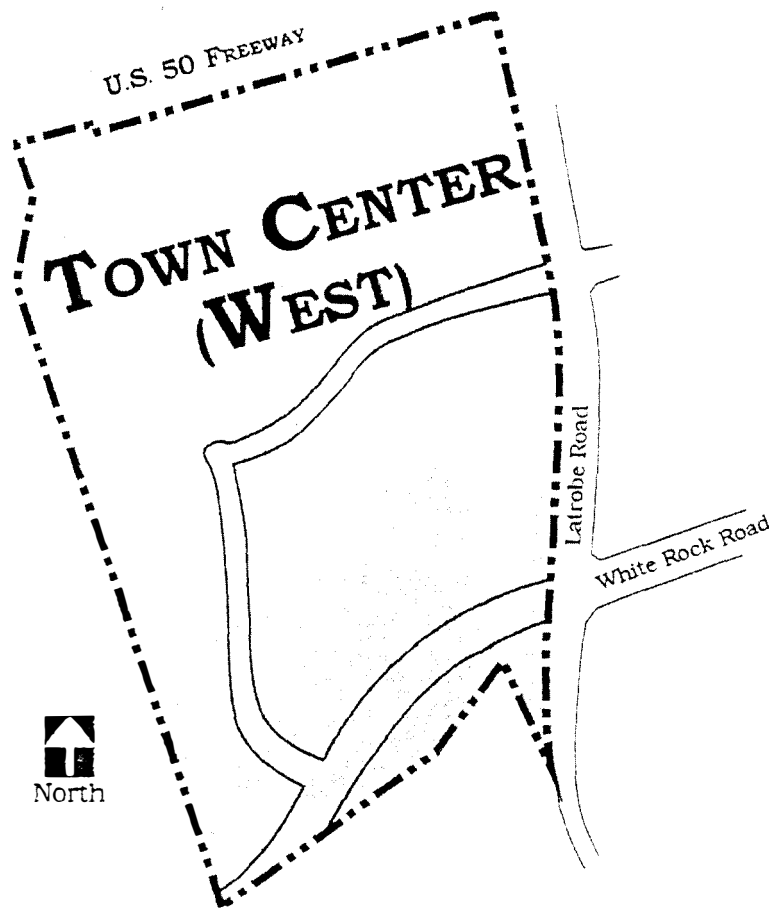


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# TRAFFIC STUDY

## FOR INTERNAL CIRCULATION OF THE TOWN CENTER (WEST) DEVELOPMENT



PREPARED BY SPECTRUM ENGINEERING

MARCH 9, 1995

## INTRODUCTION

The Town Center development plan is currently comprised of several different land uses including Light Manufacturing, Research and Development, Hotel and Conference Center, Commercial Retail, and Office developments. The purpose of this study is to determine the magnitude of traffic that each of these land uses would generate, and then by assigning this traffic to the project's internal roadway system, determine the needed road sizing and cross-section.

## SUMMARY

The project was analyzed for three phases of development to determine the internal roadway needs based on trip generation and capacity analysis. In addition, the intersections of Latrobe Road at Town Center Blvd. and White Rock Road at D Street were analyzed for ultimate Year 2015 conditions and found to be operating at satisfactory conditions with implementation of mitigations as contained in this report. The year 2000, 2005, and 2015 were selected for analysis, and a development schedule was created to define how much of the project may develop over the three time periods. The results and findings of the capacity analysis are discussed in the paragraphs that follow.

### Summary of Analysis: 5 Year Projections

The project internal roadway system (Town Center and D Street) can initially be constructed as a two lane road up to the 5 year projection total. Internal roadway volumes are 1090 ADT at the highest point (see Figure 2), and Level of Service (LOS) A conditions would prevail. A signal would be warranted at the intersection of Town Center Boulevard and Latrobe Road with the combined projected traffic from Town Center (east and west).

