October 2000

TRAFFIC STUDY UPDATE
BURDECK STREET CORRIDOR

Study Objectives:

The CDTC staff finalized the *Traffic Planning Study for the Burdeck Street Corridor* in June 1995. The analysis of the corridor, however, was based on a land use inventory, traffic counts and travel-delay studies that were conducted in the fall of 1990 and Spring of 1991. The Town of Rotterdam is currently updating their Comprehensive Plan. In concert with this effort, the town has requested that CDTC staff update the Burdeck Street Traffic Study to address development proposals that have come forward since the completion of the traffic study and to identify the actual impact of the growth that has occurred along the corridor over the past six years.

The town submitted a proposal under CDTC's 2000-01 Community and Transportation Linkage Planning Program and was awarded $7,000 for the study. It should be noted that the work to be performed under the Community and Transportation Linkage Planning Program is not intended to *replace* the information contained in the *Traffic Planning Study for the Burdeck Street Corridor* but rather to *supplement* the information contained in the study. Consequently, the information contained in the remainder of this document does not attempt to redefine terms used in the original study, nor to re-explain engineering principles. The reader of this document should be thoroughly familiar with the original 1995 Report and view the information contained herein as an addendum to that document.

Study Approach:

For the 1995 study, CDTC staff created a micro-simulation model using CDTC's STEP model for the Burdeck Street corridor. This model incorporated a detailed land use inventory of the study area, and was calibrated to the 1990/1991 traffic count data. Once calibrated, the model was re-run using two land use growth scenarios--one depicting moderate growth in the area, and one depicting more aggressive (high) growth projections. Using the output from these two growth scenarios, CDTC staff analyzed the potential impact that growth in this magnitude would have on the area's transportation system. The results of this analysis are documented in the 1995 report entitled *Traffic Planning Study for the Burdeck Street Corridor*.

The process described above was not repeated for the Rotterdam Linkage project for two basic reasons. First, the software that CDTC's STEP model is based on (TModel) has been significantly upgraded since the early 1990's which would have made it somewhat difficult to start with the trip tables and network that CDTC developed for the first Burdeck Street project. Second, the level of effort that would be required to conduct a full-blown STEP Model corridor analysis was not warranted given that significant changes in traffic volume and travel patterns did not occur over the past ten years.

Consequently, CDTC staff determined that an analysis of existing conditions overlaid on the work that was performed in the early 1990's would be sufficient to reevaluate potential transportation problems in the Burdeck Street corridor.

As a means toward this end, CDTC staff requested that the town conduct traffic counts at a majority of the locations where counts were conducted in the early 1990's. Also, the town was asked to update 1990 information regarding specific development proposals in the corridor.

CDTC staff compared current traffic counts with the 1990 counts and determined where growth, if any occurred. Next, CDTC staff identified the locations where traffic growth exceeded the background growth rate for Schenectady county and identified any attendant development that occurred that could explain the increase in traffic growth. CDTC staff looked at capacity and level-of-service (LOS) issues at all the locations where current counts were taken. Threshold analysis using the 2000 counts was conducted at all the intersections and links where current counts were available. Intersection level of service analysis using HCM was conducted at those intersections that experienced significant growth on certain movements, or had high volume to capacity ratios in 1990.

Trips resulting from future probable development, as identified by the town of Rotterdam planning department, were estimated using the 1997 ITE Trip Generation Manual, Sixth Edition, and added to the system. Level of Service and capacity analysis was performed for all locations where analysis was considered necessary.

Growth in Traffic--1990 to 2000

Table 1 contains traffic count information for 1990 and 2000 counts. As shown in Table 1, many locations experienced an actual decline in traffic, and with a few notable exceptions, growth at the remaining locations was smaller than or equal to the "background" traffic growth in the region. "Background" traffic growth can be defined as traffic growth resulting from general demographic changes (for example, an increase in vehicles per household, increase in income, increase in driving age population, etc), from general improvement in mobility and from changes in travel behavior.

The New York State Department of Transportation (NYSDOT) collects and analyzes traffic growth data from a variety of sources. Daily VMT data from the State Touring Route System for Schenectady county indicate that the county has experienced a 12.6% increase in VMT during the period 1990-1999. This translates to an average growth rate of 1.4 percent per year.

The sections of Table 1 highlighted in green identify the locations where traffic growth in the corridor exceeded the average growth rate of 1.4% per year. The sections highlighted in yellow identify locations where growth has occurred, but at a lesser rate than 1.4% per year. Traffic at the remaining locations of the study area declined from 1990 levels.

As shown in Table 1, both peak direction and two way volumes on Burdeck Street between NY 7 and NY 159 (Mariaville Road) increased by more than 1.4% per year (3.2% and 2.7%,

respectively). This growth, beyond background growth, can be attributed to the construction of Schermerhorn Hollow Village, Hollywood Plaza, Fuez Manufacturing and the build out of the residential developments south of Route 7, namely Eldorado Acres and Becker Crossing. Even with this growth, peak direction volumes are in the vicinity of 535 vehicles per hour. Midblock capacity on this portion of NY 337 is estimated at 800 vph due to the number of driveways accessing this portion of the arterial. Therefore, additional development can occur along the corridor before this section of the corridor becomes over-saturated.

Table 1 also indicates that peak direction traffic growth on NY 337 between Putnam Road and Schermerhorn Road was 34.2% over 10 years, or approximately 3.0 percent per year (the two-way increase was 36.3% or 3.1% per year). These figures are not surprising, given the development of Schermerhorn Hollow Village, which has BJ's Wholesale Club and Office Max as the anchor stores and the development of Hollywood Plaza, a strip mall with Burger King and REX. The intersection of Schermerhorn Hollow Village (SHV), Rotterdam Square Mall (RSM) and NY 337 (which has been modified since the 1993 base year data for the Burdeck Street Study were collected), operates at level-of-service (LOS) B.

Two-way traffic increased by almost 65 percent, or 7.4 percent per year on Mariaville Road, west of NY 337. However, absolute growth over the seven year period (counts were taken by Ingalls, Smart during June 1997) was only 190 vehicles in the peak hour (growth in the peak direction was 30 vehicles), bringing two-way volumes on this portion of Mariaville Road to 485 vehicles, well below the threshold capacity for the road. Most of the growth can be attributed to the construction of Fuez Manufacturing, a manufacturing facility that employs 116 people. Intersection LOS and capacity figures remain mainly unchanged from 1990 levels (the intersection currently operates at LOS B with a V/C of .67, as compared to LOS B and V/C of .59 in 1990).

Increases in traffic above "background traffic growth rates" were also experienced on Princetown Road between Putnam Road and North Thompson Street. However, 1990 volumes on this stretch of road were 255 between Putnam and NY 337 and 75 between NY 337 and North Thompson. It follows that very small increases in volume will result in exaggerated increases related as a percentage. For example, traffic in the peak direction increased from 255 to 300 vehicles per hour, an increase of 45 vehicles, which translates into a 17.6 percent increase in traffic over the ten year period (or 1.6% per year). An increase in volume of 45 vehicles over ten years on Princetown Road (in the pm peak hour peak direction) is not an increase in volume to be concerned about. It is feasible that some of this increase is connected to the construction of Schermerhorn Hollow Village.

