EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

Texas State Line to Archie, Louisiana
Routes LA 6 and US 84

WINN PARISH
FINAL REPORT
JUNE 2002

State Project No. 700-99-0241
Federal Aid Project No. HP-T021(030)

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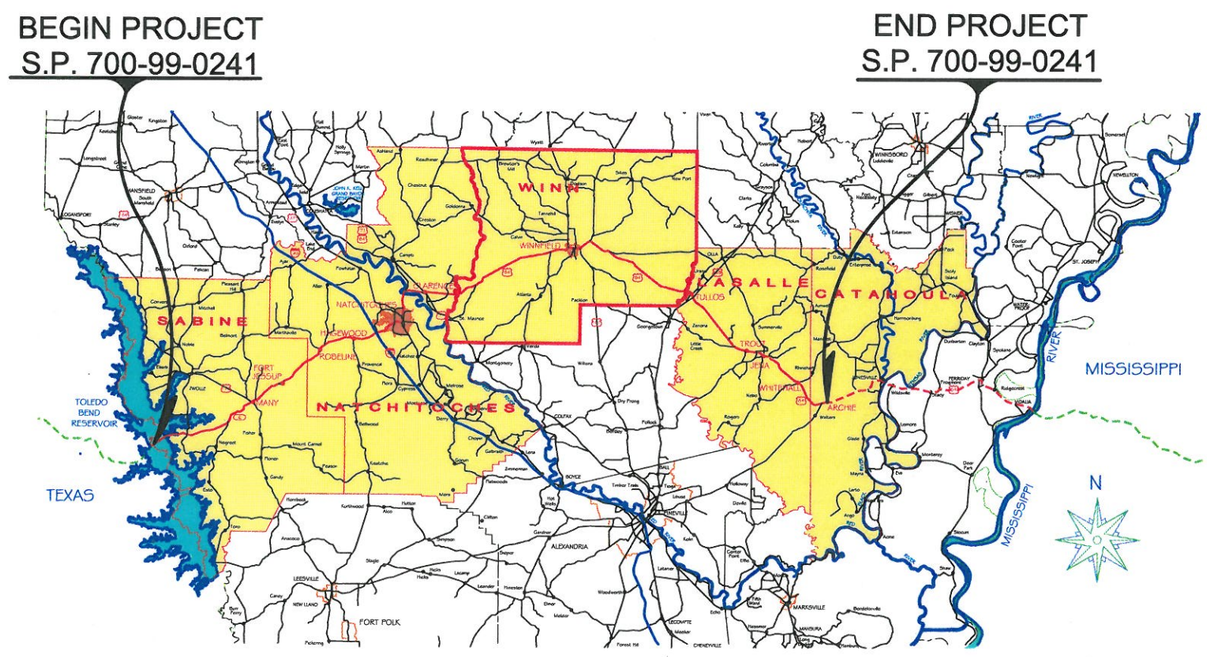

United We Stand

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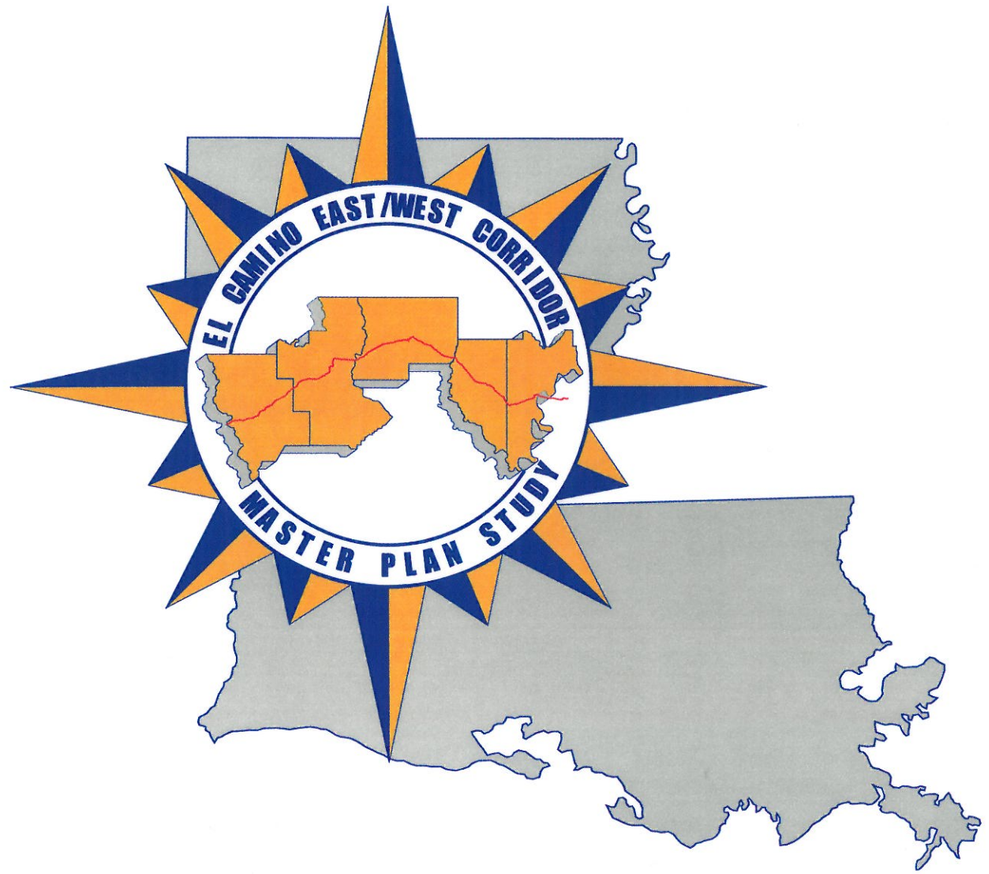
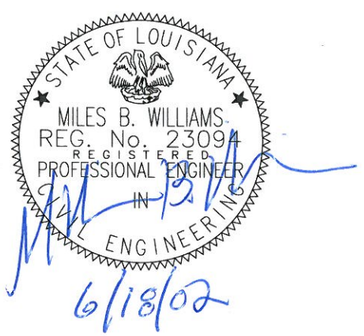


THIS REPORT WAS PREPARED BY SIGMA CONSULTING GROUP, INC.
UNDER THE SUPERVISION OF THE STAFF OF THE LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT.



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Louisiana Department of
Transportation and Development

EXECUTIVE SUMMARY

A. BACKGROUND

The El Camino East-West Corridor goes through the southeastern part of the United States, extending from near Brunswick, Georgia to El Paso, Texas. In Louisiana, the El Camino corridor extends from the Toledo Bend Reservoir and runs eastward to the town of Vidalia, covering approximately 165 miles of roadway.

As part of a program proposed to develop the entire five state corridor, Sigma Consulting Group, Inc. was selected by the Louisiana Department of Transportation and Development to conduct a Master Plan Study for the corridor through the State of Louisiana.

The intent of this Study is to establish the conceptual design and determine the associated benefits and impacts created by improving the existing corridor. The standard roadway improvements contemplated are a four-lane divided highway section in rural areas and a four or five-lane arterial roadway section in urban areas. In addition, the study will determine conceptual project costs, logical construction project segments and prioritize project segments to assist in future implementation. See Figures 1 and 2 for layout of the proposed projects designated by prioritization tier.

The Existing System

Currently, a majority of the existing El Camino East-West Corridor consists of a two-lane rural highway. Segments within the cities of Natchitoches and Winnfield have been upgraded to four or five lanes, or are programmed for improvement by LaDOTD. The combination of existing four lane sections along with the currently committed sections totals approximately 35 miles within Louisiana. This leaves approximately *130 miles of two-lane highway along the corridor.* It is these segments that are addressed in this report.

Proposed Improvements

In this Report, the corridor was studied for two basic cases: the "Needs Basis" Alternative and the "Ultimate" Four-Lane Alternative. *The "Needs Basis" Alternative generates recommended improvements with associated costs and impacts based on generally accepted engineering practice per roadway segment. The "Ultimate" Four or Five-Lane Alternative generates recommended improvements that will upgrade the entire corridor to a four or five- lane highway.*

B. STUDY COMPONENTS

The following is a brief description of the major items addressed in the Study:

The Design Criteria and Typical Sections task involved the development of applicable design criteria necessary to perform a thorough analysis of the corridor and to develop reasonable improvement recommendations. Planning level typical sections were developed based on the design criteria to graphically represent the proposed roadway requirements throughout the corridor.

The Environmental Inventory involved the collection and inventory of existing environmental data along the corridor that may affect the future development of this project. Items considered include natural, social and historic constraints.

The Human and Natural Enhancements component addressed issues regarding the human and natural enhancements related to highway improvements. These included items such as landscaping, natural habitat preservation and incorporating various supplemental human design features such as bicycle paths and pedestrian walkways.

Traffic Analysis for this Study deals with sources of existing traffic data and methods of analysis for both rural and urban segments along the route. It also reports on how the results of those analyses are used to determine level of service, need for improvement and assists in prioritization of projects. *For the corridor, levels of service for the build year (2005) traffic were found to vary from A to D in the rural areas and B to E in the urban areas.*

The Line and Grade Study is that portion of the project that brings together the recommended improvements based on the data and results generated from the other tasks described. This section describes how the layout of the proposed improvements is arrived at both horizontally and vertically. It tells how the various items such as environmental factors, design deficiencies and traffic service are assimilated to determine the best alternative for further study.

Location Studies for Many and Jena were developed for these two communities. Alternative alignments to the existing corridor were identified and evaluated to determine a preferred route. Traffic studies were performed and detailed data was analyzed in this process. *For Many, Alternative 1 – "In Town Urban Couplet" was identified as the preferred alternative. For Jena, Alternative 2 – "South Urban Couplet" was identified as the preferred alternative.*

Logical Project Termini were determined for individual projects throughout the corridor. Based on this determination, the proposed projects are used throughout the Report as a basis for development of priorities and determination of reasonable funding schemes. *There were 27 individual projects identified: 8 in Sabine Parish, 6 in Natchitoches Parish, 6 in Winn Parish and 7 in LaSalle and Catahoula Parishes.*

Conceptual Project Cost Estimates were generated for all projects throughout the corridor. Items such as roadway and bridge construction costs, right-of-way and relocation costs and other miscellaneous costs were included. *The total Conceptual Project Costs for the "Needs Basis" Alternative is $160,070,000 and for the "Ultimate" Alternative is $484,030,000. For a summary of component project costs for the "Needs Basis" Alternative see Table 1. For a summary of component project costs for the "Ultimate" Alternative see Table 2.*

Prioritization of Proposed Projects was performed for the "Ultimate" four or five-lane alternative, and was a key task requested by the El Camino East-West Corridor Commission. Using five factors, the individual projects were grouped into *five (5) classifications or tiers.* Each tier was developed to consist of approximately the same total project cost ($80 - $100 million), thereby representing reasonable levels of funding. These tiers included all 27 proposed construction projects. In *Tier I or highest priority, there are five projects with at least one being from each of the parishes along the route.*

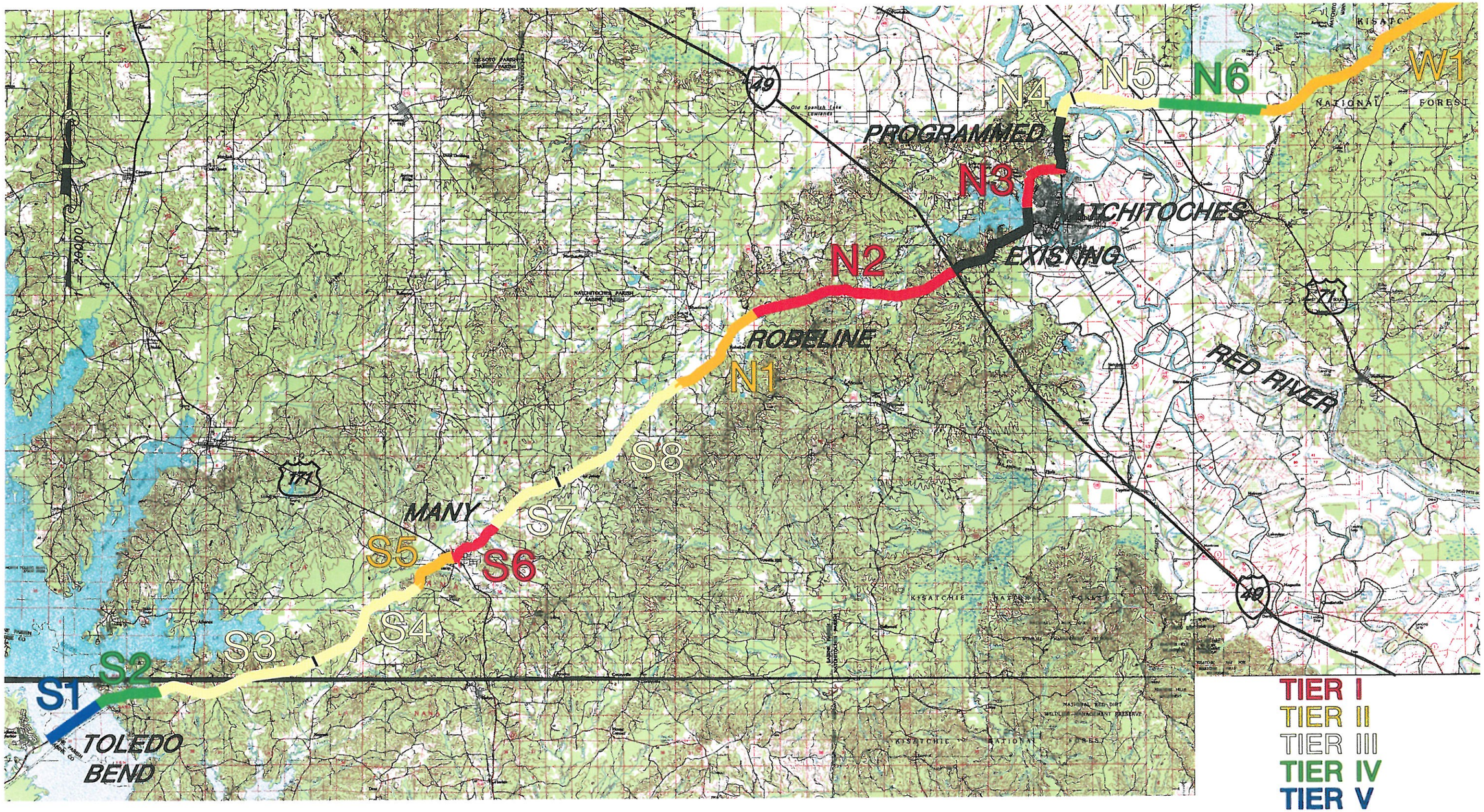
Table 1
Conceptual Project Costs – Highway Needs Basis Alternative

Project	Description	Project Length	Roadway Construction Costs	Bridge Construction Costs	Right-of-Way Costs	Relocation Costs	Utility Relocation Costs	Legal/Admin./Engineering Costs	Contingencies	Total Conceptual Project Costs		2005 Existing Level of Service (LOS)	Recommended Improvements
S1	Toledo Bend Bridge	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
S2	Toledo Bend to Before LA 191	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
S3	Before LA 191 to Before LA 476	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
S4	Before LA 476 to before Creek	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
S5	Before Creek to US 171 Jct. (Many)	0.48	$1,529,000	$4,007,000	$265,000	$85,000	$167,000	$665,000	$538,000	$7,260,000		E	Expand to 5-Lane Urban Section
S6	US 171 Jct. (Many) to just past Phillips Creek	2.59	$8,215,000	$864,000	$59,000	$1,290,000	$273,000	$1,090,000	$944,000	$12,740,000		E	Expand to 4/5-Lane Sections
S7	Past Phillips Creek to LA 3118	2.86	$4,503,000	$0	$70,000	$1,630,000	$136,000	$541,000	$551,000	$7,430,000		D	Expand to 4-Lane Rural Section
S8	LA 3118 to Parish Line	5.84	$11,341,000	$557,000	$140,000	$2,525,000	$357,000	$1,428,000	$1,308,000	$17,660,000		D	Expand to 4-Lane Rural Section
SABINE PARISH TOTAL		***11.78***	***$25,588,000***	***$5,428,000***	***$534,000***	***$5,530,000***	***$933,000***	***$3,724,000***	***$3,341,000***	***$45,090,000***		***SABINE PARISH TOTAL***	
N1	Parish Line (through Robeline) to past LA 485	0.15	$224,000	$0	$60,000	$0	$7,000	$27,000	$26,000	$350,000		D	Expand to 4-Lane Rural Section
N2	Past LA 485 (through Hagewood) to before I-49	8.11	$13,007,000	$246,000	$783,000	$3,725,000	$398,000	$1,591,000	$1,580,000	$21,330,000		D	Expand to 4/5-Lane Sections
N3	Natchit. Bypass (LA 1/LA 6 & LA 3175/LA 6)	0.00	$0	$0	$0	$0	$0	$0	$0	$0		B	
N4	Red River Bridge	0.88	$1,743,000	$24,803,000	$4,000	$0	$200,000	$3,186,000	$2,395,000	$32,330,000		D	Expand to 5-Lane Urban Section
N5	Red River to east of US 71 / US 84	2.98	$6,568,000	$8,332,000	$52,000	$1,775,000	$447,000	$1,788,000	$1,517,000	$20,480,000		D	Expand to 4/5-Lane Sections
N6	East of US 71 / US 84 to Parish Line	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
NATCHITOCHES PARISH TOTAL		***12.11***	***$21,542,000***	***$33,381,000***	***$899,000***	***$5,500,000***	***$1,052,000***	***$6,592,000***	***$5,518,000***	***$74,490,000***		***NATCHITOCHES PARISH TOTAL***	
W1	Parish Line to Gravel Creek	3.13	$6,622,000	$1,774,000	$36,000	$0	$252,000	$1,008,000	$776,000	$10,470,000		C	Rebuild 2-Lane Rural Sections
W2	Gravel Creek to before Winnfield City Limits	4.41	$8,382,000	$129,000	$47,000	$0	$256,000	$1,022,000	$787,000	$10,630,000		C	Rebuild 2-Lane Rural Sections
W3	Before Winnfield City Limits to US 167	0.00	$0	$0	$0	$0	$0	$0	$0	$0		B	
W4	US 167 to Joyce (KCS RR)	1.74	$3,987,000	$2,523,000	$45,000	$975,000	$196,000	$782,000	$681,000	$9,190,000		D	Expand to 4/5-Lane Sections
W5	Joyce to Piney Woods Creek	4.50	$1,903,000	$0	$26,000	$0	$58,000	$229,000	$178,000	$2,400,000		B	Upgrade Existing Shoulders
W6	Piney Woods Crk to Castor Crk (Parish Line)	0.71	$300,000	$0	$5,000	$0	$9,000	$36,000	$28,000	$380,000		B	Upgrade Existing Shoulders
WINN PARISH TOTAL		***14.50***	***$21,194,000***	***$4,426,000***	***$159,000***	***$975,000***	***$771,000***	***$3,077,000***	***$2,450,000***	***$33,070,000***		***WINN PARISH TOTAL***	
L1	Castor Creek to east of US 165	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
L2	East of US 165 to Bayou Funny Louis	3.60	$5,951,000	$0	$26,000	$0	$179,000	$715,000	$550,000	$7,420,000		C	Rebuild 2-Lane Rural Sections
L3	Bayou Funny Louis to before LA 772	0.00	$0	$0	$0	$0	$0	$0	$0	$0		C	
L4	Before LA 772 to Hair Creek (Jena)	0.00	$0	$0	$0	$0	$0	$0	$0	$0		B	
L5	Hair Creek to LA 460 / LA 8	0.00	$0	$0	$0	$0	$0	$0	$0	$0		B	
L6	LA 460 / LA 8 to Parish Line	0.00	$0	$0	$0	$0	$0	$0	$0	$0		B	
C1	Parish Line to LA 28	0.00	$0	$0	$0	$0	$0	$0	$0	$0		B	
LASALLE & CATAHOULA PARISH TOTAL		***3.60***	***$5,951,000***	***$0***	***$26,000***	***$0***	***$179,000***	***$715,000***	***$550,000***	***$7,420,000***		***LASALLE & CATAHOULA PARISH TOTAL***	
El CAMINO EAST WEST CORRIDOR TOTAL		**41.99 Miles**								**$160,070,000**			

Table 2
Conceptual Project Costs – Ultimate Roadway Section Alternative

Project	Description	Project Length	Roadway Construction Costs	Bridge Construction Costs	Right-of-Way Costs	Relocation Costs	Utility Relocation Costs	Legal/Admin /Engineering Costs	Contingencies	Total Conceptual Project Costs		2025 Ultimate Level of Service (LOS)	Relative Environmental Impact	Prioritization Tier
S1	Toledo Bend Bridge	2.50	$0	$52,874,000	$0	$0	$300,000	$6,345,000	$4,762,000	$64,290,000		A	Low	V
S2	Toledo Bend to Before LA 191	2.47	$3,876,000	$1,087,000	$48,000	$585,000	$149,000	$596,000	$508,000	$6,850,000		A	Low	IV
S3	Before LA 191 to Before LA 476	6.09	$8,345,000	$0	$101,000	$2,260,000	$251,000	$1,002,000	$957,000	$12,920,000		A	Low	III
S4	Before LA 476 to before Creek	5.25	$7,259,000	$616,000	$85,000	$1,585,000	$237,000	$945,000	$859,000	$11,590,000		A	Medium	III
S5	Before Creek to US 171 Jct. (Many)	1.71	$4,139,000	$4,731,000	$1,014,000	$85,000	$267,000	$1,065,000	$904,000	$12,210,000		C	High	II
S6	US 171 Jct. (Many) to just past Phillips Creek	2.57	$8,215,000	$1,110,000	$59,000	$1,290,000	$280,000	$1,119,000	$966,000	$13,040,000		C	High	I
S7	Past Phillips Creek to LA 3118	2.86	$4,503,000	$0	$70,000	$1,630,000	$136,000	$541,000	$551,000	$7,430,000		A	Medium	III
S8	LA 3118 to Parish Line	5.96	$11,496,000	$557,000	$142,000	$2,525,000	$362,000	$1,447,000	$1,323,000	$17,850,000		A	High	III
SABINE PARISH TOTAL		***29.41***	***$47,833,000***	***$60,975,000***	***$1,519,000***	***$9,960,000***	***$1,982,000***	***$13,060,000***	***$10,830,000***	***$146,180,000***	***SABINE PARISH TOTAL***			
N1	Parish Line (through Robeline) to past LA 485	4.12	$9,226,000	$889,000	$48,000	$1,215,000	$304,000	$1,214,000	$1,032,000	$13,930,000		A	Medium	II
N2	Past LA 485 (through Hagewood) to before I-49	8.28	$13,599,000	$246,000	$784,000	$3,725,000	$416,000	$1,662,000	$1,635,000	$22,070,000		B	High	I
N3	Natchit. Bypass (LA 1/LA 6 & LA 3175/LA 6)	2.54	$8,461,000	$5,860,000	$350,000	$0	$430,000	$1,719,000	$1,346,000	$18,170,000		B	Low	I
N4	Red River Bridge	0.88	$1,743,000	$24,803,000	$4,000	$0	$200,000	$3,186,000	$2,395,000	$32,330,000		A	Low	III
N5	Red River to east of US 71 / US 84	3.25	$6,568,000	$8,332,000	$52,000	$1,775,000	$447,000	$1,788,000	$1,517,000	$20,480,000		A	High	III
N6	East of US 71 / US 84 to Parish Line	4.52	$6,367,000	$523,000	$68,000	$675,000	$207,000	$827,000	$694,000	$9,360,000		A	Medium	IV
NATCHITOCHES PARISH TOTAL		***23.59***	***45,964,000.00***	***$40,653,000***	***$1,306,000***	***$7,390,000***	***$2,004,000***	***$10,396,000***	***$8,619,000***	***$116,340,000***	***NATCHITOCHES PARISH TOTAL***			
W1	Parish Line to Gravel Creek	8.52	$22,127,000	$2,134,000	$240,000	$1,075,000	$728,000	$2,912,000	$2,338,000	$31,560,000		A	High	II
W2	Gravel Creek to before Winnfield City Limits	9.09	$21,534,000	$489,000	$265,000	$150,000	$661,000	$2,643,000	$2,060,000	$27,800,000		A	High	II
W3	Before Winnfield City Limits to US 167	2.03	$6,744,000	$1,003,000	$35,000	$0	$233,000	$930,000	$716,000	$9,660,000		B	High	I
W4	US 167 to Joyce (KCS RR)	2.37	$6,025,000	$2,523,000	$55,000	$975,000	$257,000	$1,026,000	$869,000	$11,730,000		A	High	I
W5	Joyce to Piney Woods Creek	8.09	$13,978,000	$1,493,000	$174,000	$1,735,000	$465,000	$1,857,000	$1,576,000	$21,280,000		A	Medium	IV
W6	Piney Woods Crk to Castor Crk (Parish Line)	9.06	$13,376,000	$869,000	$207,000	$225,000	$428,000	$1,710,000	$1,346,000	$18,160,000		A	Medium	IV
WINN PARISH TOTAL		***39.16***	***$83,784,000***	***$8,511,000***	***$976,000***	***$4,160,000***	***$2,772,000***	***$11,078,000***	***$8,905,000***	***$120,190,000***	***WINN PARISH TOTAL***			
L1	Castor Creek to east of US 165	1.82	$4,700,000	$4,860,000	$31,000	$150,000	$287,000	$1,148,000	$894,000	$12,070,000		A	Medium	IV
L2	East of US 165 to Bayou Funny Louis	9.02	$18,009,000	$578,000	$209,000	$906,000	$558,000	$2,231,000	$1,800,000	$24,290,000		A	Medium	IV
L3	Bayou Funny Louis to before LA 772	2.14	$3,906,000	$986,000	$52,000	$450,000	$147,000	$587,000	$491,000	$6,620,000		A	Low	IV
L4	Before LA 772 to Hair Creek (Jena)	5.86	$18,383,000	$1,131,000	$1,031,000	$485,000	$586,000	$2,342,000	$1,917,000	$25,880,000		C	Low	I
L5	Hair Creek to LA 460 / LA 8	5.25	$7,064,000	$296,000	$129,000	$1,980,000	$221,000	$884,000	$846,000	$11,420,000		A	Medium	V
L6	LA 460 / LA 8 to Parish Line	3.61	$6,684,000	$3,401,000	$59,000	$0	$303,000	$1,211,000	$933,000	$12,590,000		A	Low	V
C1	Parish Line to LA 28	1.96	$4,278,000	$2,491,000	$33,000	$0	$204,000	$813,000	$626,000	$8,450,000		A	Low	IV
LASALLE & CATAHOULA PARISH TOTAL		***29.65***	***$63,024,000***	***$13,743,000***	***$1,544,000***	***$3,971,000***	***$2,306,000***	***$9,216,000***	***$7,507,000***	***$101,320,000***	***LASALLE & CATAHOULA PARISH TOTAL***			
EL CAMINO EAST-WEST CORRIDOR TOTAL		**121.81 Miles**								**$484,030,000**				

FIGURE 1



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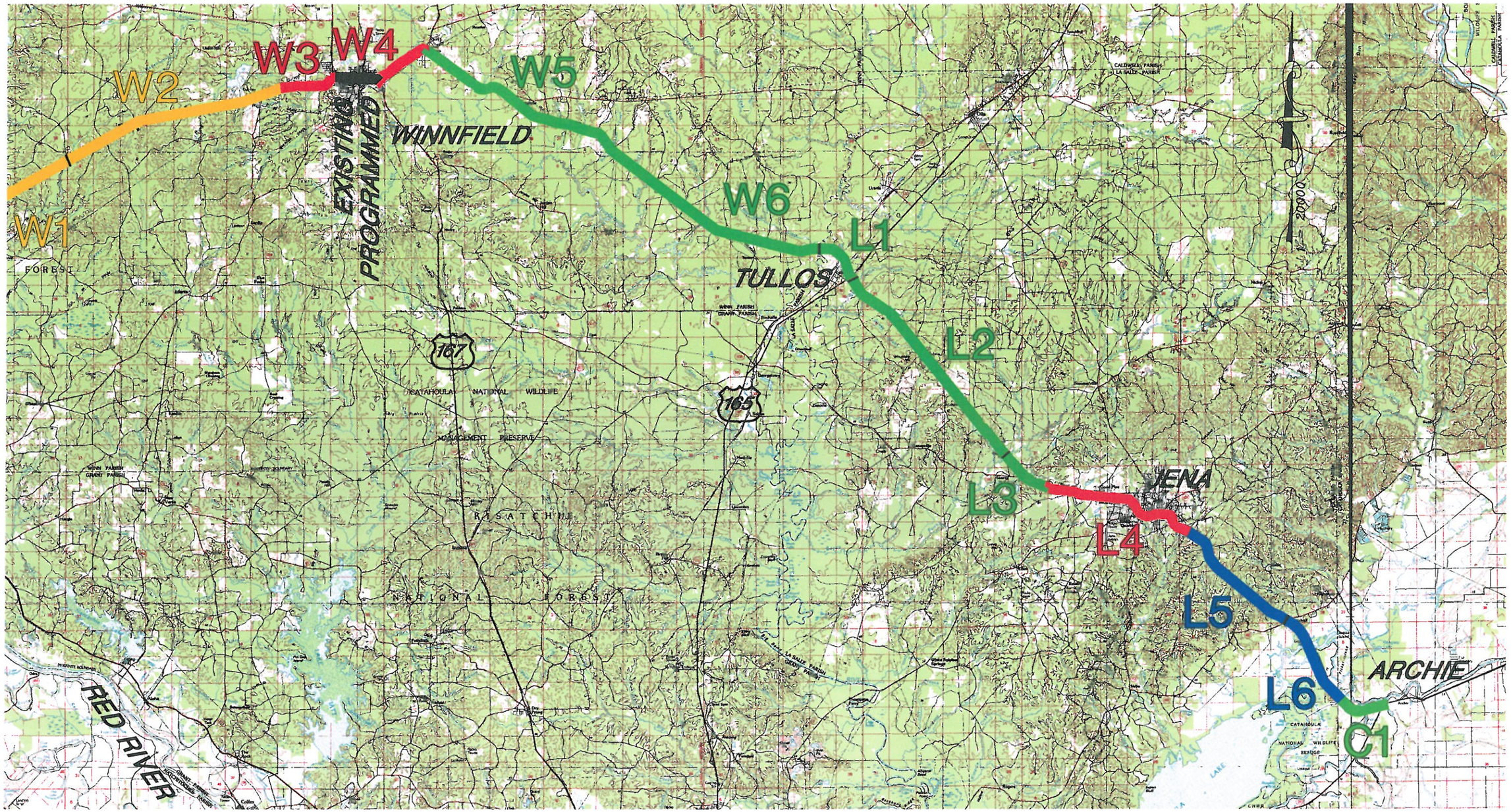
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

PROJECT LAYOUT AND PRIORITIZATION MAP LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA ROUTES LA 6 AND US 84

FIGURE 2



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CHAPTER I
INTRODUCTION

A. BACKGROUND

The El Camino Real Para De Los Tejas (The Royal Road to Texas) trail is one of several historic trails established during the developmental years of the United States and Mexico. The trail served as an east-west corridor through what is now the southeastern part of the United States, extending from near Brunswick, Georgia to El Paso, Texas. During its development, several towns and communities blossomed due to the economic and cultural resources which it provided.

In Louisiana, the El Camino corridor extends from the Toledo Bend Reservoir in Sabine Parish and runs eastward to the town of Vidalia in Concordia Parish and covers approximately 165 miles of roadway (see Figure I-1). It is carried by Louisiana Highway 6 from the Texas State Line to the town of Clarence in Natchitoches Parish, and continues eastward by way of US Highway 84 from Clarence to the Mississippi State Line. The parishes of Sabine, Natchitoches, Winn, LaSalle, Catahoula and Concordia are served by the existing two-lane rural highway.

The economic development and population growth along the El Camino corridor has declined in the past few decades due to the development of the high-speed multi-lane interstate system. A group of business and community leaders along the corridor have formed the "Five State El Camino East-West Corridor Commission" in efforts to redevelop economic growth along the corridor. The commission, which is represented by members from Texas, Louisiana, Mississippi, Alabama and Georgia, has deemed that the principal approach to corridor redevelopment includes expanding the existing highway to a four-lane rural arterial. Of the 1,700 miles of the corridor, approximately 75% is already four-laned or is funded for four-laning. However, this includes approximately 35 miles in Louisiana.

As part of the program proposed by the Five State El Camino East-West Corridor Commission in conjunction with the Louisiana El Camino East-West Corridor Commission, Sigma Consulting Group, Inc., in association with Arcadis G&M, Inc., was selected by the Louisiana Department of Transportation and Development to conduct a Master Plan Study for the corridor through the State of Louisiana.

B. STUDY GOALS AND OBJECTIVES

The intent of this Study is to establish the conceptual design and determine the associated environmental, social and technical benefits and impacts created by improving the existing corridor. The standard roadway improvements contemplated are a four-lane divided highway section in rural areas and a four or five-lane arterial roadway section in developed areas. In addition, the study will determine conceptual project costs, establish logical construction project segments and prioritize project segments to assist in future implementation.

The Existing System

Currently, a majority of the existing El Camino East-West Corridor along LA Hwy. 6 and US Hwy. 84 consists of a two-lane rural highway. Segments within the Cities of Natchitoches and Winnfield have been upgraded to four or five lanes, which makes them compatible with the proposed improvements under study in this report. Therefore, these segments are not included in the scope of this Study.

Programmed Improvements

Programmed improvements are those projects that have funding identified by LaDOTD and are included in their long term project development program. These projects are either under construction or have a set construction letting date within the next several years.

Currently, there is one segment in Natchitoches and one segment in Winnfield that are programmed by LaDOTD. Also, LaDOTD has programmed all two lane segments from the junction of US Hwy. 84 and LA Hwy. 28 in Catahoula Parish eastward to the existing four lane sections near Ferriday. Since all of these segments are programmed for improvement, they are not included in the scope of this Study.

The combination of existing four and five lane sections along with the currently committed sections totals approximately 35 miles within Louisiana. This leaves approximately 130 miles of two-lane highway along the corridor. It is these segments that are being studied in this report.

Proposed Improvements

Sigma Consulting Group, Inc. was tasked by LaDOTD to study the El Camino East-West Corridor for two basic cases: the "Needs Basis" Alternative and the "Ultimate" Four or Five-Lane Alternative. Throughout this report, reference will be made to either one or the other of these alternatives. The following is an explanation of each:

"Needs Basis" Alternative

This alternative generates recommended improvements per roadway segment with associated costs and impacts based on generally accepted engineering practice. Items considered that can generate a recommended improvement for the "Needs Basis" Alternative include traffic service, geometric deficiencies (both horizontal and vertical) or section deficiencies such as narrow lanes or insufficient shoulders. The "Needs Basis" Alternative does not take into account system-wide development or other items that may influence the decision to upgrade a segment in the corridor such as roadway section consistency, driver expectation or economic development.

Sigma generated recommended "Needs Basis" improvements throughout the corridor, along with associated conceptual costs, benefits and impacts. However, based on our scope of work, Sigma did not develop a prioritization process for the "Needs Basis" Alternatives.

"Ultimate" Four or Five-Lane Alternative

This alternative generates recommended improvements that will upgrade the entire corridor to a four or five-lane highway. It has been a major goal of the Five State El Camino East-West Corridor Commission to develop the entire route into a four-lane multi-state highway system to enhance mobility and promote economic development in the region. The "Ultimate" Alternative reported in this Study addresses this regional and multi-state consideration for system continuity within Louisiana.

For those project segments where the "Needs Basis" Alternative recommends a four or five-lane improvement, the "Ultimate" Alternative improvement is the same. In addition, the "Ultimate" Alternative provides the impacts, benefits and conceptual costs for the four-laning of those segments not developed in the "Needs Basis" Alternative. The scope of work for this Study provides for the development of a prioritization process to help determine the relative importance of the proposed construction projects for the "Ultimate" Four or Five-Lane Alternative.

C. STUDY LAYOUT

It is intended that this Study be informative, technically accurate and easy to understand. As a key component to good planning, it is important that this Study contain background data, preliminary engineering and environmental determinations and reference material that can be useful in the more detailed preconstruction activities necessary to fully implement this project. To that end, we have developed a structure and layout for this report that is easy to follow and provides data and results in a concise fashion. The Study is broken down into three basic components: the study process, the study results and recommendations, and background data listed in the appendices.

Study Process

This Study component is comprised of Chapters II through IX. In these chapters, the methods and processes used to develop the data and results in the Study are discussed. Generally, each chapter discusses broad areas of study as defined in the original scope of work for the project. Discussion involves the background of each major item, the process the Project Team went through to develop the basis for analysis, and the general engineering and environmental criteria applied to generate the results and recommended improvements reported later in the Study. The following is a brief description of the major items detailed in the scope of work that are addressed in the Study process:

Project Administration, Data Collection and Information Management

These items deal with the administration of the project from a coordination and management viewpoint. Tasks such as project scheduling, project team meetings, El Camino East-West Corridor Commission meetings and interaction with interested parties are covered under these items. In addition, the methods and processes used to gather data, research records and solicit information from public and private sources were developed under these items. There were over 60 solicitations sent out to interested Federal, State and Local Governmental agencies, public utilities and private companies affected by the proposed improvements.

All contact information was incorporated into an interactive database that contains contact information such as name, address, position, etc. along with a log of contact interaction conducted throughout the Study process. All pertinent graphic data such as social, human and environmental constraints were incorporated into a geographic information system (GIS) that was maintained throughout the Study process. The GIS allowed for interactive real time comparison and analysis of all spatial data acquired during the Study process. Also, this data was visually assessed by overlaying it upon aerial photography flown specifically for this project.

Design Criteria and Typical Sections (See Chapter II)

This task involved the development of applicable design criteria necessary to perform a thorough analysis of the existing corridor and to develop reasonable improvement recommendations. Items considered under this task include horizontal and vertical geometrics, traffic demand requirements, drainage issues, bridge design issues, railroad crossings and right-of-way requirements for each roadway classification. It is important to develop acceptable design criteria for all roadway types anticipated to maintain continuity throughout the corridor and to assist in generating accurate conceptual construction cost estimates. Planning level typical sections were developed based on the design criteria to graphically represent the proposed roadway requirements throughout the corridor. These typical sections may be used as a base for future preconstruction efforts for this project.

Environmental Inventory (See Chapter III)

This task involved the collection and inventory of existing environmental data along the corridor that may affect the future development of this project. Items considered include natural, social and historic constraints. It was not within the scope of this Study to perform an Environmental Assessment. However it is anticipated that the data and results generated under this task may be used in the future if necessary for more in-depth environmental work for this project.

Human and Natural Enhancements (Chapter IV)

These tasks addressed issues regarding the human and natural enhancements related to highway improvements. As infrastructure development processes have evolved over the last few decades, it has become increasingly important to address items such as landscaping, natural habitat preservation and incorporating various supplemental human design features such as bicycle paths and pedestrian walkways. This section describes reasonable processes and procedures that could be implemented, along with alternatives that would be compatible with the development of the El Camino East-West Corridor. In addition, historic data and possible funding sources are also addressed.

Traffic Analysis (Chapter V)

This task describes how traffic data and analysis are taken into account in the highway planning process. It deals with sources of existing traffic data and methods of analysis for both rural and urban segments along the route. It also reports on how the results of those analyses are used to determine level of service, need for improvement and assists in prioritization of projects.

Limited Line and Grade Study (Chapter VI)

The Line and Grade Study is that portion of the project that brings together the recommended improvements based on the data and results generated from the other tasks described. This section describes how the layout of the proposed improvements is arrived at both horizontally and vertically. It tells how the various items such as environmental factors, design deficiencies and traffic service are assimilated to determine the best alternative for further study. Also described in this section is the presentation of the Line and Grade results both in tabular, plan and profile formats.

Logical Project Determination (Chapter VII)

This section describes the methods used to determine logical terminus points for reasonable proposed construction projects. Based on this determination, the proposed projects are used throughout the Study as a basis for development of priorities and determination of reasonable funding schemes.

Conceptual Project Cost Estimates (Chapter VIII)

This section describes the basis for all project costs developed in the Study. Discussed are items such as roadway and bridge construction costs, right-of-way and relocation costs and other costs that are components of the overall conceptual project costs. In addition, the unit prices used to generate the various cost components are explained and the historic data used to generate them is documented.

Prioritization of Proposed Projects (Chapter IX)

Prioritization of the proposed projects for the "Ultimate" four or five-lane alternative was a key task requested by the El Camino East-West Corridor Commission. It is important that the proposed projects generated in the Logical Project Determination process be relatively prioritized to assist in developing a well founded and structured implementation plan for the entire corridor within Louisiana. This section describes the multi-tiered prioritization process developed for this Study.

Study Results and Recommendations

Limited Line and Grade Study Results (Chapters X through XIII)

These Chapters are separated by parish starting with Sabine (Chapter X) followed by Natchitoches (Chapter XI) then Winn (Chapter XII) and finally a combination of LaSalle and Catahoula (Chapter XIII). The parish chapters are further separated into subsections that report on each proposed construction project within that parish. Each subsection within each parish chapter fully discusses all proposed improvements, impacts, benefits, conceptual costs and prioritization issues in a concise fashion for each project. Each pertinent issue discussed in the Study process chapters (Chapters II through IX) is addressed in order for each project subsection. It is the intent of this Study that all pertinent information for a specific proposed project may be found under its subsection within the appropriate parish chapter. In addition, pertinent information such as conceptual project costs, impacts and prioritization issues is summarized per Parish at the end of each Chapter.

Location Studies for Many and Jena (Chapters XIV and XV)

The developed communities of Many and Jena were identified for detailed study for this project. Alternative alignments to the existing corridor were identified and evaluated to determine a preferred route. These two chapters describe the data and results generated from the Location Studies performed for Many and Jena respectively. The general outline for these chapters is similar to the subsections for each proposed project in the parish chapters. However, more detailed data is provided for each alternative studied. At the end of each chapter is a summary of pertinent information such as conceptual costs, impacts and benefits for each alternative.

Appendices

The appendices include the planning level drawings that graphically represent the proposed improvements generated from this Study. Also included is pertinent backup data and references.

Appendix A

Appendix A consists of 1"=1000' scale drawings showing the plan layout of proposed improvements along with major landmarks and socially and environmentally significant items. These items are superimposed on color aerial photographic plates acquired by the LaDOTD Photogrammetry Section and georeferenced by Sigma in 2001.

Appendix B

Appendix B is made up of preliminary profiles at 1"=1000' horizontal and 1"=100' vertical scale. These profiles correspond with the appropriate plan drawings in Appendix A.

Appendix C

Appendix C consists of 1"=200' scale enlarged planning drawings showing the alternatives studied in the Many and Jena Location Studies.