Latrobe Road would need to be upgraded to a four lane cross-section between Town Center Blvd. and U.S. 50 to accommodate the needed intersection configuration (two NB lanes through on Latrobe Road). Total lanes needed in all roadway cross-sections internal to the project: 2 lanes (one inbound and one outbound). It may be desirable to utilize a turning lane/median throughout this road, however it is not critical with the low levels of traffic projected (450 to 1060 ADT).

### Summary of Analysis: 10 Year Projections

Latrobe Road volumes are predicted to continue to grow at a steady rate. The growth of the Town Center (west) project increases three fold from the five year projections, but still would operate at acceptable levels of service

within a two lane facility internal to the project. A dual left turn pocket for outbound traffic along Town Center at Latrobe would be needed to help project traffic cross and gain access to Latrobe Road while reducing impacts. The cross-section of Town Center Blvd. in the vicinity of Latrobe Road would need to be 4 lanes (one inbound, three outbound). D Street would remain a two lane cross section throughout and allowing for turning movements with a median opening or turn lane. A signal would be warranted at the intersection of D Street and White Rock Road with the advent of commercial development to the south. Latrobe Road would need to be four lanes from White Rock Road to U.S. 50 freeway.

### **Summary of Analysis: 20 Year Projections**

The projected traffic on Latrobe Road (30,400 ADT) is projected to require a six lane facility. This projection takes into account a new freeway interchange at the planned Silva Valley Road location (White Rock extended to U.S. 50). Traffic volumes leaving and entering the project site along Town Center Blvd. (1,259 vehicles per hour) are still within the threshold of a two lane roadway segment internal to the project (1,500 vehicles per hour @ LOS C). However, because of the large traffic volumes projected for Latrobe Road there would need to be some optimization of traffic crossing or entering this facility. It is anticipated that the ultimate configuration of Town Center Boulevard (and A Street to the east) would be able to accommodate a dual left turn pocket, a through lane, and a right turn pocket (six lanes at its intersection with Latrobe, tapering to three lanes elsewhere). The exact configuration of this intersection would be addressed in the second phase of the traffic study addressing off-site impacts. Total lanes in cross section near Latrobe: 6 lanes (two inbound, four outbound). D Street would require a 4 lane cross section at White Rock Road only (one inbound, and three outbound).

A capacity analysis was conducted using the revised 1985 Highway Capacity Manual methodology for signalized intersections. Since warrants are satisfied for both intersections servicing the project site, a signalized analysis was conducted. The results are contained in the appendix of this report. Level of service C conditions are projected for White Rock Road at D Street, and LOS D conditions for Latrobe Road and Town Center Blvd. which is considered acceptable traffic conditions for the year 2015. Given the proximity to the freeway, and current state of the art, LOS D conditions are the typical mitigating criteria for surface streets in the vicinity of freeway interchanges. Latrobe Road / Town Center Blvd. fall into this category.

## TRIP GENERATION

The project consists of 1,465,000 square feet of general commercial uses including Light Manufacturing and Research & Development land uses. These two lane uses have lower traffic impacts than the commercial/retail land uses which were assumed for the same area as studied in the El Dorado Hills Specific Plan EIR. Trip generation for the site under the proposed development plan is approximately one half of that assumed in the previously certified EIR.

In Table I the current project plan land uses are totaled by subarea, and total square footage for each area are shown. The total project area is 131.1 acres which includes 15 acres of land dedicated to internal roadways.

**Table I  
Subarea/Planning Area  
Square Footage Totals**

<b>Town Center Planning Area Summary</b>		
<b>Planning Area</b>	<b>Gross Acres</b>	<b>Square Feet</b>
<b>A</b>	36.3	487,000
<b>B</b>	29.7	347,000
<b>C</b>	24.4	237,000
<b>D</b>	22.7	359,000
<b>E</b>	7.1	35,000
<b>Subtotal</b>	<b>120.2</b>	<b>1,465,000</b>
<b>Roads</b>	<b>10.9</b>	
<b>Total</b>	<b>131.1</b>	

The 1,465,000 square feet of development for this area is broken down into five different land use types, namely:

• Light Manufacturing (L.F.)	550,000 sq ft
• Research and Development (R&D)	397,000 sq ft
• Hotel/Conference Center	250 rooms
• Office	458,000 sq ft
• Commercial Uses	60,000 sq ft
	<b>1,465,000 sq ft</b>

Specific trip generation rates for these various uses are shown in the tables that follow, for various phasing scenarios.

