



STAPLETON CORRIDOR STUDY

SUMMARY REPORT

Stapleton Road/Judge Orr Road Corridor Study

May 2003



TABLE OF CONTENTS

1.0	INTRODUCTION	3
1.1	Study Location.....	3
1.2	Background.....	3
1.3	Study Objectives	6
1.4	Study Process.....	6
1.4.1	Public Process.....	6
1.4.2	Alignment Screening Process	9
2.0	EXISTING CONDITIONS	26
2.1	Environmental Review	26
2.1.1	Air Quality	26
2.1.2	Cultural Resources	27
2.1.3	Ecological Resources	28
2.1.4	Environmental Justice	29
2.1.5	Farmlands	29
2.1.6	Hazardous Materials	29
2.1.7	Floodplain, Hydrology, Water Quality	29
2.1.8	Noise	33
2.1.9	Threatened and Endangered Species	33
2.1.10	Utilities.....	34
2.1.11	Visual and Aesthetics Resources	34
2.2	Transportation Facilities.....	37
2.2.1	Existing Conditions	37
2.2.2	Right of Way and Design Standards	37
2.2.3	Access Criteria	37
2.2.4	Transportation Plans	39
2.3	Land Use	44
2.3.1	Existing Land Use and Zoning.....	44
2.3.2	Land Use Plans	45
3.0	LAND USE/ DEMOGRAPHIC FORECASTS	47
3.1	Study Area Definition	47
3.2	Validation of PPACG 2000 Socio-Economic Data.....	50
3.3	Socio-Economic Forecasts.....	54
3.3.1	Methodology	54

3.3.2	PPACG Model Data Sets	54
3.3.3	Development Plan/ EPC Development Policy Adjustments	54
3.3.4	Study Area 2025 Forecasts	54
4.0	TRAFFIC FORECASTS	60
4.1	The PPACG Model	60
4.1.1	Model Specification	60
4.1.2	Validation of Model Performance for the Study Area	60
4.2	Modifications to the Regional Model	60
4.2.1	Zonal Structure	60
4.2.2	Network Specification	61
4.2.3	Study Area Expansion	72
4.3	Baseline Validation of Modified Model	72
4.4	2025 Traffic Forecasts	72
4.4.1	Methodology	72
4.4.2	2025 Volumes	73
5.0	STAPLETON / JUDGE ORR / CURTIS ROADS NEEDS ASSESSMENT	78
6.0	RECOMMENDATIONS	80
6.1	Future Roadway Alignment	80
6.1.1	Goals for the Alignment	80
6.1.2	Major Elements of the Alignment	80
6.2	Future Roadway Section, Intersections, and Access	81
6.2.1.	Existing Stapleton Road to Eastonville Road	81
6.2.2	Eastonville Road to US 24	81
6.2.3	US 24 to Judge Orr Road / Curtis Road	81
6.3	Alternative Mode Accommodations	81
6.3.1	Bicycle and Pedestrian Accommodations	82
6.3.2	Transit	82

1.0 Introduction

1.1 Study Location

The study area for the proposed Stapleton Road/Judge Orr Road alignment is located in the Falcon/Peyton Planning Area of El Paso County. The planned ultimate Stapleton Road/Judge Orr Road corridor would provide an east-west route connecting Stapleton Road/Judge Orr Road west to a connection with I-25. On the east, interconnection of the Stapleton Road/Judge Orr Road corridor with Curtis Road would also provide a linkage between residential concentrations in northeastern El Paso County and employment destinations to the south, including Schriever Air Force Base.

It is the purpose of this study to determine the preferred alignment for a Stapleton Road/Judge Road connection extending from the drainage structure east of Meridian Road to a Judge Orr Road connection in the vicinity of the Judge Orr Road/ Curtis Road intersection (Figure 1). The proposed facility is classified as a Major Arterial. Consistent with this functional classification and El Paso County design standards, the roadway section would be a 4-lane divided configuration within a 120-foot right-of-way (ROW) as shown in Figure 2.

The immediate study area takes in approximately six square miles, but studies and coordination efforts enlarge the area to around 14 square miles, including the current and future residential and commercial developments along north side of Woodmen Road, those east and west of Meridian Road, those north and south of Stapleton Road; the Meadow Lake Airport area south of Judge Orr Road and west of Curtis Road; and portions of the Santa Fe Springs proposed development east of Curtis Road. In all, approximately 3 miles of US 24 are included within the area evaluated for potential roadway alignments.

1.2 Background

Historically, long-range planning efforts have been responsive to the mobility needs associated with this potential for growth in the County. In addressing anticipated future system-level needs, the development of a rational regional network of through arterial routes has been pursued. An east-west route created through an extension of Stapleton Road to connections with Judge Orr Road and Research Parkway, on the east and west respectively, has been a recurring theme in local and regional plans for over a decade.

Most recently, a limited statement of corridor needs was made in the *Small Area Traffic Report for the Falcon Area*. One recommendation involved development of Stapleton Road as a four-lane major arterial from Raygor Road (west) to U.S. 24 (east). The alignment a segment of the roadway east of Meridian Road has already been set by the approved final plat for Woodmen Hills Filing 11 (Bennett Ranch). The platted alignment for that segment runs from the Stapleton Road/Meridian Road intersection easterly to the drainage channel designed to feed the Bennett regional detention pond. The Woodmen Hills plat includes a lot restriction that provides some flexibility for the alignment within Bennett Ranch.

The proposed Stapleton Road/ Judge Orr Road Corridor Study was undertaken by El Paso County to finalize the alignment of the remaining roadway segments to the east of Meridian Road. The study recommendations support corridor preservation, the update of local and regional plans, project funding acquisition and the future construction of the proposed roadway extension.

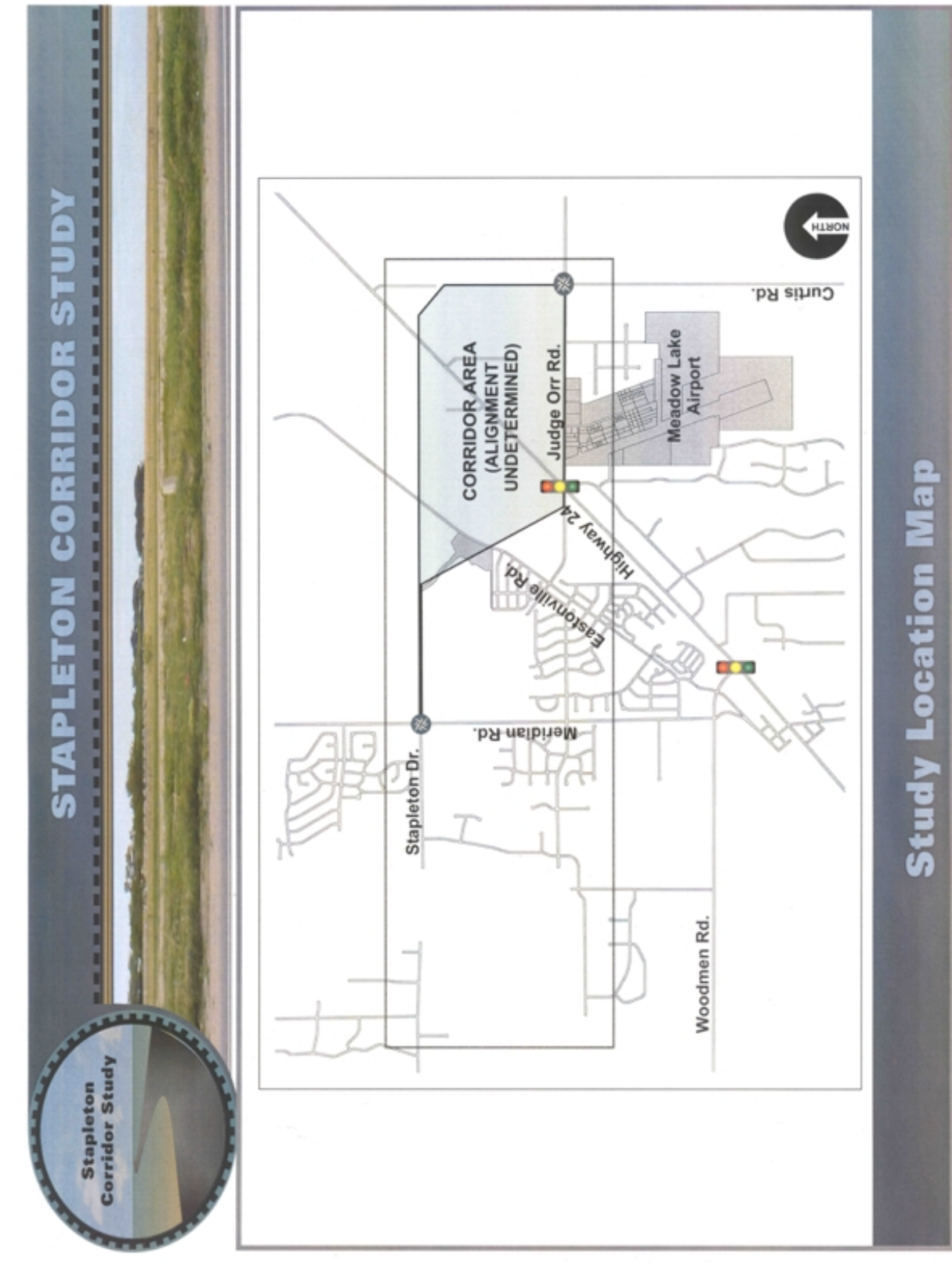


Figure 1. Study Location Map

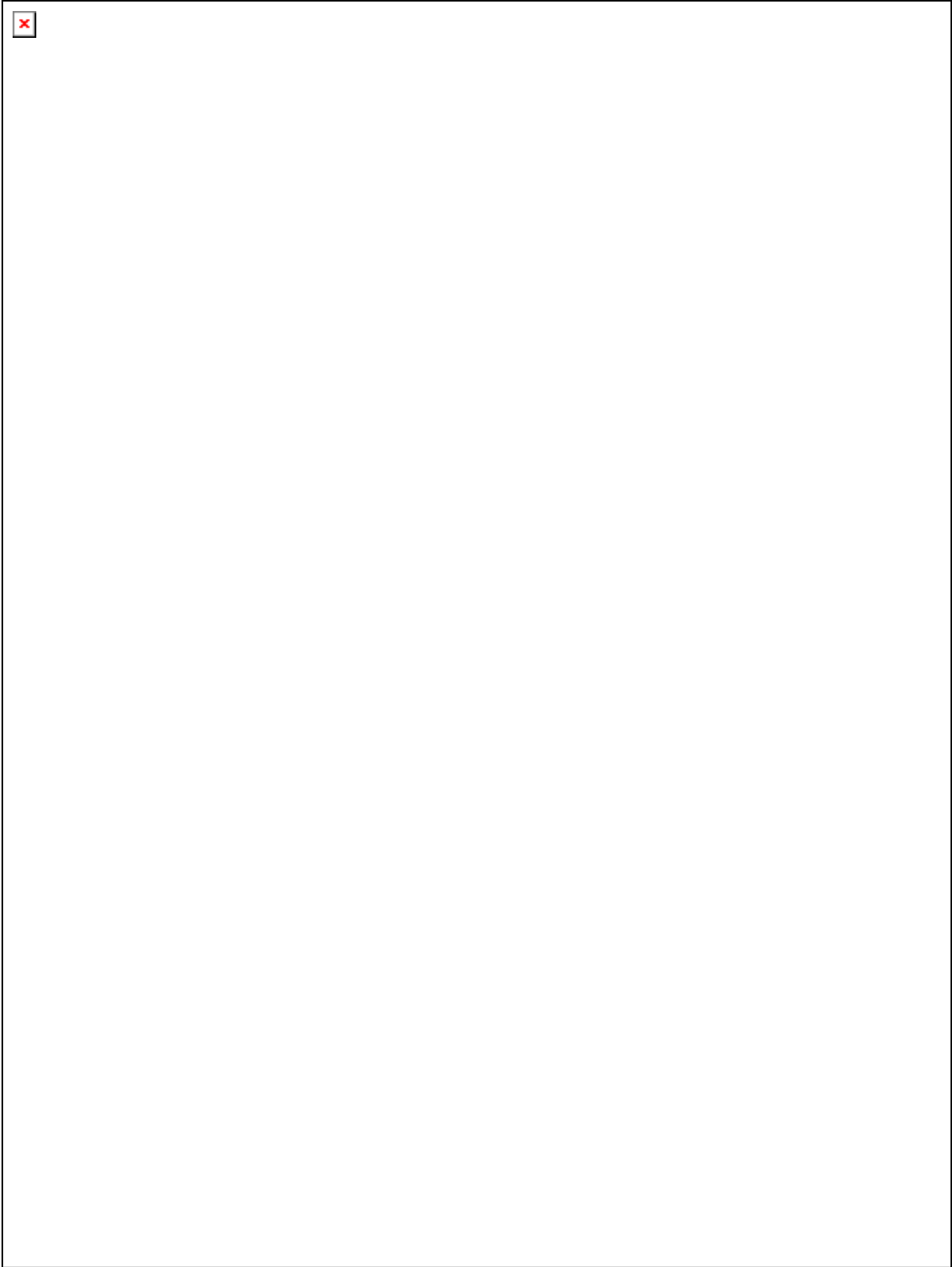


Figure 2. Stapleton Road Typical Roadway Section

1.3 Study Objectives

The goal of the Stapleton Road/Judge Orr Corridor Study is to “identify a preferred alignment for Stapleton Road between the drainage structure west of Eastonville Road and the intersection of Judge Orr Road and Curtis Road that provides an efficient major roadway and minimizes adverse impacts to the community and environments.” The following section describes the steps taken and process used to determine which alignment of the many considered would fulfill this goal.

1.4 Study Process

1.4.1 Public Process

The Stapleton Road/Judge Orr Road Public Involvement Plan was based on the philosophy that potentially affected property owners should be informed of the study and its results prior to the alternative alignments going before the public. With that intent, two tiers of public outreach were used. Standard methods, including public open houses, newsletters, and project website were used to obtain input from the general public as users of the proposed roadway facility. The study team also conducted numerous “one-on-one” meetings with potentially directly impacted property owners - first to gather input and later to get their reactions to the alignment alternatives considered at each stage of the analysis. Finally, all property owners were mailed follow-up materials showing the two final candidate alignments, and then individually telephoned to get their comments and questions.

The public involvement process included the following activities:

One-on-one meetings

The first set of one-on-one meetings was held with potentially affected property owners and others to discuss the study and obtain input and ideas (September 2002). The second set of one-on-one meetings was held with potentially affected property owners and others to discuss potential alignments (November and December 2002). Again, meetings were held with developers in and near the project area, representatives of the Meadow Lake Airport, owners of various large holdings in the vicinity of the proposed corridor, a representative of the Schriever AFB (planner), and two El Paso County commissioners.

Website

A website was established in cooperation with El Paso County to keep up to date information always available to the public and agencies. The website was updated after each open house and at other milestones in the study.

Public Meetings

Two open house meetings were held. The first open house presented the study and obtained input, ideas, and concerns. Over 150 invitations were sent to property owners in the study area, interested agencies, and other individuals. To “invite” potential Stapleton Road users and commuters, variable message signs were placed along Woodmen Road and Hwy 24 (November 2002).

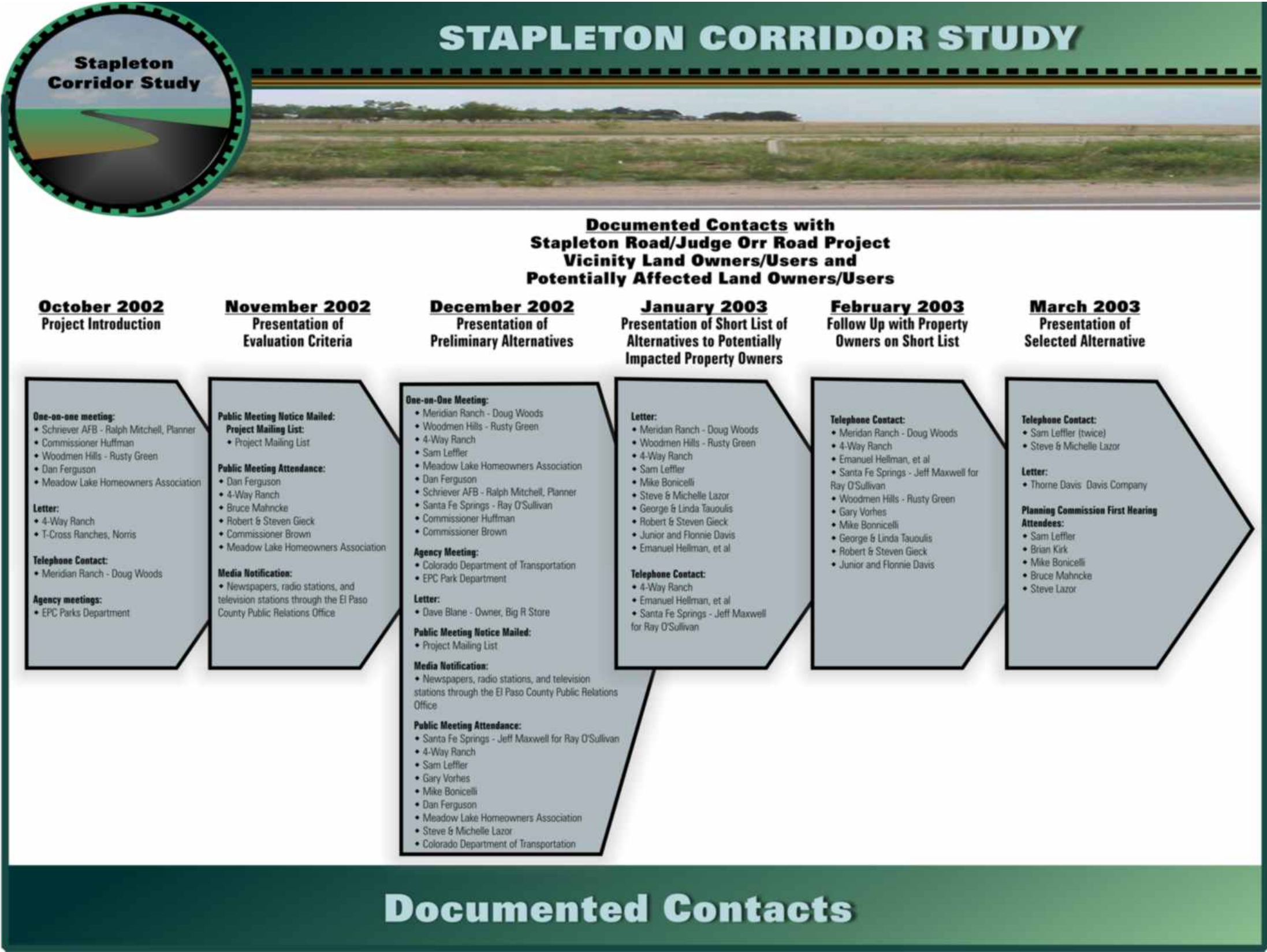
The second open house presented five potential alignments that remained after initial screening. Over 160 invitations were sent. Again, to “invite” potential Stapleton Road users and commuters, variable message signs were placed along Woodmen Road and Hwy 24 (December 2002).

Follow up Activities

All property owners that were potentially impacted by Alignment 3 or Alignment 5 and the property developers in and near the study area who might also be affected by Alignment 3 or Alignment 5 were contacted by mail. The mailing consisted of Alignment 3 and Alignment 5 maps with a letter explaining the status of the study and information about the two most likely alignments remaining after the second screening (January/February 2003). The mailing was followed by telephone phone calls to all potentially impacted property owners (11) who had not responded to the letters (February 2003). A final mailing with the Preferred Alignment and an explanation of the selection process was sent, again, to all potentially impacted property owners and potentially impacted developers.

A graphic summary of the Public Involvement Process is provided, below, as Figure 3.

Figure 3. Public Process Summary



1.4.2 Alignment Screening Process

The first steps in developing and screening alignment alternatives involved developing consensus on the project objectives and evaluation criteria. The Project Team developed a base set of study objectives and evaluation criteria tailored to support study goal. The project goal, objectives and base evaluation criteria were presented to study area landowners (one-on-ones) and the general public (Open House No. 1) prior to preliminary alternatives development. The final study goal, objectives and evaluation criteria, as refined based on stakeholder and public input, are as follows:

Study Goal: To identify a preferred alignment for Stapleton Road between the drainage structure west of Eastonville Road and the intersection of Judge Orr Road and Curtis Road that provides an efficient major roadway and minimizes adverse impacts to the community and environments.

Study Objectives:

- Support corridor preservation
- Provide consistency with local and regional plans
- Enhance the ability to acquire future funding for construction
- Create a tool for evaluating future infrastructure development
- Plan for future traffic and safety needs
- Accommodate existing and proposed developments with appropriate access
- Protect neighborhoods
- Implement bike/trail plans
- Mitigate environmental impacts

Evaluation Criteria

- Mobility – Does the alternative cut off access to existing uses? Can the alternative enhance access? Can the 120-foot ROW be accommodated on this alignment? Does the alignment preclude or enhance access to transit?
- Community and Neighborhoods – Is the alignment inconvenient enough to cause drivers to by-pass it, driving through neighborhoods? Does the alignment create unusable pieces of property? Does it disrupt businesses or residential property without taking property? Are businesses or residential property taken? Are businesses or residential uses disrupted without taking the property?
- Environment – Is critical habitat destroyed or made unusable? Does/ to what extent does the alignment cross floodplains? Does the alignment cause noise impacts to residential properties?
- Safety – Does the alignment permit/enhance pedestrian access to trails and recreational areas? Does the alignment allow good access for local trips? Does US 24 access meet CDOT spacing requirements? Cost – How many relocations are required? How much ROW is required? How many drainage structures are required and are they costly?

1.4.2.1 Phase One Alignment Screening

Following adoption of the final study goal, objectives and evaluation criteria, a broad range of alternatives was developed consistent with the goals and objectives of the project. Each alignment was screened based on the adopted evaluation criteria, and several were discarded.

The focus of the first phase of screening was on identification of fatal flaws. Phase one screening used qualitative measures/ absolutes and focused on “fatal flaws.” After “fatal flaws” screening, five alignments remained.

1.4.2.2 Phase Two Alignment Screening

After a second set of one-on-one meetings, the five alignments remaining alignments were refined and screened a second time in greater detail. During the second phase of screening, each alignment was scored relative to the five major evaluation criteria. Strengths and weaknesses of each alternative alignment were also identified. The refined alternatives and screening results were then taken to the public and the stakeholders for review and comment at the second set of one-on-one meetings and the second open house. See Figures 4 through 8.

