

County of Loudoun  
Office of Transportation Services  
MEMORANDUM



**DATE:** October 10, 2006

**TO:** Stephen Gardner, Project Manager  
Department of Planning

**FROM:** Lou Mosurak, AICP, Senior Transportation Planner *Lm*

**THROUGH:** Art Smith, Senior Coordinator *AS*

**SUBJECT:** ZMAP 2006-0011, ZCPA 2006-0003—Stone Ridge Commercial  
First Referral

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### Background

This rezoning application proposes changes to the approved Stone Ridge development that would result in a net increase of 307 multi-family residential dwelling units and roughly 4,000 additional sq ft of non residential uses (i.e., an increase of approximately 428,000 sq ft of office uses (PD-OP) and elimination of approximately 424,000 sq ft of light industrial uses (PD-IP) from currently approved plans (ZMAP 2002-0013 & ZCPA 2002-0004)). A summary of these proposed land use changes is provided as *Attachment 1*. Areas included in the subject application are located at two locations within the northern portion of Stone Ridge: (1) in the southwest quadrant of the intersection of Gum Spring Road (Existing Route 659) and John Mosby Highway (U.S. Route 50) and (2) west of Stone Springs Boulevard and north of Tall Cedars Parkway. A vicinity map is provided as *Attachment 2*. Changes to the existing intersection of Existing Route 659 and U.S. Route 50 as well as a significant realignment of Millstream Drive are proposed as part of this rezoning. In its consideration of this application, OTS reviewed materials received from the Department of Planning on August 7, 2006, including (1) a traffic impact study prepared by Wells & Associates, LLC, dated July 19, 2006; (2) a rezoning plan set (including a concept development plan (CDP)) prepared by Urban Engineering & Associates, Inc., dated April 7, 2006; and (3) approved Stone Ridge proffers and plan sets from ZMAP 1994-0017 and ZMAP 2002-0013.

### Existing, Planned and Programmed Roads

U.S. Route 50 is currently a four- to six-lane median divided minor arterial with controlled access. The Revised Countywide Transportation Plan (Revised CTP) designates the ultimate condition of this segment of Route 50 (from Tall Cedars Parkway west to Route 659 Relocated) as a six-lane, median divided principal arterial limited access facility (R6M) in a 200-foot right-of-way. Grade-separated interchanges are planned at a number of locations, including the West Spine Road (east of this site) and Route 659 Relocated (west of this site). All at-grade access is planned to be terminated. A third eastbound lane of Route 50 from the

West Spine Road east to Loudoun County Parkway was proffered as part of a previous Stone Ridge rezoning (ZMAP 2002-0013), and construction plans and profiles for this improvement are currently under review (CPAP 2006-0061). As currently proffered, construction of this improvement is scheduled to commence prior to issuance of the first zoning permit for residential units in Stone Ridge that are located west of the power lines (approved as part of ZMAP 2002-0013). Construction of a third westbound lane is being considered as part of other pending rezoning applications along the north side of Route 50.

Tall Cedars Parkway (the Route 50 South Collector Road) is currently a four-lane divided (U4M) major collector. In the vicinity of this site, it is currently constructed from its intersection with Gum Spring Road (Existing Route 659) west to the intersection with Millstream Drive (west of Tall Cedars Parkway). Tall Cedars is also constructed as a four-lane divided section within South Riding. Additional construction of Tall Cedars Parkway has been proffered to the east of South Riding as part of the approved East Gate rezoning, and to the west of South Riding as part of the approved Pinebrook Village (Avonlea) and Avonlea Plaza rezonings. The ultimate condition of Tall Cedars Parkway is a six-lane divided (U6M) major collector. Currently, there are no proffers to build the segment of Tall Cedars to the east of Stone Ridge (between Gum Spring Road and Pinebrook Road).

Gum Spring Road (Existing Route 659) is currently a two-lane undivided major collector road (R2). Ultimately, the Revised CTP envisions the segment of Gum Spring Road between Tall Cedars Parkway and Arcola to become a local road once the West Spine Road is constructed along a separate alignment. The Revised CTP calls for Gum Spring Road to be closed (and cul-de-sacs installed) both north and south of Route 50 once the West Spine Road is in place. The existing Gum Spring Road/Route 50 intersection is signalized and, according to the Applicant's traffic study, operates at an unacceptable level of service (LOS E) during the AM peak hour. Other recent traffic studies (e.g., Arcola Center), however, show that this intersection operates at LOS F during both the AM and PM peak hours.

West Spine Road will eventually replace existing Gum Spring Road (Existing Route 659) to the north of Tall Cedars Parkway. South of Tall Cedars Parkway, the West Spine Road generally follows the alignment of existing Route 659 and will be expanded to a four-lane (and ultimately a six-lane) divided major collector. North of Tall Cedars Parkway, the West Spine Road is planned to follow a new alignment slightly to the east of existing Gum Spring Road and will intersect Route 50 at a point approximately 1,000 feet east of the existing Gum Spring Road/Route 50 intersection. The Revised CTP depicts an interchange at this new intersection. To the north of Route 50, the West Spine Road is planned to continue north and join existing Route 606 at a near the existing location of the Route 606/Route 842 intersection. There are approved construction plans for the new West Spine Road alignment between Tall Cedars Parkway and Route 50, but right-of-way has not yet been acquired. Construction plans have also been approved for a four-lane section of this road (i.e., the West Spine Road/Existing Gum Spring Road) between Braddock Road and Tall Cedars Parkway.

Stone Springs Boulevard is a four-lane divided local road which functions as the main north-south road through Stone Ridge. It is a four-lane divided facility with a signalized intersection

at Route 50. This intersection functions at an acceptable LOS (LOS D) during both the AM and PM peak hours.

Millstream Drive is a four-lane undivided local road within Stone Ridge, located between Tall Cedars Parkway and Route 50. It currently forms a partial loop within Stone Ridge, intersecting with Tall Cedars Parkway both east and west of Stone Springs Boulevard. The subject application proposes to realign the western segment of Millstream Drive to run east-west between Stone Springs Boulevard and Route 659 Relocated. The segment of Millstream Drive that currently runs north-south to Tall Cedars Parkway (west of Stone Springs Boulevard) would be abandoned.

### **Trip Generation by Proposed Application**

The proposed rezoning would generate approximately 3,246 additional weekday average daily trips (an 8% increase) beyond those generated by the currently approved Stone Ridge development program. This figure includes 255 additional AM peak hour trips (10% increase) and 204 additional PM peak hour trips (7% increase). These figures are illustrated on the trip generation comparison included as *Attachment 3*. The traffic study notes that “the proposed development program would have less impact on the peak hour, peak direction trips since the largest shift in development density is proposed to be to employment uses” (part of Conclusion #2, Page 7). This is evidenced by the figures in *Attachment 3*, which show that a majority of the increased peak hour trips would flow into Stone Ridge in the AM peak and leave Stone Ridge in the PM peak.

### **Existing Traffic Volumes, Road Network Configuration and Levels of Service**

*Attachment 4* illustrates existing daily and peak hour traffic volumes and levels of service (LOS) in the vicinity of the subject site. *Attachment 5* shows existing lane use and traffic controls in the vicinity of the subject site. The study notes several unacceptable or failing peak hour LOS conditions for a number of locations included in the study area including the Route 50/Loudoun County Parkway intersection (signalized) as well as certain movements at the Gum Spring Road/Route 50 intersection (signalized). *Attachment 6* (Column 1) summarizes peak hour LOS at all intersections included in the study for existing the existing road network as well as for the currently approved and proposed road network (discussed further below).

### **Road Network Configuration and Levels of Service for Currently Approved Stone Ridge Development Program (2010)**

*Attachment 7* illustrates planned lane use and traffic controls in the vicinity of the subject site. This diagram reflects the road network as anticipated under the current Stone Ridge approvals (which are consistent with the adopted Revised CTP) and does not include road network changes proposed as part of the subject application (discussed further below). *Attachment 6* (Column 2) summarizes peak hour LOS at all intersections in the study area as anticipated under current approvals. *Attachment 8* depicts forecasted traffic (2010) on the currently-approved road network (i.e., Gum Spring Road is terminated and cul-de-sacs installed both north and south of Route 50).

## **Road Network Configuration and Levels of Service for Proposed Stone Ridge Development Program (2010)**

*Attachment 9* illustrates proposed lane use and traffic controls in the vicinity of the subject site. This diagram reflects modifications to the road network as proposed by the subject application, namely a right-in, right-out only lane configuration at Gum Spring Road and Route 50, and the re-alignment of Millstream Drive to remove its western segment connecting to Tall Cedars Parkway. *Attachment 6* (Column 3) summarizes peak hour LOS at all intersections in the study area as anticipated with the proposed development. *Attachment 10* depicts forecasted traffic (2010) on the proposed road network (i.e., existing Gum Spring Road realigned with Canary Grass Drive and maintains right-in, right-out only movements from eastbound Route 50). Please see the issues below for further discussion of the proposed realignment/reconfiguration of the existing Gum Spring Road/Route 50 intersection.