Figure 1 shows the project site divided into five planning areas for convenience in the traffic analysis. Table I reports the number of acres and square footage corresponding to each subarea.

Traffic totals were computed for each subarea in the pages that follow, and were used in an analysis to determine the needed road sizing for the 10.9 acres of internal roadways shown in Figure 1.

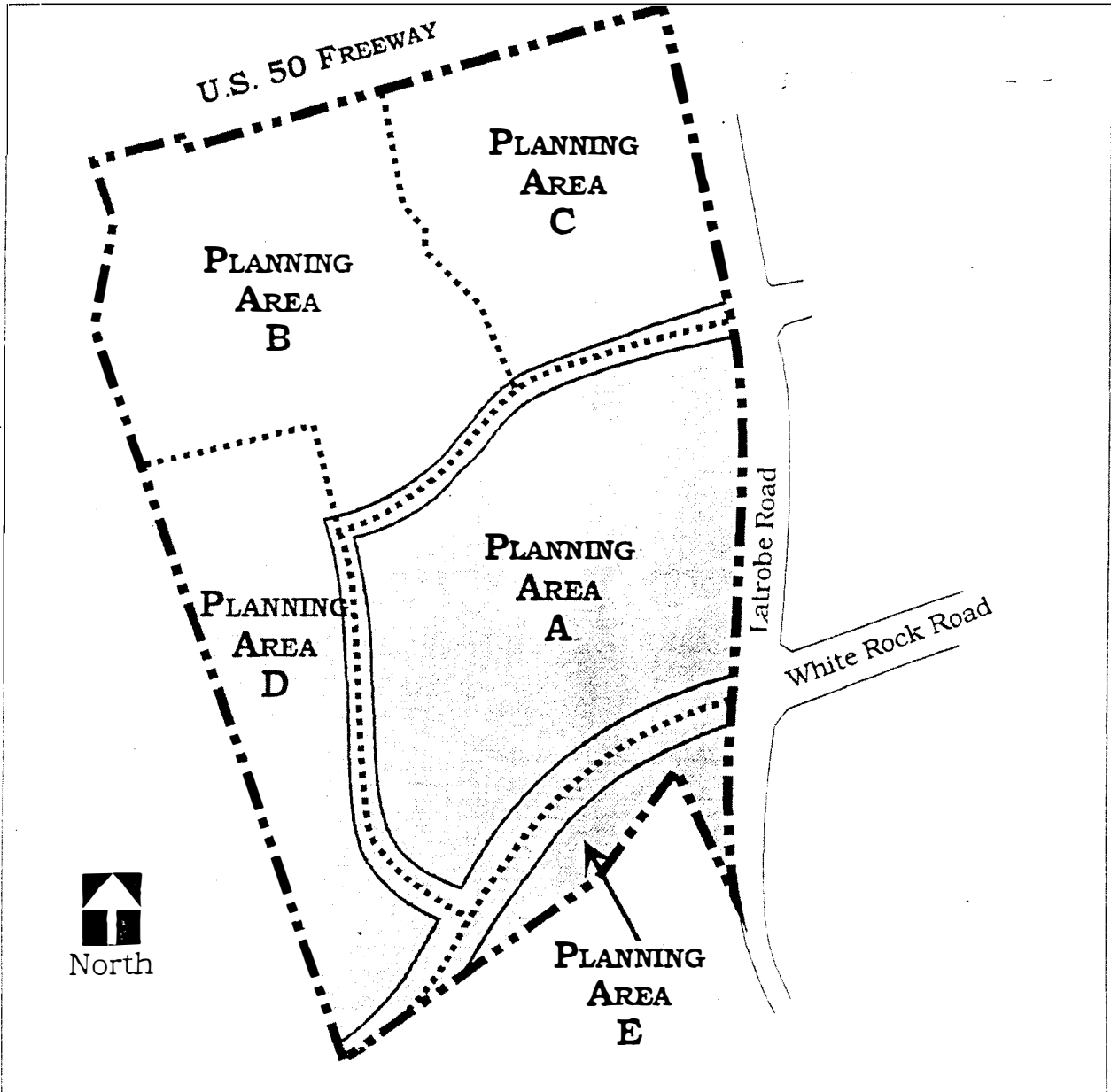


FIGURE 1

PROJECT SITE PLAN

TOWN CENTER  
PRELIMINARY TRAFFIC STUDY

In Table II, the land use specific trip generation for each subarea of the project is summarized. These trip generation rates are highly stable\* trip rates taken from I.T.E's Trip Generation Manual, 5th Edition, and applied appropriately to the land uses as shown in Table II.

**Table II**  
**Trip Generation Summary**  
**by Subarea/Planning Area**

Planning Area		Square Feet	# of Emp.	PM Trip Rate	Peak Hr Trip Gener.	Percent in/out
<b>A</b>	L.M.	250,000	96	0.39 / emp	98	53 / 47
	R&D	200,000		1.07 / ksf	214	15 / 85
	Commercial	10,000		15.14 / ksf	151	50 / 50
	Office	27,000		1.51 / ksf	41	15 / 85
<b>Subtotal</b>		<b>487,000</b>			<b>504</b>	
<b>B</b>	L.M.	300,000	115	0.39 / emp	117	53 / 47
	Office	47,000		1.51 / ksf	71	15 / 85
<b>Subtotal</b>		<b>347,000</b>			<b>188</b>	
<b>C</b>	Hotel/Conf	250 rms		0.76 / rm	190	54 / 46
	Office	237,000		1.51 / ksf	358	15 / 85
<b>Subtotal</b>		<b>237,000</b>			<b>548</b>	