A 43.9 percent increase in pm peak period, peak direction traffic occurred on Dunnsville Road, on the link between I-90 and NY 7. This increase, in absolute numbers, was 125 vehicles over the nine year period (counts were conducted by Creighton Associates during 1999), bringing the one-way link volume up to 410 vehicles from 285 vehicles. Much of this increase is attributable to the expansion of the Golub warehouse. This increase in volume does not impact the operation of Dunnsville Road or Route 7, nor the intersection of the two roads given that the intersection was reconfigured in 1999.

TABLE 1

Summary of Growth in PM Peak Hour Traffic Volumes 1990-2000

	1990 Peak Direction	2000 Peak Direction	Absolute Change	Percent Change Peak Direction	Annualized Change Peak Direction	1990 Two-Way	2000 Two-Way	Absolute Change	Percent Change Two-Way	Annualized Change Two-Way
BURDECK ST/WEST CAMPBELL RD										
NY 7 - NY 159 (1997 count)	430	535	105	24.40%	3.20%	730	880	150	20.50%	2.70%
NY 159 - Princetown Rd	520	555	35	6.70%	0.70%	830	860	30	3.60%	0.40%
Princetown Rd - N Thompson St	275	250	-25	-9.10%	-0.90%	460	435	-25	-5.40%	-0.60%
N Thompson St - Campbell Ave	465	470	5	1.10%	0.10%	840	905	65	7.70%	0.70%
Campbell Ave - Schermerhorn Rd	680	660	-20	-2.90%	-0.30%	1270	1010	-260	-20.50%	-2.30%
Schermerhorn Rd - Putnam Rd	380	510	130	34.20%	3.00%	840	1145	305	36.30%	3.10%
Putnam Rd - RSM N Entrance	910	870	-40	-4.40%	-0.40%	1465	1605	140	9.60%	0.90%
RSM N Entrance - I-890	1240	1150	-90	-7.30%	-0.80%	2040	2130	90	4.40%	0.40%
DUANESBURG RD/CURRY RD (NY 7)										
Pangburn Rd - I-88 Access	415	415	0	0.00%	0.00%	535	575	40	7.50%	0.70%
I-88 Access - Burdeck St	760	810	50	6.60%	0.60%	1,325	1410	85	6.40%	0.60%
Burdeck St - Kellar Ave (1997 count)	525	490	-35	-6.70%	-1.00%	920	935	15	1.60%	0.20%
Kellar Ave - Dunnsville Rd (1999 count)	600	570	-30	-5.00%	-0.60%	1,010	985	-25	-2.50%	-0.30%
Dunnsville Rd - 5 Corners (1999 count)	530	585	55	10.40%	1.10%	1,050	995	-55	-5.20%	-0.60%
MARIAVILLE RD (NY 159)										
RR - Burdeck St (1997 count)	190	220	30	15.80%	2.10%	295	485	190	64.40%	7.40%
Burdeck St - Turnbull St (1997 Count)	285	215	-70	-24.60%	-4.00%	440	155	-285	-64.80%	-13.90%
Turnbull St - 5 Corners	375	NC				665	NC			
PRINCETOWN RD										
Putnam Rd - Burdeck St	255	300	45	17.60%	1.60%	435	485	50	11.50%	1.10%
Burdeck St - N Thompson St	75	85	10	13.30%	1.30%	135	155	20	14.80%	1.40%
N Thompson St - 5 Corners	255	NC				375	NC			
CR 103 - PANGBURN RD										
Birchwood Dr - I-88	110	NC				165	NC			
Parkers Corners - Birchwood Dr	30	NC				45	NC			
DUNNSVILLE RD (CR 81)										
Giffords Church Rd - Wemple Rd	90	NC				150	NC			
Wemple Road - I-90	185	NC				305	NC			
I-90 - Route 7 (1999 Count)	285	410	125	43.90%	4.10%	505	655	150	29.70%	2.90%
CR 89 - CAMPBELL AVE										
RR - Burdeck St	310	275	-35	-11.30%	-1.20%	585	535	-50	-8.50%	-0.90%
CR 54 - PUTNAM RD										
Gordon Road - NY 337	385	455	70	18.20%	1.70%	540	665	125	23.10%	2.10%
CR 93 - SCHERMERHORN RD										
Putnam Rd - NY 337	This intersection was reconfigured; Schermerhorn Road now dead-ends north of Schermerhorn Hollow Village and West of NY 337.									
NORTH THOMPSON STREET										
Princetown Rd - NY 337	210	275	65	31.00%	2.70%	405	485	80	19.80%	1.80%

PM peak hour traffic on Putnam Road west of NY337 experienced a 70 vehicle increase or 18.2 percent (1.7 % per year) over the ten year period. Two-way traffic increased by a similar amount (see Table 1). Much of this increase can be attributed to the fact that Schermerhorn Road was dead-ended north of Schermerhorn Hollow Village (the development that houses BJ's and Office Max); access to Schermerhorn Road is now via Putnam Road. The access road to Schermerhorn Hollow Village now takes the place of what was the intersection of Schermerhorn Road with NY337 and Rotterdam Square Mall. An analysis of this newly configured intersection was performed. The intersection operates at LOS B with intersection delay of 15.1 seconds. Table 3 contains more detailed LOS analysis for this and other intersections in the Burdeck Street/NY 337 Corridor.

One final increase in traffic worth noting occurred on North Thompson Road between Princetown Road and Burdeck Street. Traffic increased by 2.7 percent per year in the pm peak direction and two-way peak hour traffic increased by 1.8 percent per year. Traffic volumes on this road are low, so again the percentage increase is somewhat exaggerated. In absolute numbers, traffic increased by 65 in the peak direction, and by 80 vehicles in both directions. Total year 2000 two-way volumes in the pm peak hour were recorded as 485, so capacity on this link is not an issue. Table 3 contains figures regarding threshold capacity.

Midblock Threshold Analysis--2000

Table 2 provides information regarding mid-block traffic levels, LOS D capacity constraints, reserve capacity and attendant annual growth that can be accommodated given year 2000 traffic counts. From Table 2 it can be seen that only two links are currently at or near LOS D capacity and therefore will be unable to accommodate large increases in traffic due to development pressure. The first link is located on NY 337 between the Rotterdam Square Mall North Entrance and Putnam Road. Peak direction pm peak volume on this link is currently 870 vehicles (southbound direction). Theoretically, this link can accommodate an additional 130 vehicles before it will become capacity constrained. The volume on this link was slightly higher during the early 1990's, so this potential "hot spot" was identified in the 1995 Final Report. Volumes in the northbound direction are approaching 750 vehicles in the pm peak hour, but this section is two lanes, so it poses no traffic problem. Three items should be noted at this point, with regard to development pressure in the area:

1. Rotterdam Square Mall is currently 65% occupied. As such, using standard ITE trip generation rates, this mall should produce and attract approximately 1550 trips. Using year 2000 traffic count data, it was determined that the mall produces and attracts around 70% of what ITE suggests (1100 trips). The town of Rotterdam has indicated that it is anticipated that the Mall will be 75% occupied by the end of the year. Travel pressure will be felt on NY 337 between Putnam Road and the RSM North entrance should an increase in occupancy occur, or should the mall begin to generate trips more closely in volume to ITE Trip Generation figures.

