5.0 EXISTING TRAFFIC CONDITIONS

Determining the characteristics of existing traffic conditions surrounding the Riverside MUPDD site permits an evaluation of locations where traffic problems might already exist and establishes a foundation for comparing future traffic conditions. Accordingly, a traffic analysis was performed for the current base year of 2007.

5.1 Traffic Volumes and Intersection Capacity for Existing Conditions

Traffic Volumes for Existing Conditions

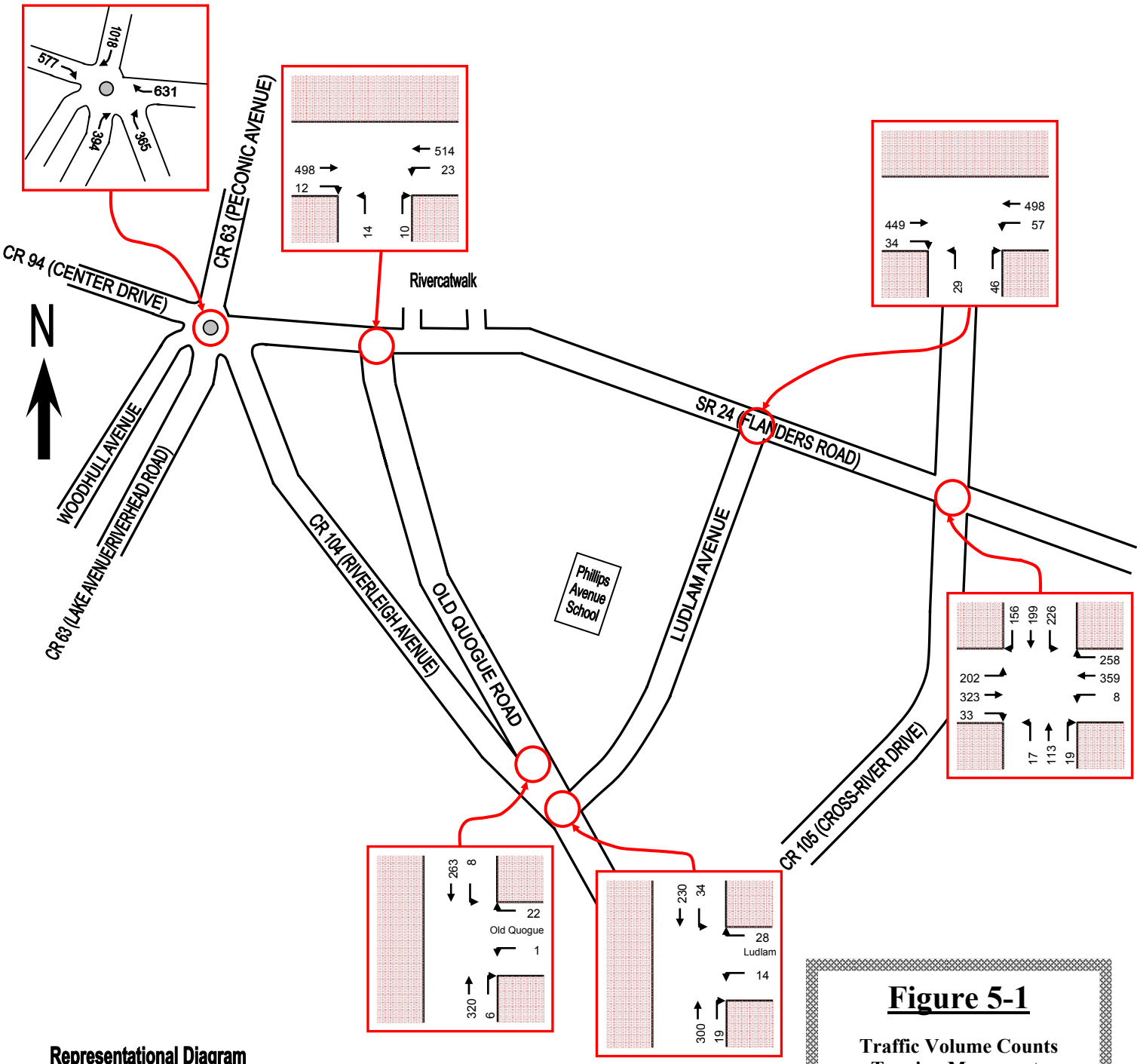
Traffic volume data for the key intersections, comprised of manual turning movement counts, were collected at various times and then projected to the year 2007. Approach and departure movements for the Riverhead Traffic Circle, provided by Dunn Engineering Associates, P.C., were counted on March 27 and March 30, 2004. Turning movement counts for the intersection of NYS Route 24 and CR 105 (Cross River Drive), provided by RMS Engineering, P.C., were collected on February 14 and February 16, 2004. Counts for the intersections of SR 24 at Old Quogue Road, SR 24 at Ludlam Avenue, and CR 104 at Old Quogue Road/Ludlam Avenue were collected by Cashin Associates, P.C., on September 23 and September 26, 2006.