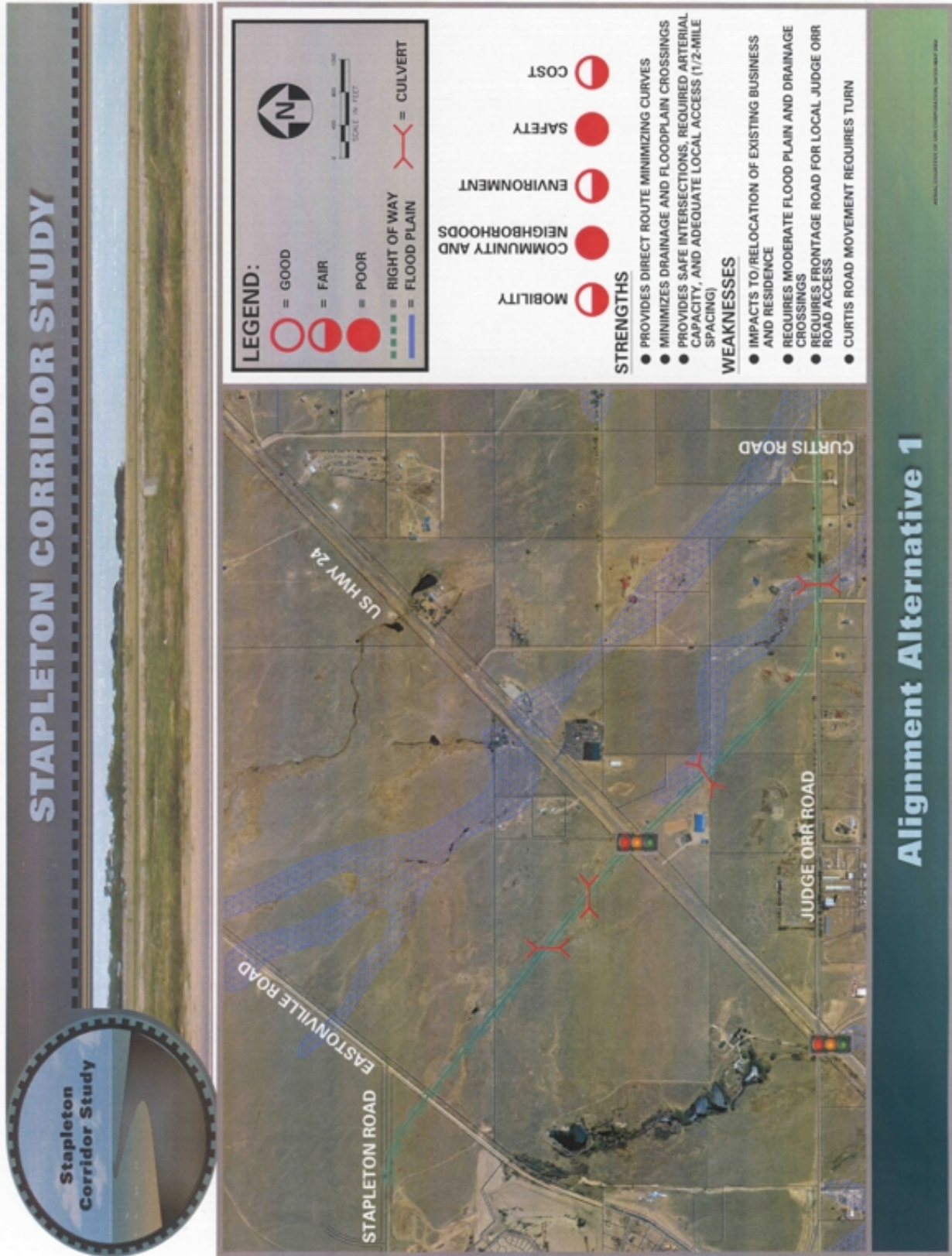


Figure 4. Alignment 1

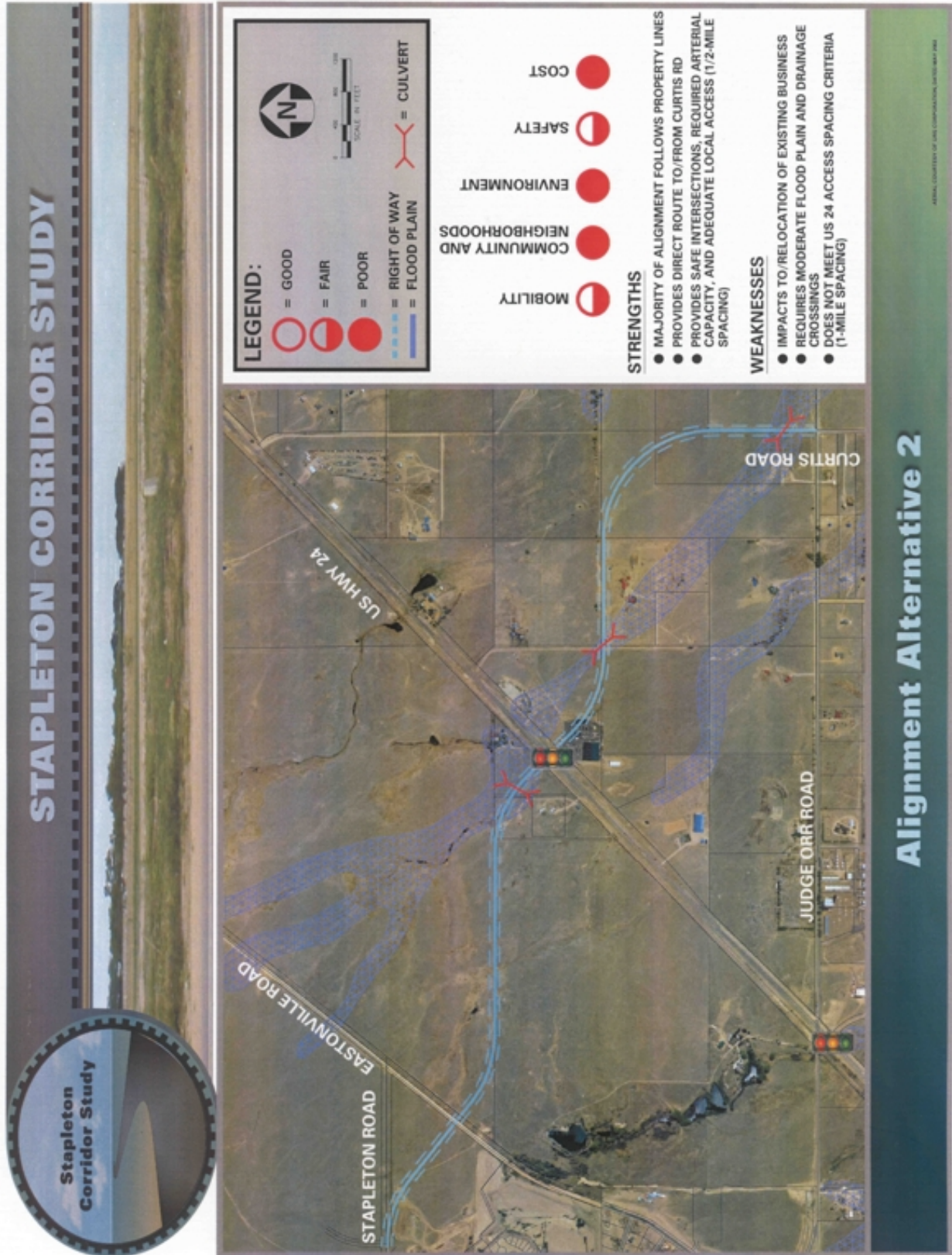


Figure 5. Alignment 2

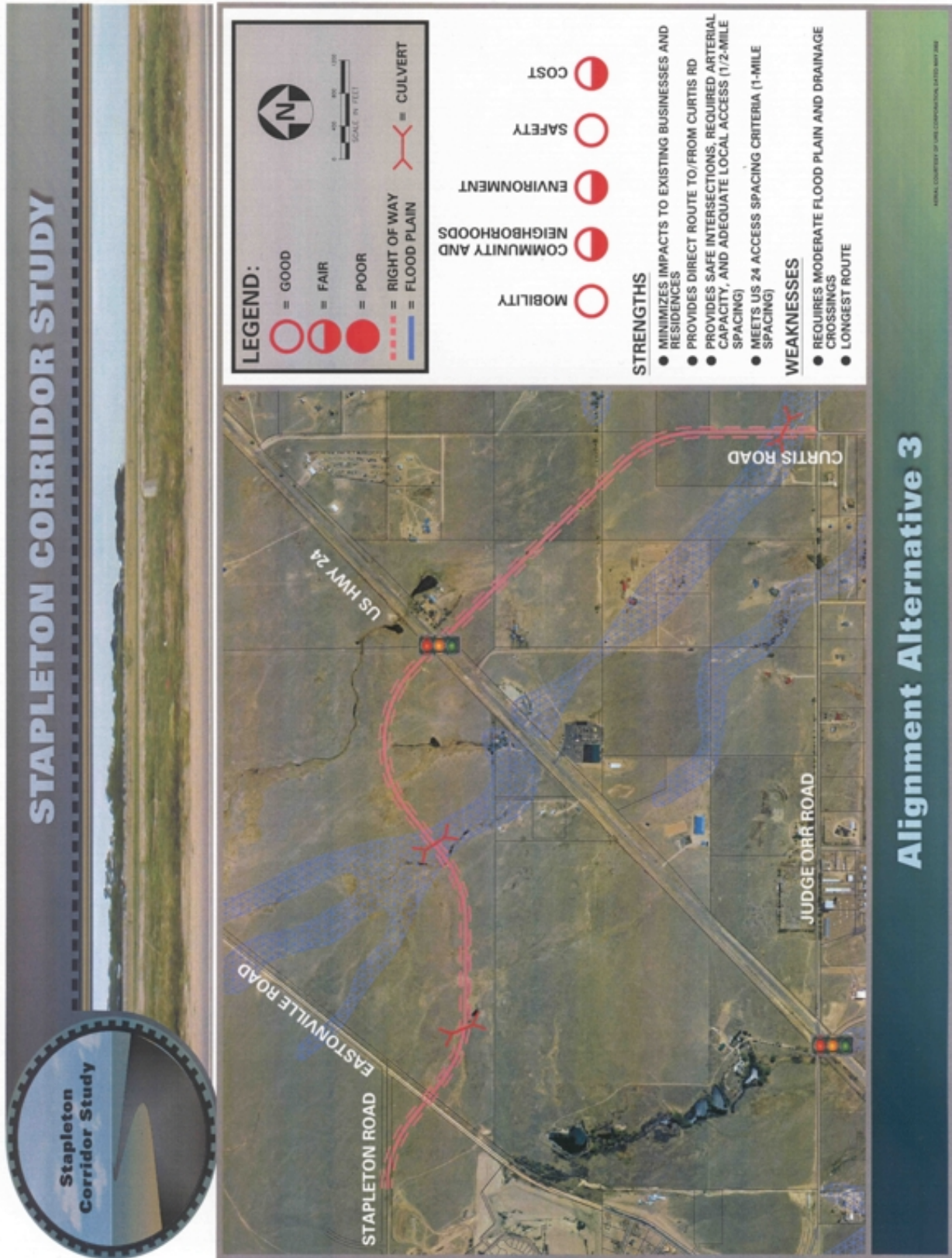


Figure 6. Alignment 3

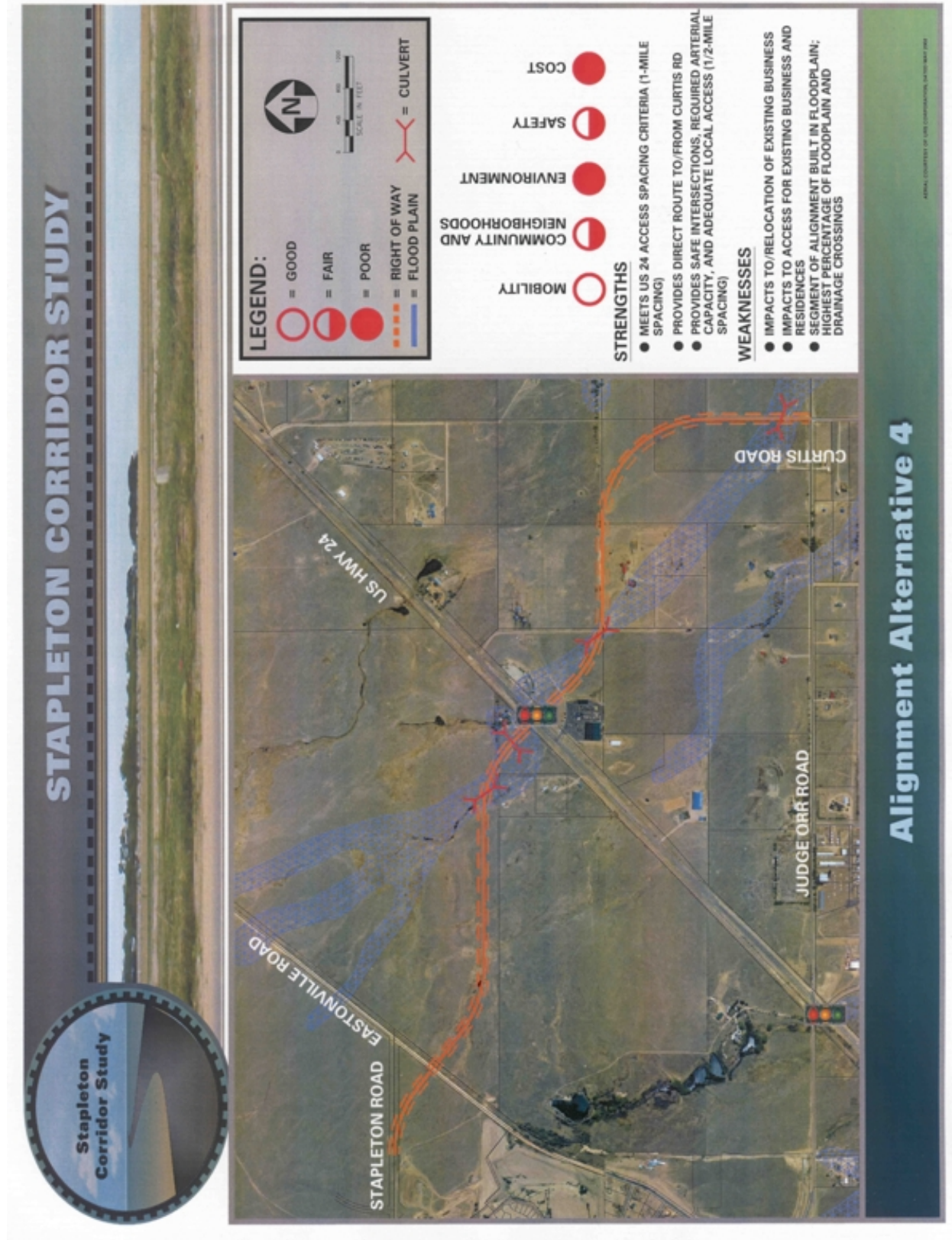


Figure 7. Alignment 4



Figure 8. Alignment 5

1.4.2.3 Phase Three Alignment Screening

After hearing from the public, a sixth alignment was added for screening. The full complement of alternatives (see Figure 9) was then evaluated in a third phase of screening. The six final alternatives were screened in detail, using both qualitative and quantitative measures. Table 1 details the screening results and demonstrates the process used by El Paso County and DMJM+HARRIS to determine the relative qualities of these six alignment alternatives, and how well each meets the project's criteria. The criteria used to screen the alignments are shown in the far left column. Some are more subjective than others, and the questions asked frequently call for a judgment to be made. These are described in the middle columns. A summary of scores for each alternative, by category, is shown in Figure 10.

Based on the screening results, and an analysis of the questions and comments received from the public and stakeholders, two alignments were retained for final screening: Alignment 3 and Alignment 5. Alignment 3, relative to all the other alignments, and specifically Alignment 5, emerged as the best options. Alignment 5 meets the most criteria in fulfilling the goal and objectives of the project, while causing the least number of impacts to the project area.

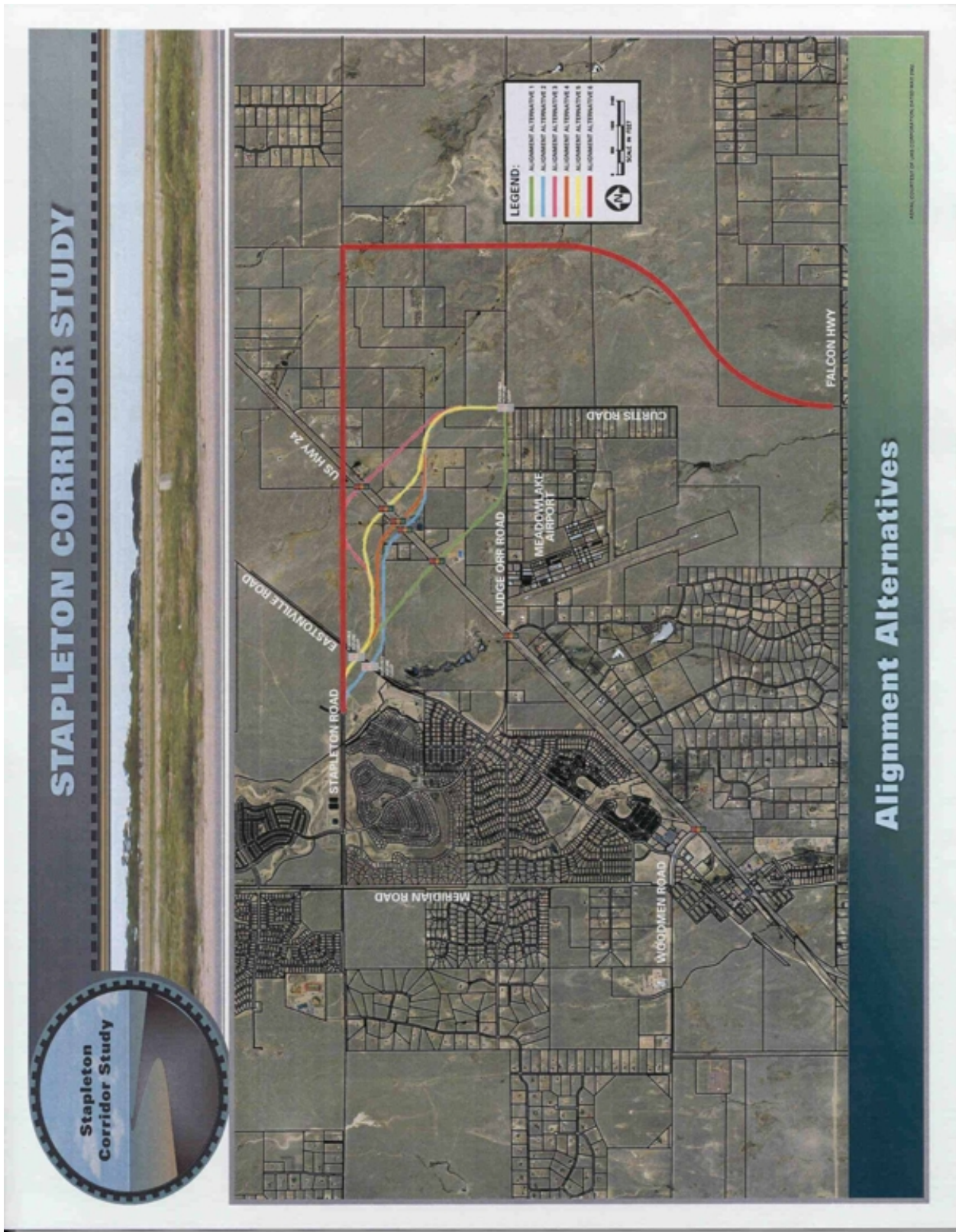


Figure 9. Phase 3 Screening Alignments

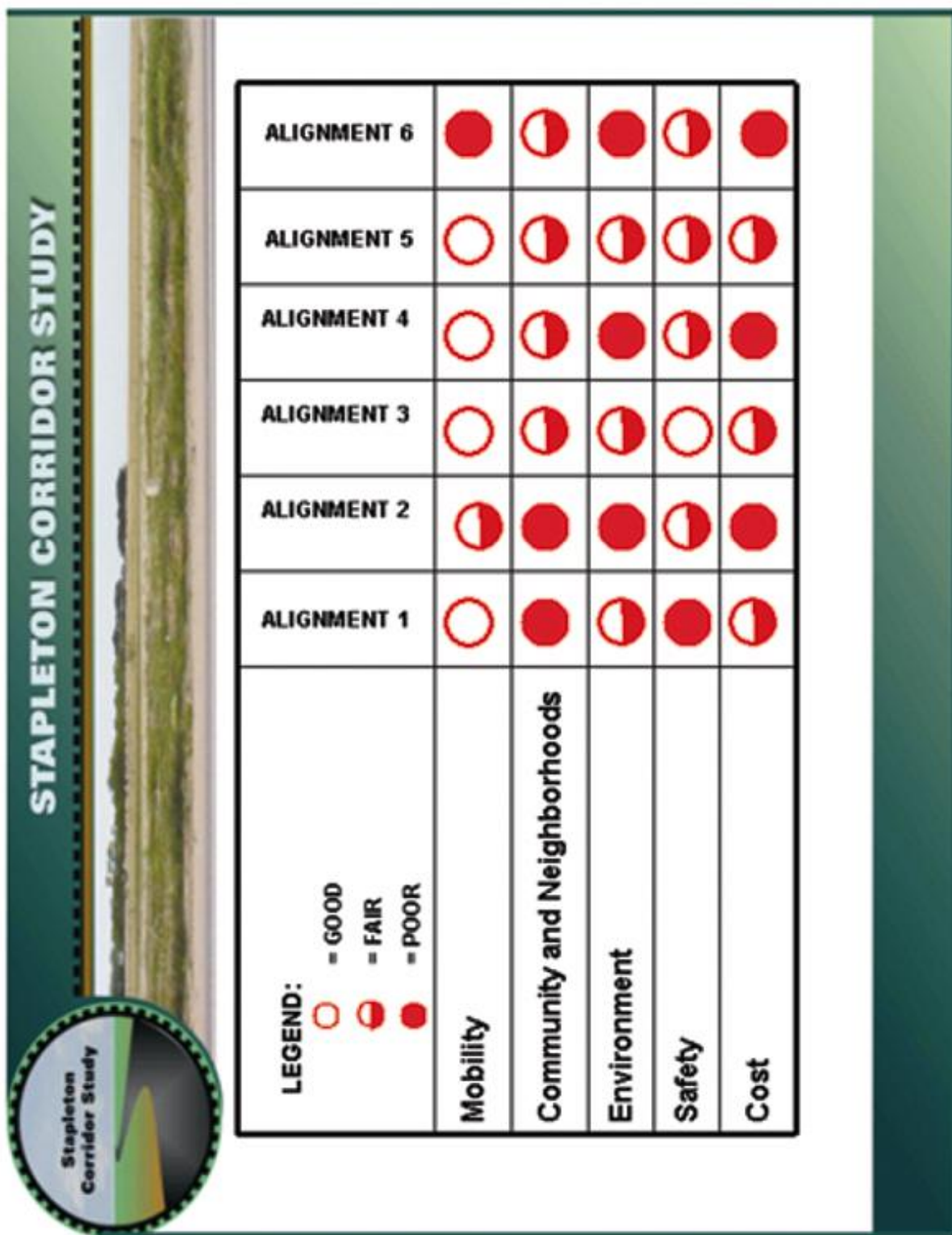


Figure 10. Phase 2 Screening Results

TABLE 1: Phase 2 Alternative Alignment Screening - Stapleton Road/ Judge Orr Road Corridor

KEY FEATURES	Alignment 1 (2.09 miles)	Alignment 2 (2.43 miles)	Alignment 3 (2.46 miles)	Alignment 4 (2.29 miles)	Alignment 5 (2.31 miles)	Alignment 6 (7.35 miles)
	<p>STRENGTHS</p> <ul style="list-style-type: none">▪ Direct route minimizing curves▪ Minimizes drainage and floodplain crossings▪ Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing) <p>WEAKNESSES</p> <ul style="list-style-type: none">▪ Does not meet US 24 access spacing criteria (1-mile)▪ Impacts to/ relocation of existing business and residence▪ Requires frontage road for local Judge Orr Road access▪ Curtis Road movements require turn	<p>STRENGTHS</p> <ul style="list-style-type: none">▪ Majority of alignment follows property lines▪ Provide direct route to/from Curtis Road▪ Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing) <p>WEAKNESSES</p> <ul style="list-style-type: none">▪ Does not meet US 24 access spacing criteria (1-mile)▪ Impacts to/ relocation of existing business▪ Requires moderate floodplain and drainage crossings	<p>STRENGTHS</p> <ul style="list-style-type: none">▪ Minimizes impacts to existing businesses and residences▪ Provides direct route to/from Curtis Road▪ Meets US 24 access spacing criteria (1-mile spacing)▪ Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing) <p>WEAKNESSES</p> <ul style="list-style-type: none">▪ Requires moderate floodplain and drainage crossings▪ Longest route of the five.	<p>STRENGTHS</p> <ul style="list-style-type: none">▪ Provides direct route to/from Curtis Road▪ Meets US 24 access spacing criteria (1-mile spacing)▪ Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing) <p>WEAKNESSES</p> <ul style="list-style-type: none">▪ Impacts to access for existing business and residences▪ Segment of alignment built in floodplain, highest level of floodplain and drainage crossings	<p>STRENGTHS</p> <ul style="list-style-type: none">▪ Provides direct route to/from Curtis Road▪ Meets US 24 access spacing criteria (1-mile spacing)▪ Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing) <p>WEAKNESSES</p> <ul style="list-style-type: none">▪ Impacts access to existing residences▪ Requires moderate floodplain and drainage crossings	<p>STRENGTHS</p> <ul style="list-style-type: none">▪ Avoids Big R▪ Meets US 24 access spacing criteria (1-mile spacing)▪ Does not divide existing properties and leave oddly shaped remainders <p>WEAKNESSES</p> <ul style="list-style-type: none">▪ Would not cross Eastonville and Hwy 24 at right angle▪ Potential effect to 4-Way Ranch spring▪ Requires moderate to high floodplain and drainage crossings.▪ Distance 3 times as long as others – length means higher costs to account for construction.▪ Travel times and delays would be increased▪ Cut-through potential much higher.
MOBILITY						
<i>Access</i>	FAIR – Cuts through Ferguson property and other parcels south of Hwy 24, but allows for only minimum direct access to 4-Way Ranch	FAIR – Cuts deeply through the school site (west of Eastonville Rd), and cuts a local roadway east of Hwy 24, so that direct property access to three properties is more difficult.	GOOD – Goes through planned residential areas and does not cut off access to others.	FAIR – Goes through planned residential areas but cuts a local roadway east of Hwy 24, so that direct property access to two properties is more difficult.	FAIR – Goes through planned residential areas but cuts a local roadway east of Hwy 24, so that direct property access to two properties is more difficult.	FAIR – Goes through planned residential property (4-Way Ranch and Santa Fe Springs). Cuts road serving trash hauling business
<i>Size</i>	GOOD - Will allow for 120’ ROW	GOOD - Will allow for 120’ ROW	GOOD - Will allow for 120’ ROW	GOOD - Will allow for 120’ ROW	GOOD - Will allow for 120’ ROW	GOOD - Will allow for 120’ ROW
<i>Multi Modal</i>	FAIR – Provides the shortest route through the corridor, but, but allows for only minimum direct public transportation access to 4-Way Ranch. Inconsistent with trails plans.	GOOD – Provides maximum direct public transportation access to 4-Way Ranch and a direct route to Curtis Road. Consistent with trails plan. Provides safe crossing.	GOOD – Provides maximum direct public transportation access to 4-Way Ranch and a direct route to Curtis Road. Consistent with trails plan. Provides safe crossing.	GOOD – Provides maximum direct public transportation access to 4-Way Ranch and a direct route to Curtis Road. Consistent with trails plan. Provides safe crossing.	GOOD – Provides maximum direct public transportation access to 4-Way Ranch and a direct route to Curtis Road. Consistent with trails plan. Provides safe crossing.	FAIR – Provides the longest route through the corridor, but, but allows for only minimum direct public transportation access to 4-Way Ranch. Provides good access to public transportation through Santa Fe Springs area.
COMMUNITY AND NEIGHBORHOODS						
<i>Cut -through Potential</i>	GOOD – Because it allows for only minimum direct access to 4-Way Ranch, neighborhood cut-through should be minimal	GOOD – It allows maximum access to 4-way Ranch while not going so far north that cut-through traffic (to avoid extra driving) would be tempting.	FAIR – Because this route is further north, traffic may cut through via Judge Orr and Eastonville to avoid additional distance.	GOOD – It allows maximum access to 4-way Ranch while not going so far north that cut-through traffic (to avoid extra driving) would be tempting.	GOOD – It allows maximum access to 4-way Ranch while not going so far north that cut-through traffic (to avoid extra driving) would be tempting.	POOR – Because this route is further north and east, traffic is more likely to cut through via Judge Orr and Eastonville to avoid additional distance.
<i>Property Value Maintenance</i>	POOR – Strongly impacts Ferguson property and other parcels south of Hwy 24, and residential uses along Judge Orr Road	POOR – Could affect Big R’s business and would strongly affect 3 residences without taking them.	GOOD – Will affect only 2 large residential/agricultural parcels.	FAIR – Divides Big R	GOOD – Will affect 1 residence and 1 large residential/agricultural parcel.	POOR – Strongly impacts veterinarian and trash collection business property and 5 residential properties
<i>Relocation Potential</i>	POOR 1 – Full residence relocation 3 – Partial residences 1 – Partial business 5 – Agricultural	POOR 1 – Full residence relocation 1 – Partial business 12 - Agriculture	FAIR 1 – Partial residential 7 - Agricultural	FAIR 1 – Partial residential 1 – Partial business 8 - Agricultural	FAIR 1 – Partial residential 8 - Agricultural	POOR 1 – Full business 1 – Partial business