2. Schermerhorn Hollow Village is approved for an additional 84,000 square feet of retail space, for a total of 223,000 square feet. Should final expansion occur, a *maximum* of 217

TABLE 2
Midblock Capacity Threshold Analysis for Selected Highways
Located in Study Area 1--Year 2000

Highway/Segment	2000 Peak Directional Volume (vph)	Maximum Acceptable Capacity (vph)	Reserve Capacity	Reserve Capacity %	Maximum Annual Growth Rate Without Exceeding Capacity 10 Years	Maximum Annual Growth Rate Without Exceeding Capacity 20 Years
NY 337 - Burdeck St/Campbell Rd						
I-890 - RSM N Entrance	1150	2500	1350	54%	8.1%	4.0%
RSM N Entrance - Putnam Rd	870	1000	130	13%	1.4%	0.7%
Putnam Rd - Schermerhorn Rd	510	1000	490	49%	7.0%	3.4%
Schermerhorn Rd - Campbell Ave	660	1000	340	34%	4.2%	2.1%
Campbell Ave - N Thompson St	470	1000	530	53%	7.8%	3.8%
N Thompson St - Princetown Rd	250	1000	750	75%	14.9%	7.2%
Princetown Rd - NY 159	555	1000	445	45%	6.1%	3.0%
NY 159 - NY 7	535	1000	465	47%	6.5%	3.2%
NY 7 - Curry Rd/Duanesburg Rd						
N Wescott - Broadway	--	1000				
Broadway - Dunnsville Rd	--	1000				
Dunnsville Rd - Kellar Ave	570	1000	430	43%	5.8%	2.9%
Kellar Ave - Burdeck St	490	1000	510	51%	7.4%	3.6%
Burdeck St - I-88 Access	810	1000	190	19%	2.1%	1.1%
I-88 Access - Pangburn Rd	415	1000	585	59%	9.2%	4.5%
NY 159 - Mariaville Road						
RR - Burdeck Street	220	1000	780	78%	16.3%	7.9%
Burdeck St - Turnbull Road	215	1000	785	79%	16.6%	8.0%
Turnbull St - 5 Corners	--	1000				
CR 83 - Princetown Road						
Putnam Road - Burdeck St	300	1000	700	70%	12.8%	6.2%
Burdeck St - N. Thompson St	85	1000	915	92%	28.0%	13.1%
N. Thompson St - 5 Corners	--	1000				
CR 81 - Dunnsville Road						
Giffords Church Rd - Wemple Rd	--	1000				
Wemple Road - I90	--	1000				
I-90 - NY 7	410	1000	590	59%	9.3%	4.6%
CR 89 - Campbell Avenue						
RR - Burdeck Street	275	1000	725	73%	13.8%	6.7%
CR 54 - Putnam Road						
Gordon Road - NY 337	455	1000	545	55%	8.2%	4.0%
North Thompson Street						
Princetown Road - NY 337	275	1000	725	73%	13.8%	6.7%

additional pm peak hour trips (not accounting for up to 25% pass-by trips) could be generated. Using current traffic flow patterns as a guide, it is estimated that up to 50 additional vehicles will use the southbound link between Putnam and RSM North Entrance and 80 vehicles will travel on the northbound link.

3. Hollywood Plaza is approved as a 4-lot commercial strip. Currently Burger King and REX Appliance Center occupy lots 1 and 4 respectively. The remaining two lots are approved for 15,500 square feet of retail and 10,000 square feet of retail. If developed, this could add a maximum of 60 additional trips during the pm peak.

The second link that is approaching maximum acceptable capacity, as identified in Table 2, is located on NY 7 in the westbound direction between the Burdeck Street and I-88 access. Current volumes are 810 vehicles per hour. Traffic growth over the past 10 years was only 50 vehicles; thus this link was identified as a potential problem area in the 1995 Final Report as well. It has been proposed that seventy-five acres be re-zoned to light industrial in this general vicinity. It is too early to determine, however, what access and egress points will be used, should this parcel be developed for light industrial uses.

Intersection Level-of-Service Analysis--2000

Current traffic counts were not available for three of the fifteen intersections that were analyzed for the 1993 effort. These are 5 Corners, the intersection of NY 7 and Kellar Road and the intersection of Mariaville Road and Turnbull Street. The 5 Corners intersection operated at LOS F in 1990, and preliminary engineering and scoping work for this intersection was an item on the 1994-99 Transportation Improvement Program (TIP). Subsequently, $800,000 is programmed in the 1999-2004 TIP for professional services, right-of-way, and detailed design. $4.4 million is programmed post 2004 for construction. The NY 7/Kellar Road intersection operated at LOS C in 1990 and had reserve capacity of almost 600 vehicles. The westbound movement on NY 7 was a potential problem spot in 1990, but the signalization of NY 7 and Dunnsville Road probably improved the operation of this movement. There was a 54% or 856 vehicle reserve capacity at the Mariaville Road/Turnbull intersection during the early 1990's and growth has not been significant in this area. Consequently, it is concluded that this intersection operates at about the same level-of-service as in 1990.

The June 1997 Ingalls, Smart *Traffic Impact Study for the Proposed Retail Development at Burdeck Street and Route 7* contained level-of-service (LOS) analysis for the intersection of Burdeck Street and NY 7 and Burdeck Street and Mariaville Road. The 1997 analysis indicates that traffic changes at these intersections have not changed the LOS. Both intersections operated at LOS B in 1990 and continued to operate at LOS B in 1997. The signal phasing was changed at the intersection of NY 7/NY 337 and a left turn lane was added to the EB leg of NY 7 during this time period; these changes made it possible for the intersection to continue to operate at LOS B.

The *Traffic Engineering Study for the Rotterdam Industrial Park* performed by the A/E Group in 1999 and the *Traffic Impact Study for the Golub Corporation Distribution Expansion* prepared

by Creighton Manning Engineering in 1999 both contained LOS analysis for the intersections surrounding the Rotterdam Industrial Park. The intersection of NY 7 with Dunnsville Road has been reconfigured and signalized since the early 1990's and now operates at LOS A. This intersection, when unsignalized in 1990, operated at LOS F. The LOS at the intersection of Dunnsville Road with Golub declined from LOS A to LOS B when the first phase expansion of Golub was completed. The intersection of NY 7 with the Rotterdam Industrial Park has improved slightly since 1990, with some geometric reconfiguration, but access from the industrial park to NY 7 operates at LOS E. The *Traffic Engineering Study for the Rotterdam Industrial Park* performed by the A/E Group contains recommendations for improving traffic operations at this intersection; therefore CDTC staff did not duplicate that effort.

CDTC staff performed LOS analysis for the intersections along the NY 337 corridor that experience "high" levels of growth. These were the intersections that were most heavily impacted by the Schermerhorn Hollow Village development. These included the intersection of NY 337 with Putnam Road and RSM, SHV and RSM and West Campbell Road. The results of this analysis can be found in Table 3. From Table 3 it can be concluded that the LOS at these intersections did not deteriorate over the past ten years. In fact, with a few minor geometric changes at Putnam Road, the LOS of the intersection of Putnam Road and NY 337 and RSM actually improved (from LOS C to LOS B). Given these findings, additional LOS analyses were not performed for additional intersections along the corridor, especially since the remaining intersections along the corridor operated at LOS B or better in 1990 and did not experience substantial growth over the ten year period.

Threshold Analysis for Intersections-2000

Table 4 contains the results of the threshold analysis that was performed for intersections where current traffic counts were available. It should be noted that several intersections within the 1990 Burdeck Street Study Area have been reconfigured since the 1990 study was completed:

The intersection of Burdeck Street and NY 7 was reconfigured to include turn lanes on all approaches. The LOS D capacity at this intersection increased from approximately 2000 vehicles per hour to over 2600. 1997 entering volumes totaled 1600, leaving a reserve capacity of 1000 or 40 percent.