Appendices D and E

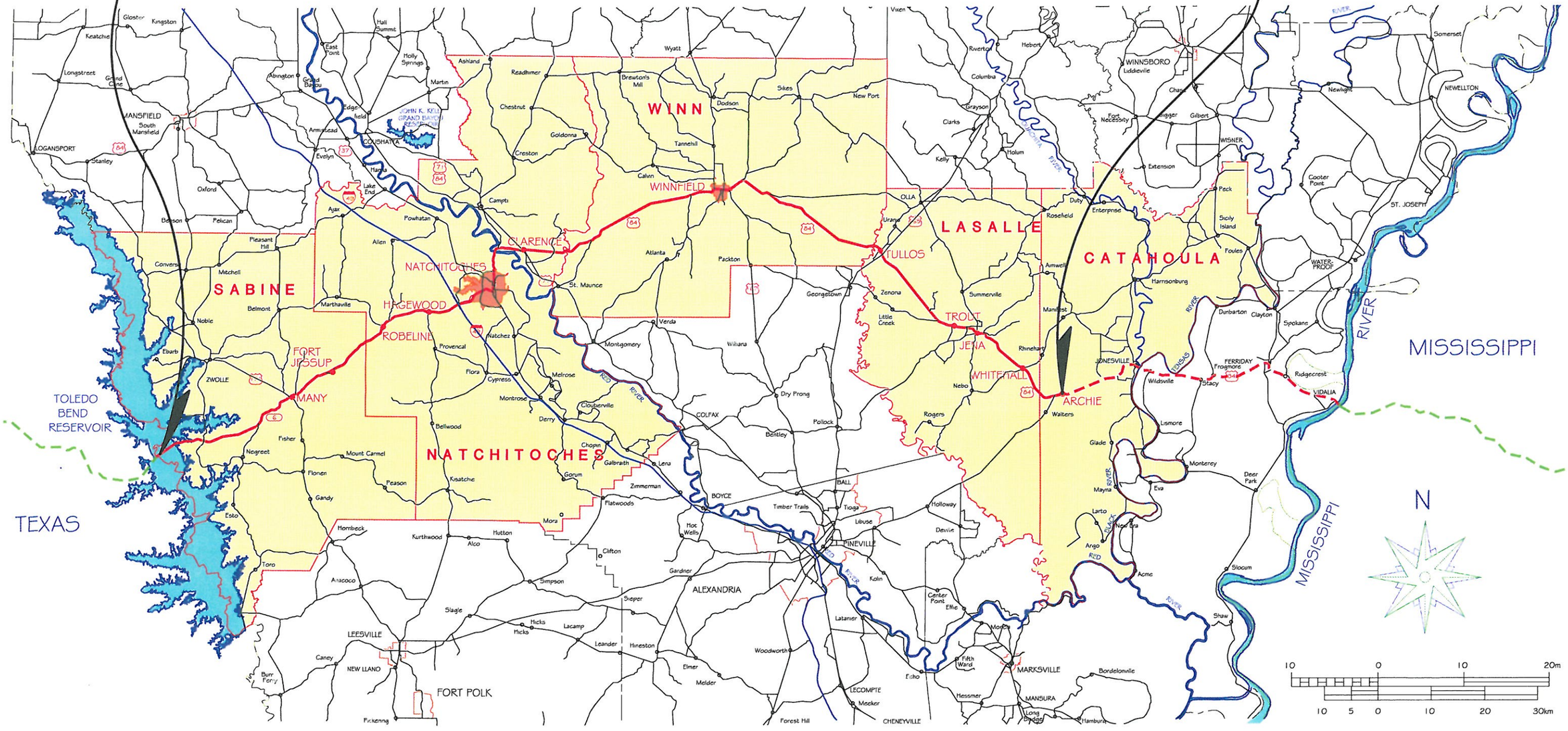
Appendix D shows in tabular form social, environmental and traffic backup data generated during the preparation of the Study.

Appendix E is the bibliography and list of references used in the preparation of this document.

FIGURE I-1

BEGIN PROJECT
S.P. 700-99-0241

END PROJECT
S.P. 700-99-0241



Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:

LOUISIANA ON THE MOVE. DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

CORRIDOR LOCATION MAP
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

CHAPTER II
DESIGN CRITERIA

A. INTRODUCTION

To ensure that the El Camino East-West Corridor conforms to current transportation system design standards, the following design criteria were established. Utilizing current consistent design criteria during the planning process is important for several reasons. These criteria establish how the project will be developed in the later stage of project implementation. They also maintain consistency throughout the corridor thereby increasing safety by addressing driver expectations. Also, it is important to establish proper criteria so accurate conceptual project costs can be developed and the prioritization of individual projects throughout the corridor can be addressed.

These criteria were derived from various sources. These sources include the American Association of State Transportation Officials (AASHTO) publications *A Policy on Geometric Design of Highways and Streets, Roadside Design Guide* and *Standard Specifications for Highway Bridges*. Other sources include LaDOTD adopted "Geometric Design Criteria", *Hydraulics Manual* and *Plan Preparation Manual*. Generally all design criteria presented here are in compliance with the current adopted standards and policies of LaDOTD.

The El Camino East-West Corridor under study here is classified as either a rural or urban arterial depending on adjacent land use and development. Standards for each are identified in this chapter. These standards were used to identify existing deficiencies along the corridor, establish new alignments where necessary, and to develop conceptual project costs associated with each classification.

B. GEOMETRIC DESIGN CRITERIA

For the purposes of this Study, we have developed design standards for two types of roadways: rural and urban. The rural design standards were subdivided into three basic roadway sections that fit particular construction type conditions:

RA-1, Two Lane Rural Arterial - These design standards were used to identify any existing substandard two-lane roadway segments. For a representative typical section of this roadway type see Figures II-1 and II-2.

RA-3, Four Lane Rural Arterial (two-lane expansion) - These standards were used at locations where the existing roadway segments meet or exceed the RA-1 standards and two new travel lanes will be added to one side of the existing roadway. For a representative typical section of this roadway type see Figure II-3.

RA-4, Four Lane Rural Arterial (new construction) - These standards were used at locations where the existing alignment will be abandoned in favor of a new alignment and four new travel lanes will be constructed. For a representative typical section of this roadway type see Figure II-4.

The urban typical section used for this project differs from the rural typical sections in that curbs are provided on the outside edge of the travel lanes and subsurface drainage is generally used instead of roadside ditches. Only one standard for urban arterials applies to this Study:

UA-2, Urban Arterial (five-lane and couplet) - The urban five-lane design criteria is used at locations where adjacent development is relatively dense and demand for left turn movements is high. This section essentially has four-lane capacity with an additional continuous left turn lane in the center. These design standards will also be applied to urban couplet sections. The couplet is used where two one-way, two-lane roads separated by one city block will be used together to provide four lane capacity in an urban setting. For a representative typical section of the five-lane arrangement see Figure II-5 and for a representative typical section of the urban couplet see Figure II-6.

The geometric design standards for each of these roadway types are shown in Table II-1. This table includes minimum right-of-way requirements, design speeds, shoulder widths, and other important geometric requirements used for establishing acceptable alignments for the study and for determining deficiencies in the geometry of the existing El Camino (LA 6/US 84) East-West Corridor.

C. DRAINAGE DESIGN CRITERIA

Drainage facilities will generally be designed to aid in the removal of storm water runoff from the roadway and nearby properties. Analysis of existing drainage structures and design is not within the scope of this Study. Therefore, all existing drainage structures are assumed adequate. Hydraulic and scour analysis of bridges were not conducted.

The design standards used are based on information provided in the *LaDOTD Hydraulics Manual*

Design Storm Event: *[Hydraulics Manual pg. 9]*

- Bridges — 50-year return interval
- Cross drains — 50-year return interval
- Median Drains — 10-year return interval *[Hydraulics Manual pg. 67]*
- Subsurface Drainage System — 10-year return interval
- Side Drains — 5-year return interval *[Hydraulics Manual pg. 63]*

Computational Method To Determine Runoff: *[Hydraulics Manual pg. 9]*

- Cross Drains & Bridges
  - Drainage Area of 2000 acres to 3000 square miles - United States Geological Survey (USGS) Procedure
  - Drainage Area of 2000 acres or less — Soil Conservation Service (SCS) Procedure
- Median Drains — Rational Method (Q = CIA)
- Subsurface Drainage Systems — Rational Method (Q = CIA)

Roadway Hydraulic Clearances: *[Hydraulics Manual pg. 46-47, 48A]*

- Roadway Grade
  The lowest edge of the new finished pavement surface should be at least 2 feet above 50-year flood or record inundation *[Roadway Plan Preparation Manual pg. 3-58]*

- Cross Drains - Rural (rolling land, agricultural, subject to limited development)
  Allowable Headwater (AHW) elevation should be at least one foot below the lowest elevation of the roadway but may not exceed the following elevation: Flow line elevation + height of structure opening + 3 ft.

- Cross Drains - Flat Rural (some existing development and more expected) and Urban areas
  Allowable Differential Headwater (ADH) elevation ranges from 0.5 feet to 1.0 feet depending on terrain

- Cross Drains - Hilly Urban Areas
  Allowable Differential Head elevation ranges from 0.5 feet to 2.0 feet

- Subsurface Drainage Systems
  A minimum clearance of 9 inches shall be maintained between the top of the pipe and the lowest part of the subgrade. Minimum clearance should be increased to 12 inches for pipes of 90 inches and greater in diameter. *[Hydraulics Manual pg. 117]*

D. BRIDGE DESIGN CRITERIA

All bridge and major drainage structures along the corridor were identified and evaluated for a variety of physical, geometric and structural criteria. The geometric design criterion is generally applicable for the bridges as well as the roadway sections, with the following additional criteria.

The bridge structures may be deemed structurally or functionally inadequate if they fail any of the following criteria:

- Condition Rating - The latest *LaDOTD Bridge Maintenance Reports* were reviewed. A deficient rating was assumed to be a value of 4 or less and is defined by National Bridge Inventory instructions as "Poor Condition – advanced section loss, deterioration, spalling or scour."

- Structural Capacity – If the structure has a posted load limit or was originally designed for less than a HS-20 design vehicle, it shall be deemed deficient.

- Age – Since most bridge structures are intended to have a 50-year design life (although many perform well past this), any structure constructed prior to 1956 will be deemed functionally obsolete.

If a structure exceeds the above requirements, it must still have the structural components necessary to be widened to the minimum section per Table II-1. Some span types such as high level structures and other non-redundant steel systems such as link/hanger assemblies are not capable of being widened and must be replaced.

Once it is decided that a structure can be widened to the required section, it is projected to remain in use either as a two directional, two-lane structure, or as a one-way, two-lane structure with a new twin two-lane structure being constructed adjacent. If the structure was deemed deficient in any of the above criteria or unable to be widened, the structure is to be replaced with two (2) new 40-foot twin structures.

The design of proposed bridge structures is governed by the current *Standard Specifications for Highway Bridges* adopted by AASHTO and the LaDOTD *Bridge Design Manual*.

Loading: *[Bridge Design Manual pg. 3(36)]*

- Design Dead Load: Calculated weight of structure plus 12 psf future wearing surface.

- Design Live Load: AASHTO HS20 Truck or Lane Load, or HST-18 Truck Load, whichever governs.

Finish Grade Elevation and Clearances: In general, finish grades of bridges should be set based upon the feature being crossed, with the following criteria as a guide:

- Stream Crossings
  If debris is a consideration, the finish grade should be set to provide two (2) feet of freeboard between the bottom of the lowest structural member and the design year flood elevation. The lowest member should clear the 100 year flood elevation by one (1) foot.

  If debris is not a consideration, the finish grade should provide one (1) foot of freeboard between the lowest member and the design year flood elevation. The lowest member should be above the 100 year flood elevation.

  Highway structures above streams will be constructed with the necessary span and sufficient height to provide an adequate waterway opening for a 50-year design storm.

- Roadway Grade Separations *[Bridge Design Manual pg. 3(21)]*
  Horizontal clearances shall be based upon the design criteria of the crossed roadway. (i.e. a RA-4 section requires a minimum of 34 feet from the edge of the travel lane to an obstruction such as a bridge column support.)

  The vertical clearance must be a minimum of 16'-6" from the edge of the travel lane vertically to the lowest structural member. This includes 6 inches for future overlays.

- Railroad Crossings *[Bridge Design Manual pg. 7(28-29)]*
  A recommended horizontal clearance of 25 feet shall be provided from the centerline of the railroad track to the face of a bridge column support. With approval, less clearance may be provided, but crash walls are likely to be required.

The vertical clearance must be a minimum of 23'-7½" from the top of track vertically to the lowest structural member.

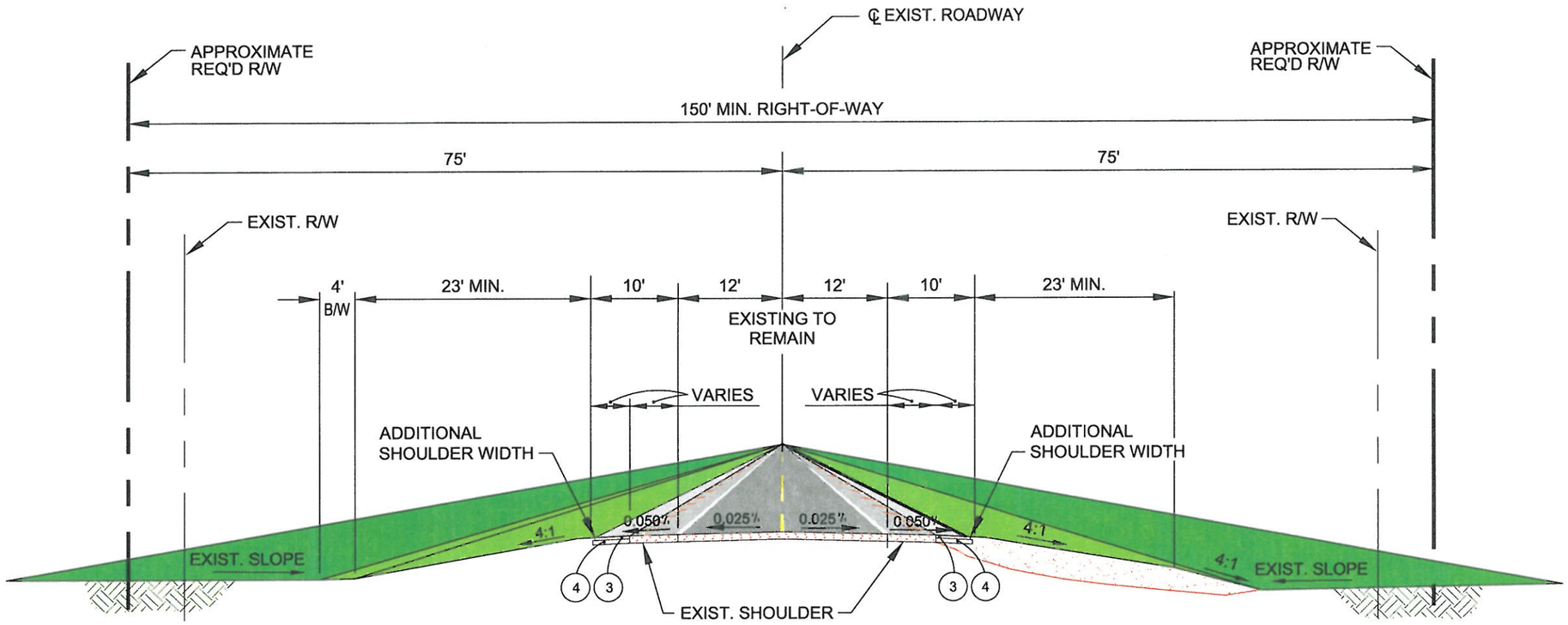
Structure Types: Widened bridges will be of a structure type similar to the existing. These include concrete slab spans, precast prestressed concrete girder spans and steel plate girder spans. Major drainage structures, such as concrete box culverts should be extended beyond the clear zone of a divided four-lane highway section. Proposed bridge structures were assumed to have the same overall length and similar span arrangements as the existing structures they replace or parallel. Economics, aesthetics, grades, clearances, and construction ease were considered in determining the proposed type of structure used at each site.

Table II-1
Geometric Design Criteria for El Camino East/West Corridor
Source: *LaDOTD January 28, 1992 Memorandum*

ITEM NO.	DESIGN ITEM	ROADWAY CLASSIFICATION			
		Rural			Urban [1]
		RA-1	RA-3 [2]	RA-4	UA-2
1	Design Speed (mph)	60	60	70	45
2	Design Hourly Volume	0-600 [3]	601-2300	601-2500	N/A
3	Level of Service	B (C for Planning)	B	B	C [4]
4	Number of Travel Lanes	2	4 [5]	4 [5]	2 (Min.) 4 (Typ.)
5	Width of Travel Lanes (ft)	12	12	12	12
6	Width of Parking Lanes (ft)	N/A	N/A	N/A	10-12
7	Width of Shoulders (ft)				
	(A) Outside	8 (Min.) 10 (Des.)	10	10	N/A
	(B) Median	N/A	6 [6]	6 [6]	N/A
8	Type of Shoulders	Paved	Paved	Paved	N/A
9	Width of Median (ft)				
	(A) Depressed	N/A	40 (Min.) 60 (Des.)	60	N/A
	(B) Raised	N/A	N/A	N/A	4 (Min.) 30 (Des.)
	(C) Two Way Left Turn Lanes	N/A	N/A	N/A	11 (Min.) 14(Typ.)
10	Width of Sidewalk (Offset from Curb) (ft)	N/A	N/A	N/A	4
	Width of Sidewalk (Adjacent to Curb) (ft)	N/A	N/A	N/A	6
11	Foreslope Ratio	6:1	6:1	6:1	3:1 (Min.) 4:1 (Des.)
12	Backslope Ratio	4:1	4:1	4:1	3:1
13	Pavement Cross Slope (ft per ft) [7]	0.025	0.025	0.025	0.025
14	Stopping Sight Distance (ft)	570	570	730	360
	Rate of Vertical Curvature, K (Crest Curve)	151	151	247	61
	Rate of Vertical Curvature, K (Sag Curve)	136	136	181	79
15	Maximum Superelevation (ft per ft)	0.10	0.10	0.10	0.04
16	Max. Horiz. Curve (w/o Super Elev.)(+.025) (ft) [8]	N/A	N/A	N/A	N/A
	Max. Horiz. Curve (w/o Super Elev.)(-.025) (ft) [8]	N/A	N/A	N/A	N/A
17	Max. Horiz. Curv. (With Super Elev.) (ft) [8]	5°00'	5°00'	3°30'	7°30'
18	Maximum Grade (%)	3 [9]	3 [9]	3 [9]	6
19	Minimum Vertical Clearance (ft) [10]	16	16	16	16
20	Minimum Horizontal Clearance				
	(A) From Edge of Travel Lane	30	32	34	N/A
	(B) Outside (From Back of Curb)	N/A	N/A	N/A	6 (Min.) 15 (Des.)
	(C) Median (From Back of Curb)	N/A	N/A	N/A	4 (Min.) 15 (Des.)
21	Minimum Width of Right of Way (ft) [11] [12]				
	(A) From CL	75	125	125	N/A
	(B) From Edge of Travel Lane	N/A	N/A	N/A	8 (Min.) 17 (Des.)
22	Width of Bridge (ft) (Min.) (Face to Face Bridge Rail)	Shoulder Width	40	40	Rdwy + 8 [13]
23	Bridge End Treatment Required at Bridges	Yes	Yes	Yes	Yes

[1] Applies To Curbed Sections Only. For Uncurbed Sections Use Rural Standards and Table 3.1 in the Roadside Design Guide.
[2] Used When Adding Two Lanes To Existing Two-Lane Facility.
[3] For Rolling Terrain, Limited Passing Sight Distance And High Truck Percentage, 4 Lanes May Be Required When DHV Is Above 400.
[4] Level Of Service D Permissible In Heavily Developed Areas.
[5] Consider Increasing To 6-Lane Facility When DHV Is Above Figure Shown In Item No. 2.
[6] 4 ft. Paved.
[7] 2% Permissible For Rehabilitation Projects.
[8] It May Be Necessary To Flatten The Degree Of The Curve And/Or Increase The Shoulder Width (12' Max.) To Provide Adequate Stopping Sight Distance On Structure.
[9] 4% Permissible In Rolling Terrain.
[10] 6 in. Additional To Allow For Future Resurfacing.
[11] Minimum Required For New Location And As Needed For Existing Alignment.
[12] Obtain Additional Right Of Way For Future Lanes Where Justified.
[13] For Approach Roadways Without Curb, Use Shoulder Width. 6 ft. Sidewalk Behind Curb To Be Carried Across Bridge When Justified By Pedestrian Traffic.

FIGURE II-1



TWO-LANE RURAL ARTERIAL
UPGRADED

(3) 4" ASPHALTIC CONCRETE

(4) 10" CLASS II CONCRETE

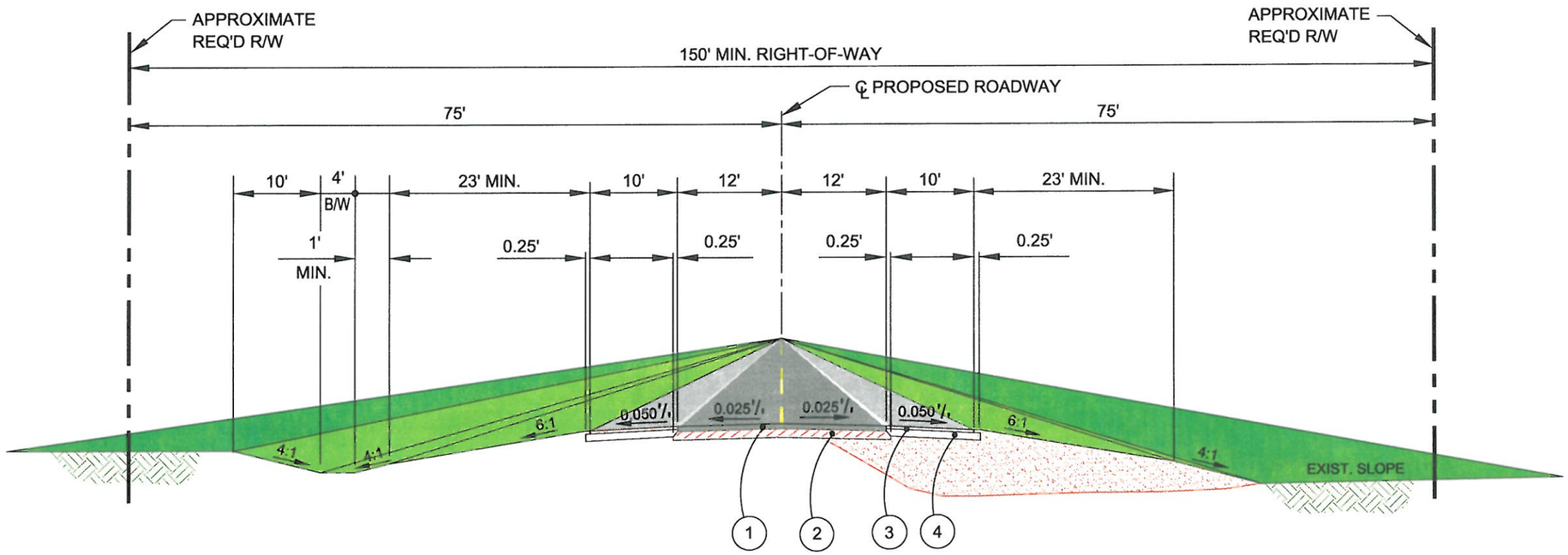
Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

FIGURE II-1
CONCEPTUAL TYPICAL SECTION
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\8114typsec2lane2.DWG

FIGURE II-2



TWO-LANE RURAL ARTERIAL
NEW CONSTRUCTION

1. 7" ASPHALTIC CONCRETE
2. 12" CLASS II BASE COURSE
3. 4" ASPHALTIC CONCRETE
4. 10" CLASS II BASE COURSE

Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:

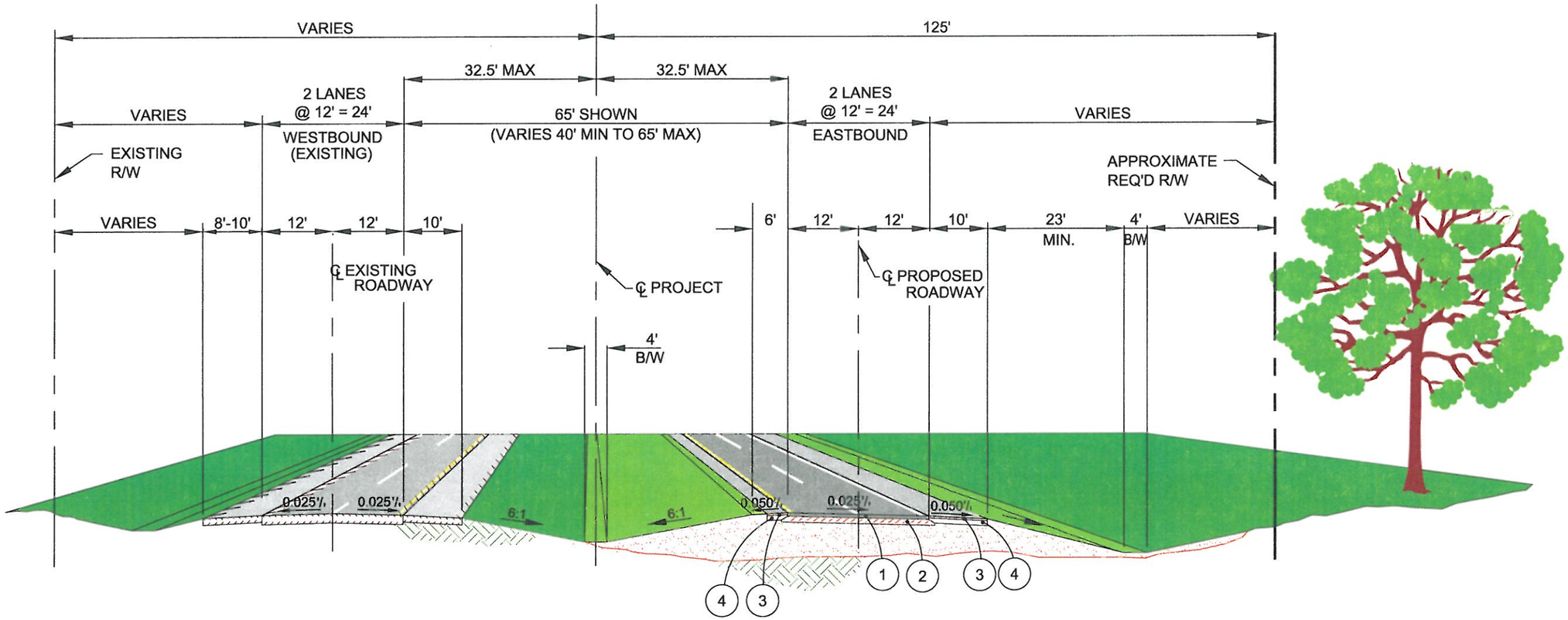
LOUISIANA ON THE MOVE. DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

FIGURE II-2
CONCEPTUAL TYPICAL SECTIONS
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800814typsect2lane.DWG

FIGURE II-3



FOUR LANE RURAL ARTERIAL
TWO LANE EXPANSION TO EXISTING TWO LANE ROADWAY

1. 7" ASPHALTIC CONCRETE
2. 12" CLASS II BASE COURSE
3. 4" ASPHALTIC CONCRETE
4. 10" CLASS II CONCRETE

Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:

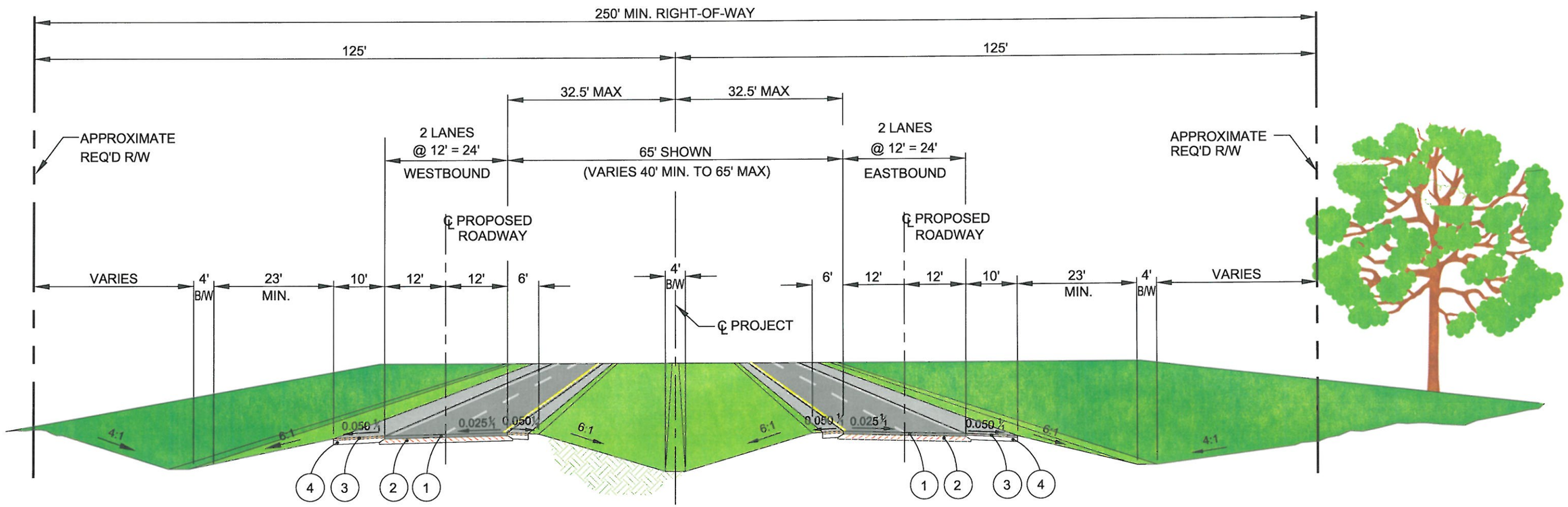
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

FIGURE II-3
CONCEPTUAL TYPICAL SECTIONS
ROUTES LA 6 AND US 84

FILE: \02020\008140\18008\14TYPSECT4RURAL.DWG

FIGURE II-4



FOUR-LANE RURAL ARTERIAL NEW CONSTRUCTION

1. 7" ASPHALTIC CONCRETE
2. 12" CLASS II BASE COURSE
3. 4" ASPHALTIC CONCRETE
4. 10" CLASS II BASE COURSE

Prepared by:

SIGMA CONSULTING GROUP, INC.

JUNE 2002 For:

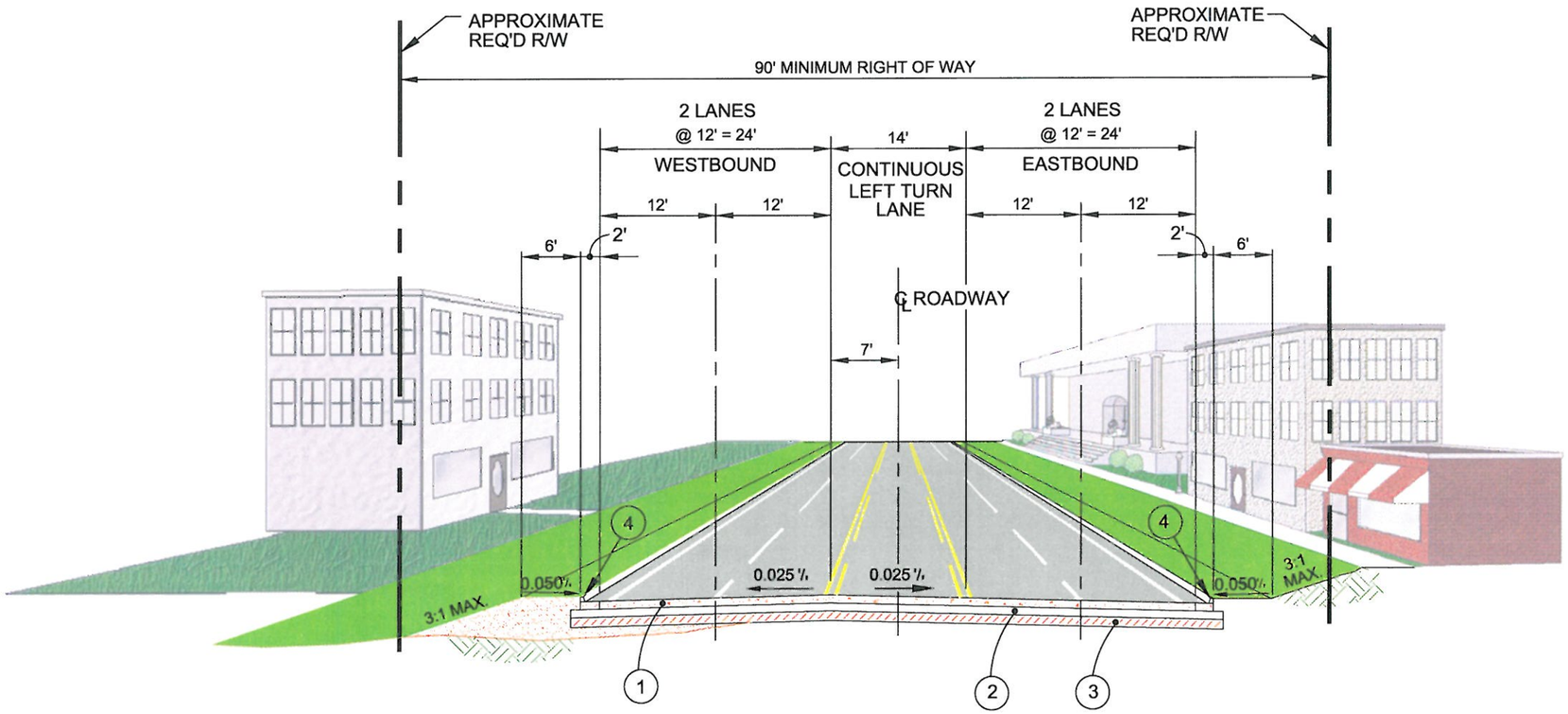
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

FIGURE II-4
CONCEPTUAL TYPICAL SECTIONS
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814typsect4RURALB.DWG

FIGURE II-5



FIVE-LANE URBAN ARTERIAL
NEW CONSTRUCTION

1. 10" PORTLAND CEMENT CONCRETE PAVEMENT
2. 10" CLASS II BASE COURSE
3. 12" LIME TREATMENT (TYPE D)
4. CONCRETE CURB

Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:

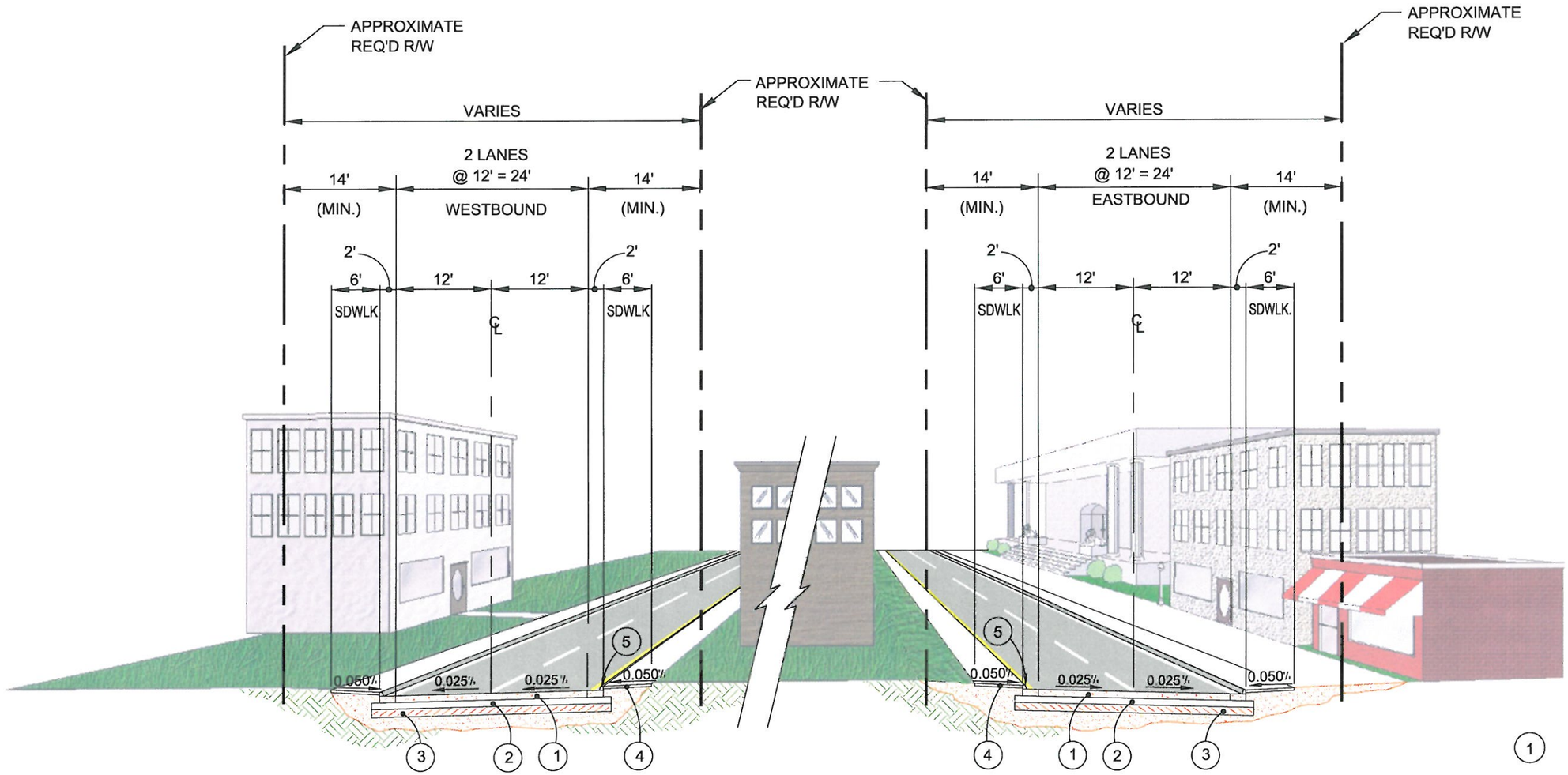
LOUISIANA ON THE MOVE. DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

FIGURE II-5
CONCEPTUAL TYPICAL SECTIONS
ROUTES LA 6 AND US 84

FILE: \0202\00814\018000814TYPSECT5URBAN.DWG

FIGURE II-6



URBAN COUPLET
TWO ONE-WAY ROADWAYS WITH CURBS

1. 10" PORTLAND CEMENT CONCRETE PAVEMENT
2. 10" CLASS II BASE COURSE
3. 12" LIME TREATMENT (TYPE D)
4. 4" PORTLAND CEMENT CONCRETE PAVEMENT
5. CONCRETE CURB

Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:
LOUISIANA ON THE MOVE DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

FIGURE II-6
CONCEPTUAL TYPICAL SECTIONS
ROUTES LA 6 AND US 84

FILE: \02020100814\01800814TYPSECT2URBAN.DWG

CHAPTER III
ENVIRONMENTAL INVENTORY

A. PURPOSE AND SCOPE

One major component of work for the El Camino East-West Corridor Master Plan Study was the development of a limited Environmental Inventory (EI). The primary purpose of the EI was to attempt to identify potential social, economic and environmental impacts for each of the 27 project segments within the El Camino East-West Corridor. A Geographic Information System (GIS) was implemented to maintain and analyze the EI data acquired from the diverse socio-economic and environmental sources relating to the proposed project corridor. The GIS approach provides an easily updateable map and data storage/retrieval system for any subsequent detailed environmental reviews or assessments that may follow this limited EI.

B. METHODOLOGY

An aerial basemap was developed from digital aerial photography acquired by LaDOTD in 2001. The aerial photography was supplied via compact disc; and the digital files were clipped, mosaicked and georeferenced by Sigma personnel. The aerial photography basemap was imported into the GIS for reference, analysis, and presentation purposes.

Data for the limited EI was obtained from various public sources including, but not limited to, the U.S. Geological Survey (USGS), U.S. Census Bureau and the Louisiana Oil Spill Coordinator's Office (LOSCO). Information relative to infrastructure was obtained via correspondence, questionnaires, and map attachments to the applicable parish and/or municipal governments. The majority of the data acquired from these secondary sources was verified during a field survey conducted by LaDOTD, Sigma and Arcadis personnel on June 11 and 12, 2001. Some of this data was also verified using the aerial photography basemap.

The project data was reduced, analyzed and reported according to the number and potential degree of impacts. The results of these analyses are described in subsequent chapters by parish per individual project segment. A table presented at the end of each chapter provides a quantitative or qualitative summary of the socio-economic and natural resources included in the EI. Some features are summarized by quantifying and tabulating the impacts. Other features such as community cohesion, environmental justice, historical resources and utilities required qualitative descriptions to adequately describe the potential impacts. In cases where no impacts to socio-economic or natural resources occur, text descriptions have been omitted entirely; and tabular results are presented as "0" or "No Impact".

C. SOCIO-ECONOMIC DATA

Several different data features are included in the socio-economic database. These features include: environmental justice, community cohesion, public facilities and services, flood zones, hazardous materials, landfills, hazardous waste sites, cultural resources, roads and railroads.

Public facilities and services reviewed consisted of the following:

- Fire Stations
- Cemeteries/Churches
- Police Stations
- Hospitals
- Airports
- Schools
- Public Parks and Recreation Areas
- Major Utilities
- Post Offices

Cultural resources were subdivided into the following categories:

- Archaeological Sites
- Standing Structures
- National Register Sites

Environmental Justice

On February 11, 1994 Executive Order (EO) Number 12898 was issued to address environmental justice in minority and low-income populations. The primary purpose of this order is to prohibit discrimination in Federal Programs with regard to environmental and human health-related issues. This EO requires that all federal agencies address environmental and human health effects on minority and low-income communities when the National Environmental Policy Act (NEPA) of 1969 is implemented. When environmental or human health issues are identified, mitigation measures should address, whenever feasible, adverse impacts on minority and low-income communities. Adverse impacts include but are not limited to the following:

- Noise, land, water, and air pollution
- Destruction of area aesthetic values
- Destruction or disruption of community cohesion
- Destruction or disruption of public and private facilities and services
- Injurious displacement of businesses, farms, housing and people
- Tax and property value losses
- Increased traffic congestion

Based on 1990 census data, it has been determined that potential environmental justice issues may be raised as a result of some proposed alignments. This preliminary assessment was based on whether or not a non-white population exceeded a white population within census blocks occupying each project

area. Results from this preliminary assessment provided information relative to the potential for any environmental justice concerns occurring within a project area. It is recommended that more detailed studies be conducted in these areas in order to further define the potential impacts of the proposed alignments on low-income and/or minority areas.

Community Cohesion

Aerial photography provided by LaDOTD and 1990 census data were used to identify potential community cohesion concerns within the project segments. Additionally, information acquired during the reconnaissance survey conducted in June 2001 was used to verify data obtained from the aerial photography and census records.

Commercial and Residential Relocations

23 USC 109(h) specifies that injurious displacement of people, businesses, and farms should be minimized while consideration is made for the best overall public interest including the need for fast, safe and efficient transportation. General observations of commercial and residential areas along the corridor were made during the June 2001 field survey for the limited EI. Sigma personnel attempted to identify individual businesses and residences from the LaDOTD aerial photography. Sigma personnel categorized all residential structures as high, medium, and low value properties based on best professional judgment. In addition, Sigma personnel made a general assessment of value for each commercial property affected.

