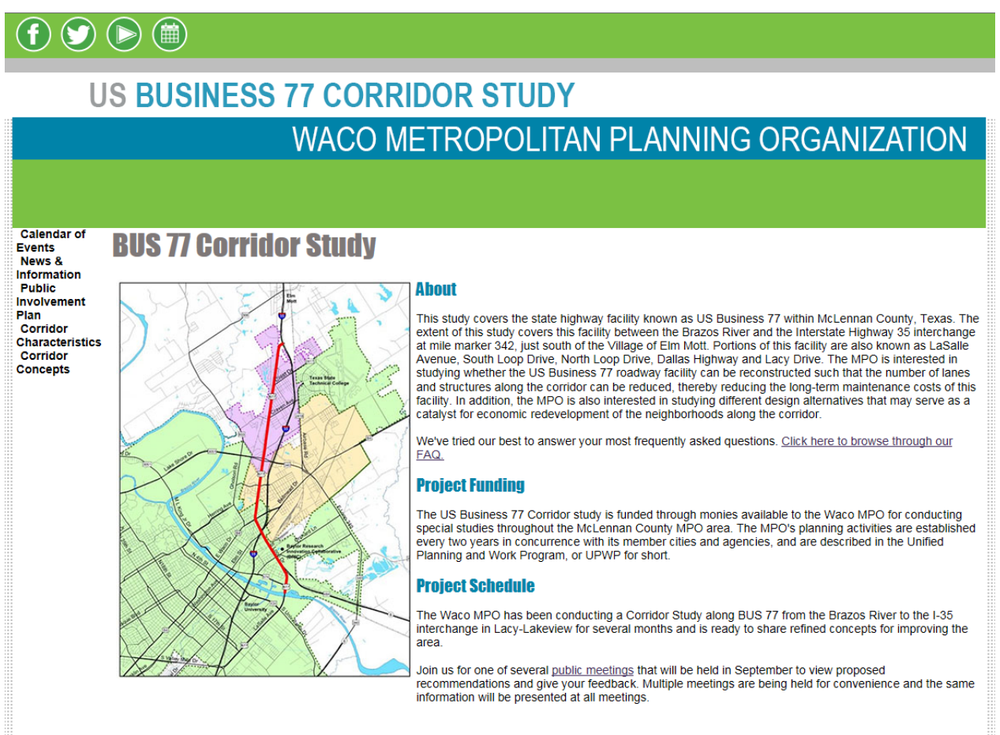
- On September 14th, midday (12:00 to 2:00) and evening (5:30 to 7:30) meetings were held at the Lacy-Lakeview Civic Center.
- On September 15th, an evening meeting (5:30 to 7:30) was held at the Waco Multi-purpose Center.

The information reviewed with the Project Steering Committee at the study team's final meeting with them was presented to the public in an open house format at each of these three meetings. The attendance at the three meetings was a total of about 25 persons that were not members of the Project Steering Committee. A total of about 10 people attended the two meetings at the Lacy Lakeview Civic Center, and consisted predominantly of business owners that were interested in their ease of conveyance along BUS 77. About 12 people attended the one meeting at the Waco Multi-purpose Center, consisting predominantly of residents and some business owners interested in the enhancement of the corridor and its development.

Overall, there appeared to be concurrence with keeping the open ditch drainage and four lanes along the corridor, and an understanding of the intent to install pass-thru curbs at the edges of the travel lanes and eliminate the shoulders to encourage the desired speeds along the corridor. There also appeared to be an understanding of the importance of the medians for safety and the logic for driveway management. However, there appeared to be concerns by many attending the meetings, both residents and business operators, regarding the introduction of roundabouts as traffic control at up to six intersections. Many attendees were familiar with the existing traffic circle on BUS 77 near the southern end of Waco and do not like that configuration. Information provided by the study team regarding the more compact size and more strongly channelized design of the modern roundabout relative to the older traffic circles appeared to address some but not all concerns.

2.5 PROJECT WEBSITE

A project website, www.77corridorstudy.com, was hosted by FNI with a link on the Waco MPO website. The project website address was placed on most all of the promotional materials for the project. A calendar of events, news and information, a list of frequently asked questions were provided as well as the overall public involvement plan for the project, which indicated project meetings and opportunities for public interface with the study team. After the public workshop and after each Project Steering Committee meeting, presentation materials were posted to the website for general viewing by all interested parties. After the final round of stakeholder follow-up meetings and the final Project Steering Committee meeting, the information on the website was updated to incorporate the concepts and recommendations of the study, in advance of the final round of three public meetings. Announcements were posted on the website and sent out to the mailing list maintained by the MPO, and added to during this study process, to advise all interested persons that the comment for the study review period would end on October 14, 2016.



3.0 INITIAL CONCEPTS FROM WORKSHOP

Based on public input, stakeholder interviews, and brainstorming sessions during team work sessions, initial concepts were developed for the corridor and presented to the public. Some of the key corridor features that emerged out of the public workshop include:

- Boulevard Design
- Need for Access Control
- Special Use Parallel Roads for specific local access
- Bicycle and Pedestrian Accommodations, as appropriate
- Roadway Network Enhancements
- Special Intersection Treatments

Following sections discuss these features in further detail and provide illustrations where applicable.

3.1 BOULEVARD DESIGN

The elements of the proposed boulevard cross-section that emerged as part of the initial concept include:

- Four travel lanes. Even though the traffic volumes on BUS 77, ranging between 4,500 and 11,000 vehicles per day could likely be accommodated on a three-lane roadway – one lane each direction with a center turn lane – two travel lanes are recommended to be provided in each direction to better accommodate the commercial and light industrial truck movements along the corridor. As such, traffic speed management should be incorporated into the design of the corridor.
- Wide or tight median. Segments of the corridor were considered for paved or landscaped medians. Landscaped medians could be large or small depending on the desired effect and consumption of right of way.
- Retain center drainage, as appropriate to drain the roadway and the corridor.
- Landscape/xeriscape some median areas to mitigate runoff and enhance corridor aesthetics.
- Sidewalks, as a minimum along both sides of the roadway
- Multi-use paths near concentrations of residential and retail and near schools
- Keep some parallel roads for special local access

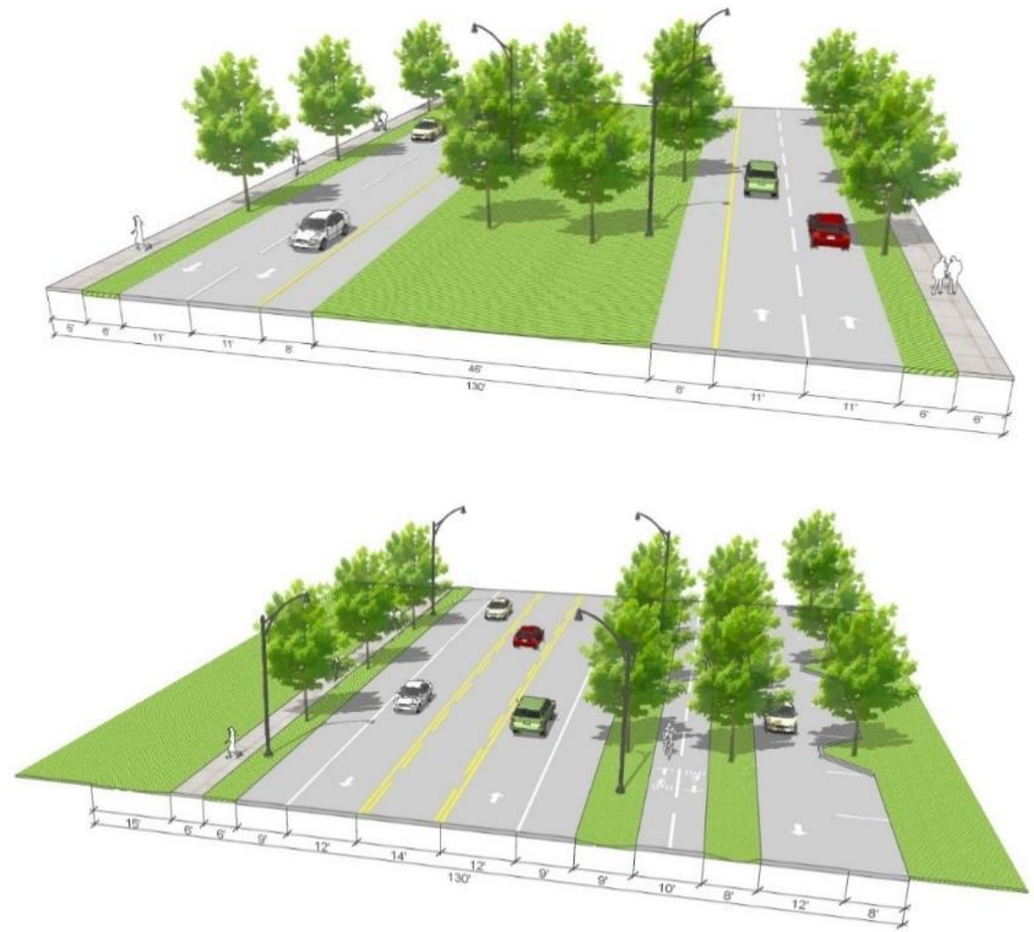


Figure 5. Cross Sectional Design Concepts from Project Workshop

3.2 ACCESS CONTROL

Access management by considering specific design criteria for the location, spacing, design and operation of driveways, median openings and intersections along BUS 77 would provide safer driving conditions and enhance the visual appearance of the corridor. Considerations include:

- Left turn bays in median at strategic locations for business access and turnarounds;
- Formalize driveways, eliminating wide openings for pull-in parking and roadside driving;
- Retain key parallel service roads to facilitate existing development and reduce driveways onto BUS 77;
- Driveway consolidation to enhance parking and cross access for shallow lot frontage; and
- Enhance parallel streets including Old Central Road, Old Dallas Road and Oaklawn Street as backage roads for access to and from development along BUS 77 to take localized circulation off of BUS 77.

3.3 SPECIAL USE PARALLEL ROADS

Several sections of the corridor have parallel two-way service roads, many of which are underutilized and not well maintained. While retention of these service roads may be necessary in specific sections, most of the service roads can be removed or modified to provide enhanced access and circulation, reduce maintenance cost, and allow additional ROW for pedestrian and bicycle facilities. These roads parallel to BUS 77 could be reverted to city streets, or in some cases, sold to the adjacent property owners.

- Retain only short segments of special use parallel roadways
- Retain or provide two-way circulation, as appropriate, for cross access between similar land uses
- Convert to one-way, as appropriate to add parking or other needs of adjacent land use
- The conversion from frontage road to local access street may also initiate a change in ownership and maintenance responsibility from TxDOT to City.

3.4 ROADWAY NETWORK ENHANCEMENTS

Roadway network enhancements and improving roadway connectivity can increase overall capacity of the network, and improve access through the study area. Consideration include:

- Key modifications to enhance operations;
- Paralleling roadway enhancements; and
- Changing travel patterns.

3.5 SPECIAL INTERSECTION TREATMENTS

As the BUS 77 corridor operates well below its capacity, several intersections and multilevel interchanges have become functionally obsolete. With the initial concepts suggesting a boulevard type design, several of these intersections can be redesigned to fit the new character of the corridor. Initial ideas include:

- Bring multi-level intersections back to grade:
  - Waco Drive (US 84)
  - Orchard Lane;
- Consider modern roundabouts for intersection traffic control at key locations; and
- I-35 interchange near the TxDOT office is already redesigned by TxDOT. The BUS 77 concepts developed as part of this study will tie into that design.

3.6 INITIAL CONCEPT ILLUSTRATIONS

Based on the stakeholder and public input, the team developed illustrations representing initial concepts for the key intersections and interchanges throughout the corridor. The concepts depicted key corridor features discussed earlier, and were presented to the public on the final day of the public workshop. These concept illustrations along with the respective existing configurations for key areas in the corridor are presented in Figure 6 through Figure 10, and are discussed below.

3.6.1 Marlin Highway & Orchard Lane Interchanges

Discussions with representatives from the Facilities Management division of Baylor University indicated a great interest and preference for the conversion of the freeway configuration to a four-lane arterial configuration in the vicinity of their new Baylor Research and Innovation Collaborative (BRIC) facility, and also indicated a preference for bringing the grade separated intersection at Orchard Lane down to an at-grade intersection to enhance the visibility and access to their facility. Discussions with several of the industrial businesses along BUS 77 (South Loop) and Marlin Highway between Orchard Lane and Old Marlin Road expressed the access and circulation challenges posed by the three-level interchange at BUS 77/Marlin Highway, with their trucks and customers required to make circuitous routes to get to and from their business locations.

Concept: The grade separated interchanges at Orchard Lane and Marlin Highway would each be replaced by a two-lane at grade roundabout. The remnant of the one-way northbound frontage road between Old Marlin Road and Orchard Lane would be converted to a two-way road that would serve the industry along the east side of the roadway. A landscaped buffer area would be created along the east side of BUS 77.

The existing traffic volumes were modeled under this new configuration for BUS 77 and found to provide good level of service at each intersection. This segment of BUS 77 experiences relatively low volumes for a highway corridor, but the traffic consists of a relatively high percentage of heavy trucks. Discussions with several of the industrial companies indicated that there were not any concerns about heavy trucks navigating the roundabouts.

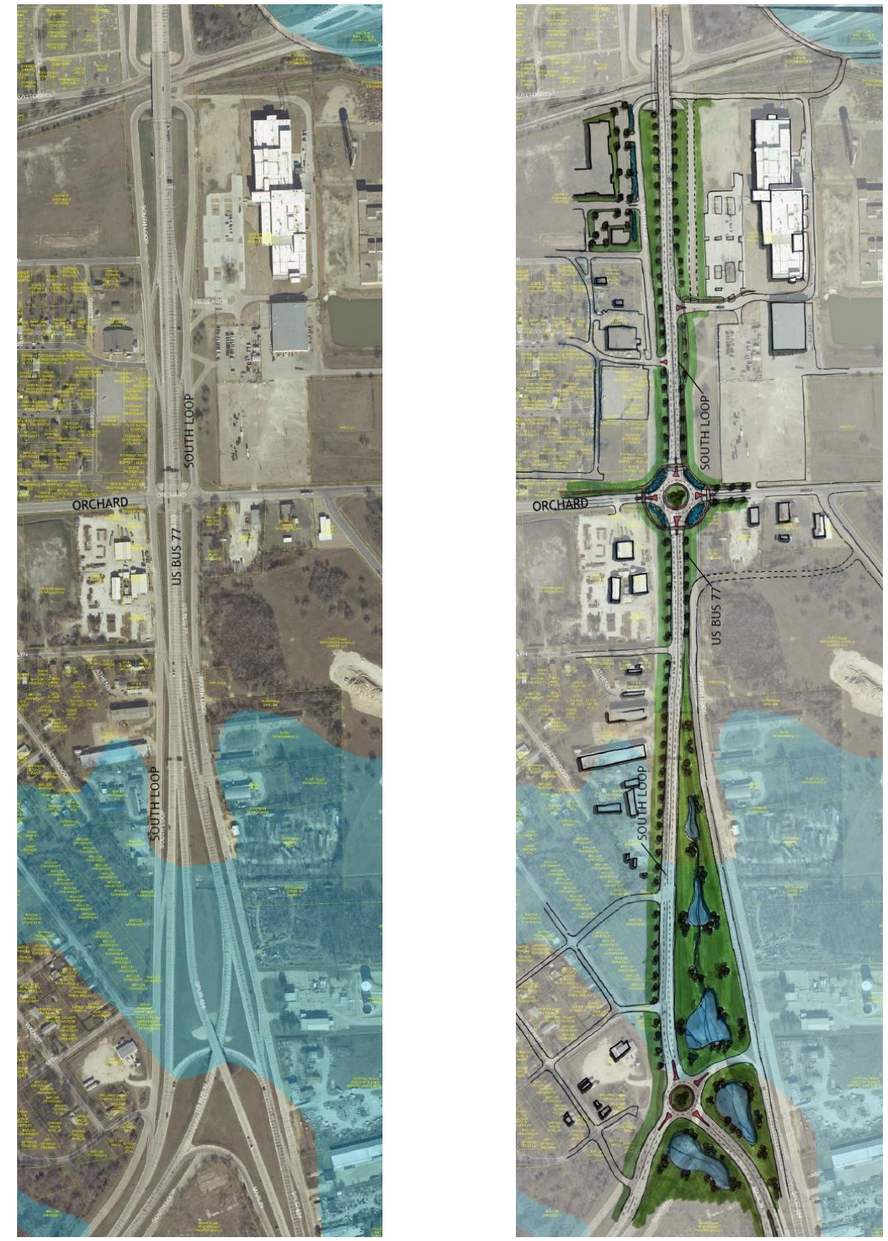


Figure 6. Initial Concept - Marlin Highway & Orchard Lane Interchanges

3.6.2 US 84/Waco Drive (Potts Interchange)

TxDOT has prepared design drawings for the enhancement of the interchange of I-35 at BUS 77 that would remove the BUS 77 direct connect and bypass bridges from the I-35 interchange when it gets reconstructed. Having made that determination, TxDOT should also consider minimizing the three-level interchange at BUS 77/US 84 (Potts interchange) which lies just 2,000 feet to the north. In fact, residents expressed the opinion that the Potts interchange has long out-served its purpose and is now a barrier to their local community economic vitality. Several large parcels of land near the interchange are either vacant or have development more befitting a highway frontage than commercial frontage at an intersection of two arterial streets. Access to BUS 77 and US 84 frontage is relegated to one-way frontage roads. Travel speeds on BUS 77 in this segment of uninterrupted flow were observed to be much higher than the posted 45 MPH speed limit. Business owners and residents have complained about the difficulty to get into and out of the businesses along BUS 77 in this area.

Initial Concept: Remove the three-level interchange and replace it with a four-legged two-lane roundabout. Remove Hillsboro Road from the roundabout and connect it to the US 84 west approach. This concept would allow for the extension of the residential roadway network across what is now Hillsboro Road to complete the existing grid pattern. Though initially an interesting concept to consider, future discussions with the area residents and supporters of the Elm Avenue corridor indicated a preference to retain the Hillsboro Road alignment and keep it connected to the Potts interchange as directly as possible. Several roadways that currently Tee into the service roads along BUS 77 and US 84 would be extended to the proposed arterial roadway with full median openings to connect to their counterpart on the opposite side of the arterial.

The existing traffic volumes were modeled under this new configuration for BUS 77 and found to provide good level of service with the intersection as a roundabout.

Figure 7. Initial Concept - US 84/Waco Drive (Potts Interchange)

3.6.3 Loop 340/Lakeshore Drive

Residents and business owners complained about the traffic conditions on Loop 340 at I-35, the crossover traffic near that interchange, inefficiencies at the Loop 340/BUS 77 intersection as well as segments to the west of BUS 77. TxDOT had not yet begun analysis of potential future treatments for Loop 340 near I-35, though they did indicate that those assessments would soon be forthcoming. The layout of the intersection of BUS 77 at Loop 340 separates the eastbound and westbound movements of Loop 340 such that a future grade separated interchange could be built. The current traffic volumes on the roadway do not appear to warrant such an expense for the Loop 340 @ BUS 77 intersection. However, the ultimate improvements on Loop 340 and the anticipated treatment for Loop 340 at I-35 may involve such considerations.

Initial Concept: The initial concept reconfigured the interchange by relocating the westbound Loop 340 lanes adjacent to the existing eastbound lanes, creating a more efficient intersection without the complexity of overlapping movements between the two Loop 340 directions of movement. The existing westbound lanes would be repurposed as a local access road for adjacent businesses. Roundabouts could even be considered for betterment of the I-35 frontage road operations at Loop 340. Some businesses along the north side of Loop 340 could potentially expand southward into areas vacated by the Loop 340 reconfiguration.

The initial concept for controlling the one four-legged intersection with a two-lane roundabout was analyzed for traffic operations and found to produce less than acceptable level of service. Thus, the concept was subsequently refined to be controlled by a more traditional traffic signal.

Subsequent discussions with TxDOT have requested that the BUS 77 Corridor Study concepts leave the existing configuration of separated eastbound and westbound Loop 340 while TxDOT begins their assessment of needed improvements for Loop 340 near I-35.