	Alignment 1	Alignment 2	Alignment 3	Alignment 4	Alignment 5	Alignment 6
NATURAL AND BUILT ENVIRONMENT						
<i>Wildlife and Habitat</i>	GOOD – No obvious habitat used	GOOD – No obvious habitat used	GOOD – No obvious habitat used	GOOD – No obvious habitat used	GOOD – No obvious habitat used	GOOD – No obvious habitat used
<i>Floodplain Incursion</i>	FAIR – 2 impacts. One crossing at Judge Orr Road, one long incursion along the edge of a floodplain just south of Hwy 24. Total distance of impact= 741’	POOR – 3 impacts. One crossing at Curtis Road, one crossing east of Hwy 24, one crossing west of Hwy 24. Total distance of impact= 1314’	GOOD - 2 impacts. One crossing at Curtis Road, one short crossing west of Hwy 24. Total distance of impact= 715’	POOR – 3 impacts. One crossing at Curtis Road, one crossing east of Hwy 24, one long crossing west of Hwy 24. Total distance of impact= 2344’	GOOD - 2 impacts. One crossing at Curtis Road, one short crossing west of Hwy 24. Total distance of impact= 827’	POOR – 6 impacts. One long crossing east of Eastonville, one short crossing west of Elbert Road, one crossing on Elbert Road, three crossings in the Santa Fe Springs property.
<i>Noise Potential</i>	POOR – Potential for at least 8 existing receptors – most residential	FAIR – Potential for 3 existing residential receptors	GOOD – Potential for 2 existing residential receptors	FAIR – Potential for 5 existing receptors including Big R	FAIR – Potential for 3 existing residential receptors.	FAIR – Potential for 5 residential receptors.
SAFETY						
<i>Pedestrian</i>	FAIR - Allows for only minimum direct access to 4-Way Ranch where there may be a high concentration of pedestrians/potential trail users.	GOOD - direct access to 4-Way Ranch where there may be a high concentration of pedestrians/potential trail users.	GOOD - direct access to 4-Way Ranch where there may be a high concentration of pedestrians/potential trail users.	GOOD - direct access to 4-Way Ranch where there may be a high concentration of pedestrians/potential trail users.	GOOD - direct access to 4-Way Ranch where there may be a high concentration of pedestrians/potential trail users.	GOOD - direct access to 4-Way Ranch and Santa Fe Springs where there may be a high concentration of pedestrians /potential trail users.
<i>Local Access</i>	FAIR – While it provides direct access to Eastonville, Curtis, and Hwy 24, it compromises Judge Orr Road access and may affect horse arena access.	FAIR – Affects access to Big R and cuts a local road that will affect access to 3 properties west of Hwy 24.	GOOD – Direct access to Eastonville, Judge Orr, Curtis, Hwy 24. Minimal access impacts.	FAIR – Affects access to Big R and cuts a local road that will affect access to 3 properties west of Hwy 24.	FAIR – Cuts a local road that will affect access to 3 properties west of Hwy 24.	FAIR – Affects access to veterinarian and trash hauling businesses.
<i>Highway 24 Access Spacing</i>	POOR – Much less than a mile from Judge Orr/Hwy 24 intersection	POOR – Less than a mile from Judge Orr/Hwy 24 intersection	GOOD – Farthest alignment from Judge Orr/Hwy 24 intersection	GOOD – Exactly at 1 mile from Judge Orr/Hwy 24 intersection	GOOD – A little over 1 mile from Judge Orr/Hwy 24 intersection	GOOD – A little over 1 mile from Judge Orr/Hwy 24 intersection
COST						
<i>Relocation/ROW</i>	FAIR – Residence relocation, business impact/relocation	POOR – Big R relocation and 1 residential	GOOD – No relocations	FAIR – Possible residence relocation	FAIR – Possible residence relocation	POOR – Veterinarian and trash haulers strongly affected.
<i>Length, Cross Section, (frontage roads), construction</i>	FAIR – Residence relocation, business impact/relocation, Judge Orr frontage road	FAIR – Big R relocation	GOOD – No relocations	FAIR – Possible residential relocation	FAIR – Possible residential relocation	FAIR to POOR – longest route, impact/relocation of 2 businesses.
<i>Drainage Structures</i>	GOOD - Minimal	FAIR - Moderate	FAIR - Moderate	POOR – Runs along floodplain requiring significant structures	FAIR – Moderate	

1.4.2.4 Phase Four Alignment Screening

In Phase Four, Alignment 3 and Alignment 5 were again screened against one another. Final screening focused on qualitative and quantitative comparison of the two remaining alternatives. Table 2 details the results of the comparison between these two alternatives relative to how well each meets the project's criteria. The criteria used to screen the alignments are shown in the far left column. Some are more subjective than others, and the questions asked frequently call for a judgment to be made. These are described in the middle columns. The two middle columns also give descriptions of the two alternate alignments and how well each one was judged to meet the criteria. The far right column describes the differences between the two alternatives.

TABLE 2: Phase 3 Alternatives Alignment Screening
Stapleton Road/ Judge Orr Road Corridor Alignments 3 & 5

Criteria	Alignment 3	Alignment 5	Key Differences
Mobility Community and Neighborhoods Environment Safety Cost	STRENGTHS Minimizes impacts to existing businesses and residences. Provides direct route to/from Curtis Road. Meets US 24 access spacing criteria (1-mile spacing). Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing) Alignment 3 is rated GOOD in 12 criteria. WEAKNESSES Requires moderate floodplain and drainage crossings. Longest route of the five alternatives.	STRENGTHS Provides direct route to/from Curtis Road. Meets US 24 access spacing criteria (1-mile spacing). Provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing). Alignment 5 is rated GOOD in 9 of the criteria. WEAKNESSES Impacts access to existing residences and business. Requires moderate floodplain and drainage crossings.	Alignment 3 does not cut convenient access to any property. Alignment 3 minimizes proximity impacts to existing residences, and disruptions to existing businesses. Alignment 3 has significantly less floodplain incursions. Alignment 3 does not cut safe access to any property. Alignment 3 avoids crossing spring at 4-Way Ranch and does not bisect Big R property.
MOBILITY			
<i>Access – does it cut off access to any existing uses? Does it improve access?</i>	GOOD – Goes through planned residential areas and does not cut off access to others.	FAIR – Goes through planned residential areas but cuts a local roadway east of Hwy 24, so that direct property access to two properties is more difficult.	Alignment 3 does not cut any local roadways.
<i>Size – Can the 120' ROW be accommodated on this alignment?</i>	GOOD - Will allow for 120' ROW	GOOD - Will allow for 120' ROW	No difference.
<i>Multi Modal – Does the alignment prelude or enhance access to transit?</i>	GOOD – Provides public transportation access to 4-Way Ranch and a direct route to Curtis Road. Consistent with trails plan. Provides safe crossing.	GOOD – Provides public transportation access to 4-Way Ranch and a direct route to Curtis Road. Consistent with trails plan. Provides safe crossing.	No significant difference. Both serve the 4-Way Ranch well and are direct routes to Curtis Road and both are consistent with trails plan.

COMMUNITY AND NEIGHBORHOODS			
<i>Cut-through Potential – Is the alignment inconvenient enough (from the north or south) to cause drivers to by-pass it in favor of driving through a neighborhood</i>	FAIR – Because this route is further north, traffic may cut through via Judge Orr and Eastonville to avoid additional distance.	GOOD – It allows maximum access to 4-way Ranch while not going so far north that cut-through traffic (to avoid extra driving) would be tempting.	Alignment 3 is slightly longer and crosses Hwy 24 farther north than alignment 5. It is possible that some drivers would avoid going the extra distance northward by taking Eastonville instead.
<i>Property Value Maintenance – Does the alignment cut off inaccessible or unusable portions of properties? Does it disrupt businesses or residential without taking the property?</i>	GOOD – Will affect only 2 large residential / agricultural parcels.	GOOD – Will affect 1 residence and 1 large residential / agricultural parcel.	After crossing Hwy 24 going east, both alignments cut through large agricultural / residential parcels leaving some “corners” that may be considered “unusable” by agricultural users. Alignment 5 is slightly better in this regard.
<i>Relocation Potential –Are residential or business uses likely to be taken? Are agricultural uses precluded?</i>	FAIR 1 – Partial business / residential 7 – Impacts to agricultural property, but agriculture does not appear to be precluded on remaining parcels. 4-Way Ranch land is being developed for residential uses.	FAIR 1 – Partial business 8 – Impacts to agricultural property, but agriculture does not appear to be precluded on remaining parcels. 4-Way Ranch land is being developed for residential uses.	Alignment 5 would nearly bisect Big R property but take no buildings. Alignment 3 will affect a residence / veterinary clinic by dividing the pasture, but takes no buildings. It is uncertain whether the clinic could continue business at this location. There is potential to develop better access to the veterinary clinic that is consistent with the Hwy 24 Access Plan as applied south of Judge Orr Road. Mitigation is possible for impacts of both alignments.

ENVIRONMENT			
<i>Wildlife and Habitat – Is any critical habitat destroyed or made unusable?</i>	GOOD – No obvious habitat used	GOOD – No obvious habitat used	No difference.
<i>Floodplain Incursion – Does the alignment cross any floodplains? If so, how many and for what distance?</i>	GOOD - 2 impacts. One crossing at Curtis Road, one short crossing west of Hwy 24. Total distance of impact= 715'	GOOD - 2 impacts. One crossing at Curtis Road, one short crossing west of Hwy 24. Total distance of impact= 827'	Alignment 5 has 112 feet of additional floodplain incursions.
<i>Noise Potential – Does the alignment cause noise impacts to residential uses ?</i>	GOOD – Potential for 3 existing residential receptors	FAIR – Potential for 4 existing residential receptors.	Alignment 5 has a slightly greater potential for noise effects at existing residences.
SAFETY			
<i>Pedestrian – Does the alignment permit or enhance pedestrian access to trails and recreation areas?</i>	GOOD - direct access to 4-Way Ranch where there may be a high concentration of pedestrians and potential trail users.	GOOD - direct access to 4-Way Ranch where there may be a high concentration of pedestrians and potential trail users.	No significant difference.
<i>Local Access – Does the alignment allow for good access for local trips?</i>	GOOD – Direct access to Eastonville, Judge Orr, Curtis, Hwy 24. Minimal access impacts.	FAIR – Direct access to Eastonville, Judge Orr, Curtis, Hwy 24. Cuts a local road that will affect access to 3 properties west of Hwy 24.	While both alignments offer good access for local trips, alignment 3 does not cut off access to any local roadways.
<i>Highway 24 Access Spacing – Does the alignment meet CDOT spacing requirements?</i>	GOOD – Farthest alignment from Judge Orr/Hwy 24 intersection	GOOD – A little over 1 mile from Judge Orr/Hwy 24 intersection	No significant difference.

COST			
<i>Relocation/ROW – How many relocations will be required by this alignment?</i>	GOOD – No residential relocations, possible business relocation because of noise effects and taking of pasture at the veterinary clinic.	GOOD – No residential relocations, but this alignment bisects the Big R property and comes closer to 3 residences.	Alignment 5 would bisect the Big R property, but takes no buildings. Alignment 3 will affect a residence / veterinary clinic by dividing the pasture, but takes no buildings. It is uncertain whether the clinic could continue business at this location. There is potential to develop better access to the veterinary clinic that is consistent with the Hwy 24 Access Plan as applied south of Judge Orr Road. Mitigation is possible for impacts of both alignments.
<i>Length, Cross Section, (frontage roads), construction –Are relocations or other costly items likely with this alignment? How much ROW is required?</i>	GOOD – 6829' from Judge Orr Road (1.29 miles). Length of 12,997 LF (2.46 miles). ROW area of 35.8 acres. East of Hwy 24 the alignment touches 7 properties, straddling 4 (avoids the Big R property, but divides the pasture in the parcel to the north).	FAIR – 5773' from Judge Orr Road (1.09 miles) Length of 12,074 LF (2.29 miles). ROW area of 33.3 acres. East of Hwy 24, the alignment touches 8 properties, straddling 3 including bisecting the Big R property.	Alignment 3 is 0.15 miles longer than alignment 5 and is 0.2 miles farther north. Alignment 3 needs 2.5 more acres of ROW than alignment 5. The most significant difference is that alignment 5 bisects the Big R property.
<i>Drainage Structures - How many drainage structures are required? Are they costly?</i>	FAIR – The alignment crosses 3 drainages that will require culverts for conveyance. The drainages feeding the spring on the 4-Way Ranch property is avoided.	FAIR – The alignment crosses 3 drainages that will require culverts for conveyance. Also cuts through a drainage feeding the spring on the 4-Way Ranch property.	Drainage structure requirements are similar for alignments 3 and 5, but alignment 5 cuts through a drainage feeding the spring on the 4-Way Ranch property.

2.0 Existing Conditions

2.1 Environmental Review

Although National Environmental Policy Act (NEPA) processing for the Stapleton Road/Judge Orr Road alignment is still premature, the scope of this study includes preparation of an environmental scan for the study area. The environmental scan is intended to identify potential environmental issues associated with the corridor, as well as to provide data for screening alignment alternatives relative to environmental criteria.

2.1.1 Air Quality

The Pikes Peak Area Council of Governments is the lead air quality planning agency for El Paso County, which includes the project area, and maintains an air quality Maintenance Plan for the Colorado Springs Urbanized Area (CSUA). The Stapleton Road/Judge Orr Road Study Area is within the CSUA. The Maintenance Plan is used to monitor the levels of pollution from the six pollutants identified in the Federal Clean Air Act of 1990 which sets National Ambient Air Quality Standards and requires monitoring of carbon monoxide, ozone, particulate matter, sulfur dioxide, lead, and nitrogen oxide levels. The CSUA is in attainment status for all six of these pollutants.

Of the six pollutants, only carbon monoxide (CO) and PM₁₀ have represented a cause for concern for the CSUA. The National Ambient Air Quality Standard (NAAQS) for CO is 35 parts per million (ppm) for one hour and nine ppm for eight hours. The NAAQS for PM₁₀ is both an annual standard of 50 micrograms per cubic meter (µg/m³) and a 24-hour standard of 150 µg/m³. The State of Colorado has adopted the federal standards for regulatory purposes.

Currently, the CSUA is in attainment for all EPA criteria pollutants. The last violation of the CO standard occurred in 1989. Improving air quality in the Pikes Peak Region in recent years has allowed the Colorado Springs urbanized area to not require wintertime use of oxygenated fuels since 2000.

Since 1988, there has been a dramatic decrease in CO and a slight decrease in PM₁₀ levels. Levels of CO and PM₁₀ are usually the highest in the winter months, due to temperature inversions. The highest levels are most likely the result of construction and traffic delays, with increased idling and sporadic braking. The highest levels of PM₁₀ were detected at the Meadowland Drive monitoring station, and are likely a result of street sanding before and after winter storms.

Sulphur dioxide, NO₂, and Pb levels have remained relatively unchanged in recent years, and are far below State and Federal standards. These pollutants have not been a serious problem in the Pikes Peak Region. Lead, however, was a problem in the 1970s due to the use of leaded gasoline. The problem has been alleviated, though, due to the phasing in of unleaded gasoline. The use of low-sulphur coal by local power plants has allowed for SO₂ levels to remain below State and Federal standards, as well. Ozone levels are currently below the standards, but have been increasing since 1997, and are approaching the newly created Federal eight-hour standard of 0.8 ppm. Current O₃ levels are approximately 80 to 85 percent of the standard.

2.1.2 Cultural Resources

According to Colorado State law, all historic resources fall within the purview of the state and a determination by OAHP would be necessary if any resources are found before or during implementation of the Stapleton Road/Judge Orr Road project. Because of the limited number of surveys conducted in Colorado, it is possible that archeological or historic sites may be discovered. Because of this potential, a programmatic agreement with Office of Archaeology and Historic Preservation may be necessary.

The Office of Archaeology and Historic Preservation conducted a search of the Colorado Inventory of Cultural Resources for the six-mile primary study area, and the surrounding sections covering some 13 square miles, to determine if any cultural resources occur, or are likely to occur in the designated area. Three sites determined to be eligible for listing in the National Register of Historic Places were located, and six surveys, known to have been conducted, were located. However, the OAHP cautions that the office does not have complete information on surveys conducted in Colorado, and the site files cannot be considered complete because most of the state has not been surveyed for cultural resources.

A professional survey should be conducted in the project area and potential construction staging areas to identify any currently undiscovered cultural resources that may be eligible to be listed in the National Register of Historic Places. However, at this point in the project cycle, no adverse effects to identified historic or archeological resources are anticipated.

2.1.2.1 Archaeological

There is the possibility that as yet unidentified cultural resources and some previously identified archaeological resources exist within the proposed alignment of Stapleton Road. The eligible sites are listed as Historic, Railroad and are described below. However, several of the surveys conducted include the primary study 6-square mile primary study area and list previously recorded prehistoric sites, newly discovered prehistoric sites, and prehistoric IFS. Once the ROW for the Stapleton Road alignment is identified, qualified archaeologists should make preliminary investigations and begin clearance procedures with the Colorado Office of Archeology and Historic Preservation.

2.1.2.2 Historic

As described above, the search of the Inventory of Cultural Resources found three sites determined to be eligible for listing in the National Register of Historic Places, as well as six surveys known to have been conducted. The first site is located in T12S R64W, Section 7 near Falcon. It is briefly described as a railroad bridge/culvert of the Chicago, Rock Island and Pacific Railway Company, dated to 1888. This railroad bed is currently being used as a trail (the Rock Island Trail is described in Section 2.1.2.4). This site is 106 – Officially Eligible (March 9, 2001). The second and third sites are related to the first site. They are located in T13S R64W Section 6, and T12S R64 W, Section 32. Both of these sites are assessed as Field Eligible. None of these sites is in the primary study area or in the vicinity of the Preferred Alignment.

Once the ROW for the Stapleton Road alignment is identified, qualified historians should make preliminary investigations to verify these findings and begin clearance procedures with the Colorado Office of Archeology and Historic Preservation.

2.1.2.3 Paleontology

There are no known paleontological resources in the study area. However, a recent discovery of Paleocene era fossilized leaves in the Dawson Arkose formation south of the study area along the right-of-way of nearby Woodmen Road may raise expectations that similar resources might exist in the Stapleton Road corridor. Once the ROW for the Stapleton Road alignment is identified, a qualified paleontologist should make preliminary investigations.

2.1.2.4 Parklands

Existing recreation sites within and adjacent to the study area include Rock Island Trail, Rampart Park, Cottonwood Creek Park, and Black Forest Regional Park. Rock Island Trail is the only existing recreation site within the study area and is located at the easternmost end of Wooden Road along US 24. This trail is approximately 9 miles long, and runs southwest to northeast parallel to Highway 24, between the towns of Falcon and Peyton. The three parks listed above are the closest existing recreation areas adjacent to the study area. Cottonwood Creek Park is a community park located approximately ½-mile south of Woodmen Road. Rampart Park is a 77-acre community park located approximately 2.5 miles north of Woodmen Road. This park is surrounded by residential development. Black Forest Regional Park is located approximately 6.5 miles to the north of Woodmen Road, within the 200 square-mile area of ponderosa pine forest known as the Black Forest. This park includes a playground, tennis and basketball courts, picnic areas, and trails. Because this area is heavily forested no views to the project area are afforded from this park. One urban trail is planned within the study area, the future Sand Creek Trail, which would parallel Sand Creek and cross under Woodmen Road. New parks may be included in the proposed developments in the study area. These should be taken into account if there are significant delays in starting construction of Stapleton Road to Judge Orr Road/Curtis Road.

2.1.3 Ecological Resources

According to the Survey of Critical Biological Resources conducted by Colorado State University for the Colorado Natural Heritage Program, the project area consists of low rolling hills of tallgrass, midgrass, and shortgrass prairie. Less than two percent of all tallgrass prairie remains in the Great Plains, and El Paso County contains two patches along the foothills and out into the plains in the northern portion of the county.

Within or near the project area, there are two grassland sites; one is south of Highway 24 adjacent to both sides of Judge Orr Road and is dominated by big bluestem – little bluestem western Great Plains tallgrass, the second site is located north of Highway 24 and is dominated by little bluestem, blue gamma, and mountain muhly grasslands.

Grasslands found in the project area are also known habitat for at least five species of butterflies called skippers, however a more thorough site investigation would be needed to determine that any of this habitat is present in the study area.

Wildlife that has been observed in habitat and wetlands of El Paso County and that possibly reside within the project area include the northern leopard frogs (*Rana pipiens*), Common Snipe, American Coot, Pied-billed Grebe, Northern Harrier, Swift Fox, raptors, and the migrating pattern of the pronghorn.

After the ROW for Stapleton Road is determined a thorough site investigation by a wildlife biologist should be conducted to determine if any of these species are present in the area.

2.1.4 Environmental Justice

Environmental justice is defined by Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The overall intent of the order is to identify disproportionately high and adverse effects on minority and low-income communities.

Communities were defined as minority when a census tract was found to contain more than 50 percent of the metropolitan average for minority population, and defined as low-income when the median household income for the census tract was below federal poverty guidelines for a three-person household. Six census tracts exist in the project area, 39.02, 46, 47.04, 51.04, 71, and 76 and none were found to contain levels of minority or low-income people that met the qualifications for environmental justice effects.

2.1.5 Farmlands

No prime farmlands exist in the project area. In the event that such land is encountered during construction of the Preferred Alignment, the Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.) would be enacted. This policy seeks to minimize irreversible conversions of farmland to nonagricultural uses.

2.1.6 Hazardous Materials

Hazardous waste sites are generally defined as locations where wastes has been stored, spilled, released, or otherwise disposed of improperly, and harmful to humans or the environment. These sites are regulated in the State of Colorado by the CDPHE and the Region VIII office of the US EPA through regulations adopted under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

FHWA and CDOT guidance states that all highway construction projects must be evaluated to determine if the proposed action would disturb or affect any hazardous waste site. Typically this evaluation is a 2.0-mile radius from the proposed project. A number of businesses operate in the study area and its vicinity including an agricultural supply store, a veterinarian, a waste removal service, and the Meadow Lake Airport. In addition, a number of residences in the study area also maintain livestock—primarily horses. An Initial Site Assessment should be conducted upon determination of the ROW for the Preferred Alignment and as part of the Environmental Assessment during roadway engineering.