The counts were then projected to the base year of 2007 by applying an annual growth rate of 2.04%. This growth rate was determined by the New York State Department of Transportation (NYSDOT) in its *Long Island Transportation Plan 2000 (LITP 2000)* traffic model for the region encompassing the Town of Southampton and the Town of East Hampton. The purpose for projecting the counts is so that data collected in different years can be evaluated on an equivalent basis.

Figures 5-1 through 5-4 present a summary of the counts for the morning, mid-day, and evening weekday peak traffic periods and for the Saturday mid-day peak period. Compilations of the data collected are shown in Appendix C.

TRAFFIC VOLUME COUNTS

Riverside M.U.P.D.D. 2007 Existing Conditions



Representational Diagram
Not To Scale
Alignment May Be Altered

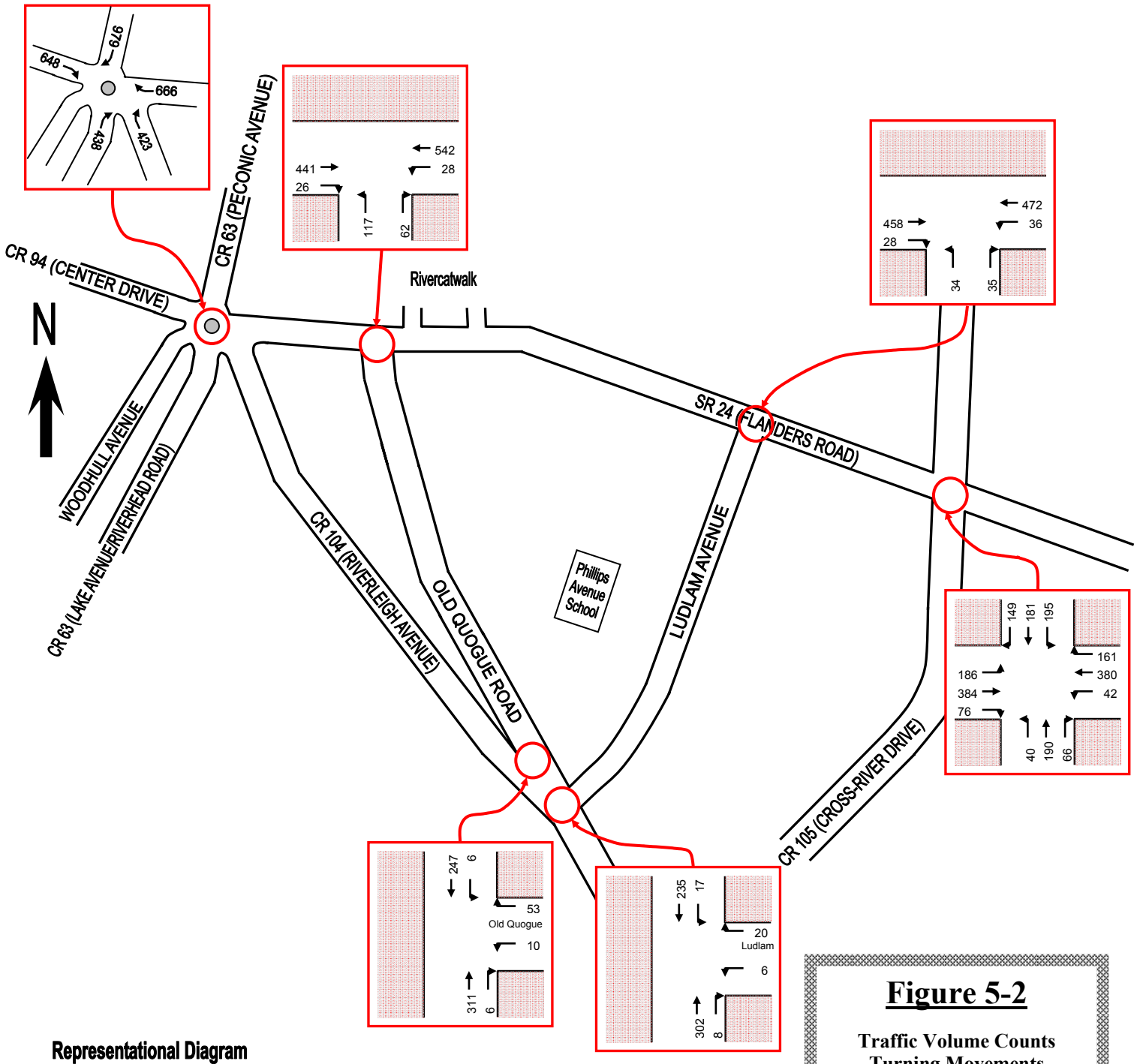
Figure 5-1

Traffic Volume Counts
Turning Movements

Existing Conditions
AM Peak Period

TRAFFIC VOLUME COUNTS

Riverside M.U.P.D.D. 2007 Existing Conditions



Representational Diagram
Not To Scale
Alignment May Be Altered

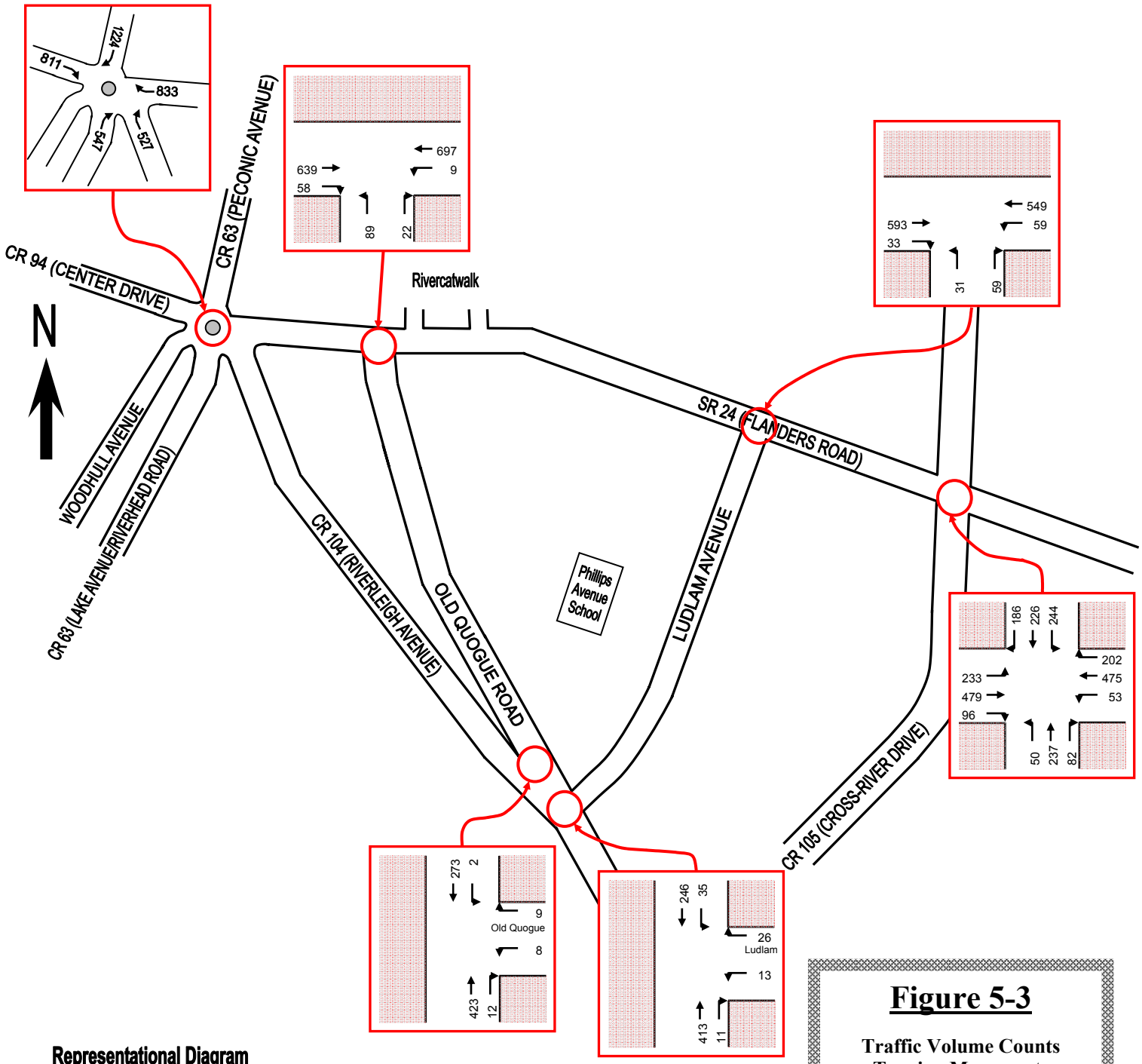