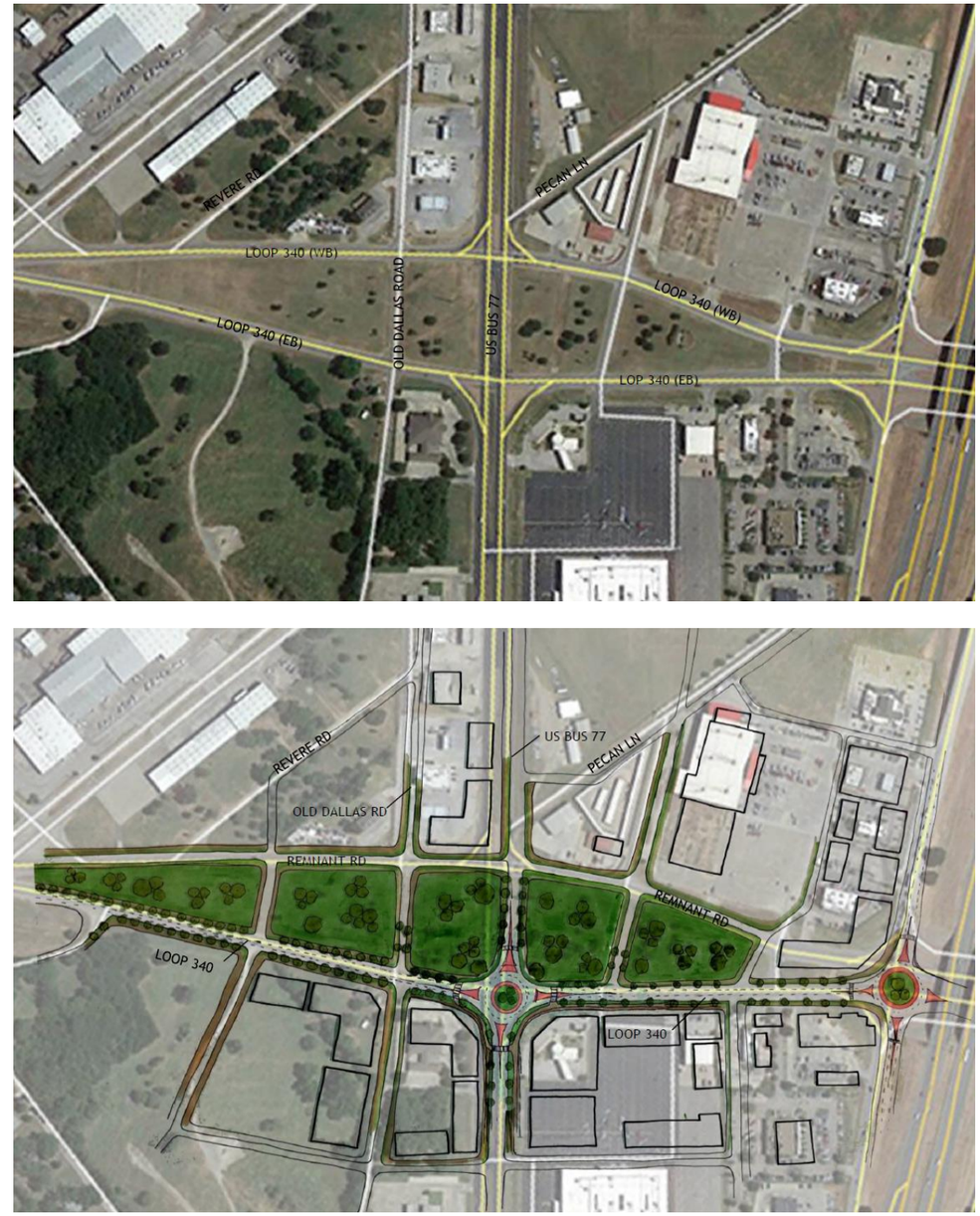


Figure 8. Initial Concept - Loop 340/Lakeshore Drive

3.6.4 Craven Avenue

Local residents described the hazardous nature of the intersection approach from Craven Avenue to access BUS 77. The stop condition at the parallel service road and the stop condition at BUS 77 are too close and thus confusing to drivers. Many after stopping at the parallel service road fail to properly yield at BUS 77. Fortunately, traffic is relatively low for this section of BUS 77, so these conflicts do not produce a high number of crashes. This section of BUS 77 is uninterrupted between I-35 and Loop 340, allowing drivers to travel at speeds in excess of the posted 45 MPH speed limit.

Initial Concept: A roundabout was proposed at the intersection of BUS 77 and Craven Avenue to enhance the safety of the intersection operations, and truncating the parallel service road in advance of the roundabout. Initially, Powers Street was proposed to be extended and form the fifth leg of the roundabout as shown in Figure 9. The existing service road on the east side would be removed near the intersection, to be used as a local street by existing land uses.

Traffic modeling of the roundabout traffic control at this location indicates that the two-lane roundabout would perform very well. Sensitivity testing indicates that BUS 77 could be transitioned to one lane on each approach and a single lane roundabout provided, still with acceptable level of service.

Figure 9. Initial Concept - Craven Avenue

3.6.5 Crest Drive (FM 2417)

Similar to the Craven Avenue intersection, local residents described the hazardous nature of the intersection approach from Crest Drive to access BUS 77. The stop condition at the parallel service road and the stop condition at BUS 77 are too close and thus confusing to drivers. Many after stopping at the parallel service road fail to properly yield at BUS 77. Fortunately, traffic is relatively low for this section of BUS 77, so these conflicts do not produce a high number of crashes. This section of BUS 77 is uninterrupted between I-35 and Loop 340, allowing drivers to travel at speeds in excess of the posted 45 MPH speed limit.

Initial Concept: A three-legged roundabout was initially proposed at the intersection of BUS 77 and Crest Drive, as shown in Figure 10. The existing service road on the east side of BUS 77 would be removed near the intersection. Further refinement of the concept proposes to realign Spring Flower Lane to become the fourth leg of the roundabout, providing continuity of movement across BUS 77 for the residential development west of BUS 77.

Traffic modeling of the roundabout traffic control at this location indicates that the two-lane roundabout would perform very well. Sensitivity testing indicates that BUS 77 could be transitioned to one lane on each approach and a single lane roundabout provided, still with acceptable level of service.

Figure 10. Initial Concept - Crest Drive (FM 2417)

4.0 CORRIDOR ILLUSTRATIVE DESIGN

The initial corridor concepts developed during the four-day project workshop were further refined by the project team to develop an end to end illustrative design of the corridor. While developing the conceptual design, the team evaluated existing adjacent land uses, access driveways, median openings, intersection layouts, location of service roads, area traffic circulation and the general provisions for open-ditch drainage. The details of the conceptual design for different segments of the corridor, beginning at the north end, are discussed in the following sections.

4.1 TYPICAL ROADWAY ELEMENTS

The overall concept for the corridor is the conversion from a rural highway to more of an arterial roadway, with predominantly open-ditch drainage and a mix of rural and urban edges customized to the adjacent development.

4.1.1 Typical Section

The proposed concept retains a minimum 4-lane cross-section through the corridor. The current open ditch drainage would be maintained as the most economical configuration, which can be utilized to apply Low Impact Design (LID) practices for addressing stormwater runoff. The proposed typical section for the roadway is shown in Figure 11 (actual section of Merritt Road in Rowlett, Texas), and incorporates the following features:

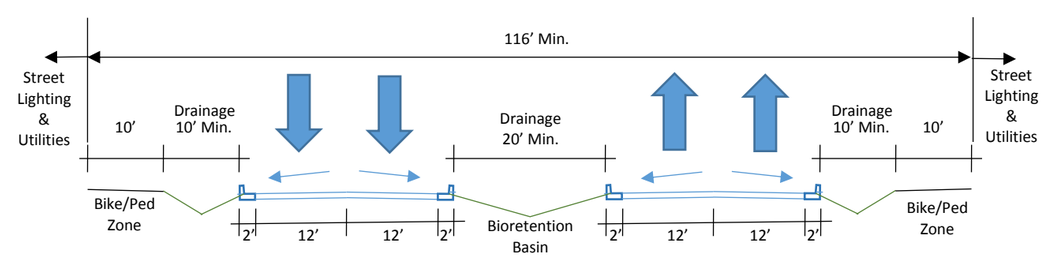
- The existing shoulders would be removed, and pass-thru raised curbs provided at the edge of the travel lanes. The reconstructed pavement for the two travel lanes in each direction would provide 13-foot wide lanes plus 2-foot wide curb and gutter area, for a total pavement section width in each direction of 30 feet, measured from back of curb to back of curb.
- The raised curb edges would create a roadway that is more of an urban arterial in nature, while the pass-thru openings in the raised curb would retain the open-ditch drainage for the corridor. Supplementation underdrains could be provided as needed.
- Potential to add bio-swale and other treatments to mitigate stormwater runoff by allowing catchment of silts and floatables, increasing the permeable area, and dissipation of runoff energy.

The existing roadway Right-of-Way (ROW) for BUS 77 appears to range from about 150 feet to a more typical 170 feet in width, with wider ROW north of Cadet Way and through the grade separated section southeast of US 84 interchange. The proposed ROW for BUS 77 would require about 120 feet in width as shown in Figure 11.

4.1.2 Drainage

Drainage issues along the corridor have been a common theme among comments from residents and business owners all along the corridor, but mostly south of Craven Avenue. The proposed typical section would eliminate about 28 feet in width of shoulders, or about 35% of the current impermeable surface of the BUS 77 roadway, allowing for more infiltration of storm water into the ground and less runoff from the roadway. Moreover, the proposed typical section would create more space within the TxDOT roadway right-of-way to incorporate drainage ditches that would better store the high rainfall events.

Figure 11. Proposed Typical Section for the Roadway



4.1.3 Medians with Strategically Placed Median Openings

The provision of a median area is a safety measure that has many benefits, including:

- Reduces motor vehicle crashes by 15 percent (FHWA, Desktop Reference for Crash Reduction Factors)
- Decreases delays (>30 percent) for motorists and increases capacity (>30 percent) of roadways (TRB Access Management Manual, TRB, Washington, DC, August 2004)
- Reduces vehicle speeds on the roadway compared to undivided roadways (King, M. Pedestrian Safety through a Raised Median and Redesigned Intersections, TRR 1445, TRB, Washington, DC, 2004);
- Where pedestrian crossings may be prevalent, provides a refuge area in the crosswalk so that pedestrians only have to cross one direction of traffic at a time.

The provision of landscaped medians, however, can be somewhat restrictive for driveway access from the opposing direction of traffic. Median openings need to be considered for all cross streets, wherever feasible, and for access to heavily used driveways. Other driveways may warrant the location of a median opening, such as at truck entrances for businesses, to the extent possible while retaining enough median mass to provide the targeted safety benefits. Some indirect access is currently required by existing landscaped medians that would require turning right out of driveways then doing a U-turn to continue in the opposite direction, and some would also be required under the proposed configuration.

4.1.4 Access Management

In conjunction with raised medians, reducing the frequency of driveways and the width of roadway access openings can further enhance the safety of the corridor. Multiple driveways can be reduced to fewer but potentially more effectively placed driveways by the creation of cross-access agreements between abutting properties. The new driveway configurations, in conjunction with the changed typical cross section, can result in more space for parking or shared parking configurations to serve adjoining businesses.

At some locations along the corridor, the parallel roadway is proposed to be retained as a short segment of two-way street due to the extensive number of existing driveways. These parallel roadways serve as another form of cross access with limited driveways onto the main roadway.

4.1.5 Intersections

Intersection treatments were selected based upon the total volumes of traffic anticipated to pass through in all directions and the vehicle mix of cars and heavy trucks that are anticipated.

- Signalized Intersections – Intersections that would meet one or more of the signal warrants of the Texas Manual on Uniform Traffic Control Devices (TMUTCD) could be considered for the installation of a traffic signal. Signalized intersections would be provided at Loop 340 and the I-35 service roads.
- Roundabout Intersections – Whether an intersection would meet signal warrants or not, a roundabout could be considered for control of the intersection. Roundabout traffic control may be considered for many reasons including:
    - transitions from one land use to another, such as commercial to residential
    - Traffic calming on long uninterrupted segments of road where a target speed is desired that may tend to be exceeded without traffic control

Since 2008, the Federal Highway Administration official guidance is that “roundabouts are the preferred safety alternative for a wide range of intersections. Although they may not be appropriate in all circumstances, they should be considered as an alternative for all proposed new intersections on federally funded highway projects”. Modern roundabouts are smaller than old rotaries like the La Salle circle in southeast Waco, which allow high speeds. Instead, modern roundabouts are engineered to calm traffic before it enters the intersection and keep it slow on the turn. Some performance statistics gathered by FHWA include:

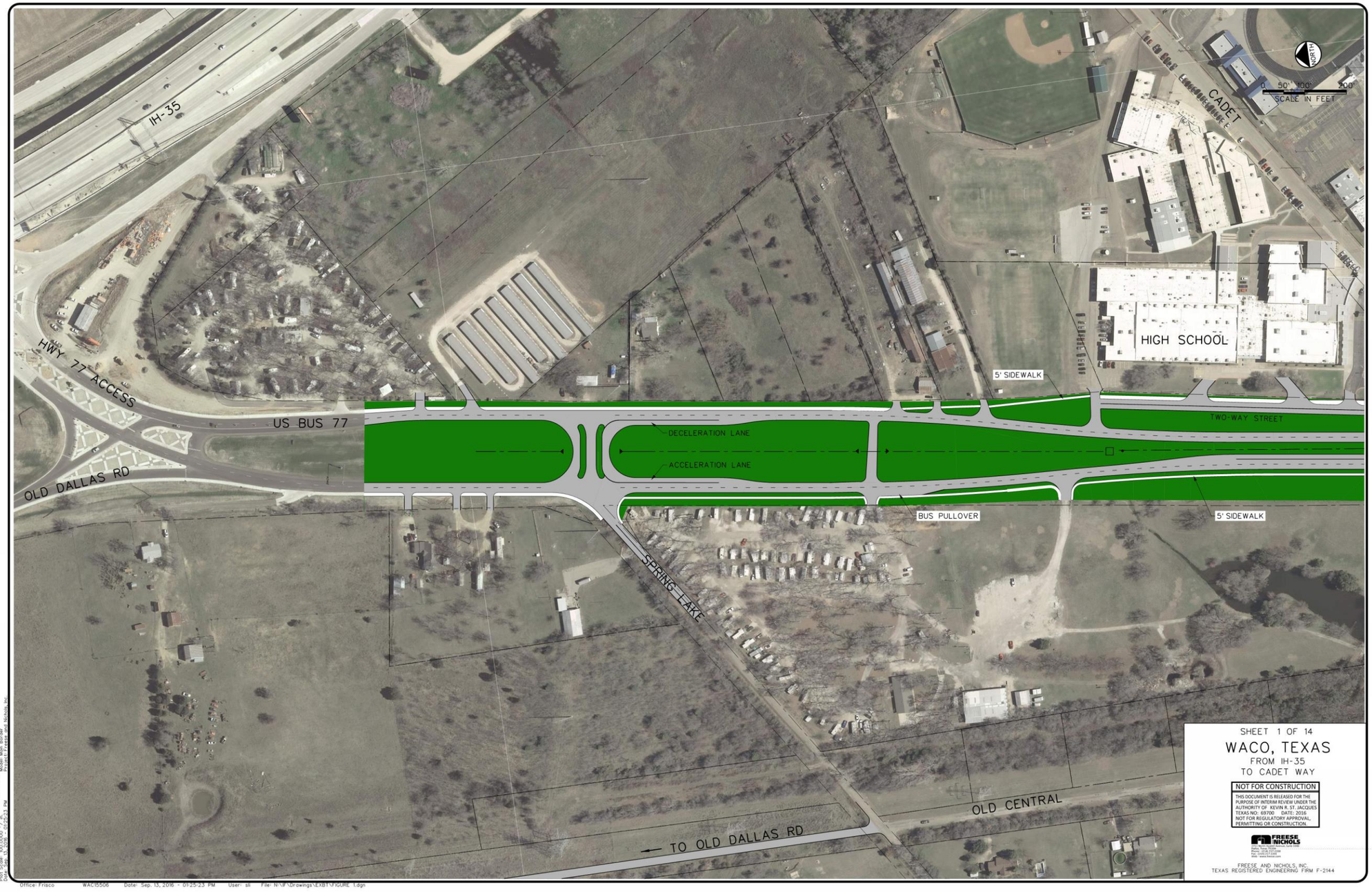
- Roundabouts that replace two-way stop signs reduce fatal and severe injury crashes by 82 percent, with a 44 percent reduction in all crashes, according to the Federal Highway Administration’s website.
- Converting a signalized intersection to a roundabout reduces severe crashes by 78 percent and overall crashes by 48 percent.
- Other studies show that roundabouts can be more efficient in moving traffic than conventional signalized intersections, because no one has to wait at a traffic light.

Modern roundabout designs have proved effective, and now TxDOT is building them across the state.

4.2 I-35 TO CADET WAY

The northern most section of BUS 77 between I-35 near Elm Mott to just north of Cadet Way was reconstructed by TxDOT in 2012. The reconstructed section of BUS 77 now has approximately 140 feet wide median between the curbed 2-lane wide northbound and southbound travel lanes north and south of Spring Lake Road, with sidewalks provided at the back of curb. South of Spring Lake Road, the BUS 77 lanes shift toward the middle of the BUS 77 right of way, reducing the median to about 24 feet in width, including 4-foot wide paved inside shoulders.

- **Special Roadway Elements** –A crossover two-way road is added midway between the High School and Spring Lake Road, lined up directly at the driveway for the mobile home park, as additional cross access for future development and to provide an alternative to U-turning at Cadet Way. A crossover at the entry driveway to access the Connelly High School parking lot was specifically requested not to be provided by the ISD.
- **Access Management** – The two-way roadway along the east side of BUS 77 is retained north of Cadet Way in order to retain the Connally ISD's campus traffic management plan. Future traffic management planning by Connally ISD may suggest modifications to this configuration.
- **Intersections** – Deceleration and acceleration lanes are added at the northbound U-turn at Spring Lake Road to differentiate the U-turn traffic from the left turn traffic.
- **Outside Roadway Edge** – The outside roadway edge along the west side of BUS 77 will change from a paved shoulder to curb with 5-foot wide sidewalk, a minimum of 5 feet behind the back of curb. Along the east side of BUS 77, the sidewalk will shift away from the edge of BUS 77 to east of the parallel roadway along the Connelly High School frontage.
- **Drainage** – The median drainage and edge ditches outfall to a drainage feature west of BUS 77 across from the High School, which then feeds into Spring Lake. Reducing the total paved area by eliminating the shoulders and adding LID drainage treatment features will improve local area water quality.
- **Development** – The Connally ISD is the predominant adjacent land use in this segment, though there is a mixture of residential, commercial and undeveloped land uses as well. Connally ISD anticipates an increase of residential development along the western side of this northern end of BUS 77. A planned truck stop/fueling station is proposed on the east side of I-35 at the BUS 77 interchange. This segment is the gateway to and from I-35 into the BUS 77 corridor and its mix of residential, commercial and light industrial development.
- **Other Elements**
  - **School bus pullovers** - The Connelly ISD indicated that this is a relatively dark section of BUS 77 due to its sparse adjacent development and would benefit from the addition of street lighting. The ISD also requested the provision of a bus pullover bay at the residential development along the west side of BUS 77 (at the mobile home park).
  - **Gateway** – A very wide median exists at this northern entry into the BUS 77 corridor near the intersection with Spring Lake Road. This would be an excellent location for an entry feature to denote the unique historical and cultural nature of the corridor. Such a gateway feature would also signify for the multiple types of vehicles, both cars and trucks, that they are traveling on a locally significant roadway with a mix of land uses.


IH-35
HWY 77 ACCESS
US BUS 77
OLD DALLAS RD
DECELERATION LANE
ACCELERATION LANE
5' SIDEWALK
HIGH SCHOOL
CADET
TWO-WAY STREET
BUS PULLOVER
5' SIDEWALK
SPRING LAKE
OLD CENTRAL
TO OLD DALLAS RD
NORTH
0 50' 100' 200'
SCALE IN FEET
SHEET 1 OF 14
WACO, TEXAS
FROM IH-35
TO CADET WAY
NOT FOR CONSTRUCTION
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FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

4.3 CADET WAY TO CREST DRIVE

Major cross-streets in this segment include Cadet Way, and Crest Drive. Cadet Way provides direct access to the Connally ISD Campus located east of the corridor. Crest Drive provides access to the residential neighborhoods to the east of BUS 77 and connects BUS 77 to I-35 and to the Texas State Technical College (TSTC) campus further east.

- **Special Roadway Elements** – The existing parallel roadway along the east side of BUS 77 (N. Lacy Drive) would be retained so that the numerous driveways for the residential development would not feed directly onto BUS 77. This roadway would continue to be a two-way local street and put under control of the City of Lacy Lakeview. The two-way N. Lacy Drive would be truncated south of Brenda Street to end at the entrance to the park and could be provided with parking at the terminus. A paved surface could be provided by the city to provide continuity needed between Crest and N. Lacy Drive for its annual parade.

- **Access Management** – The streets and driveways providing access to the existing residential lots and a nursery would be extended to tie directly to the southbound lanes of BUS 77. With the removal of a portion of the northbound service road just north of Crest Drive, the businesses located at the northeast corner of the intersection would have access along Crest Drive.