### **Transportation Issues**

1. The application proposes to realign existing Gum Spring Road to create a T-intersection with a local road (Canary Grass Drive) approximately 300 feet south of the existing Gum Spring Road/Route 50 intersection, and proposes to remove the existing traffic signal and median crossover at the intersection of existing Gum Spring Road and Route 50, creating a right-in, right-out scenario to/from eastbound Route 50. This proposed right-in, right-out configuration is not acceptable as it is inconsistent with the adopted Revised Countywide Transportation Plan (Revised CTP), which calls for the ultimate condition of this segment of Route 50 to be limited access with grade separated interchanges at various locations, including the West Spine Road (approximately 1,000 feet to the east of the proposed right-in, right-out movement). The proposed right-in, right-out movement is not only inconsistent with the limited access policy but would also result in weave/merge conflicts with the future Route 50/West Spine Road interchange. A more acceptable configuration would be to extend Canary Grass Drive to tie into the east-west road (Southpoint Boulevard) approved as part of the adjacent Gum Spring Village Center development, with future access to the West Spine Road south of Route 50. The Applicant should coordinate this connection with Gum Spring Village Center.
2. Issues with right-of-way acquisition and construction of the proposed West Spine Road between Tall Cedars Parkway and Route 50 add additional complications and uncertainty to the interim and ultimate roadway configuration in this area. Although construction plans for a two-lane (northbound) section of the West Spine Road between Tall Cedars Parkway and Route 50 were approved by the County in 2002 (CPAP 2001-0184), no construction has commenced to date. No plans are currently on file for the remaining two (southbound) lanes of the West Spine Road between Route 50 and Tall Cedars Parkway. (Construction plans (CPAP-2002-0189) were approved by the County in 2004 for a four-lane section of Gum Spring Road from Tall Cedars Parkway south to Braddock Road, but no construction has commenced to date). It has been anticipated that existing Gum Spring Road and the West Spine Road would operate as a one-way pair of roads until all four lanes of the West Spine Road are completed between Tall Cedars and Route 50, but such a configuration has not been approved by VDOT. All approved construction plans

show cul-de-sacs at both ends of the segment of existing Gum Spring Road between Tall Cedars Parkway and Route 50 (as envisioned by the currently-approved Stone Ridge development program and the approved Gum Spring Village Center special exception (SPEX 2003-0033, approved in 2004). Based on the anticipated cul-de-sacs at each end of this segment of Gum Spring Road, Gum Spring Village Center (as required by its SPEX condition of approval) has prepared and submitted to the County a traffic signal warrant study for its Southpoint Boulevard entrance onto Gum Spring Road, approximately 600 feet south of Route 50. The study finds that a traffic signal is not warranted at the proposed intersection. Given the situation with the West Spine Road and the likelihood that existing Gum Spring Road will remain open in its current condition for the foreseeable future, OTS strongly disagrees with this conclusion. Additional discussion and coordination on this matter and the overall status of the West Spine Road are necessary.

3. While the Applicant's traffic study indicates that the existing Gum Spring Road/Route 50 signalized intersection operates at LOS E during the AM peak hour, other traffic studies recently submitted to the County (e.g., Arcola Center) indicate that the intersection operates at LOS F during both the AM and PM peak hours. An explanation/clarification of this discrepancy needs to be provided.
4. Proffered improvements to Route 50 committed to as part of the previous Stone Ridge rezoning (ZMAP 2002-0013) should also be included with this proposal as "up front" improvements as the current application is also part of Stone Ridge and would add trips to the Route 50 corridor. These proffers include "up front" construction of the third eastbound lane of Route 50, roughly from Stone Ridge to Loudoun County Parkway (as described in ZMAP 2002-0013, Proffer II.B.3., November 30, 2005 Letter of Clarification), and improvements to the West Spine Road/Route 50 intersection (as described in ZMAP 2002-0013, Proffer II.B.4.(c), October 5, 2005 Proffer Statement).
5. Given existing and forecasted traffic volumes, grade-separated interchanges are an integral part to long-term transportation solutions in the Route 50 Corridor. Currently, a diamond interchange is envisioned at intersection of the West Spine Road and Route 50. The Applicant should provide a fair-share contribution towards this future improvement.
6. Staff has no issues with proposed re-alignment of Millstream Drive, provided that the future east-west segment intersects with Route 659 Relocated at a point sufficiently south of the planned interchange of Route 659 Relocated and Route 50.
7. The inclusion of 307 additional residential units as part of this application appears to be a reversal of Board action taken with the previous Stone Ridge rezoning (ZMAP 2002-0013), in which 216 residential units were eliminated and approximately 200,000 sq ft of non-residential uses were instead retained.
8. An appropriate transit contribution should be provided for the 307 residential units proposed on site.

## **Conclusion**

OTS will offer a recommendation once it has reviewed the Applicant's responses to our comments.

## **ATTACHMENTS**

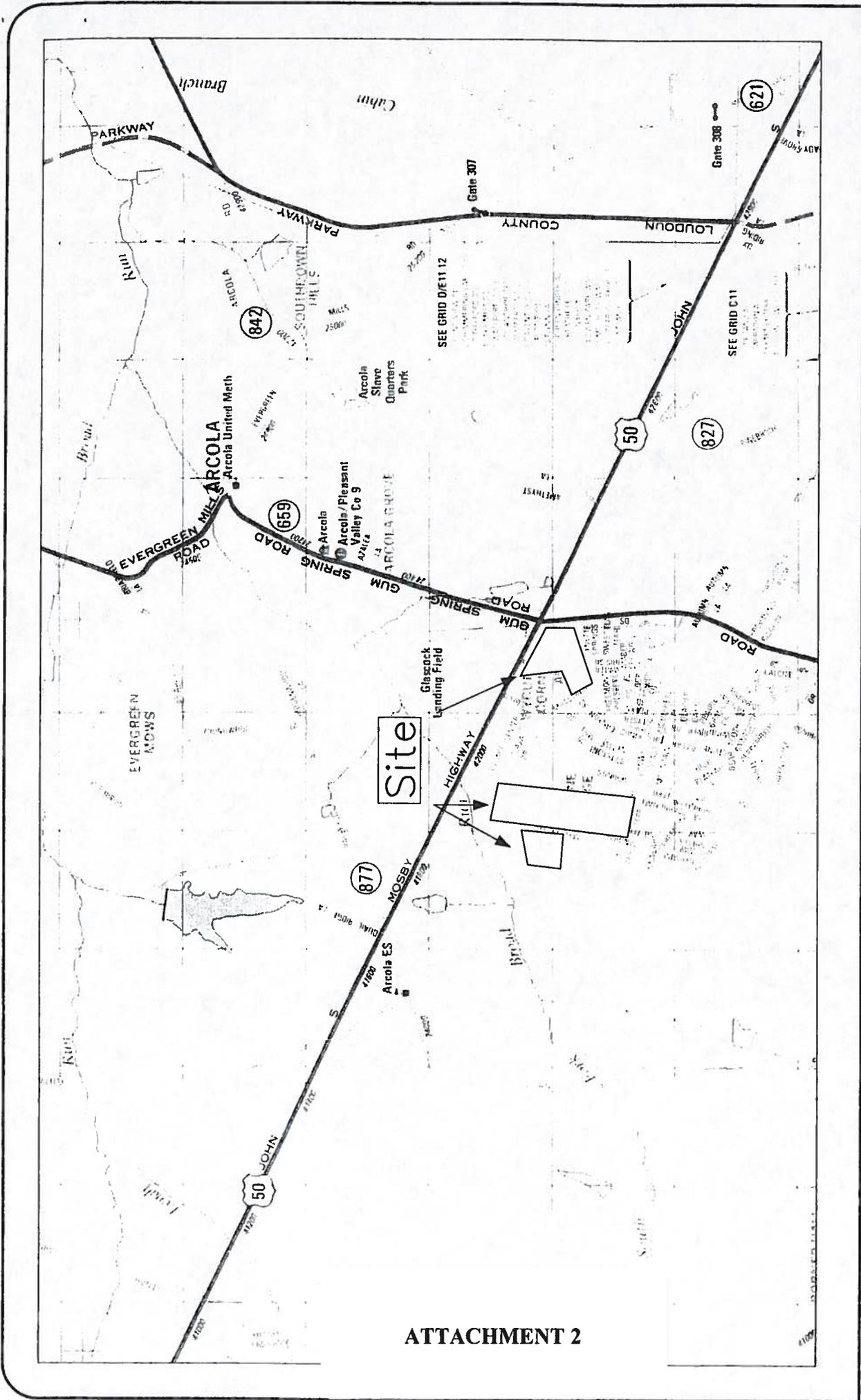
1. Stone Ridge Land Use Summary (Existing and Proposed Totals) (Traffic Study Table 1)
2. Vicinity Map (Traffic Study Figure 1)
3. Trip Generation Comparison (Traffic Study Table 5)
4. Existing Traffic Volumes (Traffic Study Figure 3)
5. Existing Lane Use and Traffic Control (Traffic Study Figure 4)
6. Intersection LOS Summary (Existing, Currently-Approved Program, and Proposed Program Scenarios) (Traffic Study Table 2)
7. Currently-Approved Program Lane Use and Traffic Control (Traffic Study Figure 6)
8. Currently-Approved Program Traffic Forecasts (Traffic Study Figure 8)
9. Proposed Program Lane Use and Traffic Control (Traffic Study Figure 7)
10. Proposed Program Traffic Forecasts (Traffic Study Figure 9)

cc: Dale Castellow, Director, OTS  
Charles Yudd, Assistant to the County Administrator, County Administration