2.1.7 Floodplain, Hydrology, Water Quality

Four percent of El Paso County is within a 100-year floodplain. FEMA's National Flood Insurance Program's Flood Insurance Rate Map indicates floodplains in three general areas within the project area. The first area is immediately north of the Judge Orr Road at Curtis Road and extends in a northwestern direction and ending at US 24 and the Chicago, Rock Island and Pacific Railroad rail bed. The second floodplain runs parallel and exists approximately 1,400 feet to the south. The third and last floodplain within the project area, exists from US 24 and the Chicago, Rock Island and Pacific Railroad rail bed and runs northwesterly ending north of the intersection of Stapleton Road and Eastonville Road.

The Preferred Alignment would cross the floodplain in two locations, one at Curtis Road, and a short crossing at US Highway 24. The total distance of the impact is 715 feet and no adverse effects are anticipated as a result of these crossings.

Due to the semi-arid climate and the topography of El Paso County, many of the drainage channels are naturally dynamic and unstable. The Preferred Alignment would add new impervious surfaces contributing to increased and concentrated stormwater flows. Floodplains are shown in Figure 11.

2.1.7.4 Wetlands

Creeks and wetlands exist in many sites along Judge Orr Road formed by the results of groundwater recharge in the Black Forest to the north. The slope of the land to the southeast forms the headwaters of Black Squirrel Creek and many drainages and wet meadows along Judge Orr Road are up to 40 acres in size.

The National Wetlands Inventory map (United States Department of the Interior) shows a number of wetlands within the primary 6-square mile study area. These wetlands appear to be mainly associated with farming/ranching activities. One significant exception is the large wetland and riparian habitat on the Ferguson parcel (see Figure 12).



Figure 11. Floodplains



Figure 12. Wetlands

The wetlands in the 6-mile primary study area include the types shown in Table 3.

Table 3: Wetland Classifications		
Wetland Classification	Ecological System or Sub System	Number in Study Area
PFLC	Palustrine Flat Seasonal	8
PEMW	Palustrine Emergent Intermittently Flooded/Temporary	6
POWF	Palustrine Open Water Semi-permanent	5
PEMC	Palustrine Emergent Seasonal	3
PSSW/PEMW	Palustrine Scrub/Scrub Emergent Intermittently Flooded/Temporary	2
U	Upland areas that may include unclassified wetlands	1
R4SBW	Riverine Streambed Intermittently Flooded/Temporary	2

Wetlands in and near the project area include, Baltic rush (*Juncus balticus* var. *montanus*), Nebraska sedge (*Carex nebrascensis*), clustered sedge (*Carex praegracilis*), woolly sedge (*Carex lanuginosa*), three-square bulrush (*Scirpus pungens*), and saltgrass (*Distichlis spicata*).

Wetland acreage has not been calculated, because no wetlands are expected to be impacted by any of the alignment alternatives, and in particular, the Preferred Alignment. However, once the ROW of the Preferred Alignment is determined, a wetland specialist should be consulted to determine if any wetlands would be affected by the construction or operations of the proposed roadway.

2.1.8 Noise

The Preferred Alignment would likely impact two residential receptors in the project area. A noise analysis will need to be completed to compare the existing noise levels with those predicted to occur with the Preferred Alignment and to determine if there is an impact and, if so, the level of impact. The noise analysis would be conducted in accordance with the Federal Highway Administration's (FHWA) guidelines for acceptable noise levels for specified uses.

2.1.9 Threatened and Endangered Species

Two Threatened and Endangered Species, and one potentially listed one, are known to exist in El Paso County. Although none have yet been found in the project area, more intensive site investigations would need to occur. The Threatened and Endangered Species are:

- Preble's meadow jumping mouse,
- Black-tailed prairie dog, and
- Mountain plover (potential listing).

The mountain plover's range is generally located south of Highway 94 and east of Interstate 25, outside the project area. A site investigation by a wildlife biologist would be needed to verify that this species is not present in the study area, specifically in the alignment of the Preferred Alignment.

Habitat suitable for the Preble's meadow jumping mouse is located within the project area and according to the U.S. Fish and Wildlife Service, all ground-disturbing projects within 300 feet of the 100-year floodplain supporting suitable habitat must be assessed for the its presence. A thorough site investigation by a wildlife biologist would be needed to determine if this species is present in the study area, specifically in the alignment of the Preferred Alignment.

The El Paso County Environmental Services Department has conducted preliminary mapping of the black-tailed prairie dog colonies as part of the county's biological inventory. From this data, which includes aerial photographs, potential prairie dog colonies can be located and assessed. No known prairie dog colony exists in the project area. A site investigation by a wildlife biologist would be needed to verify that this species is not present in the study area, specifically in the alignment of the Preferred Alignment

2.1.10 Utilities

Few utilities exist in the project area. Utility improvements associated with the Preferred Alignment could include upgrades to or extensions of existing stormwater, sewer, water, or electrical power lines. Most homes and establishments in the study area have septic tanks and well water. Once the ROW for the Preferred Alignment is determined, a complete survey of utilities will be undertaken.

2.1.11 Visual and Aesthetics Resources

Introduction and Methods

This section provides a summary of the visual resource inventory of the study area. The project area is located in unincorporated El Paso County, Colorado, north of the City of Colorado Springs. A small portion of the study area is within the Black Forest Preservation Plan management area.

This visual resource analysis is centered along US 24 from the Blue Gill Road Intersection, northward one and one-half miles. This area was selected because the proposed roadway has not been built, and most of the existing land uses are oriented toward US 24. In addition, the proposed roadway will cross US 24 at a right angle and will be subject to the same visual qualities and impacts as US 24. However, view-sheds both from and toward the proposed Stapleton Road will be discussed below.

The visual assessment includes an inventory of the environment that would potentially be affected by project alignments. The inventory establishes a visual resource framework from which to assess impacts from project activities. This inventory is based on landscape characteristics, viewer characteristics, and relevant plans and policies.

Visual resources of a project area are described by evaluating the visual character and scenic quality of local landscape settings, the existing level of landscape alteration or scenic integrity, and the sensitivity to visual change in the landscape.

Scenic quality is described by evaluating landscape features such as landform, vegetation, and cultural modifications. Visual sensitivity of an area is a function of the type and number of viewers, surrounding land uses, and the presence or absence of important geological, biological, or historical features. The visual study was developed with information from aerial photography, field reconnaissance, and existing land use mapping.

Relevant Plans & Policies

The Black Forest Preservation Plan (1987) includes a Visual Analysis and description of Visual Units for the entire planning area. The Black Forest Planning Area borders the northeast boundary of the Colorado Springs Municipal Boundary, with its south boundary along Woodmen Road it extends north to the Elbert County line, and East to Eastonville Road. The Stapleton Road study area is within "Unit 10 – Gateway" unit, which extends from Woodmen north approximately 2 miles. The preservation plan indicates that this unit should be maintained as a visual entry point, however existing commercial and residential uses, traffic, new neighborhood roads, noise, and lack of screening generally detract from this area and draw attention away from the panoramic views of the Black Forest edge.

Affected Environment

Landscape Characteristics

The study area is characterized by gently rolling terrain, dominated by upland grasslands and drainages defined by sandy washes with some willow scrub along the banks and isolated groves of deciduous trees. The project area is generally rural in nature with dispersed residential development, and a few commercial and industrial land uses. While the scenic quality of the natural landscape character within the project area is typical for the region, as the greater Colorado Springs area continues to develop unincorporated El Paso County lands, the rural character of this setting is becoming increasingly unique.

For this report, the study area is centered along US 24 and is divided into three segments going northward: Blue Gill to Judge Orr Road, Judge Orr Road to Big R Store, Big R Store northward. On the west side of US 24, the entire visual study area is flanked by a drainage ditch and the Rock Island Trail, which runs southwest to northeast parallel to Highway 24, between the towns of Falcon and Peyton. US 24 also crosses a number of natural drainage areas, where wetland vegetation is sometimes evident.

Blue Gill Road to Judge Orr Road

In this portion of the visual study area, established residential properties east of US 24 are typically between 2 to 5-acre parcels with buildings seldom located closer than 100 feet from the roadway. Many of these homes and businesses are associated with the Meadow Lake Airport. Airport uses, hangars, warehouses, and other airport associated industrial uses, are easy to see from US 24, and stop abruptly at Judge Orr Road where the view becomes more open. However, it is not otherwise evident that an airport is nearby. There is no tower to use as a landmark. The architectural styles of houses within the project area are diverse, but are primarily single story structures, with typically rural outbuildings such as sheds, barns, and garages. Landscaping on these properties is typically minimal with little or no vegetative buffer between the residence and US 24.

As US 24 heads northward, the suburban residential uses flanking Eastonville Road to the west get farther away from US 24. At Woodmen Road, these homes come as close as 100 feet from US 24. North of Blue Gill Road, as the distance between US 24 and Eastonville Road increases, the distance between these suburban houses and US 24 increases, until, north of Judge Orr Road, they are still visible, but are about one-half mile away.

Judge Orr Road to Big R Store

North of Judge Orr Road established residential properties within the eastern portion of the visual study area are typically in the range of 5-acre parcels. On parcels directly adjacent to US 24, homes, typically single-story structures, are seldom closer than 100 feet from the road. The adjacent outbuildings such as sheds, barns, and garages are larger than those seen farther south. The predominantly rural-residential landscape is interrupted by the Big R Store, with a very large metal warehouse/store and immense parking lot filled with agricultural machinery, and other agricultural materials. Landscaping on these properties is typically minimal with little or no vegetative buffer between the residence and US 24. Beyond the rural residences the land appears to be more flat, and the horizon is distant.

West of US 24, suburban homes along Eastonville Road can be seen about one-half mile in the distance. Immediately adjacent to US 24 is the Ferguson ranch, a primary focal point on the west side of US 24 because of the lush copse of riparian trees, and willows in a major drainage area. This property is outstanding for its beauty and serene appearance. North of the Ferguson property, the landscape west of US 24 becomes much more open as the suburban residential developments are even more distant from US 24, and Black Forest starts to become visible on the horizon.

Big R Store and Northward

There are fewer established residential properties east of US 24 and north of the Big R Store and the landscape becomes much more open. In the distance, a ridge on the eastern horizon becomes visible.

West of US 24, fewer suburban homes have been constructed and these are much more distant from US 24. Between US 24 and these distant homes, is open land with few rural homes and agricultural uses.

Views South and West

Heading southwest on US 24, views of Pikes Peak and the surrounding foothills dominate the landscape. With the peak in the background, vegetated drainage areas appear more isolated with adjacent flatter grounds providing contrast. East of US 24, the rolling landscape offers views of the open meadows between rural homes, and the drainage areas appear less verdant.

Viewer Characteristics

Existing viewers in the study area are residents living east and west of US 24, customers of the few businesses located along US 24, the airport's patrons, and US 24 drivers. Residents are typically very sensitive viewers because they are very familiar with the landscape and quickly notice changes in the view. In addition, viewing conditions within the study area are open and generally unrestricted, with the exception of local terrain variations in this area, which restrict views to the north along the most southern portions of US 24. Customers of the local businesses, given the nature of the business (Big R, a veterinarian, a horse trainer, and airport businesses) are probably local people who would also be at least moderately sensitive. Pilots using Meadow Lake Airport would be considered moderately sensitive if they are frequent airport users. Finally, drivers would be moderately sensitive because many of them would be local people who use this route frequently.

2.2 Transportation Facilities

2.2.1 Existing Conditions

Major facilities in the study area travelshed include three state highways; US 24, State Highway 83 (SH 83) and State Highway 94 (SH 94), and several El Paso County major arterial roadways. US 24 bisects the project area, running from the southwest to northeast. To the east of Limon, Colorado, US 24 is a two-lane roadway running contiguous with I-70. From Limon, the US 24 alignment turns southwest to Colorado Springs, Colorado and then continues westward into the Rocky Mountains. SH 94 forms the southern boundary of the travel shed, with SH 83 to the west. Major El Paso County facilities include Woodmen Road, Black Forest Road, Marksheffel Road, Meridian Road, Eastonville Road, Judge Orr Road, Curtis Road, and the Ellicott, Falcon and Peyton Highways.

Within the Stapleton Road/ Judge Orr Road Corridor travelshed, most major roadways are maintained by El Paso County. Exceptions include state-maintained US 24, SH 83 and SH 94. The County-maintained roadways are divided between high-grade asphalt paved roads and low-grade paved or "chip and seal" roads. "Chip and seal" paving consists of gravel impregnated with emulsified asphalt. Minor roads pavements within the travelshed are classified a gravel, graded and drained, unimproved or primitive. Most roads in the planning area are publicly dedicated and maintained, with private or non-County maintained roads concentrated in older subdivisions. No roads in the planning area, including the state facilities, currently have more than two driving lanes.

2.2.2 Right of Way and Design Standards

The proposed Stapleton Road/ Judge Orr Road facility is classified as a major arterial. El Paso County design criteria for this facility classification specify a 120-foot wide right-of way, a 60-mph design speed, and specific roadway cross-section elements (see Figure 2). Per the design criteria, the County's rural cross-section for a major arterial includes:

- A 120-foot wide right-of-way
- Four 12-foot through lanes, two in each direction
- A center, grass/ unpaved median
- Two 4-foot wide inside shoulders
- Two 10-foot wide outside shoulders

2.2.3 Access Criteria

The Colorado Department of Transportation (CDOT) has recently completed an access control plan for US 24, south of Judge Orr Road (see Figure 13). The US 24 Access Plan implements CDOT's one-mile full access spacing criteria. Although not formally included in the access control plan, the access classification north of Judge Orr Road also permits minimum one-mile spacing between full movement accesses. The El Paso County major arterial criterion of one-half mile spacing will apply to Stapleton Road/ Judge Orr Road.



Figure 13. Access Issues

2.2.4 Transportation Plans

The PPACG is the lead planning agency responsible for regional transportation planning. As lead planning agency, PPACG is responsible for developing transit and highway plan elements; carrying out short-range transportation planning activities; and prioritizing and approving, through the Transportation Improvement Program (TIP), expenditure of federal funds for transportation-related projects in the region.

Before a transportation project is listed in the TIP, the project must be in compliance with the region's long-range plan, *Destination 2025: A Mobility Plan for the Pikes Peak Region*, prepared by the PPACG. The TIP is a fiscally constrained and lists transportation projects that use state or federal funds, or are of regional significance, and are to be implemented in the next six years. Transportation projects included in the TIP are also verified for conformity with the Clean Air Act of 1990 and the State Implementation Plan (SIP).

The Stapleton Road/Judge Orr Extension is included in *Destination 2025: A Mobility Plan for the Pikes Peak Region*, as well as the 2004-2009 TIP for the Colorado Springs Urbanizing Area. In addition, the Stapleton Road/Judge Orr Road Extension has been identified in other approved El Paso plans, including; the *1987 Major Transportation Corridors Plan* (See Figure 13), the *Small Area Traffic Report for the Falcon Area* and the *Southern Transitional Area Map* (See Figure 14).

Proposed Roadways

Growth pressures and new developments proposed in El Paso County increase the likelihood that new roadways will be built and future roadway improvements will be implemented.

The long-range transportation plan outlined in *Destination 2025: A Mobility Plan for the Pikes Peak Region* includes new roadway improvements in the eastern portion of El Paso County, and within the smaller project area (See Figure 15). In addition to the Stapleton Road/ Judge Orr Road Extension, other planned roadway improvements within the immediate project area are:

- Widening of Meridian Road to six lanes from Woodmen Road to Falcon Road and
- Widening of US 24 East: Powers to Judge Orr, adding one lane in each direction.
- Widening of Curtis Road to 4 lanes

Destination 2025 improvements within the larger travelshed that was identified for this study include:

- Construction of a 2-lane wide extension of Meridian Road south of Woodmen Road
- Widening of Black Forest to 4 lanes north of Woodmen Road
- Extension of Marksheffel Road to the north to a loop connection with Research Parkway, and widening to 4 lanes
- Widening of Woodmen Road to 4 lanes
- Construction of Banning Lewis Parkway from SH 94 via a loop to connect with Interquest Parkway (4-lane width south of Woodmen Road and 6-lane width north of Woodmen Road)

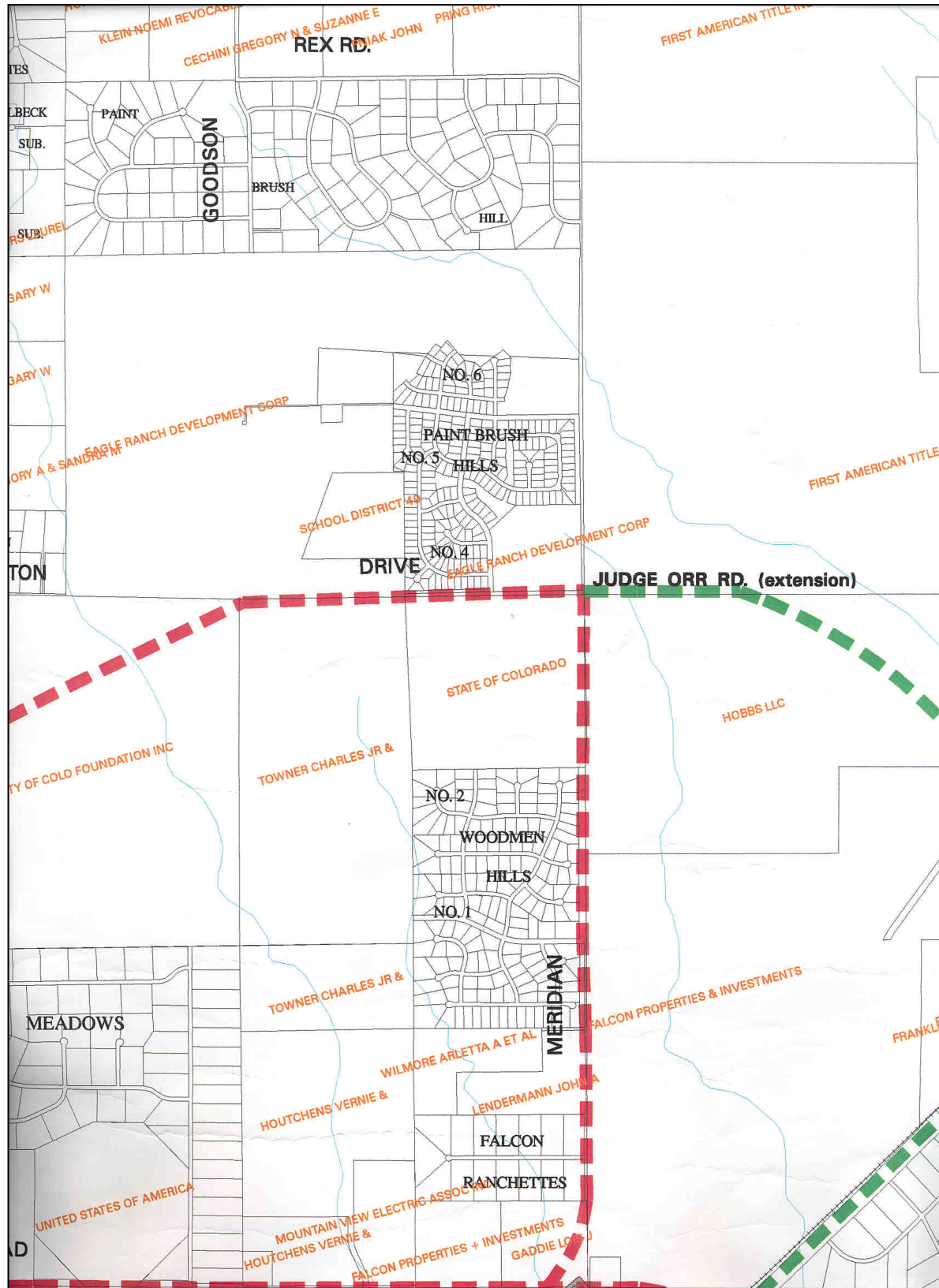


Figure 13. 1987 Major Transportation Corridors Plan

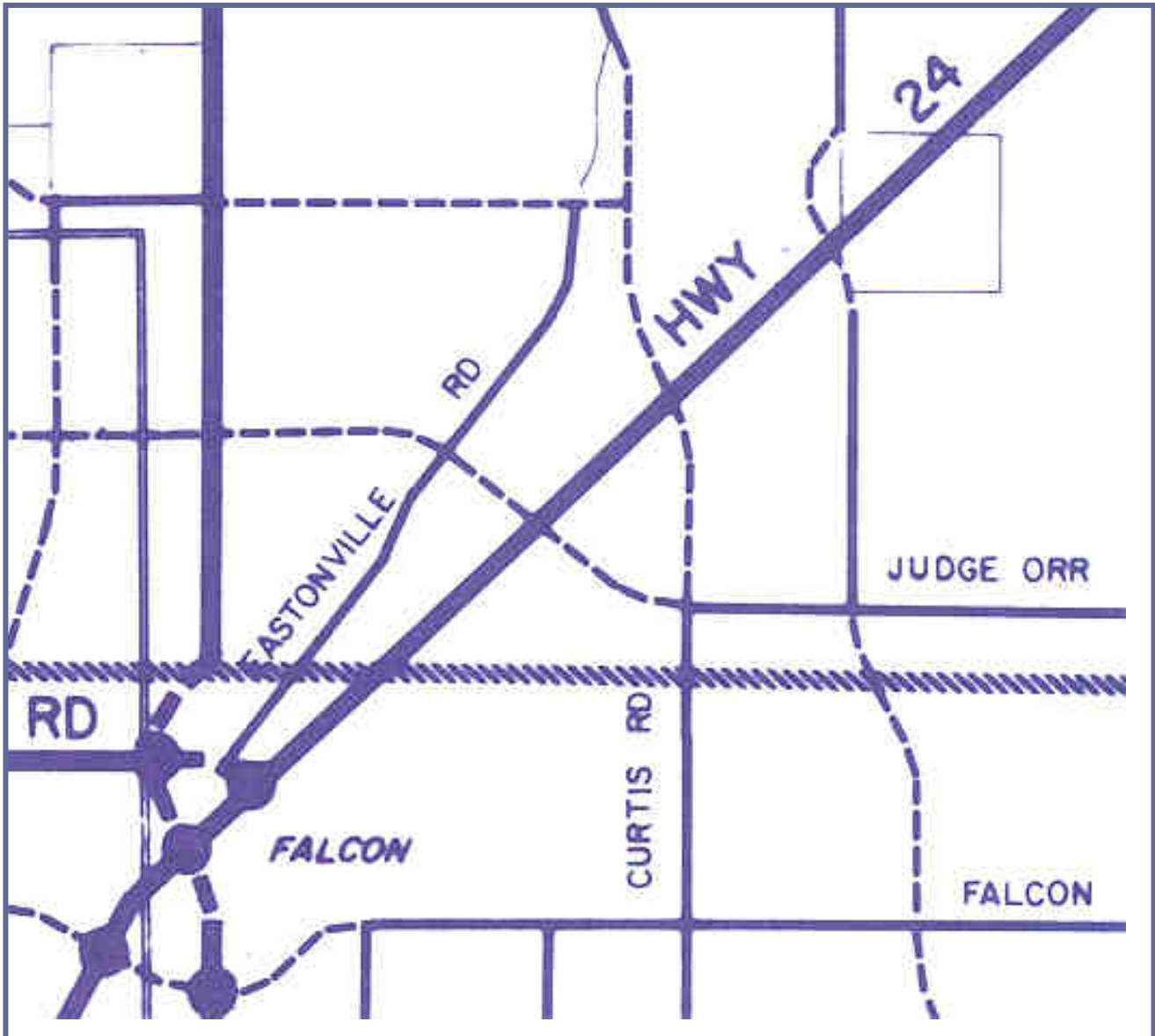


Figure 14. Southern Transitional Area Map

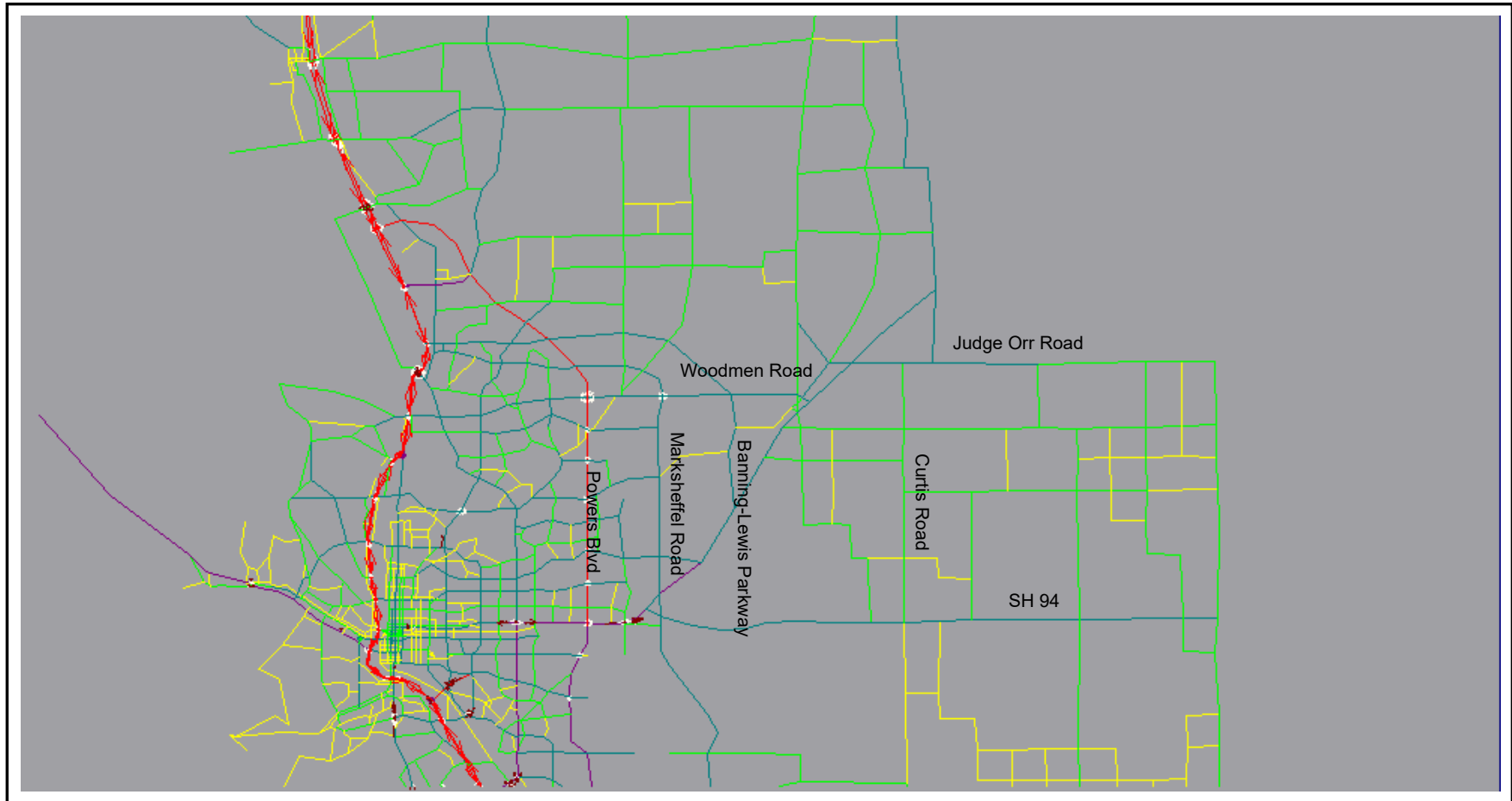


Figure 15. Destination 2025: A Mobility Plan for the Pikes Peak Region

Proposed Pedestrian and Bicycle Facilities

The rural nature of the project area does not lend itself to a network of pedestrian sidewalks and rights-of-ways, nor does it encourage walking as a viable transportation alternative. However, recreational activities, such as hiking and bicycling, are popular and resources such as trails have become important community benefits.