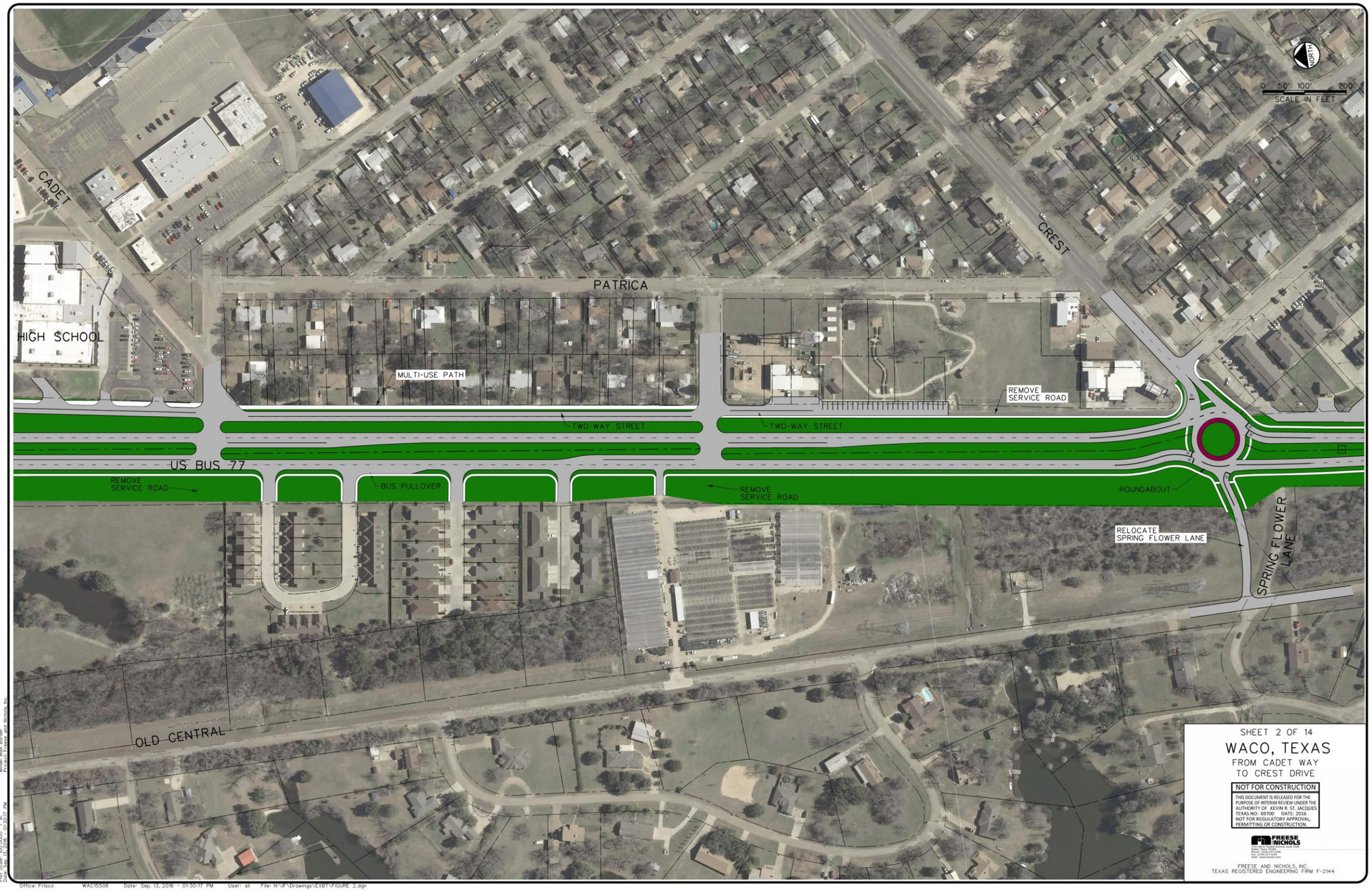
- **Intersections** – The existing geometry at intersection of Cadet Way and BUS 77 would be maintained. However, a special traffic management plan should be created for the Connally ISD school campus to manage the multiple movements at the entry/exit of Cadet Way at BUS 77.

  The intersection of Crest Drive at BUS 77 is at a skewed angle. The presence of the two-way northbound service road intersection, in close proximity to the BUS 77 main lanes, further complicates the geometry at the intersection. To simplify the intersection, and better manage the turning movements, a traffic signal was considered. However, the traffic volumes at the Crest Drive intersection do not meet the warrants for a traffic signal established by the Texas Manual on Uniform Traffic Control Devices (Texas MUTCD). A roundabout is proposed for the traffic control at this intersection, which would accommodate the low volume entry and crossing movements from Crest Drive while providing a measure of travel speed management for traffic along BUS 77. Related modifications would include removal of northbound service road adjacent to the intersection, and realignment of Spring Flower Lane to tie into the intersection. Northbound and southbound deceleration lanes are added along BUS 77 at the significant side streets.

- **Outside Roadway Edge Elements** – Along the east side of BUS 77, the sidewalk would be provided along the east side of the service road for access from the residential development to the Veterans Memorial Park and the Connally ISD Campus. Along the west side, a continuous sidewalk would be provided along the southbound lanes, five to ten feet behind the back of curb.

- **Drainage Elements** – The median drainage and edge ditches outfall to an open drainage feature near the Veterans Memorial Park between Brenda Avenue and Crest Drive.

- **Other Elements** – The Connelly ISD indicated that this is a relatively dark section of BUS 77 due to its sparse adjacent development and would benefit from the addition of street lighting. The ISD also requested the provision of a bus pullover bay at the residential development along the west side of BUS 77 (Skyview Addition).


CADET
HIGH SCHOOL
PATRICA
CREST
MULTI-USE PATH
TWO-WAY STREET
TWO-WAY STREET
REMOVE SERVICE ROAD
US BUS 77
REMOVE SERVICE ROAD
BUS PULLOVER
REMOVE SERVICE ROAD
ROUNDABOUT
RELOCATE SPRING FLOWER LANE
SPRING FLOWER LANE
OLD CENTRAL
0 50' 100' 200'
SCALE IN FEET
SHEET 2 OF 14
WACO, TEXAS
FROM CADET WAY
TO CREST DRIVE
NOT FOR CONSTRUCTION
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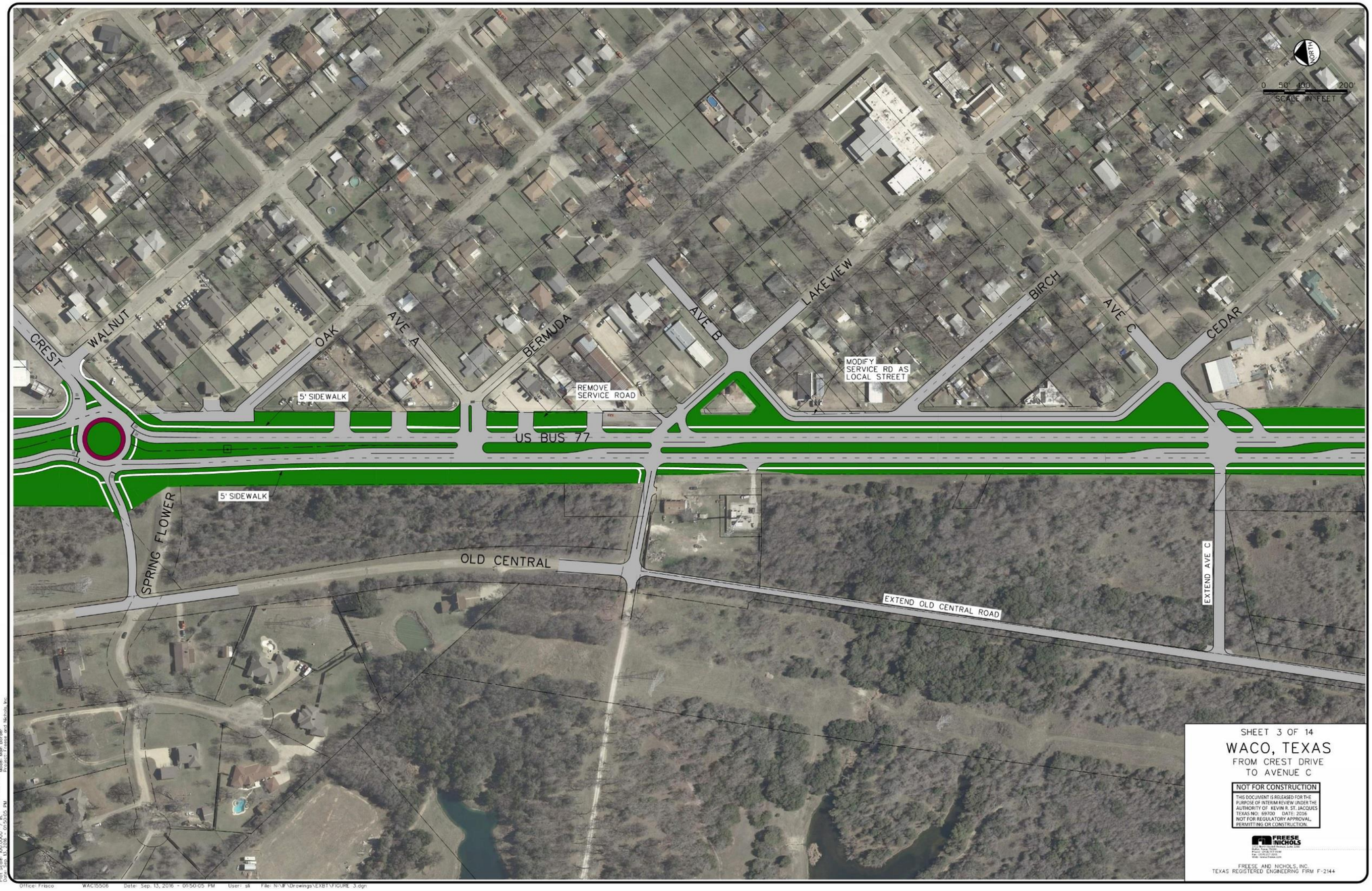
TEXAS REGISTERED ENGINEERING FIRM F-2144

4.4 CREST DRIVE TO AVENUE C

The west side along the section between Crest Drive and Avenue C is mostly undeveloped. Central Street runs parallel to BUS 77 on the east side with missing section between South of Spring Flower Lane and Craven Avenue. To improve connectivity, it is recommended to construct this missing connection.

- **Special Roadway Elements** – An east-west connection between BUS 77 and the proposed extension of Central Street is proposed by extending Avenue C to the west of BUS 77. Central Street would be extended to become a backage road that would serve as parallel access way for localized travel along the west side of the corridor, which would reduce short trips that would otherwise be made on BUS 77.
- **Access Management** – Along the east side of BUS 77, the portion of service road between Avenue B and Oak Drive would be removed, and access would be provided directly to northbound lanes via newly constructed driveways. The parallel roadway between Avenue B and Avenue C would be converted to a local roadway for access and circulation for the local development, with special Delta shaped areas created at the entry/exit to these two locations. Median crossings would be maintained at Avenue A, Lakeview Drive, and Avenue C.
- **Intersections** – The turning movements at the intersection of Avenue A and Avenue C would be well defined due to the removal of sections of service road along the east side of BUS 77.
- **Outside Roadway Edge Elements** – Continuous sidewalks are proposed along both sides of BUS 77.
- **Drainage Elements** – The TWLTL in the median would be replaced by an open ditch drainage. The median drainage and edge ditches outfall to an open drainage feature north of Avenue C.
- **Other Elements** – Future development along the west side of the corridor, between BUS 77 and Old Central Road would be provided with direct driveway access onto BUS 77, and be encouraged to provide cross access between driveways and back access onto Central Street.


CREST
WALNUT
OAK
AVE A
BERMUDA
AVE B
LAKEVIEW
BIRCH
AVE C
CEDAR
5' SIDEWALK
REMOVE SERVICE ROAD
MODIFY SERVICE RD AS LOCAL STREET
US BUS 77
5' SIDEWALK
SPRING FLOWER
OLD CENTRAL
EXTEND OLD CENTRAL ROAD
EXTEND AVE C
0 50' 100' 200'
SCALE IN FEET
SHEET 3 OF 14
WACO, TEXAS
FROM CREST DRIVE
TO AVENUE C
NOT FOR CONSTRUCTION
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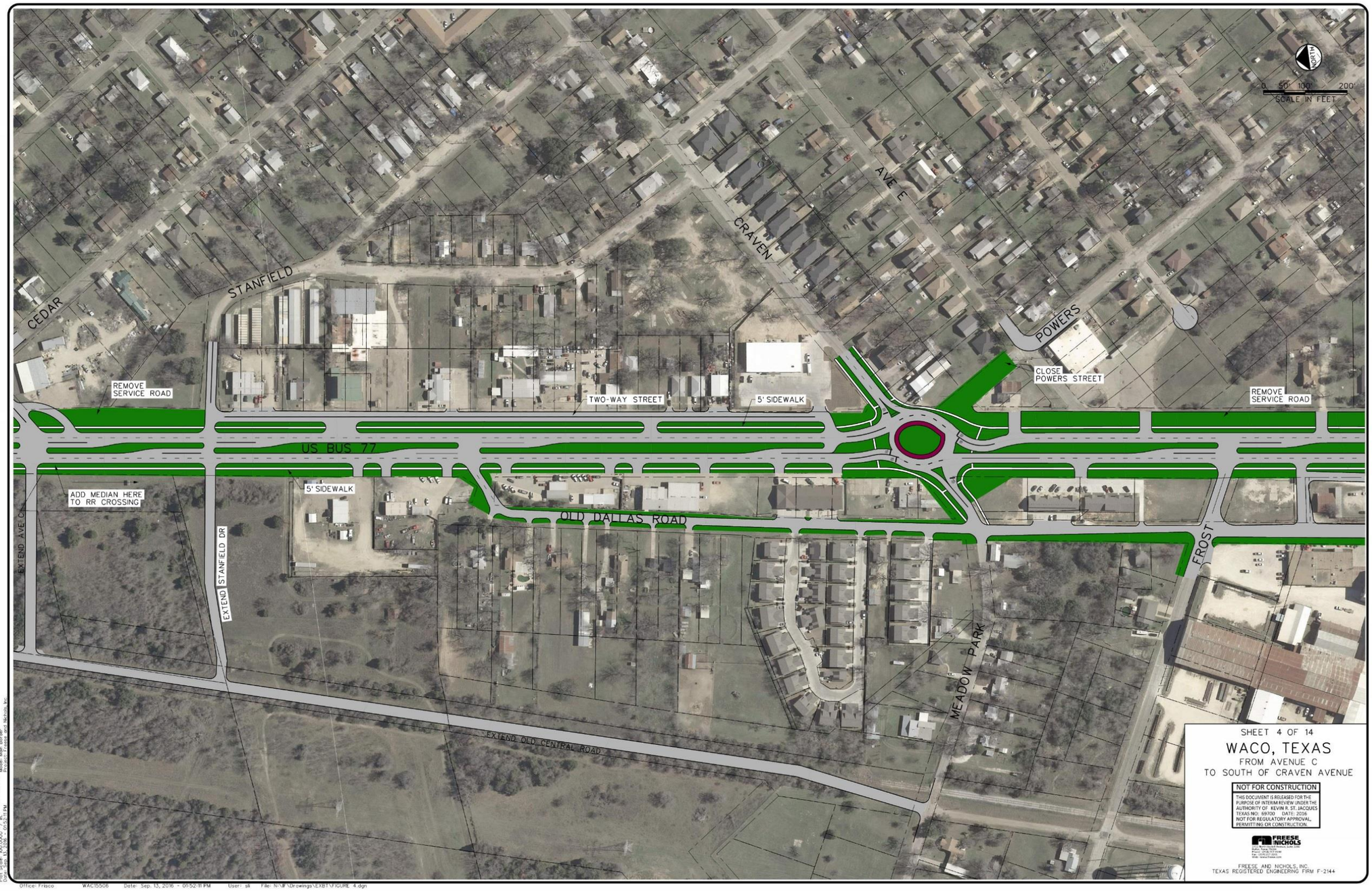
4.5 AVENUE C TO SOUTH OF CRAVEN AVENUE

Commercial development exists on either side of BUS 77 within this section. The existing TWLTL in the median would be replaced by a raised median.

- **Special Roadway Elements** – Stanfield Drive would be extended west of BUS 77 to connect to the proposed extension of Central Street.
- **Access Management** – Along the east side, the section of the northbound service road from Stanfield Drive to just north of Craven Avenue would be retained maintaining existing access to the businesses. However, sections just south of Avenue C and near Craven Avenue would be removed to simplify the intersections of these cross-streets with BUS 77. Full median openings would be provided at Stanfield Drive, Old Dallas Road, and Frost Street while a partial median opening would be provided just north of Craven Avenue to allow southbound left turns into the businesses on the east side. Along the west side of the corridor, access to the existing businesses would be maintained by providing curb cuts at specific locations.
- **Intersections** – The traffic volumes at the Craven Avenue intersection, though a bit higher than the volumes at the Crest intersection, do not meet the warrants for a traffic signal established by the Texas MUTCD. A roundabout is proposed for the traffic control at this intersection, which would accommodate the low volume entry and crossing movements from Crest Drive while providing a measure of travel speed management for traffic along BUS 77 and to better manage the turning movements at this unsignalized intersection. Removal of northbound service road intersection at Craven Avenue would further simplify the movements, reducing the number of conflict points. Related modifications include removal of a small section of Powers Street between Avenue E and BUS 77.
- **Outside Roadway Edge Elements** – Continuous sidewalks are proposed throughout this section of the corridor. Pedestrian crossings across BUS 77 would be provided at the proposed roundabout at Craven Avenue.
- **Drainage Elements** – The paved inverted pavement with center drainage inlets that provides for continuous left turn lanes in the median would be replaced by landscaped center-draining medians and appropriately located median openings.
- **Other Elements** – Old Dallas Road now becomes the backage road for development along the west side of BUS 77. Use of the backage road would eliminate many U-turn movements from needing to happen on BUS 77.


NORTH
0 50 100 200
SCALE IN FEET
CEDAR
STANFIELD
CRAVEN
AVE E
POWERS
REMOVE SERVICE ROAD
TWO-WAY STREET
5' SIDEWALK
CLOSE POWERS STREET
REMOVE SERVICE ROAD
US BUS 77
ADD MEDIAN HERE TO RR CROSSING
5' SIDEWALK
OLD DALLAS ROAD
EXTEND AVE C
EXTEND STANFIELD DR
FROST
MEADOW PARK
EXTEND OLD CENTRAL ROAD
SHEET 4 OF 14
WACO, TEXAS
FROM AVENUE C
TO SOUTH OF CRAVEN AVENUE
NOT FOR CONSTRUCTION
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FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
Office: Frisco WAC15506 Date: Sep. 13, 2016 - 01:52:11 PM User: sk File: N:\IF\Drawings\EXBT\FIGURE 4.dgn

4.6 SOUTH OF CRAVEN AVENUE TO UPRR CROSSING

The development along this section is mostly commercial with a service road along the east side.

- **Special Roadway Elements** – There is significant truck traffic turning into and out of the industrial development on either side of BUS 77. The center draining median area is currently paved from Avenue C to 500 feet north of the railroad tracks to allow free directional access for truck movements. The safety of the corridor is proposed to be enhanced by the creation of center drained landscaped medians with strategically placed median openings and the creation of specific driveway openings at parking areas.

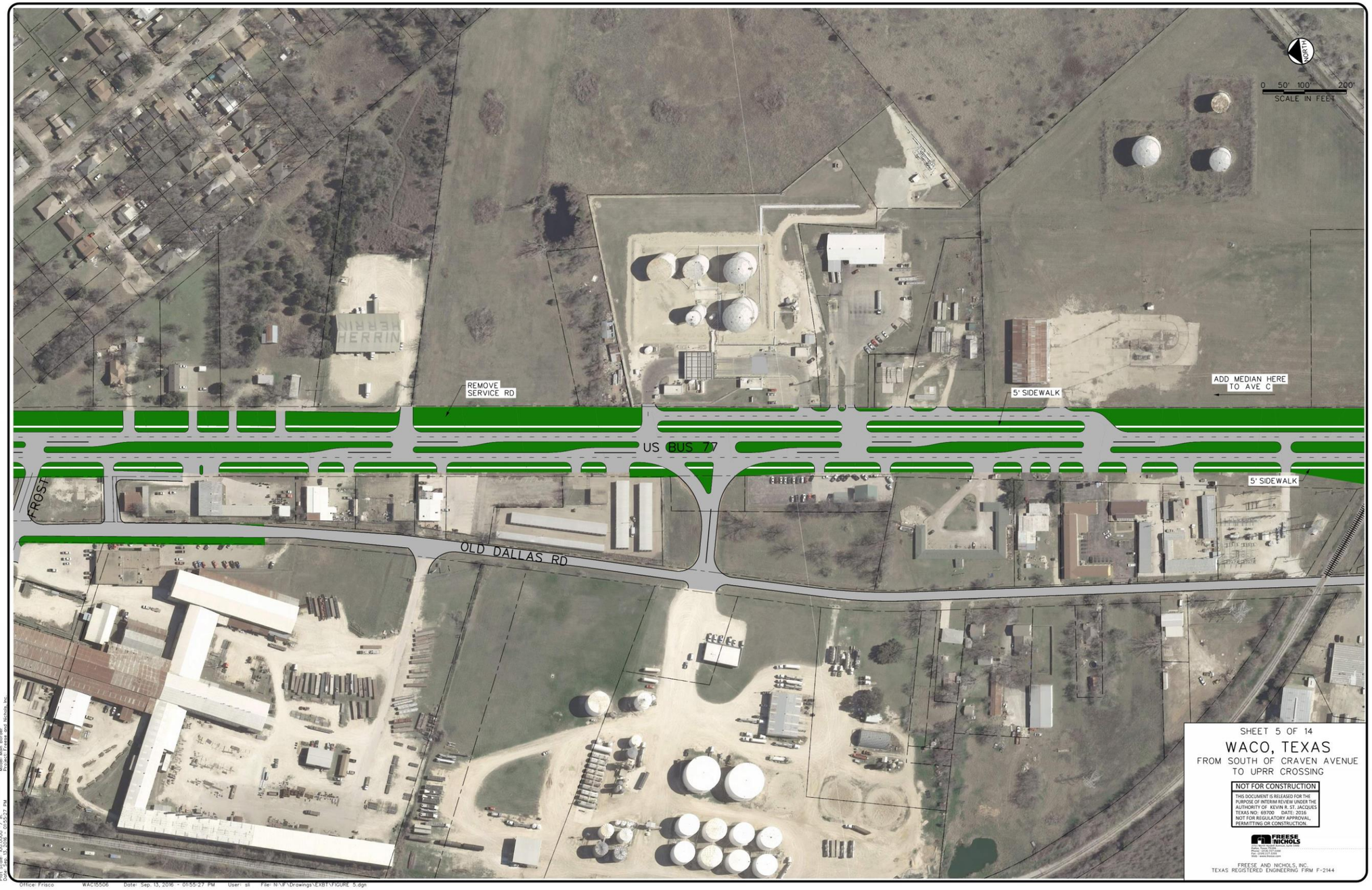
- **Access Management** – Most of the service road along the eastside would be removed, except for the section south of the gas distribution facility to allow for the queue storage for the tankers accessing the facility. Along the west side of BUS 77, the access to the businesses would be provided by appropriately located driveways directly onto the southbound lanes. With the relatively low volumes for a multi-lane roadway, the acceleration and deceleration at the driveways can be accomplished using the rightmost lane. Large truck turning movements can be accommodated by a combination of trucks using both travel lanes and enhanced corner radii at the driveways.