Public Facilities/Services

Fire Stations

Fire stations in some areas were initially located based on information provided to Sigma and Arcadis by various local government and parish entities. These locations were verified during a field survey conducted on June 11-12, 2001 by LaDOTD, Sigma and Arcadis personnel. The locations of the fire stations were mapped on the aerial photography following the field verification.

Cemeteries/Churches

Arcadis determined preliminary locations of cemeteries and churches using the Geographic Names Information System (GNIS) dataset originally developed by the USGS. This data set was made available on a compact disc produced by the LOSCO. In some cases, correspondence from local and/or parish entities was submitted to Sigma and Arcadis showing the locations of some of these facilities. Regardless of the preliminary data source, locations of all churches and cemeteries in the project areas were verified during the June 2001 field survey and subsequently mapped on the aerial photography.

Police Stations

Police stations, in some cases, were initially located based on information provided by various local government and parish entities. The locations of the police stations were verified during the June 2001 field survey and mapped on the aerial photography.

Hospitals

Preliminary locations of hospitals were determined using the GNIS dataset originally developed by the USGS and made available by LOSCO. In some cases, correspondence from local and/or parish entities was submitted showing the locations of some hospitals. Regardless of the preliminary data source, hospital locations in the project segments were verified during the June 2001 field survey and subsequently mapped on the aerial photography basemap.

Airports

Preliminary locations of airports were determined using the GNIS dataset originally developed by the USGS. This dataset was made available on a compact disc produced by the LOSCO. In some cases, correspondence from local and/or parish entities was submitted that indicated the locations of some airports. Two airport locations were observed on the aerial photography provided by LaDOTD.

Schools

Preliminary locations of schools were determined using a dataset originally developed by the Louisiana Office of Emergency Preparedness (LOEP). This dataset was made available on a compact disc produced by the LOSCO. In some cases, correspondence from local and/or parish entities was submitted that indicated the locations of some of the schools. Regardless of the preliminary data source, school locations in the project area were verified in the June 2001 field survey and subsequently mapped on the aerial photography basemap.

Parks/Recreation Areas

Correspondence from local and/or parish entities was submitted to Sigma and Arcadis indicating the locations of parks and/or recreation areas that could potentially be impacted by the project areas. These locations were verified during the June 2001 field survey and subsequently mapped on the aerial photography.

Utilities (Major)

Preliminary locations of significant pipeline and powerline locations within the project areas were determined using 1:24,000 USGS Digital Line Graph (DLG) datasets. In some cases, correspondence was received from municipal, parish or private entities along with completed questionnaires and map attachments showing the locations of utilities that could be potentially impacted by the project areas. Generally, locations of water and sewer lines in or near the project areas were acquired from the municipal or parish governments. Oil and gas pipeline companies were also contacted regarding the locations of pipelines in the vicinity of the project areas. Observations on the locations of major pipeline and powerline locations were also made during the June 2001 field survey. Locations of these major utilities in the project areas were mapped on the aerial photography basemap.

Post Offices

Preliminary data for the locations of post offices located within the project areas were determined using the GNIS dataset. In some cases, this preliminary data was supplemented with data provided by various

local government and parish entities. Post office locations were verified during the June 2001 field survey. These locations were mapped on the aerial photography basemap following field verification.

Floodzones

Digital floodzone data was available for Catahoula and Natchitoches Parishes. The Federal Emergency Management Agency compiled this data, shown on the Flood Insurance Rate Maps (FIRMs). The digital maps, also referred to as Q3 data, were made available on a compact disc produced by the LOSCO.

Sigma personnel digitized the floodzone data for Sabine, LaSalle and Winn Parishes from hardcopy FEMA maps. Floodzone boundaries were then added to the aerial photography basemap and the GIS. For the purpose of this limited EI, only areas within the 100-year floodzone (Zone A) were included.

Hazardous Materials, Landfills, and Hazardous Waste Sites

Various businesses within the project areas handle regulated materials such as petroleum products, waste oils, lubricating oils, hydraulic fluids and fertilizer compounds. Federal and state regulatory databases were searched for the current or historical presence of any hazardous materials, underground tanks, landfills or hazardous waste sites within and near the project segments. Environmental Data Resources (EDR) of Southport, Connecticut was contracted to conduct a review of state and federal regulatory databases. The regulatory listings include only those sites known to regulatory agencies to be contaminated or those that are potentially contaminated. The area search by EDR included a 1-mile wide swath along the entire length of the 130-mile corridor. The data, provided by EDR in a database format, was imported into ArcView 3.2 and converted into an ArcView shapefile. The EDR data was queried to include only those features of interest located within 200 feet north and south of the centerline. The following sections describe the federal and state environmental databases that were searched.

Many of the facility locations from the EDR search were field verified in June 2001. In many cases, facilities identified by EDR could not be verified during the field survey due to name changes, address discrepancies, and location errors in the EDR database. However, the EDR information proved useful in that it provided regulatory and historical information for some of the facilities observed in the field. The federal and state databases included in the EDR regulatory review are datasets maintained by the USEPA and LDEQ.

National Priorities List (NPL)

The NPL includes any property or site that is included on the USEPA database of uncontrolled or abandoned hazardous waste sites identified for priority remedial action under the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund.

Federal Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS)

The CERCLIS database includes any property or site identified by the USEPA as an abandoned, inactive, or uncontrolled hazardous waste site that may require cleanup. Sites identified in the CERC-No Further Remedial Action Planned (CERC-NFRAP) database are sites that have been removed from the CERCLIS because of resolved issues.

RCRA (Resource Conservation and Recovery Information System (RCRIS))/Hazardous Waste Discharge Monitoring System (HWDMS)

The RCRIS database contains select information on sites that generate, store, transport, treat, or dispose of hazardous waste.

Emergency Response Notification System (ERNS)

The ERNS database includes any property or site that is included in a national database of reported releases of oil and hazardous substances.

Facilities Index System (FINDS)

The FINDS database includes any property or site that the USEPA has investigated, reviewed, or been made aware of through its various regulatory programs.

Corrective Action Report (CORRACTS)

The CORRACTS database identifies hazardous waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity.

PCB Activities Database System (PADS)

The PADS database identifies generators, transporters, commercial storers, and/or brokers and disposers of PCB's who are required to notify USEPA of such activities.

RCRA Administrative Action Tracking System (RAATS)

The RAATS database contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the USEPA.

Toxic Chemical Release Inventory System (TRIS)

The TRIS database identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III Section 313.

Toxic Substances Control Act (TSCA)

The TSCA database identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substances Inventory List.

Material Licensing Tracking System (MLTS)

The MLTS lists sites that possess or use radioactive materials.

Superfund (CERCLA Consent Decrees (CONSENT)

The CONSENT database lists sites that have major legal settlements establishing responsibility and standards at Superfund sites.

Records of Decision (ROD)

This database lists sites that have had mandates for clean up. ROD documents contain specific technical and heath information for site remediation.

Federal Superfund LIENS (NPL LIENS)

This is a USEPA list of filed notices of Superfund Liens.

State Hazardous Waste Sites (SHWS)

The State Hazardous Substance Remedial Action Trust Fund Priority List is a database that identifies state hazardous waste sites. Priority sites planned for cleanup using state funds and contributions by potentially responsible parties are included in the SHWS.

Solid Waste Facilities/Landfills (SWF/LF)

The SWF/LF database is maintained by the LDEQ. This database is an inventory of solid waste disposal facilities or landfill sites.

Hazardous Materials (Tanks)

The LDEQ maintains a database of registered Underground Storage Tanks and Leaking Underground Storage Tanks (USTs and LUSTs, respectively) in the State of Louisiana. These locations were verified and/or supplemented with information obtained during the June 2001 field survey. The locations of above-ground storage tanks (ASTs) were not provided by EDR but were recorded during the June 2001 field survey. The locations of all tanks were mapped on the aerial photography basemap.

Cultural Resources

Archaeological Sites

Locations of cultural resource sites were obtained from the Louisiana Department of Culture, Recreation and Tourism, Division of Archeology. Meetings were conducted between Division of Archaeology and Arcadis personnel in order to transpose the locations of archaeological sites from 1:24,000 scale USGS topographic maps maintained by the Division of Archaeology onto maps purchased by Arcadis. These locations were then digitized from the topographic maps onto the aerial photography basemap in order to determine potential impacts within the project segments. However, none of these archaeological sites are published on the map exhibits in accordance with the confidentiality policy of the Division of Archaeology.

Additionally, information was requested from the following Native American tribes in an effort to determine potential impacts to tribal concerns:

- Jena Band of Choctaws
- Caddo Tribe of Oklahoma
- Mississippi Band of Choctaw
- Quapaw Tribe of Oklahoma
- Adai Caddo of Louisiana
- Choctaw-Apache Tribe of Ebarb

Tribal contacts in the project areas were acquired from information provided by the Division of Archaeology, based on tribes that have historically been present within the Louisiana portions of El Camino East-West Corridor. Responses were received from some of the tribes indicating that culturally significant sites could potentially exist in or near the project segments. Correspondence was sent to the tribes a second time in an effort to more accurately determine the locations of culturally significant sites. However, no tribes provided specific information on sites that could potentially be impacted by the proposed project segments.

Correspondence received from the Historical Preservation Director for the Caddo Tribe of Oklahoma indicated the presence of numerous recorded archaeological sites in the areas near Toledo Bend, Robeline and Natchitoches. The Caddo Tribe of Oklahoma also requested that an extensive right-of-way (ROW) study be conducted prior to any ground disturbance. Additionally, the Tribe requested a copy of the ROW report and made a general request that every effort be made to avoid, minimize or mitigate any archaeological sites within the proposed ROW. The Tribe also stated that their preference is avoidance. The Caddo Tribe of Oklahoma requested that archaeological sites be omitted from any published maps.

The Chief and Tribal Chairman of the Adai Caddo Indian Tribe sent correspondence indicating that he was unaware of the existence of any spiritual or historic sites along the proposed project areas. However, the Tribe requested that they be notified in the event that any artifacts are encountered during the construction and/or destruction phase on any roads, lands or buildings. The Adai Caddo Indian Tribe also requested that any archeological sites be omitted from any published maps.

Correspondence was also sent to individuals associated with Fort Jessup and to the Department of Social Sciences at Northwestern Louisiana University (NLU). A representative of the Fort Jessup site replied with a letter and a map attachment locating significant archaeological and historic sites. This information was transposed onto the aerial photography basemap in the GIS. Personnel from NLU did not respond directly to requests for historic/cultural information, but instead deferred to the Department of Culture, Recreation and Tourism, Division of Archaeology. In some cases, correspondence showing the locations of cultural and historic sites were submitted by local/parish officials. This information was also included in the GIS to determine whether any impacts would occur as a result of the proposed projects.

Standing Structures

Locations of historically significant standing structures were obtained from the Louisiana Department of Culture, Recreation and Tourism, Division of Historical Preservation (DHP). Meetings were conducted between DHP and Arcadis personnel in an effort to determine if any standing structures would be impacted by the projected improvements. The locations of standing structures are maintained by the DHP on 1:24,000 scale USGS topographic quadrangle maps. These locations were transposed onto a matching set of 1:24,000 basemaps acquired by Arcadis for this purpose and then digitized onto the aerial photography basemap in the GIS. Standing structures are primarily located within towns along the El Camino East-West Corridor. In some cases, single standing structures were not located by the DHP; instead, entire historic districts were delineated due to the potentially high concentration of standing structures in an area.

National Register Sites

Properties on the National Register of Historic Places (NRHP) were mapped on a parish-by-parish basis by reviewing forms at the Division of Historical Preservation (DHP), Louisiana Department of Culture and Tourism in Baton Rouge. NRHP sites were plotted directly on USGS 1:24,000 quadrangles with other locational information tabulated on summary sheets according to textual descriptions and coordinates designated in Universal Transverse Mercator (UTM) or state plane projections.

The data collected were confirmed via the NHRP website (www.crt.state.la.us/nhl2), which provided access to an NRHP database that could be queried online by parish, city, theme, historical name, property type, architectural style, etc. Each site could be viewed according to a descriptive narrative, photograph of the property and a vicinity map. The NHRP data was updated January 24, 2002 and the historic sites database was updated on February 13, 2002 according to the webmaster of the DHP.

All data were placed into the GIS project maps to determine their proximity to the roadway alignments. Both individual sites and areas representing historical districts were mapped and their locations relative to the El Camino East-West corridor are discussed later in this document.

Roads/Railroads

The locations of adjacent and intersecting roads and railroads were obtained from the 1:24,000 USGS Digital Line Graphs and made available via compact disc by TopoDepot. The centerlines of these road and railroads were digitized by Sigma personnel and included in the aerial photography basemap.

D. NATURAL RESOURCE DATA

The natural resource data for this project was entered into a GIS designed for the El Camino East-West Corridor. The data originated from many agencies located in Louisiana and included:

- potential wetlands
- threatened and endangered species
- biological communities (wildlife refuges and critical habitat)
- water resources (aquifers and surface waters)
- prime farmlands

Potential Wetlands

The 1998 USGS GAP dataset was used for identifying potential wetlands throughout the project area. The GAP dataset is comprised of 25 habitat categories, 7 of which applied to wetlands and 4 categories designated as marsh environments.

Threatened and Endangered Species

The Louisiana Department of Wildlife and Fisheries' (LDWF) Natural Heritage Program (NHP) provided digital data showing the locations of threatened and endangered species. The locations of threatened and endangered species are mapped by the NHP at various precisions. Meetings were convened with personnel at LDWF-NHP to update and verify the interpreted mapped information from the digital data sources. Follow-up correspondence was received by Arcadis on March 1, 2002, from the NHP. The correspondence detailed the species impacted and also made recommendations regarding required surveys and consultations. Due to the confidentiality of this information, species or habitats are not specifically identified on the aerial photography basemap. The locations of Threatened and Endangered Species will be discussed in the context of potential impacts resulting from highway construction activities.

Biological Communities

Wildlife Refuges and Management Areas

Individuals associated with forestry and wildlife management areas were contacted in an effort to determine which wildlife refuge and/or management areas could potentially be impacted by the proposed projects. Correspondence accompanied by map attachments was received from Catahoula National Wildlife Refuge personnel indicating that some recently acquired areas near the LaSalle-Catahoula Parish boundary are now contained within the refuge boundaries that could potentially be impacted. Boundaries for the Kisatchie National Forest were obtained from 1:24,000 USGS maps.

Fish and Wildlife Critical Habitat

Data representing state and federal wildlife refuge and wildlife management areas were obtained from LOSCO. The LOSCO data originated in 1998 with The Nature Conservancy who digitized National Wildlife Refuges maps (1970 to 1996 data) from US Fish & Wildlife Service (USFWS) and Louisiana Wildlife Management Area maps (1990 to 1997 data) from the Louisiana Department of Wildlife and Fisheries (LDWF). The USGS National Wetlands Research Center (NWRC) in Lafayette, Louisiana also provided National Geographical Approach to Planning (GAP) Analysis Program data. The GAP data was in digital format and represented the years 1992 and 1993 and was published in 1998. Finally, meetings were convened with personnel at LDWF in Baton Rouge to supplement the mapped information from the sources identified above. Follow-up correspondence was received by Arcadis on March 1, 2002, from the NHP. The correspondence detailed the habitats impacted and also made recommendations regarding required surveys and consultations.

Water Quality/Water Resources

- *Aquifers* - Digital datasets of Louisiana aquifer systems, published in 1999, were obtained from LDEQ. The original source maps were State Aquifer Recharge Atlas Plates and Maps prepared by the Louisiana Geological Survey funded by the US Environmental Protection Agency (USEPA) in 1988. The aquifers were mapped along with descriptive data that included the aquifer name, area, recharge potential, etc. No sole source aquifers are located in or near the project areas.

- *Surface Waters* - Digital datasets of the Louisiana surface waters published in 1999 were obtained from LDEQ. Surface waters were mapped according to Louisiana Department of Environmental Quality (LDEQ) subsegments, which identified the source/headwaters, drainage basin and size. The scenic streams data originated with the LDWF-NHP and is maintained by the LDEQ in digital format. This information is updated biannually, with the latest data representing the year 2001. With respect to surface waters, permanent impacts to water quality are not expected as a result of construction activities. However, some temporary impacts to surface water, primarily in the form of turbidity, may result from bridge construction in some of the project areas. It should also be noted that information obtained from rangers stationed at the Kisatchie National Forest, Winn Ranger District indicated that the proposed alignment would be located within 200 feet of the proposed Gum Creek Reservoir.

Prime Farmlands

Prime farmlands soils, as defined by the U.S. Department of Agriculture (USDA), are soils best suited to producing food, feed, forage, fiber, and oilseed crops. They have the quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when treated and managed using acceptable farming methods. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources, and farming these soils results in the least damage to the environment. The Natural Resource Conservation Service (NRCS) establishes Land Capability Classifications to determine the suitability of soils for field crops. Capability classes range from I to VIII, indicating progressively greater limitations and narrower choices for practical use (Werchan and Coker, 1983). The NRCS considers those soils with Capability Classes III and IV to be the best soils for crop production.

Arcadis identified potential prime farmlands based on existing soil types and classification. Prime farmlands soils are subject to protection under the Farmlands Protection Policy Act (FPPA) (7 USC. 4202(a)). The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of prime, unique, and other statewide or locally important farmlands to non-agricultural uses. Agencies are directed to identify and take into account the adverse effect of federal actions on farmlands, to consider appropriate alternative actions that mitigate adverse effect, and to assure that such federal actions are comparable with those state, local, and private programs designed to protect farmlands (Federal Register, 1984).

The State NRCS office located in Alexandria, Louisiana was contacted in an effort to determine if any soils classified as prime farmlands were contained within the project segment. The GIS was used to determine approximate percentages of prime farmland contained within each project area. The amount of prime farmland affected ranged between 0 and 31.4 percent for all of the project areas. If further environmental action is pursued, it will be necessary for the NRCS to officially identify all prime farmlands within the project segments.

CHAPTER IV
HUMAN AND NATURAL ENHANCEMENTS

A. INTRODUCTION

It has become evident over the last several years that proper consideration for human and natural environmental enhancements in the planning process is essential to developing a successful transportation improvement. The objective of this planning process is to put together a more balanced transportation system that includes pedestrians and bicyclists as well as the motoring public. LaDOTD is committed to encouraging such improvements through the Transportation Enhancement Program. This is a federally funded program administered through LaDOTD for the enhancement of the state's transportation system known as "Enhancing Louisiana."

By considering both human and natural environments along the corridor, projects are not limited to just sidewalks and bike paths. According to the *Transportation Enhancement Information Guide* (LaDOTD, 2001), other improvements may include "safety and educational activities for pedestrians and bicyclists, landscaping and other scenic beautification, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, tourist and welcome center facilities, historic preservation, preservation of abandoned railway corridors, archaeological planning and research, environmental mitigation and establishment of transportation museums." These enhancements not only improve the condition of the transportation system, but are also beneficial to environmental, health, social, cultural, and economic conditions along the corridor. For the scope of this Study, bicycle and pedestrian facilities and landscape beautification will be discussed.

B. BICYCLE AND PEDESTRIAN CONSIDERATIONS

Background

In the early 1990's, the U.S. Department of Transportation adopted a policy to increase the use of nonmotorized modes of travel in national, regional, and local transportation mainstreams. Bicycle and pedestrian modes are critical travel modes to the success of this policy. These two types of transportation provide significant benefits to transportation systems, human environments, and natural environments. Increased use of bicycling and walking offer benefits such as reduced traffic congestion, efficient use of road space and resources, reduced auto emissions for cleaner air, health and exercise, and positive community economic impacts.

In 1991, Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA) which offered billions in transportation funds for bicycling and walking enhancements. That same year the acceptance of bicycle and pedestrian modes was augmented by the Congressionally-mandated National Bicycling and Walking Study. This study, published in 1994, challenges the U.S. Department of Transportation to double the percentage of trips made by foot and bicycle while simultaneously reducing fatalities and injuries suffered by these modes by 10 percent (*FHWA/FTA Interim Technical Guidance*). In the summer of 1998, the Transportation Equity Act for the 21st Century (TEA-21) was signed into law. This new legislation augments the changes made to the Federal transportation policy and programs contrived under the ISTEA. The TEA-21 has many provisions that relate to improving conditions for bicycling and walking and increasing the safety of both modes of transportation. Bicycling has primarily been used for exercise and recreational purposes. Since the passage of ISTEA and the National Bicycling and Walking Study, bicycling is increasingly being recognized as a cost effective and energy efficient mode of transportation. Walking, besides a form of exercise and recreation, is the most basic form of short trip transit.

The lack of pedestrian and bicycle facilities forces potential pedestrians to use automobiles to take short distance trips. These two modes of transportation can significantly serve local transit needs including work, school, shopping, and personal trips. Providing safe, aesthetic, convenient, and well-designed bicycle and pedestrian facilities will enhance communities, encourage people to expand their use of these modes of transit, and create an integrated, intermodal transportation system that provides travelers with a choice of transportation modes.

Benefits of Walking and Bicycling

There are many significant benefits to using bicycling and walking as alternative modes of transportation. The positive effects of using these modes for transportation or just for recreational purposes reach across many aspects of everyday life. Advantages, besides the transportation benefit itself, include increased health, cleaner environment, economic impact, and improved quality of life.

The most obvious benefit is the transportation benefit. By walking or bicycling to work, school, or local trips, roadway traffic congestion can be reduced. "The 1995 National Personal Transportation Survey found that approximately 40% of all trips are less than 2 miles in length – which represents a 10-minute bike ride or 30-minute walk. In fact, a 1995 Rodale Press survey found that Americans *want* the opportunity to walk or bike instead of drive: 40% of U. S. adults say they would commute by bike if safe facilities were available" (bicyclinginfo.org).

According to a 1998 American Medical Association report, 60% of Americans lead completely sedentary lifestyles, and 40% are clinically overweight (bicyclinginfo.org). Bicycling and walking are great forms of physical activity. Participating in regular physical activity can decrease the risk of heart disease, stroke, obesity, and lower the costs of health care. Environmental benefits include cleaner air due to a reduction in the amount of motor vehicle emissions. Furthermore, automobiles consume millions of barrels of oil daily. Short local vehicle trips are wasting this non-renewable energy source.

The economic benefits may not be as apparent. To the individual, they may be in the form of reduced costs of operating and maintaining a vehicle or lower health care costs. A community may benefit economically due to an increase in tourism, influx of new bicycle retail shops, and cycling festivals.

Existing Bicycle Facilities and Interest in Louisiana

The popularity of bicycling in Louisiana has increased over the past several years. The number of cycling and touring clubs is evidence of this. Some of the bigger clubs include Baton Rouge Bike Club, Crescent City Cycling Bicycle Touring Club, Cajun Cyclists, Lake City Cyclists, and the Kisatchie Bicycle Club just to name a few. There are also many bicycling tours and festivals. The economic impact of these tours on local communities is considerable. Riders in these events spend money in local restaurants, hotels, bed and breakfast lodging, and racing supplies.

- The Bicycle Jambalaya or Jambalaya Tours is an event started over thirty years ago and is held every year around Thanksgiving. This tour runs through the Feliciana parishes and allows participants to socialize, enjoy local cuisine, and experience the culture of several communities.

- The Rouge-Roubaix is a tour that meanders through several communities in West Feliciana Parish. It consists of a sixty-mile loop along several rural highways. Cyclists on this route will encounter some of Louisiana's wonderful culture, wildlife, and lush scenery.

- The Louisiana Peach Festival is host to a fairly new bicycle road race in Ruston, Louisiana. The Louisiana Peach Fest Classic Road Race is a 5.3 mile loop located in the Piney Hills country of Lincoln Parish. Contestants in this race can enjoy the entertainment of the festival and the characteristic southern hospitality of the local community.

- Bicyclists from around the nation gather to be a participant in the long standing Tour de Louisiana Road Race. This race is held in St. Tammany and Tangipahoa Parishes.

Besides these local tours and races, there are out of state touring companies such as the Adventure Cycling Association that offer cross-country bicycle tours. According to the Adventure Cycling Association there are two cross-country routes that run through portions of Louisiana. These two bicycle routes are described below:

- The Southern Tier Bicycle Route spans west to east from San Diego, CA to St. Augustine, FL as shown in Figure IV-1. The Louisiana portion of this route utilizes LA Highway 10 for most of its length along with several other rural highways. The route passes through Vernon, Allen, Evangeline, St. Landry, Avoyelles, Pointe Coupee, West and East Feliciana, St. Helena, Tangipahoa, and Washington Parishes. The Adventure Cycling Association's website gives a description of this section of the route: "Louisiana is like no other state in the U.S. due to its history, language, culture, and FOOD. First of all, they have parishes instead of counties. Traveling right through the middle of Cajun country, in places like Mamou, a stop in a cafe is a trip unto itself. The crowd is speaking English, but you can't understand the words."

- The Great Rivers Bicycle Route runs north to south from Muscatine, IA to St. Francisville, LA as shown in Figure IV-2. The full length of this route in Louisiana is located on the west bank of the Mississippi River utilizing mainly low-traffic rural roads and highways.

Figure IV-1
Southern Tier Bicycle Route

Source: Adventure Cycling Association (http://www.adventurecycling.org/routes/sotier.cfm)

Figure IV-2
Great Rivers Bicycle Route

Source: Adventure Cycling Association (http://www.adventurecycling.org/routes/rivers.cfm)

There is a relatively new bicycle path along the eastern portion of the El Camino East-West Corridor. This enhancement project was sponsored by the Sabine River Authority (SRA). This bike path consists of widened asphalt shoulder striped and signed for bicycle use. The path begins at the SRA Visitor Center on the east bank of Toledo Bend running along LA 6 to LA 191 and then continuing south along LA 191 to Cypress Bend Parkway. According to Mr. Jim Pratt of the Sabine River Authority, these paths will connect the SRA Tourist Center to the Twin Islands Campgrounds, SRA Recreation and

Convention Center, and other various park sites. This enhancement project included bicycle parking facilities and landscape beautification at the SRA Visitor Center.

Notable pedestrian facility enhancements along the El Camino East-West Corridor include a sidewalk project in Many, LA and a sidewalk improvement project in Winnfield, LA. Both of these projects fall under the Transportation Enhancement Program.

Current Policies and Plans

Louisiana does not have its own set of printed standards, but tends to use the American Association of Highway and Transportation Officials' (AASHTO) *Guide for the Development of Bicycle Facilities* guidelines. Generally, LaDOTD's policy is to use paved shoulders in rural areas for bicycle paths rather than constructing separate bike paths along the roadways. Typically in urban areas, either separate bike paths are created or less traveled streets are used as an alternate route. This facility policy is fairly consistent with the other states through which the El Camino East-West Corridor runs.

Mississippi's bicycle routes mainly consist of shared lanes or roads with paved shoulders. Alabama only has marked bicycle lanes in areas of high tourism, large metropolitan areas, and college campuses. According to Ms. Mary Crenshaw with the Alabama Department of Transportation, many of their highways do not have paved shoulders and are difficult for bicycle travel. Georgia is in the process of adopting a designated state bike route system. Facilities in urban sections consist of four-foot bike lanes. Paved shoulders are utilized in rural sections. Some of the shoulders are striped, however this is not a set policy.

While many states do not have a rigid set of standards, several states have extensive plans and policies for the planning and design of bicycle facilities. Oregon, for instance, has developed the *Oregon Bicycle and Pedestrian Plan*, one of the most in-depth bicycle programs in the United States. It covers every facet of bicycle and pedestrian facilities from planning and design standards to public education. Oregon has implemented this plan in numerous bike routes, paths, and walkways across the state. The state of Florida has its own policies and standards documented in the *Bicycle Facilities Planning & Design Manual*. The state has spent a great deal of money and resources in creating a transportation system that incorporates pedestrian and bicycle travel. North Carolina has taken extensive action in creating a bicycle and pedestrian plan for the state. The North Carolina Department of Transportation fashioned the *NCDOT Bicycle Policy* in 1978 and the *NCDOT Pedestrian Policy Guidelines* in 1993. In 1991 the *NCDOT Bicycle Policy* was "updated to clarify responsibilities regarding the provision of bicycle facilities upon and along the 77,000-mile state-maintained highway system" (ncdot.org).
North Carolina also has its own state laws on bicycle and pedestrian use.

Bicycle and Pedestrian Facility Design Standards

There are no set strict standards on bicycle and pedestrian facility design. Each project has its own set of circumstances, such as existing road section, right-of-way, or funding that dictate the type of design to be used. However, sources of information on facility design do exist. The AASHTO *Guide for the Development of Bicycle Facilities* provides data on bicycle facilities and suggests minimum design guidelines to accommodate safety concerns. Studies such as *The Bicycle Compatibility Index* and *Bicycle Lanes Versus Wide Curb Lanes* were sponsored by the Federal Highway Administration to aid engineers and coordinators in the design and planning of bicycle facilities.

There are various types of bicycle facilities. The type to be used is based on several conditions such as explicit route conditions, rider experience, and cost. The following are facility types and their general design as described in the *Guide for the Development of Bicycle Facilities*:

- Shared Roadway (No Bikeway Designation) – This is the type of facility on which the majority of today's bicycle travel is conducted in the United States. In many communities the existing street system may be adequate for the bicycle travel demand.

- Signed Shared Roadway – These are shared roadways with signs designating a bike route. The presence of a sign tells riders that there are advantages to using these routes over other possible routes. This means that responsible agencies have taken certain actions to assure that the route is suitable for bicycle use. Signs also warn vehicle operators that bicyclists are present.

- Bike Lane or Bicycle Lane – Bike lanes are delineated with pavement striping and signing along roads in corridors with notable bicycle demand. The intention of bike lanes is to designate the right-of-way assigned to bicyclists and motorists and render more predictability to their movements. Bike lanes provide a comfort level to bicyclists by providing a visual boundary between them and vehicles. In order to provide a safe and efficient facility, particular measures should be taken such as bicycle friendly drainage inlets, smooth pavement surfaces, and bicycle responsive traffic signals.

- Shared Use Path – Shared use paths are generally separate paths and serve corridors not served by streets or highways. They are usually considered when utility or abandoned railroad rights-of-way exist. Common uses are for recreational purposes and are placed along waterfronts, abandoned railways, utility rights-of-way, and parks. Besides bicyclists, other users could be pedestrians, runners, skaters, dog walkers, people in wheelchairs, etc.

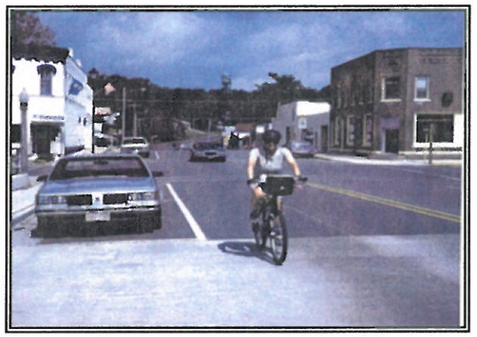
Figure IV-3 shows examples of each type of bicycle facility described in this section.

Pedestrian facilities usually consist of walkways, street crosswalks, traffic signals, and other features such as benches, shelters, lighting, and landscaping. It is important in the design of such facilities to keep handicapped users in mind. Sidewalks are the most prevalent types of walkway. Sidewalks are separated paths along roadways typically made of concrete. Shared use paths as described earlier in this section are considered a type of walkway. These paths can be unpaved, however they should be made of compacted materials that provide a hard, fairly smooth surface to meet the Americans with Disabilities Act (ADA) requirements. Shoulders can serve pedestrian needs in some rural areas. For shoulders to be used by pedestrians, they should be designed with a width that can serve both pedestrians and bicycles.

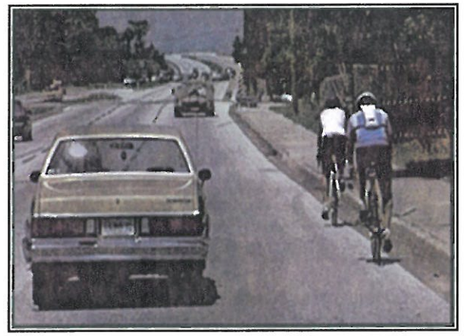
Feasibility of Facilities along the Corridor

The proposed roadway section for the rural areas along the El Camino East-West Corridor is a four-lane divided highway. The LaDOTD standard four-lane typical section has ten foot outside shoulders. According to AASHTO's guidelines a minimum width of four feet is needed for a bicycle lane. The proposed section can easily accommodate bicycle travel as a bike lane facility type. Figure IV-4 shows the proposed rural highway section with bike lanes added. Bicycle route pavement markings and signage should be included. According to the AASHTO guidelines, grades should not exceed 5% for bicycle facilities. The majority of the corridor has less than a 5% grade with 6% being the maximum.

Figure IV-3
Various Types of Bicycle Facilities



Shared Roadway (No Bicycle Designation)



Shared Roadway-Wide Curb Lane

Signed Shared Roadway

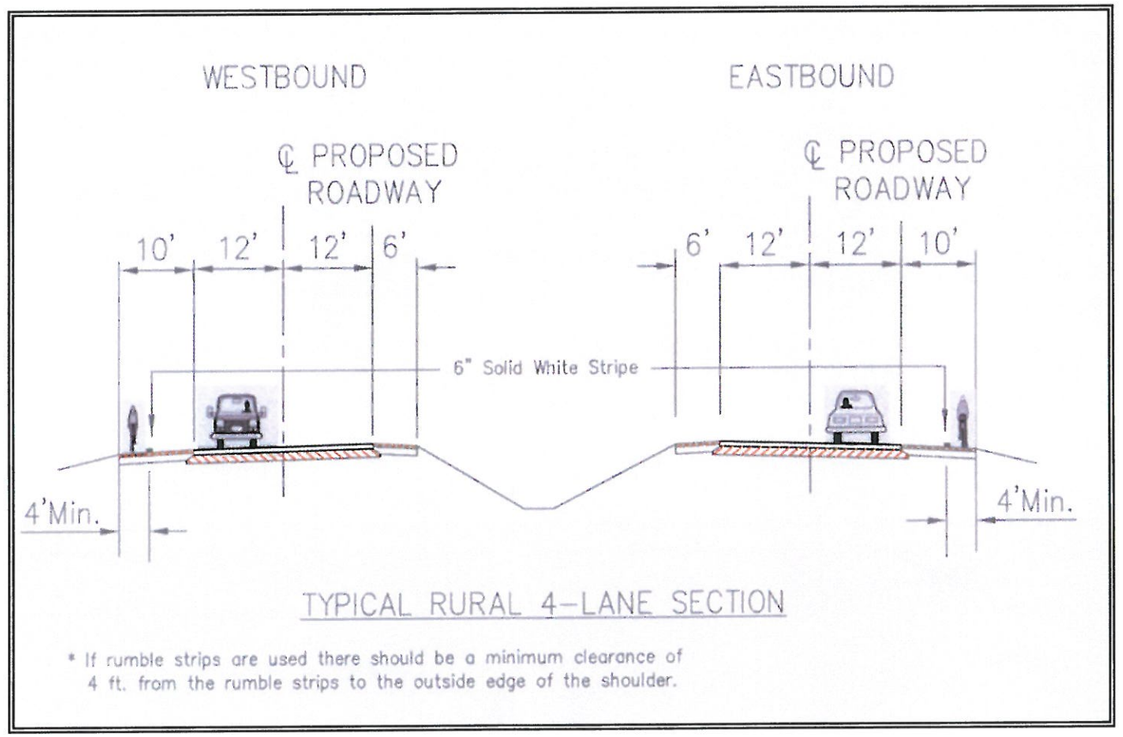
Bicycle Lane- Street with Parking

Bicycle Lane

Shared Use Path

Sources: *Guide for Development of Bicycle Facilities* (AASHTO, 1999) & *Bicycle Lanes Versus Wide Curb Lanes* (FHWA, 1999)

Figure IV-4
Proposed Rural 4-Lane Highway Section With Bicycle Lanes



Determining the feasibility of bicycle facilities within urban areas is not as easy as the rural sections. Each town presents its own set of problems based on the existing conditions. In some of the smaller communities, the proposed roadway section is the same as the rural areas, which will be able to accommodate the bike lanes. However, the rest of the urban areas typically have curb and gutter sections and no additional right-of-way to widen the roadway, forcing bicycles to share lanes with vehicular traffic. In urban areas where the road section cannot be widened for bicycle use, it is recommended to use less traveled streets as an alternate route through town. This can be achieved by adding bike route signs to the alternate streets. Pedestrian facilities can easily be provided in the urban areas if the right-of-way exists. Sidewalks and crosswalks are recommended for urban areas where such facilities do not exist.

Recommended Enhancements

The inclusion of a bicycle route along the El Camino East-West Corridor is a highly recommended enhancement. Bike lanes can easily be accommodated on the proposed roadway section for a large majority of the corridor. In urban areas where safe bicycle travel can not be provided, the path can be rerouted through designated streets with less traffic. Adding a bicycle route will illustrate the state's

commitment to creating a modally balanced transportation system, and expand the allure and increase the usage of the El Camino East-West Corridor. Bicycle and pedestrian facilities within the communities along the corridor would provide aesthetic enhancements, traffic improvements, recreation, economic impact, and a better quality of life.

C. LANDSCAPING CONSIDERATIONS

Background

The natural landscape of the national historic trail, El Camino Real de los Tejas, has changed over the last few centuries due to agriculture and urban expansion. Although the natural landscape has changed due to human settlement, areas such as the Paso de Francia crossing of the Rio de Grande near Guero, Coahuila, Mexico, the open Plains of West Texas, and the wall of forest and underbrush along the narrow, winding roads in Louisiana are reminiscent of the historic landscape traveled by early settlers and explorers (El Camino Real de los Tejas National Historic Trail Feasibility Study and Environmental Assessment). With large maturing trees and open green spaces offering a picturesque route during trade and commerce to its earlier travelers, it is only natural that the corridors, entryways, and gateways be given special attention to retain this historic ambience.

Corridors are main routes that allow traffic into and out of the city. Landscaping in and around these areas create patterns of shade and sunlight, openness and enclosure. For example, grouping pine trees in a repeating pattern and then grouping a cluster of southern magnolias around an important intersection can offer variety and excitement, which help carry traffic through areas in a more pleasant and relaxing manner. Gateways are located at the transition areas from rural to urban settings and are important when creating a welcoming feeling. For example, by placing a welcoming sign in combination with large masses of plantings that have high contrast in texture, color, form and size a friendly and inviting entry can be created. The entry into a town or city provides a visitor's first and strongest impression and is a reflection of the area's citizens and businesses. Signs, sidewalks, accent lighting, and smaller, more detailed plantings of shrubs, ground covers and annuals can accomplish this effect.

The landscaping considerations are divided into several sections. The first examines Louisiana's current plans and policies, as well as the efforts and plans of Texas, Mississippi, Alabama, and Georgia. The second section discusses the feasibility of including landscaping along the El Camino East-West Corridor by looking at the overall route and issues of different flora zones and applicable plantings for each. Finally, funding sources for highway landscaping projects are explored.

Current Plans and Policies

Louisiana

In order to ascertain what the current policy and plans for the state are regarding landscaping along their highways, discussions were held with two LaDOTD officials and research was conducted on the LaDOTD website as well as other governmental sites.

Ms. Ann Wills, P.E., Enhancement Program Manager, was contacted regarding the Transportation Enhancement Program. She stated that $10 million would be allocated for transportation enhancements during the 2002 funding year. According to information on the LaDOTD website, 109 projects totaling $25,547,637 have applied for federal funds during the 2002 funding cycle. The projects that have applied for funding will go through a selection process to determine where the funds will be allocated. She also mentioned the efforts already in action for areas near the El Camino East-West Corridor that would complement this project. Ms. Wills stated that there are also Capital Outlay funds that could be applicable for landscaping of the corridor.

Mr. Roy Dupuy, Landscape Enhancement Coordinator with the LaDOTD, was contacted regarding the state's policies and plans regarding landscaping. According to Mr. Dupuy, the LaDOTD *Policy for Roadside Vegetative Management* and the *2000 Standard Specifications for Roads and Bridges* are two sources of guidelines for including landscaping in all phases of the project.

For reference purposes, the El Camino East-West Corridor conjoining states' policies and plans relating to highway landscaping are discussed below:

Alabama

The Statewide Transportation Plan was developed to aid the Alabama Department of Transportation. The plan is designed to assist in anticipating, planning for, and prioritizing the transportation needs of the state. It has long-range goals and objectives that the state of Alabama will work toward achieving over the next 25 years. It includes many transportation modes such as highway, rail, transit, aviation, ports and waterways, bicycling and walking.

Georgia

The state of Georgia has a Transportation Enhancement Program. This program, which is federally funded, was originally established in 1991 by the Intermodal Surface Transportation Efficiency Act (ISTEA) and continued by the Transportation Equity Act for the 21st Century (TEA-21) in 1998. The Georgia DOT's Planning Office manages the program. For the year 2002 to 2003, Georgia DOT received 255 eligible applications representing proposed projects that totaled over $158 million in federal funds from the 11 congressional districts. Of the original 255 applications, 135 were ultimately chosen to receive funding. To help in project selection, the Georgia DOT relied on an extensive in-house technical review as well as review by the Transportation Advisory Panel, which was originally formed in 1992. The panel is made up of professionals from outside the DOT who bring their knowledge in the various Transportation Enhancement Program project categories to assist in evaluating each application. The panel's work concludes with a list of recommendations that is forwarded to the State Transportation Board where the final project selections are made.

Mississippi

The State of Mississippi has created the *Project Development Manual (PDM)* for Local Public Agencies. This manual is a working reference for the planning, design, and construction of Local Public Agency (LPA) projects funded by the Federal Highway Administration and under the oversight of the Mississippi Department of Transportation (MDOT). The processes described by the manual are applicable to all LPA projects funded with Surface Transportation Funds, Transportation Enhancement Funds, National Highway System Intermodal Connector Improvement Program funds and Intelligent Transportation funds. The procedures outlined in the PDM have been developed to maximize the delegation of responsibility to the LPA in preliminary phases of a project. The LPA than can retain more of the approval authority at the local level when developing projects. This process saves time and money since the LPA has the authority to develop and manage its own projects. The PDM procedures became effective July of 2001.

Transportation Enhancement Projects are awarded to LPAs on a competitive basis. The MDOT coordinates the project selection process and includes all transportation enhancement projects in the Statewide Transportation Improvement Program.

Texas

The state of Texas has a program called the *Statewide Transportation Enhancement Program.* The Texas Department of Transportation (TxDOT) administers this program. Federal legislation (TEA-21) allows for 80% of allowable costs to be reimbursed for enhancements. This statewide competitive program has approximately $130 million available for the selection of eligible candidate projects for the year 2002.

According to the news release on the website of TxDOT dated January 31, 2002, more than $143 million was approved for transportation projects. Three hundred fifteen (315) eligible projects, totaling over $500 million, were nominated last year by local authorities across the state. This year shows a generous difference in funds awarded compared to two years ago. In 2000, 126 projects totaling $124 million were awarded funding for the enhancement of Texas' scenic, historical, natural and cultural resources.