<b>D</b>	R&D	150,000		1.07 / ksf	161	15 / 85
	Office	194,000		1.51 / ksf	293	15 / 85
	Commercial	15,000		13.07 / ksf	196	50 / 50
<b>Subtotal</b>		<b>359,000</b>			<b>649</b>	
<b>E</b>	Commercial	35,000		9.61 / ksf	336	50 / 50
<b>Subtotal</b>		<b>35,000</b>			<b>336</b>	
<b>Total</b>					<b>2,225</b>	

This table reports that there are 2,225 p.m. peak hour trips estimated to be generated by the land uses from the project. This is approximately one half of the p.m. peak hour trip generation that was previously assumed for the project site in the El Dorado Hills Specific Plan EIR. This means that the impacts from the project to roadways in the project vicinity such as Latrobe and White Rock Road, will be significantly reduced. Depending on the intensity of other developments in the region, the design and cross-section requirements for

\*A "stable" trip rate is one that is derived or averaged from many trip generation studies

White Rock Road and Latrobe Road would also likely be reduced. Since the trip generation for the project would not happen all at once, but over a long time period (such as 20 years), the project development was phased into three time periods. The time periods selected for this study are from 1996 to 2000, 2001 to 2005, and 2006 to 2015, hereafter referred to as Year 2000 totals, Year 2005 totals, and Year 2015 totals. Table III shown below breaks the development trip generation out into the three time periods.