As mentioned, the intersection of Schermerhorn Hollow Road with NY 337 and RSM was changed when SHV was constructed. Schermerhorn Hollow Road now dead-ends north of the retail development and an access road to SHV was constructed that intersects with NY 337 just opposite the southern access to RSM. This intersection has a LOS D capacity of 3815 vehicles. 2000 entering volumes were 1523 vehicles, yielding a 55% reserve capacity.

The intersection of Putnam Road with NY 337 and RSM was also reconfigured. During the early 1990's, northbound left turns onto Putnam Road were not permitted. Eastbound movements from Putnam Road were traveled on a single lane, with no dedicated turn lanes. The current configuration of this intersection allows northbound left turns from NY 337 to Putnam Road. Two dedicated right turn lanes from Putnam Road eastbound to NY 337 southbound have

TABLE 3
Summary of Existing PM Peak Hour Capacity and
Level-of-Service Analyses for Signalized Intersections

Intersection	Movement	V/C	Stopped Delay Seconds	LOS
Burdeck Street/NY 7	EB NY 7-Left Turns	0.37	6.5	B
(1997 count)	EB NY 7-Thru Movement	0.27	2.3	A
	WB NY 7-All Movements	0.60	11.8	B
	SB Burdeck St-Left Turns	0.35	21.7	C
	SB Burdeck St-Right Turns	0.32	11.0	B
	Average for Entire Intersection	0.67	9.0	B
Princetown Rd/	EB Princetown Rd-All Movements	0.44	4.6	A
Burdeck St	WB Princetown Rd-All Movements	0.11	3.7	A
	NB Burdeck St-All Movements	0.64	7.6	B
	SB Burdeck St-All Movements	0.51	6.2	B
	Average for Entire Intersection	0.53	6	B
Mariaville Rd/	EB Mariaville Rd-All Movements	0.51	11.6	B
Burdeck St	WB Mariaville Rd-All Movements	0.59	12.6	B
	NB Burdeck St-All Movements	0.51	3.5	A
	SB Burdeck St-All Movements	0.69	5.1	B
	Average for Entire Intersection	0.67	6.6	B
W Campbell Ave/	EB Campbell Rd-Thrus	0.36	15.2	B
Burdeck St	EB Campbell Rd-Right Turns	0.30	0.1	A
	WB Campbell Rd-All Movements	0.47	16.2	B
	NB Burdeck St-All Movements	0.71	15.8	B
	Average for Entire Intersection	0.30	10.8	B
Schermerhorn Hollow Vill/	EB SHV Access Road-Left Turns	0.35	24.2	C
Rotterdam Mall/	EB SHV Access Road-Thru/Right Turns	0.17	23.3	C
W Campbell Rd (NY 337)	WB Mall Entrance-Left Turns	0.40	27.5	C
	WB Mall Entrance-Thru & Right Turns	0.42	27.8	C
	NB NY 337-Thrus/Left Turns	0.28	8.7	A
	NB NY 337-Right Turns	0.17	2.3	A
	SB NY 337-Thrus	0.62	17.8	B
	SB NY 337-Right Turns	0.16	13.2	B
	Average for Entire Intersection	0.31	15.1	B

TABLE 3 (continued)

Intersection	Movement	V/C	Stopped Delay Seconds	LOS
NY 7/Dunnsville Road	EB NY 7-Thru/Right Turns	0.40	4.5	A
(1997 count)	WB NY 7-Left Turns	0.27	4.0	A
	WB NY 7-Thru Movement	0.36	4.3	A
	NB Dunnsville Road--Left Turns	0.62	30.0	C
	NB Dunnsville Road--Right Turns	0.52	27.1	C
	Average for Entire Intersection	0.53	9.7	A
Putnam Rd/	EB Putnam Rd-All Movements	0.57	22.9	C
Rotterdam Mall/	WB Rotterdam Mall-Thrus & Left Turns	0.16	13.8	B
W Campbell Rd (NY 337)	WB Mall Entrance-Right Turn	0.09	8.5	A
(reconfigured since 1990)	NB NY 337-Left Turns	0.19	16.2	B
	NB NY 337-Thru Movement	0.75	25.2	C
	NB NY 337-Right Turns	0.02	14.8	B
	SB NY 337-Left Turns	0.13	14.7	B
	SB NY 337-Thru Movements	0.49	9.1	A
	SB NY 337-Right Turns	0.43	8.7	A
	Average for Entire Intersection		17.4	B
Unsignalized Intersections				
Dunnsville Rd/	EB Dunnsville Rd-All Movements	0.32	10.6	B
Golub Corp	SB Dunnsville Rd--All Movements	0.37	10.1	B
(1999 Count)	NB Golub Driveway-All Movements	0.37	10.8	B
	Average for Entire Intersection		10.5	B
NY 7/Rotterdam	WB NY 7-Left Turns		3.7	A
Industrial Park	EB NY 7-Left Turns		3.4	A
(1999 Count)	NB Industrial Park Entrance-All Mvm'ts		44.5	E
	SB Harold Street--All Mvm'ts		7.0	B

TABLE 4
Threshold Analysis for Signalized and Unsignalized Intersections
Located Within Study Area 1

		Critical Capacity Thresholds		
	2000 PM Peak Hour Entering Volume	**LOS D Capacity**	**Reserve Capacity (%)**	**Volume**
NY 7/Burdeck St	1600	2661	40%	1061
5 Corners	NC	NC	NC	NC
Princetown Rd/Burdeck St	928	1683	45%	755
Campbell Ave/Burdeck St	1358	1969	31%	611
SHV/RSM/NY 337	1523	3815	60%	2292
NY 7/Kellar Rd	NC	NC	NC	NC
Putnam Rd/Rotterdam Mall/ West Campbell Road	1756	3889	55%	2133
Rotterdam Mall North Entrance/NY 337	2149	3064	30%	915
Mariaville Road/Burdeck St	1305	1683	22%	378
Burdeck St/N Thompson St (unsignalized)	915	1200	24%	285
NY 7/Dunnsville Rd (signalized)	1357	2662	49%	1305
NY 7/Pangburn Rd (unsignalized)	636	1600	60%	964
Mariaville Rd/Turnbull St (unsignalized)	NC	NC	NC	NC
Dunnsville Rd/Golub Corp (unsignalized)	827	1350	39%	523
NY 7/Rotterdam Industrial Park (unsignalized)	1139	1350	16%	211

*NC=No Current Count

been constructed and are controlled by a stop sign at NY 337. An additional eastbound lane on Putnam Road allows through and left turns. This intersection now has a LOS D capacity of 3889 and an entering volume of 1756, with a reserve capacity 50%.