Figure 5-2

Traffic Volume Counts
Turning Movements

Existing Conditions
Mid-Day Peak Period

TRAFFIC VOLUME COUNTS

Riverside M.U.P.D.D. 2007 Existing Conditions



Representational Diagram
Not To Scale
Alignment May Be Altered

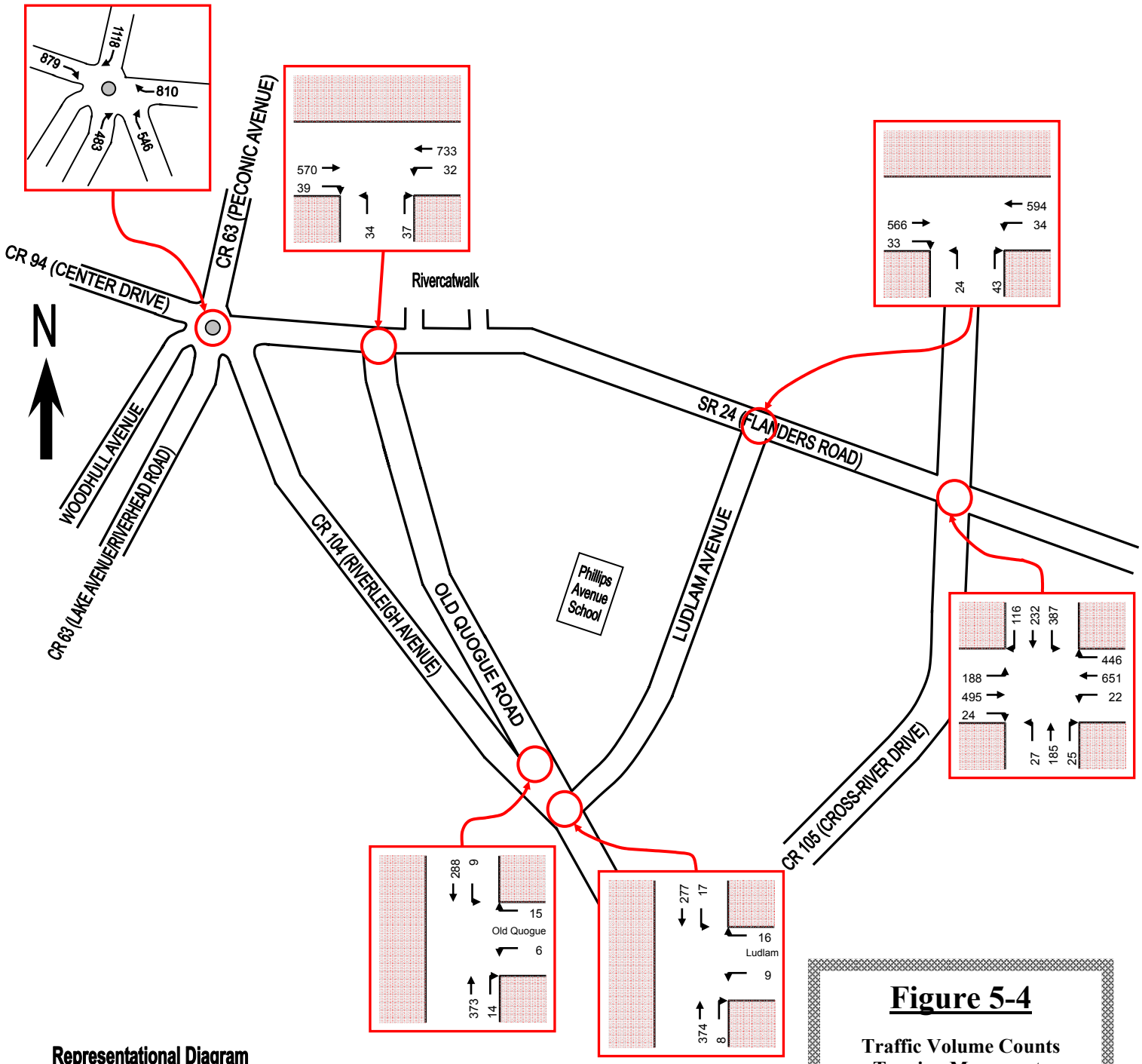
Figure 5-3

Traffic Volume Counts
Turning Movements

Existing Conditions
PM Peak Period

TRAFFIC VOLUME COUNTS

Riverside M.U.P.D.D. 2007 Existing Conditions



Representational Diagram
Not To Scale
Alignment May Be Altered

Figure 5-4

Traffic Volume Counts
Turning Movements

Existing Conditions
SAT MID Peak Period

Capacity Analysis and Levels of Service (LOS) for Existing Conditions

Using the methods described in Section 3.2, and in conformance with the procedures described in the *Highway Capacity Manual 2000 (HCM 2000)*, capacity analyses were performed for each of the intersections and for each peak traffic period. The Existing Traffic Conditions capacity analysis results and levels of service are presented on Table 5-1. Capacity analysis results for individual intersections are provided in Appendix E.

The intersection of CR 104 and Old Quogue Road/Ludlam Avenue was treated as two (2) separate intersections, CR 104 at Old Quogue Road and CR 104 at Ludlam Avenue, for capacity analysis purposes. The analysis methods provided in *HCM2000* do not adequately handle a skewed four-legged intersection of the subject type. Analyzing the intersection as two (2) intersections, with turning movement volumes properly assigned to each, produces more accurate results.

5.1.1 Results of Intersection Capacity Analysis for Existing Conditions

The results of the capacity analysis show that the Riverhead Traffic Circle suffers from operational failures during all peak traffic periods and is currently in need of mitigation. The intersection of NYS Route 24 and Old Quogue Road operates at or near capacity during the peak periods and will require mitigation when additional traffic volume is added in the future. Other intersections analyzed along SR 24 operate at acceptable levels of service with moderate delays. Un-signalized intersections along CR 104 experience good levels of service and have available capacity to accept future traffic volumes.