Table 1  
 Stone Ridge Commercial  
 Land Use Summary

Land Use	Existing		Proposed		Total	
	Totals	Units	Totals	Units	Change	Units
Single-Family Detached	853	D.U.	853	D.U.	0	D.U.
Townhouse/Condominium	1,741	D.U.	2,048	D.U.	+307	D.U.
Multi-Family	671	D.U.	671	D.U.	0	D.U.
<b>Total Residential</b>	<b>3,265</b>	<b>D.U.</b>	<b>3,572</b>	<b>D.U.</b>	<b>+307</b>	<b>D.U.</b>
Office (PD-OP)	269,800	S.F.	697,671	S.F.	+427,871	S.F.
Light Industrial (PD-IP)	570,250	S.F.	146,187	S.F.	-424,063	S.F.

Based on Concept Development Plan prepared by Urban Engineering, dated April 2006.



**ATTACHMENT 2**

**Figure 1**  
Site Location

Table 5  
 Stone Ridge Commercial  
 Trip Generation Comparison

Program	AM Peak Hour			PM Peak Hour			Average Daily Traffic
	In	Out	Total	In	Out	Total	
Approved Program	1,273	1,306	2,579	1,377	1,492	2,869	38,834
Proposed Program	<u>1,467</u>	<u>1,366</u>	<u>2,834</u>	<u>1,434</u>	<u>1,639</u>	<u>3,073</u>	<u>42,080</u>
Difference	194	60	255	58	146	204	3,246
Percentage	<b>15%</b>	<b>5%</b>	<b>10%</b>	<b>4%</b>	<b>10%</b>	<b>7%</b>	<b>8%</b>

Notes: (1) Trip generation based on Institute of Transportation Engineers Trip Generation, 7th Edition.

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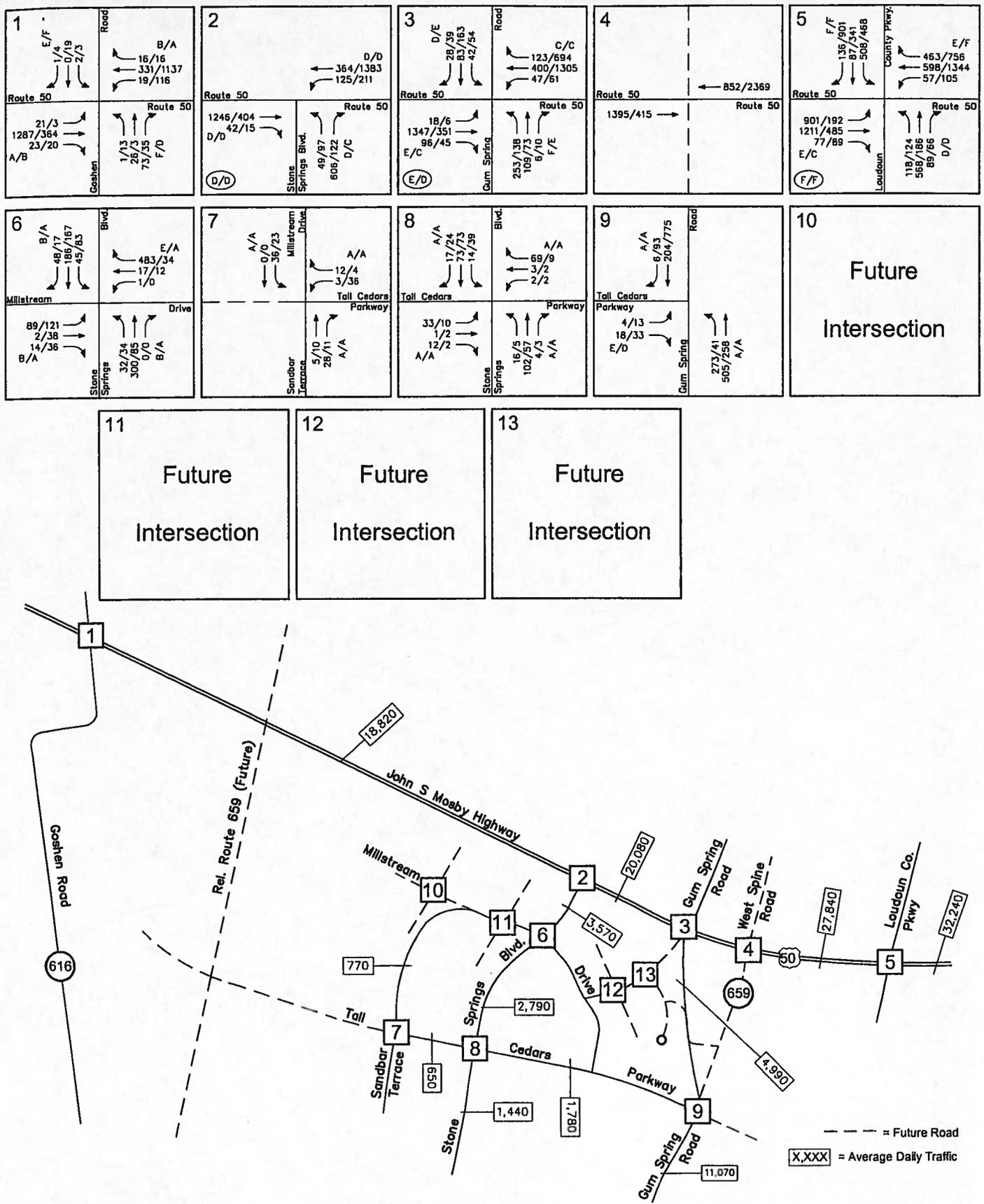


Figure 3  
Existing Traffic Volumes

AM PEAK HOUR  
PM PEAK HOUR  
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ATTACHMENT 4