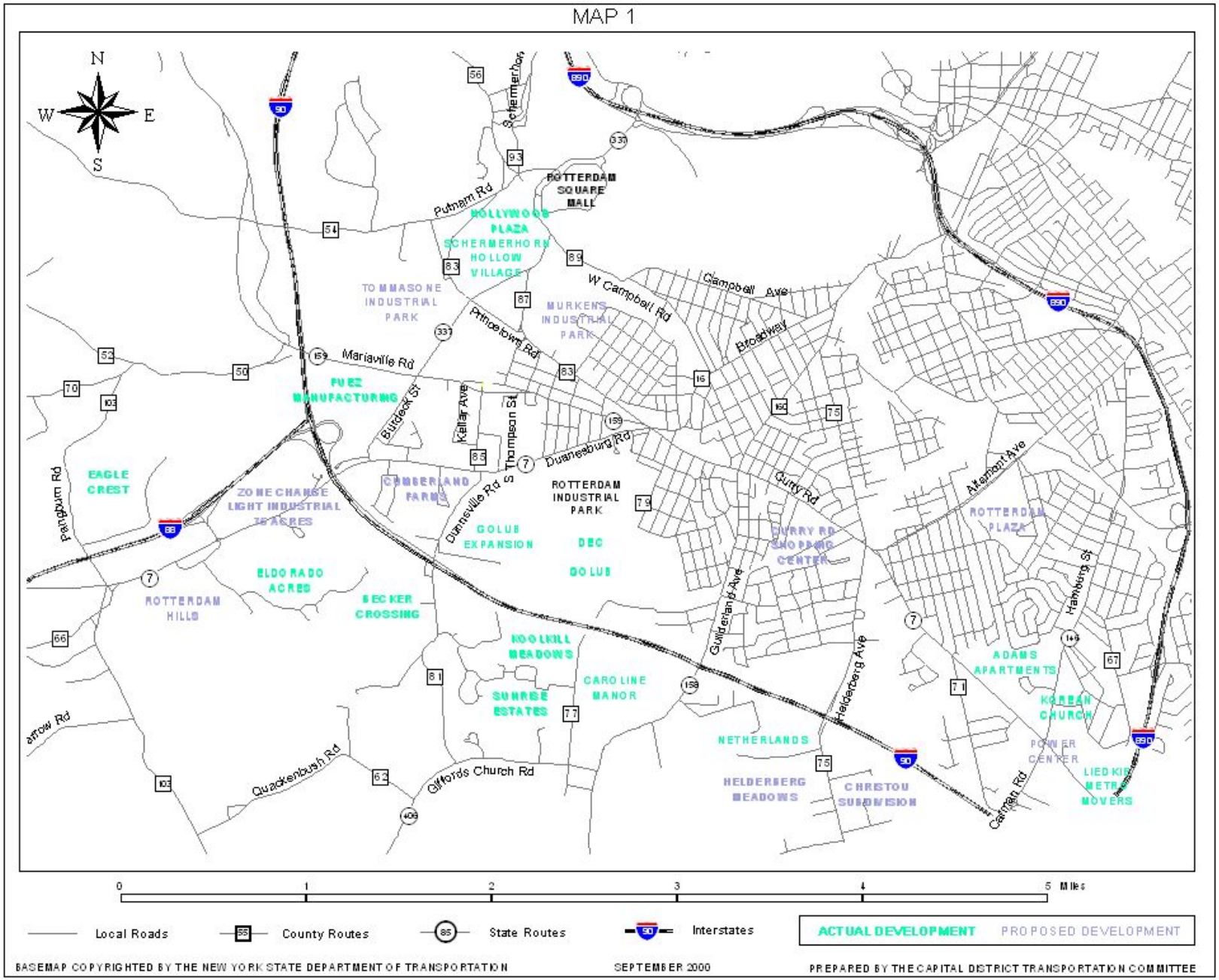
When the Traffic Planning Study for the Burdeck Street Corridor was completed, the intersection of Dunnsville Road and NY 7 was an unsignalized intersection. It is now signalized, with an entering capacity of 2662. 1997 entering volumes were 1357, leaving 1305 or 49% reserve capacity.

The remaining intersections in the study area were not reconfigured, although it is possible that signal cycle lengths and phasing have changed somewhat. The data that appear in Table 4 clearly indicate that all the intersections (where current counts are available) with the exception of the intersection of NY 7 and the Rotterdam Industrial Park, have reserve capacity in excess of 20 percent. The intersection of NY 7 and the Rotterdam Industrial Park has reserve capacity of 16 percent, or 211 vehicles. As discussed, a separate study was performed for this intersection, so additional recommendations are not warranted.

Development in the Corridor--1990 to 2000

The Town of Rotterdam Planning Department and Schenectady County Planning Staff reviewed tables that were created during the early 1990's that identified known and probable future development in the Burdeck Street Study Area. Many of the residential developments south of I-90 (see Map 1) were built, totaling 280 units. The commercial development that was identified in early 1990 as "probable" and that which occurred during the ten year period is described below and pictorially represented in Map 1.

1. Golub Warehouse expanded its office and warehouse as anticipated and now employs 700 employees (with 100 to 150 additional within the next three years).
2. The proposed industrial development called Altamont Metal Products was developed as Fuez Manufacturing , which employs 115 people.
3. Schermerhorn Hollow Village was anticipated to be a retail development with 369,000 square feet of space. It currently houses BJ's and Office Max totaling 139,160 square feet, with approvals of an additional 84,000 square feet in retail (total approved development=223,000 sq. ft)
4. Valentine Meadows, a residential development and Sicilia Offices were developed as Hollywood Plaza, a four lot commercial development. Currently, only two lots have been developed --the first is occupied by Burger King and the second is occupied by a REX appliance center.
5. Meyer Petroleum, a proposed diner and truck stop, was developed as a truck stop and truck repair and is called Eagle Crest.
6. The Korean Presbyterian Church constructed their 7,000 square foot addition, as anticipated.
7. Golub occupies a building at the Rotterdam Industrial Park and 100 employees are employed at this location.


MAP 1
N
W
E
S
ROTTERDAM SQUARE MALL
HOLLYWOOD PLAZA
SCHERMERHORN HOLLOW VILLAGE
TOMMASONE INDUSTRIAL PARK
MURKENS INDUSTRIAL PARK
PUEZ MANUFACTURING
EAGLE CREST
ZONE CHANGE LIGHT INDUSTRIAL 75 ACRES
CUMBERLAND FARMS
ROTTERDAM INDUSTRIAL PARK
GOLUB EXPANSION
DEC
GOLUB
CURRY RD SHOPPING CENTER
ROTTERDAM PLAZA
ELDORADO ACRES
ROTTERDAM HILLS
BECKER CROSSING
KOOLKILL MEADOWS
SUNRISE ESTATES
CAROLINE MANOR
NETHERLANDS
HELDERBERG MEADOWS
CHRISTOU SUBDIVISION
ADAMS APARTMENTS
KOREAN CHURCH
POWER CENTER
LIEDKIE METRO MOVERS
Putnam Rd
W Campbell Rd
Campbell Ave
Broadway
Princetown Rd
Mariaville Rd
Duanesburg Rd
Curry Rd
Altamont Ave
Hamburg St
Guilderland Ave
Helderberg Ave
Carman Rd
Quackenbush Rd
Clifford Church Rd
Painted Rd
Schermerhorn
Butlock St
Kellar Ave
Thompson St
Barnesville Rd
0 1 2 3 4 5 Miles
Local Roads
County Routes
State Routes
Interstates
ACTUAL DEVELOPMENT
PROPOSED DEVELOPMENT
BASEMAP COPYRIGHTED BY THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION
SEPTEMBER 2000
PREPARED BY THE CAPITAL DISTRICT TRANSPORTATION COMMITTEE