The PPACG and El Paso County recognize the importance of pedestrian and bicycle activity, both a means of mobility and recreation, and have added the creation and improvement of trails to the long-range plan. In addition, standard roadway cross-sections incorporate on-street bike lanes on compatible facilities. The major recreational trail within the project area is the Rock Island Trail, a 9-mile, gravel surfaced trail that runs parallel to US 24 between the towns of Falcon and Peyton. The Preferred Alignment would offer direct access to 4-Way Ranch from the popular Rock Island Trail, paralleling US 24.

Proposed Transit Facilities and Services

Fixed route transit service is currently provided only in high-density unincorporated areas of El Paso County, while flexible-route paratransit service is provided to elderly and disabled persons in much of the unincorporated area. Land use in the study area travelshed is transitional, with emerging development initiatives promising to significantly increase development densities. Current planning has recognizes both this trend, and the potential for transit modes to serve study area work-oriented travelers in the near future.

Evidence suggests that there is substantial ridesharing (carpooling) taking place among study area residents. Formal Park and Ride lots are planned for the northwest quadrant of the intersection of Woodmen and Black Forest Roads, and serving the Falcon Town Center. At present residents informally use available commercial parking lots at key intersections including; US 24 and Woodmen Road and Black Forest and Woodmen Roads.

Fixed-route transit service was not proposed for the project area under the current Regional Transportation Plan (RTP). However, short-term express bus service, with associated park and ride facilities, has been identified as a priority for the Woodmen Road corridor to the south of the project area. There may also be potential for Bus Rapid Transit (BRT) deployment in the longer term, as a means to address work commute travel demand. The need for transit services, such as BRT, commuter bus, or fixed route services will be monitored and assessed based on future growth and need in the project area.

2.3 Land Use

2.3.1 Existing Land Use and Zoning

Existing land uses in the project area are typically farmland, open space, or large lot rural residential. A limited amount of retail, commercial, and industrial uses are present in addition to public use land. Growth pressures are rapidly changing the landscape, however, and zoning has been introduced to more effectively assist in implementing planned land use in the area.

Zoning in the project area could be described as transitional, as the undeveloped portions of the project area are subject to development pressures. The northern portion of the project area along Stapleton Road from Meridian Road to Eastonville Road is zoned as a planned Unit Development. The area north of Judge Orr Road, west of Curtis Road, and East of Eastonville Road is zoned as an Agricultural District. The area south of Judge Orr Road and west of Curtis Road is zoned as a Rural Residential District. The area near Meadow Lake Airport south of Judge Orr Road is zoned as a Residential District. Historically, planning and zoning in El Paso County have been used to facilitate development and potential growth. This portion of El Paso County is covered under the Falcon/Peyton Area Plan, which is part of the El Paso County Master Plan. See Figure 16.

Several development plans have already been submitted and approved by the county planning department totaling more than 6,700 acres, which include rural residential, single-family residential, schools, commercial, and industrial uses, as shown in Table 4.

Table 4: Approved Development in the Project Area

Development	Location	Number of Acres	Development Type	Build-out Year
Meridian Ranch	NE quadrant of Meridian and Stapleton roads	2,650	<ul style="list-style-type: none"> ▪ 3,266 rural lots ▪ schools ▪ commercial ▪ industrial 	2020
Bennett Ranch	SE quadrant of Meridian and Stapleton roads	540	<ul style="list-style-type: none"> ▪ 873 single-family lots 	2010
Falcon Highlands	West and adjacent to town center of Falcon	822	<ul style="list-style-type: none"> ▪ 713 residential units ▪ school ▪ commercial ▪ industrial 	2010
Falcon Vista	SE of Meridian Road and US24	50	<ul style="list-style-type: none"> ▪ 45 residential lots 	N/A
Falcon Hills	West of Meridian Road and north of Stapleton Road	800	<ul style="list-style-type: none"> ▪ 2,021 residential units ▪ schools ▪ commercial 	2015
Woodmen Hills	NE quadrant of Woodmen and Meridian roads	1,220	<ul style="list-style-type: none"> ▪ 1,600 residential units 	2005
Elkhorn Estates	SE corner of Raygor and Stapleton roads	640	<ul style="list-style-type: none"> ▪ 110 single-family lots 	2010

Source: El Paso County Planning Department

2.3.2 Land Use Plans

Several sub-area plans, prepared by the El Paso County Planning Department, cover segments of the identified travel shed for this study. These small area include; the Black Forest Preservation Plan, the Falcon/Peyton Comprehensive Plan, and the Highway 94 Comprehensive Plan.

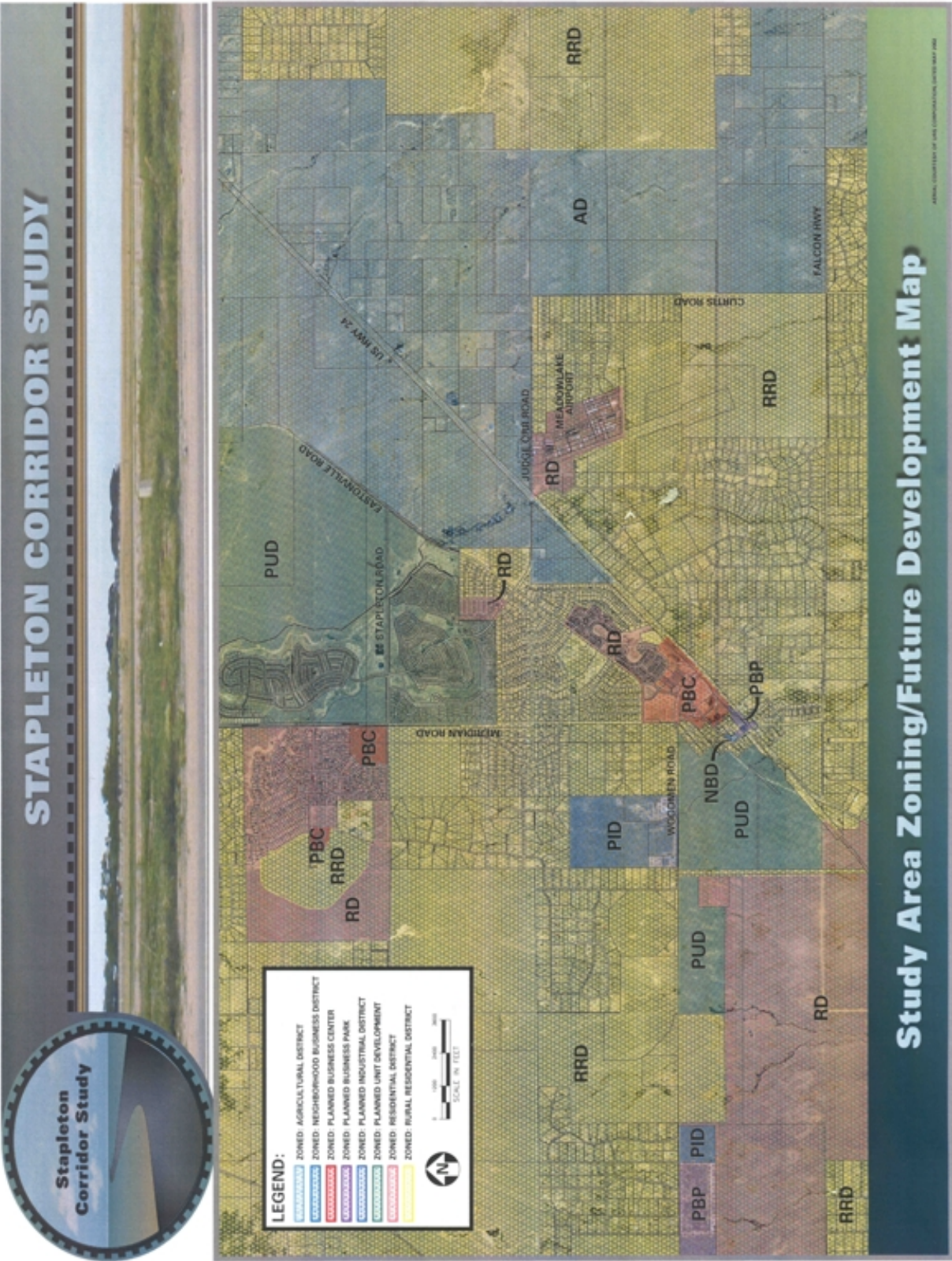


Figure 16. Study Area Zoning/Future Development Map

3.0 Land Use/ Demographic Forecasts

The socio-economic analysis for the study area included an examination of existing population and households and projected future population and households for 2000, 2007, 2015, and 2025. The analysis was used to develop revised baseline (2000) and planning horizon (2025) socio-economic data sets for the Stapleton Road/ Judge Orr Road Corridor Study travel model.

3.1 Study Area Definition

The PPACG travel forecasting model includes only the 3-C Planning Area for the Colorado Springs Metropolitan Planning Organization (MPO) (see Figure 17). For purposes of the Stapleton Road/ Judge Orr Road Corridor Study, the impact on adjacent areas not included in the model could be significant. At the same time, the PPACG's model specification in rural areas, outside the City of Colorado Springs, is relatively coarse, making it ill-suited to the required analysis. To address these issues, expansion and refinement of the PPACG model was necessary.

Prior to beginning necessary evaluation of the MPO model socio-economic database, a modeling study area was defined for the effort. The study area, a subarea of the area included in the PPACG model, includes the primary travel shed for the corridor, as well as contributing areas from the PPACG 3-C Planning Area requiring improved definition. The limits of the selected study for travel model development are: Hodgen Road on the north, Elbert Road and Peyton Highway on the east, and Bradley Road on the south, with the western boundary roughly defined by Marksheffel Road and Black Forest Road (see Figure 18).

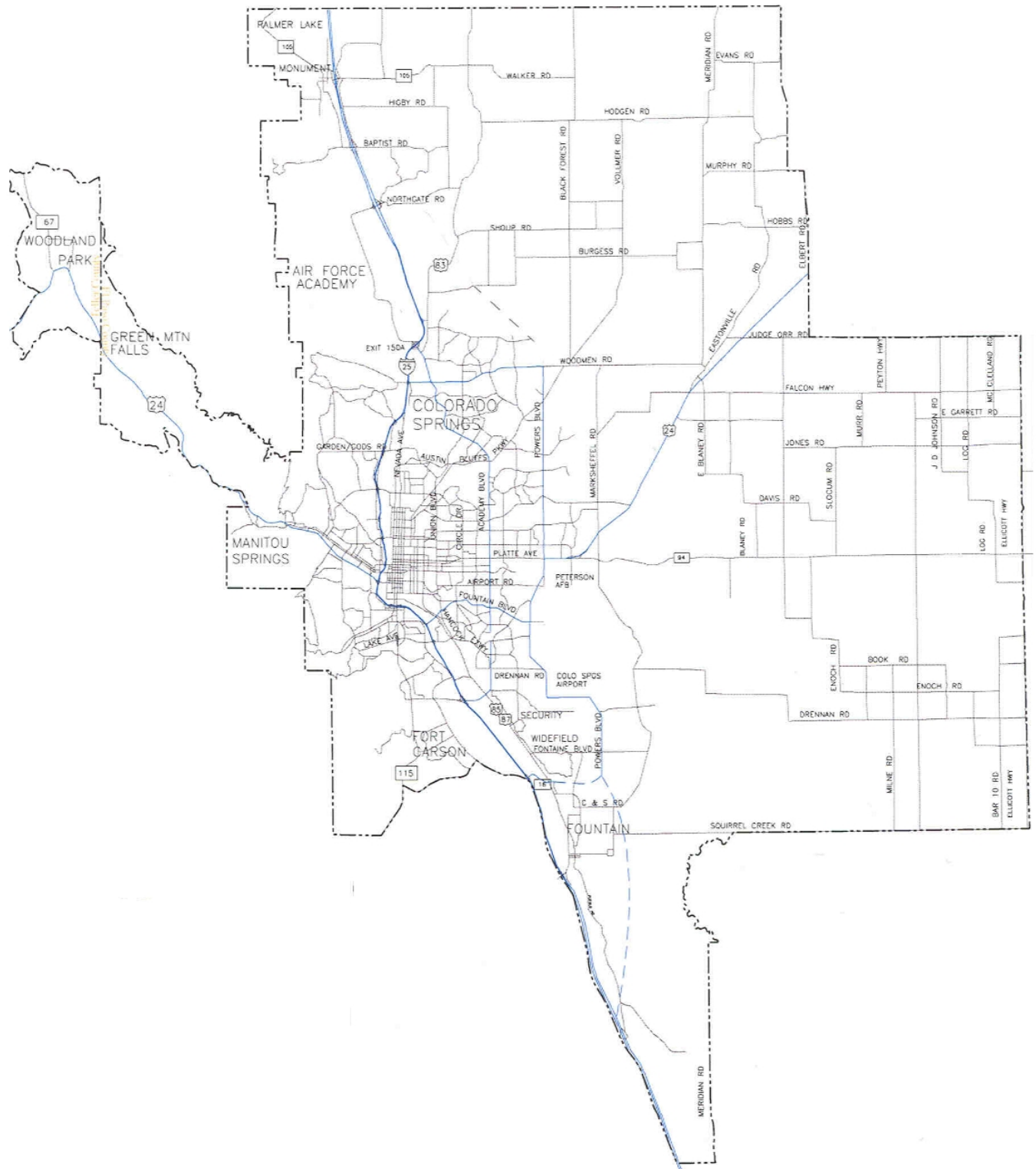


Figure 17. Colorado Springs 3-C Planning Area

Figure 18. Stapleton/ Judge Orr Road Corridor Travel Model Evaluation Study Area

3.2 Validation of PPACG 2000 Socio-Economic Data

As one of the first steps in developing the Stapleton Road/ Judge Orr Road Corridor travel model, the Pikes Peak Area Council of Governments (PPACG) baseline socio-economic data set (2000) was reviewed for use in the new model. During the PPACG's most recent update of the Small Area Forecasts, 2000 Census data was not yet available as a baseline. It was necessary, instead, to prepare year 2000 estimates using best available data. To provide the most accurate baseline possible for the new Stapleton Road/ Judge Orr Road Corridor travel model, the estimated PPACG 2000 data was validated to 2000 Census.

The PPACG Small Area Forecasts (SAF) provide estimates of population, employment, and households in five-year increments, by traffic analysis zone (TAZ). To support validation of the PPACG 2000 estimates, the 2000 Census was used as the base of comparison. A comparable level of geography was created to allow comparison of the two data sets. Because Census blocks are generally smaller than traffic analysis zones, Census blocks within each study area TAZ were identified, and then the associated population and household counts were totaled. Data on total population and total households from both sources was then compared.

The results of the comparison are summarized in Table 5, below. The detailed comparison statistics and 2000 Census block/ PPACG traffic zone equivalencies are shown in calculation spreadsheets included in the Appendix. In general, the analysis showed that the 2000 Census data and the PPACG data track fairly closely together. The overall percent difference between the Census and the TAZ population within the defined study area was only 4.8 percent. While this percent difference is negligible, significant variance between the Census and SAF values was observed for individual zones, as detailed by Table 6.

Table 5: Study Area Population and Households for 2000

	2000 Census	2000 SAF	Difference
Population	14345	15034	4.8%
Households	4836	4949	2.3%

Table 6: 2000 Socio-Economic Data Set Validation

TAZ									Census Tract							
	2000 TAZ Pop	2000 TAZ HH	2007 TAZ Pop	2007 TAZ HH	2015 TAZ Pop	2015 TAZ HH	2025 TAZ Pop	2025 TAZ HH		Census Total Pop	Census Total HH	% Diff TAZ vs 2000 Census	% Chg TAZ 2000 to 2007	% Chg TAZ 2007 to 2015	% Chg TAZ 2015 to 2025	% Chg TAZ 2000 to 2025
218	640	201	1011	369	1639	634	2421	953	39.02	395	134	61%	58%	62%	48%	278%
219	795	262	1106	360	1535	516	2151	730	39.02	889	302	-11%	39%	39%	40%	171%
220	36	14	52	16	60	20	78	30	39.02	53	20	-27%	44%	15%	30%	117%
221	889	283	1314	419	1890	623	2666	886	39.09	944	332	-6%	48%	44%	41%	200%
238	2560	839	3968	1337	5441	1869	6619	2277	76	2285	726	12%	55%	37%	22%	159%
239	184	64	235	77	290	100	388	137	76	157	56	17%	28%	23%	34%	111%
240	277	53	349	90	492	142	783	242	76	197	61	41%	26%	41%	59%	183%
241	268	80	372	111	504	160	737	243	76	154	46	74%	39%	35%	46%	175%
242	188	26	241	47	344	83	528	145	76	157	51	20%	28%	43%	53%	181%
243	961	338	1096	382	1299	458	1727	611	76	1112	385	-14%	14%	19%	33%	80%
244	324	124	371	137	439	165	572	218	75	341	123	-5.0%	15%	18%	30%	77%

Table 6: 2000 Socio-Economic Data Set Validation (continued)

TAZ									Census Tract							
	2000 TAZ Pop	2000 TAZ HH	2007 TAZ Pop	2007 TAZ HH	2015 TAZ Pop	2015 TAZ HH	2025 TAZ Pop	2025 TAZ HH		Census Total Pop	Census Total HH	% Diff TAZ vs 2000 Census	% Chg TAZ 2000 to 2007	% Chg TAZ 2007 to 2015	% Chg TAZ 2015 to 2025	% Chg TAZ 2000 to 2025
247	369	141	445	164	547	205	752	285	75	348	128	6%	21%	23%	37%	104%
248	419	142	553	185	737	255	1110	393	76	361	135	16%	32%	33%	51%	165%
249	107	28	161	36	207	54	285	81	76	70	26	53%	50%	29%	38%	166%
250	385	119	490	151	607	190	758	241	76	435	143	-11%	27%	24%	25%	97%
251	822	284	954	324	1164	401	1637	568	76	837	293	-2%	16%	22%	41%	99%
252	1068	363	1453	487	2030	700	2919	1012	76	997	320	7%	36%	40%	44%	173%
253	431	154	515	181	634	225	878	315	75	428	153	1%	19%	23%	38%	104%
275	141	44	188	54	237	70	331	103	71	114	43	24%	33%	26%	40%	135%
344	46	16	61	16	72	15	95	32	46	282	102	-84%	33%	18%	32%	107%
349	200	69	253	82	306	104	383	135	46	0	0		27%	21%	25%	92%
350	56	21	69	22	79	26	101	34	46	77	27	-27%	23%	14%	28%	80%

Table 6: 2000 Socio-Economic Data Set Validation (continued)

TAZ									Census Tract							
	2000 TAZ Pop	2000 TAZ HH	2007 TAZ Pop	2007 TAZ HH	2015 TAZ Pop	2015 TAZ HH	2025 TAZ Pop	2025 TAZ HH		Census Total Pop	Census Total HH	% Diff TAZ vs 2000 Census	% Chg TAZ 2000 to 2007	% Chg TAZ 2007 to 2015	% Chg TAZ 2015 to 2025	% Chg TAZ 2000 to 2025
353	639	226	993	369	1468	570	2086	823	46	828	252	-23%	55%	48%	42%	226%
354	593	194	749	244	956	318	1334	451	46	545	194	9%	26%	28%	40%	125%
355	734	226	1183	404	1906	686	2792	1017	46	858	280	-14%	61%	61%	46%	280%
356	86	27	123	33	149	47	192	67	46	144	46	-40%	43%	21%	29%	123%
358	14	6	15	6	15	6	15	6	47.04	9	4	56%	7%	0%	0%	7%
393	926	312	1356	457	1987	690	2917	1020	51.04	711	251	30%	46%	47%	47%	215%
394	684	223	1106	378	1707	611	2533	921	51.04	451	163	52%	62%	54%	48%	270%
400	192	70	264	92	342	127	473	183	51.01	165	53	16%	38%	30%	38%	146%

3.3 Socio-Economic Forecasts

3.3.1 Methodology

Future conditions were determined by developing a “build-out” scenario for the study area. The “build-out” scenario includes all land development plans approved by El Paso County. Associated land use from the development plans is added to the model’s forecast socio-economic data sets. The land development plans generally do not have a rigid timelines, but often have phasing plans. To convert the development plan information to a usable format, it was assumed that build-out would occur in identified phases, with 2025 as the planning horizon/ “build-out” year. Trend analysis was used to predict reasonably attainable future conditions based on the constrained development policies of the County, and the approved land developments plans.

3.3.2 PPACG Model Data Sets

Table 7 shows the PPACG forecast study area total population and households for each of the model years, 2000, 2007, 2015, and 2025. The PPACG forecasts are constrained to county-level forecasts generated by the Colorado State Demographers. A top down approach is used to develop the forecasts, generally allocating incremental growth within the 3-C planning area based on existing development, availability of services/utilities, and availability of vacant land. This approach has a bias against allocating growth to rural El Paso County, and has produced results that do not track well with actual growth experience in the County.

Table 7: Study Area Population and Household Growth by TAZ							
	2000	2007		2015		2025	
Households	4,949	7,030	+40%	10,070	+93.4%	14,159	+167.8%
Population	15,034	21,046		29,083		40,261	

3.3.3 Development Plan/ EPC Development Policy Adjustments

For the Stapleton Road/ Judge Orr Road Corridor Study, more aggressive forecasts were developed within the identified corridor travelshed. For these forecasts, a bottom-up, build-out based approach was used. Adopted development plans were used, when available to reflect development potential and phasing. In areas that are active with respect to development, but for which development plans are not yet approved, densities for adjacent, similar areas were used as factors to estimate future development. The development data used for the analysis are summarized in Table 8.

3.3.4 Study Area 2025 Forecasts

A revised 2025 socio-economic data set was developed using the PPACG data sets as baselines, and incorporating estimated unconstrained development. The results for study area traffic analysis zones are summarized in Table 9.