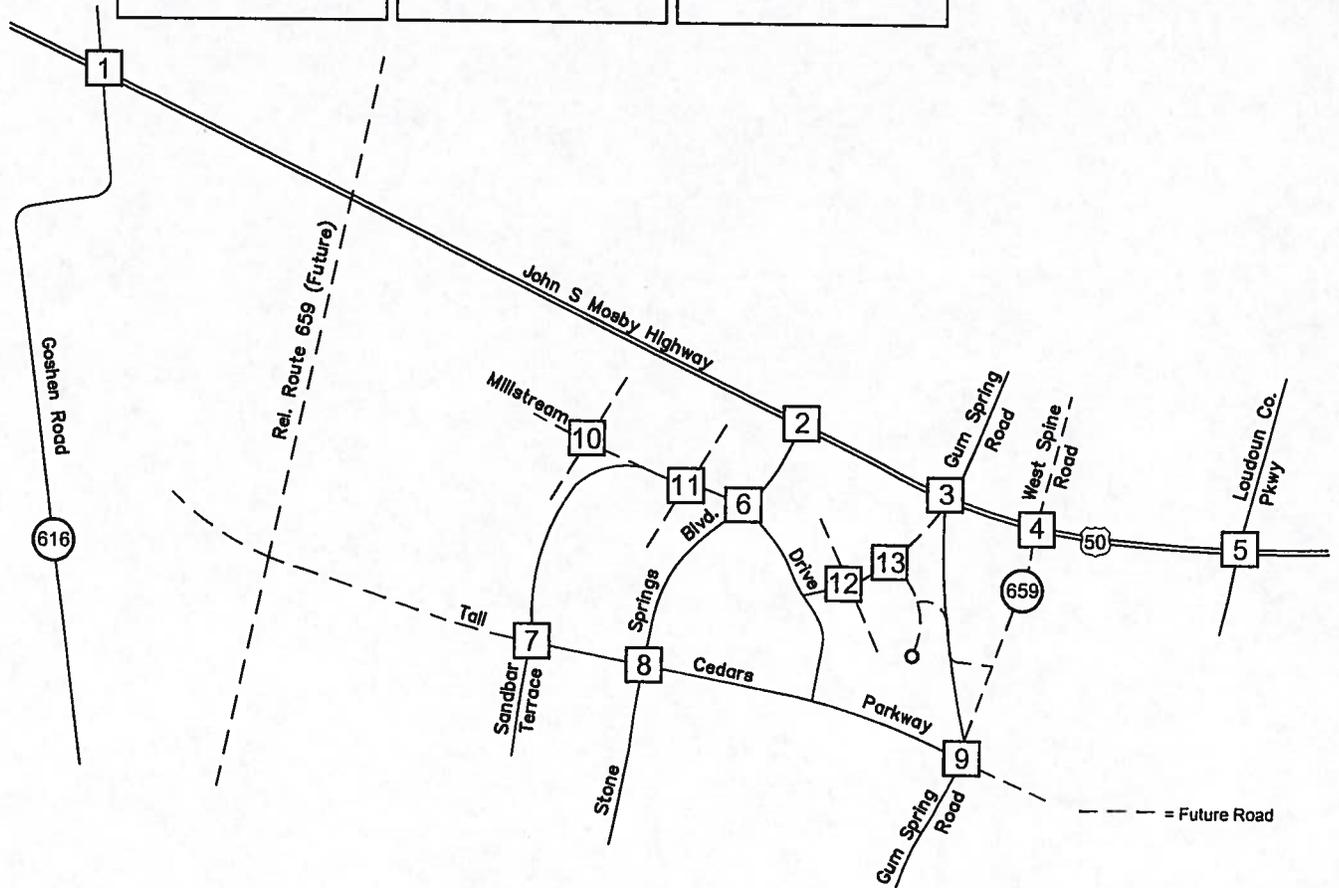
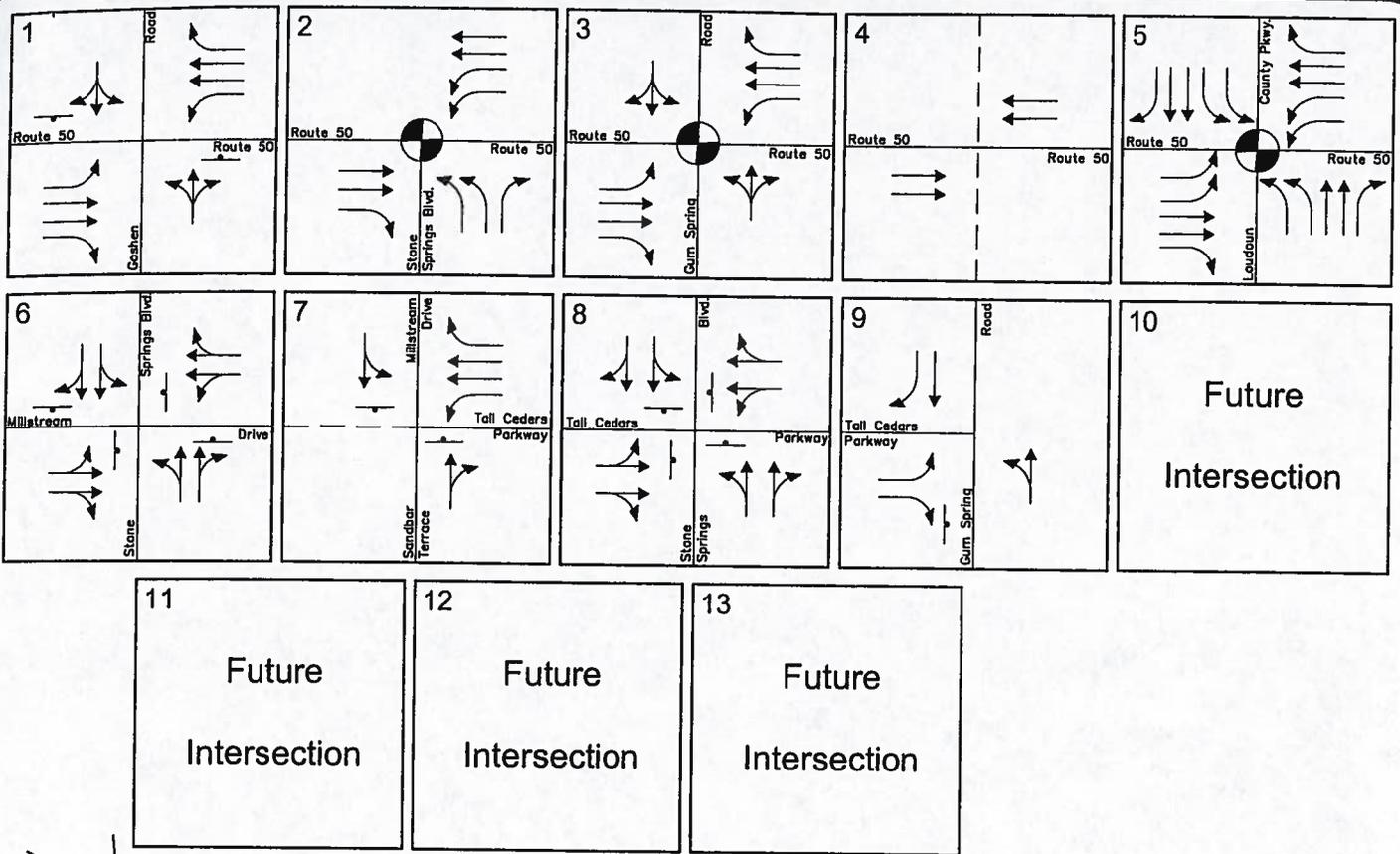


Figure 4  
Existing Lane Use and Traffic Control

AM PEAK HOUR  
PM PEAK HOUR  
000/000



ATTACHMENT 5

Stone Ridge Commercial  
Loudoun County, Virginia

WELLS & ASSOCIATES, LLC  
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

Table 2  
Stone Ridge Commercial  
Intersection Level of Service Summary (1) (2) (3)

(COLUMN 1) (COLUMN 2) (COLUMN 3)