8. The Curry Road Shopping Center is 90% vacant, and houses a total of 19 employees. Redevelopment within five years is likely; 300,000 square feet of retail or office space has been suggested.
9. The plans to redevelop the Rotterdam Plaza did not totally materialize. Only 172,000 square feet of the potential of 405,000 square feet is occupied.
10. The two office buildings totaling 10,500 square feet proposed near the intersection of Curry Road and Route 7 near Fort Hunter Road were not built; apartments were constructed at this site instead.
11. The expansion of the Cumberland Farms at the intersection of Duanesburg Road and Dunnsville Road was approved but there has been no construction activity at the site.
12. The "Power Center" that was proposed for either Carmen Road or Curry Road/Hamburg Street was not constructed at either site. It is not likely that the center will be constructed at either site in the future.
13. The 20,000 square foot Tommasone Retail Building located south of Princetown Road and West of Burdeck Street has site plan approval, but was not built. There has been no activity at the Tommasone Industrial Park, an approved 4-lot subdivision for 60,000 square feet of light manufacturing.
14. The proposed 40 acre Rotterdam Generating Facility is now proposed as Murken's Industrial Park which will be smaller in acreage if approved. This site remains vacant and environmental issues need to be resolved before development occurs.
15. A planned unit development called Guildercrest, was proposed off Guilderland Avenue and Ghents Road. This development would have included 104 single family units, 212 duplexes, 176 townhouses, 228 apartments and 20,000 square feet of office. Plans for this development have been abandoned and a new development called Helderberg Meadows has been proposed. If built, Helderberg Meadows will include 170 singe family units, 100 senior housing units and an 18 hole public golf course. This project is currently under SEQR review.

The table below displays a comparison of specific development that was identified in the early 1990's under the moderate growth scenario and development that actually occurred by 2000:

TABLE 5

Comparison of Expected and Actual Growth 1990--2000

Land Use	**Expected (1990)**	**Actual (2000)**
Commercial		
Office	126,000	85,600
Retail/Service	1,087,000	233,620
Industrial	179,000	140,400
Institutional	7,000	7,000
Residential (DU's)	396	281

As shown in Table 5, much of the growth anticipated in the Burdeck Street Study Area did not occur. Tables 1 through 4 show that background traffic growth was also not at the levels

anticipated under the moderate growth scenario. Hence, the "moderate" growth scenario outlined and analyzed in the 1995 Study Report significantly overstated the expected transportation deficiencies in the area.

Probable Additional Development

There is very little new development that was not on the radar screen in 1990 that is expected to occur over the next few years. A large retail center had been proposed for the site on the northwest corner of Burdeck Street and NY 7. This parcel was zoned residential in 1990 and a zone change to commercial was pending when this retail center was proposed. A traffic impact study was performed for the proposed retail center, and CDTC staff provided a brief analysis of the traffic impact that such a development would have on the southern portion of Burdeck Street, given the inadequate driveway spacing and residential character of the area. Due in part to these analyses, proposed development for this site is once again residential (apartments and condominiums).

The residential subdivision called Rotterdam Hills (off Feuz Road and Old Duanesburg Road) was not constructed. This area is essentially a gravel pit. There is now a proposal to develop this site into a light industrial park of 100,000 to 500,000 square feet. Sewers in this area would have to be in place before construction could begin. Consequently, this proposal is not active at this time.

An additional development proposal to re-zone 75 acres of land located southwest of I-88 and I-90 to light industrial (see map 1) has not been approved. Details of potential development at this site are not available, and thus the potential impact on the existing transportation system could not be analyzed. However, given the location, impact will be felt most on I-88 and NY 7, not the Burdeck Street/NY 337 corridor.

Beyond this development, future specific development in the area will most likely be limited to the following:

TABLE 6

Expected Development in the Burdeck Street Area

Development	Size of Development or Expansion	Potential Number of PM Peak Hour Trips
Schermerhorn Hollow Village	84,000 square feet of additional retail space	217
Rotterdam Square Mall	Full occupancy of the 583,000 square foot mall (an increase of approximately 204,000 square feet of occupied space)	535
Hollywood Plaza	25,500 square feet of additional retail space	60
Golub Warehouse	100 to 150 additional employees	59-89

TABLE 6
(continued)

Development	Size of Development or Expansion	Potential Number of PM Peak Hour Trips*
Curry Road Shopping Center	270,000 square feet of additional retail space	700
Rotterdam Plaza	233,000 square feet of additional retail space	600
Tommasone Industrial Park	60,000 square feet of light manufacturing	45
Helderberg Meadows	170 single family units, 100 senior housing units, 18 hole public golf course	250

*The figures appearing in the column heading "Potential Number of PM Peak Hour Trips" do not account for pass-by trips. Therefore, these figures represent *maximum* trips, and actual trips could be up to 25% less due to pass-by.

Impact of Future Development on the Traffic Operation of Burdeck Street and the Surrounding Area

Curry Road Shopping Center, Rotterdam Plaza and Helderberg Meadows: The expansion of the Curry Road Shopping Center and Rotterdam Plaza and the construction of Helderberg Meadows will have little impact on the NY 337 corridor, since these developments are on the periphery of the study area. These developments will impact Curry Road east of the five corners intersection and the five corners intersection the most. This area was not the focus of the original study and is not the focus of this study.

Golub Warehouse: The addition of employees at the Golub warehouse will mostly impact the intersection of Dunnsville and Duanesburg Roads and the approaches to this intersection. The 1999 *Traffic Impact Study for the Golub Corporation Distribution Center Expansion* by Creighton Manning Engineering analyzed the traffic impact of expanding the center and found the traffic impact at the intersection of these two roads to be insignificant. CDTC staff further analyzed the traffic impact of adding 100-150 employees with regard to midblock capacity and concluded that an additional 59 to 89 pm peak hour trips would not significantly reduce the reserve capacity on Duanesburg and Dunnsville Roads (see Table 7). Approximately 40 percent of both the entering and exiting traffic from the Golub Corporation uses Duanesburg Road (NY 7) west of Dunnsville Road. It follows that a maximum 40 percent of the traffic resulting from the expansion could travel through the intersection of Burdeck Street and NY 7. Table 7 depicts the potential maximum (150 employees, no local productions and attractions) impact of this development on NY 7, Dunnsville Road and Burdeck Street.

Table 7 shows that the impact of adding 150 employees at the Golub warehouse will have little impact, if any, on the midblock operation of Dunnsville Road, NY 7 and Burdeck Street.

Creighton Manning analyzed the impact of this expansion on the intersection of Dunnsville Road and NY 7. CDTC Staff analyzed the potential impact to the intersection of NY 7 and Burdeck Street as well. If this expansion occurs, the total entering volume at the intersection of NY 7 and

TABLE 7
Impact of the Golub Expansion on the Transportation System

Highway	Segment	2000 Volume	Projected Increase in Trips	Projected Volume	Maximum Acceptable Capacity	2000 Reserve Capacity (%)	Projected Reserve Capacity (%)
Dunnsville Road	I-90 to NY 7	410--NB 245--SB	2--NB 3--SB	412--NB 248--SB	1000--NB 1000--SB	590--NB (59%) 755--SB (76%)	588--NB (59%) 752--SB (75%)
NY 7	Dunnsville to Broadway	527--EB 579--WB	30--EB 17--WB	557--EB 596--WB	1000--EB 1000--WB	473--EB (47%) 421--WB (42%)	443--EB (43%) 404--WB (40%)
NY 7	Dunnsville to Burdeck	438--EB 529--WB	12--EB 25--WB	450--EB 554--WB	1000--EB 1000--WB	562--EB (56%) 471--WB (47%)	550--EB (55%) 446--WB (45%)
NY 7	Burdeck to I-88	556--EB 810--WB	9--EB 20--WB	565--EB 830--WB	1000--EB 1000--WB	444--EB (44%) 190--WB (19%)	435--EB (44%) 170--WB (17 %)
Burdeck Street	NY 7 to Mariaville Rd	346--NB 535--SB	5--NB 3--SB	351--NB 538--SB	1000--NB 1000--SB	654--NB (65%) 465--SB (47%)	649--NB (65%) 462--SB (46%)

Burdeck Street could increase by 37 vehicles in the pm peak hour. Reserve Capacity at this intersection is currently in excess of 1000 vehicles (see Table 4), thus it can be concluded that the proposed expansion of the Golub Warehouse operations will have no significant impact on the Burdeck Street corridor transportation system.