- **Intersections** – The roadway connection between BUS 77 and Old Dallas Road that provided direct access to the Equalizer Inc. facility would be improved with larger turn radii to better accommodate the large trucks accessing the facility.

- **Outside Roadway Edge Elements** – Continuous sidewalks are proposed throughout this section of the corridor to provide opportunities for non-motorized access to destinations throughout the corridor.

- **Drainage Elements** – Consistent with the adjacent BUS 77 sections to the north and south, the existing TWLTL in the median would be replaced by an open ditch drainage and specifically positioned median openings.

- **Other Elements** – Old Dallas Road continues as the backage road for development along the west side of BUS 77. Use of the backage road would eliminate many U-turn movements from needing to happen on BUS 77.


NORTH
0 50' 100' 200'
SCALE IN FEET
REMOVE SERVICE RD
5' SIDEWALK
ADD MEDIAN HERE TO AVE C
US BUS 77
5' SIDEWALK
FROST
OLD DALLAS RD
SHEET 5 OF 14
WACO, TEXAS
FROM SOUTH OF CRAVEN AVENUE TO UPRR CROSSING
NOT FOR CONSTRUCTION
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4.7 UPRR CROSSING TO SOUTH OF LOOP 340

The land along this section is partially developed with commercial uses with driveways directly onto BUS 77. The improvements include provision of well-defined driveway locations and median openings, along with appropriate deceleration and acceleration lanes along the median.

The north-south connecting roadways between the westbound and eastbound lanes that currently exist on either side of BUS 77 will be retained to maintain access.

- **Special Roadway Elements** – The north-south connecting roadway, Upper 13 Road, between the westbound and eastbound lanes of Loop 340 that currently exists just east of BUS 77 would be modified to add a U-turn lane to process the traffic exiting from the development north of Loop 340 that wants to return towards the I-35 interchange. The current crossover closer to the I-35 service road would be modified to provide hooded left turns into the development, but not allow left turns out of the development, diverting them to the U-turn at Upper 13 Road.

- **Access Management** – The existing small section of service road along the east side between westbound Loop 340 and Meyers Lane would be removed, and existing driveways would be extended to northbound BUS 77 lanes. Landscaped medians would be uniformly created, with specific median openings to provide customized development access to the extent feasible.

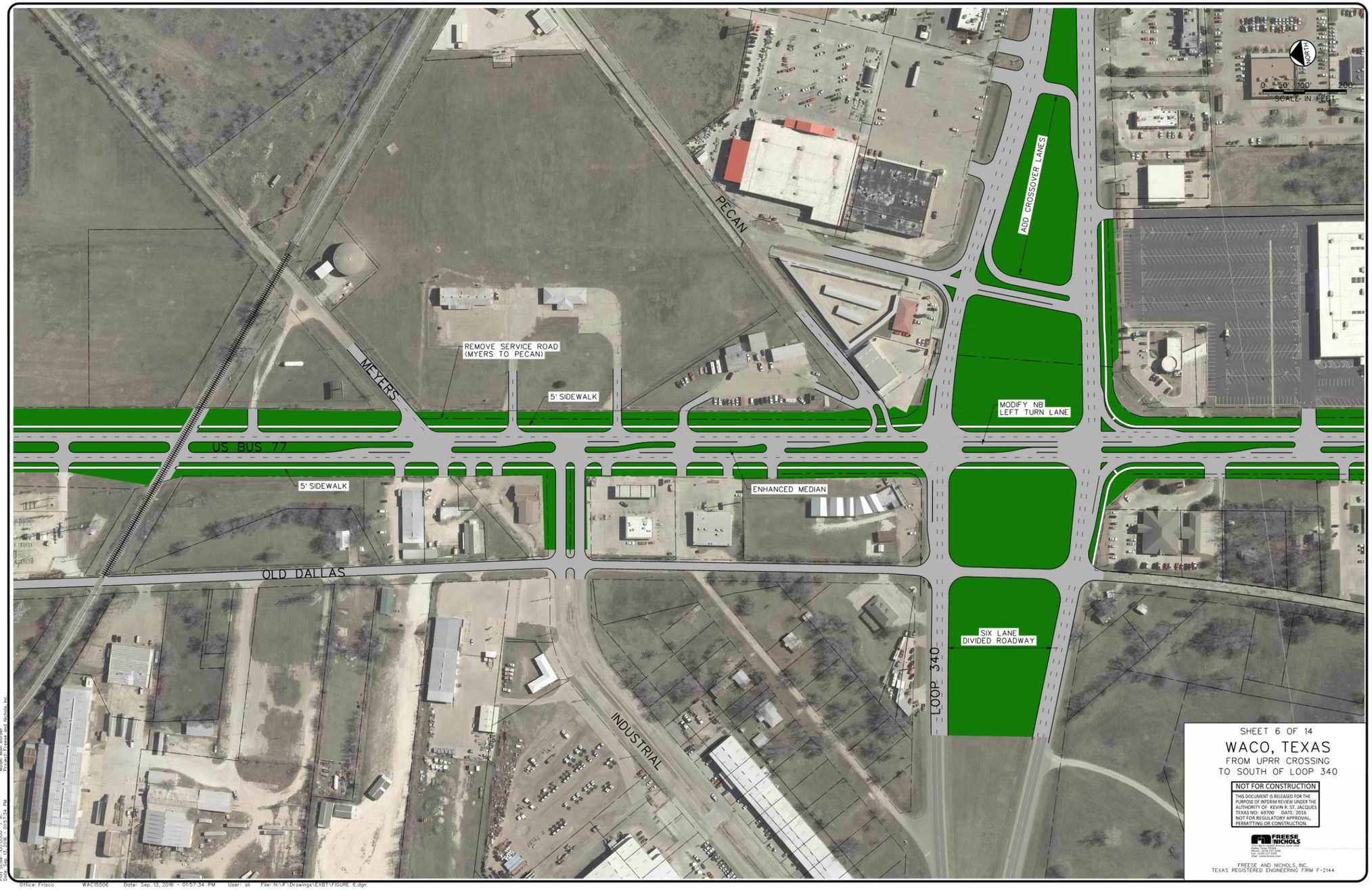
- **Intersections** – The intersection of BUS 77 at Loop 340/Lake Shore Drive is one of the critical intersections along BUS 77. This intersection is only about 1,200 feet west of the Loop 340 interchange at I-35. Several large employers, businesses, hotels, and restaurants are located in the vicinity of the intersection adding to the heavy turning movements at the intersection. The westbound and eastbound lanes of Loop 340 are separated by approximately 300 feet of landscaped median, requiring separate but coordinated traffic signals to control the intersections with BUS 77.

  Initial concepts for the BUS intersection at Loop 340 included combining the two intersections into a single intersection by relocating either westbound or eastbound lanes adjacent to the other direction. An initial concept for a roundabout at the intersection was discarded due to lack of capacity for future growth. After conducting operations evaluations of various configurations using Synchro software, a regular four-legged intersection was proposed combining eastbound/westbound intersection. During subsequent discussions with TxDOT, it was indicated that there is a possibility for future construction of a grade separation of Loop 340 at BUS 77. Therefore, the existing configuration, slightly enhanced, was maintained to not interfere with potential future Loop 340 configurations.

- **Outside Roadway Edge Elements** – Continuous sidewalks are proposed throughout this section of the corridor to facilitate local non-motorized access to the employment and retail opportunities near the Loop 340 intersection.

- **Drainage Elements** – Significant drainage ditches are provided near the Loop 340 intersection to receive the runoff from development and the roadway corridor. A drainage ditch (reportedly undersized, according to comments received from Tymco representatives) also extends along the center of the divided Industrial Boulevard that drains a portion of the BUS 77 corridor as well as adjacent development.

- **Other Elements** – Old Dallas Road continues as the backage road for development along the west side of BUS 77. Use of the backage road would eliminate many U-turn movements from needing to happen on BUS 77.


PECAN
ADD CROSSOVER LANES
NORTH
0 50' 100' 200'
SCALE IN FEET
REMOVE SERVICE ROAD
(MYERS TO PECAN)
MEYERS
5' SIDEWALK
MODIFY NB
LEFT TURN LANE
US BUS 77
5' SIDEWALK
ENHANCED MEDIAN
OLD DALLAS
SIX LANE
DIVIDED ROADWAY
LOOP 340
INDUSTRIAL
SHEET 6 OF 14
WACO, TEXAS
FROM UPRR CROSSING
TO SOUTH OF LOOP 340
NOT FOR CONSTRUCTION
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TEXAS REGISTERED ENGINEERING FIRM F-2144

4.8 SOUTH OF LOOP 340 TO BEHRENS CIRCLE

This section has several empty parcels adjacent to BUS 77, with some commercial development on either side with driveway access directly onto BUS 77. Improvements along this section include provision of a curbed 4-lane cross-section with medians, deceleration lanes, and median openings at specific locations.

- **Special Roadway Elements** – The existing intersection of Hogan Lane at BUS 77 would be reconfigured to have Hogan Lane connect to BUS 77 at closer to a right angle, to connect to a realigned Hogan Lane. This would simplify the intersection at BUS 77 and allow for better traffic management for access to adjacent development.
- **Access Management** – Access will be managed by providing driveways at appropriate locations. Businesses located just north of Hogan Lane along southbound BUS 77, currently have parking spaces that are accessed directly from BUS 77. A one-way southbound service lane would be created to access angled parking spaces with driveways along BUS 77.
- **Intersections** – The east leg of Hogan Lane intersection would be modified, and relocated further north to intersect BUS 77 at right angle. Intersection of Woodlands Boulevard would be improved to provide left turn lanes along BUS 77.
- **Outside Roadway Edge Elements** – Continuous sidewalks are proposed throughout this section of the corridor. If space permits, extension of the hike and bike trail from Behrens Circle to Loop 340 along the east side of BUS 77 would be desirable to better connect residential development to the retail opportunities on Loop 340.
- **Drainage Elements** – A significant roadside drainage ditch exists along the east side of the roadway, extending from Loop 340 to north of Hogan Lane, where it diverts eastward to run midway between BUS 77 and the I-35 southbound frontage road. The median drainage and edge ditches outfall to a significant open ditch drainage feature that extends from a culvert under I-35 to a culvert under BUS 77 just south of Woodlands Boulevard. The awkward configuration of this drainage channel along BUS 77 may be alleviated by drainage utilization of the enhanced ROW availability along BUS 77.
- **Other Elements** – Between BUS 77 and I-35, Hogan Lane could be realigned to create a north-south roadway running generally parallel to BUS 77 and I-35 to serve as a connector roadway to the development between Loop 340 and Behrens Circle and serve as a local-circulation roadway for businesses fronting the I-35 Service Road as well as BUS 77. This modification, in conjunction with drainage reconfigurations, may foster enhanced property development in this area.

ADD CONNECTING ACCESS WAYS
REALIGN HOGAN LANE
HOGAN
5' SIDEWALK
REMOVE SERVICE ROAD
US BUS 77
SHARED PARKING
HOGAN
WOODLANDS BLVD
5' SIDEWALK
ROUNDABOUT
OLD DALLAS
0 50' 100' 200'
SCALE IN FEET
SHEET 7 OF 14
WACO, TEXAS
FROM SOUTH OF LOOP 340
TO BEHRENS CIRCLE
NOT FOR CONSTRUCTION
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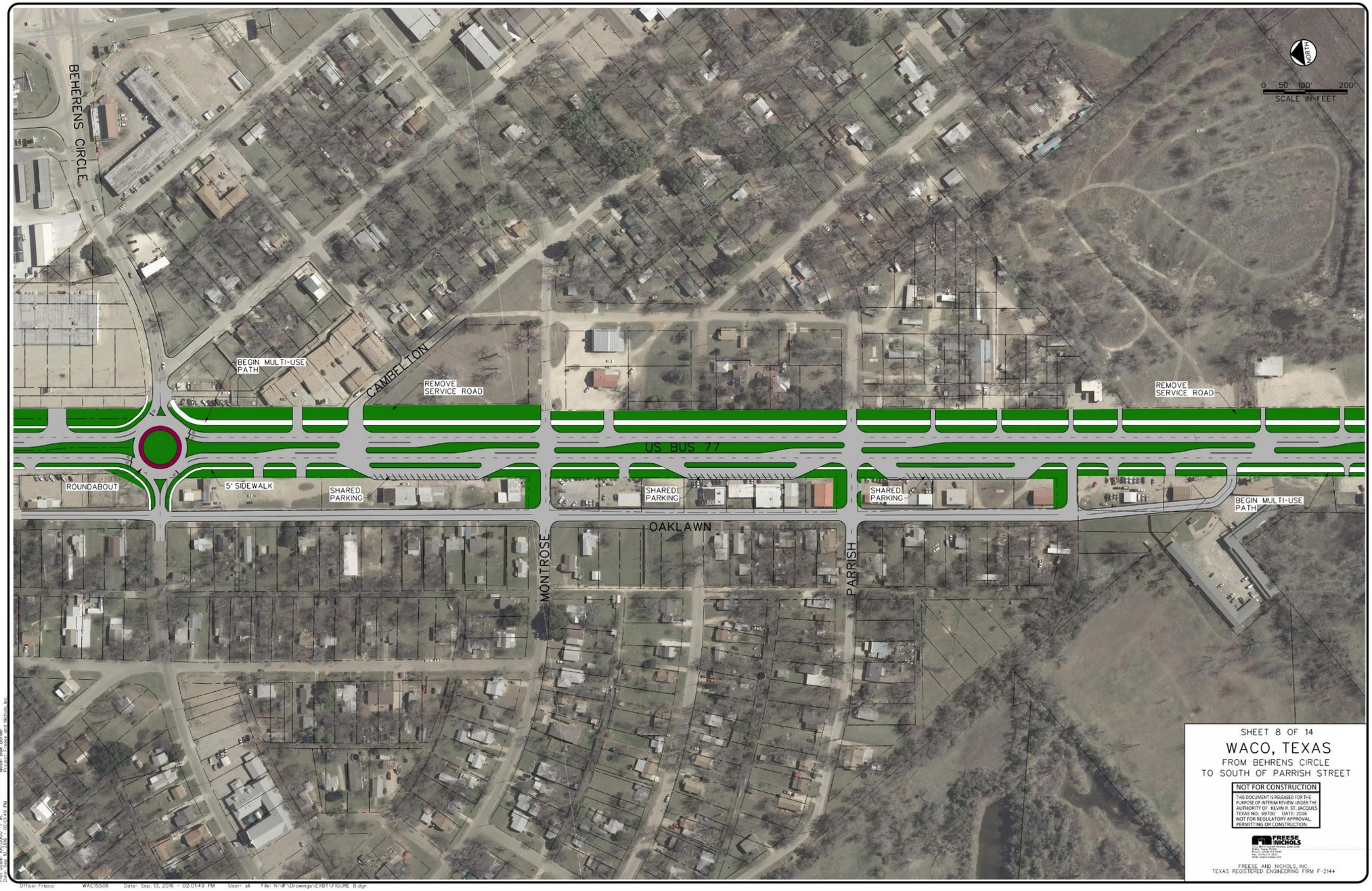
TEXAS REGISTERED ENGINEERING FIRM F-2144

4.9 BEHRENS CIRCLE TO SOUTH OF PARRISH STREET

This section has discontinuous service roads along the east side of BUS 77, while along the west side, the businesses have direct driveway access to BUS 77. Near the southern end of this section, the arterial configuration of BUS 77 begins to transition into a limited access freeway facility. The improvements along this section include removal of service roads, replacing center TWLTL with medians, and improvement of driveways.

- **Special Roadway Elements** – At the shallow-depth development along the west side of BUS 77, the large parking openings will be replaced with shared parking and definitive driveway openings. Oaklawn Street is an important part of the traffic circulation for these properties.
- **Access Management** – Median openings would be provided at Campbelton Street, Montrose Street, and Parrish Street, including deceleration lanes along BUS 77. Along the west side, three different segments of special use service roads with angled parking is proposed to provide access to closely located businesses.
- **Intersections** – A roundabout is proposed at the intersection of Behrens Circle at BUS 77 to replace the existing traffic signal at this location. A roundabout is expected to serve the peak period traffic demand at this intersection very well and would reduce delay for BUS 77 traffic during off-peak hours. It would also signify the change in corridor character from commercial/industrial to the north of Behrens Circle to more commercial/residential on the south. The roundabout would also contribute to enhanced traffic safety at the intersection and would help reduce future intersection maintenance costs. Optionally, the center of the roundabout could be enhanced with landscaping and other features to enhance the aesthetics and sense of place for the intersection. Notably, the intersection lies within the City of Bellmead and their City Council has expressed the opinion that they would not be in support of replacing the signal with a roundabout.
- **Outside Roadway Edge Elements** – Continuous sidewalks are proposed along the west side throughout this section of the corridor. Along the eastside, a multiuse path is proposed to the south of Behrens Circle.
- **Drainage Elements** – The existing TWLTL in the median would be replaced by an open ditch drainage. The drainage on the west side at the existing development is via covered storm drains on the side of the roadway. The recommended removal of the parallel roadway along the east side of BUS 77 would allow for the provision of more area and depth for roadside drainage, as well as a side path, which could aid in the draining of some areas near Campbelton Street and other areas that are reported to retain runoff. BUS 77 runs generally downhill from just south of Parrish Street.
- **Other Elements** – Beginning at Behrens Circle, the sidewalks would become more important elements in the bicycle and pedestrian provisions along the corridor which becomes increasingly residential adjacent to BUS 77. Along the western edge of BUS 77, available right of way may be needed to establish the enhanced parking for the adjacent development. However, the east side of BUS 77 is proposed to have its parallel road removed, leaving ample space to establish a hike and bike trail.


BEHRENS CIRCLE
BEGIN MULTI-USE PATH
CAMBELTON
REMOVE SERVICE ROAD
REMOVE SERVICE ROAD
US BUS 77
ROUNDABOUT
5' SIDEWALK
SHARED PARKING
SHARED PARKING
SHARED PARKING
BEGIN MULTI-USE PATH
OAKLAWN
MONTROSE
PARRISH
0 50' 100' 200'
SCALE IN FEET
SHEET 8 OF 14
WACO, TEXAS
FROM BEHRENS CIRCLE
TO SOUTH OF PARRISH STREET
NOT FOR CONSTRUCTION
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TEXAS REGISTERED ENGINEERING FIRM F-2144

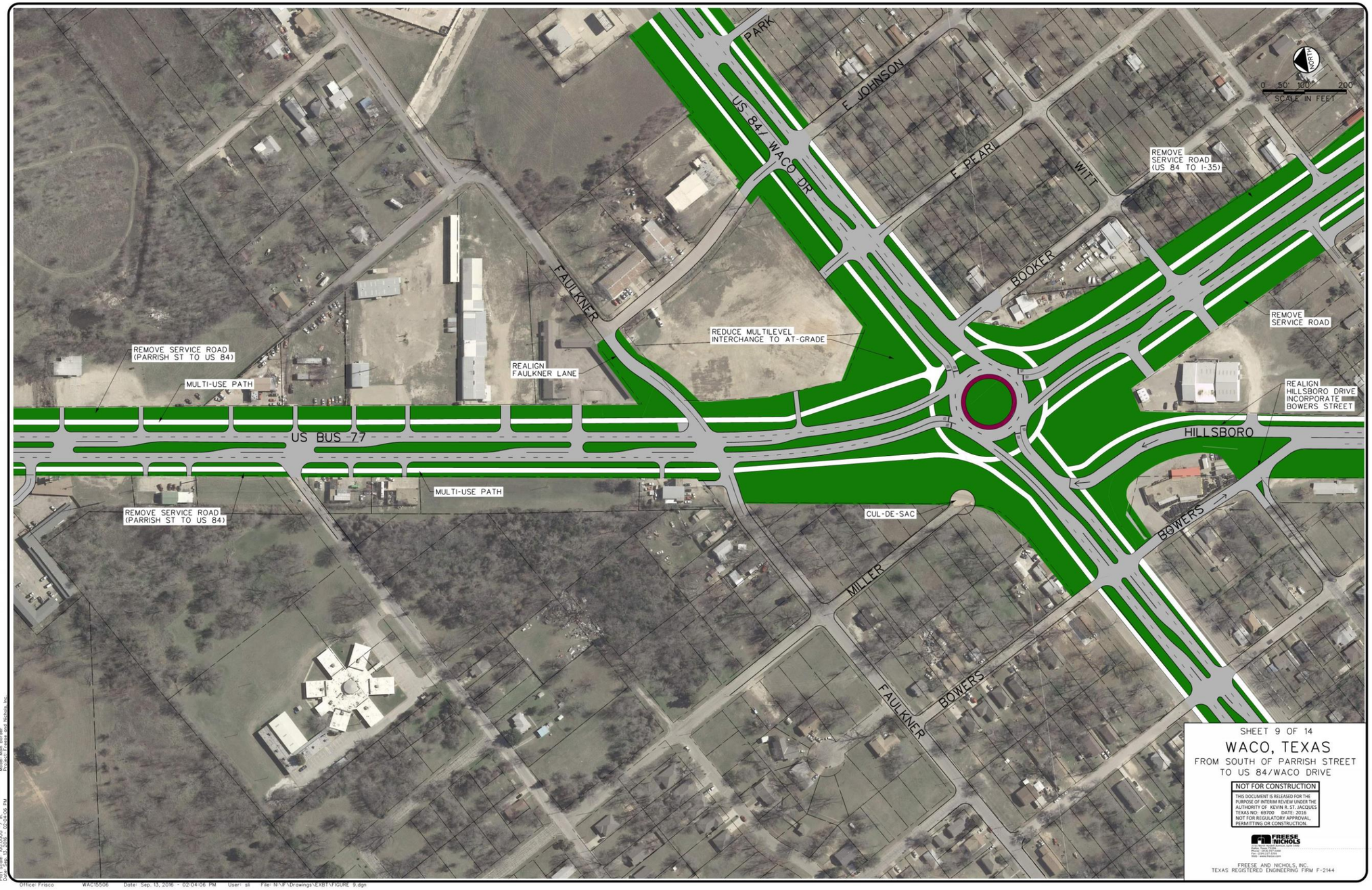
4.10 SOUTH OF PARRISH STREET TO US 84/WACO DRIVE

In this section, BUS 77 transitions to a limited access facility with service roads and grade separation at US 84/Waco Drive. The interchange at US 84, also known as "Potts Interchange", is currently a three level interchange with the service roads intersecting at grade, BUS 77 main lanes at the middle level, and US 84 through lanes at the third level. These interchange structures were built in the 1950s, and are currently functionally obsolete. The interchange currently operates well below its capacity and would need to be replaced soon due to its aging bridge structures.