Louisiana Highway Landscaping Design Standards

Safety, maintenance, and aesthetics are important elements in roadway landscaping design. Incorporating landscaping and environmental design into the transportation development process helps ensure that the transportation facility will be compatible with its existing and potential land use. The key items involved in roadway landscaping are as follows:

- Safety: Plantings can be very effective in screening headlight glare from oncoming vehicles, delineating changes in highway alignment, and even alleviating driver fatigue. Also proper landscaping may aid motorists in seeing directional signs by framing or forming a background Trees must be planted a minimum distance from travel lanes, sight lines must be maintained and not blocked by planting, and signs must be visible and not obscured by foliage

- Maintenance: Plantings should be of the appropriate type to ensure low or little maintenance. For example, trees, shrubs, flowering plants and turf grass should all be considered in terms of their water needs, freeze resistance, and growth patterns. The use of native plants and xeriscaping is helpful.

- Aesthetics: Aesthetics plays a key role since the main purpose of landscaping is to beautify. Plants and flower color, flowering periods, deciduous vs. non-deciduous type, plant height, girth, and shape are all considerations taken when developing an appropriate landscape plan.

Planting designs should be created in accordance with the requirements of the highway and serve a justifiable purpose. Louisiana has published *Policy for Roadside Vegetation Management* that guides all landscaping designs along the highways.

Landscaping Recommendations for the El Camino East-West Corridor

In this section, the feasibility of adding landscaping to the corridor is examined. The section begins with some general recommendations for the overall route. Specific landscaping suggestions are then identified for the three zones through which the route will pass.

Overall Route

The overall route primarily consists of forestry and farmland. As can be seen in other states, planting native wildflowers and grasses within the right-of-way of rural highways is effective in adding natural character to the highway environment. Including landscaping consideration during the development of the El Camino East-West Corridor should be a consideration throughout the process. By including wildflower seeding with the roadway embankment and median grass hydroseeding, erosion control, increase wildlife habitat, reduce mowing and spraying, and control of noxious weeds is also provided, while enhancing the natural beauty of the forested highway (FHWA *Roadside Vegetation Management*). In low-lying areas, where water collects and mowing is difficult, flowering aquatic plants should be planted. Pampas grass (cortaderia selloana), Cattails (typha latifolia), Louisiana Iris (iris qianticularia), Picekerel Weed (pontederia cordata), and Sagittaria (sagittaria platyphylla) are some examples recommended. Consideration should also be given to lining the corridor with native trees, such as the longleaf pine in the Kisatchie National Forest, to increase and preserve the existing vegetation.

Southern Magnolias (magnolia grandiflora) and Bradford Flowering Pear (pyrus callervana) should be used as the indicator species for major road intersections, gateways, and information areas. Magnolias make a bold statement with their lush evergreen leaves and their dramatic fragrant white flowers. The Magnolia and Bradford Pear are hardy in below freezing conditions making them suitable for the Northern Louisiana climate. The Crape Myrtle (lagerstoemia indica) is proposed at the entryway of urban areas to create an inviting appearance. Crape Myrtles and Bradford Pears have a very long blooming season and distinctive characteristics during other seasons. The autumn foliage and showy bark as well as the branch configuration offer interest year-round.

Identification of Zones

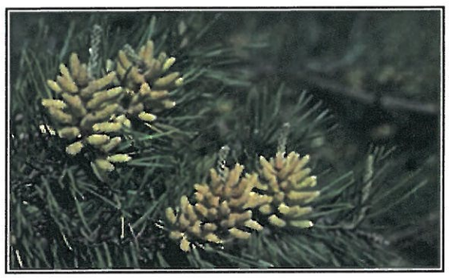
The proposed landscaping of the El Camino East-West Corridor has been broken down into three basic zones. These zones were identified during site visits. These areas will be treated similar to the overall route in using wildflowers along the rural highway. The distinction will be emphasized by the use of trees indigenous to each zone. By creating these zones, our intention is to supplement the existing vegetation with the same tree and plant species, therefore preserving and reintroducing native trees. These zones are as follows:

- Zone 1 – Toledo Bend Bridge to Red River
- Zone 2 – Red River to Winnfield
- Zone 3 – Winnfield to Archie

Landscaping Recommendations by Zones

Zone 1 – Toledo Bend Bridge to Red River

This zone generally consists of gently rolling hills with a predominance of Shortleaf Pine (Pinus echinata). In addition to the Shortleaf Pine, a variety of oaks and hickory trees are also present. Zone 1 ends at the Red River were Bald Cypress (Taxodium distichum) and Pond Cypress (Taxodium ascendens) trees once thrived in masses. Unfortunately, most of the cypress trees in Louisiana have been harvested because of the wood's durability, workability, and attractive appearance. (geocities.com). Reintroducing the Bald and Pond Cypress trees back into their native environment not only provides a habitat to many wildlife species but aids in restoring the cypress swamps that are characteristic of Louisiana.



Zone 2 – Red River to Winnfield

This section of the corridor originally boasted of expansive Longleaf Pine forests. Today, less than 10% of the original Longleaf Pine forests remain. Most historical Longleaf sites have been converted to Loblolly or Slash Pine plantations (The Nature Conservancy of Louisiana). In recent years, the Forest Service has adopted a policy to promote Longleaf Pine where it occurs naturally. In addition to maintaining current Longleaf Pine forests, the agency is restoring areas that were formerly Longleaf. In keeping with this policy, we recommend replenishing Longleaf Pines in the Kisatchie National Forest area, where they once naturally occurred, and preserve the existing trees during development by using selective tree thinning techniques.

Zone 3 – Winnfield to Archie

Zone 3 primarily consists of lowland hardwood forests. Towards the east end of the corridor, the Catahoula National Wildlife Refuge is encountered where hardwood forests and cypress swamps provide a sanctuary for a variety of marsh and water birds and common aquatic mammals. In this zone, we recommend planting hardwoods and using selective tree thinning techniques. In the floodplain regions, we recommend using aquatic plants, such as the Louisiana iris, and cypress trees because they flourish in these wet, low-lying areas.

Renderings

As previously stated, gateways are located at the transition areas from rural to urban settings. The rendering illustrates a gateway community using Many, LA as the prototype (see Figure IV-5). In the rural area, wildflowers are placed along the embankment and in the median. The placement of wildflowers is carried into the urban area for continuity. As you approach the community, pampas grass is placed in the median. In addition to the wildflowers and Pampas Grass, groupings of Bradford Flowering Pear trees in a bed of Martha's Vineyards roses is placed on the embankment in front of the larger trees, adding visual interest to the gateway. This increased visual impact helps the motorist differentiate between a rural and urban setting while creating a welcoming environment.

Recommended Enhancements

Landscaping the El Camino East-West Corridor is a highly recommended enhancement. Transportation facilities can generate significant public benefits and even pleasures; they are also capable of imposing adverse impacts on the adjacent environment. It is important to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility. Creating a timberland landscape along the rural highway and using more intricate plantings at transition areas will not only beautify and provide additional safety, it assists in preserving the natural environment.

D. FUNDING OF ENHANCEMENT PROJECTS

Capital Funding

As mentioned previously, in 1991 Congress passed the Intermodel Surface Transportation Efficiency Act (ISTEA). This act offered billions in transportation funds for bicycling, walking, and landscaping. In the summer of 1998, the Transportation Equity Act for the 21st Century (TEA-21) was signed into law. This new legislation supplements the changes made to the federal transportation policy and programs manufactured under the ISTEA. The TEA-21 has many provisions that relate to improving conditions ranging from bike and pedestrian facilities to landscaping and scenic beautification. Sponsors can apply for project funding through LaDOTD's Transportation Enhancement Program. According to the LaDOTD website, applicants for the 2002 funding cycle have requested more than $25 million. More than 35% of that was submitted for combination bicycling and pedestrian projects. Projects including a combination of pedestrian, bicycling and landscaping enhancements make up

approximately 25% of the request funding, while landscaping enhancement only projects makes up 13%. When talking with Ms. Wills, it was evident that there have been virtually no funds applied to rural landscaping projects. Most of the landscaping and scenic beautification projects have been in urban areas, such as streetscapes.

In addition to the Transportation Enhancement Program, there are two other sources that offer federal funds for improvements for bicyclists and pedestrians. These programs are called *Recreational Trails* and *Scenic Byways* and have specific criteria for applicants.

Operations and Maintenance Funding

The maintenance of landscaping and bicycle routes and facilities must be considered. LaDOTD typically maintains rural right-of-way along the state highway system. When a route passes through town or city limits, maintenance of the route and its improvements will need to be provided by a local entity. This sponsor could be local government or possibly a volunteer group. It is also necessary to plan for adequate upkeep of the landscaping and the routes in all areas.

Promotional, Marketing and Educational Funding

The final funding issue to consider is the promotion and advertisement of the bicycle route and landscaped corridor as well as the educational programs dealing with the historical features along the corridor. There are several categories covering these items within the federal funding sources. As the route is proposed to run the entire 130 miles of the Corridor, the Louisiana El Camino East-West Corridor Commission would appear to be the most appropriate entity to apply for such funding. As was suggested by Ms. Wills, the commission could also work with Louisiana's Department of Culture, Recreation and Tourism to market and promote the route as a tourism byway and destination.

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FIGURE IV-5
NATURAL ENHANCEMENT RENDERING
GATEWAY COMMUNITY

CHAPTER V
TRAFFIC ANALYSIS

A. INTRODUCTION

A traffic analysis was performed to determine highway usage and capacity for existing and future conditions along the El Camino East-West Corridor. Traffic volume projections were established for each section of the corridor using information obtained from LaDOTD. This information consisted of historic Average Daily Traffic (ADT) counts recorded by traffic monitoring stations along highways LA 6 and US 84. Traffic volumes were projected for the years 2005 and 2025. The year 2005 volumes were used in the "Needs Basis" Alternative, and the design year volumes of 2025 were used for prioritizing the "Ultimate" Four or Five-Lane Alternative.

Traffic studies were performed for two urban communities along the route to ascertain the necessity of a bypass/truck route or alternate through town route. These two communities were Many in Sabine Parish and Jena in Lasalle Parish. The study implemented data from 24-hour bi-directional traffic classification counts, 12-hour traffic hand counts, video screen line results, input from town officials, and professional judgment related to the two developed areas. Several improvement options were analyzed including bypasses, through town five-lane improvements and urban couplets.

Reducing accidents is a substantial justification to upgrading a segment of roadway. Historic accident data along the corridor was collected from LaDOTD for the six-year period of 1993 to 1998. The data was based upon control sections and subsections and therefore could be correlated to traffic count data. Accident counts were also used in the prioritization of the "Ultimate" Four or Five-Lane Alternative projects.

B. PARISH TRAFFIC PROJECTIONS

Traffic volume projections were developed for each section of the corridor using ADT's obtained from LaDOTD. Utilizing 1996 as the base year, an average growth rate of 2% per year was used to project ADT's to the year 2025. The 2% annual projection rate was developed in the *El Camino East-West Corridor Louisiana Feasibility Study* (Frederic R. Harris, Inc., August 1998).

C. LEVEL-OF-SERVICE ANALYSIS

A transportation system's capacity and level-of-service is a measure of how well it accommodates traffic flow. Level-of-service (LOS) qualitatively measures the operating conditions within a traffic facility and how these conditions affect operators. There are six levels of service ranging from LOS A, condition where drivers can travel at desired speeds with little to no delays, to LOS F, condition where volume is over capacity and traffic flow is very congested. LOS B indicates stable flow with few restrictions on speed. LOS C reflects stable flow with higher traffic volumes and more restrictions. LOS D represents a condition approaching unstable flow without much freedom of maneuverability. The upper limit of LOS E is the capacity of the traffic facility and indicates unstable flow with lower operating speeds. Figure V-1 pictorially shows an example of each level of service.

Rural Setting

The method of determining LOS on rural two-lane roadways is based on average travel speed and percent time spent following. Percent time spent following is the average percentage of travel time a traveler must spend behind a slower platoon of vehicles due to the inability to pass. This represents the comfort and convenience of the drivers along the highway. The average travel speed is the length of a section of highway divided by the average travel time for drivers to travel the section in both directions within a certain interval and reflects the mobility of the highway. Theories, procedures, and methodologies used in this LOS analysis are described in the *Highway Capacity Manual-2000 Edition*. Other values such as traffic mix, directional split, terrain, and access point densities are used to compute LOS for any given section of roadway. These values were obtained from the *El Camino East-West Corridor Louisiana Feasibility Study*, default values from *Highway Capacity Manual-2000 Edition*, as-built roadway plans, area quadrangle maps and engineering experience. Table V-1 gives the LOS criteria for rural two-lane highways that were used for this analysis. LaDOTD designates LOS B as the minimum design level of service for rural two-lane and four-lane highways.

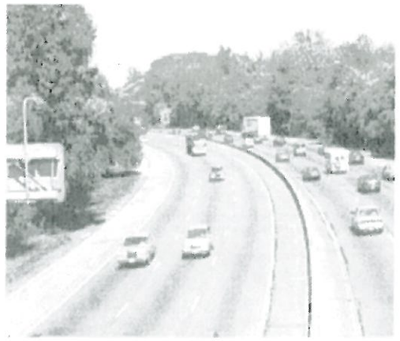
Table V-1
LOS Criteria for Rural Two-Lane Highways

LOS	Percent Time-Spent Following	Average Travel Speed (mi/h)
A	≤ 35	> 55
B	> 35-50	> 50-55
C	> 50-65	> 45-50
D	> 65-80	> 40-45
E	> 80	≤ 40

Source: *Highway Capacity Manual-2000 Edition* (Transportation Research Board National Research Council)

Figure V-1
Levels of Service

Level of Service A



Level of Service B

Level of Service C

Level of Service D

Level of Service E

Level of Service F

Source: *Highway Capacity Manual-2000 Edition* (Transportation Research Board National Research Council)

Urban Setting

The method of determining LOS on urban two-lane roadways is based on average travel speed and urban street class for the segment being considered. Vehicle running times and signalized intersection operations are used to compute LOS along an urban street section. The LOS for urban streets is affected by number of signalized intersections per mile and the intersection control delay. Streets with high signal densities usually have a poor LOS, and in many cases a LOS A cannot be achieved. Improper signal timing at intersections can substantially degrade LOS. The accuracy of level of service analysis is dependent upon the input values. For planning level analysis these values can be generalized. For the basis of this Master Plan Study, generalized Level-of-Service tables were used to estimate urban segment LOS. Table V-2 gives LOS criteria for areas transitioning into urbanized areas or areas over 5000 population not in urbanized areas. This criterion was used for evaluation of urban segments in Natchitoches and Winnfield. Table V-3 gives LOS criteria for developed areas less than 5000 population and was used to evaluate urban sections in Many, Robeline, Tullos, and Jena. LaDOTD designates LOS C as the standard level of service for urban two-lane and four-lane highways.

Table V-2
LOS Criteria for Urban Two-Lane Highways for Areas Transitioning into Urbanized Areas or Over 5000 Population Not in Urbanized Areas

Interrupted Flow					
Class I – (>0.00 to 1.99 signalized intersections per mile)					
Lanes/ Divided	Level of Service Based on ADT				
	A*	B	C	D**	E**
2 Undivided	N/A	10,000	14,400	15,600	15,600
4 Undivided w/ Bays	N/A	20,950	29,050	31,240	31,240

*Cannot be achieved
**Volumes are comparible because intersection capacities have been reached

Source: *1998 Level of Service Handbook* (Florida Department of Transportation)

Table V-3
LOS Criteria for Urban Two-Lane Highways for Developed Areas Less Than 5000 Population

Interrupted Flow Arterials					
Class Ib – (more than 1.50 signalized intersections per mile)					
Lanes/Divided/Bays	Level of Service Based on ADT				
	A*	B	C	D**	E**
2 Undivided /No Bays	N/A	3,700	9,700	10,800	11,600
4 Undivided w/ Bays	N/A	9,700	25,200	27,700	29,600

*Cannot be achieved
**Volumes are comparible because intersection capacities have been reached

Source: *1998 Level of Service Handbook* (Florida Department of Transportation)

Analysis

Projected traffic volumes were derived by applying a 2% annual growth factor to the 1996 volume data obtained from LaDOTD. These projected traffic volumes were used to determine LOS conditions along each segment of the corridor. Actual traffic volumes were collected for the communities of Many and Jena. The same growth factor was applied to these volumes to project a year 2005 and 2025 traffic volume.

Under the "Needs Basis" Alternative, the Build Year (2005) traffic volumes were used to analyze LOS and determine the need to upgrade from existing two-lane highway to a four-lane highway based on traffic capacity. The adopted LaDOTD design standards specify that a rural highway (RA-1) be designed to LOS B or greater. Based on the *Highway Capacity Manual's* methodology of computing LOS, an average daily traffic (ADT) as low as 3100 vehicles per day (vpd) on a "rolling" two-lane highway would yield a LOS C. Interpreting the LaDOTD design criteria strictly, this would require any highway segment with ADT of greater than 3100 vpd be upgraded to four lanes. Based on our professional judgment, this is too conservative and will not provide a reasonable benefit for the investment.

There are several references that discuss relative need and priority of highway improvement projects taking into account traffic service. The LaDOTD produced document *Highway Project Selection Process* (January 2000) formalizes the inclusion and rating of proposed projects. In the selection process and scoring of "Additional Capacity/New Infrastructure Projects", points are awarded for a project based on LOS values. The LOS values for a rural arterial and urban arterial (with population less than 25,000) that receive points are LOS D and E. Based on this rationale, Sigma will use ***LOS C*** as the acceptable minimum level of service when evaluating the "Needs Basis" alternative.

The Design Year (2025) traffic volumes were used to analyze LOS for the "Ultimate" rural four-lane or urban five-lane roadway sections. This LOS analysis was used in prioritizing the "Ultimate" Four or Five-Lane Alternative projects. A traffic study was performed for the two communities of Many and Jena, Louisiana. This study included field gathering of existing traffic data, local-through movement investigation, and capacity analysis to support recommendations for or against a by-pass/truck route.

In order to use traffic criteria in the prioritization process of the "Ultimate" four-lane projects, traffic volume ranges were created for each level of service (Table V-4). Urban level of service ADT ranges were reproduced from Generalized Level of Service Tables. Urban ranges were broken up into two area types. Area Type 1 is for areas transitioning into urbanized areas or areas over 5000 population not in urbanized areas. LOS A is not attainable for a Type 1 urbanized roadway and was therefore left out for this area type. Area Type 2 is for the rural undeveloped areas and cities or developed areas less than 5000 population. LOS A is also not attainable for a Type 2 urbanized roadway and was therefore left out for this area type. The ADT ranges for rural highways were calculated using the method described in the *Highway Capacity Manual-2000 Edition* for the LaDOTD Standard 4-Lane Divided Roadway Section. The ranges in Table V-4 were used to assign scoring values to the traffic along the corridor in the project prioritization process.

Table V-4
ADT Ranges for Level of Service

LOS	ADT Ranges			
	Rural		Urban	
	Level Terrain	Rolling Terrain	Area Type 1	Area Type 2
A	0 – 12,400	0 – 10,100	N/A	N/A
B	12,401 – 20,250	10,101 – 16,500	0 – 20,950	0 – 9,700
C	20,251 – 29,000	16,501 – 23,700	20,951 – 29,050	9,701 – 25,200

CHAPTER VI
LIMITED LINE AND GRADE STUDY

A. INTRODUCTION

In order to geometrically evaluate the existing El Camino East-West Corridor and recommend reasonable improvements, a Limited Line and Grade Study was performed. The Line and Grade Study utilizes the information generated from the tasks discussed in the previous chapters. Items such as the design criteria, traffic service, safety and environmental impacts were considered to develop the horizontal, vertical and section requirements necessary to implement the most reasonable improvements. The proposed improvements are depicted on layout maps on color aerial photography in Appendix A. Preliminary profiles for the entire route are shown in Appendix B.

B. CASES STUDIED

For this Limited Line and Grade Study, two cases were studied: The "Needs Basis" Alternative and the "Ultimate" Four or Five-Lane Alternative.

The "Needs Basis" Alternative

The "Needs Basis" Alternative generates recommended improvements based on generally accepted engineering practice. Items considered that can generate a recommended improvement for the "Needs Basis" Alternative include traffic service, geometric deficiencies (both horizontal and vertical) or section deficiencies such as narrow lanes or insufficient shoulders. The "Needs Basis" Alternative does not take into account system-wide development or other items that may influence the decision to upgrade a segment in the corridor such as roadway section consistency, driver expectation or economic development. The "Needs Basis" Alternative improvements and section width requirements are shown in the lower portion of the layout maps in Appendix A.

The "Ultimate" Alternative

The "Ultimate" Four or Five-Lane Alternative generates recommended improvements throughout the corridor that will improve the entire corridor to a four or five lane highway. The "Ultimate" Alternative reported in this Study addresses the regional and inter state consideration for system continuity within Louisiana. The plan portions of the layout maps in Appendix A graphically depict the "Ultimate" improvements recommended. In addition, the "Ultimate" Alternative improvements and section width requirements are described below the "Needs Basis" Alternative in the lower portion of the layout maps in Appendix A.

C. PROCESS AND IMPLEMENTATION

As-built plans for the entire corridor were gathered from LaDOTD. The existing alignments were electronically modeled both horizontally and vertically. Also, the as-built plans were reviewed for existing section widths. The recorded values for roadway and shoulder width were then verified by reviewing the windshield survey videotape performed in June of 2001. Information gathered in the data collection process was then incorporated into a Geographic Information System (GIS) for use in analyzing and comparing various scenarios and alternatives. This graphic database contained all of the natural, human and cultural features that may be affected by the proposed improvements.

Horizontal and Vertical Considerations

Once the existing corridor was modeled, it was evaluated against the Design Criteria detailed in Chapter II. Any section of roadway failing to meet the horizontal, vertical or section criteria will be reconstructed or rehabilitated. Generally, these segments are addressed in both the "Needs Basis" and "Ultimate" alternatives.

There is one horizontal issue and one vertical issue that require clarification as to their application in this line and grade study.

- All horizontal curves that violate the maximum degree of curvature (minimum radius) are corrected. However, there are several curves that do not meet the minimum length recommended by the AASHTO "Green Book". Curves that meet or exceed the minimum radius requirement but do not meet the recommended horizontal length are not adjusted in this Study. It was determined that these curves do not introduce a safety hazard or capacity constraint, and that any improvements would not be cost effective.
- All vertical grades that exceed the maximum allowable grade according to the applicable design criteria are to be rebuilt. However, the length of existing crest and sag vertical curves is not considered a critical factor for determining rebuild conditions. It was determined that this condition does not introduce a safety hazard and it is not cost effective to construct. However, whenever a new vertical alignment is required based on grade violations, vertical curves with acceptable design length are specified.

Traffic Service Considerations

Once the geometric and section deficiencies were identified and addressed, traffic level of service was reviewed as described in Chapter V – Traffic Analysis. For the "Needs Basis" Alternative, all proposed project segments that have a controlling Level of Service (LOS) of D or greater for the "build" year (2005) are determined to need upgrading to a four or five lane facility.

For those project segments where the "Needs Basis" Alternative recommends a four or five-lane improvement, the "Ultimate" Alternative improvement is the same. The remaining sections of the "Ultimate" Alternative are projected to be four or five-lane improvements to maintain the system continuity without consideration to traffic service.

Determination of Layout

Once the type and limits of improvements were identified for both the "Needs Basis" and "Ultimate" Alternatives, the layout of these improvements was determined. The "Needs Basis" Alternative was initially incorporated throughout the corridor to identify the minimum requirements for maintaining the roadway to the design criteria. The "Ultimate" Alternative was then incorporated to upgrade the entire corridor to a four or five-lane roadway system. Generally, the "Needs Basis" Alternative becomes part of the "Ultimate" Alternative.

To determine which side of the existing road to build the two new lanes throughout the rural areas, the following procedure was used.

- Based on the field review and the data collected, a preliminary layout was determined based on minimizing impacts on community, natural, historical, residential and commercial sites.
- Necessary geometric constraints were taken into consideration such as eliminating design criteria deficiencies, maintaining alignment continuity and accounting for construction costs.
- Once the preliminary layout was determined, "buffers" were created throughout each project segment based on the conceptual proposed right of way limits. In addition, "buffers" were created on the other side of the existing highway to the same general width to get at a basis of comparison.
- By querying the GIS using these two buffers per project segment, we determined the impacts of the proposed widening and the potential impacts if the widening were placed on the opposite side of the existing highway.
- The results generated from querying these two buffers per project segment were then compared to verify that the side projected for widening would generally have lesser overall impact than the opposite side.

Other Items Considered

Bridges

All bridges throughout the corridor were inventoried and reviewed for both section and structural adequacy. Where existing bridges were sufficient to remain in place, widening and/or new parallel structures were projected as appropriate for each specific location. Special consideration was given to complex or unique structures such as railroad overpasses, the Toledo Bend Bridge and the Red River crossing.

The existing and proposed bridge locations along with their structure numbers are depicted in the plan portion of the layout maps in Appendix A and on the preliminary profiles in Appendix B.

Railroad Crossings

Sigma met with the LaDOTD Railroad Engineer to discuss all active railroad crossings located along the corridor. Where the railroads cross either LA 6 or US 84, there is a mixture of grade crossings with various levels of signalization and several grade separation overpass structures. It is now LaDOTD policy to recommend grade separation structures at all railroad crossings, if feasible. Each railroad crossing will be discussed in further detail as part of the project descriptions.

Drainage

A general review of historic flooding problems along with the compilation of existing flood zone data was performed throughout the corridor. Where there is an indication of significant flooding problems, improvements are included in the appropriate alternative to address this concern. Improvements may include a new major drainage structure/bridge or rebuilding the roadway to a height that is above the published flood zone elevation. In depth drainage study and design is outside the scope of this Study.

CHAPTER VII
LOGICAL PROJECT DETERMINATION

A. INTRODUCTION

The El Camino East-West Corridor under study consists of over 130 miles of roadway traversing through five parishes. Less than six miles currently have more than two lanes of traffic. The Louisiana Department of Transportation and Development (LaDOTD) has committed various improvements along the corridor as part of the State Transportation Program. These include a widened urban roadway section north of Natchitoches to the Red River, and a widened urban roadway section along US 84/167 through Winnfield.

The remainder of the corridor may require improvements based upon criteria explained in Chapter VI – Limited Line and Grade Study. The method used for determining reasonable design/construction projects through the corridor is based on items such as logical termini, manageable construction packages and as-built limits. The limits are compatible with the control sections as maintained by LaDOTD along LA 6 and US 84.

B. FUNDING

The potential funding of highway construction must be considered in creating reasonably sized construction projects. Funding sources generally include a combination of federal, state and local funds. In 1996, the State of Louisiana adopted the Statewide Intermodal Transportation Plan (LaDOTD 1996). This plan was in accordance with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The ISTEA authorized the identification of a National Highway System (NHS) and provided a separate funding category for its maintenance and improvement.

The purpose of the NHS is to provide an interconnected system of principal arterial routes that serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel. The NHS in Louisiana consists of a total of 2,669 miles of highway. Both LA 6 and US 84 are designated as part of the National Highway System.

The Surface Transportation Program (STP) is another classification of major federal funding designated by ISTEA and is defined as a block grant type program used by states (including Louisiana) for rural or urban arterial or functionally higher roads and funded at the states' discretion. The STP includes projects for highway and railroad safety, enhancements, urban improvements at the discretion of Metropolitan Planning Organizations (MPO), underdeveloped rural areas and other flexible categories. Traditionally, the annual federal funding allocated to Louisiana for the NHS and the flexible category of the STP has been approximately $47 million and $37 million, respectively (LaDOTD 1996). State funding of transportation improvements is through a dedicated Transportation Trust Fund generated through fuel tax revenues. Of the approximately $230 million generated annually in state funding, $12 million and $9 million are matched against the noted federal funds for NHS and STP flexible improvements.

The Statewide Intermodal Transportation Plan identified 47 intermodal transportation improvement alternatives throughout the state. In formulating the plan, which considers a 25-year horizon, three feasible funding levels were considered: dedicating funding of approximately $30 million per year; dedicating funding of approximately $95 million per year; and dedicating funding of approximately $175 million per year (LaDOTD 1996). The El Camino Corridor is not included in the Statewide Intermodal Transportation Plan. The approximately $484 million required to complete the proposed improvements along LA 6 and US 84 would be another program competing for additional funds.

The scope of the master plan study does not include a detailed financial feasibility analysis or a funding plan for the proposed roadway improvements along the corridor. The intent of this section is to explain the general funding structure of LaDOTD programs and therefore create reasonably sized construction projects that are manageable within the confines of current funding levels.

The Study has grouped the individual proposed construction projects into five (5) classifications or tiers. Each tier was developed to consist of approximately the same total conceptual project cost ($85 - $107 million). Assuming a 4-year cycle, this represents approximately $21 - $27 million per year, thereby representing a reasonable level of funding.

C. METHODOLOGY

Construction limits were determined based on the proposed alignment, logical termini points such as intersections and major river crossings, existing areas of four laning, and manageable construction packages. The limits are compatible with the control sections as maintained by LaDOTD along LA 6 and US 84. A review of past rural construction projects included in determining the Unit Cost Basis (see Chapter VIII) showed project lengths of 3 to 6 miles and construction costs of $6.5 - $15 million.

Conceptual construction cost estimates for the "Ultimate" Four or Five-Lane Alternative were prepared for the entire corridor and divided at the proposed project limits. These estimates include the estimated cost of major utility relocations, the estimated cost of road construction based on unit costs per linear foot of roadway including drainage structures and the estimated cost of bridge construction based on a unit cost per square foot.

D. DETERMINATION

Twenty-seven (27) construction projects are proposed. Manageable construction packages were considered in proposing project limits. Typically, projects were either primarily rural or urban. The two (2) major bridge structures (Toledo Bend and Red River including approaches) were considered individual construction projects. With the exception of the two bridge projects, project lengths varied from 2.0 miles to 9.1 miles for rural projects, and from 1.7 miles to 2.6 miles for urban projects. Estimated conceptual construction costs varied from $7 – $32 million for rural projects, and from $10 -

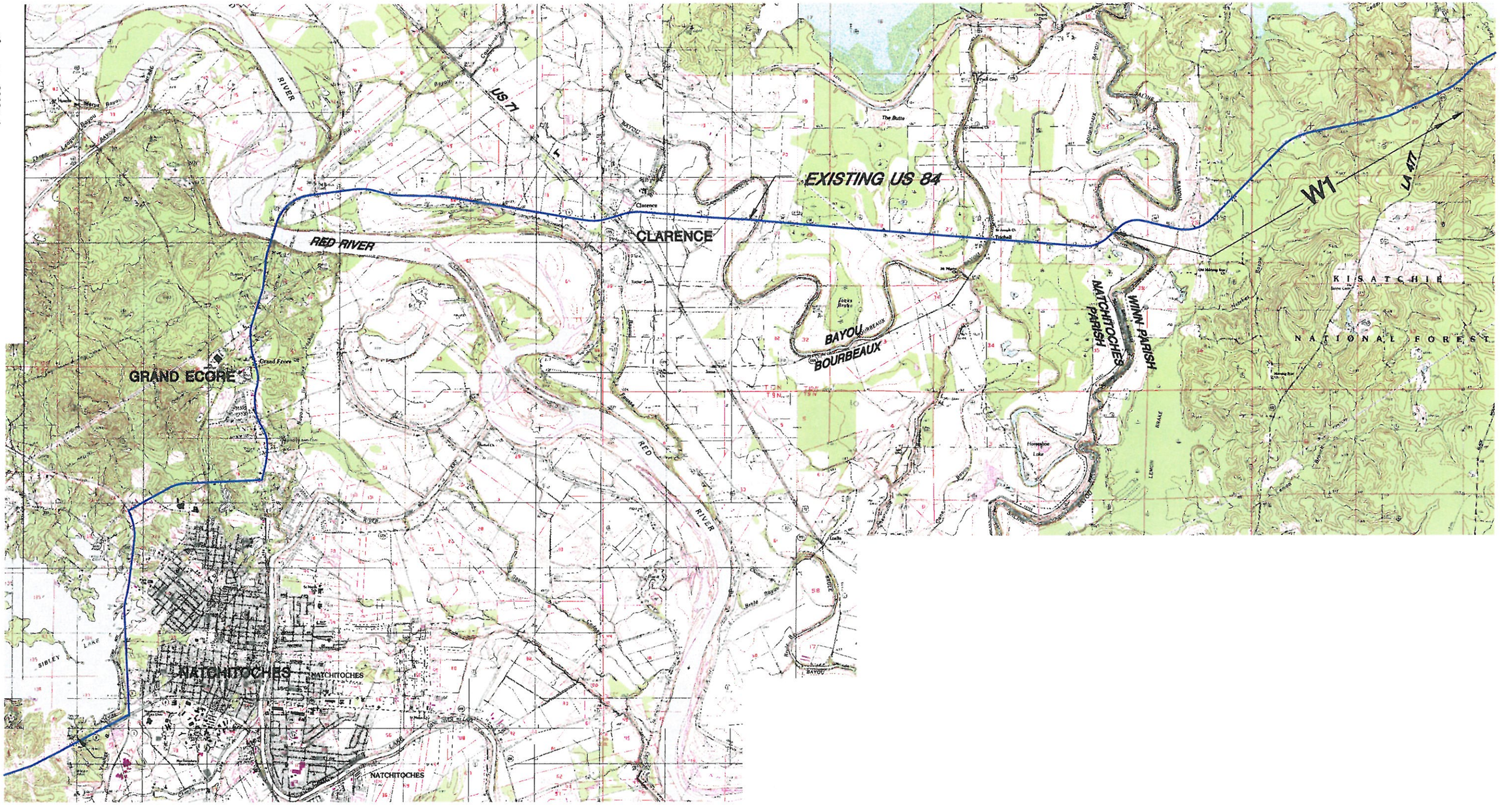
$26 million for urban projects. Project lengths and conceptual construction costs are not directly proportional; bridge widening or reconstruction varies within each section. Table VII-1 summarizes proposed project limits.

Table VII-1
Proposed Project List

Parish	Project	Description	Roadway Type	Length (miles)
Sabine	S1	Toledo Bend Bridge	Rural	2.50
	S2	Toledo Bend Bridge to before LA 191	Rural	2.47
	S3	before LA 191 to before LA 476	Rural	6.09
	S4	before LA 476 to before Unnamed Creek	Rural	5.25
	S5	before Unnamed Creek to US 171 Jct. (Many)	Rural & Urban	1.71
	S6	US 172 Jct. (Many) to after Phillips Creek	Urban	2.57
	S7	after Phillips Creek to LA 3118	Rural	2.86
	S8	LA 3118 to Parish Line	Rural	5.96
Natchitoches	N1	Parish Line (thru Robeline) to after LA 485	Rural & Urban	4.12
	N2	After LA 485 (thru Hagewood) to before I-49	Rural	8.28
	Existing	before I-49 to Natchitoches (LA 6 Bypass)	Rural & Urban	-
	N3	Natchit. Bypass (LA 1/LA 6 & LA 3175/LA 6)	Urban	2.54
	Programmed	Natchit. Bypass to Red River	Urban	-
	N4	Red River Bridge	Urban	0.88
	N5	Red River to east of US 71 / US 84	Rural	3.25
	N6	east of US 171 / US 84 to Parish Line	Rural	4.52
Winn	W1	Parish Line to Gravel Creek	Rural	8.52
	W2	Gravel Creek to before Winnfield City Limits	Rural	9.09
	W3	before Winnfield City Limits to US 167	Urban	2.03
	Existing	Us 167 to Jones St. (LA 34)	Urban	-
	Programmed	Jones St. to US 167 / US 84 Jct.	Urban	-
	W4	US 167 / US 84 Jct. to Joyce (KCS RR)	Rural & Urban	2.37
	W5	Joyce (KCS RR) to Piney Woods Creek	Rural	8.09
	W6	Piney Woods Creek to Castor Creek (Parish Ln)	Rural	9.06
LaSalle	L1	Castor Creek to east of US 165	Urban	1.82
	L2	east of US 165 to Bayou Funny Louis	Rural	9.02
	L3	Bayou Funny Louis to before LA 772	Rural	2.14
	L4	Before LA 772 to Hair Creek (Jena)	Urban	5.86
	L5	Hair Creek to LA 460 / LA 8	Rural	5.25
	L6	LA 460 / LA 8 to Parish Line	Rural	3.61
Catahoula	C1	Parish Line to LA 28	Rural	1.99

PARISH	WINN	SHEET NUMBER	VI-W1

1" = 5000'



Prepared by:

SIGMA CONSULTING GROUP, INC.

JUNE 2002 For:

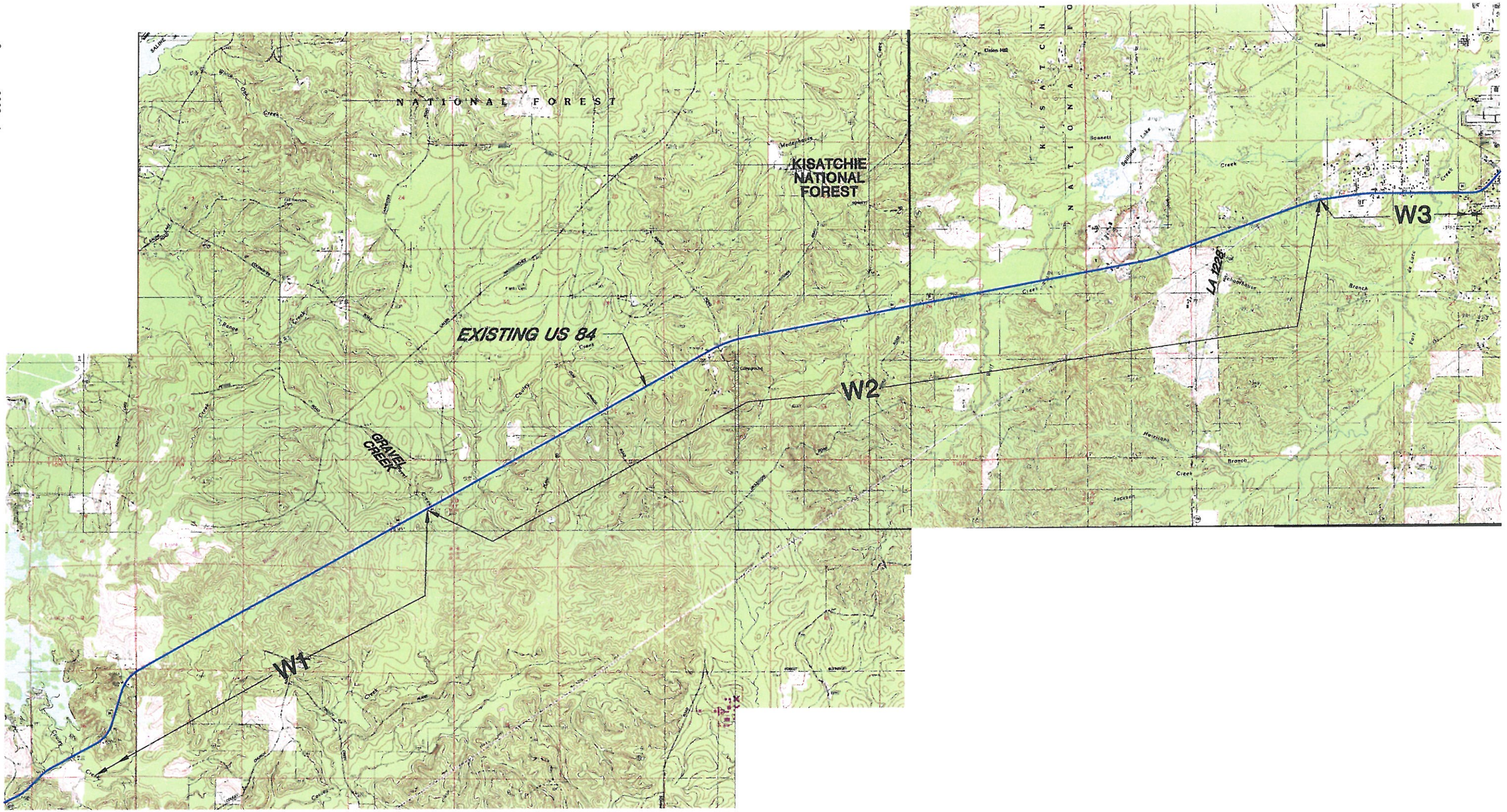
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

PROJECT LIMITS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

PARISH	WINN	SHEET NUMBER	VI-W2

1"=5000'



Prepared by:

SIGMA CONSULTING GROUP, INC.