Schermerhorn Hollow Village, Hollywood Plaza, Rotterdam Square Mall: The estimated productions and attractions from the expansion of the malls were overlaid on existing traffic volumes, and trips were apportioned to the links using current trip distribution. The results of this procedure are summarized in Table 8. It is clear from Table 8 that full development of these three malls will, for the most part, have little negative impact on the midblock operation of the NY 337 corridor. The one exception is the southbound link between Putnam Road and the RSM North Entrance--this link will have very little reserve capacity if all three shopping centers expand as expected. LOS D capacity thresholds will be exceeded if background growth also occurs along this section of NY 337. This link was identified as a potential problem spot in the 1990 study, and the addition of a travel lane in this area was one recommendation included in the 1995 report.

The results of the intersection threshold analysis are shown in Table 9 below. This analysis indicates that reserve capacity at the intersection of Schermerhorn Hollow Village/NY

337/Rotterdam Square Mall will be reduced by 343 vehicles if all three retail centers expand. Reserve capacity at this intersection will be reduced to 1950 vehicles, or 51 percent, which, with background growth, is sufficient over the long term.

Conclusions regarding the intersection of Putnam Road/NY 337/RSM are quite similar; reserve capacity is reduced by 16 percent, leaving 48 percent for background and additional growth. The

TABLE 8
Midblock Capacity Threshold Analysis for Assumed Development
at Schermerhorn Hollow Village, Rotterdam Square Mall and Hollywood Plaza

Highway/Segment	2000 Volume (vph)	Additional Volume From Proposed Developments	Total Probable Volume	Volume Attributable to SHV	Volume Attributable to RSM	Volume Attributable to HP	Maximum Acceptable Capacity (vph)	Reserve Capacity w/ Proposed Development	Reserve Capacity %
NY 337 - Burdeck St/Campbell Rd Southbound									
I-890 - RSM N Entrance	1150	240	1390	60	163	17	2500	1110	44%
RSM N Entrance - Putnam Rd	870	106	976	60	29	17	1000	24	2%
Putnam Rd - Schermerhorn Rd	500	88	588	62	8	18	1000	412	41%
Schermerhorn Rd - Campbell Ave	660	56	716	11	42	3	1000	284	28%
NY 337 - Burdeck St/Campbell Rd Northbound									
West Campbell - Schermerhorn Rd	630	97	727	30	59	8	1000	273	27%
Schermerhorn-Putnam	510	149	659	92	32	25	2500	1841	74%
Putnam Rd - RSM North Entrance	730	166	896	83	60	23	2500	1604	64%
RSM North Entrance - I-890	985	277	1262	81	174	22	2500	1238	50%
CR 54 - Putnam Road									
Gordon Road - NY 337 (EB)	455	44	499	7	35	2	1000	501	50%
NY 337 - Gordon Road (WB)	211	16	227	0	16	0	1000	773	77%
RSM North Entrance									
NY 337 - RSM (entering)	321	144	465	2	141	1	800	335	42%
RSM - NY 337 (exiting)	233	121	354	0	121	0	800	446	56%
RSM Middle Entrance (across from Putnam)									
NY 337 - RSM (entering)	110	51	161	2	49	0	800	639	80%
RSM - NY 337 (exiting)	143	78	221	2	75	1	800	579	72%
RSM South Entrance (across from SHV)									
NY 337 - RSM (entering)	152	80	232	10	67	3	800	568	71%
RSM - NY 337 (exiting)	158	97	255	12	82	3	800	545	68%
SHV Entrance (across from RSM)									
NY 337 - SHV (entering)	148	142	290	104	9	29	1000	710	71%
SHV - NY 337 (exiting)	231	151	382	113	7	31	1000	618	62%

TABLE 9

Impact of Expanding Schermerhorn Hollow Village, Rotterdam Square Mall and Hollywood Plaza on Intersection Thresholds

Intersection	2000 PM Peak Hour Entering Volume	LOS D Capacity	Anticipated Increase in Entering Volume	Projected PM Peak Hour Entering Volume	2000 Reserve Capacity (%)	Projected Reserve Capacity (%)
SHV/NY 337/RSM	1523	3815	343	1866	2292 (60%)	1949 (51%)
Putnam Rd/NY 337/RSM	1756	3889	349	2105	2133 (55%)	1884 (48%)
RSM North Entrance/NY 337	2149	3064	527	2676	915 (30%)	388 (13%)
NY 337/West Campbell Road	1358	1969	153	1511	611 (31%)	458 (23%)

threshold capacity at the intersection of RSM North/NY 337 is impacted the most by the retail expansions. Here, reserve capacity is reduced by over 500 vehicles, leaving a little more than 12 percent in reserve. Entering volumes at this intersection could exceed LOS D capacity, if background growth exceeds 1.2% per year, or if additional large development occurs in the area. An additional 153 vehicles will pass through the intersection of NY 337/West Campbell Road, bringing the entering volume of this intersection to 1511, up from the current 1358, an increase of 11 percent. Reserve capacity at this intersection will remain sufficient, at 458 vehicles, or 23 percent.

Tommasone Industrial Park: The proposed Tommasone Industrial Park will produce approximately 29 trips and will attract approximately 16 trips in the pm peak hour (totaling 45 pm peak hour trips). This development will be located west of Burdeck Street between Princetown and Mariaville Roads. Assuming a 50/50 split, a maximum of 22 additional vehicles will travel through the intersection of Burdeck Street/Princetown Road and and a maximum of 22 will travel trough the intersection of Burdeck Street/Mariaville Road. These intersections have sufficient reserve capacity to accommodate 22 additional vehicles during the pm peak. Likewise, the section of Burdeck Street impacted by the development has sufficient midblock reserve capacity to accommodate 22-45 vehicles in the pm peak hour.

Conclusions

It appears that growth in the Burdeck Street Study area has not occurred at the pace that was anticipated when the 1990 study was performed. The "moderate" growth scenario outlined in the

1995 final report should now be considered the "high" or aggressive growth scenario and the "moderate" or "target" scenario should now be considered to include those developments identified in Table 6 of this report. As such, the recommendations outlined in the 1995 report for transportation improvements still hold true for the moderate growth scenario. Transportation improvement recommendations for the new "target" growth scenario are a subset of the recommendations outlined under the moderate growth scenario and are described in the next section.