- **Special Roadway Elements** – Faulkner Lane to the east and west of BUS 77 that currently ties into the service roads, would be extend to intersect with BUS 77 travel lanes with full median opening.
- **Access Management** – Several residential streets that run perpendicular to US 84, currently tie into the service roads with T-intersections. These streets would be extended to intersect with the reconstructed arterials with full median openings that would promote better neighborhood connectivity.
- **Intersections** – A single four-legged intersection is proposed at US 84 that would include a complete reconstruction of the existing interchange. The modifications would include demolition of the existing bridge structures as well as removal of service roads along US 84 and BUS 77. The initial traffic control concept for this intersection would be for a two-lane roundabout, though a traffic signal should also be considered for analysis as this concept moves forward to implementation. All approach and departure legs at the proposed roundabout would be two lanes wide. In order to simplify the intersection, Hillsboro Drive would be realigned to connect to US 84 just west of the roundabout.

  The benefits of the proposed reconstruction of BUS 77/US 84 interchange would include significant reduction in future reconstruction of bridge structures and subsequent maintenance costs. Due to a significantly smaller foot print of the single intersection and approaching roadways, additional land parcels at the intersection would become available, thereby creating a node for new development.
- **Outside Roadway Edge Elements** – Multiuse paths are proposed along both sides of BUS 77 as well as US 84, within the excess ROW made available due to the proposed smaller footprints of these roadways. The path would also be provided around the proposed roundabout at BUS 77/US 84 intersection, as well as on the eastside of realigned Hillsboro Drive.
- **Drainage Elements** – Much of the developable properties just to the northeast of BUS 77 near US 84 are shown to be within the 100-year flood plain. A drainage study being conducted by the City of Waco will be assessing the drainage needs of the city, and this location is one of those interest areas of the study to see if there are ways to enhance the area drainage to allow a FEMA map revision to move these properties out of the flood plain and to mitigate these flood prone areas.
- **Other Elements** – Discussions with TxDOT staff have confirmed that the three level Potts Interchange has a historical context in that it represents an era of enhanced public mobility for the movement of people and goods along US Highway 77 between Waco and Dallas before the advent of the interstate highway system. However, the traffic volumes on what is now US Business Highway 77 have decreased to a level that the intersection traffic operations can be well accommodated by one at-grade intersection. Elimination of the three level interchange will allow the four corners and the approaches to this intersection to be more commercially viable and to create retail and employment opportunities closer to this community. A Concept for what could ultimately evolve at this intersection is shown in Figure 12.

Figure 12. Artist rendering of potential redevelopment near the Potts Interchange (view to the east)


PARK
F JOHNSON
US 84/ WACO DR
F PEARL
WITT
BOOKER
FAULKNER
REMOVE SERVICE ROAD (US 84 TO I-35)
REMOVE SERVICE ROAD
REDUCE MULTILEVEL INTERCHANGE TO AT-GRADE
REALIGN FAULKNER LANE
REMOVE SERVICE ROAD (PARRISH ST TO US 84)
MULTI-USE PATH
REALIGN HILLSBORO DRIVE INCORPORATE BOWERS STREET
HILLSBORO
US BUS 77
MULTI-USE PATH
REMOVE SERVICE ROAD (PARRISH ST TO US 84)
CUL-DE-SAC
BOWERS
MILLER
FAULKNER
BOWERS
NORTH
0 50' 100' 200'
SCALE IN FEET
SHEET 9 OF 14
WACO, TEXAS
FROM SOUTH OF PARRISH STREET
TO US 84/WACO DRIVE
NOT FOR CONSTRUCTION
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4.11 US 84/WACO DRIVE TO SOUTH OF I-35 INTERCHANGE

This section comprises primarily of the interchange of I-35 with BUS 77 and the surrounding roadways. The improvements proposed along BUS 77 as part of this study, would tie into the reconstructed BUS 77 intersection at I-35 as planned by TxDOT (see Figure 13).

- **Special Roadway Elements** – Modifications proposed just north of the I-35 interchange along BUS 77 include removal of frontage roads and extension of Arra Street, Lincoln Street, and Witt Avenue to BUS 77. A full median opening with turn lanes along BUS 77 would be provided at Witt Avenue. The section of existing southbound service road between Arra Street and Harrison Avenue would be maintained. To the south of I-35 interchange, section of service roads north of Taylor Street would be removed, and Taylor street would be extended to intersect BUS 77 with a full median opening.

- **Access Management** – Full median openings would be provided at Taylor Street and Witt Avenue. BUS 77 service roads south of Taylor Street would be retained to maintain access to the properties and the U-turn under the BUS 77 bridge over the Union Pacific Railroad (UPRR) to the south.

- **Intersections** – TxDOT is developing plans for the reconstruction of this interchange as part of the overall I-35 reconstruction project. The plans include removal of the BUS 77 main lane bridge and constructing a regular diamond intersection of BUS 77 with I-35 service roads. The existing direct connectors from northbound I-35 to northbound BUS 77 and from southbound BUS 77 to southbound I-35 will be removed. The plans include reconstruction of I-35 frontage roads with Texas U-turns, and channelized right-turns. The existing mainlanes of I-35 would be reconstructed to a lower clearance made possible by removal of BUS 77 main lane and direct connector bridge structures.

- **Outside Roadway Edge Elements** – Multiuse paths are proposed along both sides of BUS 77. Along northbound I-35 service road, the multiuse path would extend from north of BUS 77 to the entrance to TxDOT District office, and from south of BUS 77 to Taylor Street. Along southbound I-35 service road, the path would extend south from BUS 77 and continue along west side of Elm Avenue.

- **Drainage Elements** – Management of drainage at this interchange will be a notable attribute of the design of this improvement.

- **Other Elements** – The truncation of Elm Avenue access to and from I-35 needs to be considered in the planning for the BUS 77 corridor improvements.

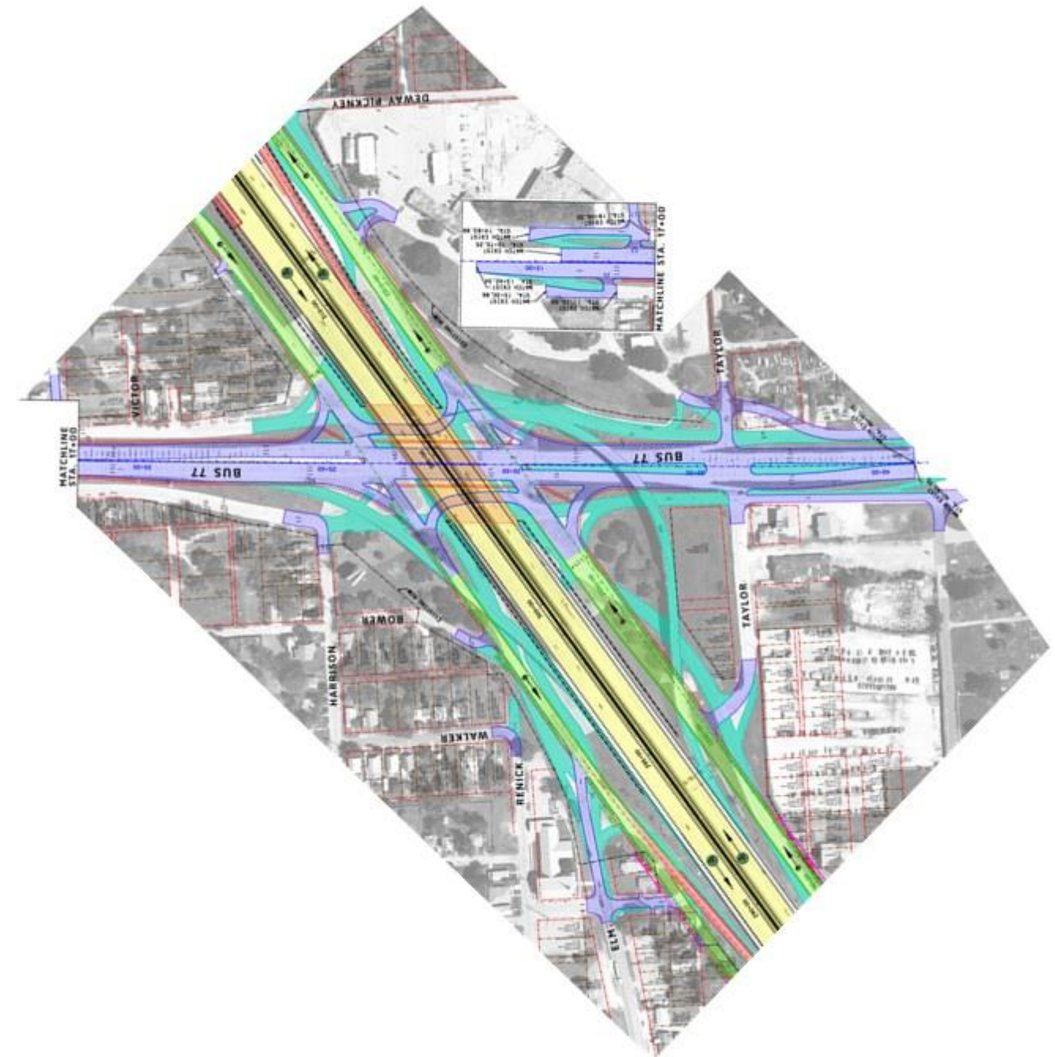

Figure 13. TxDOT Schematic Design of Improvements at the I-35/BUS 77 Interchange

I-35
LINCOLN
WILT
US BUS 77
TAYLOR
BUFFERED BIKE LANE
MULTI-USE PATH
TWO-WAY STREET
ARRA
HARRISON
BOWER
HILLSBORO
0 50' 100' 200'
SCALE IN FEET
NORTH
SHEET 10 OF 14
WACO, TEXAS
FROM US 84/WACO DRIVE
TO SOUTH OF IH-35 INTERCHANGE
NOT FOR CONSTRUCTION
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4.12 SOUTH OF I-35 INTERCHANGE TO ORCHARD LANE

The existing configuration in this section includes an existing six-lane wide BUS 77 bridge over the UPRR tracks, as well as grade separated intersection at Orchard lane.

- **Special Roadway Elements** – The bridge over the UPRR tracks and the service road U-turns under the bridge would be maintained. The existing third outside lane along both directions of BUS 77 bridge over the UPRR tracks would be converted to a buffered bike lane.

- **Access Management** – The service roads on both sides of BUS 77 between UPRR tracks and Orchard Lane would be converted to two-way operation to provide better access and traffic circulation for existing and future Baylor University facilities in the area. The ramps between the mainlanes and frontage roads would be removed. The access on the west side would be maintained via extension of League Street to BUS 77. The existing connection from the southbound service road to Webster Avenue would be maintained. On the east side, the existing entrance driveway to the Baylor Research and Innovation Collaborative (BRIC) facility would be extended west to intersect directly to northbound lanes of BUS 77.

- **Intersections** – The intersection of Orchard Lane at BUS 77 is currently grade separated. The proposed modifications at this intersection include removal of the BUS 77 bridge and converting the intersection to a two-lane roundabout. The Baylor University facilities management staff indicated the preference of a roundabout to encourage more reasonable traffic speeds and the creation of a sense of place near their development interests on both sides of BUS 77 east of the UPRR. Discussions with Flint Hills, Ergon and other significant generators of truck activity in the vicinity of this intersection indicated that their trucks could readily traverse the proposed roundabout.

- **Outside Roadway Edge Elements** – Multiuse paths are proposed along both sides of BUS 77. Future multiuse path connections across the UPRR tracks are proposed on either side of BUS 77. Connections across BUS 77 are proposed along the UPRR tracks and across the north leg of the proposed roundabout at Orchard Lane.

- **Drainage Elements** – Areas north and east of the TxDOT Waco District offices and west of Katy Lane are also shown to be within the 100-year flood plain. Drainage in this area seems to be impacted by the roadbed and limited cross drainage accommodations of the UPRR railroad tracks. The extent of this drainage constriction extends across I-35 to the Potts interchange as shown in Figure 14. The area east of the UPRR up to Marlin Highway is not in the 100-year flood plain.

- **Other Elements** – Orchard Lane to the west of BUS 77 traverses through currently residential development and ends at the recently reconstructed M.L.K. Jr. Boulevard near Baylor's McLane Stadium. Baylor's long range plans include development of academic buildings and student housing west of BUS 77 and north of MLK Boulevard. Orchard Lane would then serve as an important roadway link between different Baylor facilities and is therefore envisioned as a pedestrian and bicycle friendly facility. A roundabout at the intersection of BUS 77 would fit well in to context of this future vision.

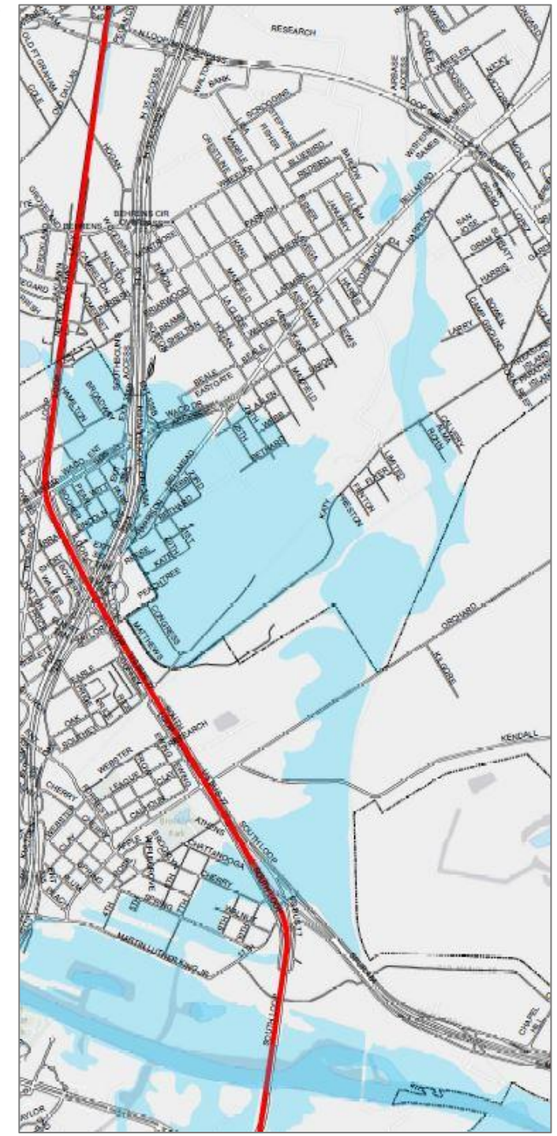
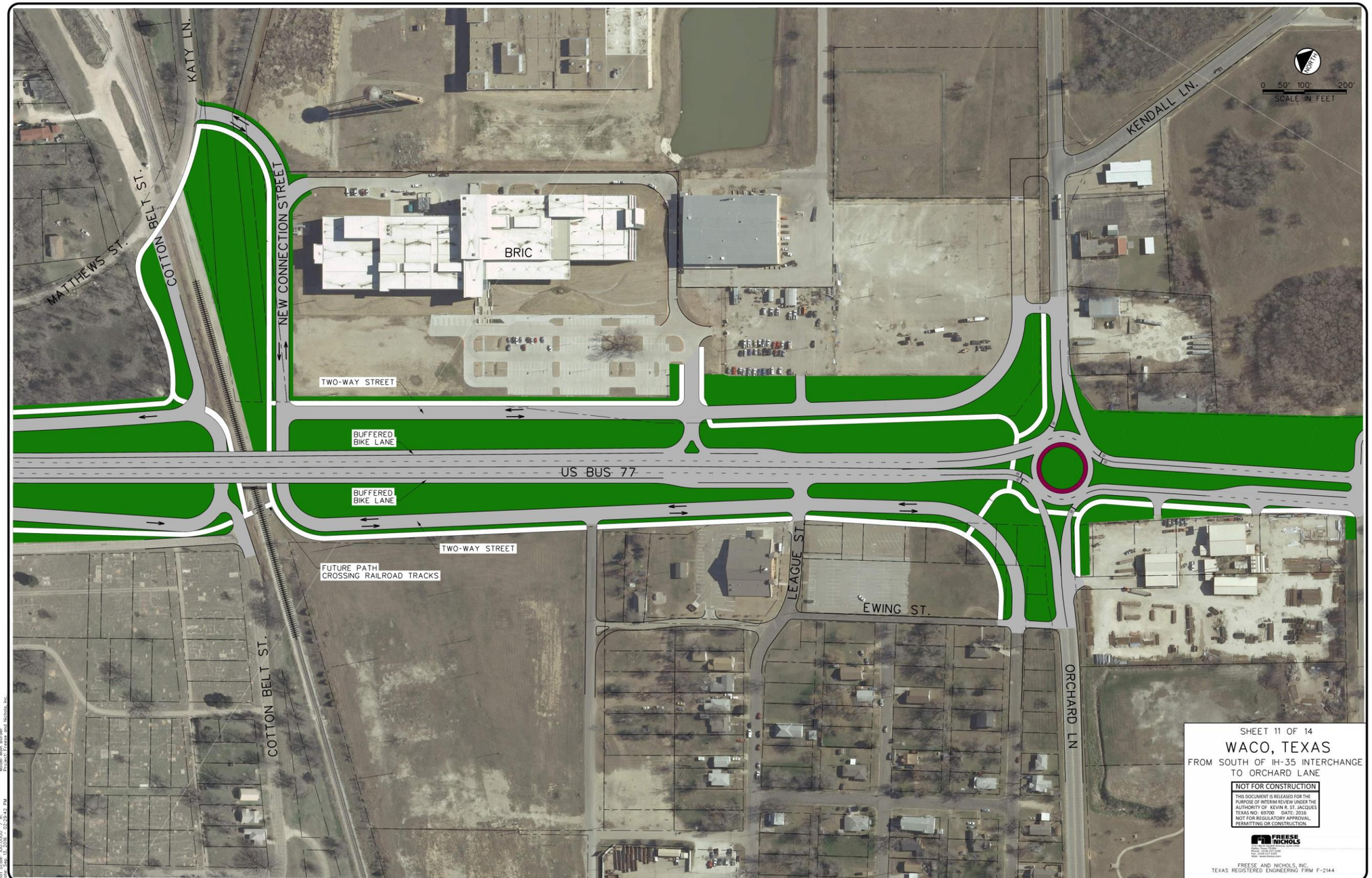


Figure 14. 100-year Flood Plain (in blue)


KATY LN.
MATTHEWS ST.
COTTON BELT ST.
NEW CONNECTION STREET
BRIC
TWO-WAY STREET
BUFFERED BIKE LANE
US BUS 77
BUFFERED BIKE LANE
TWO-WAY STREET
FUTURE PATH CROSSING RAILROAD TRACKS
COTTON BELT ST.
LEAGUE ST.
EWING ST.
ORCHARD LN
KENDALL LN.
NORTH
0 50' 100' 200'
SCALE IN FEET
SHEET 11 OF 14
WACO, TEXAS
FROM SOUTH OF IH-35 INTERCHANGE
TO ORCHARD LANE
NOT FOR CONSTRUCTION
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Office: Frisco WAC15506 Date: Sep. 13, 2016 - 02:29:42 PM User: sil File: N:\IF\Drawings\EXB1\FIGURE 11.dgn

4.13 ORCHARD LANE TO MARLIN HIGHWAY

This section includes interchange of BUS 77 with Marlin Highway. Marlin Highway connects City of Waco to the counties to the east and southeast including towns of Bryan and College Station. The traffic demand at the Marlin Highway interchange is well under its capacity except during game events at the new McLane Stadium.