JUNE 2002

For:

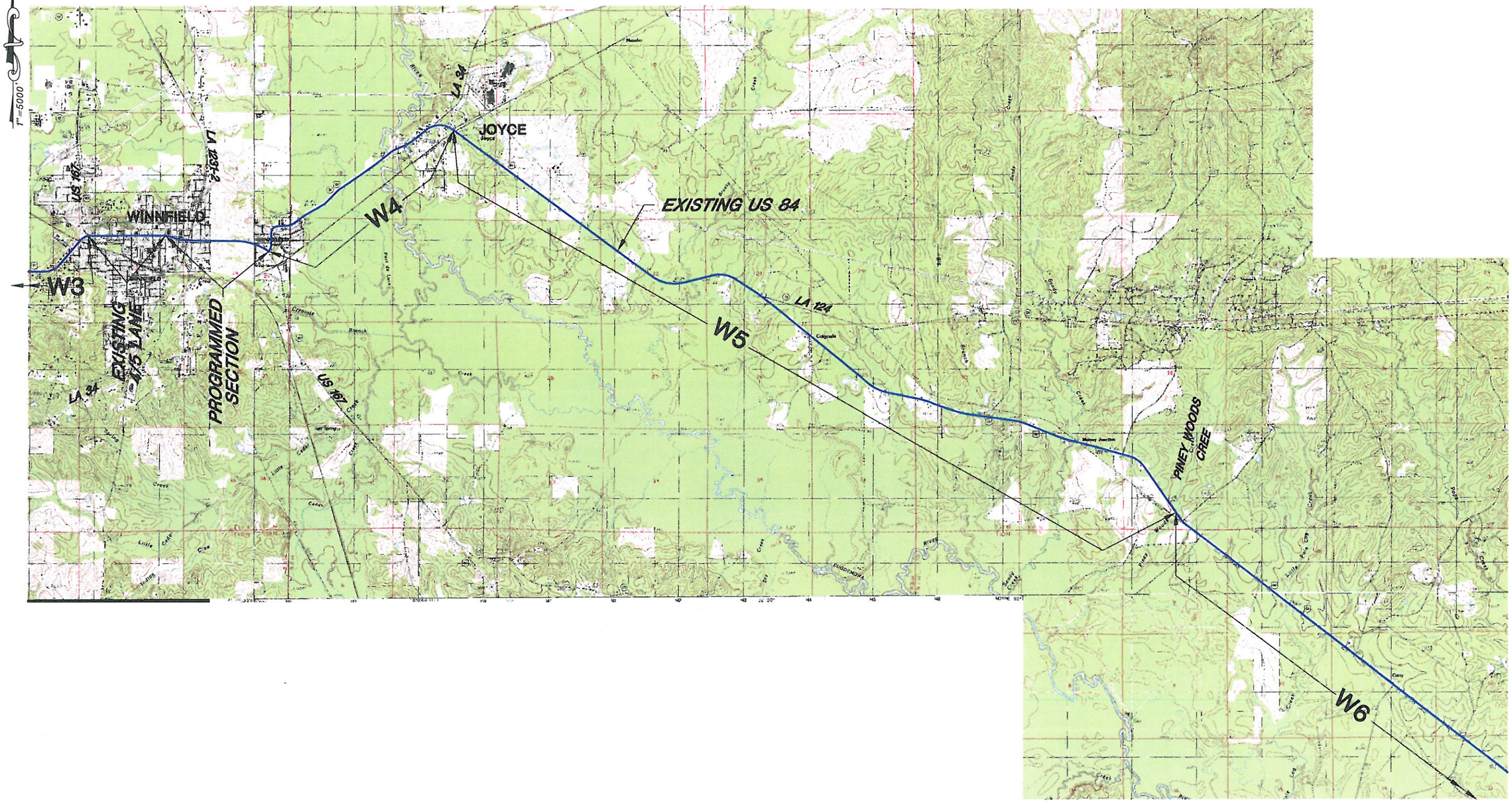
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

PROJECT LIMITS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

PARISH	WINN	SHEET NUMBER	VI-W3

1"=5000'



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EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

PROJECT LIMITS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

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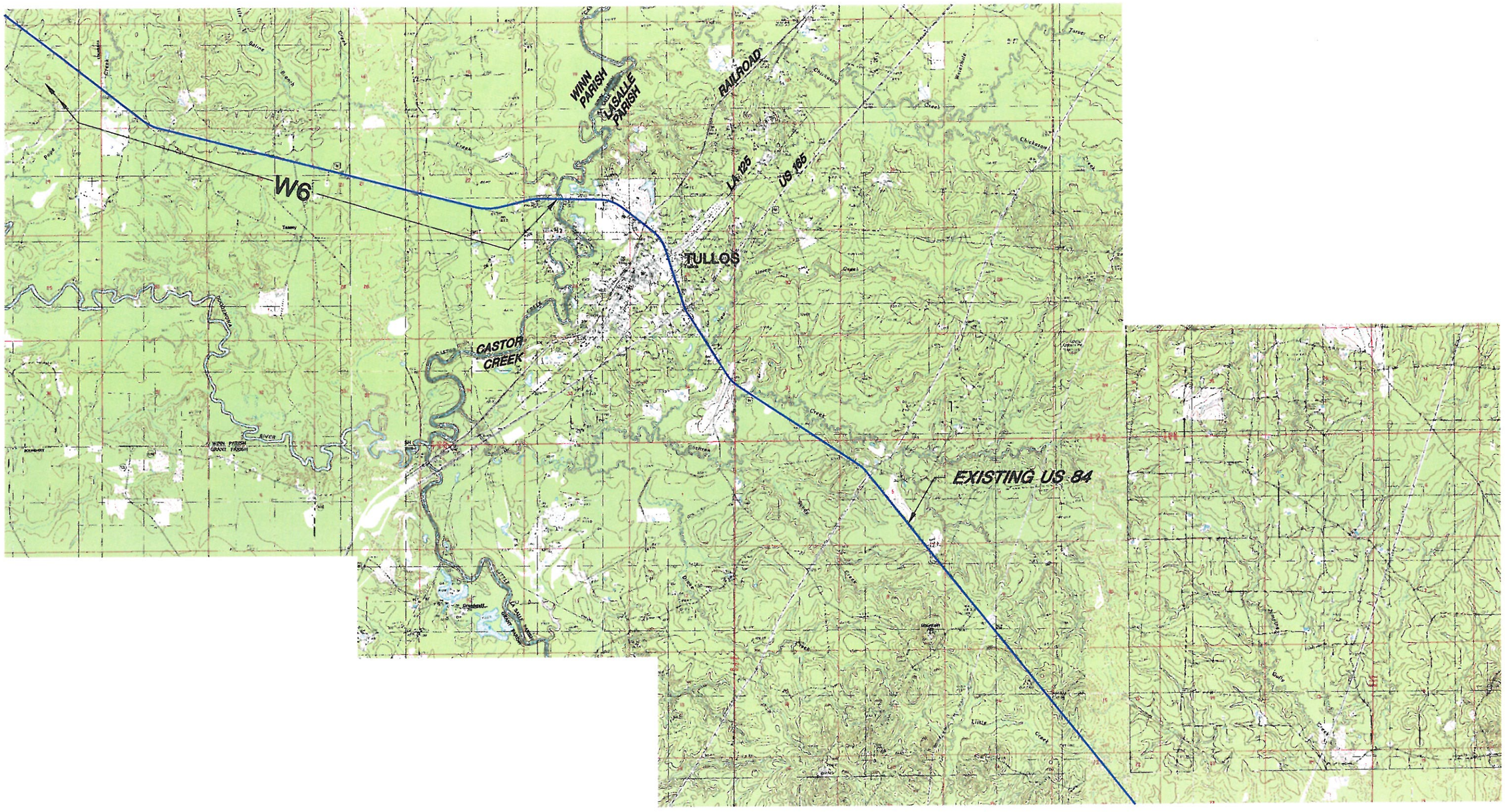
PARISH	WINN	SHEET NUMBER	VI-W4

1" = 5000'



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CHAPTER VIII
CONCEPTUAL PROJECT COST BASIS

A. INTRODUCTION

This section documents the basis used in approximating total conceptual project costs for the El Camino East-West Corridor Master Plan Study. The total conceptual project costs include the following items: right-of-way, residential and commercial relocation, roadway and bridge construction, utility relocation, legal/administrative/engineering costs and contingencies. Estimated right-of-way costs vary per acre depending on the land use type. Relocations are valued at approximate market values. The roadway construction costs range from $80 to $700 per linear foot. The bridge costs range from $45 to $165 per square foot depending on the type of bridge. Utility relocations are estimated at 3% of the conceptual construction cost and legal/administrative/engineering fees are estimated at 12% of the conceptual construction cost. Allowance for contingencies are then added at a rate of 8% of the total conceptual project cost.

Estimating the conceptual cost of a segment involved: (1) identifying right-of-way, relocation, and construction items to be measured, (2) establishing an appropriate unit price for each of these items, and (3) escalating the resulting right-of-way, relocation, and construction costs to allow for utilities, contingencies, and legal/administrative/engineering costs. The quantity of these three key items depended on the limits of the roadway or bridge cross section.

B. RIGHT-OF-WAY COST

Cost of right-of-way (land) and commercial and residential relocations (buildings) are the two factors in determining the cost to acquire residential and commercial property. Based on discussions with and information provided by the Louisiana Department of Transportation and Development (LaDOTD) Real Estate Division, per-acre land acquisition costs for five basic land uses were provided for each parish. The five basic land uses utilized for estimating purposes are:

- Farmland
- Forest
- Low Residential
- High Residential
- Commercial

Table VIII-1 shows the five basic land use types and their associated unit price for each parish for estimating right-of-way cost.

Table VIII-1
Right-of-Way Unit Prices

Land Use Type	Cost Per Acre			
	Sabine	Natchitoches	Winn	LaSalle & Catahoula
Farmland	$ 1,200	$ 1,100	$ 1,000	$ 1,000
Forest	$ 1,500	$ 1,400	$ 1,750	$ 1,500
Low Residential	$ 3,000	$ 1,500	$ 2,500	$ 2,500
High Residential	$ 7,000	$ 2,000	$ 3,500	$ 3,500
Commercial	$ 130,700	$ 108,900	$ 43,600	$ 65,350

The amount of right-of-way required was determined by multiplying the length of the improved segment by the required right-of-way width per improvement type. The resulting acreage requirements were then multiplied by the estimated cost per acre to yield a total right-of-way cost per segment.

C. RELOCATION COST

For residential and commercial relocation costs, an inventory review of each segment was performed. Aerial photographs and windshield surveys of the El Camino East-West Corridor were used to identify individual residences and commercial structures along the proposed route. Residential and commercial relocation costs were also determined through discussions with and information provided by the LaDOTD Real Estate Division. For residential properties, three value categories were generated: low, medium, and high. Commercial properties were evaluated on a per building basis. The relocation costs utilized for estimating residential and commercial displacements are listed in the Table VIII-2

Table VIII-2
Relocation Unit Prices

	Classification	Relocation Costs
Residential	Low	$ 75,000
	Medium	$ 150,000
	High	$ 200,000
Commercial	Individual Basis	Estimated Cost

The relocation costs along with the right-of-way costs were then included to develop an overall conceptual project cost for each segment.

D. ROADWAY CONSTRUCTION COST

Sigma estimated inclusive per linear foot unit prices for several types of roadways. The unit prices used for estimating roadway construction costs are shown in Table VIII-3 "Roadway Construction Unit Prices".

All roadway segments were identified and evaluated for a variety of geometric criteria. The roadway segments in this study fall into one of the following nine categories described below.

RA-1, Two-Lane Rural Arterial

- *Two-Lane (Upgraded)*
  Used for two-lane roadways in rural areas where existing typical sections, such as shoulder widths, do not meet design criteria. See Figure II-1 for conceptual typical section.

- *Two-Lane (New Construction)*
  Used for two-lane roadways in rural areas that do not meet RA-1 geometric standards and, as a result, the existing roadway alignment will be abandoned and two new travel lanes will be constructed. This roadway type applies for the "Needs Basis" alternative only. See Figure II-2 for conceptual typical section.

- *Two-Lane (New Construction), High Fill Area*
  Same criteria as a two-lane (new construction) except the roadway will have higher embankment requirements because it is located within a designated flood plain or the vertical alignment mandates high fill.

RA-3, Four-Lane Rural Arterial

- *Four-Lane (Two-Lane Expansion)*
  Used in rural areas where the existing roadway segments meet or exceed RA-1 standards and two new travel lanes will be constructed adjacent to one side of the existing roadway, therefore providing four-lane capacity. See Figure II-3 for conceptual typical section.

- *Four-Lane (Two-Lane Expansion), High Fill Area*
  Same criteria as a four-lane (two-lane expansion), except the roadway will have higher embankment requirements because it is located within a designated flood plain or the vertical alignment mandates high fill.

RA-4, Four-Lane Rural Arterial

- *Four-Lane (New Construction)*
  Used in rural areas where a new four-lane highway will be constructed. This applies where the existing roadway segments do not meet RA-1 standards or it is determined that the existing roadway alignment will be abandoned in favor of a new alignment. See Figure II-4 for conceptual typical section.

- *Four-Lane (New Construction), High Fill Area*
  Same criteria as a four-lane (new construction), except the roadway will have higher embankment requirements because it is located within a designated flood plain or vertical alignment mandates high fill.

UA-2, Urban Arterial

- *Five-Lane (Center Turning Lane)*
  Used in urban areas where adjacent development dictates minimizing right-of-way width requirements and demand for left turn movements is high. This essentially has four-lane capacity with an additional turning lane in the center. See Figure II-5 for conceptual typical section.

- *Four-Lane Urban Couplet*
  The couplet is used where two one-way, two-lane roadways separated by one city block will be used together to provide four-lane capacity in an urban setting. See Figure II-6 for conceptual typical section.

The unit prices for roadway construction were obtained by (1) estimating the major construction items for each roadway type, (2) applying current costs for those major items, and (3) increasing the result to account for miscellaneous construction items based on historical information for similar types of roadways. The major construction items include clearing and grubbing, earthwork, drainage, and pavement and base. These items are further described below.

Clearing and Grubbing and Earthwork

In areas of new construction, the areas must first be cleared and grubbed. The terrain within this Study varies from level to rolling hills. Excavation and embankment are needed to reduce the grades in the hilly terrain, raise the roadway bed in low-lying areas, and to provide for drainage. The earthwork quantities for excavation and embankment were based on theoretical cross sections and field observations.

Drainage

Only minor drainage structures were considered in the roadway construction costs. Major drainage structures such as bridges and large box culverts were considered under the bridge construction costs. Sigma arrived at typical drainage structure prices by investigating historical drainage construction cost for similar types of roadways and escalating the cost to reflect current costs. Furthermore, Sigma also compared the computed values against other feasibility studies.

Pavement and Base

Two types of pavements were used for estimating purposes; asphaltic concrete pavement was used in all rural areas and portland cement concrete pavement was used in all urban areas. New rural pavement was estimated at 7 inches of asphaltic concrete over 12 inches of base material. New urban pavement

was estimated at 10 inches of portland cement concrete over 10 inches of base course material. The subgrade for a portland cement concrete pavement considers a lime treatment to a depth of 12 inches.

As previously stated, the costs resulting from the major roadway construction items were increased to account for miscellaneous items such as erosion control, seeding, signage, striping, fences, and guardrails. Sigma arrived at this percentage by investigating several representative roadway construction projects for developed and undeveloped areas. By calculating the percent of major items for each project, we were able to compute the remaining percent constituted for miscellaneous items.

Table VIII-3
Roadway Construction Unit Prices

Description	Unit Price	
	Per Foot	Per Mile
RA-1, 2-Lane Upgraded	$ 80	$ 422,400
RA-1, 2-Lane New Construction	$ 280	$ 1,478,400
RA-1, 2-Lane New Construction, High Fill Area	$ 400	$ 2,112,000
RA-3, 4-Lane(2-Lane Expansion)	$ 250	$ 1,320,000
RA-3, 4-Lane (2-Lane Expansion), High Fill Area	$ 360	$ 1,900,800
RA-4, 4-Lane New Construction	$ 480	$ 2,534,400
RA-4, 4-Lane New Construction, High Fill Area	$ 700	$ 3,696,000
UA-2, 4-Lane Couplet	$ 400	$ 2,112,000
UA-2, 5-Lane (Center Turning Lane)	$ 630	$ 3,326,400

E. BRIDGE CONSTRUCTION COST

All bridge and major drainage structures along the corridor were identified and evaluated for a variety of physical, geometric and structural criteria. The geometric design criterion described in Chapter II is generally applicable for the bridges as well as the roadway sections.

Once it was determined that a structure can be widened to the required section, it was projected to remain in use as either a two-lane two directional structure, or as a one-way, two-lane structure with a new twin two-lane structure being constructed adjacent. If the structure was deemed deficient in any of the designated criteria or unable to be widened, the structure will then be replaced with two (2) new 40-foot wide twin structures.

Widened bridges were of a structure type similar to the existing. Major drainage structures, such as concrete box culverts were extended beyond the clear zone of a divided four-lane highway section. Proposed bridge structures are assumed to have the same overall length and similar span arrangements as the existing structures they replace or parallel. Economics, aesthetics, grades, clearances, and construction ease were also considered in determining the proposed type of structure used at each site. Most highway overpasses and drainage crossings fall into one of the following four types based upon required span lengths.

- Culverts (RCB or CMP) – Frequently used for stream crossings up to an overall length of 30 feet. Culverts are usually appropriate for drainage areas less than 1000 acres.

- Slab Spans (20' span lengths) – This is the most common bridge type and are generally used at stream crossings where span requirements are not critical. In addition, it is the most economical for bridge lengths up to 400 feet.

- PPC Girder Spans (50' – 120' spans) – Precast prestressed concrete girders are used for grade separation structures, stream crossings with span requirements exceeding that of slab spans, and approaches to high-level structures.

- Steel Plate Girder Spans (> 120' spans) – Steel plate girder spans are used for longer spans such as river crossings or grade separation structures crossing multi-lane roadway.

Sigma arrived at the bridge unit prices by investigating the historical cost per unit area of representative structures and escalating the unit area costs to reflect current costs. Additionally, Sigma also compared the computed values against those used by LaDOTD Bridge Design Section and unit costs of other feasibility studies.

Culvert costs (per barrel) were computed based upon the following material unit prices. Total cost at a site was based upon the length and the number of barrels required, plus a single headwall.

The unit prices for estimating bridge construction costs are shown in Table VIII-4.

Table VIII-4
Bridge Construction Unit Prices

Description	Unit Price
Culverts	
84" CMP	$ 200 / linear ft.
96" CMP	$ 225 / linear ft.
108" CMP	$ 250 / linear ft.
5' x 5' RCB	$ 275 / linear ft.
7' x 7' RCB	$ 330 / linear ft.
9' x 8' RCB	$ 525 / linear ft.
9' x 9' RCB	$ 550 / linear ft.
10' x 8' RCB	$ 750 / linear ft.
10' x 10' RCB	$ 875 / linear ft.
Concrete Class 'A' (Headwalls)	$ 565 / cubic yd.
Reinforcing Steel	$ 0.425 / lbs.
Slab Spans	$ 45 / sq. ft. (New Construction)
	$ 55 / sq. ft. (Widening Projects)
PPC Girder Spans	$ 70 / sq. ft. (New Construction)
	$ 90 / sq. ft. (Widening Projects)
Steel Beam Spans	$ 95 / sq. ft. (Widening Projects)
Red River Bridge & Approaches	$ 165 / sq. ft.

F. TOTAL CONCEPTUAL PROJECT COST

To arrive at a total conceptual project cost, legal, administration, engineering, utility relocations, and contingencies were added to the right-of-way, relocation, and construction base costs as described in the introduction of this chapter. Total conceptual project costs were generated for each designated project segment for both the "Needs Basis" and "Ultimate" alternatives. These individual conceptual project costs were then totaled to produce an overall conceptual program cost for the El Camino East-West Corridor under study.

CHAPTER IX
PRIORITIZATION OF PROPOSED PROJECTS

A. INTRODUCTION

The route along the El Camino East-West Corridor was divided into 27 proposed construction projects along the length. The limits of the individual construction projects were based on logical termini along the route, such as intersecting highways, existing four or five-lane sections, etc. The "Ultimate" alternative includes a complete upgrade of the existing roadway to either four or five-lane sections, meeting rural and urban principal arterial design standards. Each project has different needs, benefits and impacts.

The method for prioritizing the proposed construction projects along the route in the "Ultimate" Four or Five-Lane Alternative utilizes weighted factors to assign points for various technical and strategic aspects of the individual projects. The purpose is to ensure, through the use of a structured evaluation process, that LaDOTD has enough information to make sound business investments supportive of their strategic goals along the El Camino East-West Corridor. "The process should be predicated on the use of a set of evaluation criteria or decision standards." (U.S. DOT 2000) The scope of this chapter is to detail the methodology used to score the proposed construction projects and group them into five (5) priority tiers.

B. METHODOLOGY

Each proposed project is a public investment where the contributions of the improvements are considered a reward or a return on that investment. Projects that address the greater need or solve the larger problems are rewarded through a point system. With any investment there are costs or impacts associated with it. Sigma developed the following method to determine which proposed construction projects generate the largest reward (i.e. require the most immediate attention), yet have the lowest costs or impacts (i.e. successful deployment through permitting process, relative conceptual project cost). This approach has been developed from various reference materials and a review of similar processes used by other agencies.

The method is based upon five (5) factors: traffic volume, safety/accident data, existing roadway deficiencies, environmental constraints and conceptual project cost. Each criterion is scored from 0 – 10, with 10 points being the highest possible score. The four critical technical, or performance based, factors evaluated for rating purposes are as follows:

Traffic Volume (T)

"This factor is based on an assessment of projected congestion problems and the impact a proposed project may have on reducing such problems." (Wisconsin 1994) The level of service (LOS) of the "Ultimate" four or five-lane sections was determined for the projected 2025 Average Daily Traffic (ADT) volumes. Table IX-1 was generated with ADT ranges for each level of service (for multi-lane highway analysis).

For planning level analysis, these items can be generalized. For the basis of this report Sigma has used the "Generalized Level of Service Tables" from the Florida Department of Transportation's (FDOT) *1998 Level of Service Handbook.* Urban level of service ADT ranges were reproduced from Table 5-5 of the reference (the 4-lane divided, Type 1 Arterial section for the "Areas Transitioning into Urbanized Areas or Areas over 5000 Not in Urbanized Areas"). Per the FDOT Handbook, LOS 'A' is not attainable for a Type 1 urbanized roadway and was therefore left out for this area type. Table 5-6 of the reference (the 4-lane undivided with bays, Type 2 Arterial section) was used for the "Rural Undeveloped Areas and Cities or Developed Areas less than 5000 Population." Again, LOS 'A' is not attainable. The ADT ranges for rural highways were calculated using the method described in the HCM2000 for the LaDOTD Standard 4-lane Divided Roadway. The ADT ranges for LOS are as follows:

Table IX-1
2025 ADT Scoring

LOS	ADT Ranges				Score (T)
	Rural		Urban		
	Level Terrain	Rolling Terrain	Area Type 1	Area Type 2	
A	0 – 6,200	0 – 5,050	N/A	N/A	2
	6,200 - 12,400	5,051 - 10,100	N/A	N/A	4
B	12,401 – 16,300	10,101 – 13,300	0 – 10,500	0 – 4,850	6
	16,301 – 20,250	13,301 – 16,500	10,501 – 20,950	4,851 – 9,700	8
C	> 20,250	> 16,500	> 20,950	> 9,700	10

Safety (S)

"This factor is based upon an assessment of existing safety problems." (Wisconsin 1994) Accident statistics were compiled from current available traffic records provided by LaDOTD and summed over a six (6) year period from 1993 - 1998. The number of accidents was totaled regardless of the degree of severity. Those projects that have a greater number of accidents were assigned a greater number of points. The average annual number of accidents within the limits of a construction project was used directly as the score, with a maximum score of 10 used. However, if two (2) or more fatal accidents occurred at a particular location within the six-year period, a maximum score of 10 was assigned.

Geometric Deficiencies (G)

This factor is based upon an assessment of the existing roadway alignments and the number of geometric deficiencies located within a project section. Decisions about deficiencies were made by reviewing and comparing the as-built plans to the design criteria approved by LaDOTD for this study. Deficiencies could include sharp horizontal curves, steep vertical grades, inadequate shoulder or lane widths, or drainage problems. Those projects that have a greater number of deficiencies were assigned a greater number of points. The number of deficiencies, regardless of type, was doubled and used directly as the score, with a maximum score of 10 used.

Environmental Constraints (E)

Various environmental constraints (such as dwellings, historical sites, underground tanks, etc.) will affect the proposed project segments. The magnitude and severity will determine the scope of environmental investigation and regulatory approval.

This scoring factor is based on the magnitude and severity of the environmental constraints that, in turn, will dictate the level of effort for satisfying environmental requirements. Based on the results of the environmental inventory, each project has been assigned a qualitative value of "low", "medium" or "high" environmental impact.

The scoring factor is inverse to the severity of environmental impact. The proposed projects that are projected to be "Low Impact" were assigned the maximum points (10). Conversely, the proposed projects that are considered "High Impact" were assigned no points (0). "Medium Impact" projects receive 5 points.

In addition to the four technical factors, the conceptual project cost was considered. An estimated project cost per mile value was computed to provide for an ultimate four or five-lane roadway section within each proposed project. This factor is used to identify cost effective projects, particularly those that offer the highest reward to impact return. Scoring is by an inverse relationship. Those projects that can be constructed for less cost per mile were assigned more points. A project received a score by subtracting the cost per mile (in $ millions) from the maximum 10 points. (i.e. < $2 million / mile = 8 points).

Consideration was also given to additional strategic factors "relating to management issues and linkages to strategic planning which bear on the decision-making process." (GSA 2000) These factors provide an opportunity to incorporate items such as critical "gaps" in corridors (i.e. developing a 4-lane section adjacent to an existing 4-lane section) and "sections of independent utility" (S.I.U.). Incorporating a particular project may improve the efficiency and effectiveness of a larger transportation network. The proposed projects immediately adjacent to either end of an existing four or five-lane section shall receive three (3) "strategic" points. If the corridor within a project intersects a 4-lane highway section (US71, US165, US167, US171, etc.) or is judged to be a section of independent utility, it shall receive similar strategic points.

C. PRIORITY NUMBER

To rank each individual project, a priority number (PN) was calculated. The greater the value, the higher the priority or reward of that proposed construction project. To determine the priority number, the project was scored in each of the five (5) categories previously discussed. Each category is scored on a scale of 1 – 10. As the reward for improvements increases, the priority point number increases. The traffic volume factor was deemed more significant than the other factors, and therefore has a weighting factor of two (2) applied.

The overall environmental impact classification of a proposed project includes some consideration to relocations, prime farmlands and flood zones. Since these factors are also included in the conceptual project costs that have been estimated, the impact is being "doubled" in the scoring system. Therefore, to minimize this relationship, a weighting factor of 0.5 was applied to reduce the effect. Similarly, geometric deficiencies and the accident data are somewhat related. Therefore, a weighting factor of 0.5 was also applied to the deficiency score. The composite priority number for each proposed project is the summation of weighted priority points from each factor.

The technical score (PN_T) includes the four performance based factors:

$$PN_T = 2\ (T) + ½\ (G) + 1\ (S) + ½\ (E)$$

The overall priority number (PN) for the proposed project includes all the factors previously described, plus the project cost factor and the strategic factor:

$$PN = 2\ (T) + ½\ (G) + 1\ (S) + ½\ (E) + 1\ (C) + \text{Strategic}$$

Where 'T' is the traffic volume factor, 'G' is the geometric deficiencies factor, 'S' is the safety factor, 'E' is the environmental constraints factor and 'C' is the project cost factor.

D. PRIORITIZATION RANKING

"The use of the criteria and ranking system to select projects should not be considered an end in itself. Rather, the process should be used as a guide to assess a project's contribution to the overall program" of LaDOTD (Wisconsin 1994). There are other considerations outside of this technical evaluation that should be considered. However, they are difficult to quantify at this stage in the planning process. As a result, sorting the projects should also not be considered an exact ranking, but more of a general order. This approach also works with the concept of grouping the individual projects into five (5) classifications or tiers. Each tier was developed to consist of approximately the same total project cost ($85 - $107 million), thereby representing reasonable levels of funding. These tiers included all 27 proposed construction projects.

The projects were grouped into tiers by ranking each based upon its overall priority number (PN). This identifies those projects that produce the greatest reward through improvements to the roadway, while taking into account the cost of the proposed improvements.

CHAPTER X
SABINE PARISH PROJECTS

This chapter not included in this specific *Parish Report*. See the *Overall Final Report* for more information.

CHAPTER XI
NATCHITOCHES PARISH PROJECTS

This chapter not included in this specific *Parish Report*. See the *Overall Final Report* for more information.

CHAPTER XII
WINN PARISH PROJECTS

INTRODUCTION

The El Camino East-West Corridor through Winn Parish begins on the west at the Saline Bayou Bridge, which is the Natchitoches / Winn Parish line. It proceeds easterly along US Highway 84 through the Kisatchie National Forest to Winnfield, La, the seat of Winn Parish. In Winnfield US 84 is coincidental with US 167 for approximately two miles. East of Winnfield, the alignment proceeds to the LaSalle Parish line at Castor Creek just west of Tullos, La. US 84 is the major east-west highway through Winn Parish. This route figures prominently in the regional transportation system.

The alignment through Winn Parish has been divided into six proposed projects. Following is a listing of these projects.

Table XII-1
Proposed Project List

Project	Description	Roadway Type	Length (miles)	Priority Tier
W1	Parish Line to Gravel Creek	Rural	8.52	II
W2	Gravel Creek to before Winnfield City Limits	Rural	9.09	II
W3	Before Winnfield City Limits to US 167	Urban	2.03	I
W4	US 167 to Joyce (KCS RR)	Rural & Urban	2.37	I
W5	Joyce to Piney Woods Creek	Rural	8.09	IV
W6	Piney Woods Crk to Castor Crk (Parish Line)	Rural	9.06	IV

PROJECT 'W1'

A. DESCRIPTION

Project 'W1' consists of 8.52 miles of rural roadway from the Saline Bayou Bridge at the Natchitoches Parish line to Gravel Creek Bridge in the Kisatchie National Forest. The project limits are contained within LaDOTD Control Section 022-02 Subsection 01.

B. BENEFITS AND IMPACT

Socio-Economic Data

Environmental Justice

Three census blocks, based on 1990 US Census Bureau data, occupy Project 'W1'. There is the possibility of one environmental justice impact in block number 220699901003, located just east of the N6/W1 boundary. The two remaining census blocks 221279602005 and 221279602003 do not appear to have environmental justice impacts.

Community Cohesion

Only a few dispersed residences exist along Project 'W1'. Thus, the alignment is not anticipated to affect the cohesion of any 'W1' project community. Access impacts to public or commercial services are not expected unless displacement occurs. Otherwise, access impacts to commercial or public services located on the opposite side of the proposed alignment should be only temporary while construction activities are in progress.

Residential and Commercial Relocations

Approximately nine (9) residences and one (1) commercial establishment will likely be displaced as a result of the "Ultimate" project alignment.

Public Facilities/Service

- *Major Utilities* – A BellSouth telephone service runs parallel to and within the north side of the corridor without entering the proposed construction area. Conversely, Valley Electric has a power line service that crosses into the proposed construction area about 0.9 mile from the N6/W1 boundary and continues eastward for about 1.4 miles.
- There are no *Police stations, Fire stations, Cemeteries, Churches, Hospitals, Airports, Schools, Post Offices, Public or Private Parks and Recreation Areas* that are expected to be directly impacted by the proposed construction area along the project extents.
- One church as well as a church and associated cemetery located approximately 1 and 1.3 miles respectively east of Couley Creek are located on the opposite side of the proposed construction activities and will be avoided.

Flood Zones

- The project crosses five, 100-year flood zones. The first two zones are related to Saline Bayou and occur as short segments, less than 0.1 mile wide, just to the east of the N6/W1 boundary. The remaining three flood zones are affiliated with Couley Creek and are located about 4.3 miles from the N6/W1 boundary and at the eastern end of the project.

Hazardous Materials, Landfills and Hazardous Waste Sites

- *Tanks* – No USTs or ASTs were observed or identified within the proposed construction area.
- No *Solid Waste Landfill/Disposal Sites or Potential Hazardous Waste Sites* were observed or identified by EDR within the proposed construction area.

Cultural Resources

A review of the archaeological site records provided by the Division of Archaeology indicates there are no *Archaeological Sites, Historic Structures or National Historic Register Sites* within the proposed construction area. However, one archaeological site and one archaeological area exist just outside the proposed construction area, but it does not appear that these sites will be impacted by proposed construction activities

Environmental Data

Wetlands

The proposed construction area would cross approximately 5.6 acres of wetlands contained in about 30 parcels located near the Couley Creek drainage basin. Many of the wetlands would occupy the north side of the proposed construction area.

Water Quality/Water Resources

Saline Bayou and Couley Creek are the major surface water bodies in the project extents. With the exception of temporary impacts to water quality as a result of construction activities, no long-term impacts to water quality are expected in the project area.

Prime Farmlands

The proposed alignment crosses about 118 acres of prime farmlands at three locations relating to Saline Bayou and Couley Creek. The three tracts of prime farmlands are loamy fluvial deposits. The first tract is about 2.5 miles wide, extending eastward from the N6/W1 boundary; the second tract is about 0.6 mile wide, just to the east of Couley Creek; and the third tract is about1.5 miles wide at the eastern end of the project.

Threatened and Endangered Species

Threatened and Endangered Species were identified beyond the proposed construction area by the Louisiana Department of Wildlife and Fisheries Natural Heritage Program (NHP) and could potentially be impacted by the proposed construction activities. The NHP recommends that the US Fish and Wildlife Service be contacted to more accurately determine the locations and extent of threatened and endangered species prior to beginning construction activities.

Fish and Wildlife Critical Habitat

Information provided by the NHP identified fish and wildlife critical habitats that could potentially be contained within the proposed construction area. The NHP recommended that surveys be conducted to accurately determine the extent of these habitats.

Traffic

Base year traffic volumes were provided by LaDOTD and compiled along the project corridor. Average Daily Traffic (ADT) was then projected for the Build Year 2005 and the Design Year 2025. The controlling 1996 ADT is 3,338 vehicles per day (vpd), the 2005 ADT is 3,989 vpd and the 2025 ADT is 5,928 vpd. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane rural highway configuration and rolling terrain. For Project 'W1' this analysis yielded a Level of Service (LOS) of C. Using a four-lane rural divided highway configuration and rolling terrain the analysis for the 2025 ADT yielded a LOS of A for Project 'W1'.

From data provided by LaDOTD, accident statistics were compiled for Project 'W1'. This data indicates that for a six-year period (1993-1998) there were 43 accidents within the project limits with three (3) being fatal events. It should be noted that the three fatal events did not occur at the same location along the alignment.

Limited Line and Grade Study

Project 'W1' has one existing horizontal deficiency, which is approximately 1 mile west of Parish Road 763. There are also four locations where the vertical grades exceed the allowable maximum. Also the existing shoulders throughout this project are 8 feet in width.

The recommended "Needs Basis" Improvements are as follows:

- Reconstruct the existing horizontal 4°15' curve west of Parish Road 763 to a 3°00' curve. This requires approximately 3000 feet of new two-lane construction.
- Reconstruct four locations where vertical deficiencies exist. The total amount of two-lane reconstruction required is approximately 2.8 miles.
- Even though the existing shoulders do not meet the required width of 10 feet, we do not recommend upgrading them for the "Needs Basis". This is because the existing shoulder width is 8 feet, which is acceptable based on the projected traffic volumes. Also, the capacity of the roadway is not compromised based on the existing 8 foot shoulder width.

The recommended "Ultimate" Improvements are as follows:

- The project begins at the end of the Saline Bayou Bridge (Approx. Log Mile 0.00) with a four-lane construction section on new alignment. This new alignment is specified to correct a pair of existing reverse curves over Saline Bayou. The new alignment is approximately 1 mile long. This segment requires the construction of two new bridge structures over Saline Bayou.
- From this point, the improvement is projected to be a two-lane expansion with the new lanes being built on the south side of the existing roadway. The roadway configuration continues this

way for approximately 3 miles to a point just east of Couley Creek. Through this segment there are two sections that are to be rebuilt on existing alignment to correct vertical deficiencies. This section contains one parallel bridge structure.

- Just past Couley Creek there is a new four-lane alignment that eliminates a horizontal deficiency. This segment is approximately 1 mile long.
- From here to the end of Project'W1' the two-lane expansion is projected to be on the south side of the existing highway. Within this segment there is one section that is to be rebuilt on existing alignment to correct a vertical deficiency.

For plan layout of Project'W1' see sheets W-1, W-2, W-3 and W-4. For profile layout of Project 'W1' see sheets W-101 and W-102.

Conceptual Project Costs and Prioritization

Conceptual Project Costs were developed based on the methods and historical data described in Chapter VIII – Conceptual Project Cost Estimates. Items taken into account include roadway and bridge construction costs, right-of-way and relocation costs, utility relocation costs and project administration costs. In addition, a contingency was included to account for market changes and unanticipated costs. All conceptual costs are in 2002 dollars. Following is a Summary of Conceptual Project Costs for Project 'W1':

Table XII-2
Summary of Conceptual Project Costs

Project 'W1'	Needs Basis	Ultimate
Roadway	$6,622,000	$22,127,000
Bridge	$1,774,000	$2,134,000
Construction Estimate Subtotal	$8,396,000	$24,261,000
Right-of-Way	$36,000	$240,000
Relocations	$0	$1,075,000
Utility Relocations	$252,000	$728,000
Legal/Admin/Engineering Costs	$1,008,000	$2,912,000
Project Estimate Subtotal	$9,692,000	$29,216,000
Contingencies = 8% of Estimate Subtotal	$776,000	$2,338,000
Estimated Total Conceptual Project Cost	**$10,470,000**	**$31,560,000**

Utility Relocations = 3% of Construction Estimate (Roadway Costs + Bridge Costs)
Legal/Admin/Engineering= 12% of Construction Estimate (Roadway Costs + Bridge Costs)

Based upon the computed priority score, Project 'W1' has been classified as a Tier II project.

PROJECT 'W2'

A. DESCRIPTION

Project 'W2' consists of 9.09 miles of rural roadway from Gravel Creek and through the Kisatchie National Forest to a point approximately two miles west of Winnfield. The project limits are contained within LaDOTD Control Section 022-02 Subsection 02.

B. BENEFITS AND IMPACT

Socio-Economic Data

Environmental Justice

All census blocks within the limits of Project 'W2' in Winn Parish were evaluated for potential environmental justice impacts with 1990 US Census Bureau data. Census blocks 221279602003, 221279602002 and 221279602004, which overlap the limits of Project 'W3', were identified as areas of no concern.

Community Cohesion

Because only a few dispersed residences exist along Project 'W2', improvements planned along the El Camino East-West Corridor are not expected to have an effect on the cohesion of any community in Project 'W2'. Access impacts to public or commercial services are not expected unless displacement occurs. Otherwise, access impacts to commercial or public services located on the opposite side of the proposed alignment should be only temporary while construction activities are in progress.

Residential and Commercial Relocations

Approximately one (1) residence and no commercial establishments will likely be displaced by the "Ultimate" project alignment.

Public Facilities/Service

- *Major Utilities* – Two major power transmission line crossings and a major electrical substation were observed within the project extents during the field survey. One of the power line crossings and the substation were located approximately 1.3 miles west of LA Hwy. 1228. It appears that the potential exists for the displacement of the substation. The second power line was observed approximately 0.5 mile east of LA Hwy. 1228. One 30-inch pipeline, operated by Gulf-South Pipeline, crosses the project approximately 0.4 mile east of Couley Creek. Electric transmission lines, owned and operated by Entergy, follow the south side of the alignment. These roadside power lines are located within the proposed construction area at the western portion of the project. Telephone lines, owned by BellSouth, are located primarily on the northern side of the

project corridor outside of the proposed construction area. The telephone lines then occupy the footprint of the proposed construction area at the eastern side of the project.

- *Public Park* - A significant portion of the project traverses the Kisatchie National Forest. A hiking trailhead, related to the park, was observed during the field survey approximately 3.2 miles east of the Project W1/W2 boundary, approximately in the center of the proposed construction area. It appears that this area would be impacted by the proposed construction activities.
- There are no *Police stations, Fire stations, Cemeteries, Churches, Hospitals, Airports, Schools, Post Offices or Private Parks* that are expected to be directly impacted by the proposed project along the project right-of-way.
- The Garden of Memories Cemetery, located approximately 0.1 miles west of the W2/W3 project boundary is located opposite the proposed construction area and will be avoided. The Kisatchie National Forest Office and a monument identifying the Kisatchie National Forest that is located approximately 0.6 miles west of Wolf Creek are also located opposite of the proposed construction area and will be avoided.

Flood Zones

Project 'W2' crosses two areas designated as 100-year flood zones. These locations are at Couley Creek and Wolf Creek.

Hazardous Materials, Landfills and Hazardous Waste Sites

- *Tanks* – No UST or AST sites were observed or identified within the project extents.
- *Quarry* – Winn Rock, Inc. operates a quarry in close proximity to the proposed alignment. This site was identified by EDR and verified on the aerial photography. This site could potentially impact the soils in the proposed construction area.
- No Solid Waste Landfill/Disposal Sites were observed or identified by EDR within the project extents. However, the utility substation could potentially be a site of PCB contamination. This facility is located within the proposed construction area; and potential impacts resulting from construction activities within the project area is possible.

Cultural Resources

The Division of Archaeology identified one standing structure area and one archaeological site area in close proximity to the proposed construction area and indirect impacts could potentially occur. A review of the archaeological site records provided by the Division of Archaeology indicates there are no *Archaeological Sites, Historic Structures or National Historic Register Sites* within the project extents.

Environmental Data

Wetlands

Approximately 12-acres of wetland are located within the proposed construction areas of Project 'W2'. These wetlands are primarily associated with the Couley Creek and Wolf Creek drainage basins.

Water Quality/Water Resources

Major surface waters in the project area consist of Couley Creek and Wolf Creek. With the exception of temporary impacts to water quality as a result of construction activities, no long-term impacts to water quality are expected at these locations.

Prime Farmlands

About 220 acres, occupying the extent of the entire project, could potentially be identified as prime farmlands based on NRCS criteria.

Threatened and Endangered Species

Threatened and Endangered Species could potentially be impacted by the proposed construction area according to information provided by the Louisiana Department of Wildlife and Fisheries Natural Heritage Program (NHP). The NHP recommends that the US Fish and Wildlife Service be contacted to more accurately determine the location and extent of affected species.

Fish and Wildlife Critical Habitat

Information provided by the NHP identified fish and wildlife critical habitats that could potentially be contained within the proposed construction area. The NHP recommended that surveys be conducted to accurately determine the current status and boundaries of these areas.

Traffic

Base year traffic volumes were provided by LaDOTD and compiled along the project corridor. Average Daily Traffic (ADT) was then projected for the Build Year 2005 and the Design Year 2025. The controlling 1996 ADT is 3,338 vehicles per day, the 2005 ADT is 3,989 vpd and the 2025 ADT is 5,928 vpd. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane rural highway configuration and rolling terrain. For Project 'W2' this analysis yielded a Level of Service (LOS) of C. Using a four-lane rural divided highway configuration and rolling terrain the analysis for the 2025 ADT yielded a LOS of A for Project 'W2'.

From data provided by LaDOTD, accident statistics were compiled for Project 'W2'. This data indicates that for a six-year period (1993-1998) there were 43 accidents within the project limits with two (2) being fatal events.

Human and Natural Environment

A majority of Project 'W2' lies within the Kisatchie National Forest. Therefore maintaining the natural environment as much a possible should be a goal of any improvement within this segment. On the east end of the project there is a Ranger Station at the entrance to the National Forest. Special landscaping features should be considered in this area. Also there are several designated hiking trails that either begin at or cross US 84. Preservation and enhancement of these will need to be coordinated during the project development process.

Limited Line and Grade Study

Project 'W2' does not have any existing horizontal or section deficiencies within its limits. There are four locations where the existing vertical grades exceed the allowable maximum.

The recommended "Needs Basis" Improvements are as follows:

- Reconstruct four locations where vertical deficiencies exist. The total amount of two-lane reconstruction is approximately 4 ½ miles.

The recommended "Ultimate" Improvements are as follows:

- Project 'W2' begins at Gravel Creek in the Kisatchie National Forest with a proposed two-lane expansion. The new two-lane construction will be on the south side of the existing highway to match Project 'W1'. The improvement continues with this configuration for approximately 2 ½ miles. Within this segment there are two sections that will be completely rebuilt on the existing alignment to correct vertical deficiencies.
- From this point the roadway is rebuilt with a four-lane section in a 1 degree curve to switch the new roadway alignment to the north side of the existing highway. This segment is about 1 ½ miles long. There is also a vertical deficiency correction accomplished within this segment.
- From here the roadway continues with the two-lane expansion or four-lane reconstruction section with the new lanes on the north side of the existing highway. Within this segment there are two segments of rebuilt highway to address vertical deficiencies.
- Four parallel bridges will be constructed in Project 'W2'.

For plan layout of Project'W2' see sheets W-4, W-5, W-6 and W-7. For the profile layout of Project 'W2' see sheets W-102 and W-103.