Intersection	Intersection Control	Critical Movement	2008		2010		2010	
			Existing		Currently Approved Program		Proposed Program	
			AM	PM	AM	PM	AM	PM
(1) U.S. Route 50/ Goshen Road	Stop Sign	EB WB NB SB	A(8.1) B(13.2) F(65.6) E(47.8)	B(11.7) A(8.9) D(32.5) F(106.1)	A(9.7) C(16.4) F(1) F(1)	C(19.6) B(10.3) F(1) F(1)	N/A	N/A
	Mitigated Signal	EB WB NB SB Overall	N/A	N/A	A(9.7) A(6.4) D(52.2) D(48.7) B(10.9)	A(4.5) C(24.8) D(51.6) D(52.8) B(16.9)	A(8.9) A(8.4) D(52.2) D(48.7) B(11.0)	A(8.1) C(25.7) D(51.6) D(52.8) C(20.7)
(2) U.S. Route 50/ Stone Springs Blvd	Signal	EB WB NB Overall	D(53.1) D(37.1) D(43.3) D(47.2)	D(39.9) D(48.0) C(26.1) D(45.2)	E(59.6) D(52.2) F(116.2) E(74.2)	E(85.9) E(58.7) C(26.9) D(52.9)	N/A	N/A
	Mitigated Signal	EB WB NB Overall	N/A	N/A	C(26.0) C(22.7) A(8.9) C(20.1)	D(43.9) D(35.2) A(8.0) C(30.3)	C(27.8) C(23.3) A(8.8) C(21.6)	D(40.8) C(35.0) A(8.7) C(30.0)
(3) U.S. Route 50/ Gum Spring Rd (VA 659)/ Canary Grass Drive	Signal	EB WB NB SB Overall	E(58.7) C(25.5) F(142.1) D(48.9) E(83.4)	C(23.4) C(32.8) E(59.9) E(84.1) D(35.8)	N/A	N/A	A(0.0) A(0.0) A(9.0) A(0.0) N/A	A(0.0) A(0.0) B(10.1) A(0.0) N/A
(4) U.S. Route 50/ West Spine Road	Signal	EB WB NB SB Overall	N/A	N/A	B(14.7) F(148.4) F(107.0) C(32.8) E(67.8)	F(558.4) F(313.8) C(32.9) F(127.8) F(285.9)	D(36.7) C(30.1) D(40.5) C(26.7) C(34.4)	D(39.8) F(168.6) C(34.2) F(145.8) F(119.8)
	Mitigated Signal	EB WB NB SB Overall	N/A	N/A	D(38.2) C(29.7) D(39.2) C(28.5) C(33.9)	F(88.4) F(115.3) D(40.9) F(83.8) F(83.8)	D(38.0) C(32.4) D(44.6) C(30.1) D(37.3)	F(96.2) F(127.3) D(41.6) E(84.2) F(100.7)
(5) U.S. Route 50/ Loudoun County Pkwy (Old Ox Road)	Signal	EB WB NB SB Overall	E(81.4) E(57.9) D(40.4) F(306.4) F(94.4)	C(25.0) F(122.3) D(38.8) F(147.3) F(109.7)	F(83.7) F(189.3) F(184.7) F(282.0) F(158.2)	C(34.8) F(189.2) F(170.8) F(416.8) F(226.4)	N/A	N/A
	NB, SB, and WB Free Flow Right Turns Signal	EB WB NB SB Overall	N/A	N/A	F(80.7) D(40.2) F(159.7) F(168.8) F(88.8)	D(38.8) F(96.6) F(131.0) F(185.5) F(112.0)	F(80.7) D(42.2) F(159.7) F(168.9) F(98.9)	D(39.1) F(100.3) F(131.0) F(185.5) F(112.9)
(6) Stone Springs Blvd/ Millstream Drive	Stop Sign	EB WB NB SB	B(11.7) E(43.2) B(13.3) B(12.3)	A(8.4) A(7.5) A(8.3) A(9.2)	C(24.1) F(313.0) F(80.0) F(197.4)	F(248.4) D(26.7) D(25.5) F(53.1)	N/A	N/A
	Mitigated Signal	EB WB NB SB Overall	N/A	N/A	C(20.5) C(23.3) A(6.9) B(14.3) B(15.3)	B(16.5) A(9.1) B(18.1) C(21.2) B(18.1)	C(22.8) C(25.0) A(8.0) B(15.5) B(16.4)	C(23.8) A(8.8) C(22.5) C(28.8) C(24.4)