- **Special Roadway Elements** – The existing southbound service road south of Orchard Lane would be removed under the proposed configuration. The existing development parcels along the west side would have direct access to BUS 77 via extended driveways where necessary. Along the east side, a portion of the existing two lane service road would be maintained, renamed as Marlin Drive, but converted to two-way operation. The north end of this service road would tie into BUS 77 across from Brooklyn Street, whereas the south end would tie into the new four-lane divided industrial boulevard, renamed as Marlin Boulevard, that connects to BUS 77 at the proposed roundabout.
- **Access Management** – A truck pullover area would be provided along the southbound side of the two-lane service road in front of the Waco Terminal Company to serve the truck layover needs of that business and other nearby industrial businesses. Similar truck pullovers could be provided elsewhere along the industrial boulevard.
- **Intersections** – The proposed reconstruction at this interchange include several components, one of them being the construction of a roundabout along BUS 77. BUS 77 would form the north and south legs of the roundabout. The east leg would comprise of proposed Marlin Boulevard – a new access roadway serving the industrial facilities to the east of the interchange. The west leg of the roundabout would connect to Cherry Street and E 10th Street providing access to the residential development. The modifications would result in significant reduction in roadway footprint and required ROW, and would allow for redevelopment near the interchange if TxDOT decides to sell the excess ROW. In lieu of a roundabout, a simple T-intersection could be created, signalized as warranted. However, the roundabout is recommended to create the transition from the crossing of the Brazos River and grade separation over MLK Jr. Boulevard into the industrial development setting.
- **Outside Roadway Edge Elements** – The availability of additional ROW due to the reduced roadway configuration would allow continuation of the proposed multiuse path along the west side of BUS 77.
- **Drainage Elements** – The drainage outfall in this section would be to the Marlin Branch of the Brazos River that crosses BUS 77 just north of the existing Marling Highway interchange. As was shown in Figure 14, some areas along both sides of BUS 77 are within the 100-year flood plain.
- **Other Elements** – A large-scale landscaping area would be provided along the east side of the boulevard of BUS 77 to provide a visual shielding for travelers along the BUS 77 from the mostly industrial nature of the land uses along the newly created Marlin Boulevard. A portion of this area could also be utilized as a retention pond for relief of local area flooding issues.

MARLIN BOULEVARD
MARLIN DRIVE
US BUS 77
US BUS 77
TWO-WAY STREET
TRUCK PULLOVER
MODIFY MULTILEVEL INTERCHANGE TO AT-GRADE
MULTI-USE PATH
NORTH
0 50 100 200
SCALE IN FEET
SHEET 12 OF 14
WACO, TEXAS
FROM ORCHARD LANE
TO MARLIN HIGHWAY
NOT FOR CONSTRUCTION
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4.14 MARLIN HIGHWAY SOUTH OF BUS 77

As mentioned earlier, Marlin Highway provides an important eastward connection to the City of Waco. However, the existing alignment of Marlin Highway and its connection to I-35 via BUS 77 does not allow for direct connection to the Waco city center. As a potential solution, it is proposed to realign Marlin Highway further to the south to connect to the recently reconstructed MLK Jr. Boulevard at BUS 77.

- **Special Roadway Elements** – The new alignment of Marlin Highway would be a four-lane divided facility and would run though the currently empty parcels between Marlin Highway and BUS 77 that are planned for redevelopment. Marlin Highway would transition from limited access highway east of the railroad overpass to the four-lane boulevard section that would connect into an extension of MLK Jr. Boulevard.
- **Access Management** – This realigned section of Marlin Highway would also provide necessary access to the future development in the area including the proposed hotel on the northern banks of Brazos River. Access to the existing industrial development along east side of Marlin Highway would be maintained by a new four-lane industrial boulevard, renamed as Marlin Boulevard, off of the realigned Marlin Highway.
- **Intersections** – The new four-lane divided Marlin Boulevard would form a T-intersection with the realigned Marlin Highway and MLK Jr. Boulevard extension. The southbound traffic from the Marlin Boulevard would be controlled by a stop sign, while the traffic along Marlin Highway and MLK Jr. Boulevard would flow uninterrupted. Subsequent analysis may determine that this intersection needs to be signalized. Other configurations for this intersection may consider a grade separation to allow a more direct connection between BUS 77 and Marlin Highway, but would change the character of the proposed vision for the corridor.
- **Outside Roadway Edge Elements** – A multiuse path is proposed along the north side of the MLK Jr. Boulevard extension that would extend from BUS 77 to the new Marlin Boulevard.
- **Drainage Elements** – The MLK Jr. Boulevard extension area east of BUS 77 and south of Marlin Highway appears to not fall within the 100-year flood plain.
- **Development** – A significant amount of TxDOT right-of-way would be not required under this new configuration. The adjacent existing and emerging development interests may want to consider purchase of the right-of-way adjacent to their development.
- **Other Elements** – The planned enhancement of Loop 340 between Marlin Highway and I-35 through Bellmead, and the enhancement of the interchanges, would divert some of the traffic from BUS 77 that traverses between SH 6 southeast of the region and I-35 north of the region. The reduced focus on using the BUS 77 connection to I-35 for these trips contributes to the recommendation to connect Marlin Highway directly to MLK Jr. Boulevard and the core of the City of Waco.

MARLIN BOULEVARD
OLD MARLIN RD
MARLIN HWY
M.L.K. JR BLVD EXTENSION
US BUS 77
FUTURE DEVELOPMENT
FUTURE DEVELOPMENT
NORTH
0 50' 100' 200'
SCALE IN FEET
SHEET 13 OF 14
WACO, TEXAS
MARLIN HIGHWAY
SOUTH OF BUS 77
NOT FOR CONSTRUCTION
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4.15 BUS 77 AT MLK JR. BOULEVARD

The interchange of MLK Jr. Boulevard at BUS 77 was recently reconstructed as part of reconstruction of MLK Jr Boulevard between I-35 and BUS 77. MLK Jr. Boulevard would be extended east of BUS 77 to connect to realigned Marlin Highway. This would allow direct access between Marlin Highway and McLane Stadium, Baylor facilities, I-35, and Waco City center further west.

- **Special Roadway Elements** – Marlin Highway would be connected directly to an extension of MLK Jr. Boulevard. This connection would bring travelers from points east more directly into the City of Waco. The westbound uphill grade to the railroad crossing would be an optimal location for the initial speed reductions arriving into the BUS 77 corridor. The new industrial boulevard, Marlin Boulevard, would also serve as a bypass route for non-event traffic during events at the Baylor Stadium.

- **Access Management** – Access to the future development parcels to the east of BUS 77 would be via extended MLK Jr. Boulevard and realigned Marlin Highway. Parcels to the west would be accessed from MLK Jr. Boulevard and/or the southbound service road of BUS 77.

- **Intersections** – The existing grade separated configuration of the interchange of BUS 77 at MLK Jr. Boulevard will be retained, with a proposed eastward extension of MLK Jr. Boulevard to Marlin Highway. The intersections are currently unsignalized. However, connecting MLK Jr. Boulevard to Marlin Highway would require evaluation of the need for a traffic signal at interchange of BUS 77 at MLK Jr. Boulevard.

- **Outside Roadway Edge Elements** – A multiuse path is proposed along the west side of BUS 77 that would connect to the path along north side of the realigned Marlin Highway that would extend from BUS 77 to the new Marlin Boulevard.

- **Drainage Elements** – The drainage outfall in this section would be to the Marlin Branch of the Brazos River to the west of BUS 77 near MLK Jr. Boulevard.

- **Other Elements** – Future development planned for the area east of BUS 77 on the extension of MLK Jr. Boulevard would, under this proposed configuration, lie along a roadway that would handle daily traffic streams of cars and trucks destined for the I-35 interchange and entrance to the core of Waco. Access management for these improvements need to be considered during design for both the roadway and the development.

During special events at Baylor Stadium, the traffic control plan for the stadium needs to be considered. Traffic from Spur 484 from the southeast, currently directed to U-turn at Oleander Lane to proceed southbound on BUS 77 to get to the MLK parking lots, would be able to proceed directly to the parking areas along MLK at the stadium under this proposed configuration. Additionally, non-event traffic from Spur 484 could be directed to use Marlin Boulevard to avoid event traffic during the entry time period for the event.

INDUSTRIAL BLVD
OLD MARLIN RD
NORTH
0 50' 100' 200'
SCALE IN FEET
FUTURE DEVELOPMENT
M.L.K. JR BLVD EXTENSION
MARLIN HWY
US BUS 77
MLK BLVD
FUTURE DEVELOPMENT
SHEET 14 OF 14
WACO, TEXAS
BUS 77 AT
M.L.K. JR BLVD
NOT FOR CONSTRUCTION
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Office: Frisco WAC15506 Date: Sep. 13, 2016 - 02:45:00 PM User: sli File: N:\JF\Drawings\EXBT\FIGURE 14.dgn

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5.0 IMPLEMENTATION

The proposed BUS 77 corridor modifications vary significantly across the seven-mile corridor, with each of the character zones having a unique set of issues that require unique transportation access and circulation treatments. There are segments of independent utility that can be prioritized for early implementation as funding is identified. Other segments will be dependent on the implementation of related or prerequisite roadway improvements. Implementation of all recommendations will be reliant upon the availability of funding.

5.1 SAFETY IMPROVEMENTS

The safety improvements to the corridor should be of primary importance for implementation, and can be done so independently of other improvements along the corridor. North of Loop 340, there are two intersections that are recognized by most drivers as being hazardous and in need of improvement. Both could be implemented along with a reconfiguration of the corridor north of Loop 340, or the two intersections could be implemented independently as one each or a pair of intersection safety improvements.

5.1.1 BUS 77 @ Crest Drive

- Initiate discussions with property owners along east side of BUS 77 between Brenda Avenue and Lakeview Drive and along Spring Flower Lane.
- Prepare property access management and cross access agreements, as needed.
- Evaluate intersection control as roundabout to confirm adequate existing and future year operations.

5.1.2 BUS 77 @ Craven Avenue

- Initiate discussions with property owners along east side of BUS 77 between Brenda Avenue and Lakeview Drive and along Spring Flower Lane.
- Prepare property access management and cross access agreements, as needed.
- Evaluate intersection control as roundabout to confirm adequate existing and future year operations.
- Initial street closure for one block of Powers Street

5.2 OPERATIONAL IMPROVEMENTS

The significant operational improvements to the corridor should also be of primary importance for implementation, but will require significant collaboration with adjacent land owners and coordination with other public and private improvements along the corridor. Two major areas of operational improvements are the areas east of railroad track to the river.

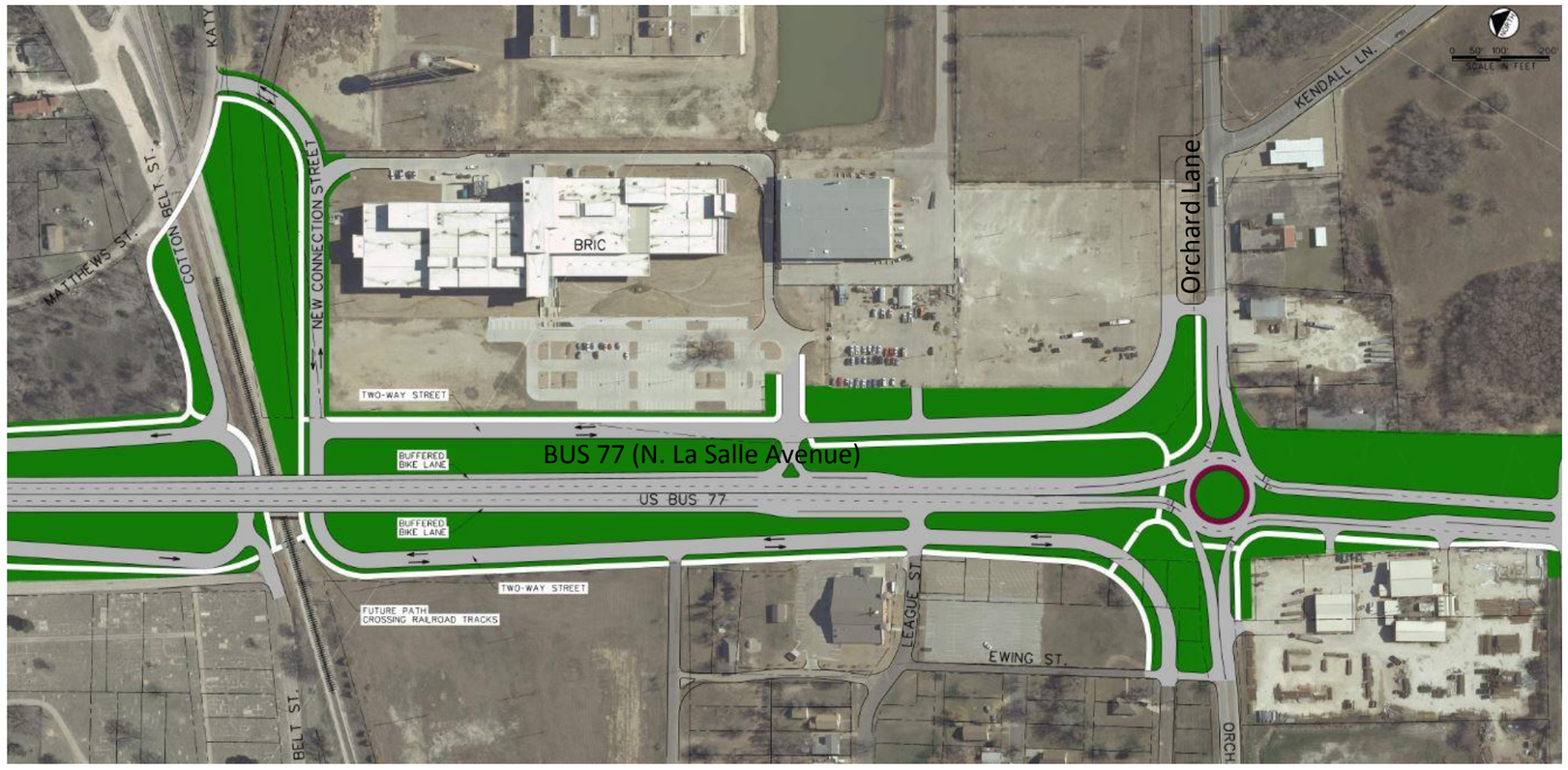
5.2.1 MLK Jr. Boulevard Extension to Marlin Highway

This improvement has system wide implications on sub-regional mobility.

- Initiate discussions with property owners along MLK Jr. Boulevard Extension regarding connection of Marlin Highway to MLK Jr. Boulevard. Also, open discussions about disposition of excess TxDOT property at reconfigured intersection.
- Initiate discussions with property owners along proposed Marlin Boulevard regarding change of roadway configuration, driveway entries and median openings as well as any needed additional depth of frontage that might be desired to enhance their business operations.
- Evaluate intersection control for BUS 77 at new Marlin Boulevard as roundabout to confirm adequate existing and future year operations.
- Open discussions with TxDOT and with adjoining property owners about disposition of excess TxDOT property at reconfigured Orchard Lane intersection.

5.2.2 BUS 77 @ Orchard Lane

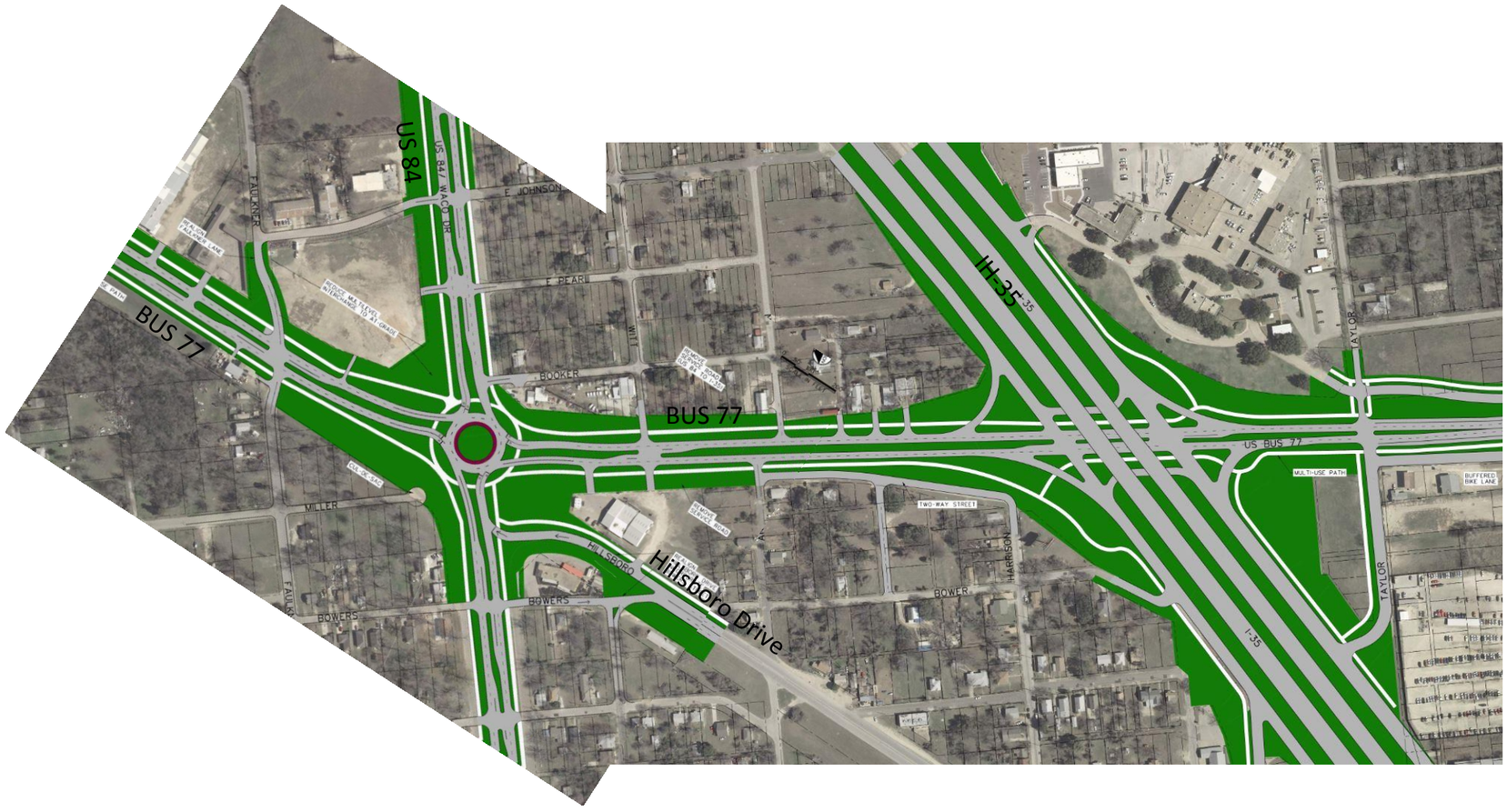
- Initiate discussions with Baylor University and other property owners along BUS 77 regarding level of interest and anticipated timing of these improvements.
- Open discussions with TxDOT and with adjoining property owners about disposition of excess TxDOT property at reconfigured Orchard Lane intersection.
- Initiate discussions with property owners along proposed Marlin Boulevard and along existing Orchard Lane and Kendall Lane regarding potential connection of Marlin Boulevard to Kendall Lane.
- Evaluate intersection control for BUS 77 at Orchard Lane as roundabout to confirm adequate existing and future year operations.



5.2.3 BUS 77 @ I-35 and @ US 84

The reconstruction of the I-35 interchange with BUS 77, scheduled to begin within the next 5 years, will leave the intersection of BUS 77 @ US 84 as an unsightly remnant of a higher capacity and higher speed BUS 77 roadway.

- Initiate discussions with property owners along BUS 77 regarding elimination of grade separations of BUS 77 and of US 84 and extension of property driveways to BUS 77 and/or adjacent roadways.
- Initiate discussions with property owners along BUS 77 regarding change of roadway configuration, driveway entries and median openings.
- Evaluate intersection control for BUS 77 at US 84 as roundabout to confirm adequate existing and future year operations.



5.3 FOUR YEAR ACTION PLAN

The following actions are proposed during the first four years after acceptance of the US Business 77 Corridor Study to pursue the long term implementation of the recommended corridor concepts.

5.3.1 Seek Funding and Initiate Design of the Intersection Improvements at Crest Drive and at Craven Avenue

These two intersection improvements can be implemented on their own timeline independent of the recommended improvements for the remainder of the corridor.

- As soon as funding cycles open the opportunity, initiate applications for safety improvement funds to improve these two intersections.
- As soon as practical, initiate discussions with property owners near the intersections regarding truncation of the service roads in advance of the intersection.
- As soon as some initial funding can be made available, initiate design and environmental clearance of the intersection improvements so that the designs are “shovel ready” for funding opportunities.