Conceptual Project Costs and Prioritization

Conceptual Project Costs were developed based on the methods and historical data described in Chapter VIII – Conceptual Project Cost Estimates. Items taken into account include roadway and bridge construction costs, right-of-way and relocation costs, utility relocation costs and project administration costs. In addition, a contingency was included to account for market changes and unanticipated costs. All conceptual costs are in 2002 dollars. Following is a Summary of Conceptual Project Costs for Project 'W2':

Table XII-3
Summary of Conceptual Project Costs

Project 'W2'	Needs Basis	Ultimate
Roadway	$8,382,000	$21,534,000
Bridge	$129,000	$489,000
Construction Estimate Subtotal	$8,511,000	$22,023,000
Right-of-Way	$47,000	$265,000
Relocations	$0	$150,000
Utility Relocations	$256,000	$661,000
Legal/Admin/Engineering Costs	$1,022,000	$2,643,00
Project Estimate Subtotal	$9,836,000	$25,742,000
Contingencies = 8% of Estimate Subtotal	$787,000	$2,060,000
Estimated Total Conceptual Project Cost	**$10,630,000**	**$27,800,000**

Utility Relocations = 3% of Construction Estimate (Roadway Costs + Bridge Costs)
Legal/Admin/Engineering= 12% of Construction Estimate (Roadway Costs + Bridge Costs)

Based upon the computed priority score, Project 'W2' has been classified as a Tier II project.

PROJECT 'W3'

A. DESCRIPTION

Project 'W3' consists of 2.03 miles of urban roadway from a point approximately 2 miles west of Winnfield to the intersection of US 84 and US 167 in the town of Winnfield. The project limits are contained within LaDOTD Control Section 022-02 Subsections 02 and 03.

B. BENEFITS AND IMPACT

Socio-Economic Data

Environmental Justice

Three census blocks, based on 1990 US Census Bureau data, occupy Project 'W3'. There is the possibility of one environmental justice impact in block number 221279603004, located on the west side of the Town of Winnfield. The two remaining census blocks 2221279602004 and 221279603001 do not appear to have environmental justice impacts.

Community Cohesion

There is the possibility of impacts to community cohesion in the Town of Winnfield. Additional work would be required to identify any impacts. Access impacts to commercial or public services located on

the opposite side of the proposed alignment should be only temporary while construction activities are in progress.

Residential and Commercial Relocations

There are no residential or commercial displacements anticipated for Project 'W3'.

Public Facilities/Service

- *Major Utilities* – A BellSouth telephone service runs parallel to and within the north side of the corridor without entering the proposed construction area. Entergy has a power line service that follows the south side of the project with a crossing of the proposed construction area about 0.3 mile west of Port De Luce Creek.
- There are no *Police stations, Fire stations, Cemeteries, Churches, Hospitals, Airports, Schools, Post Offices, Public or Private Parks and Recreation Areas* that are expected to be directly impacted by the proposed construction area along the project corridor.

Flood Zones

The project crosses a 0.3 mile wide 100 year flood zone within the Port De Luce Creek drainage basin

Hazardous Materials, Landfills and Hazardous Waste Sites

- *Tanks* – No USTs or ASTs were observed or identified within the project extents.
- No *Solid Waste Landfill/Disposal Sites or Potential Hazardous Waste Sites* were observed or identified by EDR within the project extents.
- PK Smith Chevrolet dealership is located in the proposed construction area and may be *a Small Quantity Generator (SQG)*, based on EDR information. The SQG status would apply if auto repairs or oil change activities generating waste oil were conducted.

Cultural Resources

One standing structure area almost encompasses the entire Town of Winnfield according to information provided by the Louisiana Division of Archaeology. A review of the archaeological site records provided by the Division of Archaeology indicates there are no additional *Archaeological Sites, Historic Structures or National Historic Register Sites* within the project alignment beyond the town. Potential visual impacts may exist as a result of construction activities.

Railroad

There is a Kansas City Southern Railroad track that crosses US 84 just west of the US84/US167 western-most intersection in Winnfield. Per the LaDOTD Railroad Engineer, this railroad line has approximately 2 trains per day. A grade separation structure currently exists at this location.

Environmental Data

Wetlands

There are two contiguous wetland areas measuring about 6.7 acres in the Port De Luce Creek floodplain. The proposed construction area would cross the wetlands immediately to the east of Port De Luce Creek.

Water Quality/Water Resources

Port De Luce Creek is the major surface water body along the project extents. With the exception of temporary impacts to water quality as a result of construction activities, no long-term impacts to water quality are expected in the project area.

Prime Farmlands

About 49 acres of prime farmlands exist throughout the proposed construction area and are described by the NRCS as loamy, clayey, shaley marine deposits.

There were no Threatened and Endangered Species or Fish and Wildlife Critical Habitat observed or identified within the limits of the project extents.

Traffic

Base year traffic volumes were provided by LaDOTD and compiled along the project corridor. Average Daily Traffic (ADT) was then projected for the Build Year 2005 and the Design Year 2025. The controlling 1996 ADT is 6,037 vehicles per day, the 2005 ADT is 7,215 vpd and the 2025 ADT is 9,538 vpd. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane urban highway configuration. For Project 'W3' this analysis yielded a Level of Service (LOS) of B. Based on the analysis described in Chapter V – Traffic Analysis of this report, the existing urban two-lane highway is adequate and no upgrade is required. Ultimately, the urban section is to be upgraded to a five-lane urban highway configuration. Using a five-lane urban highway configuration and Area Type 1 the analysis for the 2025 ADT yielded a LOS of B for Project 'W3'.

From data provided by LaDOTD, accident statistics were compiled for Project 'W3'. This data indicates that for a six-year period (1993-1998) there were 67 accidents within the project limits with none being fatal events.

Human and Natural Environment

Project 'W3' is in a developed area. There are residences and commercial properties along a majority of the project. Also several neighborhoods are adjacent to the route. This leads to an increase in pedestrian and bicycle traffic. Therefore consideration should be given to pedestrian and bicycle facilities during the plan development process for this project.

This project is the gateway to Winnfield from the west. As such, consideration should be given to landscaping and natural enhancements near the transition from the rural four lane section to the urban five lane section.

Limited Line and Grade Study

Project 'W3' does not have any existing horizontal, vertical or section deficiencies within its limits.

The current facilities are sufficient to address the "Needs Basis" alternative based on projected 2005 traffic levels.

The recommended "Ultimate" Improvements are as follows:

- Project 'W3' begins with a transition from a rural four-lane section that matches Project 'W2' to an urban five-lane section. This five-lane section is centered about the centerline of the existing roadway.
- From this point, the five-lane section continues along the existing alignment to its termination at the intersection of US 167 in Winnfield. There are two bridges within this section that are drainage crossings. In addition, there is a railroad overpass over the KCS Railroad in this section.

For plan layout of Project 'W3' see sheets W-7 and W-8. For profile layout of Project 'W3' see sheet W-103.

Conceptual Project Costs and Prioritization

Conceptual Project Costs were developed based on the methods and historical data described in Chapter VIII - Conceptual Project Cost Estimates. Items taken into account include roadway and bridge construction costs, right-of-way and relocation costs, utility relocation costs and project administration costs. In addition, a contingency was included to account for market changes and unanticipated costs. All conceptual costs are in 2002 dollars. Following is a Summary of Conceptual Project Costs for Project 'W3':

Table XII-4
Summary of Conceptual Project Costs

Project 'W3'	Needs Basis	Ultimate
Roadway	$0	$6,744,000
Bridge	$0	$1,003,000
Construction Estimate Subtotal	$0	$7,747,000
Right-of-Way	$0	$35,000
Relocations	$0	$0
Utility Relocations	$0	$233,000
Legal/Admin/Engineering Costs	$0	$930,000
Project Estimate Subtotal	$0	$8,945,000
Contingencies = 8% of Estimate Subtotal	$0	$716,000
Estimated Total Conceptual Project Cost	**$0**	**$9,660,000**

Utility Relocations = 3% of Construction Estimate (Roadway Costs + Bridge Costs)
Legal/Admin/Engineering= 12% of Construction Estimate (Roadway Costs + Bridge Costs)

Based upon the computed priority score, Project 'W3' has been classified as a Tier I (high priority) project.

PROJECT 'W4'

A. DESCRIPTION

Project 'W4' consists of 2.37 miles of urban and rural roadway from the intersection of US 84 and US 167 on the east side of Winnfield extending eastward through Joyce to just past the existing KCS Railroad crossing. The project limits coincide with LaDOTD Control Sections 022-03 Subsections 01, 02 and 03.

B. BENEFITS AND IMPACT

Socio-Economic Data

Environmental Justice

Three census blocks, based on 1990 US Census Bureau data, occupy Project 'W3'. There is the possibility of one environmental justice impact in block number 221279603004, located on the west side of the Town of Winnfield. The two remaining census blocks 2221279602004 and 221279603001 do not appear to have environmental justice impacts.

Community Cohesion

There is the possibility of impacts to community cohesion in the Town of Winnfield. Additional work would be required to identify any impacts. Access impacts to commercial or public services located on

the opposite side of the proposed alignment should be only temporary while construction activities are in progress.

Residential and Commercial Relocations

Approximately seven (7) residences and no commercial establishments will likely be displaced as a result of the "Ultimate" project alignment.

Public Facilities/Service

- *Major Utilities* – A BellSouth telephone service runs parallel to and within the north side of the corridor without entering the alignment. Entergy has a power line service that follows the south side of the corridor with a crossing of the alignment about 0.3 mile west of Port De Luce Creek.
- There are no *Police stations, Fire stations, Cemeteries, Churches, Hospitals, Airports, Schools, Post Offices, Public or Private Parks and Recreation Areas* that are expected to be directly impacted by the proposed project along the project corridor.
- A Pentecostal Church and a park located approximately 0.1 and 0.25 miles east of the W3/W4 boundary are located opposite the proposed construction area and will be avoided.

Flood Zones

- The project crosses a 0.3 mile wide 100 year flood zone within the Port De Luce Creek and Dugdemona River drainage basins.

Hazardous Materials, Landfills and Hazardous Waste Sites

- *Tanks* – No USTs or ASTs were observed or identified along the project extents.
- No *Solid Waste Landfill/Disposal Sites or Potential Hazardous Waste Sites* were observed or identified by EDR along the project extents.
- PK Smith Chevrolet dealership is located in the proposed construction area and may be *a Small Quantity Generator (SQG),* based on EDR information. The SQG status would apply if auto repairs or oil change activities generating waste oil were conducted.

Cultural Resources

One standing structure area almost encompasses the entire Town of Winnfield according to information provided by the Louisiana Division of Archaeology. A review of the archaeological site records provided by the Division of Archaeology indicates there are no additional *Archaeological Sites, Historic Structures or National Historic Register Sites* within the project alignment beyond the town.

Railroad

There is a Kansas City Southern Railroad spur track that crosses US 84 near Joyce. Per the LaDOTD Railroad Engineer, – this railroad spur line averages less than 1 train per day. Currently cantilevered overhead lights exist at the crossing. The LaDOTD Railroad Engineer reported that LaDOTD intends to upgrade the crossing to include gates. Given this upgrade, the low train movement and the low vehicular traffic, he could not justify a grade separation structure at this location.

Environmental Data

Wetlands

There are two contiguous wetland areas measuring about 6.7 acres in the Port De Luce Creek and Dugdemona River floodplains. The entire width of the proposed construction area would cross the wetlands immediately to the east of Port De Luce Creek.

Water Quality/Water Resources

Port De Luce Creek and the Dugdemona River are the major surface water bodies in the project. With the exception of temporary impacts to water quality as a result of construction activities, no long-term impacts to water quality are expected in the project area.

Prime Farmlands

About 49 acres of prime farmlands exist throughout the proposed construction area and are described by the NRCS as loamy, clayey, shaley marine deposits.

Threatened and Endangered Species

Information provided by the NHP identified a threatened and endangered species and fish and wildlife critical habitats that could potentially be contained within the proposed construction area. The NHP recommended a survey and coordination with a NHP zoologist.

There was no Fish and Wildlife Critical Habitat observed or identified within the limits of the project.

Traffic

Base year traffic volumes were provided by LaDOTD and compiled along the project corridor. Average Daily Traffic (ADT) was then projected for the Build Year 2005 and the Design Year 2025. Project 'W4' is mainly rural with a small urban section in the city of Winnfield. The urban section is analyzed separately from the rural section based on the urban LOS methodology. The controlling Level of Service (LOS) of the rural section yields the worst case LOS and therefore is used in the prioritization of Project 'W4'.

The controlling 1996 ADT for the project is 5,850 vehicles per day, the 2005 ADT is 6,991 vpd and the 2025 ADT is 10,390 vpd. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane highway configuration. For Project 'W4' this analysis yielded a LOS of D. Based on the analysis described in Chapter V – Traffic Analysis of this report, an upgrade to a four-lane divided highway is needed. Using a four-lane rural divided highway configuration and level terrain the analysis for the 2025 ADT yielded a LOS of A for Project 'W4'.

In the urban section in Winnfield, the ADT's are the same as the rural sections. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane urban highway configuration. For the Winnfield section this analysis yielded a Level of Service (LOS) of B. Based on the analysis described in Chapter V – Traffic Analysis of this report, the existing urban two-lane highway is adequate and no upgrade is required. Ultimately the urban section is to be upgraded to a five-lane urban highway configuration. Using a five-lane urban highway configuration and Area Type 1 the analysis for the 2025 ADT yielded a LOS of B for the urban section through Winnfield.

From data provided by LaDOTD, accident statistics were compiled for Project 'W4'. This data indicates that for a six-year period (1993-1998) there were 66 accidents within the project limits with none being fatal events.

Human and Natural Environment

Portions of Project 'W4' are in a developed area. There are residences and commercial properties along the project. Also several neighborhoods are adjacent to the route. This leads to an increase in pedestrian and bicycle traffic. Therefore consideration should be given to pedestrian and bicycle facilities during the plan development process for this project.

This project is the gateway to Winnfield from the east. As such, consideration should be given to landscaping and natural enhancements near the transition from the urban five-lane section to the rural four-lane section.

Limited Line and Grade Study

Project 'W4' has two horizontal curves near the intersection with US 167 that violate the design criteria. There are on vertical or section deficiencies within its limits.

The recommended "Needs Basis" and "Ultimate" Improvements are as follows:

- The project begins at the intersection US Hwy. 167 on the east side of Winnfield. From this intersection, the roadway is projected to be a five-lane urban section that is on new alignment to eliminate two sharp horizontal curves. This urban segment is about ½ mile long.
- From here the roadway transitions to a four-lane rural section with a two-lane expansion to the south side of the existing highway. This section is approximately 1 ½ miles long where it enters Joyce, LA. Through this segment there are four separate bridges to be constructed parallel to existing structures.
- When approaching Joyce from the west, the roadway transitions back to a five-lane urban section for approximately ¾ of a mile, just past the KCS Railroad crossing. This railroad line is a spur from the mainline track in Winnfield that has very few train movements. Therefore, it is recommended to keep the at-grade crossing with appropriate signals and crossbars instead of constructing a grade separation structure.

For plan layout of Project 'W4' see sheet W-9. For profile layout of Project 'W4' see sheet W-104.

Conceptual Project Costs and Prioritization

Conceptual Project Costs were developed based on the methods and historical data described in Chapter VIII - Conceptual Project Cost Estimates. Items taken into account include roadway and bridge construction costs, right-of-way and relocation costs, utility relocation costs and project administration costs. In addition, a contingency was included to account for market changes and unanticipated costs. All conceptual costs are in 2002 dollars. Following is a Summary of Conceptual Project Costs for Project 'W4':

Table XII-5
Summary of Conceptual Project Costs

Project 'W4'	Needs Basis	Ultimate
Roadway	$3,987,000	$6,025,000
Bridge	$2,523,000	$2,523,000
Construction Estimate Subtotal	$6,510,000	$8,548,000
Right-of-Way	$45,000	$55,000
Relocations	$975,000	$975,000
Utility Relocations	$196,000	$257,000
Legal/Admin/Engineering Costs	$782,000	$1,026,000
Project Estimate Subtotal	$8,508,000	$10,861,000
Contingencies = 8% of Estimate Subtotal	$681,000	$869,000
Estimated Total Conceptual Project Cost	**$9,190,000**	**$11,730,000**

Utility Relocations = 3% of Construction Estimate (Roadway Costs + Bridge Costs)
Legal/Admin/Engineering= 12% of Construction Estimate (Roadway Costs + Bridge Costs)

Based upon the computed priority score, Project 'W4' has been classified as a Tier I (high priority) project.

PROJECT 'W5'

A. DESCRIPTION

Project 'W5' consists of 8.09 miles of rural roadway from the east side of Joyce, LA to the Piney Woods Creek bridge near the intersection of Parish Road 1250. The project limits are contained within LaDOTD Control Section 022-03 Subsections 03, 04 and 05.

B. BENEFITS AND IMPACT

Socio-Economic Data

Environmental Justice

All 1990 census blocks in Winn Parish, within the limits of Project 'W5', were evaluated for potential environmental justice impacts. Two census blocks (221279601004 and 221279601001) that covered the extent of 'W5' did not appear to have environmental justice impacts.

Community Cohesion

The proposed project alignment is not expected to have an effect on community cohesion due to the sporadic distribution of residences. Access impacts to public or commercial services are not expected unless displacement occurs. Otherwise, access impacts to commercial or public services located on the opposite side of the proposed alignment should be only temporary while construction activities are in progress.

Residential and Commercial Relocations

Approximately twelve (12) residences and three (3) commercial establishments will likely be displaced as a result of the "Ultimate" project alignment.

Public Facilities/Service

- *Major Utilities* – A BellSouth telephone service runs parallel to and within the north side of the corridor without entering the proposed construction area. Pleasant Hill Crossroads has a water line that crosses the proposed construction area from the north about 1 mile east of the W4/W5 boundary. Entergy has a power line service that follows the entire project extents on the north side.
- *Pipelines* - One pipeline crosses the proposed construction area about 0.85 mile east of the W4/W5 project boundary.
- There are no *Police stations, Fire stations, Cemeteries, Churches, Hospitals, Airports, Schools, Post Offices, Public or Private Parks and Recreation Areas* that are expected to be directly impacted by the proposed construction area along the project extents.
- A possible cemetery located about 0.6 miles east of the W4/W5 boundary is opposite the proposed construction area and will be avoided. A fire station, located approximately 1 mile east of Brushy Creek as well as the Jones Cemetery located 1 mile west of Sandy Creek will also be avoided by the proposed construction area.

Flood Zones

The proposed construction area crosses the 100-year flood zone at five locations associated with Brushy Creek and Sandy Creek. The Brushy Creek flood zone is the widest, measuring about 0.93 miles. To the east, the remaining four flood zones range from 0.1 to 0.3 miles in width.

Hazardous Materials, Landfills and Hazardous Waste Sites

- *Tanks* – One crude oil AST was observed during the field survey about 3.9 miles from the W4/W5 project boundary. The AST is located within the proposed construction area and impacts resulting from the tank are possible.
- No *Solid Waste Landfill/Disposal Sites or Potential Hazardous Waste Sites* were observed or identified by EDR along the project extents.

Cultural Resources

A review of the archaeological site records provided by the Division of Archaeology indicates there are no *Archaeological Sites, Historic Structures or National Historic Register Sites* within the project limits.

Environmental Data

Wetlands

About 5.4 acres of wetlands cross the proposed construction area at three locations: 1) near Brushy Creek, 2) about 1.6 miles east of Highway 124 and 3) about 2.4 miles east of Highway 124.

Water Quality/Water Resources

Brushy Creek and Sandy Creek to the west are the major surface water bodies in the proposed construction area. With the exception of temporary impacts to water quality as a result of construction activities, no long-term impacts to water quality are expected in the project area.

Prime Farmlands

About 262 acres of prime farmlands exist throughout the proposed construction area and are described by the NRCS as loamy fluvial deposits.

Threatened and Endangered Species

Threatened and Endangered Species have been identified near the proposed construction area. According to information provided by the Louisiana Department of Wildlife and Fisheries Natural Heritage Program (NHP), potential impacts could exist. Correspondence received by the NHP recommends that surveys be conducted to determine the presence of these species.

Fish and Wildlife Critical Habitat

Information provided by the NHP identified fish and wildlife critical habitats that could potentially be contained within the proposed construction area. The NHP recommended that surveys be conducted to accurately determine the extent of these habitats.

Traffic

Base year traffic volumes were provided by LaDOTD and compiled along the project corridor. Average Daily Traffic (ADT) was then projected for the Build Year 2005 and the Design Year 2025. The controlling 1996 ADT is 2,150 vehicles per day, the 2005 ADT is 2,569 vpd and the 2025 ADT is 3,818 vpd. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane rural highway configuration and level terrain. For Project 'W5' this analysis yielded a Level of Service (LOS) of B. Using a four-lane rural divided highway configuration and level terrain the analysis for the 2025 ADT yielded a LOS of A for Project 'W5'.

From data provided by LaDOTD, accident statistics were compiled for Project 'W5'. This data indicates that for a six-year period (1993-1998) there were 32 accidents within the project limits with two (2) being fatal events.

Limited Line and Grade Study

Project 'W5' does not have any existing horizontal or vertical deficiencies within its limits. There is one segment of the existing highway that does not have paved shoulders.

The recommended "Needs Basis" Improvements are as follows:

- The current two lane highway is sufficient to address the "Needs Basis" alternative based on projected 2005 traffic levels. Where there are no shoulders a 10-foot shoulder upgrade is required. This applies to a segment of about 4 ½ miles beginning near the intersection of LA Hwy. 124 to the end of the project.

The recommended "Ultimate" Improvements are as follows:

- Project 'W5' begins on the east side of Joyce, LA where the roadway transitions from a five-lane urban section to a four-lane rural section with two lanes added on the north side of the existing two-lane highway. The alignment continues southeast for approximately 2 miles where the new two-lane highway is moved to the south side of the existing roadway.
- From this point to the end of the project, the rural four-lane section calls for construction of the new two lanes on the south side of the existing two-lane roadway. There are 6 parallel bridges required within this segment.

For plan layout of Project 'W5' see sheets W-10, W-11, W-12 and W-13. For profile layout of Project 'W5' see sheet W-104.

Conceptual Project Costs and Prioritization

Conceptual Project Costs were developed based on the methods and historical data described in Chapter VIII - Conceptual Project Cost Estimates. Items taken into account include roadway and bridge construction costs, right-of-way and relocation costs, utility relocation costs and project administration costs. In addition, a contingency was included to account for market changes and unanticipated costs. All conceptual costs are in 2002 dollars U.S. Following is a Summary of Conceptual Project Costs for Project 'W5':

Table XII-6
Summary of Conceptual Project Costs

Project 'W5'	Needs Basis	Ultimate
Roadway	$1,903,000	$13,978,000
Bridge	$0	$1,493,000
Construction Estimate Subtotal	$1,903,000	$15,471,000
Right-of-Way	$26,000	$174,000
Relocations	$0	$1,735,000
Utility Relocations	$58,000	$465,000
Legal/Admin/Engineering Costs	$229,000	$1,857,000
Project Estimate Subtotal	$2,216,000	$19,702,000
Contingencies = 8% of Estimate Subtotal	$178,000	$1,576,000
Estimated Total Conceptual Project Cost	**$2,400,000**	**$21,280,000**

Utility Relocations = 3% of Construction Estimate (Roadway Costs + Bridge Costs)
Legal/Admin/Engineering= 12% of Construction Estimate (Roadway Costs + Bridge Costs)

Based upon the computed priority score, Project 'W5' has been classified as a Tier IV project.

PROJECT 'W6'

A. DESCRIPTION

Project 'W6' consists of 9.06 miles of rural roadway from the Piney Woods Creek Bridge near the intersection of US 84 and Parish Road 1250 to the Castor Creek Bridge at the LaSalle Parish line just west of Tullos, LA. The project limits are contained within LaDOTD Control Section 022-03 Subsections 05 and 06.

B. BENEFITS AND IMPACT

Socio-Economic Data

Environmental Justice

All 1990 Census blocks in Winn Parish within the limits of Project 'W6' were evaluated for potential environmental justice impacts. Block number 221279601001 contained within the limits of Project 'W6' identified the length as an area of no concern.

Community Cohesion

Few residences exist along Project 'W6'. Improvements planned along the El Camino East-West Corridor are not expected to have an effect on the cohesion of any community throughout Project 'W6'.

No public and few commercial services were observed along the extent of this project. Therefore, access impacts to public or commercial services are not expected.

Residential and Commercial Relocations

Approximately one (1) residence and no commercial establishments will likely be displaced as a result of the "Ultimate" project alignment.

Public Facilities/Service

- *Major Utilities* –Electrical power lines and telephone lines operated by Entergy and BellSouth, respectively, are located north of the alignment throughout most of the proposed construction area. According to information provided by Entergy, the power line crosses the project approximately 0.5 miles from the Project W6/L1 boundary. The power line is located within the footprint of the proposed alignment for the final 0.2 miles preceding the W6/L1 boundary.
- *Pipelines* - Five major pipeline crossings were identified within the project extents during the field survey. These pipelines were reported as being located approximately 0.2, 0.9, 4.4, 4.8 and 7.7 miles east of the Project W5/W6 boundary. The pipeline located at the 4.8 mile mark is associated with a gas transfer station located on the south side of the corridor and is expected to be impacted by the proposed construction area. A pipeline pump station was also observed at the 7.7 mile mark north of the proposed construction area.
- There are no *Police stations, Fire stations, Cemeteries, Churches, Hospitals, Airports, Schools, Post Offices, Public or Private Parks and Recreation Areas* that are expected to be directly impacted by the proposed project along the project corridor.
- Two churches, Calvary Baptist and the other unidentified during the field survey, are located approximately 2.6 miles east of the W5/W6 boundary and 0.75 miles east of Pope Creek respectively. These churches are located opposite the proposed construction area and will be avoided. Additionally, a small fire station, located approximately 1 mile west of Pope Creek will also be avoided.

Flood Zones

Project 'W6' crosses five areas designated as 100-year flood zones within the proposed construction area.

Hazardous Materials, Landfills and Hazardous Waste Sites

- *Tanks* – No UST or AST sites were observed or identified along the project extents.
- No *Solid Waste Landfill/Disposal Sites or Potential Hazardous Waste Sites* were observed or identified by EDR along the project extents.

Cultural Resources

A review of the archaeological site records provided by the Division of Archaeology indicates there are no *Archaeological Sites, Historic Structures or National Historic Register Sites* along the project extents.

Environmental Data

Wetlands

Approximately 10-acres of wetland are located within Project 'W6'. These wetlands are primarily associated with Pope Creek and Caster Creek.

Water Quality/Water Resources

Major surface waters in the project area consist of Pope Creek and Caster Creek. With the exception of temporary impacts to water quality as a result of construction activities, no long-term impacts to water quality are expected at these locations.

Prime Farmlands

About 219 acres could potentially be identified as prime farmlands and are present throughout the proposed construction area. These soils are classified as loamy, fluvial deposits.

Threatened and Endangered Species

Threatened and Endangered Species have been identified near the proposed construction area. According to information provided by the Louisiana Department of Wildlife and Fisheries Natural Heritage Program (NHP), potential impacts could exist. Correspondence received by the NHP recommends that surveys be conducted to determine the presence of these species.

Fish and Wildlife Critical Habitat

Information provided by the NHP identified fish and wildlife critical habitats that could potentially be contained within the proposed construction area. The NHP recommended that surveys be conducted to accurately determine the extent of these habitats.

Traffic

Base year traffic volumes were provided by LaDOTD and compiled along the project corridor. Average Daily Traffic (ADT) was then projected for the Build Year 2005 and the Design Year 2025. The controlling 1996 ADT is 1,391 vehicles per day, the 2005 ADT is 1,662 vpd and the 2025 ADT is 2,470 vpd. For the "Needs Basis" Alternative the 2005 ADT was analyzed using the existing two-lane rural highway configuration and level terrain. For Project 'W6' this analysis yielded a Level of Service (LOS) of B. Using a four-lane rural divided highway configuration and level terrain the analysis for the 2025 ADT yielded a LOS of A for Project 'W6'.

From data provided by LaDOTD, accident statistics were compiled for Project 'W6'. This data indicates that for a six-year period (1993-1998) there were 20 accidents within the project limits with none being fatal events.

Limited Line and Grade Study

Project 'W6' does not have any existing horizontal or vertical deficiencies within its limits. There is one segment of the existing highway that does not have paved shoulders.

The recommended "Needs Basis" Improvements are as follows:

- The current two-lane highway is sufficient to address the "Needs Basis" alternative based on projected 2005 traffic levels. Where there are no shoulders a 10-foot shoulder upgrade is required. This applies to a segment of about 3/4 of a mile at the end of the project.

The recommended "Ultimate" Improvements are as follows:

- Project 'W6' begins at the Piney Woods Creek bridge near US 84's intersection with Parish Road 1250. The improvements have a four-lane rural section with two new lanes constructed to the south of the existing two-lane highway to match Project 'W5'. This arrangement is held to the end of the project. There are five parallel bridges called for within the limits of this project.

For plan layout of Project 'W6' see sheets W-13, W-14, W-15 and W-16 (L1). For profile layout of Project 'W6' see sheets W-105 and W-106.

Conceptual Project Costs and Prioritization

Conceptual Project Costs were developed based on the methods and historical data described in Chapter VIII - Conceptual Project Cost Estimates. Items taken into account include roadway and bridge construction costs, right-of-way and relocation costs, utility relocation costs and project administration costs. In addition, a contingency was included to account for market changes and unanticipated costs. All conceptual costs are in 2002 dollars U.S. Following is a Summary of Conceptual Project Costs for Project 'W6':

Table XII-7
Summary of Conceptual Project Costs

Project 'W6'	Needs Basis	Ultimate
Roadway	$300,000	$13,376,000
Bridge	$0	$869,000
Construction Estimate Subtotal	$300,000	$14,245,000
Right-of-Way	$5,000	$207,000
Relocations	$0	$225,000
Utility Relocations	$9,000	$428,000
Legal/Admin/Engineering Costs	$36,000	$1,710,000
Project Estimate Subtotal	$350,000	$16,815,000
Contingencies = 8% of Estimate Subtotal	$28,000	$1,346,000
Estimated Total Conceptual Project Cost	**$380,000**	**$18,160,000**

Utility Relocations = 3% of Construction Estimate (Roadway Costs + Bridge Costs)
Legal/Admin/Engineering= 12% of Construction Estimate (Roadway Costs + Bridge Costs)

Based upon the computed priority score, Project 'W6' has been classified as a Tier IV project.

PARISH SUMMARY

The data used in the analysis and prioritization of the individual projects within Winn Parish are listed in the following tables.

Table XII-8
Traffic Projections

Project	2005			2025		Ultimate[1] Classification
	ADT	LOS		ADT	LOS[1]	
	(vpd)	Existing	Needs Basis	(vpd)	Ultimate	
W1	3,989	C	C	5,928	A	Rural - Rolling
W2	3,989	C	C	5,928	A	Rural - Rolling
W3	7,215	B	B	9,538	B	Urban – Type 1
W4	6,991	D	A	10,390	A	Rural - Level
W5	2,569	B	B	3,818	A	Rural - Level
W6	1,662	B	B	2,470	A	Rural - Level

1 Classification and level of service per Table V-4 "ADT Ranges for Level of Service"

Table XII-9
Accident Data (1993 – 1998)

Project	Fatalities	Injuries	PDO	6-Year Total	Annual Average
W1	3	22	18	43	7.2
W2	2	24	17	43	7.2
W3	0	21	46	67	11.2
W4	0	24	42	66	11.0
W5	2	11	19	32	5.3
W6	0	13	7	20	3.3

Table XII-10
Environmental Summary

Project	Socio-Economic Impacts										Cultural Resources		Waters of the U.S.				Natural Resources			Aesthetic & Visual Quality	Overall Environmental Impact
	Environmental Justice	Community Cohesion	Public Facilities Access	Community Facilities (#)	Church Displacements (#)	Parks Impacted (#)	Cemeteries Impacted (#)	Schools Impacted (#)	Commercial Access (Change)	Potent. Hazardous Materials Sites (#)	Historic Structures (#)	Archaeological Sites (#)	Water Quality	Wetlands (# of acres)	Floodplains (# of crossings)	Streams/Canal Crossings (#)	Prime Farmland (acres)	Biological Communities (#)	Federal & State Listed Species (#)		
W1	Potential	Similar	Similar	0	0	0	0	0	Similar	0	1	1	Minimal	5.6	45	1	118	3	3	Similar	***High***
W2	Similar	Similar	Similar	0	0	1	0	0	Similar	2	0	1	Minimal	12	2	2	220	4	3	Similar	***High***
W3	Potential	Potential	Similar	0	0	0	0	0	Similar	1	1[A]	0	Minimal	6.7	1	1	49	0	0	Similar	***High***
W4	Similar	Potential	Similar	0	1[B]	1	0	0	Similar	3	2[A]	0	Worse	19	1	2	44	2	2	Similar	***High***
W5	Similar	Similar	Similar	0	0	0	0	0	Similar	0	0	0	Minimal	5.4	5	2	202	1	1	Similar	***Medium***
W6	Similar	Similar	Similar	0	0	0	0	0	Similar	0	1	0	Minimal	10	5	2	219	1	1	Similar	***Medium***

Note: All projects are compared against existing condition, unless noted otherwise.
(A) Includes one large area consisting of several structures.
(B) Not a building displacement: however, property significantly impacted by proposed alignment.

Table XII-11
Relocation Costs – Highway Needs Basis

Project	Description	Number of Relocations				Residential Relocation Costs	Commercial Relocation Costs	Total Relocation Costs
		Low-End House	Medium-End House	High-End House	Commercial Building			
W1	Parish Line to Gravel Creek	0	0	0	0	$0	$0	***$0***
W2	Gravel Creek to before Winnfield City Limits	0	0	0	0	$0	$0	***$0***
W3	Before Winnfield City Limits to US 167	0	0	0	0	$0	$0	***$0***
W4	US 167 to Joyce (KCS RR)	1	6	0	0	$975,000	$0	***$975,000***
W5	Joyce to Piney Woods Creek	0	0	0	0	$0	$0	***$0***
W6	Piney Woods Crk to Castor Crk (Parish Line)	0	0	0	0	$0	$0	***$0***

Table XII-12
Relocation Costs – Ultimate Roadway Section

Project	Description	Number of Relocations				Residential Relocation Costs	Commercial Relocation Costs	Total Relocation Costs
		Low-End House	Medium-End House	High-End House	Commercial Building			
W1	Parish Line to Gravel Creek	5	4	0	1	$975,000	$100,000	***$1,075,000***
W2	Gravel Creek to before Winnfield City Limits	0	1	0	0	$150,000	$0	***$150,000***
W3	Before Winnfield City Limits to US 167	0	0	0	0	$0	$0	***$0***
W4	US 167 to Joyce (KCS RR)	1	6	0	0	$975,000	$0	***$975,000***
W5	Joyce to Piney Woods Creek	3	9	0	3	$1,575,000	$160,000	***$1,735,000***
W6	Piney Woods Crk to Castor Crk (Parish Line)	1	0	0	1	$75,000	$150,000	***$225,000***

Table XII-13
Right-of-Way & Roadway Construction Costs – Highway Needs Basis

Project	Description	Project Length	Farmland		Forest		Low Residential		High Residential		Commercial		Right-of-Way Acquisition Costs	Roadway Construction Costs
			Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)		
W1	**Parish Line to Gravel Creek** Rural 2-Lane Rebuild (High-Fill)	**8.52**	0.86	6.2	2.28	16.6	0.00	0.0	0.00	0.0	0.00	0.0	$36,000	$6,622,000
W2	**Gravel Creek to before Winnfield City Limits** Rural 2-Lane Rebuild Rural 2-Lane Rebuild (High-Fill)	**9.09**	0.00 0.00	0.0 0.0	1.47 2.94	5.4 21.4	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	$47,000	$8,382,000
W3	**Before Winnfield City Limits to US 167**	**2.03**	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	$0	$0
W4	**US 167 to Joyce (KCS RR)** Rural 2-Lane Expansion (High-Fill) Urban 5-Lane (Center Turning Lane)	**2.37**	0.00 0.00	0.0 0.0	1.26 0.00	20.7 0.0	0.00 0.00	0.0 0.0	0.00 0.48	0.0 2.3	0.00 0.00	0.0 0.0	$45,000	$3,987,000
W5	**Joyce to Piney Woods Creek** Rural 2-Lane Upgrade (Shoulder Work)	**8.09**	1.21	4.4	3.30	12.0	0.00	0.0	0.00	0.0	0.00	0.0	$26,000	$1,903,000
W6	**Piney Woods Crk to Castor Crk (Parish Line)** Rural 2-Lane Upgrade (Shoulder Work)	**9.06**	0.00	0.0	0.71	2.6	0.00	0.0	0.00	0.0	0.00	0.0	$5,000	$300,000

Table XII-14
Right-of-Way & Roadway Construction Costs – Ultimate Roadway Section

Project	Description	Project Length	Farmland		Forest		Low Residential		High Residential		Commercial		Right-of-Way Acquisition Costs	Roadway Construction Costs
			Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)	Section Length (Miles)	Additional Area Required (Acres)		
W1	**Parish Line to Gravel Creek**	**8.52**											$240,000	$22,127,000
	Rural 2-Lane Expansion		0.42	5.6	2.58	34.4	0.08	1.1	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion (High-Fill)		0.00	0.0	0.28	4.6	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 4-Lane Rebuild		0.03	0.5	0.79	12.4	0.51	8.0	0.00	0.0	0.00	0.0		
	Rural 4-Lane Rebuild (High-Fill)		1.55	33.9	2.28	49.7	0.00	0.0	0.00	0.0	0.00	0.0		
W2	**Gravel Creek to before Winnfield City Limits**	**9.09**											$265,000	$21,534,000
	Rural 2-Lane Expansion		0.00	0.0	3.79	50.6	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion (High-Fill)		0.00	0.0	0.71	11.7	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 4-Lane Rebuild		0.00	0.0	1.47	23.2	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 4-Lane Rebuild (High-Fill)		0.00	0.0	2.94	64.1	0.00	0.0	0.00	0.0	0.00	0.0		
	Urban 5-Lane (Center Turning Lane)		0.00	0.0	0.00	0.0	0.00	0.0	0.17	0.8	0.00	0.0		
W3	**Before Winnfield City Limits to US 167**	**2.03**											$35,000	$6,744,000
	Urban 5-Lane (Center Turning Lane)		0.00	0.0	0.00	0.0	0.00	0.0	2.03	9.8	0.00	0.0		
W4	**US 167 to Joyce (KCS RR)**	**2.37**											$55,000	$6,025,000
	Rural 2-Lane Expansion		0.02	0.3	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion (High-Fill)		0.00	0.0	1.26	20.7	0.00	0.0	0.00	0.0	0.00	0.0		
	Urban 5-Lane (Center Turning Lane)		0.00	0.0	0.00	0.0	0.00	0.0	1.08	5.2	0.00	0.0		
W5	**Joyce to Piney Woods Creek**	**8.09**											$174,000	$13,978,000
	Rural 2-Lane Upgrade (Shoulder Work)		1.21	4.4	3.30	12.0	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion		3.93	52.4	2.77	36.9	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion (High-Fill)		0.53	8.6	0.53	8.7	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 4-Lane Rebuild (High-Fill)		0.33	7.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0		
W6	**Piney Woods Crk to Castor Crk (Parish Line)**	**9.06**											$207,000	$13,376,000
	Rural 2-Lane Upgrade (Shoulder Work)		0.00	0.0	0.71	2.6	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion		1.77	23.6	5.37	71.6	0.00	0.0	0.00	0.0	0.00	0.0		
	Rural 2-Lane Expansion (High-Fill)		0.13	2.2	1.79	29.3	0.00	0.0	0.00	0.0	0.00	0.0		

Table XII-15
Bridge Costs

Project	Bridge Structure Number	Feature Crossed	Structure Type	Structure Length	Recommended Improvements	Needs Basis Costs	Ultimate Costs
W1	08640-022-02-0000-1	Saline Bayou	CPGCCD	302	Replace Existing Structure & Construct Twin Structure	$1,692,000	$1,692,000
	08640-022-02-0057-1	Creek	CONBOX	10	Extend Existing Cross Drains for 4-Lane Rural Section	$83,000	$83,000
	08640-022-02-0427-1	Couley Creek	COSLAB	200	Existing Structure is Satisfactory. Construct Twin Structure	$0	$360,000
W2	08640-022-02-0853-1	Gravel Branch	METRCH	27	Extend Existing Cross Drains for 4-Lane Rural Section	$70,000	$70,000
	08640-022-02-0909-1	Couley Creek	COSLAB	100	Existing Structure is Satisfactory. Construct Twin Structure	$0	$180,000
	08640-022-02-1320-1	Creek	METRCH	24	Extend Existing Cross Drains for 4-Lane Rural Section	$60,000	$60,000
	08640-022-02-1473-1	Wolf Creek	COSLAB	100	Existing Structure is Satisfactory. Construct Twin Structure	$0	$180,000
W3	08640-022-02-1864-1	Port De Luce Creek	COSLAB	120	Existing Structure is Satisfactory. Construct Twin Structure	$0	$216,000
	08640-022-02-1875-1	Port De Luce Creek	CONBOX	24	Existing Structure is Satisfactory. Construct Twin Structure	$0	$109,000
	08640-022-02-1947-1	KCS R/R	CONIBM	121	Replace Existing Structure & Construct Twin Structure	$0	$678,000
W4	08640-022-03-0069-1	Dugdemona Relief	COSLAB	160	Existing Structure is Satisfactory. Construct Twin Structure	$288,000	$288,000
	08640-022-03-0105-1	Port De Luce Creek	COSLAB	620	Existing Structure is Satisfactory. Construct Twin Structure	$1,116,000	$1,116,000
	08640-022-03-0128-1	Dugdemona River Relief	COSLAB	220	Existing Structure is Satisfactory. Construct Twin Structure	$396,000	$396,000
	08640-022-03-0159-1	Dugdemona River	COPSGR	129	Replace Existing Structure & Construct Twin Structure	$723,000	$723,000
W5	08640-022-03-0506-1	Brushy Creek	COSLAB	157	Existing Structure is Satisfactory. Construct Twin Structure	$0	$284,000
	08640-022-03-0518-1	Brushy Creek Relief	COSLAB	197	Existing Structure is Satisfactory. Construct Twin Structure	$0	$355,000
	08640-022-03-0534-1	Creek	COSLAB	79	Existing Structure is Satisfactory. Construct Twin Structure	$0	$142,000
	08640-022-03-0739-1	Colgrade Creek	COSLAB	118	Existing Structure is Satisfactory. Construct Twin Structure	$0	$213,000
	08640-022-03-0822-1	Big Branch	COSLAB	118	Existing Structure is Satisfactory. Construct Twin Structure	$0	$213,000
	08640-022-03-0919-1	Sandy Creek	COSLAB	160	Existing Structure is Satisfactory. Construct Twin Structure	$0	$288,000
W6	08640-022-03-1048-1	Piney Woods Creek	COSLAB	100	Existing Structure is Satisfactory. Construct Twin Structure	$0	$180,000
	08640-022-03-1185-1	Little Pole Log Creek	COSLAB	100	Existing Structure is Satisfactory. Construct Twin Structure	$0	$180,000
	08640-022-03-1235-1	Calvary Church Creek	METRCH	28	Existing Structure is Satisfactory. Construct Twin Structure	$0	$75,000
	08640-022-03-1288-1	Curry Creek	METRCH	28	Existing Structure is Satisfactory. Construct Twin Structure	$0	$75,000
	08640-022-03-1501-1	Pope Creek	COSLAB	200	Existing Structure is Satisfactory. Construct Twin Structure	$0	$360,000

CHAPTER XIII
LASALLE AND CATAHOULA PARISHES PROJECTS

This chapter not included in this specific *Parish Report*. See the *Overall Final Report* for more information.