(7) Tall Cedars Pkwy/ Millstream Drive/ Sandbar Terrace	Stop Sign	EB WB NB SB	N/A A(7.2) A(8.6) A(9.0)	N/A A(7.3) A(8.0) A(8.4)	A(9.0) A(7.7) A(9.7) B(12.1)	A(7.5) A(7.4) A(8.7) B(10.6)	A(8.6) A(7.5) A(9.1) D(28.3)	A(0.0) A(7.7) B(14.5) F(81.5)
	Future Signal	EB WB NB	N/A	N/A	N/A	N/A	N/A	N/A
(8) Tall Cedars Pkwy/ Stone Springs Blvd	Stop Sign	EB WB NB SB	A(7.5) A(6.8) A(7.3) A(7.1)	A(7.2) A(8.5) A(8.8) A(7.0)	A(5.4) A(7.3) F(1) F(1)	A(5.6) A(7.1) F(117.5) F(289.7)	N/A	N/A
	Mitigated Signal	EB WB NB SB Overall	N/A	N/A	A(8.7) A(8.8) A(9.0) A(7.8) A(8.9)	A(8.4) B(10.4) A(5.3) A(5.7) A(7.0)	A(8.8) B(10.0) A(8.0) A(7.8) A(8.9)	A(9.0) B(10.1) A(6.0) A(8.8) A(7.5)
(9) Gum Spring Rd/ Tall Cedars Pkwy	Stop Sign	EB WB NB SB	B(14.4) N/A A(4.8) A(0.0)	C(19.2) N/A A(2.1) A(0.0)	F(1) F(1) C(20.9) A(0.0)	F(1) F(1) E(41.8) A(0.0)	N/A	N/A
	Mitigated Signal	EB WB NB SB Overall	N/A	N/A	D(37.5) D(43.3) B(15.5) D(38.2) C(25.8)	D(49.1) D(52.8) B(14.5) C(27.8) C(26.8)	D(37.5) D(43.3) B(15.2) D(38.2) C(25.4)	D(42.8) D(47.3) B(18.2) C(24.3) C(24.8)
(10) Millstream Dr/ Site Industrial/Office	Stop Sign	EB WB NB	N/A	N/A	A(0.0) A(7.8) A(8.0)	A(0.0) A(7.4) B(11.5)	A(0.0) A(3.5) A(9.1)	A(0.0) A(4.7) B(14.5)
(11) Millstream Dr/ Site Retail/Library	Stop Sign	EB WB NB SB	N/A	N/A	A(7.8) A(9.2) A(9.9) A(9.1)	C(18.3) C(18.4) B(13.2) D(25.7)	N/A	N/A
	Mitigated Signal	EB WB NB SB Overall	N/A	N/A	A(5.3) A(6.0) A(6.8) A(7.3) A(6.0)	B(11.1) B(10.8) A(6.6) B(11.3) B(10.8)	A(4.7) A(6.0) A(6.8) A(8.2) A(5.9)	B(11.0) A(9.7) A(8.1) B(13.0) B(10.8)
(12) Canary Grass Dr/ Site Office/Residential	Stop Sign	EB WB NB SB	N/A	N/A	B(11.0) N/A A(8.4) A(7.6)	A(8.2) N/A A(7.7) A(8.3)	B(10.1) A(7.1) A(8.0) A(8.0)	A(4.0) A(4.9) B(10.2) B(11.6)
	Mitigated Stop Sign	EB WB NB SB	N/A	N/A	N/A	N/A	A(8.6) A(0.0) B(14.2) B(13.8)	A(4.0) A(4.9) B(10.2) B(11.6)
(13) Canary Grass Drive/ Gum Spring Rd	Stop Sign	EB WB NB	N/A	N/A	N/A	N/A	A(8.9) A(0.0) A(7.8)	A(7.2) A(0.0) A(7.4)

Notes: (1) Analysis done using Synchro 6.0  
(2) Numbers in parentheses indicate average delay in seconds per vehicle for signalized intersections  
(3) Numbers in brackets indicate average delay in seconds per vehicle for stop sign controlled intersections

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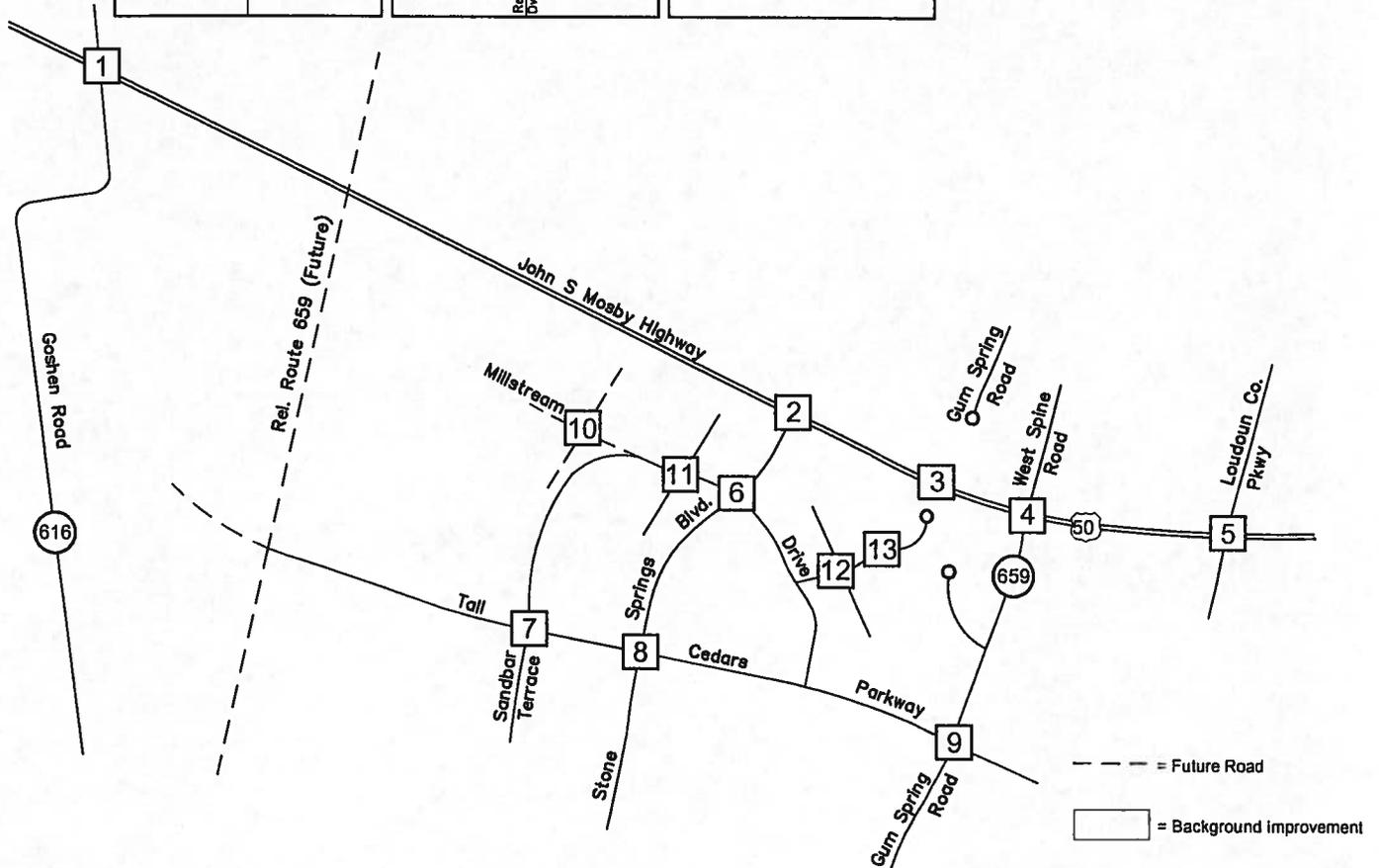
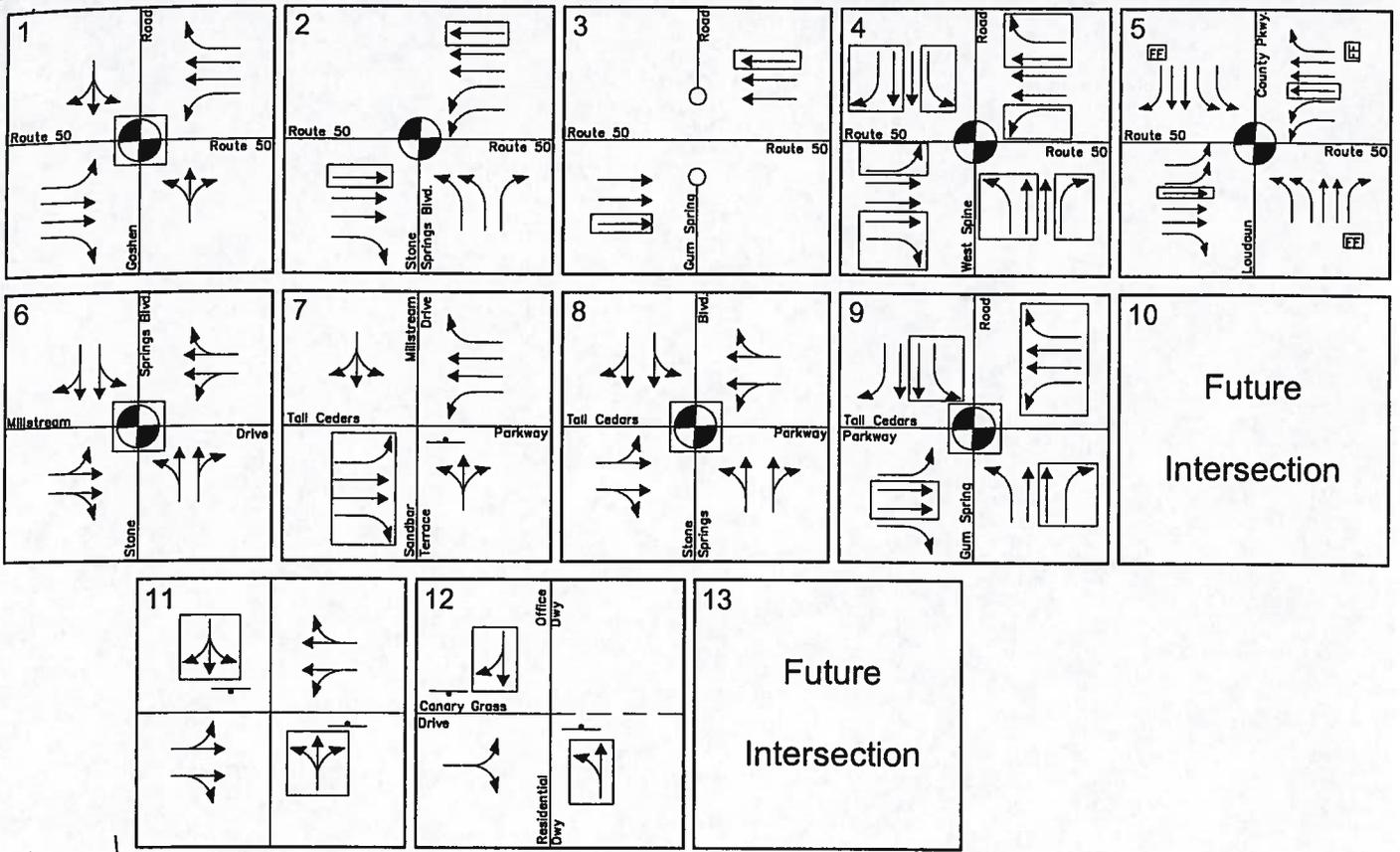