Table 8. Development Absorption and Phasing

Table 8: Development Absorption and Phasing - Revised Stapleton Road Corridor Model																								
Meridian Ranch	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION	TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
Avg HH size =3.00143				9,803			3.00143	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
3,266 D.U.'s																								
TAZs 459 & 218																								
Phase I-TAZ 459	460 acres	(2001-2003)	570	1,711	459	4,220							3,722						1,888					
Phase II-TAZ 459-elem/middle school	674 acres	(2004-2008)	836	2,509																				
Phase III-TAZ 459-elem school	602 acres	(2008-2012)	769	2,308		3,165		0	0	527	527	0	2,791	0	0	465	465	0	1,416	0	0	236	236	0
Phase IV-TAZ 218	380 acres	(2012-2016)	471	1,414	218	1,055		0	0	176	176	0	930	0	0	155	155	0	472	0	0	79	79	0
Phase V- TAZ 218	507 acres	(2016-2020)	629	1,888																				
		DU/Acre																						
	2623	1.24514	3275	9,830																				
Commercial-TAZ 459																								
Fieldview	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION	TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
	50 acres	5 lots		15	355	15	3.00143	LOW	LOW-MID	MID	MID-HIGH	HIGH	15	LOW	LOW-MID	MID	MID-HIGH	HIGH	15	LOW	LOW-MID	MID	MID-HIGH	HIGH
Woodmen Hills Filing No. 11		DENSITY/ PHASING PERIOD	D.U.'s	POPULATION	TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
(HH size 2.74 from Census for block 2029 tract 39.02)							2.74000	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
Avg HH size =2.74000																								
873 D.U's																								
TAZ 218																								
		.5 acre lots-high	96	263	218	2392		0	0	430	347	96	0						0					
		80' wide lots-mid-high	179	490																				
		70' wide lots-mid-high	168	460																				
		60' wide lots-mid	229	627																				
		55' wide lots-mid	201	551																				
			873	2,392																				
Falcon Hills # 1-included in Paint Brush Hills	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION	TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
Ave HH size =				666			3.00143	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
222 D.U.'s																								
TAZ 461																								
total acres=160.3 acres			13	39	461																			
gross density=1.39 DU/AC			168	504																				
1 acre lots			41	123																				
20,000 sf lots																								
R1-zone lots			222	666																				
Santa Fe Springs	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION	TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
Avg HH size=				16,808			3.1300	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
5,370 D.U.'s																								
TAZ 356																								
residential with some commerical		Ranch estates-high	213	667	356	1410		0	0	447	447	447	1410						1410					
assume 25% built out by 2025		low density-high	443	1387																				
=5370*0.25=1342 units		moderate density-mid high	922	2886																				
=1342*.3333333 for '07,'15,'25		moderate high density-mid high	1824	5709																				
		high density-mid	1968	6160																				
			5370	16,808																				

Stapleton Road/Judge Orr Road Corridor Study

Table 8: Development Absorption and Phasing - Revised Stapleton Road Corridor Model (Continued)																									
	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION		TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
								3.0000	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
Elkhorn Estates		103 lots		309		462	103							103						103					
not likely to be developed																									
	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION		TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
								3.0000	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
Sun Pairie		2 lots	2	6		457	6							6						6					
	ACRES	DENSITY/ PHASING PERIOD	D.U.'s	POPULATION		TAZ	2007 POP	HH SIZE	HH by INCOME					2015 POP	HH by INCOME					2025 POP	HH by INCOME				
Paint Brush Hills				6,448				2.9000	LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH		LOW	LOW-MID	MID	MID-HIGH	HIGH
assume 20% of the development is accounted for in the SAF		1 acre lots-high	90	261	72	238	1934		0	99	251	64	283	1934	0	99	251	64	283	0					
		.5 acre lots-high	854	2477	683																				
75% of the dev. Goes to TAZ 238		10,000sf lots-mid high	214	621	171	461	645		0	33	84	21	116	645	0	33	84	21	94	0					
25% goes to TAZ 461		6du/acres mid	837	2427	670																				
evenly divided btwn 2007 and 2015		MF low-mid	331	662	265																				
total population=																									
			2326	6,448			2,579							2,579						-					
		80% =	1860.8	5158																					
All commerical in TAZ 238																									
assume .25 for floor area ratio																									
assume 10 emp for T.G.L.S.F.																									
commerical= 42.2 acres							2007 RET EMP							2015 RET EMP											
1838232								53							53										
total sq ft = 1838232																									
459558																									
10.55	available acres																								
105.5	employees																								
assume 50% in 2007 and 50% in 2015																									
and all retail																									
5774-SF																									
662-MF																									
6436																									

Table 9. Modified 2025 Socioeconomic Data Set

Table 9: Modified 2025 Socioeconomic Data Set - Revised Stapleton Road/ Judge Orr Road Corridor Model																				
TAZ	Area Type	Acreage	X-Cent	Y-Cent	Population	Grp Pop	Low Inc	Low-Mid	Mid	Mid-High	High	Basic Emp	Rtl Emp	Svc Emp	Mil Emp	Elem Mid School	High School	Coll Enroll	Internal External Productions	
218	3	7015	42925	7885	2421	0	127	53	53	222	498	3	0	0	0	601	0	0	0	
.75 for 218 and .25 for TAZ 457. 218 will get all school enrollment					1815.75	0	95.25	39.75	39.75	166.5	373.5	2.25	0	0	0	601	0	0	0	
218	3				1055	0	0	0	176	176	0									
218	3				2392	0	0	0	430	347	96									
218	3				930	0	0	0	155	155	0									
218	3				472	0	0	0	79	79	0									
218	3				2392	0	0	0	430	347	96						0	0	0	
Total for 218					9057	0	95	40	1309	1270	566	10	10	10	0	601	0	0	0	
219	3	6401	42803	8100	2151	0	97	41	41	170	381	23	31	39	0	0	0	0	0	
1/2 to be split with 459					1075.5	0	48.5	20.5	20.5	85	190.5	11.5	15.5	19.5	0	0	0	0	0	
Total for 219					1076	0	49	21	21	85	191	12	16	20	0	0	0	0	0	
220	3	2451	42927	8108	78	0	4	2	2	7	15	8	26	59	0	0	0	0	0	
1/2 to be split with 458					39	0	2	1	1	3.5	7.5	4	13	29.5	0	0	0	0	0	
Total for 220					39	0	2	1	1	3.5	7.5	4	13	29.5	0	0	0	0	0	
221	3	5066	42865	8252	2666	0	118	59	49	207	453	30	35	28	0	0	0	0	0	
1/2 split with 460					1333	0	59	29.5	24.5	103.5	226.5	15	17.5	14	0	0	0	0	0	
Total for 221					1333	0	59	30	25	104	227	15	18	14	0	0	0	0	0	
2007					1934.25	0	0	99.3	251.1	64.2	283.2	0	0	0	0	0	0	0	0	
2015					1934.25	0	0	99.3	251.1	64.2	283.2	0	53	0	0	0	0	0	0	
2025					0	0	0	0	0	0	0	0	53	0	0	0	0	0	0	
238	3	6851	42544	7819	6619	0	348	285	221	253	1170	99	47	105	0	0	882	0	0	
1/4 of 238 split with 461,462,463					1654.75	0	87	71.25	55.25	63.25	292.5	24.75	11.75	26.25	0	0	220.5	0	0	
Total for 238					5523	0	87	270	557	192	859	25	118	26	0	0	221	0	0	
240	5	1670	42238	7847	783	0	37	30	24	27	124	164	222	0	0	0	0	0	0	
1/2 split w/ TAZ 240 and Taz 464					391.5	0	18.5	15	12	13.5	62	82	111	0	0	0	0	0	0	
Total for 240					392	0	19	15	12	14	62	82	111	0	0	0	0	0	0	

Table 9: Modified 2025 Socioeconomic Data Set - Revised Stapleton Road/ Judge Orr Road Corridor Model (Continued)

243	4	2206	42281	8051	1727	13	88	54	75	95	299	305	23	0	0	0	0	0	0
1/2 split w/ TAZ 243 and TAZ 465					863.5	6.5	44	27	37.5	47.5	149.5	152.5	11.5	0	0	0	0	0	0
Total for 243					864	7	44	27	38	48	150	153	12	0	0	0	0	0	0
248	5	2528	42545	8105	1110	0	60	49	38	44	202	65	20	19	0	0	51	0	0
.66 split for TAZ 248 and .33 for TAZ 466					732.6	0	39.6	32.34	25.08	29.04	133.32	42.9	13.2	12.54	0	0	33.66	0	0
Total for 248					733	0	40	32	25	29	133	43	13	13	0	0	34	0	0
355	3	6508	43213	7510	2792	16	226	249	113	158	271	49	27	65	0	0	0	0	0
					15	16	0	0	0	5	0	0	0	0	0	0	0	0	0
1/2 to be split with 467					1396	8	113	124.5	56.5	79	135.5	24.5	13.5	32.5	0	0	0	0	0
Total for 355					1411	24	113	124.5	56.5	84	135.5	24.5	13.5	32.5	0	0	0	0	0
356	3	5282	43185	7702	192	0	13	18	9	9	18	8	19	49	0	0	0	0	0
356					1410	0	0	0	447	447	447								
356					1410	0	0	0	447	447	447								
356					1410	0	0	0	447	447	447								
Total for 356					4422	0	13	18	1350	1350	1359	8	19	49	0	0	0	0	0
394	3	3203	42875	7702	2533	0	187	147	107	133	347	67	20	154	0	1181	0	0	0
.8 for TAZ 394 and .2 for TAZ 468					2026.4	0	149.6	117.6	85.6	106.4	277.6	53.6	16	123.2	0	944.8	0	0	0
Total for 394					2026	0	150	118	86	106	278	54	16	123	0	945	0	0	0
.75 for 218 and .25 for 457					605.25	0	31.75	13.25	13.25	55.5	124.5	0.75	0	0	0	150.25	0	0	0
Total for 457					605	0	32	13	13	56	125	1	0	0	0	150	0	0	0
1/2 to be split with 220					39	0	2	1	1	3.5	7.5	4	13	29.5	0	0	0	0	0
4-way ranch assume 367 acres will be developed with 2.5 acres lots creates 122 home site at 3 persons per HH					366	0	0	0	0	0	122	0	0	0	0	0	0	0	0
Total for 458					405	0	2	1	1	4	130	4	13	30	0	0	0	0	0

Table 9: Modified 2025 Socioeconomic Data Set - Revised Stapleton Road/ Judge Orr Road Corridor Model (Continued)

459																			
				3,165	0	0	0	527.31	527.31	0									
				2791.33	0	0	0	465	465	0									
				1415.925	0	0	0	235.755	235.755	0									
1/2 split with 219				1075.5	0	48.5	20.5	20.5	85	190.5	11.5	15.5	19.5	0	0	0	0	0	
Total for 459				8,448	0	49	21	1,249	1,313	191	12	16	20	0	500	500	0	0	
1/2 split with 221				1,333	0	59	30	25	104	227	15	18	14	0	0	0	0	0	
Total for 460				1333	0	59	30	25	104	227	15	18	14	0	0	0	0	0	
2007				645	0	0	33	84	21	115.75									
2015				644.75	0	0	33.1	83.7	21.4	94.4									
2025				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1/4 of 238				1654.75	0	87	71.25	55.25	63.25	292.5	24.75	11.75	26.25	0	0	220.5	0	0	
Total for 461				2944	0	87	137	223	106	503	25	12	26	0	0	221	0	0	
462																			
2007				103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2015				103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2025				103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1/4 of 238				1654.75	0	87	71.25	55.25	63.25	292.5	24.75	11.75	26.25	0	0	220.5	0	0	
Total for 462				1964	0	87	71	55	63	293	25	12	26	0	0	221	0	0	
1/4 of 238				1654.75	0	87	71.25	55.25	63.25	292.5	24.75	11.75	26.25	0	0	220.5	0	0	
Total for 463				1655	0	87	71	55	63	293	25	12	26	0	0	221	0	0	
1/2 split with TAZ 240 and 464				391.5	0	18.5	15	12	13.5	62	82	111	0	0	0	0	0	0	
Total for 464				392	0	19	15	12	14	62	82	111	0	0	0	0	0	0	
1/2 split w/ TAZ 243 and TAZ 465				863.5	6.5	44	27	37.5	47.5	149.5	152.5	11.5	0	0	0	0	0	0	
Total for 465				864	7	44	27	38	48	150	153	12	0	0	0	0	0	0	
.66 split for TAZ 248 and .33 for TAZ 466				366.3	0	19.8	16.17	12.54	14.52	66.66	21.45	6.6	6.27	0	0	16.83	0	0	
Total for 466				366	0	20	16	13	15	67	21	7	6	0	0	17	0	0	
1/2 split with 355: 467				1396	8	113	124.5	56.5	79	135.5	24.5	13.5	32.5	0	0	0	0	0	
Total for 467				1396	8	113	125	57	79	136	25	14	33	0	0	0	0	0	
.8 for TAZ 394 and .2 for TAZ 468				506.6	0	37.4	29.4	21.4	26.6	69.4	13.4	4	30.8	0	236.2	0	0	0	
Total for 468				507	0	37	29	21	27	69	13	4	31	0	236	0	0	0	

4.0 Traffic Forecasts

4.1 The PPACG Model

4.1.1 Model Specification

The current PPACG travel demand forecasting model was developed using a TRANPLAN software platform. The model incorporates time of day function, and includes a simple mode choice model. The mode choice model is used to define highway mode share, only. There is currently no transit model. The current model was last validated and enhanced for the 2020 Regional Transportation Plan (RTP), with a socio-economic data set update, only, completed for 2025 RTP plan development.

The PPACG has recently committed to development of an entirely new travel model. The new model will include a broader geographic area and will be developed on an emme/2 software platform. The supporting travel characteristics survey for the new model has already been completed. Although, it was originally anticipated that the new model would be used to develop the 2030 RTP, it is now expected that the current model specification and platform will still be used for this planning cycle.

For purposes of this study, the current PPACG TRANPLAN model was used as a base. The coverage area of the TRANPLAN model was expanded to include additional area in the northeastern portion of El Paso County. The zonal structure and network for the model were also been enhanced within the travelshed for the Stapleton Road/ Judge Orr Road Corridor Study. These modifications were made for use on this project only, and address the unique needs of this study. All modifications were coordinated with PPACG, and PPACG concurrence with the approach used was obtained. Although the modified Corridor Study model does not have official standing, assembled data has been provided to PPACG for their use in conjunction with the official PPACG model.

4.1.2 Validation of Model Performance for the Study Area

Both AADT and peak hour intersection approach ground counts assembled from available databases, as well as additional counts taken by the consultant, were factored to represent the PPACG 2000 base year. Traffic assignment results for the unadjusted PPACG model were compared to available ground counts data.

The closeness of fit of PPACG 2000 traffic assignments to adjusted 2000 ground counts varied over the tested links of the network. As detailed in Table 10, below, the greatest variation between counts and assignment results was found for Curtis Road, Enoch Road, Meridian Road and Peyton Highway. Notably, evaluated east-west route assignments varied less from the counts than did the north-south route assignments. Detailed data has been obtained for Schriever AFB to facilitate forecast smoothing in that location as required for this study.

4.2 Modifications to the Regional Model

4.2.1 Zonal Structure

Approved development plans were reviewed within the study area to assess the potential merit of limited zonal disaggregation for the sub-area model. Recognizing the similar potential for development within the study area, the Powers Boulevard corridor was used as a yardstick for zone size. This portion of the PPACG model had been disaggregated in 1987 for the 2010 RTP

update. Within the study area, Census geography, like TAZ geography is coarse. Within the limits of Census geographic breakdown, the zonal disaggregation shown in Figure 19, below, was devised. This breakdown is also shown on the land use evaluation spreadsheet referred to previously. This nested disaggregation allows comparison of relative existing development shares for the new vs. existing traffic analysis zones.

4.2.2 Network Specification

Review of the PPACG model network confirmed that most arterial and collector roadways within the study area are already included in the PPACG's base year 2000 network. Limited exceptions are collector/arterial roadways that have been recently added to the network, or around which significant development has already occurred. Additions were made to the 2000 network to include all currently existing facilities within the study area. An extension of US 24 was also added to the network to expand the modeled area, adding new internal zones 469 and 470. Finally, adjustments were made to zone centroids and centroid connectors as required to accommodate the modified zonal configuration.

For the 2025 planning horizon, development plans were used to identify roadway network additions to the 2025 network. As for the 2000 base year network, an extension to US 24 was added to the network to serve new internal zones 469 and 470. Again adjustments were made to zone centroids and centroid connectors as required to the modified zonal configuration. Figures 20 thru 21 show the unaltered networks for 2000 and 2025. Figures 22 thru 23 show final, modified 2000 and 2025 study area networks,

Stapleton Road/Judge Orr Road Corridor Study

Table 10: PPACG 2000 Model Validation

	Ground Count Volumes							PPACG Model Volumes				Assignment vs Count	
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF
Black Forest Road													
	Oct-98					3877	4187	661	637	5002	6300	2113	33.54
	Aug-99		2761			2761	2871	398	254	2220	2872	1	0.02
S of Burgess (NB)	Aug-99	4368				4368	4543	212	348	2170	2730	-1813	-66.40
N of Burgess (SB)	Aug-99		2967			2967	3086	398	254	2220	2872	-214	-7.44
S of Burgess (NB)	Aug-99	3506				3506	3646	212	348	2170	2730	-916	-33.56
N of Woodmen	Jul-00	5581	5501			11082	11082	425	1330	10355	12110	1028	8.49
N of Woodmen	Jul-00	5962	5831			11793	11793	425	1330	10355	12110	317	2.62
N of Hodgen (SB)	Oct-98		741			741	800	108	85	791	984	184	18.67
S of Hodgen (NB)	Oct-98	1679				1679	1813	85	140	900	1125	-688	-61.18
AVERAGE													-11.69
Blaney Road South													
E of Meridian	May-96					328	380	92	88	819	999	619	61.91
E of Meridian	Oct-00					293	293	92	88	819	999	706	70.67
AVERAGE													66.29
Blue Road													
W of Enoch	Aug-97			106	90	196	220	537	589	4953	6079	5859	96.39
Bradley Road													
E of Marksheffel	Jul-00			2717	2470	5187	5187	686	612	5569	6867	1680	24.46
W of Marksheffel	Jul-00			2612	2712	5324	5324	782	794	6350	7926	2602	32.83
AVERAGE													
Broken Arrow Drive													
E of Slocum	Aug-01					535	514	-	-	-	0		
Burgess Road													
W of Goodson	Nov-98					1495	1615	396	439	2759	3594	1979	55.08
E of Black Forest	Nov-98					1806	1950	190	193	1431	1814	-136	-7.52
W of Black Forest	Nov-98					2407	2600	297	300	2309	2906	306	10.55
E of Milam	Nov-98					2347	2535	311	335	2717	3363	828	24.63
AVERAGE													20.68
Constitution Avenue													
E of Marksheffel	Aug-00			4143	1784	5927	5927	371	405	3435	4211	-1716	-40.75
W of Marksheffel	Aug-00			3913	3577	7490	7490	572	606	4987	6165	-1325	-21.49
AVERAGE													-31.12

Stapleton Road/Judge Orr Road Corridor Study

Table 10: PPACG 2000 Model Validation (Continued)

	Ground Count Volumes							PPACG Model Volumes				Assignment vs Count	
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF
Curtis Road													
N of Falcon Hwy (SB)	Mar-96		197			197	229	19	7	128	154	-75	-48.39
S of Falcon Hwy (NB)	Mar-96	840				840	974	10	20	130	160	-814	-509.00
N of Garrett	Mar-02	1067	1148			2215	2038	32	29	263	324	-1714	-528.95
S of Judge Orr (SB)	Mar-02		897			897	825	32	26	128	186	-639	-343.68
N of SH 94	Mar-02	1190	1059			2244	2064	133	125	1102	1360	-704	-51.80
S of SH94	Mar-02	957	505			1462	1345	410	429	3739	4578	3233	70.62
AVERAGE													
Davis Road													
E of Curtis Road	Jul-02					108	99	133	121	1054	1308	1209	92.40
W of Kennedy	Jul-02					70	64	133	121	1054	1308	1244	95.08
AVERAGE													93.74
Dawson Road													
E of Meridian	Apr-97					216	242	-	-	-	0		
Drennan Road													
E of Marksheffel Road	Nov-98			501	1027	1528	1650	89	107	839	1035	-615	-59.44
Elbert Road													
N of US 24	Oct-98					1002	1082	40	51	520	611	-471	-77.11
S of US 24	Oct-98					538	581	20	23	199	242	-339	-140.10
AVERAGE													-108.61
Enoch Road													
N of Schriever AFB	Aug-97	3228	4058			7286	8160	51	51	442	544	-7616	-1400.06
S of Schriever AFB	Aug-97	164	182			346	388	11	18	153	182	-206	-112.92
S of SH 94	Mar-02	2830	3303			6133	5642	51	51	442	544	-5098	-937.20
AVERAGE													-816.73
Falcon Highway													
E of Curtis	Oct-98			1026	1021	2047	2211	291	304	2246	2841	630	22.18
W of Curtis	Oct-98					3694	3990	275	297	2178	2750	-1240	-45.07
E of US 24	Aug-96			410	810	1228	1424	150	410	1342	1902	478	25.11
E of Meridian Road	Oct-98					5281	5703	372	178	2989	3539	-2164	-61.16
AVERAGE													-14.74
Franciville Road													
W of Egerton	Jun-02					38	35	-	-	-	0		
E of Teachout Road	Jun-02					101	93	-	-	-	0		
AVERAGE													

Stapleton Road/Judge Orr Road Corridor Study

Table 10: PPACG 2000 Model Validation (Continued)

	Ground Count Volumes							PPACG Model Volumes				Assignment vs Count	
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF
Hodgen Road													
E of SH 83	Oct-01					2446	2348	260	255	2199	2714	366	13.48
W of Black Forest	Oct-01					2737	2628	179	172	1433	1784	-844	-47.28
E of Black Forest	Oct-02					2690	2475	110	108	945	1163	-1312	-112.79
W of Meridian	Oct-98					1362	1471	75	70	915	1060	-411	-38.77
E of Meridian	Oct-98					672	726	100	109	685	894	168	18.82
AVERAGE													-33.31
Jones Road													
E of Curtis	Oct-98					917	990	64	62	488	614	-376	-61.30
W of Peyton	Aug-01					499	479	52	52	66	170	-309	-181.79
AVERAGE													-121.55
Judge Orr													
W of US 24	Jan-98					1924	2078	171	114	1338	1623	-455	-28.03
E of US 24	Oct-98					2024	2186	82	87	953	1122	-1064	-94.82
W of Curtis	Mar-02			1081	1120	2201	2025	82	87	953	1122	-903	-80.47
E of Curtis	Mar-02			885	897	1782	1639	76	93	896	1065	-574	-53.94
AVERAGE													-64.32
Marksheffel Road													
S of Woodmen	Jul-02					4751	4371	511	361	3780	4652	281	6.04
N of Constitution	Nov-98	2624	1707			4331	4677	362	345	2319	3026	-1651	-54.58
S of Constitution	Nov-98	2418	2704			5122	5532	814	822	6998	8634	3102	35.93
N of US 24	Nov-98	4887	1699			6586	7113	721	777	6039	7537	424	5.63
S of US 24	Nov-98					3950	4266	693	508	4053	5254	988	18.80
N of Bradley	Jul-00	1610	1528			3138	3138	430	413	3143	3986	848	21.27
S of Bradley	Jul-00	1507	1434			2941	2941	336	312	2332	2980	39	1.31
S of SH 94	Nov-98					1736	1875	375	361	2815	3551	1676	47.20
AVERAGE													10.20
Meridian													
S of Woodmen Road	May-98					10200	11016	401	389	3052	3842	-7174	-186.73
N of Woodmen Road	Jul-00	3465	3674			7139	7139	115	94	701	910	-6229	-684.51
AVERAGE													-435.62
Milam													
S of Shoup Road	Oct-98					722	780	135	19	165	319	-461	-144.44
N of Burgess Road	Nov-98					912	985	135	19	165	319	-666	-208.76
S of Burgess Road	Nov-98					2591	2798	160	339	2750	3249	451	13.87
AVERAGE													-113.11

Stapleton Road/Judge Orr Road Corridor Study

Table 10: PPACG 2000 Model Validation (Continued)

	Ground Count Volumes							PPACG Model Volumes				Assignment vs Count	
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF
Peyton Hwy													
N of US 24	Oct-98					343	370	4	1	17	22	-348	-1583.82
S of US 24	Oct-98					376	406	4	2	19	25	-381	-1524.32
AVERAGE													-1554.07
SH 24													
W of Dodge Road	Jun-00			7488	7301	14789	14789	1041	506	9583	11130	-3659	-32.88
E of Woodmen Road	Jun-00					16347	16347	394	1165	4693	6252	-10095	-161.47
AVERAGE													-97.17
SH 83													
N of Shoup Road (SB)	Oct-97		2964			2964	3320	640	769	6246	7655	4335	56.63
S of Shoup Road (NB)	Oct-97	3431				3431	3843	842	970	7975	9787	5944	60.74
AVERAGE													58.69
SH 94													
JCT 24	CDOT -96					5350	6099	465	502	5301	6268	169	2.70
Marksheffel Road	CDOT -96					6000	6840	687	741	6484	7912	1072	13.55
Curtis Road	CDOT -96					9000	10260	623	664	5992	7279	-2981	-40.95
AVERAGE													-435.62
Shoup Road													
E of Black Forest Road	Oct-98					1369	1479	91	75	3224	3390	1911	56.39
W of Black Forest Road	Oct-98					2976	3214	440	402	662	1504	-1710	-113.70
E of Milam Road	Oct-98					3210	3467	455	447	3510	4412	945	21.42
W of Milam Road	Oct-98					2836	3063	456	443	3477	4376	1313	30.01
E of SH 83	Oct-98					3696	3992	485	509	4121	5115	1123	21.96
AVERAGE													3.22
Slocum Road													
N of Jones Road	Mar-98					116	125	-	-	-	0		
S of Jones Road								29	27	221	277		
AVERAGE													-
Sweet Road													
E of Elbert Road	Jul-96					386	448	-	-	-	0		
W of Peyton Highway	Jul-96					223	259	-	-	-	0		
AVERAGE													-