CHAPTER XIV
LOCATION STUDY - MANY, LOUISIANA

This chapter not included in this specific *Parish Report*. See the *Overall Final Report* for more information.

CHAPTER XV
LOCATION STUDY - JENA, LOUISIANA

This chapter not included in this specific *Parish Report*. See the *Overall Final Report* for more information.

APPENDIX A
LAYOUT MAPS

Appendix A consists of 1"=1000' scale drawings showing the layout of proposed improvements along with major landmarks and socially and environmentally significant items. These items are superimposed on color aerial photographic plates acquired by the LaDOTD Photogrammetry Section and georeferenced by Sigma in 2001.

Winn Parish
For the plan layout of Project'W1' see sheet numbers W-1 through W-4.
For the plan layout of Project'W2' see sheet numbers W-4 through W-7.
For the plan layout of Project'W3' see sheet numbers W-7 through W-8.
For the plan layout of Project'W4' see sheet number W-9.
For the plan layout of Project'W5' see sheet number W-10 through W-13.
For the plan layout of Project'W6' see sheet number W-13 through W-16.

FIGURE A-1

LEGEND SET

PUBLIC FACILITIES/SERVICES

POLICE STATION

FIRE STATION

HOSPITAL

CHURCH

SCHOOL

PARK

CEMETERY

FUNERAL HOME

GOVERNMENT OR COMMUNITY FACILITY

WATER TOWER

UTILITY FACILITY

WELL

POST OFFICE

TANKS

UNDERGROUND STORAGE TANK

ABOVEGROUND STORAGE TANK

EXISTING FEATURES

FLOOD ZONE

PIPELINES

OVERHEAD ELECTRIC

CREEK/RIVER

PARISH LINE

CITY LIMITS

RAILROAD

MISCELLANEOUS

2 OR 4 LANE REBUILD

SHOULDER UPGRADE

5-LANE CONSTRUCTION

PROGRAMMED SECTION

EXISTING ROADWAY

PROPOSED RIGHT OF WAY

NOTE: LOGMILE STATIONING SHOWN ON LAYOUT MAPS AND AND PROFILES ARE APPROXIMATE STATIONS ONLY.

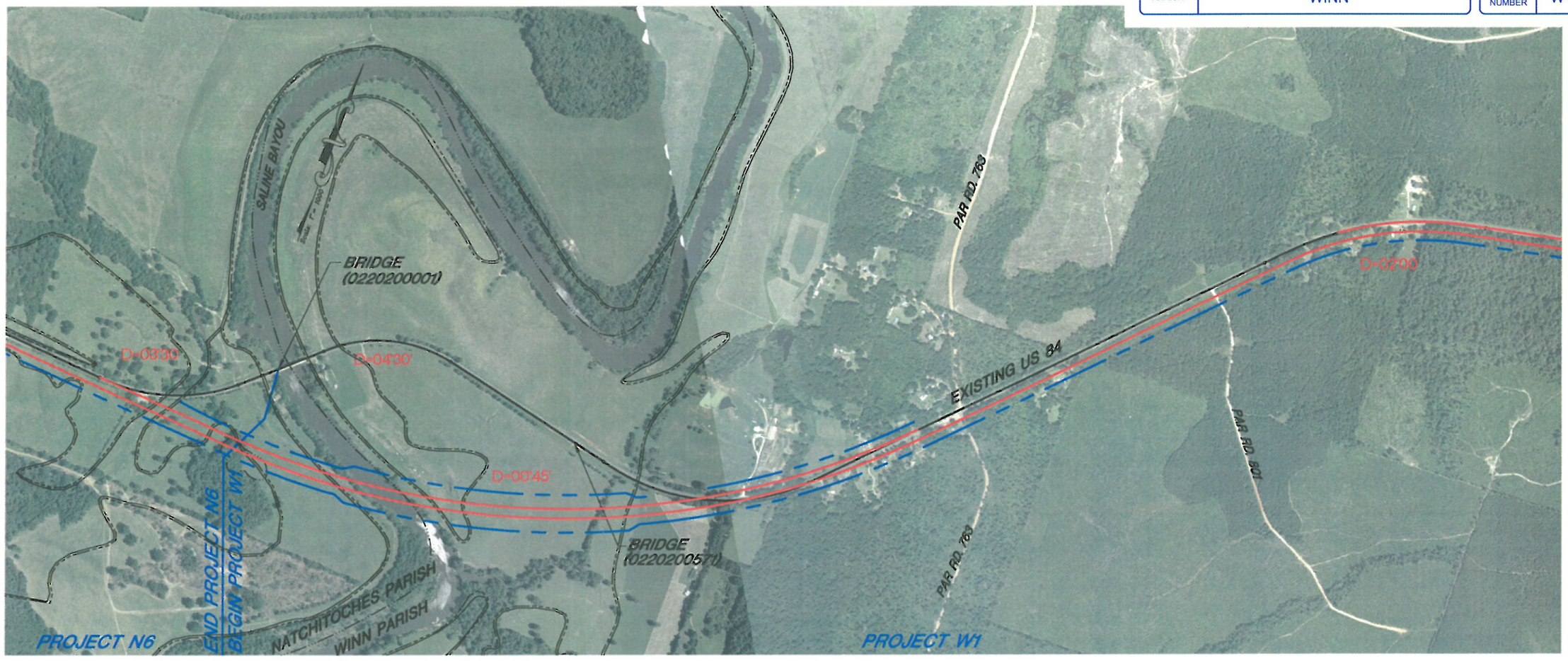
Prepared by:
SIGMA CONSULTING GROUP, INC.
JUNE 2002 For:
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAP LEGEND
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

F:\02020\00814\01800\Leaend.dwa fModell Jun 18, 2002 - 12:42pm

PARISH	WINN	SHEET NUMBER	W-1



EXISTING SECTION	2 Lanes @ 12' (8' Shoulders)					
NEEDS CONST.	No Improvement Needed					
NEEDS SECTION	Same As Existing					
ULTIMATE CONST.	4 Lane Rebuild	4 Lane Rebuild (High Fill)	4 Lane Rebuild	2 Lane Expansion	4 Lane Rebuild	
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)					
ADT (1996/2005/2025)	3452/4125/6130	3338/3989/5928				
CONTROL SECTION	022-01	022-02				
LOG MILE	4.80	0.00	0.50	1.00	1.50	2.00

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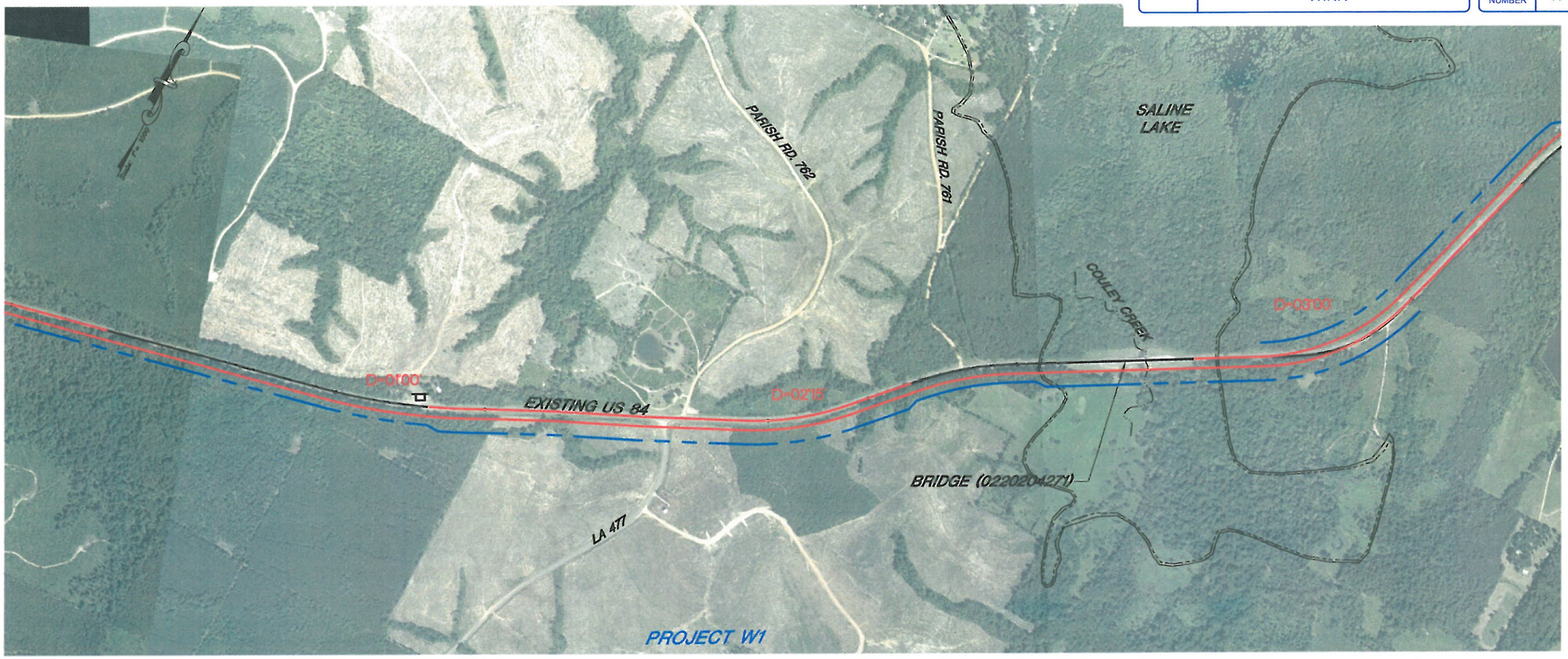
LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA6 AND US 84

PARISH	WINN	SHEET NUMBER	W-2



EXISTING SECTION	2 Lanes @ 12' (8' Shoulders)				
NEEDS CONST.	No Improvement Needed	2 Lane Rebuild (High Fill)	No Improvement Needed		2 Lane Rebuild (High Fill)
NEEDS SECTION	Same As Existing	2 Lanes @ 12' (10' Shoulders)	Same As Existing		2 Lanes @ 12' (10' Shoulders)
ULTIMATE CONST.	2 Lane Expansion	4 Lane Rebuild (High Fill)	2 Lane Exp.	2 Lane Exp. (H. F.)	4 Lane Rebuild (High Fill)
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)				
ADT (1996/2005/2025)	3338/3989/5928				
CONTROL SECTION	022-02				
LOG MILE	2.50	3.00	3.50	4.00	4.50 5.00

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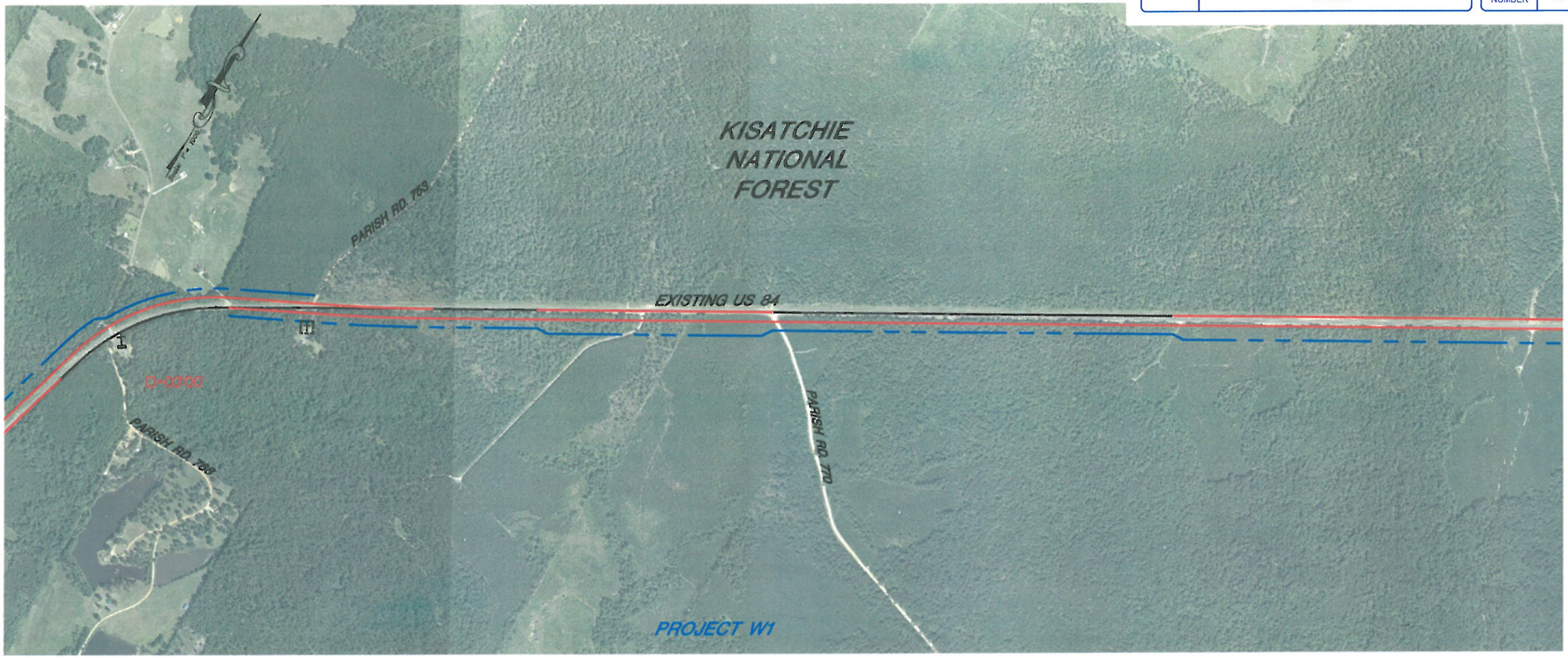
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA6 AND US 84

PARISH	WINN	SHEET NUMBER	W-3



EXISTING SECTION	2 Lanes @ 12' (8' Shoulders)					
NEEDS CONST.	No Improvement Needed			2 Lane Rebuild (High Fill)	No Improvement Needed	2 Lane Rebuild (High Fill)
NEEDS SECTION	Same As Existing			2 Lanes @ 12' (10' Shoulders)	Same As Existing	2 Lanes @ 12' (10' Shoulders)
ULTIMATE CONST.	2 Lane Expansion	4 Lane Rebuild	2 Lane Exp.	4 Lane Rebuild (High Fill)	2 Lane Expansion	4 Lane Rebuild (High Fill)
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)					
ADT (1996/2005/2025)	3338/3989/5928					
CONTROL SECTION	022-02					
LOG MILE	5.50		6.00	6.50	7.00	7.50

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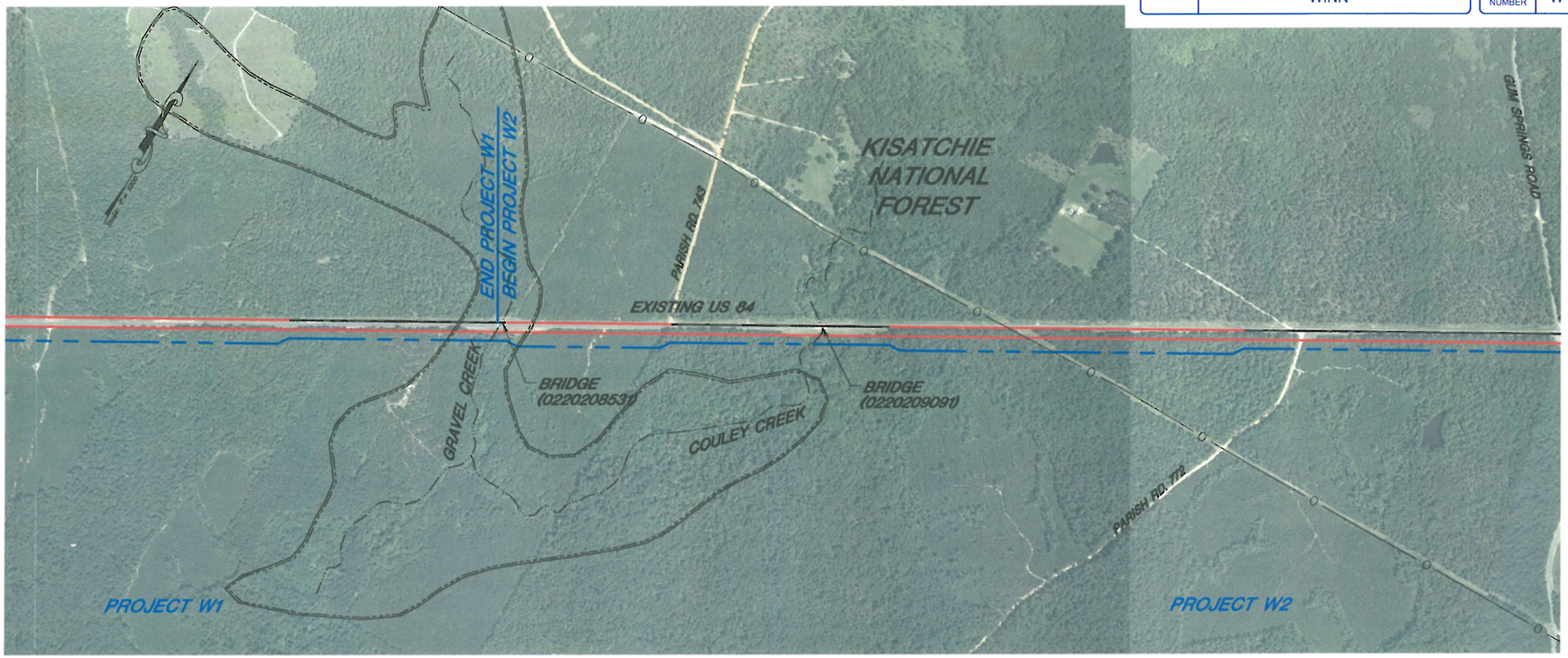
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTE LA 6 AND US 84

PARISH	WINN	SHEET NUMBER	W-4



EXISTING SECTION	2 Lanes @ 12' (8' Shoulders)					2 Lanes @ 12' (10' Shoulders)					
NEEDS CONST.	2 Lane Rebuild (H.F.)		No Improvement Needed		2 Lane Rebuild (H.F.)		No Improvement Needed		2 Lane Rebuild (H.F.)		No Improvement Needed
NEEDS SECTION	2 Lanes @ 12' (10' Shoulders)		Same As Existing				Same As Existing				
ULTIMATE CONST.	4 Lane Rebuild (High Fill)		2 Lane Expansion		4 Ln. Rebuild (H. F.)		2 Lane Expansion		4 Lane Rebuild (High Fill)		2 Lane Expansion
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)										
ADT (1996/2005/2025)	3338/3989/5928										
CONTROL SECTION	022-02										
LOG MILE	8.00		8.50		9.00		9.50		10.00		

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EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

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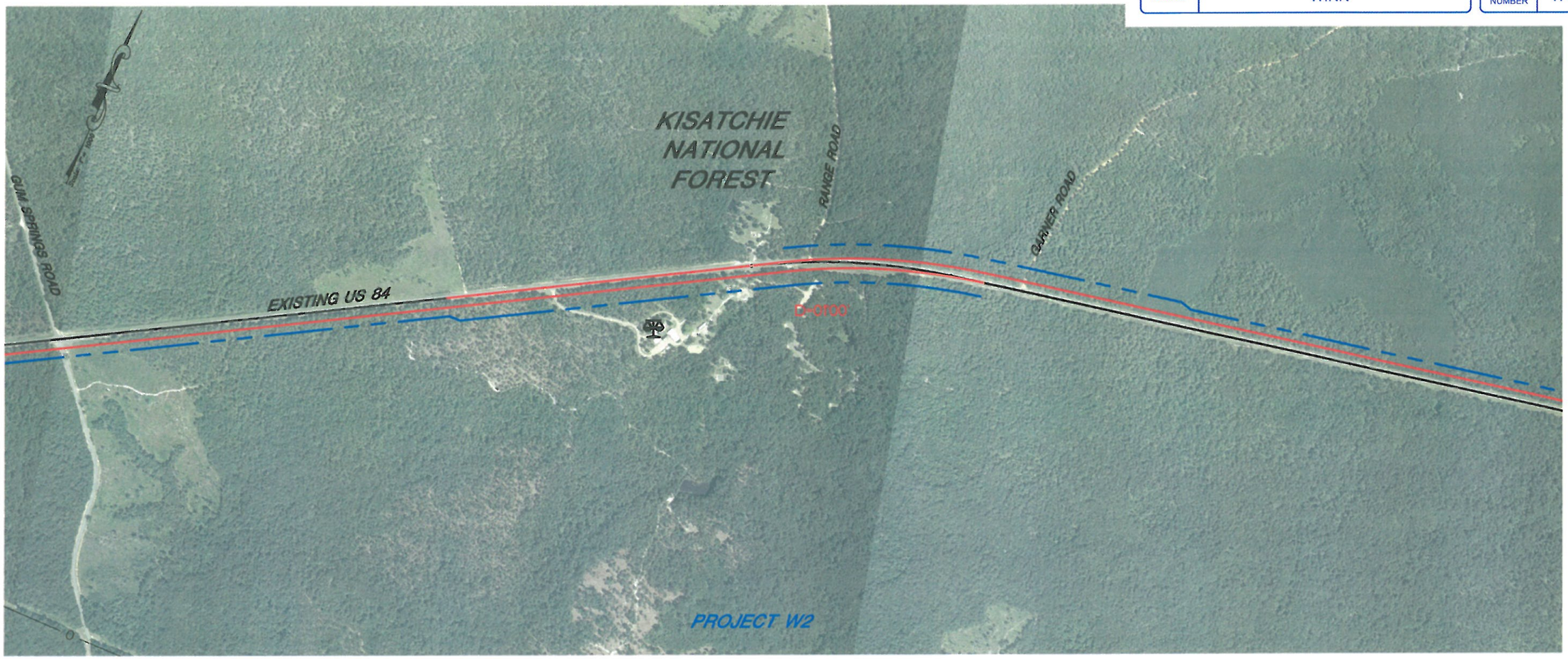
PARISH	WINN	SHEET NUMBER	W-5



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)		
NEEDS CONST.	No Improvement Needed	2 Lane Rebuild (High Fill)	No Improvement Needed
NEEDS SECTION	Same As Existing		
ULTIMATE CONST.	2 Lane Expansion	4 Lane Rebuild (High Fill)	2 Lane Expansion
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)		
ADT (1996/2005/2025)	3338/3989/5928		
CONTROL SECTION	022-02		
LOG MILE	10.50 11.00 11.50 12.00 12.50 13.00		

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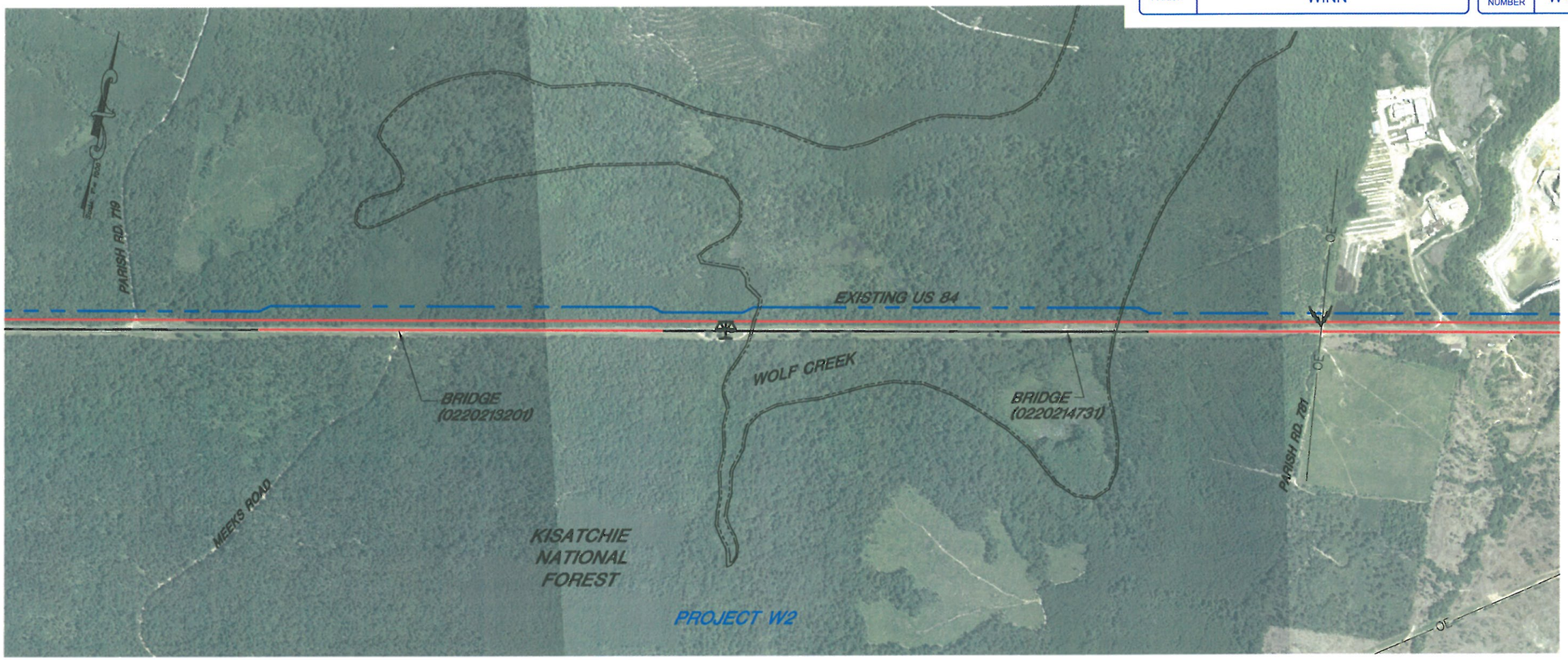
LOUISIANA ON THE MOVE... DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

PARISH	WINN	SHEET NUMBER	W-6



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)				
NEEDS CONST.	No Improvement Needed	2 Lane Rebuild (High Fill)	No Improvement Needed		2 Lane Rebuild
NEEDS SECTION	Same As Existing				
ULTIMATE CONST.	2 Lane Expansion	4 Lane Rebuild (High Fill)	2 Lane Exp.	2 Lane Expansion (High Fill)	4 Lane Rebuild
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)				
ADT (1996/2005/2025)	3338/3989/5928				
CONTROL SECTION	022-02				
LOG MILE	13.50	14.00	14.50	15.00	15.50

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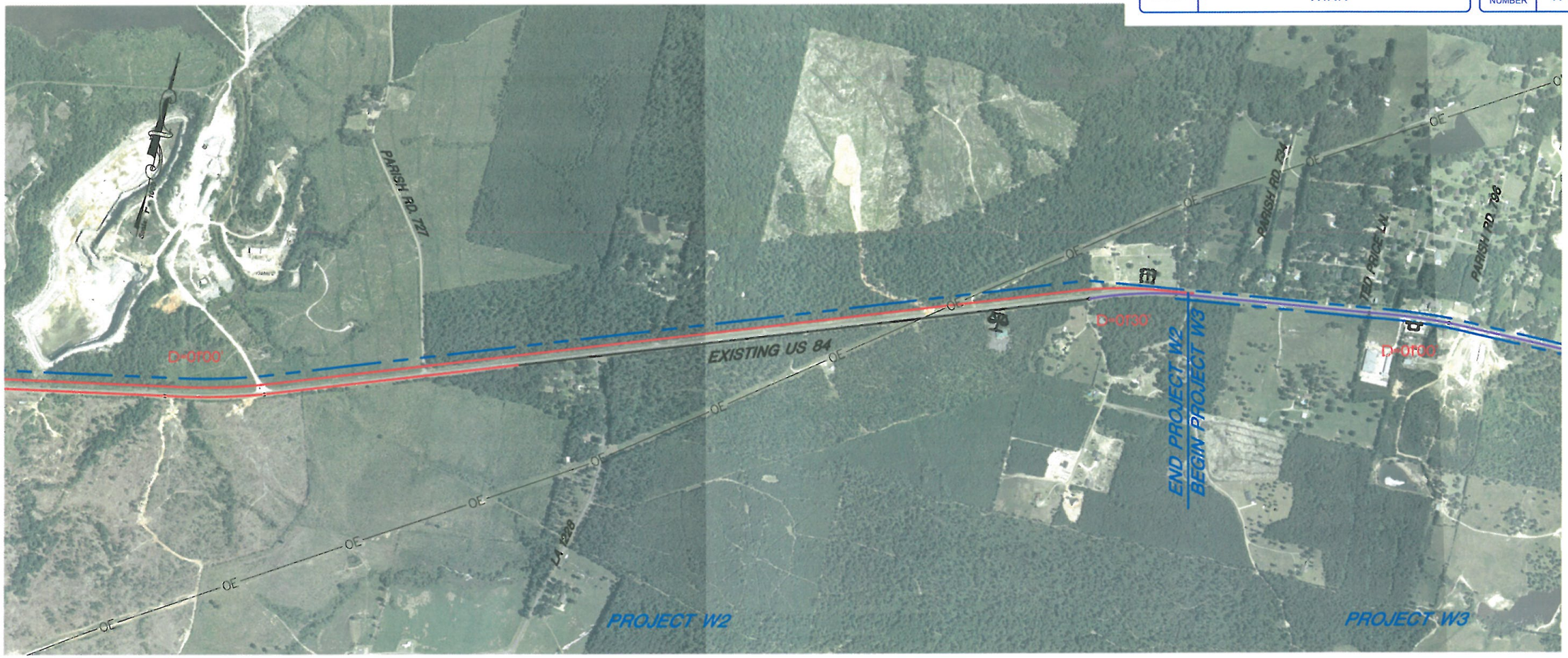
EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

PARISH	WINN	SHEET NUMBER	W-7



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)				
NEEDS CONST.	2 Lane Rebuild	No Improvement Needed			
NEEDS SECTION		Same As Existing			
ULTIMATE CONST.	4 Lane Rebuild	2 Lane Expansion		5 Lane Urban	
ULTIMATE SECTION		4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)		4 Lanes @ 12' (2' Curb & Gutter) w/C.T.L. @ 14'	
ADT (1996/2005/2025)	3338/3989/5928				
CONTROL SECTION	022-02				
LOG MILE	16.00	16.50	17.00	17.50	18.00

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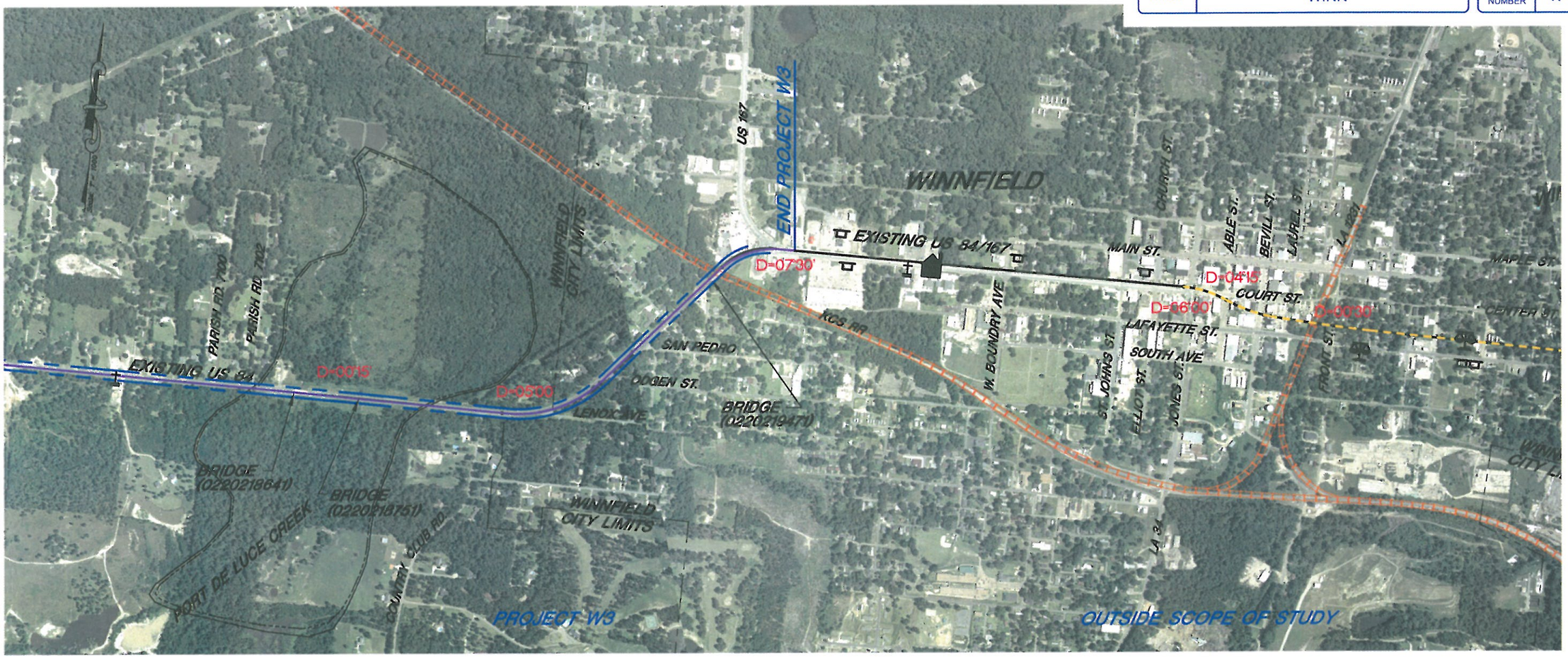
EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA6 AND US 84

PARISH	WINN	SHEET NUMBER	W-8



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)	5 Lanes	2 Lanes @ 12' (4' Shoulders)
NEEDS CONST.	No Improvement Needed	Outside Scope Of Study	
NEEDS SECTION	Same As Existing	Same As Existing	Programmed Section
ULTIMATE CONST.	5 Lane Urban	Outside Scope Of Study	
ULTIMATE SECTION	4 Lanes @ 12' (2' Curb & Gutter) w/C.T.L. @ 14'	Same As Existing	Programmed Section
ADT (1996/2005/2025)	3338/3989/5928 | 6037/7215/9538	13853/16556/24603	
CONTROL SECTION	022-02	023-05	023-04
LOG MILE	18.50 — 19.00 — 19.50	0.73 — 0.00	10.65

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EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

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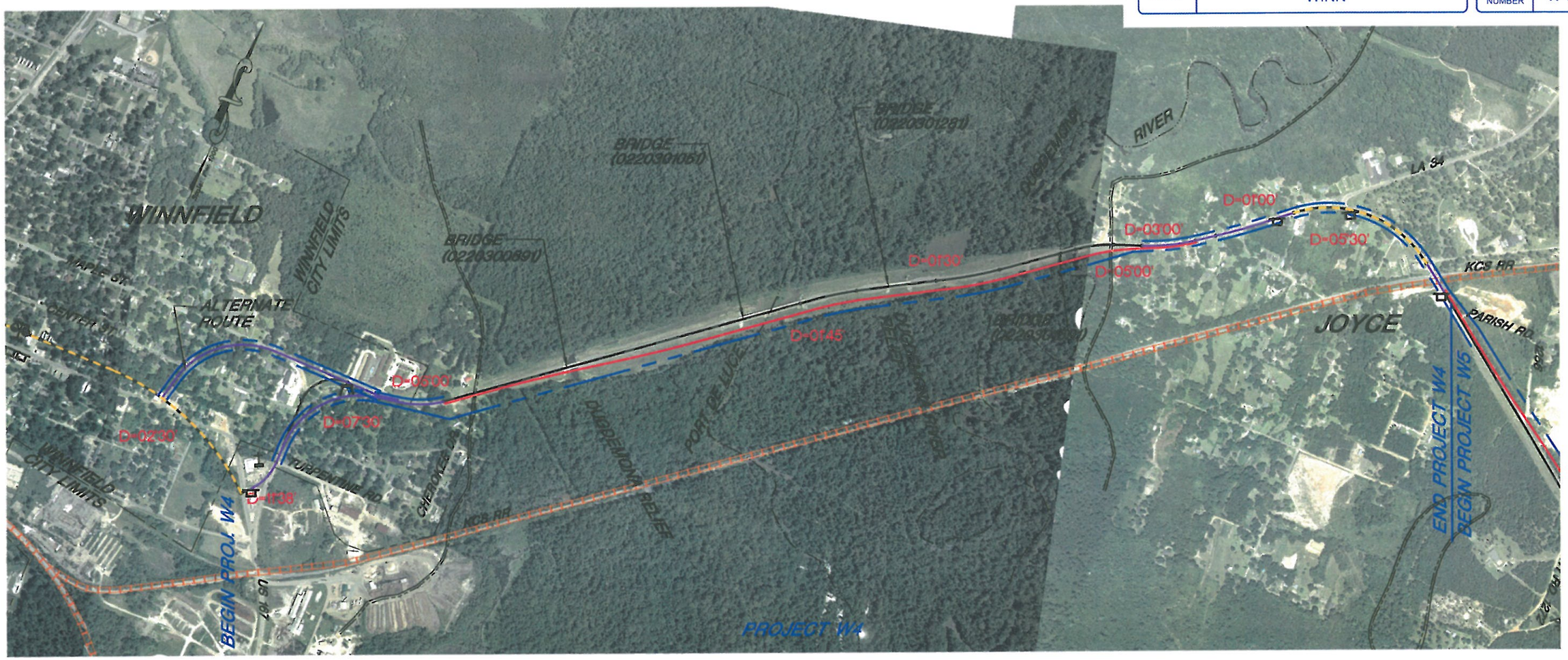
PARISH	WINN	SHEET NUMBER	W-9



EXISTING SECTION	2 Lanes @ 12' (4' Shoulders)	2 Lanes @ 12' (10' Shoulders)			
NEEDS CONST.	Outside Scope Of Study	5 Lane Urban	2 Lane Expansion (High Fill)	5 Lane Urban	
NEEDS SECTION	Programmed Section	4 Ln. @ 12' (2' Curb & Gut.) w/C.T.L. @ 14'	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)	4 Ln. @ 12' (2' C & G) w/C.T.L. @ 14'	
ULTIMATE CONST.	O. S. O. S.	Same As Needs Basis	Same As Needs Basis	Same As Needs Basis	
ULTIMATE SECTION	Prog. Section	Same As Needs Basis	Same As Needs Basis	Same As Needs Basis	
ADT (1996/2005/2025)	13853/16556/24603	5850/6991/10390			2150/2569/3818
CONTROL SECTION	022-03				
LOG MILE	9.64	0.00	0.50	1.00	1.50	2.00

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LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

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PARISH	WINN	SHEET NUMBER	W-10

EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)
NEEDS CONST.	No Improvement Needed
NEEDS SECTION	Same As Existing / 4 Lane Rebuild (High Fill)
ULTIMATE CONST.	2 Lane Expansion
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)
ADT (1996/2005/2025)	2150/2569/3818
CONTROL SECTION	022-03
LOG MILE	2.50 · 3.00 · 3.50 · 4.00 · 4.50

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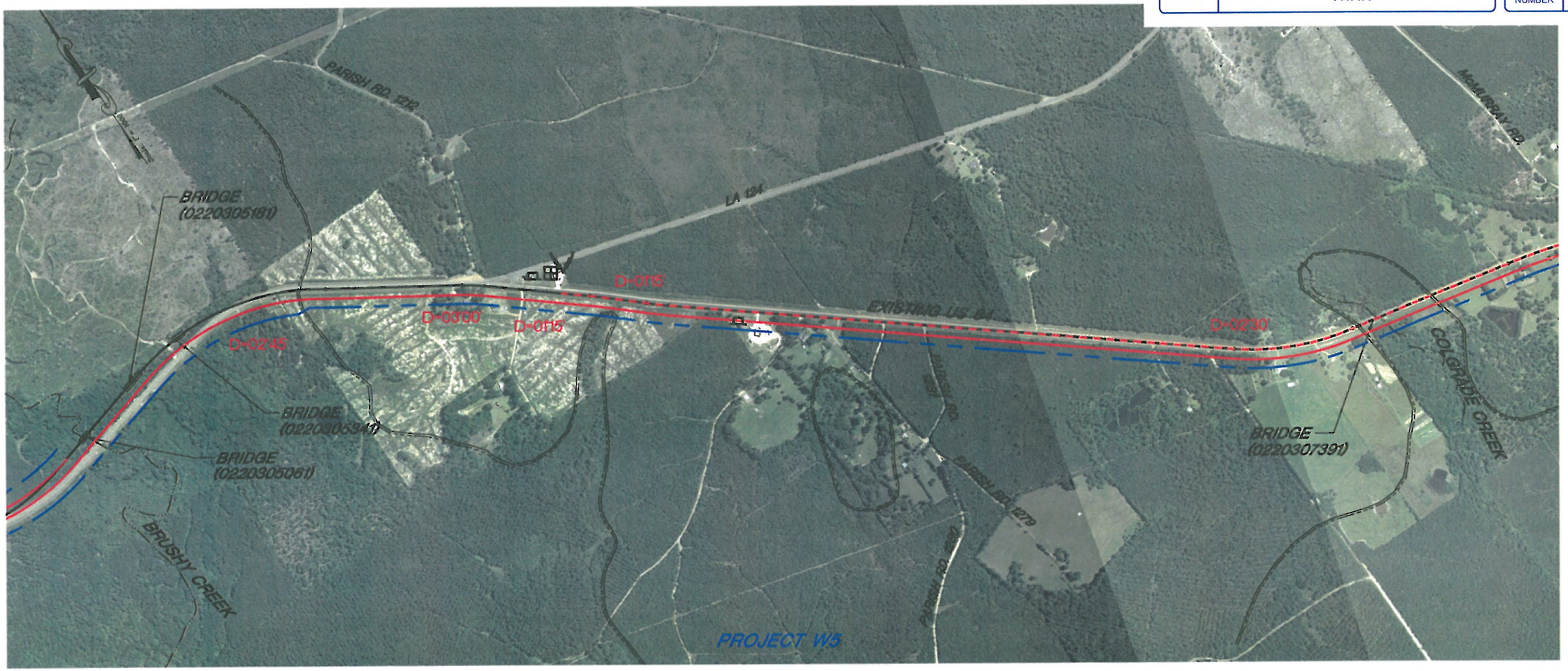
JUNE 2002 For: DOTD

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814_PLNset7.DWG

PARISH	WINN	SHEET NUMBER	W-11



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)		2 Lanes @ 12' (0' Shoulders)
NEEDS CONST.	No Improvement Needed		Shoulder Improvement
NEEDS SECTION	Same As Existing		2 Lanes @ 12' (10' Shoulders)
ULTIMATE CONST.	2 Lane Expansion (High Fill)	2 Lane Expansion	2 Lane Expansion w/Shoulder Improvement
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)		
ADT (1996/2005/2025)	2150/2569/3818		1391/1662/2470
CONTROL SECTION	022-03		
LOG MILE	5.00	5.50	6.00	6.50	7.00	7.50