5.3.2 Initiate Design for the Potts Interchange Reconstruction

The reconstruction of the I-35 interchange with BUS 77 is scheduled to begin within the next 5 years. The logical progression of improvements would treat the Potts interchange of BUS 77 @ US 84 soon after and to some extent dovetailed in with the I-35 interchange improvements.

- As soon as funding cycles open the opportunity, initiate applications for various funding sources to remove the three-level interchange and improve the intersection for the betterment of the adjacent community.
- As soon as practical, initiate discussions with property owners adjacent to the impact area of the Potts interchange to inform them of the intended changes and allow them to plan for future development initiatives and otherwise protect their property interests.
- As soon as some initial funding can be made available, initiate schematic design and seek environmental clearance for the improvement.

5.3.3 Initiate Access Management

Begin the process of addressing the various elements of the adjacent land access treatments and usage of the parallel service roads.

- Initiate discussions with property owners that have wide entries to parking adjacent to BUS 77 to discuss potentials for cross-access agreements with adjoining development for shared parking and creating of formal driveways into their developments.
- Initiate discussions with property owners along the segments of service roads that are proposed for elimination or truncation, to reach concurrence on the concepts and how their driveways would connect to the proposed roadway configurations.
- Initiate planning for expansion of the landscaped medians along the corridor, collaborating with property owners to identify locations for median openings.

5.3.4 Initiate Design for the BUS 77 Modifications between I-35 and Brazos River

- Collaborate with TxDOT to develop concurrence on the recommendation to connect Marlin Highway directly to MLK Jr. Boulevard, and to convert the remnant of Spur 484 to an Industrial Boulevard that would be used as a game day bypass for events at Baylor Stadium.
- Initiate funding discussions with Baylor University regarding expediting the conversion of BUS 77 from a highway environment to a boulevard environment between the railroad overpass and MLK Jr. Boulevard.
- Initiate funding and operational discussions with the intended developer of the properties along the MLK Jr. Boulevard Extension regarding the direct connection to Marlin Highway and potential disposition of excess TxDOT property at the reconfigured BUS 77/Marlin Highway intersection.
- Initiate funding and operational discussions with the commercial and industrial businesses along BUS 77 and South Loop regarding the proposed Industrial Boulevard regarding cost participation for needed frontage enhancements and potential disposition of excess TxDOT property at the reconfigured BUS 77/Marlin Highway intersection.

5.3.5 Incorporate Waco Drainage Improvement Plan

The ongoing Drainage Study by the City of Waco will inform what can be done with the newly available areas adjacent to the four-lane BUS 77 boulevard.

- Incorporate the recommendations from that study to refine the illustrative design for the BUS 77 corridor as the concepts move forward into implementation.
- Coordinate with TxDOT regarding their planned drainage improvements for the I-35 corridor and how they may improve or impact the BUS 77 corridor.

5.3.6 Initiate Low Impact Design Treatments

Since the proposed configuration does not shift the centerline of the roadway and retains the open ditch drainage of the roadway, some of the LID treatments proposed in the illustrative design can be planned and segmentally implemented.

- Identify drainage areas along the center median of BUS 77 that will be minimally affected by the Waco Drainage Study and those that currently accommodate the normal rainfall runoff along BUS 77. Initiate design of bio swales and other treatments to reduce the runoff and particulate impact of the stormwater on the receiving drainage channels and ultimately the Brazos River.
- Identify drainage area along the roadside of BUS 77 where service roads will be eliminated and other areas that can be focal points for roadside LID treatments. Initiate design of bio swales and other treatments to reduce the runoff and particulate impact of the Stormwater on the receiving drainage channels.

APPENDIX A
Public Involvement

BUS 77 Corridor Study
Public Involvement Plan

The Waco Metropolitan Planning Organization (MPO) is conducting a study of the BUS 77 Corridor from the Brazos River to Interstate Highway 35 just south of the Village of Elm Mott. The Waco MPO is studying the possibility of reducing the number of lanes and structures along the facility to reduce long-term maintenance. The MPO is also studying design alternatives that may serve as a catalyst for economic development along the corridor.

Public Involvement Goals and Audiences

- Provide a transparent and inclusive process for the development of the corridor plan
- Inform the public of the corridor study and opportunities to participate
- Collect meaningful input and feedback, and report how the input is incorporated into the findings and ultimate corridor plan
- Provide convenient and multiple opportunities for participation
- Incorporate public input into the study to build a project that the public can support

The underlying goal of the Public Involvement Plan is to provide opportunities for a wide range of members of the public to participate in the study and provide input for the development of the ultimate plan for the corridor. The MPO will review participation and modify strategies to increase participation in this process. Below are the initial groups that will be contacted.

- General public and corridor stakeholders
- Agencies and governmental entities (such as transportation agencies and local governments)
- Stakeholder groups such as civic, environmental, and business organizations
- Environmental Justice Areas and Limited English Proficiency Areas

Public involvement strategies will follow objectives and strategies identified in the Waco MPO Public Participation Plan (PPP).

Corridor Study Schedule

Study Phase	Public Involvement Strategies
Existing Conditions and Plan Review (November – December)	• Development of Public Involvement Plan • Website updates
Alternatives Development (January – March)	• Project Workshop – February 1-4 • Stakeholder Meetings • Task Force Meeting(s) • Website updates • Email updates • Comments accepted at any time
Illustrative Design (January – March)	• Website updates • Email updates • Comments accepted at any time
Corridor Study Documentation and Approval (January – August)	• Community Meetings • Website updates • Public hearing • Email updates • Comments accepted at any time

Public Involvement Activities

Agency Coordination Meetings

The MPO will meet with TxDOT, Bellmead, Lacy-Lakeview, McLennan County and other agencies with interest in the corridor study to discuss the feasibility of implementing stakeholder visions for the corridor.

Task Force

A Task Force consisting of large and small business owners, churches, schools and other stakeholders will be organized to provide the MPO with input from their representative perspectives. The Task Force will participate in the Project Workshop and in additional meetings during the project.

Project Workshop

The Waco MPO will conduct a 4-day Project Workshop consisting of presentations, work sessions, Task Force meetings, and meetings with stakeholders. The workshop will provide opportunity to engage with stakeholders and the community and will provide the process for developing alternative design scenarios. The workshop will be open

to the general public and will include public meetings on two nights. At these meetings, attendees can participate in different activities (mapping exercises, working through different character elements, etc.), view project materials, and visit with project representatives about issues that are of concern to them. Feedback and input will be collected through the use of surveys, discussions, mapping exercises, comment cards and other exercises. Attempts will be made to locate meeting venues that are convenient, ADA compliant, and easily accessible to the public. Schools, public places such as community centers, religious institutions, and recreation centers are all possible options for meeting locations.

Meetings with Stakeholders

The MPO will identify stakeholders and community groups along the corridor and to offer an opportunity to meet during the Project Workshop or at another scheduled time. These meetings would provide stakeholders with general information about the project and an opportunity to visit specifically about their concerns and provide feedback related to the potential impact to their properties.

The MPO will also reach out to community organizations and offer to attend meetings to share information and project updates. These meetings may include groups such as neighborhood associations and chamber meetings. Initially the MPO will reach out to the following organizations and groups. As other groups are identified, the MPO will work to expand this list.

- North East Riverside Neighborhood Association – Meetings held third Thursday of the month
- Carver Neighborhood Association – Meets once a month
- Geneva Hall – Bingo held every Friday, plan info table twice during outreach period

Community Meetings

The MPO plans to host up to three public community meetings prior to the public hearing to solicit broad community input on the proposed master plan vision, design concepts, and implementation schedule. These meetings will present the same information in multiple locations near the corridor for convenience. After each meeting, a written summary of the meeting will be prepared, including the comments received.

Public Hearing

A final presentation of findings and recommendations will be presented to the MPO Policy Board for adoption. The public will be invited to make final comments prior to policy actions.

Notifications of Community Meetings and Public Hearing

A stakeholder database will be developed and maintained for the project and will be composed of individuals, groups and other interested parties that may be interested in the corridor study. Notifications will be provided to these individuals and groups for the public meetings and other opportunities for participation. Tools that will be used to notify stakeholders and promote the meetings are:

- Notices or advertisements in local newspaper(s)
- Email announcements to the database of contacts
- Meeting announcement signage
- Announcement on project webpage
- Phone calls and outreach to neighborhood associations and community groups that can distribute information to their contacts

Additionally, notifications of meetings will comply with requirements of the Waco MPO Public Participation Plan including:

- 2 weeks prior: Post to MPO Website (www.waco-texas.com/mpo/index.asp)
- 2 weeks prior: E-Mail (postcard will be sent if E-Mail is unavailable) to key transportation stakeholders & interested parties
- 1 week prior: E-mail reminder to key transportation stakeholders & interested parties
- 1 week prior: post background information to MPO website (public hearing)
- Wednesday prior: Advertise in Tiempo Spanish language newspaper
- Sunday prior: Advertise in Waco Tribune-Herald
- 3 days prior: E-Mail (postcard will be sent if E-Mail is unavailable) to key transportation stakeholders & interested parties (public hearing)
- 3 days prior: Post agenda on bulletin boards of the Waco City Hall & McLennan County Courthouse (public hearing)
- 3 days prior: Issue Press Release
- Day of: Issue 2nd Press Release

Outreach Tools

Outreach tools and materials are necessary for sharing information with the public and establishing an understanding of the proposed project. Materials will be created in a concise and easy to understand format and will be updated as new information is available. The following tools and materials may be used to distribute project information.

Project Database

An essential component of the public involvement strategy will be the development of a comprehensive stakeholder database of residents, community and civic organizations, businesses, special interest groups, and other interested parties. Emails will be collected when possible and communication will be logged. The database will be updated throughout the project as new stakeholders are identified.

Project Materials

The MPO will develop project materials to share specific project information, how to participate in the process, and how to submit comments. Information will be represented in an easy to understand format and will include contact information and how to be added to the database to receive email updates. Materials will be updated as the project progresses and be posted on the project webpage and shared at the Public Meetings and Public Hearing.

Surveys

Surveys may be used to collect input from stakeholders on things such as corridor use and needs, preferences and priorities, and other topics. Surveys will be administered via an online survey tool and will be made available in paper form if needed. Stakeholders will be notified when surveys are available through email updates, website links, and other tools listed in this plan.

Email Updates

Over the course of the project, the MPO will prepare and distribute email updates, to keep project stakeholders and the general public informed on the project. These updates will be distributed prior to the public meetings and as new information is available. Additional updates will be distributed as needed, throughout the course of the project to share information about the progress of the project. The updates will be emailed to contacts in the project database and posted to the project webpage.

Project Website

The MPO will provide a project website which includes a brief project description, allow presentations to be posted, provide a link to an online survey and provide a comment section for community feedback. Meeting notifications and other information will be posted on the site as warranted.

This website will provide dates, times, and locations of the community meetings as well as any other important updates. It will also house project information including maps and meeting materials and share information on how to sign up to receive project updates by email.

Media Relations

The MPO will create media releases to share project information and promote awareness and participation in the Plan development process. Media releases will be distributed to announce the meeting dates, and additional opportunities for participation as outlined in the MPO PPP.

Social Media

Social media posts and messages will be for distribution through existing social media pages. Messages will be developed to share meeting notices, project updates, and to generate general interest and participation in the project development process. Messages will be shared with cities, community groups, and other community connectors, to share with their followers. The following entities have been identified to share messages with. Additional groups will be added as they are identified.

- City of Waco
- City of Bellmead
- City of Lacy-Lakeview
- Bellmead Chamber of Commerce
- Cen-Tex Hispanic Chamber of Commerce
- Lacy-Lakeview Chamber of Commerce
- Cen-Tex African American Chamber of Commerce
- Waco Chamber of Commerce

Project Workshop Schedule

	Monday **February 1, 2016**	**Tuesday** **February 2, 2016**		**Wednesday** **February 3, 2016**		**Thursday** **February 4, 2016**		**Friday** **February 5, 2016**
7:00 AM	Travel	Team Breakfast		Team Breakfast		Team Breakfast		Team Breakfast
8:00 AM		Team Work Session	Stakeholder Interview	Team Work Session	Stakeholder Interview	Team Work Session	Stakeholder Interview	Team Debrief & Assignments
9:00 AM			Stakeholder Interview		Stakeholder Interview		Stakeholder Interview	Travel
10:00 AM			Stakeholder Interview		Stakeholder Interview		Stakeholder Interview	
11:00 AM	Team Working Lunch	Lunch	Stakeholder Interview	Lunch	Stakeholder Interview	Lunch		
12:00 PM		Team Work Session	Stakeholder Interview	Team Work Session	Stakeholder Interview	Team Work Session		
1:00 PM			Stakeholder Interview		Stakeholder Interview			
2:00 PM	Team Site Visits		Stakeholder Interview		Stakeholder Interview			
3:00 PM		Continued Team Work Session	Public Open House	Continued Team Work Session	Public Open House			
4:00 PM	Prepare for Public Workshop					Prepare for Public Workshop		
5:00 PM		Extended Open House ??		Extended Open House ??				
6:00 PM	Public Workshop Meeting	Team Working Dinner		Team Working Dinner		Public Workshop Meeting		
7:00 PM								
8:00 PM								

Public Workshop Flyer

Help Redesign US Business 77

The Waco Metropolitan Planning Organization (MPO) is conducting a Corridor Study for US Business 77 from the Brazos River to I-35. The purpose of the study is to research whether the corridor should remain as a freeway or whether the long-term design should be something different.

Participate in the Corridor Study!

Your input is needed on the area and the Corridor Study. The MPO and project team will hold a design workshop from February 1st through the 4th with several opportunities to participate.

February 1 from 6 to 8 p.m.
City of Waco Multi-Purpose Center, 1020 Elm Ave. Waco, Texas 76704
Attend the Public Meeting where information will be shared on the project including an overview, presentation of needs, opportunities, and constraints and public input will be collected on the area.

February 2 from 3:30 to 5 p.m. and February 3 from 3:30 to 5 p.m.
Texas Department of Transportation, Waco District Headquarters,100 South Loop Dr. Waco, Texas 76704
Two open house events will be held so those interested can view the progress the team has made, visit with the team, and share input.

February 4 from 6 to 8 p.m.
City of Waco Multi-Purpose Center, 1020 Elm Ave. Waco, Texas 76704
Attend the Public Meeting where initial concepts will be presented and public feedback will be collected.

February 1 - 4, throughout the day
Texas Department of Transportation, Waco District Headquarters,100 South Loop Dr. Waco, Texas 76704
The project team will be conducting individual interviews of stakeholders and the general public throughout the workshop. If you are interested in participating in an interview, please email: info@77corridorstudy.com

Future Opportunities for Input

After the weeklong workshop, additional public meetings will be held to share further refined concepts. Email updates will be sent on the project, and a public hearing will be held. Please contact us at any time for additional information or to share your input!

Project Contact Information

Chris Evilia
Director, Waco MPO
Cevilia@wacotx.gov
254-750-5651
www.77corridorstudy.com

To receive email updates on the project, send an email to info@77corridorstudy.com with "77 Updates" in the subject line.

Final Public Meetings Flyer

US Business 77 Corridor Study Public Meetings

The Waco MPO has been conducting a Corridor Study along BUS 77 from the Brazos River to the I-35 interchange in Lacy-Lakeview and is ready to share refined concepts for improving the area.

Join us for one of several public meetings that will be held in September to view proposed recommendations and give your feedback. Multiple meetings are being held for convenience and the same information will be presented at all meetings.

Wednesday, September 14, 2016
12:00 p.m. - 2:00 p.m.
Presentation at 12:30, Q&A to follow

Lacy-Lakeview Civic Center
505 E. Craven Avenue
Waco, TX 76705

Wednesday, September 14, 2016
5:30 p.m. - 7:30 p.m.
Presentation at 6:00, Q&A to follow

Lacy-Lakeview Civic Center
505 E. Craven Avenue
Waco, TX 76705

Thursday, September 15, 2016
5:30 - 7:30 p.m.
Presentation at 6:00, Q&A to follow

Waco Multi-Purpose Center
1020 Elm Avenue
Waco, TX 76704

Project Overview:
The corridor study began in November 2015 to determine if the roadway could be minimized to reduce long term maintenance costs. Concepts have been developed considering engineering concerns and public input, which incorporates different roadway designs in an effort to stimulate economic development.

Project Contact Information

Chris Evilia • Director, Waco MPO
Cevilia@wacotx.gov • 254-750-5651 • www.77corridorstudy.com

To receive email updates on the project, send an email to info@77corridorstudy.com with "77 Updates" in the subject line.

Public Workshop

A four-day project workshop was conducted with an intention of engaging the consultant team, stakeholders, and the community that helped develop alternative design scenarios and further influence the plan's recommendations. A series of stakeholder meetings, interviews, open house meetings, and consultant work sessions were conducted throughout the day. Public open house sessions were conducted each evening to present ideas and gather input to refine the working scenarios and further understand, consider, and communicate the alternative's strengths and weaknesses. The ideas and concepts generated during the work sessions were summarized and presented to the community for feedback in an open house meeting on the last day of the workshop. The schedule and invitation flyer for the workshop is included in the Appendix A.

Public Workshop Kick-off Meeting: *Day 1*

A public workshop kick-off meeting was conducted on February 1, 2016 from 6:00 PM to 8:00 PM at the City of Waco Multi-purpose Center. At the meeting, the MPO and consultant staff provided an overview of the project, and presented the project needs, opportunities, and constraints. Attendees were encouraged to participate in different activities (mapping exercises, working through different character elements, etc.), view project materials, and visit with project representatives about issues that are of concern to them. Feedback and input were collected through the use of charts, discussions, mapping exercises, and comment cards. Following paragraphs describe the public input on various issues relating the existing corridor character, vision of future development along the corridor and other issues relating the corridor. The meeting was attended by 8 individuals that were not members of the project steering committee and consisted mostly of residents that live or work in areas south of Behrens Circle and west of I-35.

Corridor Character:

People were asked to rate various aspects of the corridor's existing character such as traffic flow, appearance, etc. on a scale of 0 to 10. The results are described below:

- Traffic: The score ranged from 5 to 8, with most respondents indicating that traffic congestion is not a major issue along the corridor but with some reservations about traffic safety or operations in general.
- Crime: The score ranged from 3 to 8, indicating mixed opinions about crime incidences in the study area.
- Appearance: The score ranged from 2 to 5, indicating that the appearance of the corridor is perceived to be not good.
- Walk/Bike: The score ranged from 0 to 1, indicating that corridor is very unfriendly for bicyclists and pedestrians.
- Employment: The score ranged from 2 to 6, indicating that a moderate level of employment opportunities exists along the corridor, but there should be more.
- Other than employment: The score ranged from 1 to 2, indicating that other than some employment, there are very few shopping, eating or entertainment destinations along the corridor.
- Recreation: The score ranged from 0 to 1, indicating that there are little or no recreational facilities along the corridor.

Type of development desired along the Corridor:

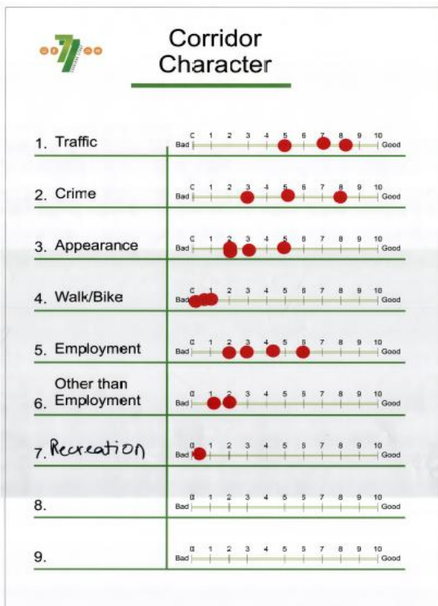
People were asked about how much of various types of development they would like to see along the corridor on a scale of 0 to 10; with a higher number indicating a higher interest in a particular type of development. The results are described below:

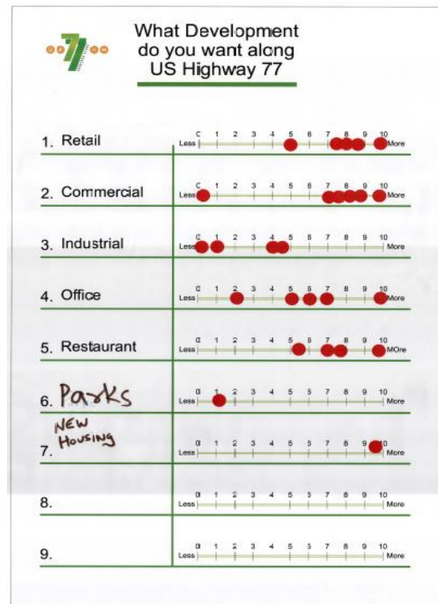
- Retail: The score ranged from 5 to 10, indicating a high preference for retail development.
- Commercial: The score ranged mostly from 7 to 10, indicating that a high level of interest in seeing more commercial development.
- Industrial: The score ranged from 0 to 5, indicating less desire for industrial development.
- Office: The score ranged from 2 to 10, indicating mixed opinions about office development.
- Restaurant: The score ranged from 5 to 10, indicating most people would like more restaurants.
- Parks: There was one write-in response, but indicating low interest in park development along the corridor with a score of 1.
- New housing: There was one write-in response with high desire for new housing with a score of 10.