TABLE 5-1: EXISTING INTERSECTIONAL LEVELS OF SERVICE

Riverside MUPDD

Intersection	Control	Movement / Approach	Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Midday Peak Hour			
			Overall	LOS	Delay	v/c	Overall	LOS	Delay	v/c	Overall	LOS	Delay	v/c	Overall	LOS	Delay	v/c
Riverhead Traffic Circle (SR 24, CR 94, CR 104, CR 63, & Peconic Avenue Intersection)	Roundabout Stop Signs	NB CR 63	F	D	45.1	0.87	F	D	36.5	0.85	F	F	332.1	1.62	F	C	26.5	0.84
		NWB CR 104		D	36.7	0.79		F	83.2	1.01		F	607.8	2.19		E	56.4	0.98
		WB SR 24		D	51.0	1.00		F	100.4	1.15		F	452.6	1.94		F	320.4	1.65
		SB Peconic		F	170.5	1.34		F	89.6	1.15		F	384.9	1.82		F	225.9	1.46
		EB CR 94		D	36.6	0.95		F	156.0	1.28		F	564.9	2.20		F	308.7	1.63
SR 24 (Flanders Road) at CR 105 (Cross River Drive)	Traffic Signal	EB-L	C	B	17.9	0.52	C	B	18.5	0.54	C	C	32.2	0.80	C	C	29.4	0.73
		EB-T		B	16.8	0.41		B	17.5	0.48		B	19.2	0.59		B	17.3	0.55
		EB-R		B	13.6	0.04		B	14.0	0.10		B	14.2	0.12		B	12.2	0.03
		WB-L		C	20.2	0.02		C	21.1	0.13		C	21.8	0.20		B	18.6	0.07
		WB-T		C	26.4	0.59		C	27.5	0.63		C	31.7	0.76		D	41.3	0.90
		WB-R		C	23.3	0.38		C	21.9	0.24		C	22.5	0.30		C	25.9	0.63
		NB-L		B	19.0	0.05		B	19.2	0.09		B	19.3	0.11		C	27.2	0.09
		NB-T		C	24.5	0.14		C	24.9	0.20		C	25.2	0.24		C	34.3	0.30
		NB-R		C	23.9	0.06		C	24.6	0.15		C	25.0	0.19		C	32.7	0.09
		SB-L		B	18.2	0.29		B	18.3	0.30		B	18.6	0.37		C	24.6	0.51
		SB-T		C	22.7	0.18		C	22.7	0.18		C	22.9	0.21		C	27.9	0.24
		SB-R		C	23.5	0.26		C	23.5	0.26		C	24.2	0.34		C	27.9	0.22
SR 24 (Flanders Road) at Ludlam Avenue	Side Street Stop Sign	WB-L	C	A	8.9	0.07	C	A	8.6	0.04	C	A	9.3	0.07	C	A	9.0	0.04
		NB-LR		C	20.0	0.24		C	17.6	0.19		C	22.8	0.30		C	19.6	0.19
SR 24 (Flanders Road) at Old Quogue Road	Side Street Stop Sign	WB-L	C	A	8.7	0.03	E	A	8.5	0.03	F	A	9.1	0.01	D	A	9.2	0.04
		NB-LR		C	19.1	0.09		E	47.4	0.74		F	81.1	0.80		D	29.2	0.32
CR 104 (Riverleigh Avenue) at Ludlam Avenue	Side Street Stop Sign	SB-L	B	A	8.1	0.03	B	A	8.0	0.01	B	A	8.3	0.04	B	A	8.1	0.01
		WB-LR		B	12.2	0.08		B	11.0	0.06		B	13.1	0.05		B	12.1	0.03
CR 104 (Riverleigh Avenue) at Old Quogue Road	Side Street Stop Sign	SB-L	B	A	8.0	0.01	B	A	8.0	0.00	B	A	8.2	0.00	B	A	8.1	0.01
		SWB-L		B	13.5	0.00		B	13.4	0.05		C	15.9	0.08		B	14.2	0.02
		SWB-R		B	11.3	0.07		B	11.1	0.16		B	11.0	0.02		B	10.8	0.03

LOS = Level of Service
Delay = Delay in Seconds/Vehicle
v/c = Demand Flow (Volume) to Capacity Ratio
NB = Northbound, SB = Southbound
EB = Eastbound, WB = Westbound

L=Left
T=Through
R=Right

Riverhead Traffic Circle

The roundabout fails overall during each of the peak traffic periods, but several approaches during the weekday morning and mid-day peak periods and during the Saturday mid-day peak period have better levels of service, moderating between LOS C and LOS E. All approaches during the weekday evening peak period fail, indicating excessive delays for motorists approaching the roundabout in any direction. Additional capacity is necessary for the roundabout to accommodate current and future traffic volumes.

State Route 24 at Old Quogue Road

The intersection experiences operational failure, at LOS F, during the weekday evening peak traffic period and operates at capacity (LOS E) during the weekday mid-day peak traffic period. The failures are due to the inability of motorists to execute northbound left-turns from Old Quogue Road onto SR 24. These conditions can be endured at the present time, but will require mitigation when future traffic volumes are added. Acceptable levels of service occur during the weekday morning and Saturday mid-day peak periods, operating at LOS C and LOS D, respectively.