**Table III**  
**Phased Trip Generation**

Area		# of Emp.	PM Trip Rate	Subtotal by Year 2000	Subtotal by Year 2005	Total by Year 2015
A	L.M.	96	0.39	130 KSF	250 KSF	250 KSF
	R&D		1.07	100 KSF	100 KSF	200 KSF
	Comm.		15.14		10 KSF	10 KSF
	Office		1.51			27 KSF
	<b>Peak Hour Trips Inbound &gt;&gt;&gt;</b>			<b>43</b>	<b>143</b>	<b>166</b>
	<b>Peak Hour Trips Outbound &gt;&gt;&gt;</b>			<b>115</b>	<b>212</b>	<b>338</b>
B	L.M.	115	0.39	150 KSF	300 KSF	300 KSF
	Office		1.51	5 KSF	10 KSF	47 KSF
	<b>Peak Hour Trips Inbound &gt;&gt;&gt;</b>			<b>32</b>	<b>64</b>	<b>73</b>
	<b>Peak Hour Trips Outbound &gt;&gt;&gt;</b>			<b>34</b>	<b>68</b>	<b>115</b>
C	Hotel		0.76		250 rms	250 rms
	Office		1.51	75 KSF	150 KSF	237 KSF
	<b>Peak Hour Trips Inbound &gt;&gt;&gt;</b>			<b>17</b>	<b>137</b>	<b>156</b>
	<b>Peak Hour Trips Outbound &gt;&gt;&gt;</b>			<b>96</b>	<b>280</b>	<b>392</b>
D	R&D		1.07		75 KSF	150 KSF
	Office		1.51		100 KSF	194 KSF
	Comm.		13.07	15 KSF	15 KSF	15 KSF
	<b>Peak Hour Trips Inbound &gt;&gt;&gt;</b>			<b>98</b>	<b>133</b>	<b>166</b>
	<b>Peak Hour Trips Outbound &gt;&gt;&gt;</b>			<b>98</b>	<b>295</b>	<b>483</b>
E	Comm		9.61		35 KSF	35 KSF
	<b>Peak Hour Trips Inbound &gt;&gt;&gt;</b>			<b>0</b>	<b>168</b>	<b>168</b>
	<b>Peak Hour Trips Outbound &gt;&gt;&gt;</b>			<b>0</b>	<b>168</b>	<b>168</b>
<b>Total</b>				<b>533</b>	<b>1,668</b>	<b>2,225</b>

This table shows peak hour traffic levels by Planning Area (Areas A through E) and corresponding to Figure 1.

Year 2000

The year 2000 p.m. peak hour traffic generated and shown in Table III (533 trips) was assigned to the internal roadway of the project as shown in Figure 2. This traffic can gain access to the street system (White Rock and Latrobe) via two streets, namely, Town Center Blvd. and D Street as shown on the map below. The traffic volume using Town Center to Latrobe is 229 outbound and 127 inbound trips. This level of traffic would require no more than two lanes with a single left turn pocket and signal at Latrobe Road.