Figure 6  
Approved Program Lane Use and Traffic Control

AM PEAK HOUR  
PM PEAK HOUR  
000/000



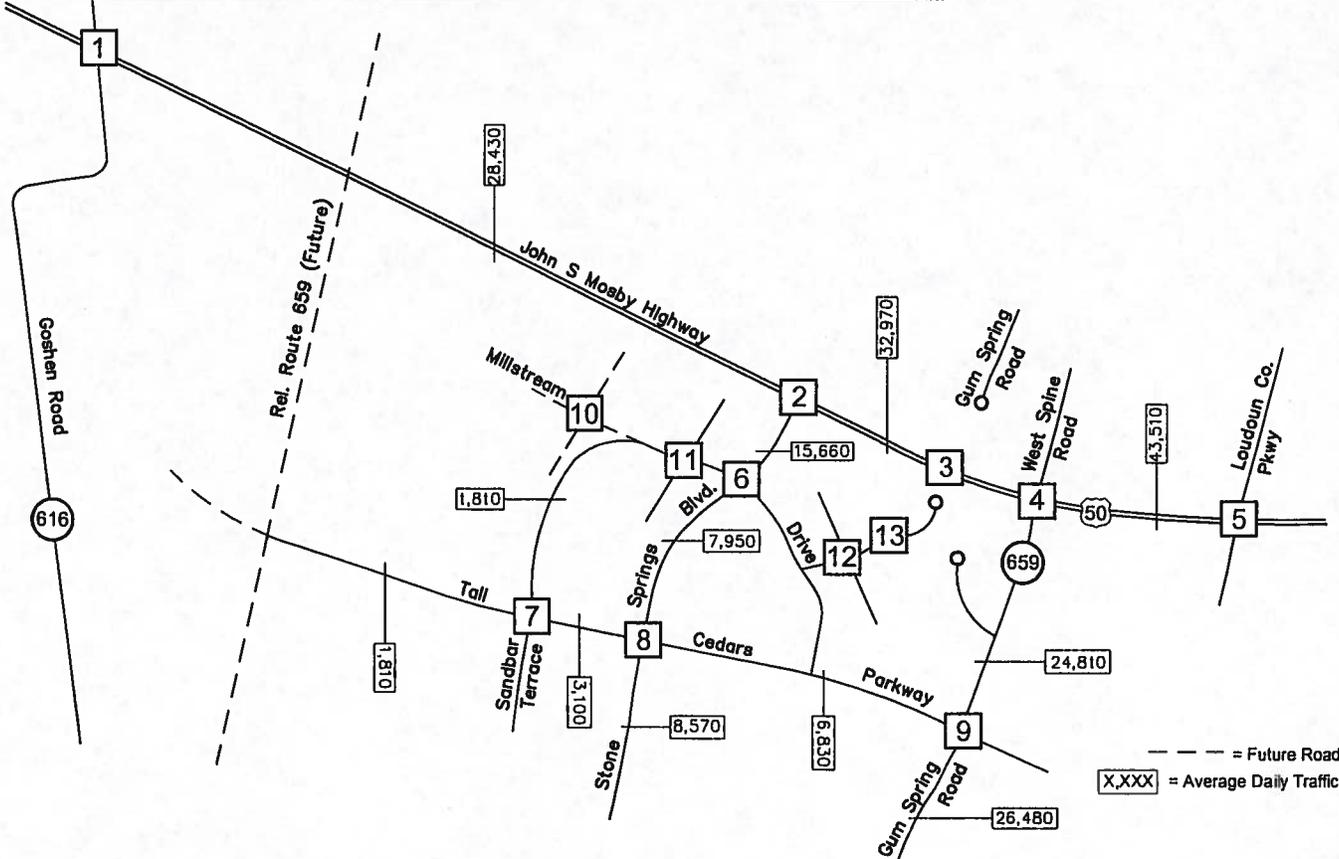
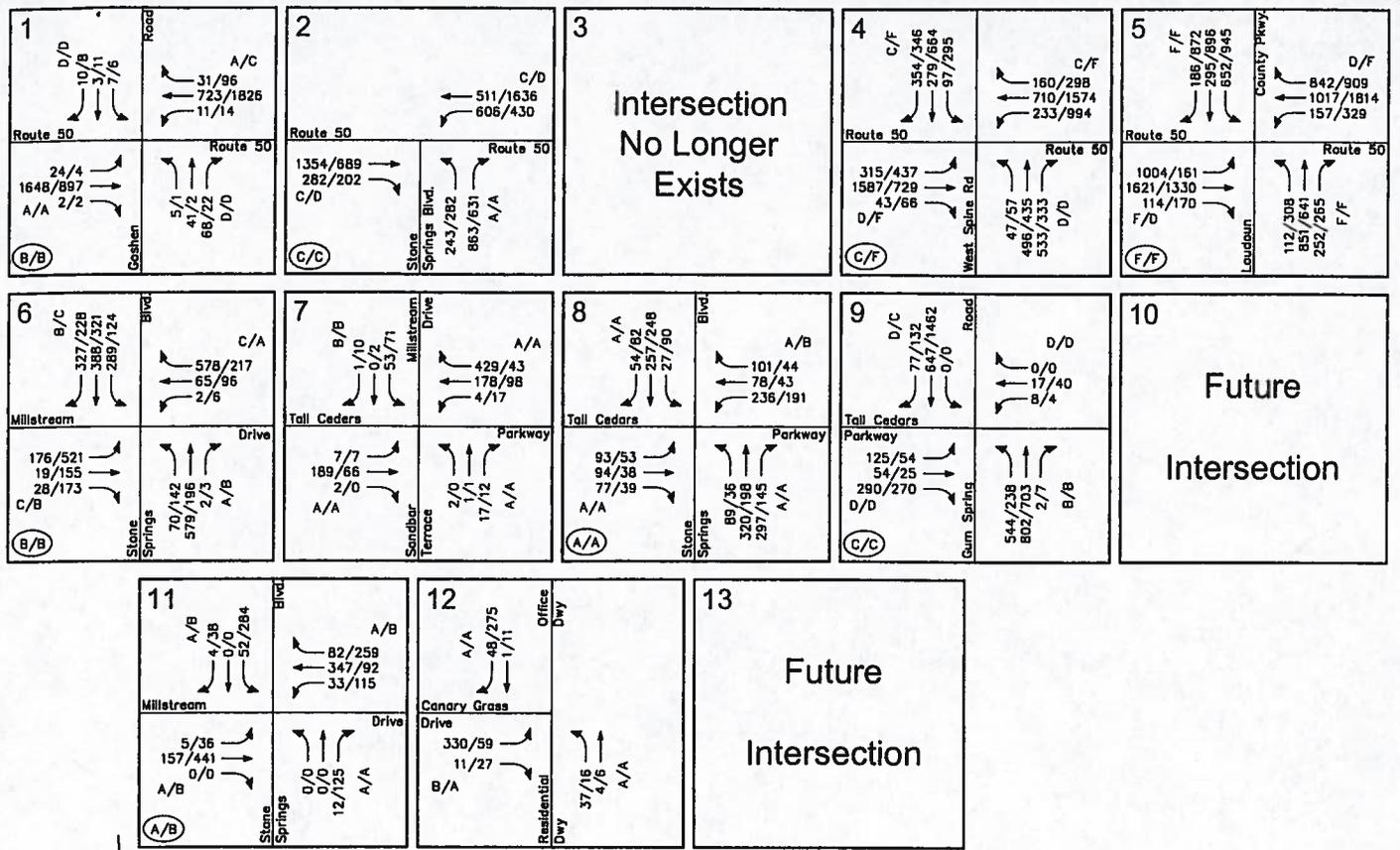
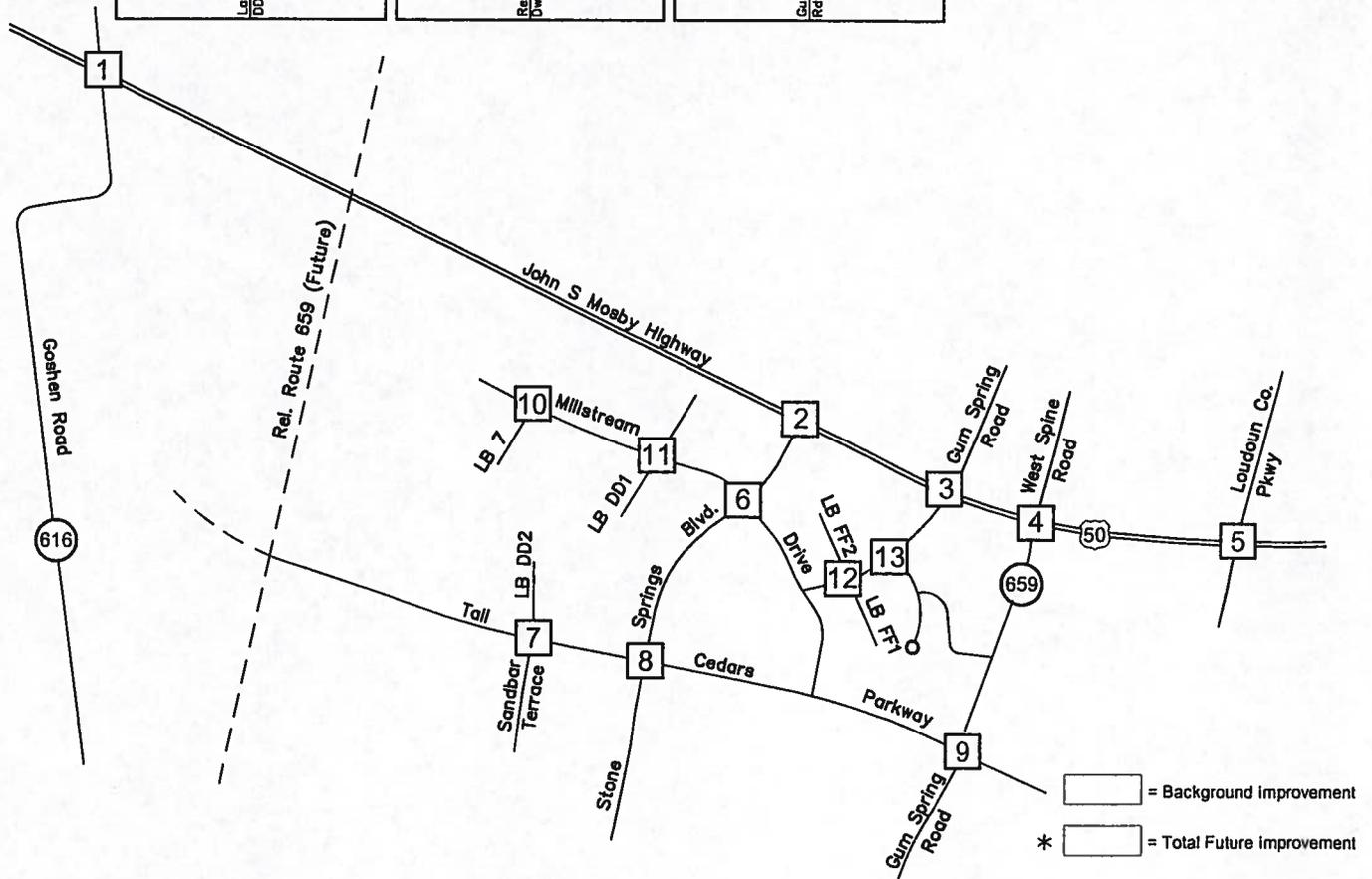
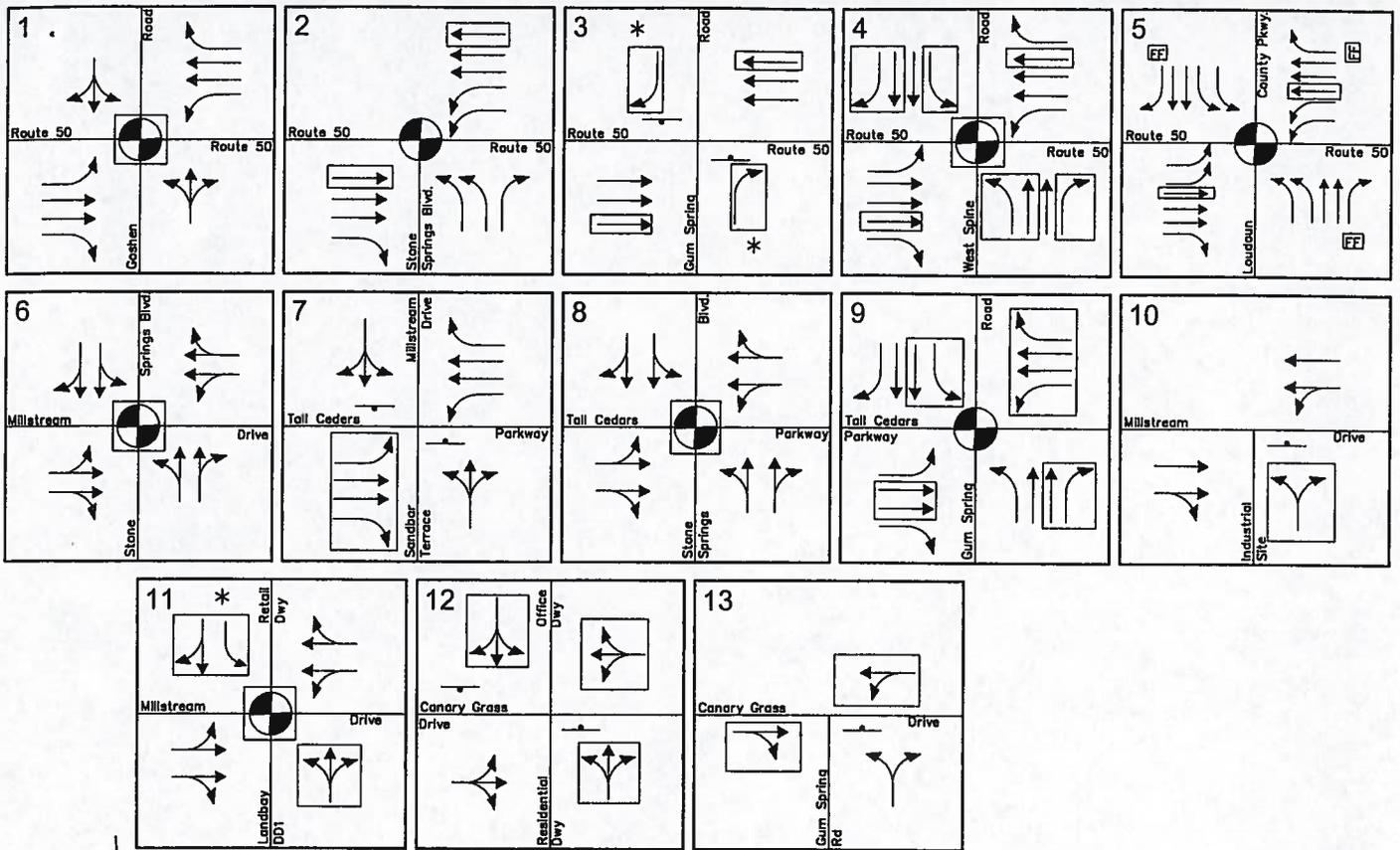