State Route 24 at Ludlam Avenue

The intersection operates at an acceptable LOS C during all peak traffic periods, showing moderate delays for motorists making northbound left-turns from Ludlam Avenue onto SR 24. Capacity remains for the intersection to accept additional traffic volume, but levels of service will diminish rapidly for each small amount of traffic volume added to the intersection.

State Route 24 at County Road 105

The intersection operates at an acceptable LOS C during all time periods, indicating moderate delays for motorists on all approaches to the intersection. The intersection enjoys significant benefits from the design and capacity improvements completed by NYSDOT in 2005. Its volume density timing program also allows it to respond well to current traffic volumes and will allow it to accept additional volumes in the future.

County Road 104 at Old Quogue Road

The intersection operates at a good LOS B during all peak traffic periods, indicating low-to-moderate delays for motorists approaching on Old Quogue Road. It has additional capacity available to accommodate future traffic volume increases.

County Road 104 at Ludlam Avenue

Similar to its counterpart, CR 104 at Old Quogue Road, the intersection operates at a good LOS B during all peak traffic periods, indicating low-to-moderate delays for motorists approaching on Ludlam Avenue. It has additional capacity available to accommodate future traffic volume increases.

5.2 Accident Experience

One characteristic that reflects the functionality of a roadway is the number of accidents that occur along its length. An analysis was performed on the occurrence of accidents along SR 24 and at the intersection of CR 104 and Old Quogue Road/Ludlam Avenue. A summary of the analysis results is presented on Table 5-2 and a summary of the results, by accident type, is presented on Table 5-3. Additional accident information is provided in Appendix F.

The accident analysis covers the three-year (3 yr.) period from June 1, 1999, to May 31, 2002. This is the last three-year period for which complete accident records are currently available. The accident data was compiled from records obtained from NYSDOT's State Road Accident Surveillance System (SASS) and its Centralized Local Accident Surveillance System (CLASS).

Reportable accidents are those in which there is a fatality, injury, or property damage in excess of one thousand dollars ($1,000.00). Non-reportable accidents are those in which there are no fatalities or injuries and property damage is less than one thousand dollars ($1,000.00).

TABLE 5-2: 3-YEAR ACCIDENT SUMMARY

June 1, 1999 to May 31, 2002

Riverside MUPDD

Intersection/ Reference Marker	Int./ Non-Int.	REPORTABLE ACCIDENTS												Non-Report-able	Total	Percent
		Frequency & Severity				# of Vehicles			Light Conditions			Pavement				
		Total	Fatal-ities	Injured	Property Damage Only (PDO)	1 Vehicle	2 Vehicle	3+ Vehicle	Dawn/ Dusk/ Over-cast	Light	Dark	Wet	Dry			
SR 24 - CR 94 to Woodhull Road 24 0704 3043	Non-Int.	16	0	22	1	11	5	0	5	4	6	4	11	0	**16**	**9.8%**
SR 24 at Woodhull Road 24 0704 3043	Int.	9	0	11	3	0	8	1	1	8	0	2	7	0	**9**	**5.5%**
Riverhead Traffic Circle SR 24 at CR 63/Lake Road/ Riverhead-Moriches Road 24 0704 3043	Int.	9	1	7	0	3	6	0	1	6	1	1	7	2	**11**	**6.7%**
SR 24 - Riverhead Traffic Circle to Vail Avenue 24 0704 2002-2003	Non-Int.	18	0	22	5	2	15	1	5	9	4	4	14	5	**23**	**14.0%**
SR 24 at Vail Avenue 24 0704 2002	Int.	2	0	3	0	1	0	1	0	2	0	0	2	0	**2**	**1.2%**
SR 24 at Old Quogue Road 24 0704 2002	Int.	8	0	4	4	0	8	0	2	3	3	1	5	3	**11**	**6.7%**
SR 24 - Old Quogue Road to Head Start Entrance 24 0704 2004-2005	Non-Int.	3	0	3	1	1	2	0	0	2	1	0	3	1	**4**	**2.4%**
SR 24 - Head Start Entrance to MUPDD Site Entrance 24 0704 2006	Non-Int.	2	0	3	0	1	1	0	0	2	0	0	2	1	**3**	**1.8%**
SR 24 - MUPDD Site Entrance to Ludlam Avenue 24 0704 2007-2009	Non-Int.	5	0	8	1	1	4	0	0	3	2	0	5	0	**5**	**3.0%**
SR 24 at Ludlam Avenue 24 0704 2010	Int.	5	0	8	0	0	5	0	2	1	1	2	2	0	**5**	**3.0%**
SR 24 - Ludlam Avenue to Whitebrook Drive 24 0704 2010	Non-Int.	6	0	5	2	1	4	1	0	3	1	1	4	1	**7**	**4.3%**
SR 24 - Whitebrook Drive to CR 105 24 0704 2011-2013	Non-Int.	32	1	30	10	6	22	4	12	14	2	11	15	5	**37**	**22.6%**
SR 24 at CR 105 (Cross River Drive) 24 0704 2014	Int.	27	0	44	6	1	22	4	2	15	8	9	16	4	**31**	**18.9%**
	Total	**142**	**2**	**170**	**33**	**28**	**102**	**12**	**30**	**72**	**29**	**35**	**93**	**22**	**164**	**100%**
	Percent	**86.6%**	**NA**	**NA**	**NA**	**19.7%**	**71.8%**	**8.5%**	**22.9%**	**55.0%**	**22.1%**	**27.3%**	**72.7%**	**13.4%**	**100%**	
CR 104 at Old Quogue Road/Ludlam Avenue 02 58 53059	Int.	7	0	13	0	2	5	0	0	4	3	0	7	2	**9**	**100%**
	Percent	**77.8%**	**NA**	**NA**	**NA**	**28.6%**	**71.4%**	**0.0%**	**0.0%**	**57.1%**	**42.9%**	**0.0%**	**100%**	**22.2%**	**100%**	