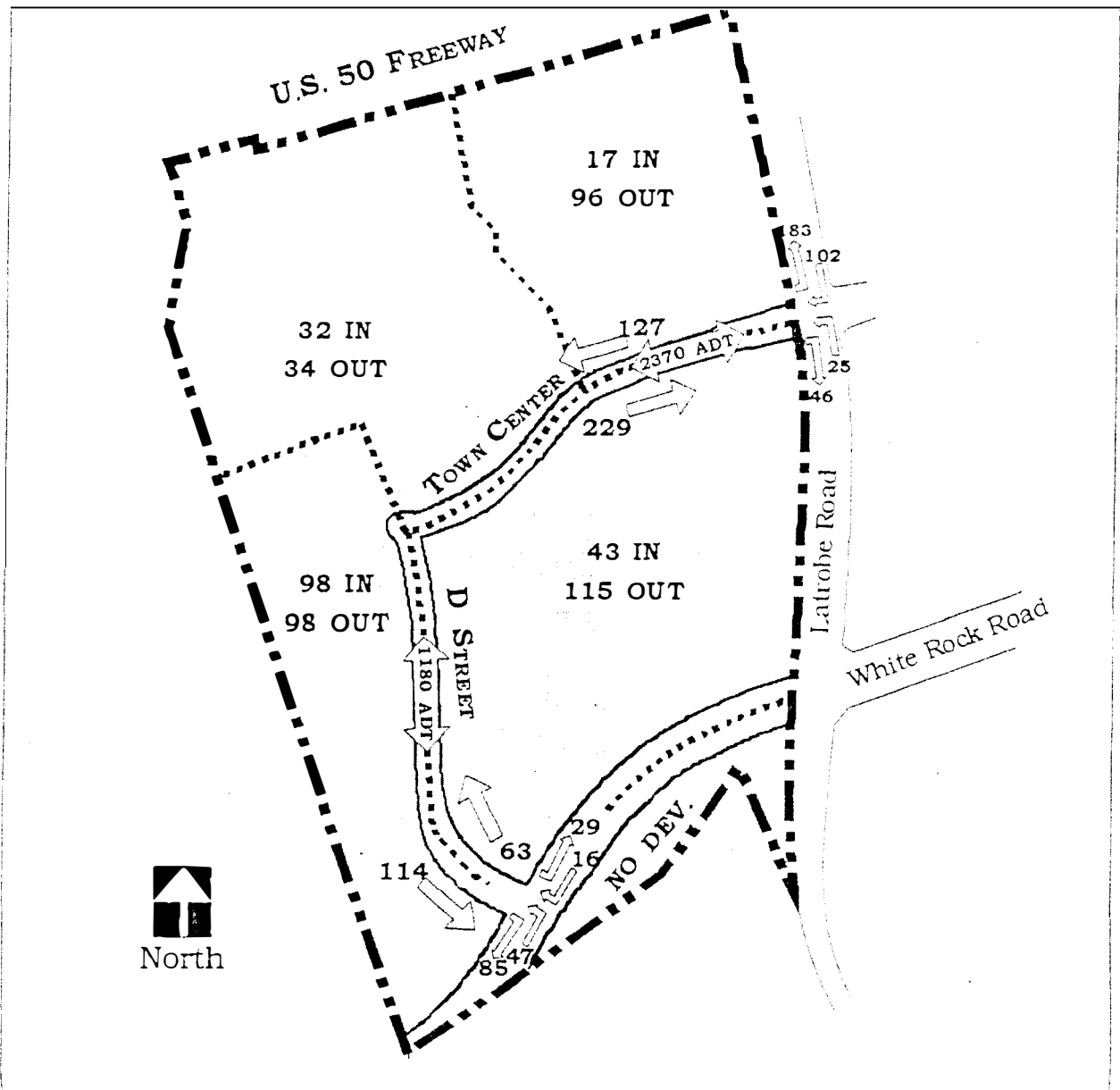


FIGURE 2

YEAR 2000 P.M. TRAFFIC

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It is calculated that a signal warrant would be satisfied for the intersection of Town Center Boulevard at Latrobe Road at this phase of development.

Year 2005

Figure 3 shows Year 2005 project traffic. The level of traffic shown in the figure is within the threshold of a two lane arterial throughout the project. However, the cross-section along Town Center near its intersection with Latrobe Road widens from two lanes to four lanes to optimize intersection access and capacity. Signals are warranted at both project intersections.