Figure 8  
Approved Program Traffic Forecasts

AM PEAK HOUR  
PM PEAK HOUR  
000/000



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**Figure 7**  
2010 Proposed Program Lane Use  
and Traffic Control

AM PEAK HOUR  
PM PEAK HOUR  
000/000



**ATTACHMENT 9**

Stone Ridge Commercial  
Loudoun County, Virginia

**WELLS & ASSOCIATES, LLC**  
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

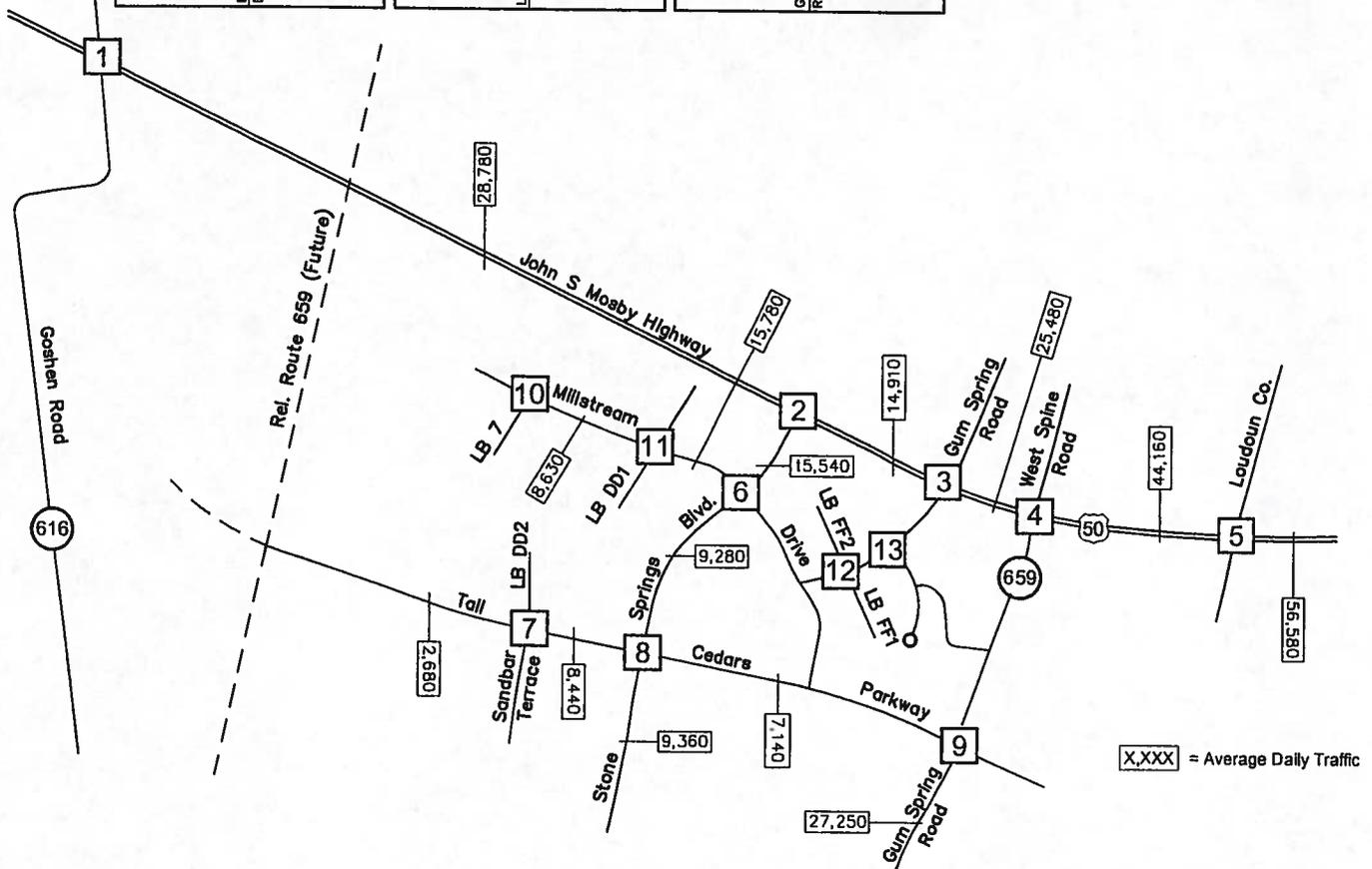
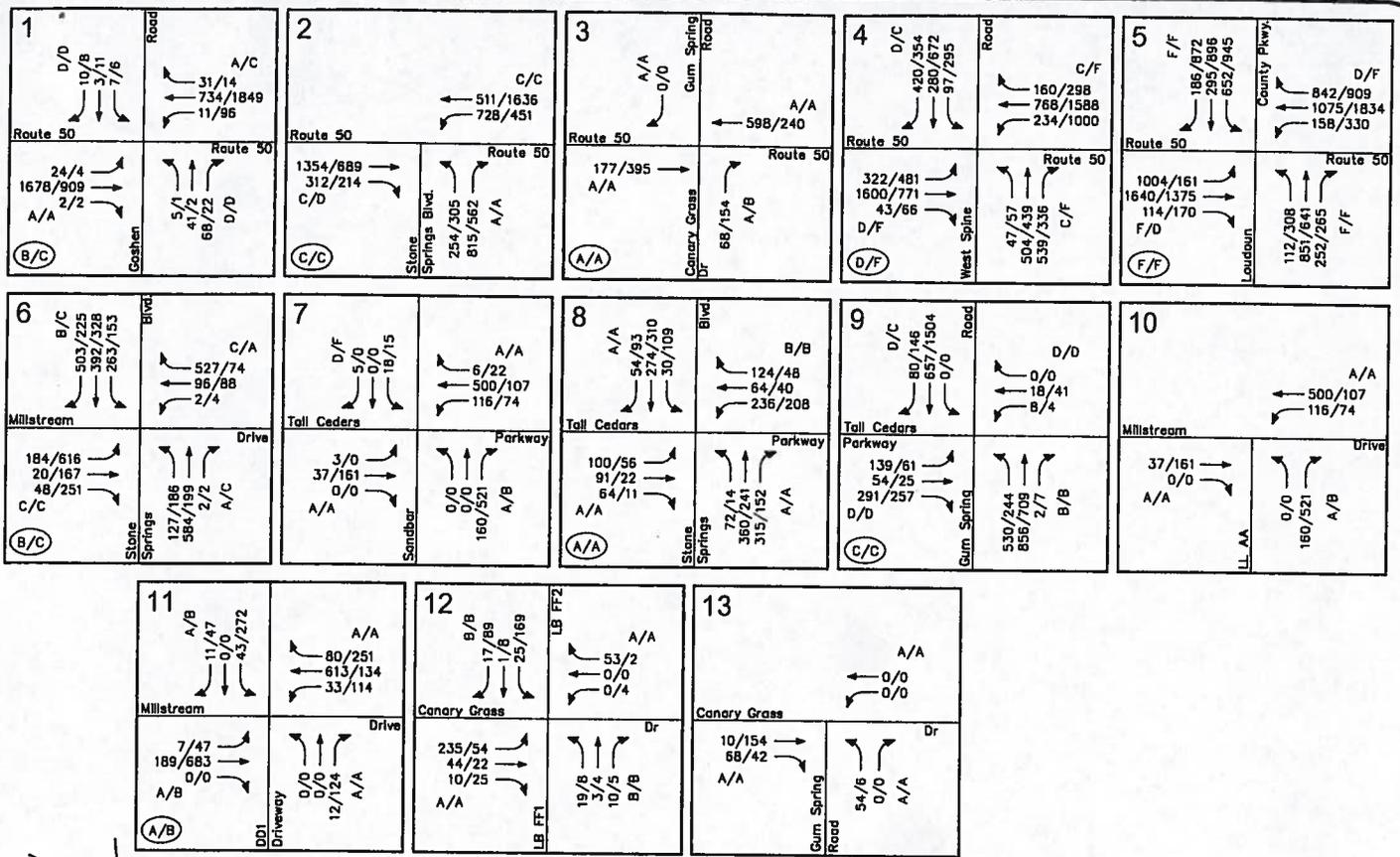


Figure 9  
Proposed Program Traffic Forecasts

AM PEAK HOUR  
PM PEAK HOUR  
000/000