Stapleton Road/Judge Orr Road Corridor Study

Table 10: PPACG 2000 Model Validation (Continued)

	Ground Count Volumes							PPACG Model Volumes				Assignment vs Count	
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF
Tamlin Road													
E of Marksheffel Road	Mar-99					170	177	148	168	1379	1695	1518	89.57
S of Woodmen	May-98					6543	7066	414	423	492	1329	-5737	-431.71
Woodmen Road													
E of Powers Boulevard	May-98					12403	13395	894	997	8905	10796	-2599	-24.08
E of Templeton Gap Road	May-98					18630	20120	1613	1710	16881	20204	84	0.41
E of Black Forest Road	Nov-98					11395	12307	1055	1110	9287	11452	-855	-7.46
W of Black Forest Road	Jul-00			11454	10079	21533	21533	1945	2042	16881	20868	-665	-3.19
E of Marksheffel Road	Jul-00			5784	5426	11210	11210	1063	1068	8958	11089	-121	-1.09
W of Marksheffel Road	Jul-00			6642	6609	13251	13251	1038	1101	9251	11390	-1861	-16.34
W of Mohawk Road	Jun-00			5160	5257	10417	10417	1038	1101	9251	11390	973	8.54
E of Meridian Road	Jul-00			5801	5307	11108	11108	675	525	4756	5956	-5152	-86.50
W of Meridian Road	Jul-00			5418	5371	10789	10789	568	609	5407	6584	-4205	-63.87
AVERAGE													-21.51

Proposed Revisions to Transportation Analysis Zones

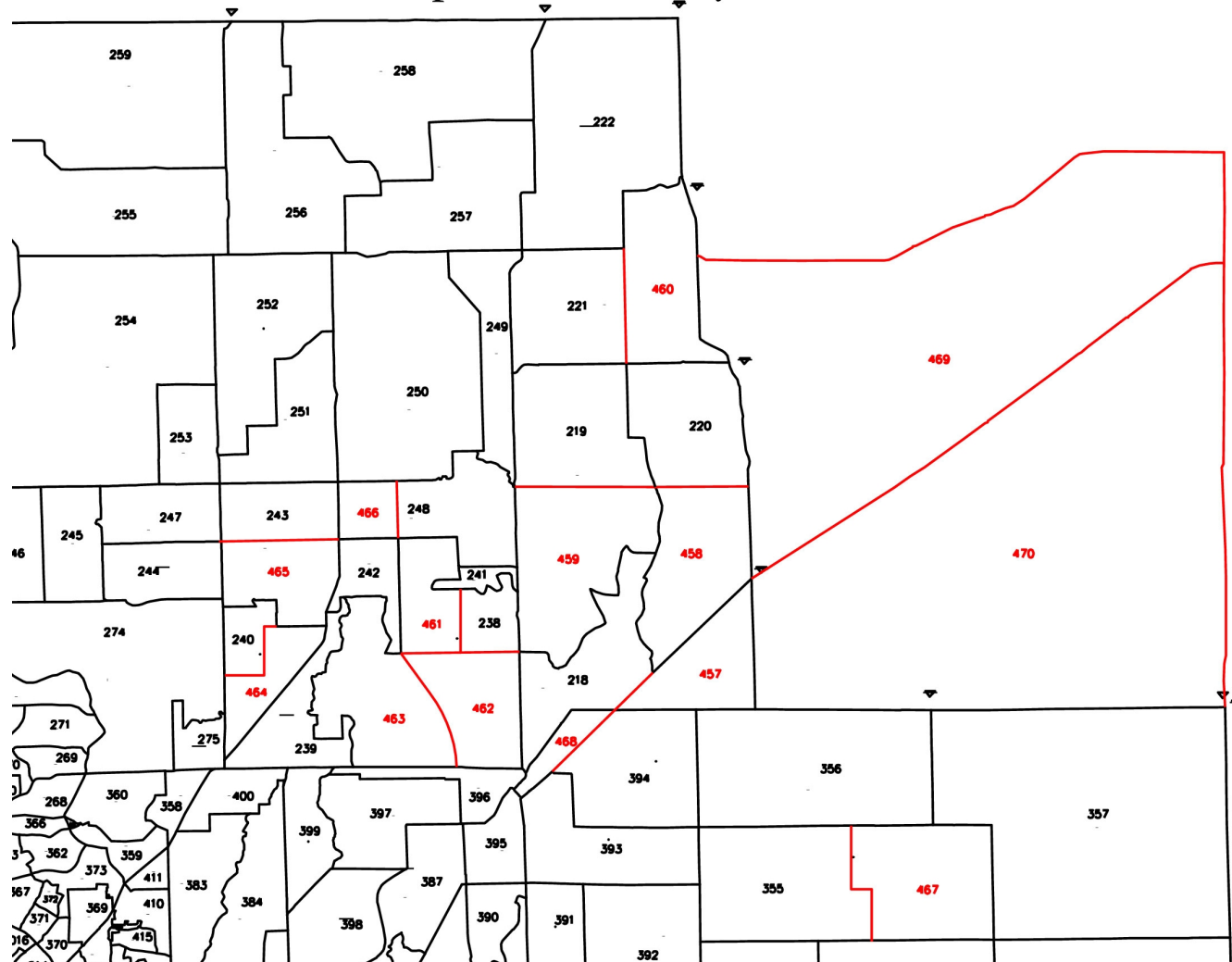


Figure 19. Modified Traffic Analysis Zones

Figure 20. PPACG 2000 Network

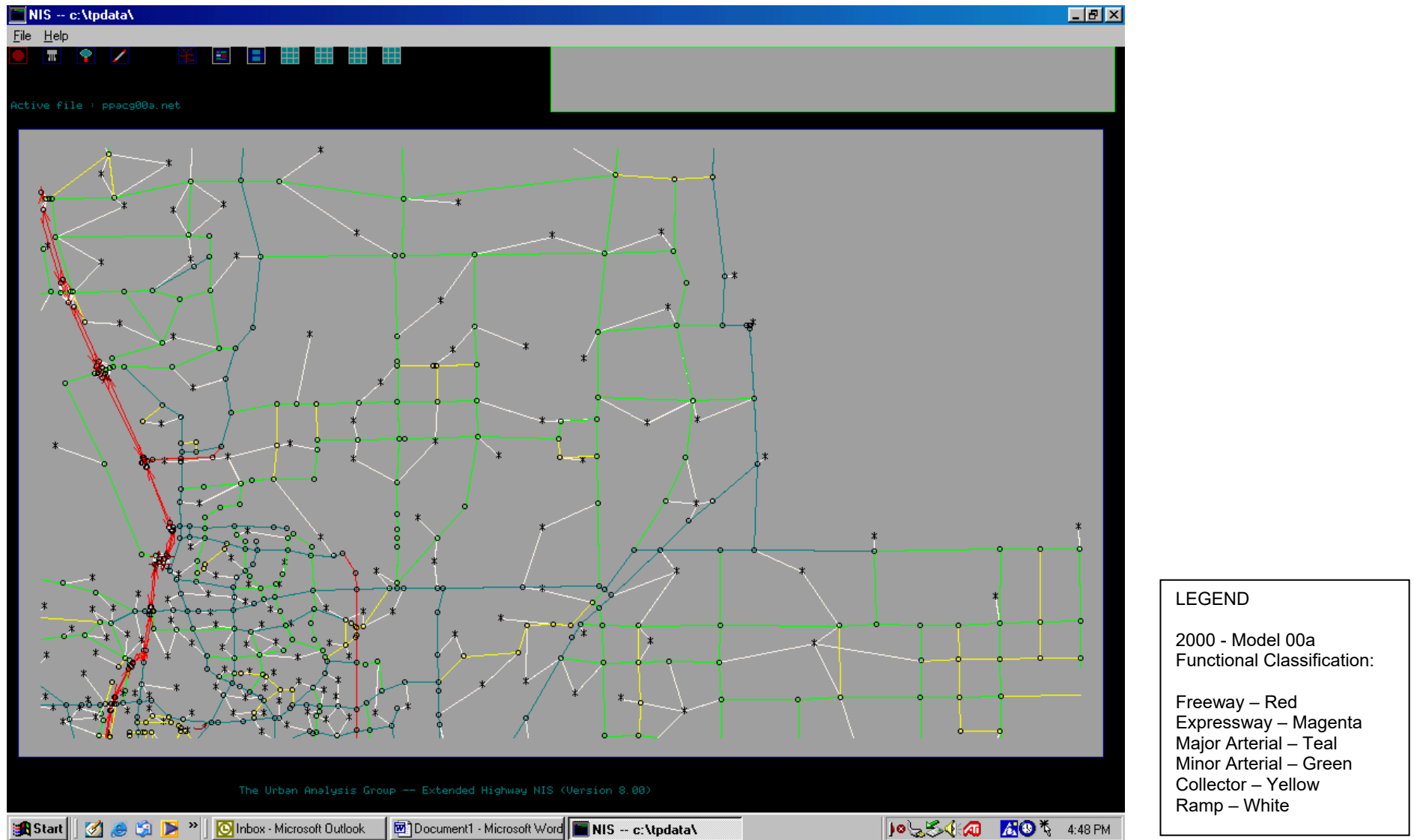


Figure 21. PPACG 2025 Network

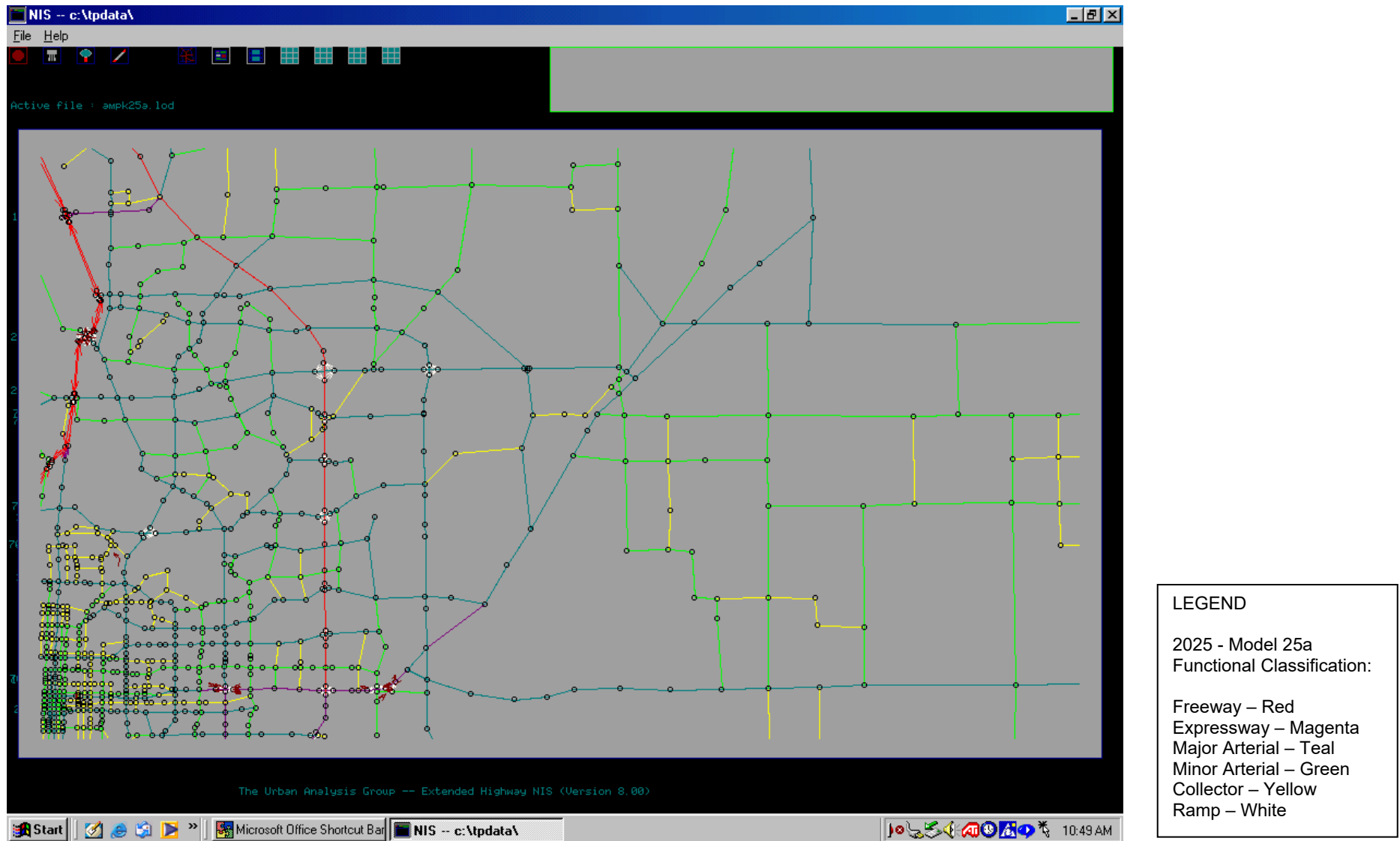
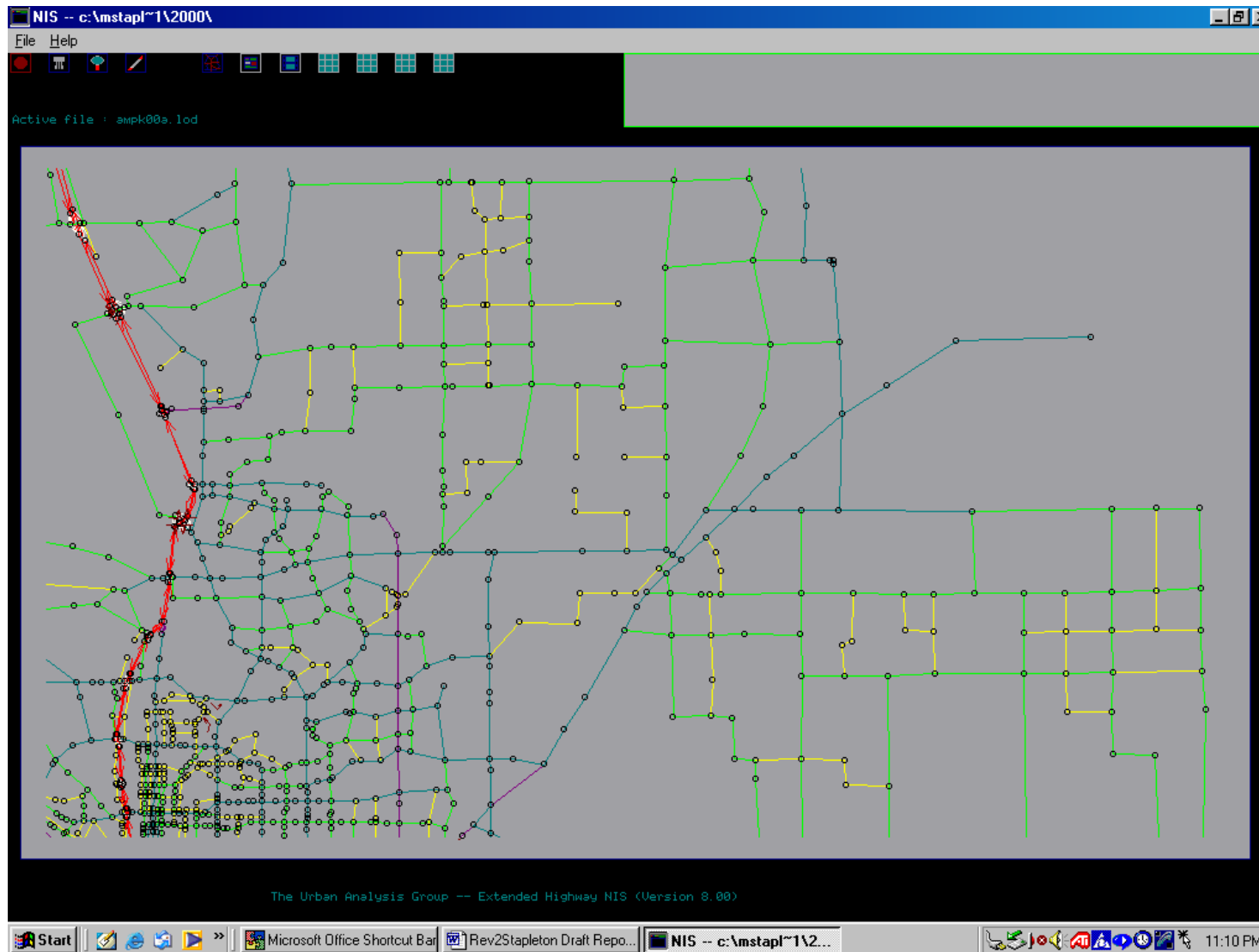
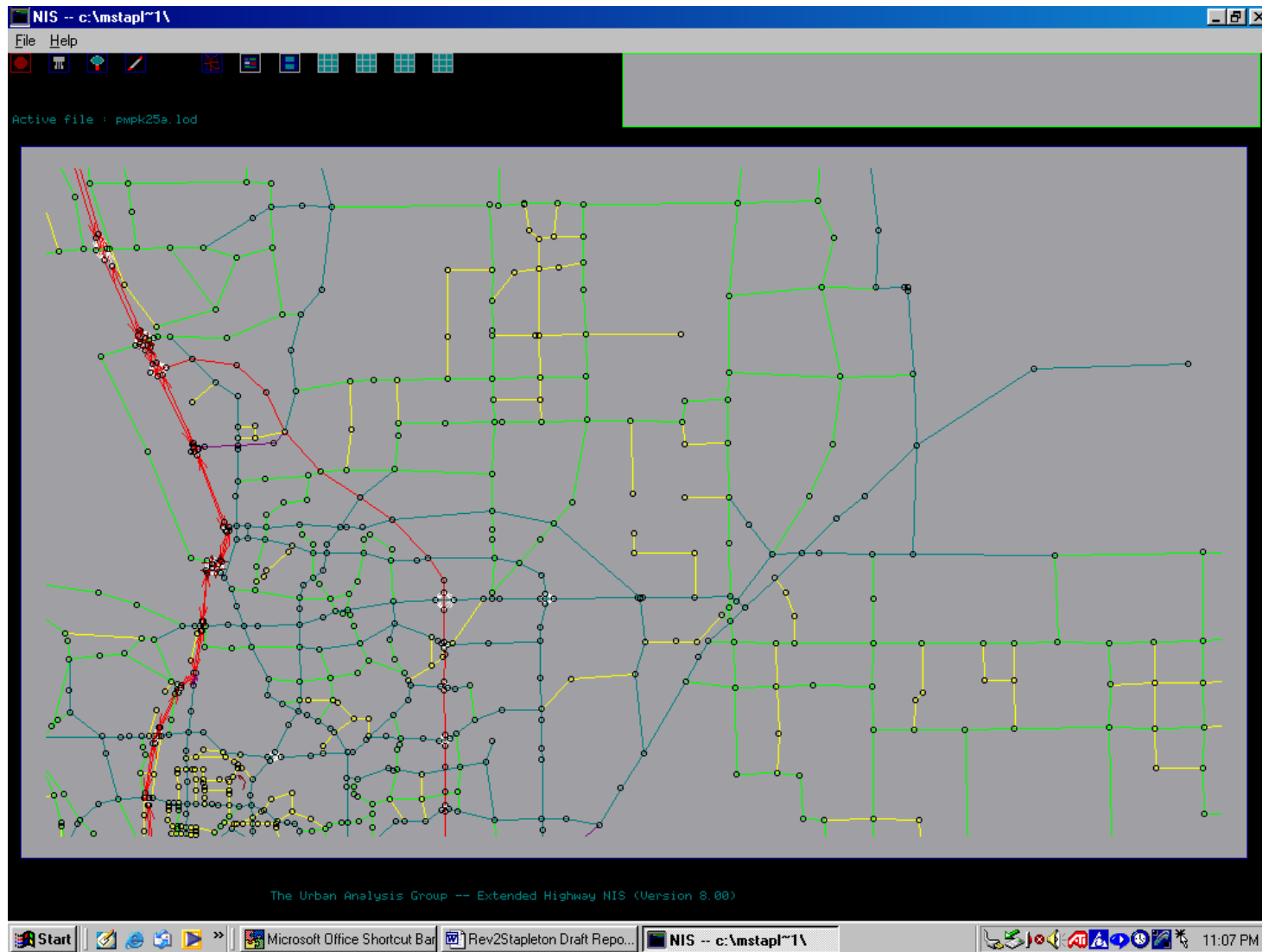


Figure 22. Modified 2000 Network



LEGEND	
2000 -- Revised Model Functional Classification:	
Freeway -- Red	
Expressway -- Magenta	
Major Arterial -- Teal	
Minor Arterial -- Green	
Collector -- Yellow	
Ramp -- White	

Figure 23. Modified 2025 Network



LEGEND

2025 – Revised Model
Functional Classification:

Freeway – Red
Expressway – Magenta
Major Arterial – Teal
Minor Arterial – Green
Collector – Yellow
Ramp – White

4.2.3 Study Area Expansion

Most of the modifications to model geography were made within the PPACG 3-C Planning Area. Two new traffic zones were added, however, in order to include the US 24 travelshed that feeds the study area from the east. These two new zones, zones 469 and 470, are shown in the TAZ map included as Figure 19.

4.3 Baseline Validation of Modified Model

As a basis for development of 2025 forecasts, using the modified model, 2000 traffic volume assignments from the new model were again validated to 2000 adjusted ground counts. The results of the validation and adjustment are incorporated into the spreadsheet used to prepare 2025 traffic volume forecasts (See Table 11).

4.4 2025 Traffic Forecasts

4.4.1 Methodology

Using the modified PPACG model, traffic volume forecasts were prepared for the “20th year” planning horizon (2025). Raw traffic assignments, from the modified travel demand forecasting model were used as a basis to develop the forecasts. Segment by segment, directional growth factors were developed for expanding existing volumes from 2000 to 2025. The reasonability of the growth factors was validated through cross checks of the growth rates to results of historic trend analysis. Available traffic count data was used to support the historic trend analysis.

Modified transportation model scenarios/ data sets for the year 2000 and year 2025 were used as the basis for developing adjusted traffic volume forecasts. As a regional travel demand forecasting model, the modified PPACG model is well suited to evaluating overall regional travel patterns and travel relationships among regional corridors, but has more limited utility in predicting accurate future numbers, by time of day, at the corridor level. In view of these limitations, unadjusted, raw model assignments were not used directly for the Stapleton Road/Judge Orr Road Corridor Study analysis. Rather, a “smoothing” process detailed below was employed to adjust the raw assignment volumes, correcting for baseline model assignment error, while maintaining growth rates forecast by the model.

Model Output Adjustment Methodology

The following process was used to adjust/ post-process raw model assignments:

- Traffic volume ground count data was assembled and adjusted to a 2000 base year.
- 2000 assignment volumes from the modified PPACG 2000 model were validated, as for the unaltered PPACG 2000 base year model, to the counted traffic volumes. The AM peak hour, PM peak hour, and ADT counts were compared to the assigned volumes generated by the modified PPACG 2000 model in order to validate the application of the model for the year 2000 base year.
- A standard “smoothing” process was adopted for adjustment of raw modeled volumes.
- The “smoothing” process incorporated procedures to establish base year traffic volumes and to develop both base year model correction factors and 20-year growth factors (per the modified PPACG model). Per the selected process, link-specific or average factors are used to compute “smoothed”/adjusted 2025 volumes.

- The “smoothing” process was used to adjust 2025 model assignment volumes. Using the selected “smoothing” process, the raw model assignment results were systematically “smoothed” to better replicate traffic volume ground count experience. Initially, 2000 model outputs were adjusted to achieve a better fit compared to the ground counts. The differences in year 2000 traffic counts compared to the 2000 model outputs were then applied to the 2025 model outputs as part of the smoothing processes.
- Resulting volumes were checked for reasonableness. Resulting volumes (year 2000 to 2025) were compared to historic growth rates within the study area. This was done for the ADT, AM peak hour and PM peak hour traffic volumes.