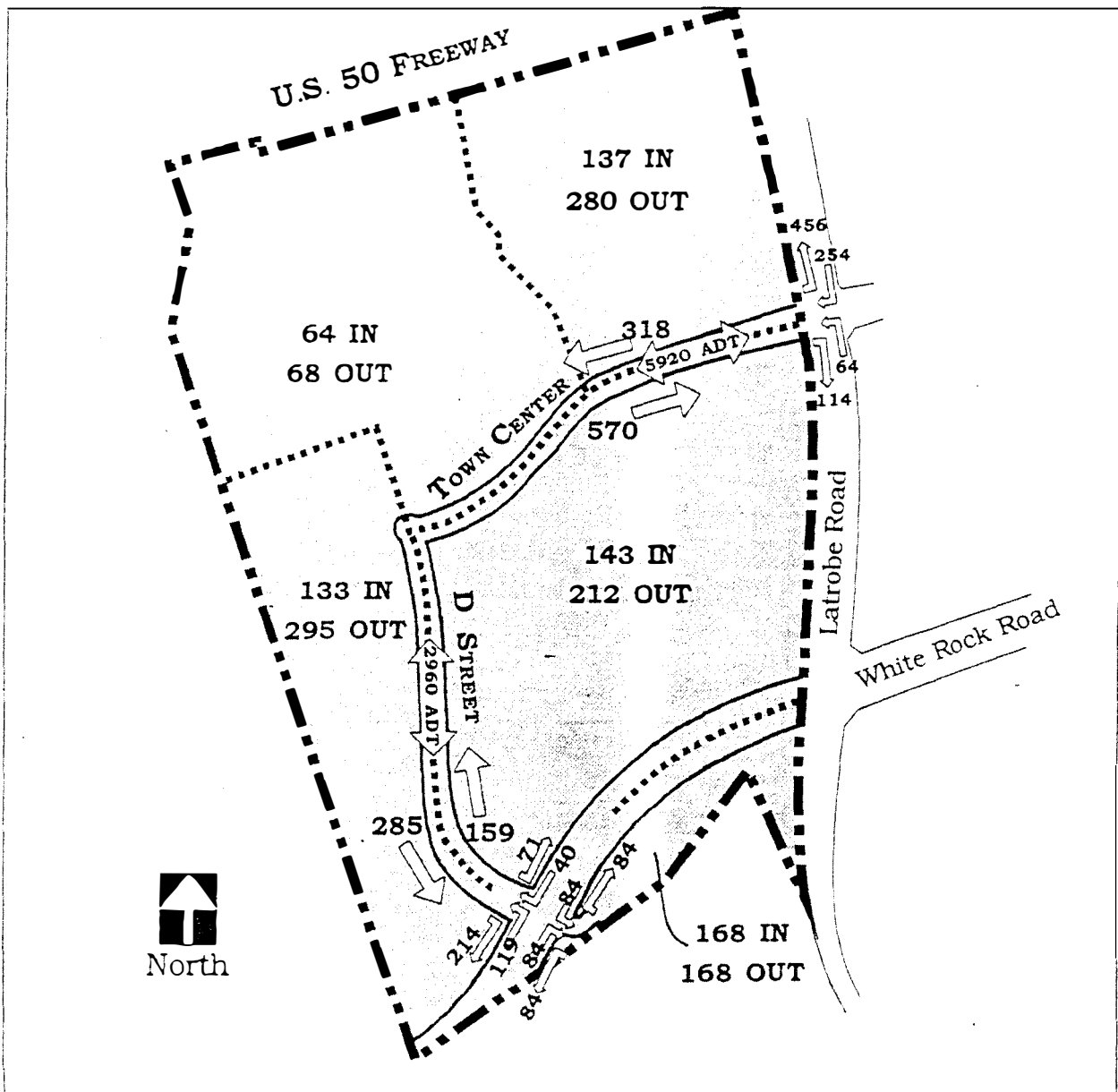


FIGURE 3

YEAR 2005 P.M. TRAFFIC

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Year 2015

In Figure 4 below the ultimate project buildout traffic is shown. The p.m. peak hour trip generation is 2,225 trips. This traffic has been sent to the external road system as depicted in Figure 4. This level of traffic would require optimization of the crossing and accessing of Latrobe Road. Two inbound lanes are needed, with an outbound cross-section comprising a dual left pocket, a single through lane, and a right turn pocket (total of 6 lanes near Latrobe only). A similar configuration is anticipated for Town Center (east). The length of the left turn pockets should be approximately 360 feet, and then taper to normal.