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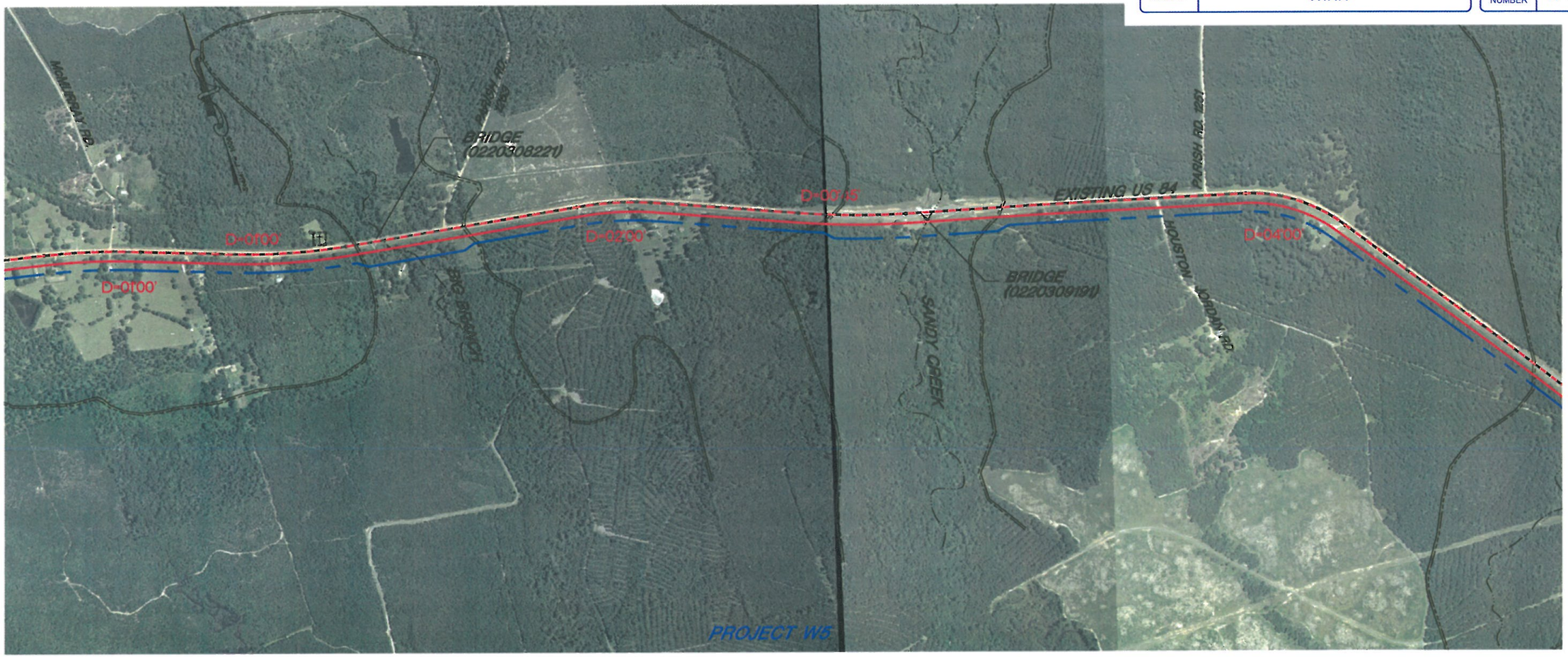
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814_PLNset7.DWG

PARISH	WINN	SHEET NUMBER	W-12



EXISTING SECTION	2 Lanes @ 12' (0' Shoulders)					
NEEDS CONST.	Shoulder Improvement					
NEEDS SECTION	2 Lanes @ 12' (10' Shoulders)					
ULTIMATE CONST.	2 Lane Exp. w/Shoulder Improvement	2 Lane Exp. (H.F.) w/Shldr. Impr.	2 Lane Expansion w/Shoulder Improvement	2 Lane Exp. (High Fill) w/Shoulder Improvement	2 Lane Expansion w/Shoulder Improvement	
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)					
ADT (1996/2005/2025)	1391/1662/2470					
CONTROL SECTION	022-03					
LOG MILE	8.00		8.50	9.00	9.50	10.00

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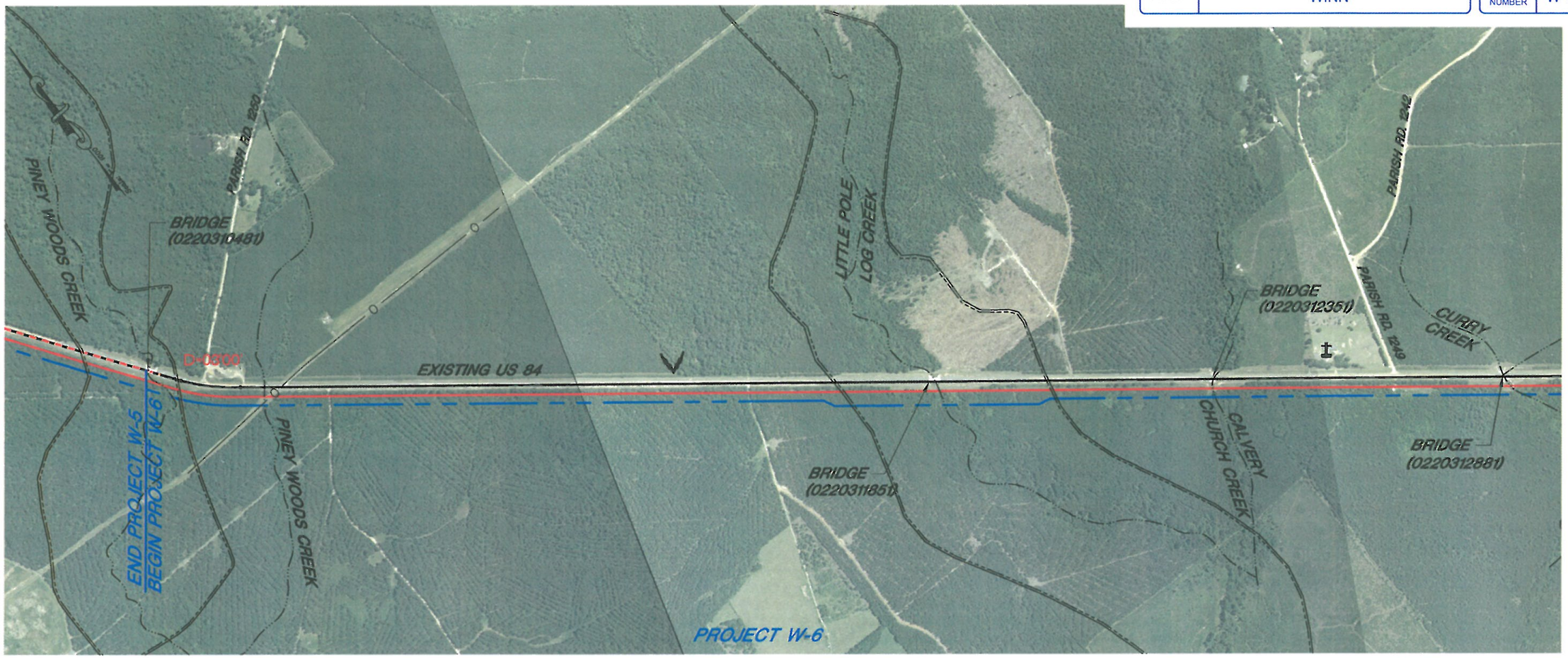
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814_PLNset7.DWG

PARISH	WINN	SHEET NUMBER	W-13



EXISTING SECTION	2 Lns. @ 12' (0' Shlders)	2 Lanes @ 12' (10' Shoulders)			
NEEDS CONST.	Shldr. Imp.	No Improvement Needed			
NEEDS SECTION	Same As Existing				
ULTIMATE CONST.	2 Lane Exp. w/Shldr. Imp.	2 Lane Expansion	2 Lane Expansion (H.F.)	2 Lane Expansion	
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)				
ADT (1996/2005/2025)	1391/1662/2470				
CONTROL SECTION	022-03				
LOG MILE	10.50	11.00	11.50	12.00	12.50

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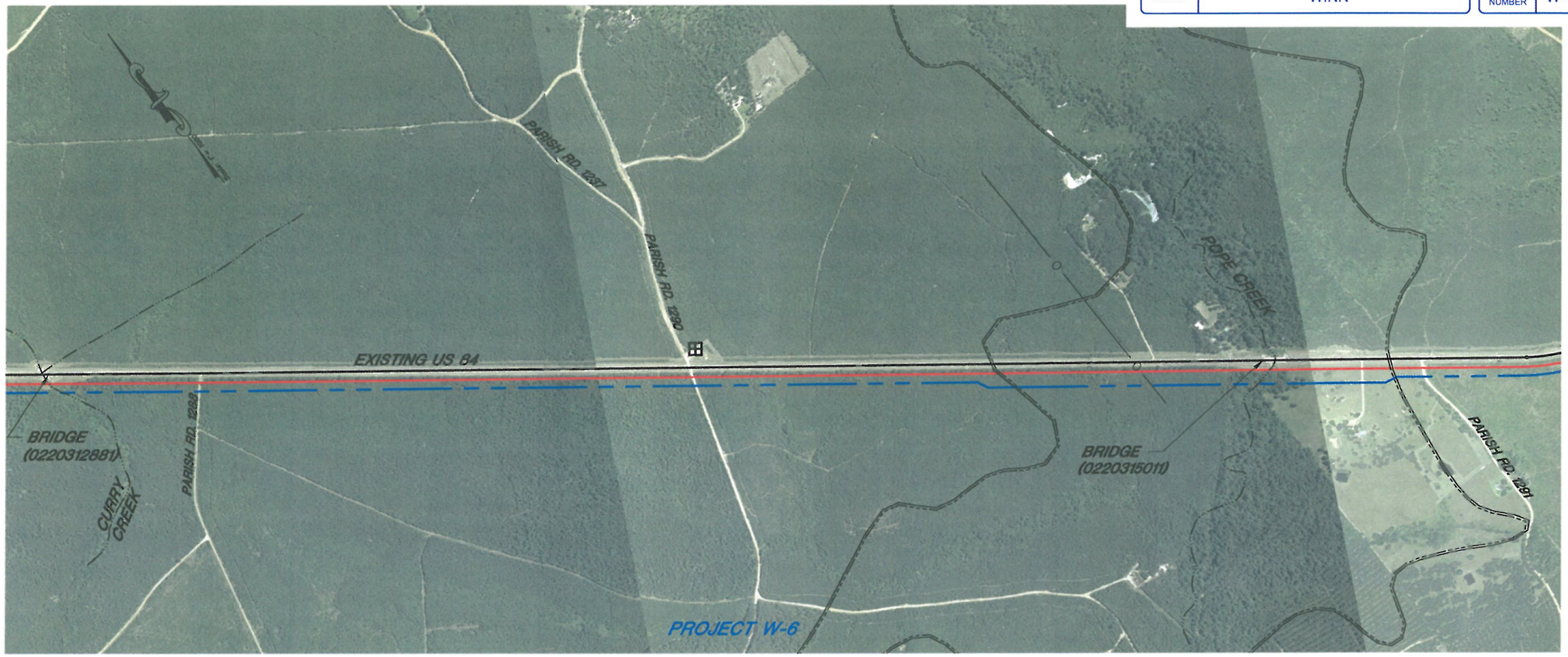
EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 TO US 84

FILE: \2020\00814\01800\814_PLNset8.DWG

PARISH	WINN	SHEET NUMBER	W-14



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)				
NEEDS CONST.	No Improvement Needed				
NEEDS SECTION	Same As Existing				
ULTIMATE CONST.	2 Lane Expansion		2 Lane Expansion (H.F.)		2 Lane Expansion
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)				
ADT (1996/2005/2025)	1391/1662/2470				
CONTROL SECTION	022-03				
LOG MILE	13.00	13.50	14.00	14.50	15.00

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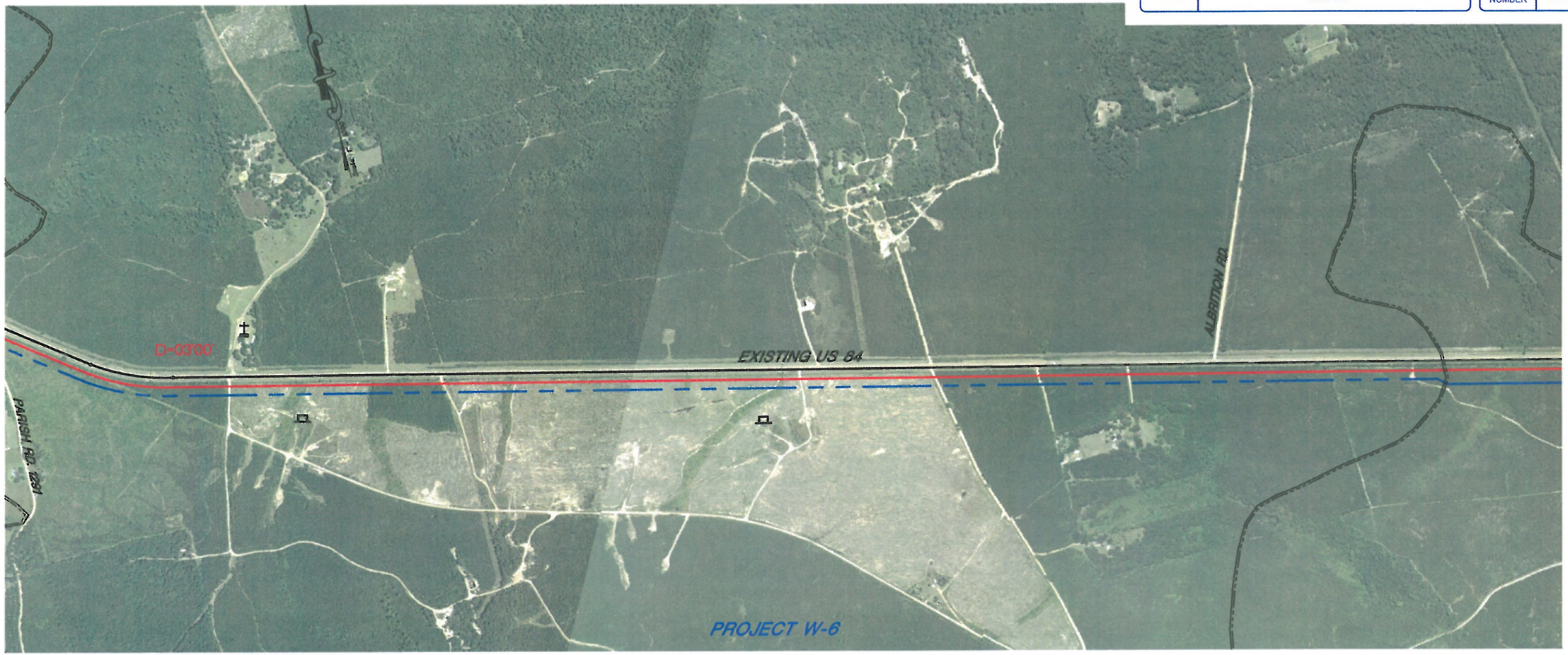
LOUISIANA ON THE MOVE DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814_PLNset8.DWG

PARISH	WINN	SHEET NUMBER	W-15



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)	
NEEDS CONST.	No Improvement Needed	
NEEDS SECTION	Same As Existing	
ULTIMATE CONST.	2 Lane Expansion	2 Lane Exp. (High Fill)
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)	
ADT (1996/2005/2025)	1391/1662/2470	
CONTROL SECTION	022-03	
LOG MILE	15.50 — 16.00 — 16.50 — 17.00 — 17.50 — 18.00	

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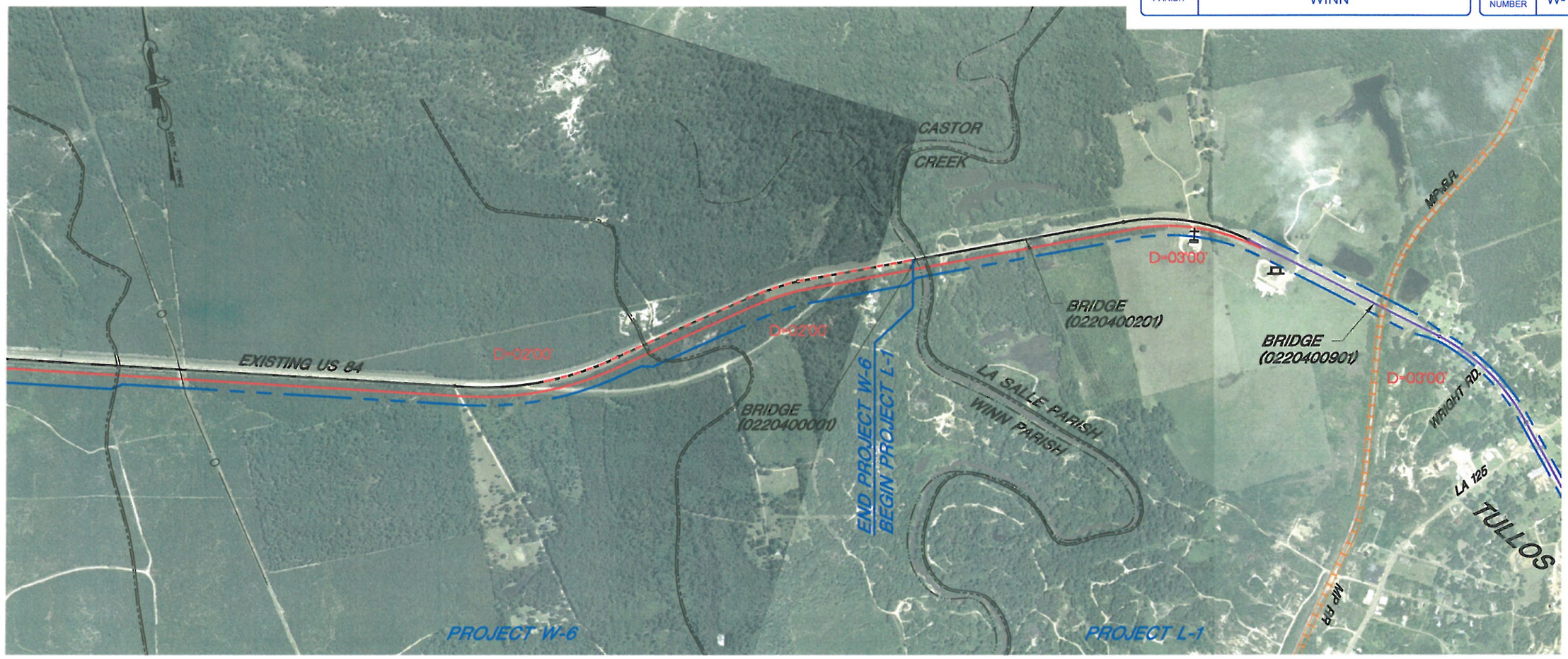
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814_PLNset8.DWG

PARISH	WINN	SHEET NUMBER	W-16



EXISTING SECTION	2 Lanes @ 12' (10' Shoulders)		2 Lanes @ 12' (0' Shoulders)		2 Lanes @ 12' (10' Shoulders)	
NEEDS CONST.	No Improvement Needed		Shoulder Improvement		No Improvement Needed	
NEEDS SECTION	Same as Existing		2 Lanes @ 12' (10' Shoulders)		Same as Existing	
ULTIMATE CONST.	2 Lane Exp. (High Fill)	2 Lane Expansion	2 Lane Expansion (High Fill)		2 Lane Expansion	5 Lane Urban
ULTIMATE SECTION	4 Lanes @ 12' (Divided 65' Median) (6' Inside Shoulder & 10' Outside Shoulder)					4 Ln. @ 12' (2' C & G) w/C. T. L. @ 14'
ADT (1996/2005/2025)	1391/1662/2470				1688/2017/2998	
CONTROL SECTION	022-03				022-04	
LOG MILE	18.50	19.00	19.64	0.00	0.50	1.00

Prepared by:

SIGMA CONSULTING GROUP, INC.

JUNE 2002 For:

LOUISIANA ON THE MOVE. DOTD BUILDS THE WAY

EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

LAYOUT MAPS
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA
ROUTES LA 6 AND US 84

FILE: \02020\00814\01800\814_PLNset8.DWG

APPENDIX B
PROFILES

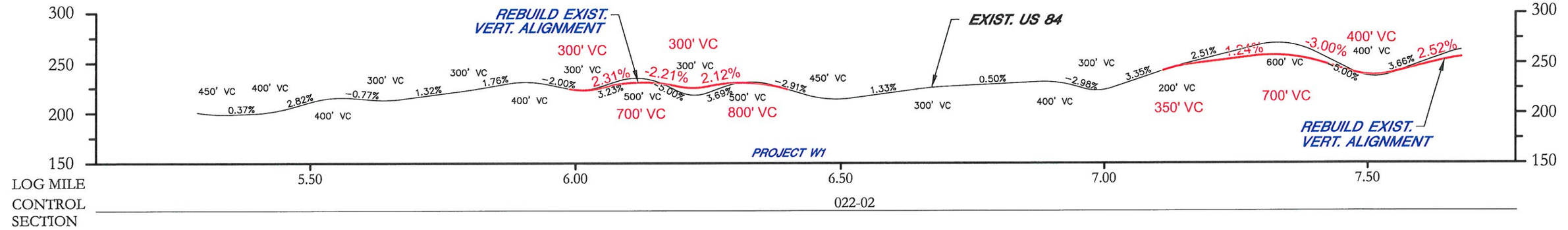
Appendix B is made up of preliminary profiles at 1"=1000' horizontal and 1"=100' vertical scale. These profiles correspond with the appropriate plan drawings in Appendix A.

Winn Parish
For the profile layout of Project 'W1' see sheet numbers W-101 and W-102.
For the profile layout of Project 'W2' see sheet numbers W-102 and W-103.
For the profile layout of Project 'W3' see sheet number W-103.
For the profile layout of Project 'W4' see sheet number W-103.
For the profile layout of Project 'W5' see sheet numbers W-104 and W-105.
For the profile layout of Project 'W6' see sheet numbers W-105 and W-106.

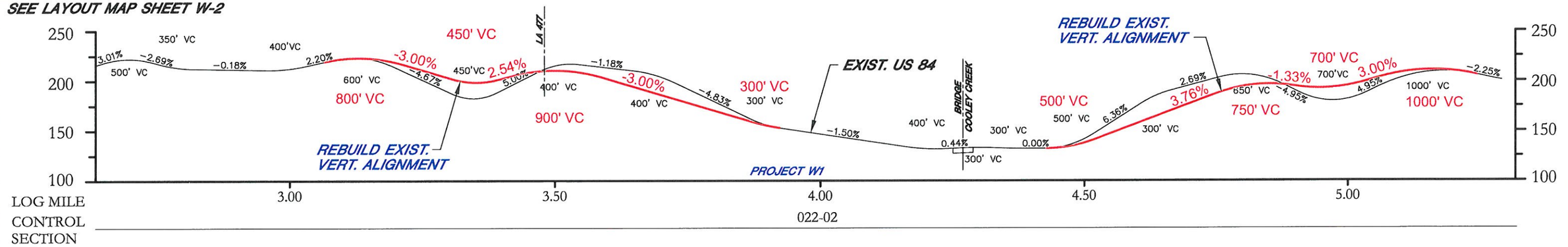
1"=1000' HOR.
1"=100' VERT.

PARISH	WINN	SHEET NUMBER	W-101

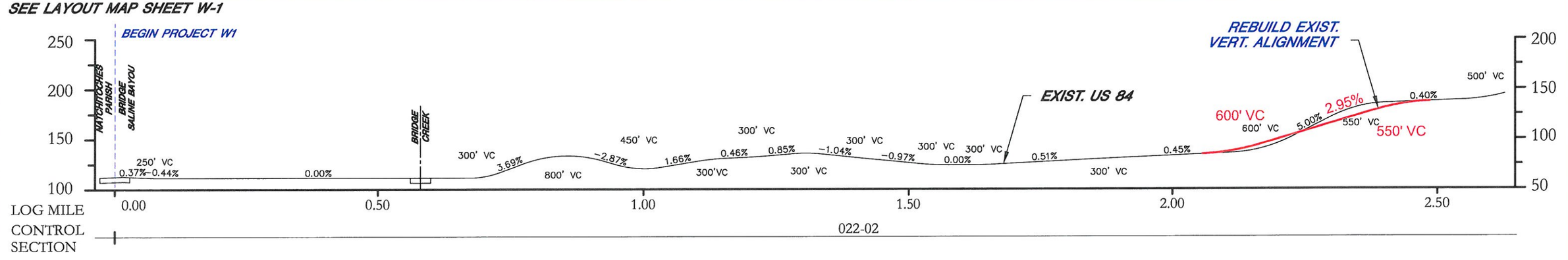
SEE LAYOUT MAP SHEET W-3



SEE LAYOUT MAP SHEET W-2



SEE LAYOUT MAP SHEET W-1



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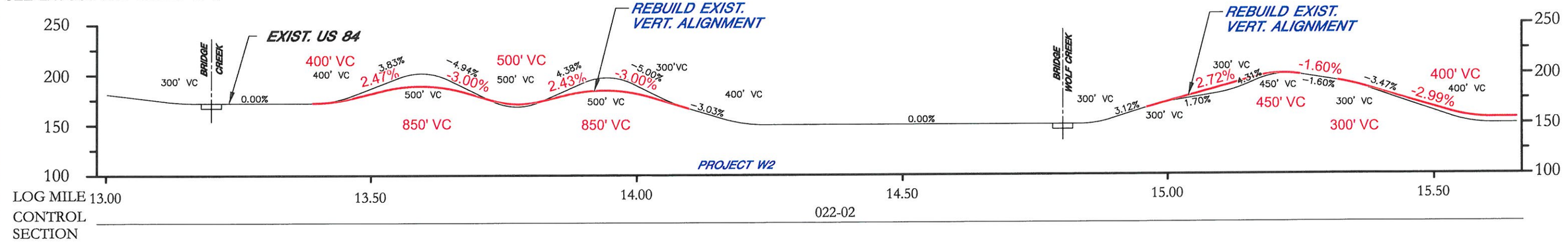
PROFILE
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

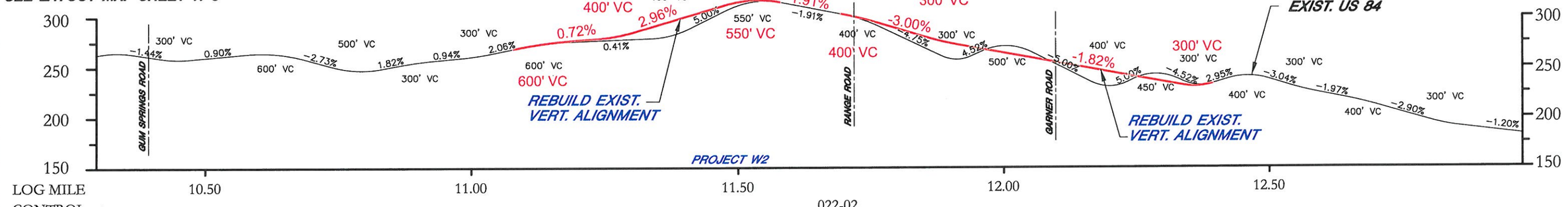
1"=1000' HOR.
1"=100' VERT.

PARISH	WINN	SHEET NUMBER	W-102

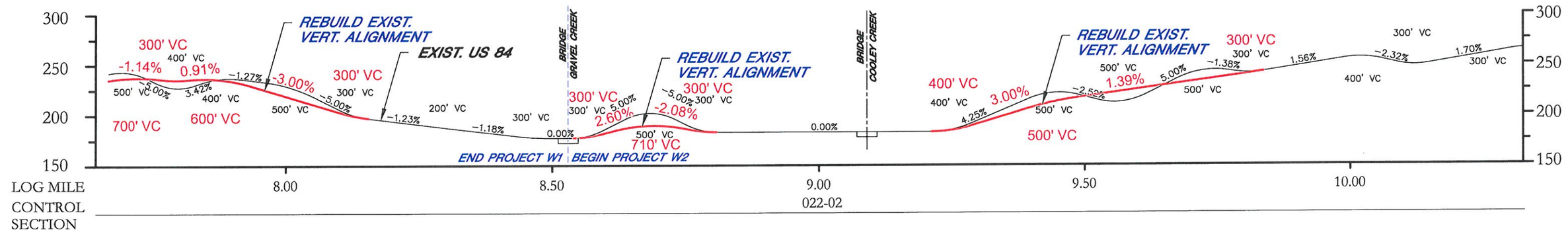
SEE LAYOUT MAP SHEET W-6



SEE LAYOUT MAP SHEET W-5



SEE LAYOUT MAP SHEET W-4



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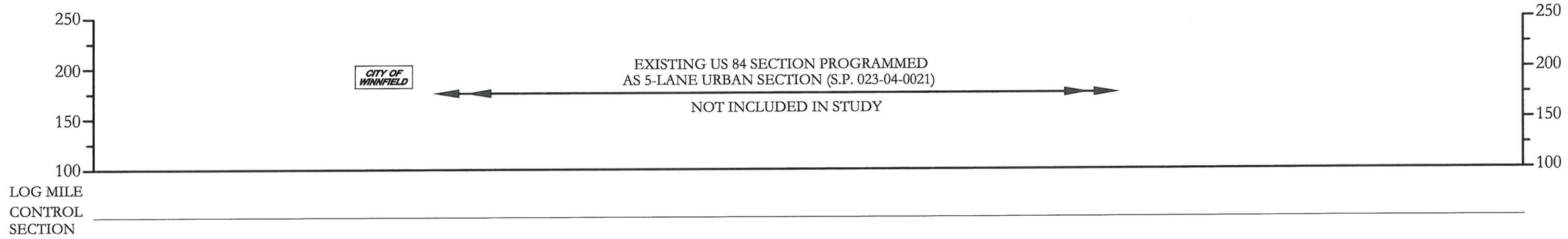
PROFILE
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

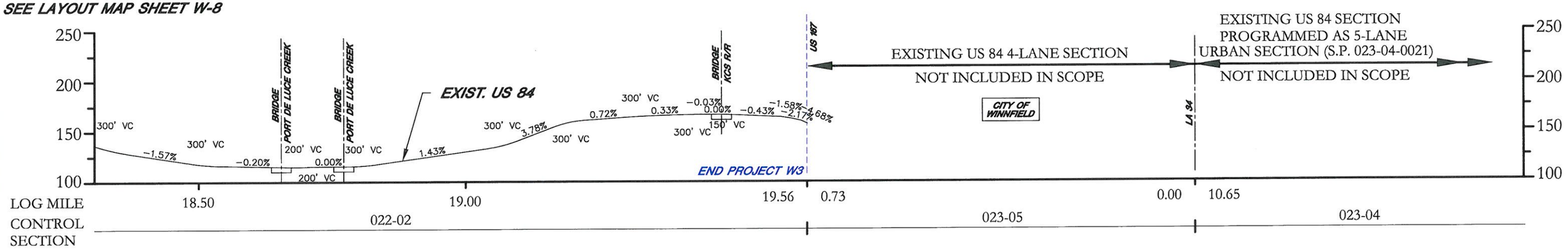
1"=1000' HOR.
1"=100' VERT.

PARISH: WINN | SHEET NUMBER: W-103

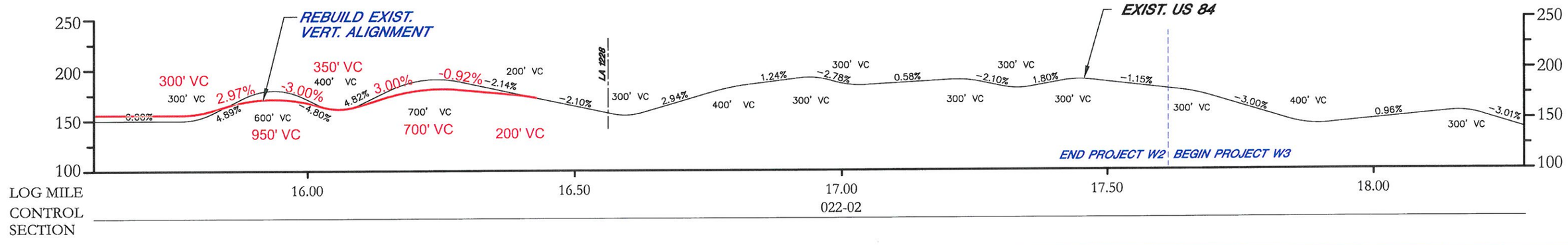
SEE LAYOUT MAP SHEET W-8



SEE LAYOUT MAP SHEET W-8



SEE LAYOUT MAP SHEET W-7



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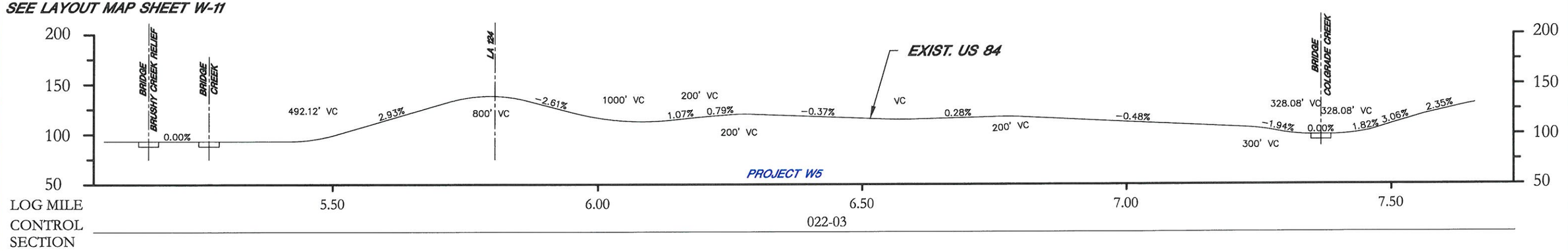
PROFILE
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

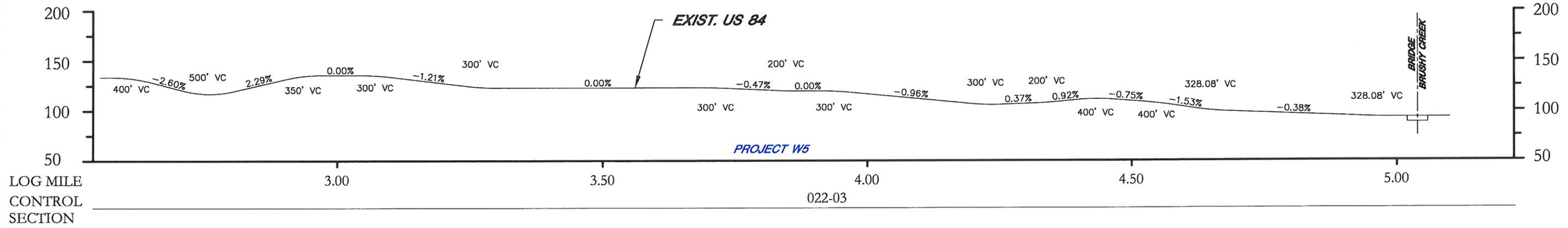
1"=1000' HOR.
1"=100' VERT.

PARISH	WINN	SHEET NUMBER	W-104

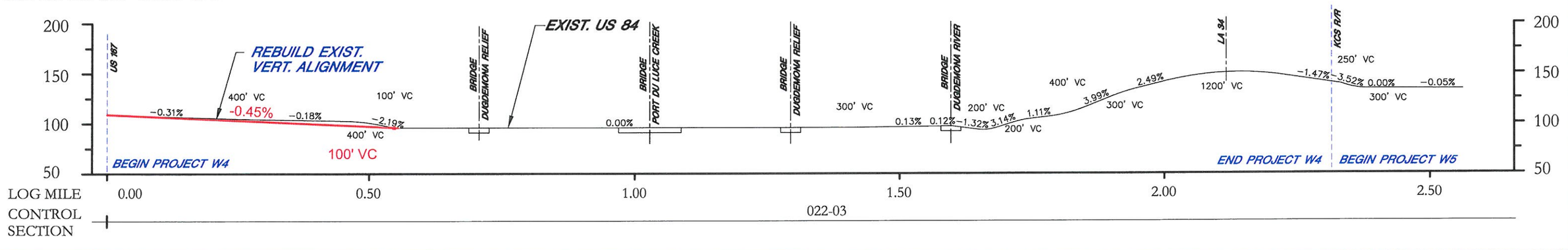
SEE LAYOUT MAP SHEET W-11



SEE LAYOUT MAP SHEET W-10



SEE LAYOUT MAP SHEET W-9



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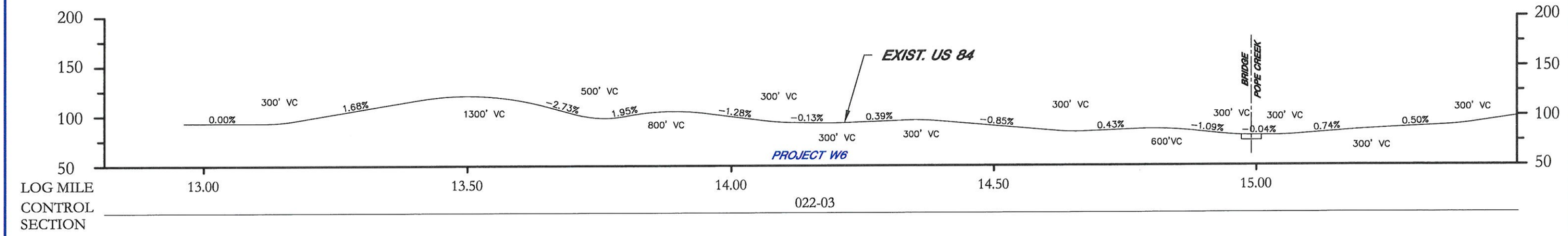
PROFILE
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

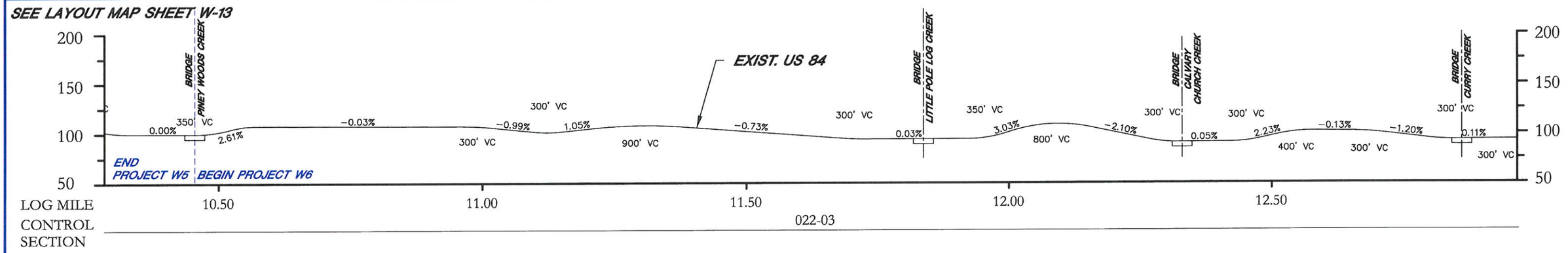
1"=1000' HOR.
1"=100' VERT.

PARISH	WINN	SHEET NUMBER	W-105

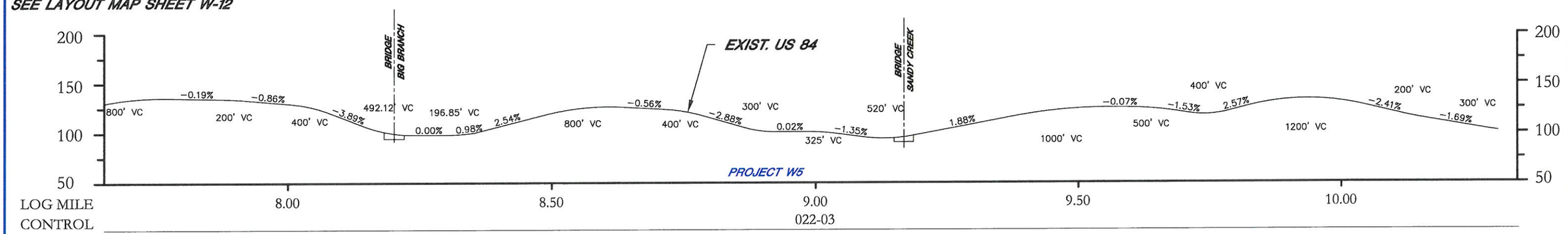
SEE LAYOUT MAP SHEET W-14



SEE LAYOUT MAP SHEET W-13



SEE LAYOUT MAP SHEET W-12



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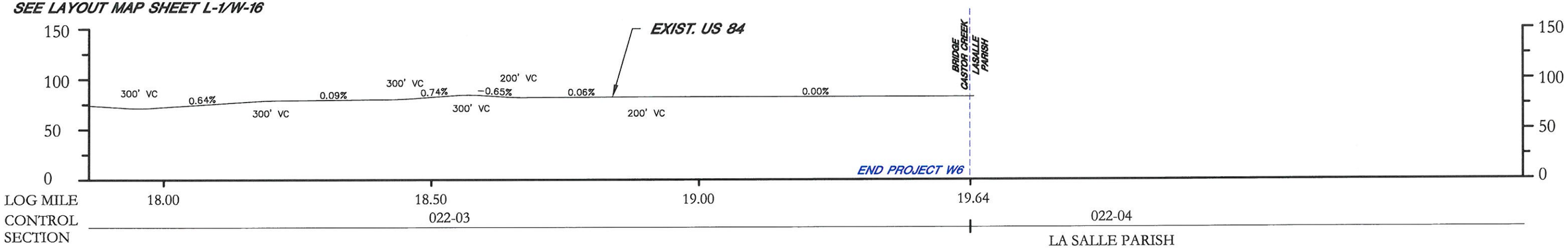
EL CAMINO EAST-WEST CORRIDOR MASTER PLAN STUDY

PROFILE
LOUISIANA/TEXAS STATE LINE TO ARCHIE, LA.
ROUTES LA 6 AND US 84

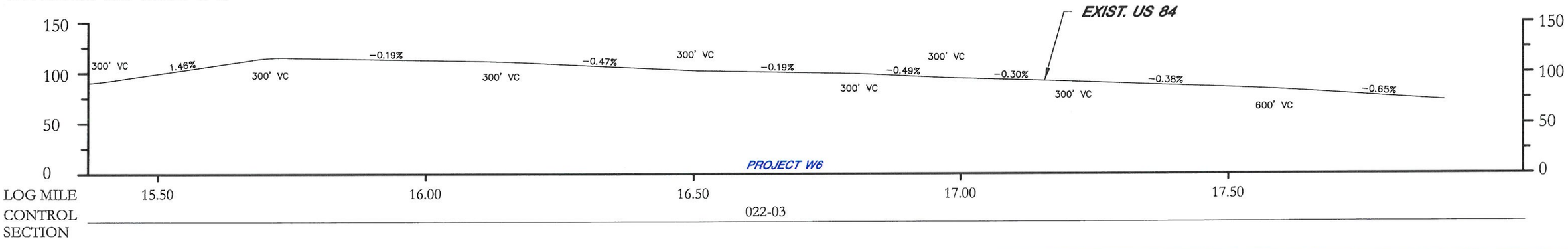
1"=1000' HOR.
1"=100' VERT.

PARISH: WINN | SHEET NUMBER: W-106

SEE LAYOUT MAP SHEET L-1/W-16



SEE LAYOUT MAP SHEET W-15



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ROUTES LA 6 AND US 84