“Smoothing” Process

The selected smoothing approach is based on information obtained from the Transportation Research Board (TRB). Each roadway link that had a traffic count was smoothed and therefore was reassigned a 2025 volume. The 2025 volume assigned to each link was based on the percentile difference (i.e. relative difference) between the traffic count and 2000 model assigned volume. If the percentile difference between the traffic count and the 2000 model assigned volume was greater than 15%, then the absolute difference was used. If the percentile difference between the traffic count and the 2000 model assigned volume was less than or equal to 15%, then the average of the relative difference and absolute difference is taken.

The formulas for the smoothing process are as follows:

- If the percentile difference between the count and assigned volume is >15%, then the absolute difference is added to the assigned volume.

$$\text{Smoothed \#} = AV + ABS$$

AV = assigned volume; ABS = absolute difference

- If the percentile difference between the count and assigned volume is ≤15%, then the average of the relative difference and absolute difference is used.

$$\text{Smoothed \#} = ((AV * (1 + (\%/100))) + (ABS + AV))/2$$

AV = assigned volume; ABS = absolute difference; % = percentile (relative) difference

4.4.2 2025 Volumes

The 200 base year assignment and “smoothing” process were accomplished in a single calculation spreadsheet included below as Table 11. The final adjusted 2025 ADT traffic estimates for the study area roadways are listed in the column to the far right of the table.

Table 11. 2025 Traffic Volume Forecasts

Table 11: 2025 Traffic Volume Forecasts - Stapleton Road Corridor Revised Model																				
	Ground Count Volumes							Stapleton 2000 Model Volumes				Assignment vs Ground Count		Adjusted 2000 ADT	Stapleton 2025 Model Volumes				2025 Growth Factor	Estimated 2025 ADT
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF		AM	PM	OFF PEAK	TOTAL		
Black Forest Road																				
N of Hodgen (SB)	Oct-98		741			741	800	115	91	848	1054	254	24.07	800	261	243	2168	2672	2.54	2030
S of Hodgen (NB)	Oct-98	1679				1679	1813	74	116	768	958	-855	-89.28	1810	127	236	1512	1875	1.96	3540
N of Shoup	Oct-98					3877	4187	672	682	5421	6775	2588	38.20	4190	1550	1534	11303	14387	2.12	8900
N of Burgess (SB)	Aug-99		2761			2761	2871	410	277	2560	3247	376	11.57	2870	828	482	4969	6279	1.93	5550
S of Burgess (NB)	Aug-99	4368				4368	4543	257	377	2452	3086	-1457	-47.20	4540	279	645	3671	4595	1.49	6760
N of Burgess (SB)	Aug-99		2967			2967	3086	410	277	2460	3147	61	1.95	3090	828	482	4969	6279	2.00	6170
S of Burgess (NB)	Aug-99	3506				3506	3646	257	377	2452	3086	-560	-18.15	3650	279	645	3671	4595	1.49	5430
N of Woodmen	Jul-00	5581	5501			11082	11082	1357	1441	11870	14668	3586	24.45	11080	1717	2610	18710	23037	1.57	17400
N of Woodmen	Jul-00	5962	5831			11793	11793	1357	1441	11870	14668	2875	19.60	11790	1717	2610	18710	23037	1.57	18520
Blaney Road South																				
E of Meridian	May-96					328	380	145	178	745	1068	688	64.37	380	330	379	1477	2186	2.05	780
E of Meridian	Oct-00					293	293	145	178	745	1068	775	72.57	290	330	379	1477	2186	2.05	590
Blue Road																				
W of Enoch	Aug-97			106	90	196	220	515	572	4822	5909	5689	96.28	220	735	859	7601	9195	1.56	340
Bradley Road																				
E of Marksheffel	Jul-00			2717	2470	5187	5187	689	718	5628	7035	1848	26.27	5190	1781	1898	14287	17966	2.55	13250
W of Marksheffel	Jul-00			2612	2712	5324	5324	773	820	6447	8040	2716	33.78	5320	2024	2175	15873	20072	2.50	13280
Burgess Road																				
W of Goodson	Nov-98					1495	1615	546	610	5822	6978	5363	76.86	1610	1791	2016	17619	21426	3.07	4940
E of Black Forest	Nov-98					1806	1950	211	224	2054	2489	539	21.64	1950	940	1044	8159	10143	4.08	7950
W of Black Forest	Nov-98					2407	2600	349	372	3131	3852	1252	32.51	2600	1013	1215	9620	11848	3.08	8000
E of Milam	Nov-98					2347	2535	360	403	3462	4225	1690	40.01	2530	1263	1487	11906	14656	3.47	8780
Constitution Avenue																				
E of Marksheffel	Aug-00			4143	1784	5927	5927	413	448	3692	4553	-1374	-30.18	5930	1173	1362	12623	15158	3.33	19740
W of Marksheffel	Aug-00			3913	3577	7490	7490	615	637	5187	6439	-1051	-16.32	7490	1562	1652	15257	18471	2.87	21490
Curtis Road																				
S of Judge Orr (SB)	Mar-02		897			897	825	14	11	97	122	-703	-576.43	830	271	600	3112	3983	16.89	14020
S of Judge Orr (NB)	Mar-02	923				923	849	7	11	100	118	-731	-619.63	850	576	322	3039	3937	16.90	14360
N of Falcon Hwy (SB)	Mar-02		897			897	825	14	11	97	122	-703	-576.43	830	698	320	3989	5007	16.90	14020
S of Falcon Hwy (NB)	Mar-96	840				840	974	7	11	100	118	-856	-725.76	970	68	89	1059	1216	16.90	16390
N of Garrett	Mar-02	1067	1148			2215	2038	95	97	183	375	-1663	-443.41	2040	523	969	2049	3541	9.44	19260
N of SH 94	Mar-02	1190	1059			2249	2069	138	135	1095	1368	-701	-51.25	2070	623	544	3812	4979	3.64	7530
S of SH94	Mar-02	957	505			1462	1345	390	433	3631	4454	3109	69.80	1350	808	894	7087	8789	1.97	2660
Davis Road																				
E of Curtis Road	Jul-02					108	99	13	7	1074	1094	995	90.92	100	32	43	2786	2861	2.62	190
W of Kennedy	Jul-02					70	64	13	7	1074	1094	1030	94.11	60	32	43	2786	2861	2.62	120
Dawson Road																				
E of Meridian	Apr-97					216	242	-	-	-	-	-	-	240	-	-	-	-	-	460
Drennan Road																				
E of Marksheffel Road	Nov-98			501	1027	1528	1650	84	206	1781	2071	421	20.32	1650	302	571	4690	5563	2.69	3170
Elbert Road																				
N of US 24	Oct-98					1002	1082	113	134	1094	1341	259	19.30	1080	198	228	2153	2579	1.92	2080
S of US 24	Oct-98					538	581	21	22	184	227	-354	-155.96	580	114	135	1116	1365	6.01	3490
Enoch Road																				
S of Schriever AFB	Aug-97	164	182			346	388	23	24	166	213	-175	-81.93	390	53	63	665	781	3.67	1430
S of SH 94	Mar-02	2830	3303			6133	5642	51	48	453	552	-5090	-922.17	5640	192	138	1204	1534	2.78	15670

Table 11: 2025 Traffic Volume Forecasts - Stapleton Road Corridor Revised Model (Continued)																				
	Ground Count Volumes							Stapleton 2000 Model Volumes				Assignment vs Ground Count		Adjusted 2000 ADT	Stapleton 2025 Model Volumes				2025 Growth Factor	Estimated 2025 ADT
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF		AM	PM	OFF PEAK	TOTAL		
Falcon Highway																				
E of Curtis	Oct-98			1026	1021	2047	2211	238	241	1879	2358	147	6.24	2210	1108	809	6563	8480	3.60	7950
W of Curtis	Oct-98					3694	3990	235	240	1871	2346	-1644	-70.06	3990	664	1341	12437	14442	6.16	24560
E of Meridian Road	Oct-98					5281	5703	319	251	2487	3057	-2646	-86.57	5700	1436	1634	8780	11850	3.88	22100
E of US 24	Aug-96			410	810	1228	1424	126	123	1060	1309	-115	-8.82	1420	612	907	14955	16474	12.59	17870
Francville Road																				
W of Egerton	Jun-02					38	35	-	-	-	-			30	-	-	-	-	-	-
E of Teachout Road	Jun-02					101	93	-	-	-	-			90	-	-	-	-	-	-
Hodgen Road																				
E of SH 83	Oct-01					2446	2348	294	291	2436	3021	673	22.27	2350	556	498	4470	5524	1.83	4300
W of Black Forest	Oct-01					2737	2628	294	291	2436	3021	393	13.02	2630	556	498	4470	5524	1.83	4810
E of Black Forest	Oct-02					2690	2475	184	206	1793	2183	-292	-13.37	2470	536	488	3817	4841	2.22	5480
W of Meridian	Oct-98					1362	1471	141	120	1125	1386	-85	-6.13	1470	731	525	2810	4066	2.93	4310
E of Meridian	Oct-98					672	726	161	165	1428	1754	1028	58.62	730	557	492	3632	4681	2.67	1950
Jones Road																				
E of Curtis	Oct-98					917	990	76	66	564	706	-284	-40.28	990	370	323	2417	3110	4.41	4360
W of Peyton	Aug-01					499	479	94	50	485	629	150	23.84	480	261	188	1340	1789	2.84	1370
Judge Orr/ Stapleton																				
W of US 24	Jan-98					1924	2078	224	232	2489	2945	867	29.44	2080	1091	1115	8085	10291	3.49	7270
E of US 24	Oct-98					2024	2186	182	158	1733	2073	-113	-5.45	2190	1116	1204	9186	11506	5.55	12160
W of Curtis	Mar-02			1081	1120	2201	2025	178	157	1703	2038	13	0.64	2020	1057	1145	8710	10912	5.35	10820
E of Curtis	Mar-02			885	897	1782	1639	183	171	1829	2183	544	24.90	1640	427	483	4519	5429	2.49	4080
E of Elbert							1362	61	64	787	912	-450	-49.34	1360	201	250	2666	3117	3.42	4650
Marksheffel Road																				
S of Woodmen	Jul-02					4751	4371	309	312	2316	2937	-1434	-48.82	4370	675	629	2124	3428	1.17	5100
N of Woodmen								-	-	-	-	-	-	-	586	319	1587	2492	-	17640
N of Constitution	Nov-98	2624	1707			4331	4677	231	214	1590	2035	-2642	-129.85	4680	646	564	1740	2950	1.45	6780
S of Constitution	Nov-98	2418	2704			5122	5532	686	729	5873	7288	1756	24.10	5530	1214	1315	9182	11711	1.61	8890
N of US 24	Nov-98	4887	1699			6586	7113	663	684	5532	6879	-234	-3.40	7110	1067	1150	7882	10099	1.47	10440
S of US 24	Nov-98					3950	4266	520	543	4049	5112	846	16.55	4270	1396	1499	10646	13541	2.65	11310
S of SH 94	Nov-98					1736	1875	368	338	2797	3503	1628	46.48	1870	1371	1277	9931	12579	3.59	6720
N of Bradley	Jul-00	1610	1528			3138	3138	410	376	3097	3883	745	19.19	3140	1175	1189	7769	10133	2.61	8190
S of Bradley	Jul-00	1507	1434			2941	2941	325	274	2279	2878	-63	-2.19	2940	932	912	6182	8026	2.79	8200
Meridian																				
S of Woodmen Road	Jul-00		3674			7139	7139	301	443	3573	4317	-2822	-65.37	7140	2077	1965	13081	17123	3.97	28320
N of Woodmen Road		-	-	-	-	-	-	-	-	-	-	-	-	-	2129	1851	15605	19585	-	32390
Milam																				
S of Shoup Road	Oct-98					722	780	17	18	148	183	-597	-326.10	780	347	359	2281	2987	16.32	12730
N of Burgess Road	Nov-98					912	985	17	18	148	183	-802	-438.23	980	347	359	2281	2987	16.32	16000
S of Burgess Road	Nov-98					2591	2798	361	403	3510	4274	1476	34.53	2800	1585	1825	14087	17497	4.09	11460
Peyton Hwy																				
N of SH 94	Oct-98					343	370	8	1	22	31	-339	-1094.97	370	24	24	189	237	7.65	2800
S of SH 94	Oct-98					376	406	8	3	27	38	-368	-968.63	410	29	30	229	288	7.58	3110
SH 24																				
W of Dodge Road	Jun-00			7488	7301	14789	14789	927	1281	10809	13017	-1772	-13.61	14790	4054	2377	39697	46128	3.54	52410
E of Woodmen Road	Jun-00					16347	16347	325	332	3336	3993	-12354	-309.39	16350	1957	4934	17947	24838	6.22	101700
SH 83																				
N of Shoup Road (SB)	Oct-97		2964			2964	3320	457	303	3226	3986	666	16.72	3320	787	1059	20730	22576	5.66	18800
S of Shoup Road (NB)	Oct-97	3431				3431	3843	209	644	4241	5094	1251	24.56	3840	1600	1731	24807	28138	5.52	21210

Table 11: 2025 Traffic Volume Forecasts - Stapleton Road Corridor Revised Model (Continued)																				
	Ground Count Volumes							Stapleton 2000 Model Volumes				Assignment vs Ground Count		Adjusted 2000 ADT	Stapleton 2025 Model Volumes				2025 Growth Factor	Estimated 2025 ADT
	Date	NB	SB	EB	WB	TOTAL	ADJ TOTAL	AM	PM	OFF PEAK	TOTAL	DIFF	% DIFF		AM	PM	OFF PEAK	TOTAL		
SH 94																				
JCT 24	CDOT 1996					5350	6099	457	528	4296	5281	-818	-15.49	6100	940	1552	9510	12002	2.27	13860
Marksheffel Road	CDOT 1996					6000	6840	693	789	6484				6840	1672	1688	14710	18070	-	15550
CR 1263A	CDOT 1996					9000	10260	578	658	5945				10260	1416	834	11297	13547	-	23320
CR 439	CDOT 1996					8100	9234	266	300	1248				9230	804	278	7021	8103	-	20980
Shoup Road																				
E of Black Forest Road	Oct-98					1369	1479	111	105	949	1165	-314	-26.91	1480	334	312	2478	3124	2.68	3970
W of Black Forest Road	Oct-98					2976	3214	393	376	3031	3800	586	15.42	3210	791	700	4628	6119	1.61	5170
E of Milam Road	Oct-98					3210	3467	461	458	3614	4533	1066	23.52	3470	951	883	7524	9358	2.06	7160
W of Milam Road	Oct-98					2836	3063	578	458	3586	4622	1559	33.73	3060	1053	988	6685	8726	1.89	5780
E of SH 83	Oct-98					3696	3992	491	525	4236	5252	1260	24.00	3990	803	768	6685	8256	1.57	6270
Slocum Road																				
S of Jones Road	Mar-98					116	125	31		240	271			270	590	149	928	1667	6.15	980
Sweet Road																				
E of Elbert Road	Jul-96					386	448	-	-	-	-			450	-	-	-	-	-	-
W of Peyton Highway	Jul-96					223	259	-	-	-	-			260	-	-	-	-	-	-
Tamlin Road																				
E of Marksheffel Road	Mar-99					170	177	170	169	1623	1962	1785	90.99	180	1434	1293	7889	10616	5.41	970
Templeton Gap Road																				
S of Woodmen	May-98					6543	7066	308	353	1164	1825	-5241	-287.20	7070	709	1262	7395	9366	5.13	36280
Woodmen Road																				
E of Powers Boulevard	May-98					12403	13395	1649	1755	16363	19767	6372	32.23	13400	4284	4593	41195	50072	2.53	33940
E of Templeton Gap Road	May-98					18630	20120	1909	2088	17345	21342	1222	5.72	20120	4918	5778	47961	58657	2.75	55300
W of Black Forest Road	Jul-00			11454	10079	21533	21533	1909	2088	17345	21342	-191	-0.89	21530	4918	5778	47961	58657	2.75	59170
E of Black Forest Road	Nov-98					11395	12307	1034	977	8161	10172	-2135	-20.99	12310	3293	3864	29550	36707	3.61	44420
W of Marksheffel Road	Jul-00			6642	6609	13251	13251	926	942	7832	9700	-3551	-36.61	13250	3405	4129	29856	37390	3.85	51070
E of Marksheffel Road	Jul-00			5784	5426	11210	11210	764	813	6947	8524	-2686	-31.51	11210	3852	3890	30143	37885	4.44	49820
W of Mohawk Road	Jun-00			5160	5257	10417	10417	638	656	5719	7013	-3404	-48.54	10420	3676	3866	27951	35493	5.06	52740
W of Meridian Road	Jul-00			5418	5371	10789	10789	862	576	5024	6462	-4327	-66.96	10790	3380	3549	25549	32478	5.03	54230
E of Meridian Road	Jul-00			5801	5307	11108	11108	864	818	7040	8722	-2386	-27.36	11110	1728	2063	14849	18640	2.14	23740

5.0 Stapleton / Judge Orr / Curtis Roads Needs Assessment

Revisions to the PPACG travel demand forecasting model focused on capturing of the potential impact of intense development activity on future transportation system needs within northeastern El Paso County. Constrained by the State Demographer's county-level forecasts, the PPACG land use forecasts reflect only moderate increases in population and employment within the study area. Fairly dramatic increases in traffic on Woodmen and Curtis Roads, as well as US 24 are markers of recent trends toward urbanization of the study area that was not anticipated by the PPACG forecasts.

Evaluation of recent trends toward rapid build-out of approved developments, suggests that PPAC forecasts are low, even in the short-term. Incorporation of emerging development activity in the estimates produced an even wider gap between PPACG forecasts and reasonably anticipated growth in rural El Paso County.

The traffic volume forecasts produced using the modified PPACG travel model are detailed for study area roadways in Table 11. The adjusted 2025 traffic volume forecasts for Stapleton/Judge Orr and Curtis Roads constitute twelve fold and sixteen fold increases in traffic volumes, respectively, as compared to year 2000 base year traffic. While much of the increase would be generated by build-out of developments including Woodmen Hill, Meridian Ranch and Santa Fe Springs, commute traffic to Schriever AFB has already sparked traffic increases on the corridor and is projected to double in the mid-term.

Forecast Stapleton Road volumes for 2025 range from approximately 7,500 vpd, west of US 24, to 12,000 vph east of US 24. The year 2000 traffic volumes on existing Judge Orr Road ranged from only 2,000 vpd to 3,000 vpd. For Curtis Road the forecast 2025 traffic volumes range from approximately 28,000 vpd to 7,500 vph, north of SH 94, with highest volumes on the north end of the corridor. South of SH 94 and Schriever AFB, 2025 forecast traffic volumes drop off precipitously. The year 2000 volumes for Curtis Road were only 1,000 to 2,00 vpd, although these traffic levels have increased during the intervening three years.

The need to construct connecting segments of Stapleton Road will be driven by development of adjacent parcels. Because development activity is already proceeding west of US 24, it is expected that construction of the roadway segment between Meridian Road and US 24 may take place in the relatively near future. East of US 24, development timing is less defined, though Santa Fe Springs, to the east of existing US 24 is already moving forward. Because traffic volume forecasts indicate a dominant role for Curtis Road, as compared to eastern Judge Orr Road, the Preferred Alignment incorporates short-term direct connection to existing Curtis Road. As traffic volumes increase on Judge Orr Road to the east of Curtis Road, a directional connection (flyover ramp) could eventually be needed to handle southbound to eastbound movement of traffic. Forecast 2025 traffic volumes, however, can be readily handled by an at-grade, signalized intersection.

Forecast volumes for both facilities can be serviced with the proposed 4-lane facilities at favorable levels of service. Four-lane facility capacity will likely be required between 2010 and 2015, depending on the pace of development build-out within the study area. Short-term, existing Curtis Road should be improved to correct geometric deficiencies and to address safety

issues. Access control facilities, such as frontage roads, should also be developed as connecting roadway segments are phased in. Access control measures on US 24 must be coordinated with access control for Curtis Road and Stapleton/ Judge Orr Road to ensure that an effective system is developed for the entire area.

6.0 Recommendations

Alignment 5 was selected as the Preferred Alignment, based on the alternatives analysis described in Section 2, and is recommended for implementation. The recommended alternative is described in detail below, and is shown in Figure 25.

6.1 Future Roadway Alignment

The Preferred Alignment begins at the existing Stapleton Road extension, to the north of the Woodmen Hills subdivision. The alignment heads south before intersecting Eastonville Road, so that it intersects Eastonville Road at a 90-degree angle. After crossing Eastonville Road, the alignment parallels the property line between the Ferguson property and 4-Way Ranch for several hundred feet, and then turns northward, crossing a narrow area of the floodplain, avoiding a spring and pond on the 4-Way Ranch. After it passes north of the spring, the roadway again turns southeast to enable it to intersect US 24 at a 90-degree angle. The intersection at US 24 will have a traffic signal. On the east side of US 24, the Stapleton Road alignment will pass south of the veterinary clinic building, keeping the same alignment it had in crossing US 24, until it curves to the south on the old alignment of Curtis Road. Finally, the alignment follows the vacated Curtis Road alignment, crossing another floodplain, and ultimately meeting the intersection of Judge Orr Road and Curtis Road.

6.1.1 Goals for the Alignment

The goal of the Preferred Alignment is to provide a major roadway between the drainage structure west of Eastonville Road and the intersection of Judge Orr Road and Curtis Road that is efficient while minimizing adverse impacts to the community and environments.

6.1.2 Major Elements of the Alignment

The major elements of the Preferred Alignment that meet selection criteria are described below:

- The Preferred Alignment minimizes impacts to existing businesses and residences.
- It provides direct route to/from Curtis Road.
- It meets US 24 access spacing criteria (1-mile spacing), a critical element of the access plan for US 24 (CDOT).
- The Preferred Alignment provides safe intersections, required arterial capacity, and adequate local access (1/2-mile spacing)

Some of the design elements of the Preferred Alignment include the following items:

- The roadway is 6,829' from Judge Orr Road (1.29 miles).
- It has a length of 12,997 LF (2.46 miles).
- The proposed design speed is 60 mph. Curves in the roadway are designed to maintain this speed safely.
- The ROW area is 35.8 acres.
- The alignment crosses three drainages that will require culverts for conveyance. The drainage feeding the spring on the 4-Way Ranch property is avoided.

6.2 Future Roadway Section, Intersections, and Access

As shown by Figure 24, the Preferred Alignment has the least impact to existing property access. Although the alignment goes through planned residential areas, such as 4-Way Ranch, and it would not cut off access to other areas. This alignment has direct access to Eastonville, Judge Orr, and Curtis Roads, as well as US 24.

Between Eastonville Road and US 24, one full access to the 4-Way Ranch development would be allowed, per El Paso County access criteria. Between US 24 and Judge Orr Road, another full access would be allowed. The Preferred Alignment does not cut off access to the several properties it crosses east of US 24, and presents the opportunity for these properties to improve local access. For example, access to the veterinary clinic and Big R could be increased.

The roadway section, a 4-lane divided by a grass median, will be placed on a 120-foot ROW.

6.2.1. Existing Stapleton Road to Eastonville Road

The primary land use proposed for the land crossed between the existing leg of Stapleton Road and Eastonville Road is a school or similar use. The Preferred Alignment will not interfere with this proposed use. The angle at which Stapleton Road crosses the parcel in question is necessary to make a 90-degree intersection at Eastonville Road.

6.2.2 Eastonville Road to US 24

Between Eastonville Road and US 24, the Preferred Alignment goes through the 4-Way Ranch, a parcel that is slated for development of residences and businesses. The alignment, as described above, is carefully designed to cross floodplains, drainage ways, and the spring located on the ranch in the most efficient and economical way. The floodplain and drainage way are crossed at their narrow points. The spring is avoided by passing it to the north, and at the same time, this curve makes it possible to intersect US 24 at the required right angle at more than a mile from the Blue Gill Road/US 24 intersection as required by CDOT.

6.2.3 US 24 to Judge Orr Road / Curtis Road

After crossing Hwy 24 going east, the Preferred Alignment avoids the Big R property, but cuts through several large agricultural / residential parcels leaving some “corners” that may be considered “unusable” by agricultural users. However, agriculture does not appear to be precluded on these parcels. The Preferred Alignment will affect a residence / veterinary clinic by dividing the pasture, but takes no buildings. It is uncertain whether the clinic can continue business at this location. There is potential to develop better access to the veterinary clinic that is consistent with the Hwy 24 Access Plan as applied south of Judge Orr Road. Mitigation is possible for impacts of this alignment.

There is potential to develop better access to the veterinary clinic that is consistent with the Hwy 24 Access Plan as applied south of Judge Orr Road.

6.3 Alternative Mode Accommodations

The Preferred Alternative provides public transportation with direct access to 4-Way Ranch and a direct route to Curtis Road.

6.3.1 Bicycle and Pedestrian Accommodations

The Preferred Alignment offers direct access to 4-Way Ranch where there may be a high concentration of pedestrians and potential trail users. This alignment is consistent with the local trails plan and the proposed traffic signal provides a safe trail crossing at US 24.

6.3.2 Transit

The preferred Alignment provides public transportation access to 4-Way Ranch, as well as a direct route to Curtis Road. The development of the alignment supports access to potential Park and Ride service within the study area.

STAPLETON CORRIDOR STUDY



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