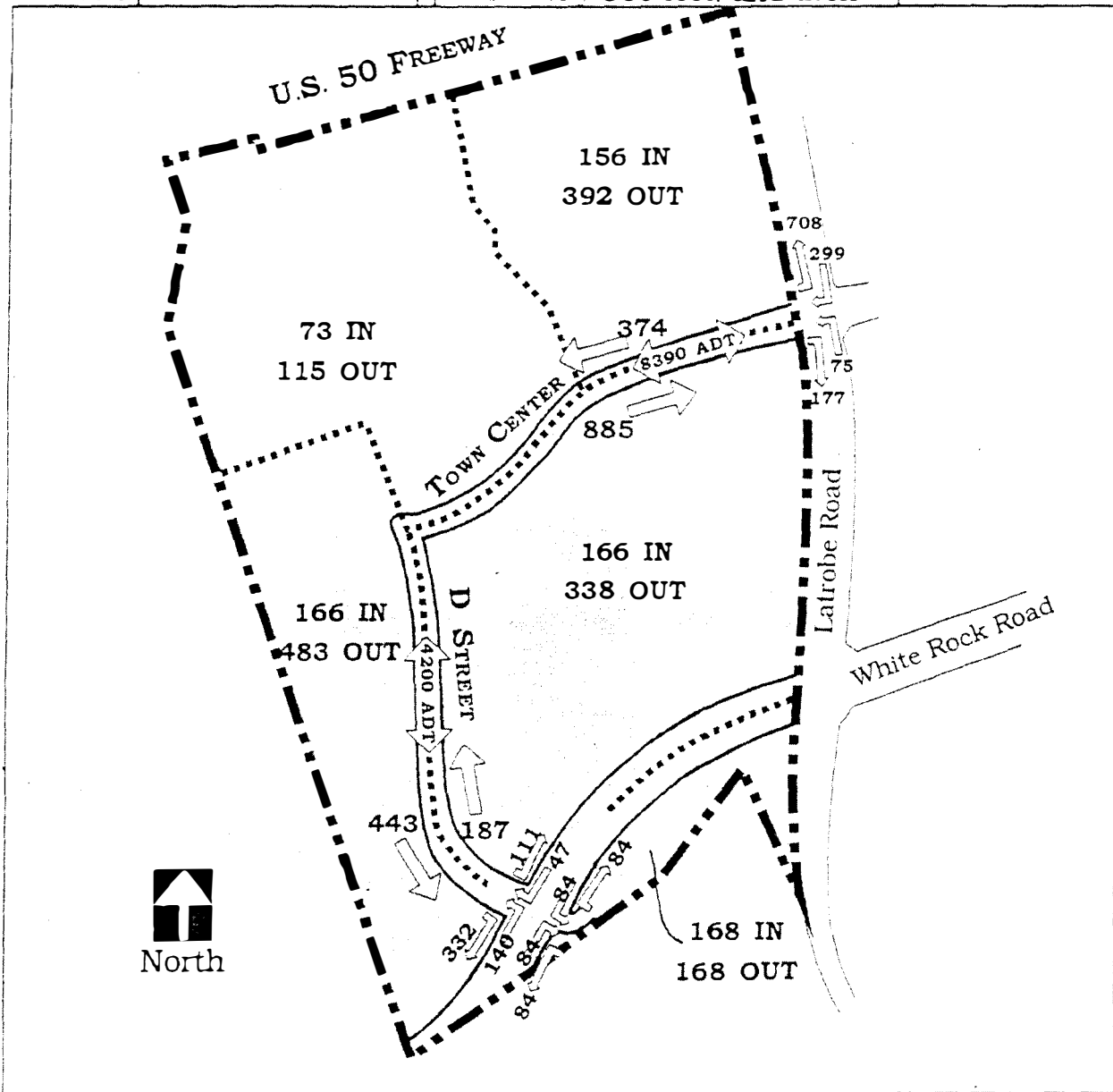


FIGURE 4

YEAR 2015 P.M. TRAFFIC

TOWN CENTER PRELIMINARY TRAFFIC STUDY