TABLE 5-3: 3-YEAR ACCIDENT SUMMARY BY ACCIDENT TYPE

June 1, 1999 to May 31, 2002

Riverside MUPDD

Intersection/ Reference Marker	Int./ Non-Int.	REPORTABLE ACCIDENTS															Non-Reportable	Total	Percent
		Total	Reportable Accident - Types of Accidents																
			Over-taking	Rear End	Right Angle	Left Turn Against	Pedes-trian	Head-On	Side-Swipe	Bicycle	Right Turn	Fixed Object	Over-Turned	Run Off Road	Other	Un-known			
SR 24 - CR 94 to Woodhull Road 24 0704 3043	Non-Int.	16	2	2	0	0	0	0	0	0	1	10	1	0	0	0	0	**16**	**9.8%**
SR 24 at Woodhull Road 24 0704 3043	Int.	9	0	4	4	0	0	0	0	0	0	0	0	0	1	0	0	**9**	**5.5%**
Riverhead Traffic Circle SR 24 at CR 63/Lake Road/ Riverhead-Moriches Road 24 0704 3043	Int.	9	0	3	2	0	1	0	0	0	1	1	0	0	0	0	2	**11**	**6.7%**
SR 24 - Riverhead Traffic Circle to Vail Avenue 24 0704 2002-2003	Non-Int.	18	1	8	3	1	1	1	1	1	0	0	0	0	1	0	5	**23**	**14.0%**
SR 24 at Vail Avenue 24 0704 2002	Int.	2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	**2**	**1.2%**
SR 24 at Old Quogue Road 24 0704 2002	Int.	8	0	2	2	0	0	0	1	0	1	0	0	0	0	1	3	**11**	**6.7%**
SR 24 - Old Quogue Road to Head Start Entrance 24 0704 2004-2005	Non-Int.	3	0	2	0	0	1	0	0	0	0	0	0	0	0	0	1	**4**	**2.4%**
SR 24 - Head Start Entrance to MUPDD Site Entrance 24 0704 2006	Non-Int.	2	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	**3**	**1.8%**
SR 24 - MUPDD Site Entrance to Ludlam Avenue 24 0704 2007-2009	Non-Int.	5	0	1	0	2	0	0	0	0	1	1	0	0	0	0	0	**5**	**3.0%**
SR 24 at Ludlam Avenue 24 0704 2010	Int.	5	0	2	1	0	0	1	0	0	0	0	0	0	0	1	0	**5**	**3.0%**
SR 24 - Ludlam Avenue to Whitebrook Drive 24 0704 2010	Non-Int.	6	0	1	1	1	1	0	1	0	0	0	0	0	1	0	1	**7**	**4.3%**
SR 24 - Whitebrook Drive to CR 105 24 0704 2011-2013	Non-Int.	32	0	19	1	2	1	0	0	1	0	2	0	1	5	0	5	**37**	**22.6%**
SR 24 at CR 105 (Cross River Drive) 24 0704 2014	Int.	27	0	16	6	2	0	0	0	1	0	0	0	0	4	1	4	**31**	**18.9%**
	Total	**142**	**3**	**60**	**21**	**8**	**6**	**2**	**3**	**3**	**4**	**15**	**1**	**1**	**13**	**3**	**22**	**164**	**100%**
	Percent	**86.6%**	**2.1%**	**42.0%**	**14.7%**	**5.6%**	**4.2%**	**1.4%**	**2.1%**	**2.1%**	**2.8%**	**10.5%**	**0.7%**	**0.7%**	**9.1%**	**2.1%**	**13.4%**	**100%**	
CR 104 at Old Quogue Road/Ludlam Avenue 02 58 53059	Int.	7	1	2	0	1	1	1	0	0	0	1	0	0	0	0	2	**9**	**100%**
	Percent	**77.8%**	**14.3%**	**28.6%**	**0.0%**	**14.3%**	**14.3%**	**14.3%**	**0.0%**	**0.0%**	**0.0%**	**14.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**22.2%**	**100%**	

5.2.1 Results of the Accident Analysis

Riverhead Traffic Circle

The accident analysis showed there were few accidents within the traffic circle itself, but many accidents on the eastbound and westbound approaches to the traffic circle. Many of the accidents on the approaches were rear-end type accidents, reflecting the back-ups of the queues on the approaches to the circle. Most of these types of accidents can be attributed to driver inattention, driver error, or slippery roadway conditions. Moving traffic through the circle in a more efficient manner is essential to diminishing these types of accidents.