Other issues:

Other issues identified by the public during the public workshop kick-off meeting include:

- Church Street/Elm street access from BUS 77 and I-35
- Noise abatement from new ramps and service road along I-35
- Traffic cutting through neighborhoods to avoid I-35 congestion
- Need to make Elm Avenue a gateway, and provide better access from I-35
- Need walkable, livable, enjoyable, and sustainable neighborhoods
- Need more businesses; indicated that the area has no places.





Stakeholder Interviews: ***Day 2 through 4***

The project team conducted individual interviews of stakeholders and the general public throughout the workshop. In addition to individual business owners, representatives of following agencies were interviewed:

- City of Waco
- Toliver Chapel Baptist Church
- Connally ISD
- The Wallace Group (developer)
- City of Lacy-Lakeview
- Waco Bike Club
- Waco Downtown Development Corporation
- City of Bellmead
- Texas Department of Transportation
- Flint Hills Resources
- Baylor University

During the interviews, the consultant team provided an overview of the corridor, and gathered input from the stakeholders on specific issues relating to access, mobility, safety, planned development, and future corridor vision, and other issues relating the corridor. Notes from individual stakeholder interviews are included in the Appendix.

Public Open House: ***Day 2 and 3***

Two open house events were held on February 2 and 3, 2016 from 3:00 PM to 5:00 PM at the Texas Department of Transportation, Waco District Headquarters. The Open House meetings provided opportunity for the public to visit with the team, view the progress the team made during the work sessions, and provide input.

Public Workshop: ***Day 4***

A public workshop meeting was conducted on February 4, 2016 from 6:00 PM to 8:00 PM at the City of Waco Multi-purpose Center. At this workshop, the consultant team presented the initial concepts for specific segments and key interchanges of the corridor, developed during the team work sessions. Following the presentation, the public were encouraged to view the concepts developed, ask questions, and provide comments to the project team. Also, the attendees were provided the information on key project contacts, and project website to provide additional comments related to the project and initial concepts developed during the workshop.

Family Expo Summary

2/13/16

Survey Summary

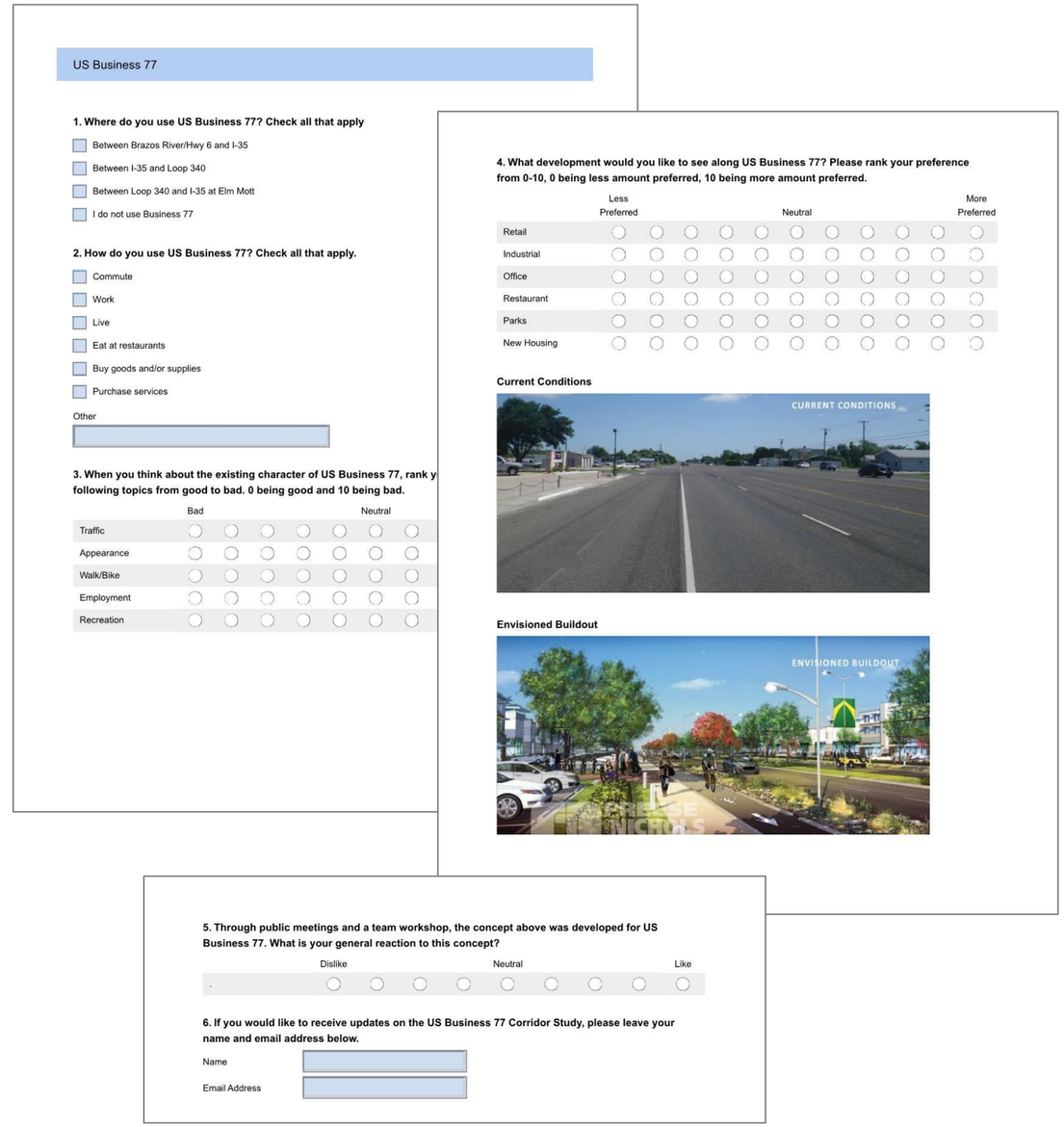
During the Family Expo, hosted by the Hispanic Chamber of Commerce, 40 surveys were completed. Of the 40 surveys one was completed in Spanish. Below is a summary of the survey results.

- Users drive the full length of US Business 77
- US Business 77 is most used for commuting and working along the corridor
- Traffic along the corridor is good, but the highway is bad for recreational opportunities and pedestrians who walk or use bikes
- Developments of all types would like to be seen along the corridor, however, industrial developments were least preferred
- The majority of survey takers liked the envisioned buildout

Themes Heard

During conversations with survey takers, several themes regarding US Business 77 were heard. Below is a summary of collected themes concerning highway users.

- More family activities
- Area needs more lighting
- Like the buildout, afraid it will drive out current residents
- Want more homeowners, not subsidized housing
- Existing parks are overcrowded
- Conflicting needs, some want to develop Elm Street
- Develop section from BRIC down to river – restaurants, boutiques, hotels…
- Develop industrial north of loop
- 77/35 crossing area – great for vintage, 'kitschy' development
- Focus on southern end – closer to river/Waco
- Need more parks



US Business 77

1. Where do you use US Business 77? Check all that apply

- Between Brazos River/Hwy 6 and I-35
- Between I-35 and Loop 340
- Between Loop 340 and I-35 at Elm Mott
- I do not use Business 77

2. How do you use US Business 77? Check all that apply.

- Commute
- Work
- Live
- Eat at restaurants
- Buy goods and/or supplies
- Purchase services

Other

3. When you think about the existing character of US Business 77, rank y following topics from good to bad. 0 being good and 10 being bad.

	Bad					Neutral	
Traffic							
Appearance							
Walk/Bike							
Employment							
Recreation							

4. What development would you like to see along US Business 77? Please rank your preference from 0-10, 0 being less amount preferred, 10 being more amount preferred.

	Less Preferred					Neutral				More Preferred
Retail										
Industrial										
Office										
Restaurant										
Parks										
New Housing										

Current Conditions

Envisioned Buildout

5. Through public meetings and a team workshop, the concept above was developed for US Business 77. What is your general reaction to this concept?

	Dislike				Neutral				Like
.									

6. If you would like to receive updates on the US Business 77 Corridor Study, please leave your name and email address below.

Name

Email Address

Elm Avenue Stakeholder Meeting

April 28, 2016 5:30 p.m. Dr. Mae Jackson Development Center – 401 Franklin Ave., Waco, TX 76701

Attendees:
Jeanette Bell with the Northeast Riverside NA
Syble Davidson with Holy Deliverance House of Prayer
Megan Henderson with Center City Waco
Pastor Pamela Rivera with St. Luke AME Church

Staff:
Chris Evilia with Waco MPO
Kevin St. Jacques with Freese and Nichols
Jacqie Wilson with CD&P

Summary:

A meeting for the Elm Ave. section of BUS 77 was held for stakeholders to discuss options for incorporating improvements to BUS 77 at Elm Ave. Two options were presented and then all attendees participated in open discussion. Both options include bringing the existing 3-level interchange down to a one level intersection.

1. Option one includes a roundabout where BUS 77 meets US 84 (Waco Dr.). This option would remove Hillsboro Dr. from tying into the intersection, and would propose to essentially do away with Hillsboro Dr. and establish a local street grid.
2. Option two includes a five legged roundabout where BUS 77 meets Waco Dr., keeping Hillsboro Dr. connected to the BUS 77/US 84 intersection. Hillsboro Dr. would be reconfigured as a two-lane boulevard and directly connected to N. Elm St. as an access point to the East Waco area.

Option two was most liked considering stakeholders wanted to keep Hillsboro Dr. in-tact due to its history, access to the East Waco area, and future development opportunities for East Waco.

Topics of discussion during the meeting included:

- The need to demonstrate that the three-level interchange is no longer needed and in fact is a detriment to the vitality of the local community
- The dangerous conditions at the level one combination of four intersections, such as blind spots and lack of understanding how to maneuver through
- Design timeline and construction date were discussed and noted that because I-35 improvements are currently underway, construction may be 10 years out
- Features that will be included in the design including sidewalks and bike paths
- Making the area a destination point and planning for development
- Roundabouts allow for growth while keeping mobility and allowing traffic to flow in and around the area
- While the roundabouts were not favored, the reasoning for them was understood and accepted

A follow-up meeting was held on September 1, 2016 with the same invited group to provide information on the refined concepts and get their feedback.

Attendees:
Jeanette Bell with the Northeast Riverside NA
Megan Henderson with Center City Waco

Staff:
Chris Evilia with Waco MPO
Annette Shepherd with Waco MPO
Kevin St. Jacques with Freese and Nichols
Jacqie Wilson with CD&P

Summary:

A meeting for the Elm Ave. section of BUS 77 was held for stakeholders to further discuss and present the refined option for bringing the existing 3-level interchange at US 84, BUS 77, and Hillsboro down to a one level intersection with a five-legged roundabout. This would keep Hillsboro Dr. connected to the BUS 77/US 84 intersection. Hillsboro Dr. would be reconfigured as a two-lane boulevard and directly connected to N. Elm St. as an access point to the East Waco area.

Topics of discussion during the meeting included:

- Types of development and controlling locations of new developments
- Developing close to roadway to create a neighborhood feel
- Possible location for BRT station where Hillsboro Dr. meets BUS 77 and US 84
- BRT in Capital Improvements Plan with proposals received and 12 months allowed for study
- Renaming Hillsboro Dr. to Elm St. is a possibility to connect the two areas
- A small area study should be completed for Hillsboro Dr. where it meets BUS 77 and US 84
- Bringing Orchard Ln. down to street level
- Addressing flooding, City of Waco performing drainage study

Implementation will be based on priorities such as safety

Workshop Comments from Stakeholder Groups

The project team received verbal and written comments during the conduct of the individual interviews of stakeholders and the general public throughout the workshop and at the round of three public meetings held to present the draft recommendations of the project. These comments are summarized below.

Connally ISD, Lacy Lakeview

- Would like to see the corridor thrive. Economic development would bring funds to school.
- Connect to Lacy Lakeview park
- Cadet Way – One-way eastbound operation in the AM peak
- SB Bus 77 can back up all the way to I-35
- A lot of conflicts at Cadet Way
- Sidewalk needed along Lacy; opportunity for walking and neighborhood growth
- NB bikes have space, but not on SB direction; ends on shoulder

City Manager, Lacy Lakeview

- Road ranger (bought 18 acres opposite of Bus 77 @ I-35 to develop a truck stop)
- Hotel/retail development
- Landscape between Loop 340 one-way links is maintained by City of Lacy Lakeview
- Industrial Drive at Tymco was offered to be a private road.
- Powerline on west side of Bus 77 hinders development along the road. Smaller parcels with low depth
- Train at Meyer – serves a chicken place west of Loop 340, and the fertilizer plant
- Big box retail could develop between Pecan and Meyers on east side
- Trucks sometimes line up to the railroad (NB queue) to fill up gas/diesel (each weighing 90K Lbs.)

Solomon Thomas – Area Engineer, TxDOT

- Need to evaluate 484/77; Currently thinking a roundabout
- TxDOT widening Loop 340 from S. of Brazos river to NE near Camp Ground road from 2- lanes to 4-mainlanes with frontage roads.
- Diversion route of IH-35 is currently Gholson Road to Waco Dr to IH-35
- Raised concern that reduction in capacity on BUS 77 would affect its availability as a bypass route.
- Access to Baylor stadium from east via MLK extension or Orchard Lane
- Concern of orchard Lane at Bus 77 roundabout and truck traffic
- TxDOT wants smaller foot print; less O&M cost; Ok with reduction
- Need to consider reconfiguration of Meyers/Bus 77 and Pecan/Bus 77
- RR crossing at Bus 77; 2 trains/week

Flint Hill Resources (Gas Distribution Facility Kendall Lane and Orchard Lane)

- 150 to 200 tankers visit the facility in a day (24X7 operation)
- 60 to 70% tankers visit between 6 am and 6 pm – no specific peak
- Most tanker traffic access from IH-35. Very little from east
- Consider truck traffic turning at Orchard Lane intersection
- Tracks not allowed to use Orchard Lane north of Kendall Lane

Rock McNair, Baylor University (real estate)

- Academic building, students hosing to develop south of Bus 77 and north of river (20-30 yr plan)
- Orchard Lane south of Bus 77 could be a bike/ped friendly street serving campus (buying property along the street for future widening)
- Waco Industrial Foundation owns parcels on both sides of the cemetery south of Bus 77

Mazanec Construction and Tymco

- Lots of truck activity up and down BUS 77, great access to SH 6 to/from Houston area
- BUS 77 allows for quick access to and from I-35 as an alternative to Loop 340
- Need to get in and out of their sites with long bed trucks, 18 wheelers
- Disappointed that the direct ramps between BUS 77 and I-35 are being removed

Waco Bike Club

- Not many of their riders use BUS 77 due to its highway nature
- Old Dallas Road would be better, if maintained
- Side paths might be better for folks lining in this area

General Comments from Citizens visiting working room

- Not excited about additional traffic lights
- Bridge at Orchard Lane is over built/overdone. An at grade intersection would be sufficient
- Could Orchard lane be widened?
- Roundabout at Marlin Hwy interchange – Certain links would be busy. Would a roundabout work?
- NW area is developing - will that overtake capacity of Bus 77?
- Can Elm Ave support additional stores for clothing, furniture?
- Lacy Lakeview to BRIC is an easy commute via BUS 77
- Lakeshore at 35 is a long traffic light
- Consider the growth in traffic to see if grade separations are needed.
- BUS 77 is great for getting to campus from north

Additional Stakeholder Meetings

A series of stakeholder meetings were held after the refinement of concepts and the development of the illustrative design for the corridor. The following entities were contacted for either phone discussions or in-person meetings to discuss the attributes and any needed refinements of the concepts, and their general input summarized.

Waco Chamber of Commerce – Likes the reorientation of BUS 77 from rural highway to major arterial for business environment that is evolving east of I-35 and for development opportunity near Waco Drive.

Bellmead Chamber of Commerce – Materials were sent but no feedback was offered.

Lacy-Lakeview Chamber – Likes the four-lane boulevard, understands need to change parallel roadway at Crest and Craven but wants to make sure it still accommodated annual parade, likes roundabouts but wonders how they will perform under truck traffic, there is need for better lighting along the corridor.

TxDOT Waco District - Generally OK with converting the rural highway cross section to a rural arterial section. OK with retaining center drainage and concept for use of slotted curb to attain the stronger channelization to attain targeted speeds. OK with taking the two three-level interchanges down to one level. Wants to leave the Loop 340 intersection as split EB/WB for now while TxDOT studies potential enhancements to Loop 340 near I-35.

Baylor University (re-visit) – Likes the concept of the four-lane boulevard, likes the roundabout at Orchard Lane, likes the connection of Marlin Highway directly to MLK Boulevard.

Toliver Chapel Baptist Church – Likes the four-lane boulevard and bringing the Potts interchange down to single level. Likes Hillsboro Drive as visually extending from the BUS 77/US 84 roundabout. Important to retain significant connection for Elm Avenue to/from points north.

Cent-Tex African American Chamber – The representative from this organization was invited to be part of the Project Steering Committee, but has been unable to attend the meetings. The FNI project manager visited with their office to personally present and provide materials for the concepts and to make sure that the lines of communication were established.

Cen-Tex Hispanic Chamber of Commerce – The project team set up a booth at the Family Expo on February 13, at the invitation of the Hispanic Chamber (see summary)

Cummins Hydraulic – A small business, location is a bit cumbersome for customers to find and access their site.

Wallace Group (re-visit) – representing the development interests along the MLK Extension, confirmed development interest and will discuss Marlin Hwy – MLK Extension connection with the developer.

Tymco (re-visit) – Supports enhancement of the corridor and safety improvements. OK with four-lane arterial as long as truck access and circulation are accommodated. Concerned with traffic cut-thru on their Industrial Boulevard to avoid delays at Loop 340/BUS 77 intersection. Their primary access is to and from I-35 via Loop 340, but concerned about truck conveyance through roundabouts.

Flint Hills Resources Chemical Plant (re-visit)) – Existing freeway configuration of BUS 77 east of I-35 is dangerous for his trucks that must utilize the Orchard Lane interchange. Likes the four-lane boulevard concept and does not see a problem with his trucks traversing the proposed roundabout at Orchard Lane.

Ergon Asphalt & Emulsions – Existing freeway configuration of BUS 77 and Marlin Highway interchange is very cumbersome for his business, creating circuitous routes for his drivers. Likes the proposed connection of Marlin Highway to MLK Extension and creation of a two-way industrial access road near his site.

Pioneer Steel & Pipe (re-visit) - Existing freeway configuration of BUS 77 east of I-35 is dangerous for his trucks that must utilize the Orchard Lane interchange. Likes the four-lane boulevard concept and does not see a problem with his trucks traversing the proposed roundabout at Orchard Lane.

Mazanec Construction (re-visit, by phone and email) – Reiterated his position that BUS 77 as an industrial corridor and that it should continue to serve the industrial uses of the corridor. Does not like the roundabouts. Wants to keep the grade separations at BUS 77/US 84 and BUS 77/Marlin Highway, and is not happy that the BUS 77/I-35 grade separation and direct connection ramps are going away.

Round of Three Public Meetings

Three open house style public meetings were held to present the illustrative design for the corridor at the following times and locations. A total of about 40 persons attended the three meetings.

1. September 14 from 12:00 to 2:00 pm at Lacy Lakeview Community Center
2. September 14 from 5:30 to 7:30 pm at Lacy Lakeview Community Center
3. September 15 from 5:30 to 7:30 pm at Waco Multipurpose Center

The meetings in Lacy Lakeview were attended by several business owners along the corridor as well as a few local area residents. Three business owners located north of Loop 340 indicated that their industrial businesses generate significant large truck traffic in and out of their sites and thus are concerned regarding the interruption of traffic flow

at Crest Drive and at Craven Lane that would slow up their deliveries. They also wanted to make sure that their heavy trucks would be able to safely and conveniently traverse the proposed roundabouts.

The meeting in Waco was attended predominantly by residents, mostly Waco citizens. The response to the illustrative design was very positive, especially the creation of the four-lane boulevard and the provision of the sidewalks and sidepaths between Loop 340 and Baylor University development for non-motorized access to jobs and retail. The enhancement of the Potts interchange to a one-level intersection was favorably received. Some residents expressed concern about navigating the roundabouts, and whether they would handle the expected traffic.

Three City Council Presentations

The final illustrative design for the corridor was presented at a regular meeting of the City Councils of the three cities along the corridor to inform their city leaders, businesses and residents regarding the vision for the corridor.

- **City of Bellmead** on October 11 at 6:30 pm – City Council is generally OK with the creation of the four-lane boulevard to serve the corridor businesses and reduce runoff, but not the roundabouts. Do not want to lose the grade separation of US 84 over BUS 77 as it would add trip time to travel between Bellmead and Waco.
- **City of Waco** on October 18 at 3:00 pm – City Council is in favor of the creation of the four-lane boulevard to serve the corridor businesses and reduce runoff. They are especially in support of reducing the Potts interchange to one level and fostering development at the intersection. They are in favor of the four-lane boulevard east of I-35 and the direct connection of MLK Boulevard to Marlin Highway. They are comfortable with the roundabouts as an effective traffic control treatment with traffic calming characteristics.
- **City of Lacy Lakeview** on October 18 at 6:00 pm - City Council is in favor of the creation of the four-lane boulevard to serve the corridor businesses and reduce runoff. They are in favor of the treatments to the parallel roadway and especially the safety enhancements at Crest and Craven. They have concerns about the roundabout treatments in lieu of signals, but understand why they were recommended.