West of the traffic circle, on CR 94, many of the accidents are single-vehicle collisions with fixed objects, usually trees, off the roadway. Excessive speeds are predominantly the cause and roadway calming measures would be desirable on the eastbound approach.

SR 24 at Old Quogue Road

At the intersection of SR 24 at Old Quogue Road, there were eleven (11) accidents during the three-year period, of which eight (8) were reportable. Only two (2) of the accidents were of a right-angle type which typically occur at a side street intersection with an arterial highway. Several rear-end accidents occurred that are attributable to the back-ups of the queues from the traffic circle. At a rate of 3.7 accidents per year, the intersection experiences an accident rate below that which typically exists at an intersection of a collector roadway with an arterial highway within Suffolk County.

Segment of SR 24 Between Old Quogue Road and Ludlam Avenue

There were twelve (12) accidents on SR 24 between Old Quogue Road and Ludlam Avenue during the analysis period. There was a mix of accidents comprised of single-vehicle loss of control accidents, right-angle accidents at driveways and Donald Drive, and several rear-end accidents. Neither the number of accidents nor the types of accidents point to a specific problem that would require further analysis or mitigation.

SR 24 at Ludlam Avenue

There were five (5) accidents at the intersection during the three-year analysis period, of which two (2) were rear-end collisions. All of the accidents that occurred can be attributed to driver inattention or driver error. At a rate of less than two (2) accidents per year, the intersection does not experience a high accident rate.

SR 24 at CR 105

The intersection of SR 24 and CR 105 itself does not experience a high accident occurrence, but there were numerous accidents on the eastbound approach to the intersection. At a four-way intersection, right-angle collisions and left-turning collisions are usually more frequent than occurs at this intersection. Rear-end collisions are prevalent, however, indicating there may be some driver confusion or poor surface conditions on the approaches. The recent roadway project completed on SR 24 should be useful in reducing the incidence of rear-end collisions at the intersection.

CR 104 at Old Quogue Road/Ludlam Avenue

There were nine (9) accidents at the intersection during the three-year period. Several of the accidents were directly attributable to excessive speeds on CR 104. There were, however, no right-angle accidents at the intersection, suggesting that motorists can make left-turns from either Old Quogue Road or Ludlam Avenue in a relatively safe manner. Some measure to reduce speeding on CR 104 would be most effective at this intersection.

5.3 Conclusions on Existing Traffic Conditions

1. The Riverhead Traffic Circle currently operates at an unacceptable LOS F during all peak traffic periods, but some of the approaches have better conditions during the weekday morning and mid-day peak periods and during the Saturday mid-day peak period, moderating between LOS C and LOS E. Improvements are presently required and will be necessary for the roundabout to accommodate additional traffic volumes in the future.

2. The intersection of SR 24 and Old Quogue Road suffers operational failures during the weekday evening peak traffic period and the weekday mid-day peak traffic period, operating at LOS F and LOS E, respectively. The failures are due to the inability of motorists to execute northbound left-turns from Old Quogue Road onto SR 24. These conditions can be endured at the present time, but will require mitigation when future traffic volumes are added.

3. The intersection of SR 24 and Old Quogue Road has acceptable levels of service during the weekday morning and Saturday mid-day peak periods, operating at LOS C and LOS D, respectively.

4. SR 24 at Ludlam Avenue operates at an acceptable LOS C during all peak traffic periods, indicating only moderate delays for motorists turning from Ludlam Avenue.

5. Recent roadway and intersectional improvements at the intersection of SR 24 and CR 105 allow it to operate at an acceptable LOS C during all peak periods.

6. The intersection of CR 104 and Old Quogue Road/Ludlam Avenue operates at a good LOS B during all peak traffic periods. It has excess capacity available to accept additional traffic volumes in the future.

7. There is a high incidence of rear-end collisions on the approaches to the Riverhead Traffic Circle attributable to the lengths of the queues on the approaches. These accidents can likely be reduced by improving efficiency of movements on the approaches to the roundabout.

8. There is a high incidence of rear-end collisions on the approaches to the intersection of SR 24 and CR 105. Improvements to the intersection since the

accidents records were compiled should help to alleviate the conditions causing these types of accidents.

9. Accident experience on the through portion of SR 24, in the vicinity of the proposed site entrances, and at the intersections of SR 24 at Old Quogue Road, SR 24 at Ludlam Avenue, and CR 104 at Old Quogue Road/Ludlam Avenue, did not reveal any unusual incidences that would require mitigation.