Recommendations

Travel Demand Management Actions:

Travel Demand Management (TDM) refers to a range of techniques used to reduce peak hour congestion on the highway system. Strategies used include the promotion of increased use of the transit system, flexible work hours for employees, transit, carpools and vanpools, telecommuting and other work at home mechanisms, and measures to increase bicycle use, such as provision of showers and bike lockers by employers. Some demand management actions eliminate trips; others eliminate only the use of vehicles in making trips; and others simply shift the time of trip making to less congested periods of the day.

There is a significant potential benefit from aggressive TDM efforts in the Capital District. Modeling work performed by the CDTC staff for the regional transportation plan shows a 20 percent reduction in peak hour work-related trips at major New York State employment sites and a 10 percent reduction at other major employment sites located in the Capital District. However, CDTC's analysis indicates that future travel in the study area and environs with only travel demand management improvements would not be successful by itself in delivering acceptable levels of service in the problem transportation areas. This is primarily because the greatest benefit from TDM usually occurs on highways near employment centers and in areas of high transit potential.

Nevertheless, every element of TDM has merit for incorporation into a "transportation plan" for the area. In fact, in accordance with CDTC's draft *Congestion Management Principles*, any facility constructed with federal-aid which increases capacity for single occupant vehicles, must incorporate all reasonable TDM strategies to manage the facility effectively.

Transportation System Management and Land Use Design Actions:

Traffic management in its broadest sense includes all actions to maintain or improve roadway operating conditions short of major widening or construction of new roads. Improvements such as low-cost signal timing and lane striping changes are many times more cost effective than physical expansion. Systems management for the next ten years must also involve active arterial management planning to preserve or restore the through-traffic carrying capacity of roads like NY 337, NY 7, Curry Road and others. By definition, "arterial management" is intended to

provide access to land development while simultaneously preserving the arterial function of major roads.

Toward this end, it is recommended that as development occurs in the study area, vehicle conflict points be limited, driveways be consolidated, vehicles and queues be removed from travel lanes and signals within corridors be coordinated. Encouragement of use of bicycles and walking are also very important system management actions. Using existing transportation corridors to accommodate multiple modes of travel increases efficiency. Safe pedestrian and bicycle accommodations have the potential to contribute to reduce travel congestion, emissions and energy consumption.

CDTC's analysis of the traffic operations in the Burdeck Street corridor concluded that there are several opportunities to promote traffic management actions in the study area to handle projected volumes of traffic. These are:

1. **Driveway Consolidation:** Consolidate driveways along the Burdeck Street and NY 337 corridor to reduce movement conflicts and consequently process the projected additional through traffic.

2. **Signal Coordination:** Coordinate timing of the traffic signals located along the Burdeck Street/NY 337 corridor, especially those located by the Rotterdam Square Mall. This action should also help process traffic through and between the intersections, which theoretically improves level-of-service in the corridor.

3. **Low Cost Intersection Improvements:** *NY 337 (W. Campbell Road) and the North Entrance to Rotterdam Square Mall (RSM)*-- Expected volumes entering this intersection are approaching threshold capacity. Consequently, intersection work (beyond signal re-timing) may be needed to handle the expected volumes. Reassignment of the left turn lane that serves the mall from NY 337 southbound as an additional through lane and restrictions of left turns at this intersection is an option that would make it operate acceptably. Left turns would be redirected to the middle entrance of the mall (opposite Putnam Road) where sufficient capacity exists to process the traffic.

4. **Bicycle and Pedestrian Accommodations:** From the standpoint of trip locations and physical conditions, improvements to accommodate bicyclists and pedestrians should be considered in the context of highway repair or land use development. Specifically, bicycle and pedestrian amenities are sorely absent in the Rotterdam Square Mall area. Schermerhorn Hollow Village is now opposite Rotterdam Square Mall, yet there is no pedestrian/bicycle accommodation for travelling between the malls. Low-cost steps to improve bicycle/pedestrian facilities should be considered--"bicycle stop lines" should be created at intersections to increase rider visibility and safety; bicycle "safe zones" should be created for non-turning cyclists in areas with vehicular right turn lanes; existing circulation barriers such as poles, signs, etc. should be removed from sidewalks and crosswalks should be striped.

The CDTC Bicycle and Pedestrian Issues Task Force, in the 1995 report entitled, *Making the Capital District More Bicycle and Pedestrian Friendly: A Toolbox and Game Plan*, recommended that approximately 353 miles of roadway in the Capital District should be assigned to a *Priority Bicycle/Pedestrian Network.* The goal is to make this network more bicycle and pedestrian friendly in the coming years. A significant portion of the Priority Bicycle/Pedestrian Network in Schenectady County is located in and around the 1995 "Burdeck Street Study Area". Most notably, NY 337, from North Thompson Road to the Mohawk-Hudson Bike Path (1.4 miles) was identified as part of the bicycle/pedestrian priority network. In addition, North Thompson Road from NY 337 to Princetown Road, Princetown Road from North Thompson Road to Five Corners, Broadway from Five Corners to Crane Street, Guilderland Avenue from Broadway to Helderberg Avenue, Helderberg Avenue from Guilderland Avenue to Curry Road and Curry Road from Helderberg Avenue to Hamburg Street are all part of the bicycle/pedestrian priority network. The task force proposed that improvements to roads designated as the Priority Bicycle/Pedestrian Network should include bike route designation and bike lane striping where appropriate; improvement to "group B/C" (average adult cyclists and children) standards--in this case, a six foot striped bike lane along NY 337 and five to six foot striped bikelanes along all other sections of the network; installation of "share the road", "ped xing", "bike route" and other signage; more frequent sweeping and other routine maintenance, and provision of pedestrian and bicycle amenities such as crosswalks, walk/don't walk lights and bike racks.

Additionally, the town should actively preserve available "rights of way" for future construction of bike and recreational paths; enhance bicycle/pedestrian linkages from residential areas to employment centers and shopping centers through additional construction of sidewalks and bikeways; incorporate facilities to safely accommodate pedestrians and bicycles on existing automobile bridges and build additional sidewalks and bikeways with particular attention to transit boarding areas and areas with high levels of bicycle/pedestrian activity (schools, libraries, shopping areas, etc.)

5. **Transit Amenities:** Existing transit service within the study area and just outside the study area basically serves the Rotterdam Square Mall, Rotterdam Industrial Park, and the area east of (and including) the Five Corners intersection. Federal and State monies recently secured for the regional "welfare-to-work" effort have enabled CDTA to extend service hours and increase frequencies of routes to the mall and industrial park.

Future construction in the area's transit corridors should incorporate amenities for transit service such as bus turnarounds, bus shelters, paved waiting areas, pedestrian access to bus stops, bus turnouts, and paved shoulders where bus turnouts are not feasible. Bus stop review should be coordinated with CDTA or any other transit agency that might operate in the area.

Major Capital Improvement Options:

The ability to provide adequate transportation service through implementation of travel demand actions and traffic management strategies has a definite limit. Consequently, several alternative traffic engineering options have been identified to mitigate the expected future problems in the study area that may not be addressed by simpler options. Projects, if advanced by NYSDOT or the town to CDTC for TIP consideration, would need to compete for funding with other candidate projects around the region. CDTC solicits candidate projects every two years; the deadline for the next submission is November 2000.

1. **Re-Design Burdeck Street/N. Thompson Road Intersection:** The geometry at this intersection is awkward, since North Thompson Road feeds into Burdeck Street at an angle. Because of this geometry, the accident rate at this intersection is not only higher than the accident rate at other intersections in the area, but also higher than the state average for intersections of this type. Eliminating left turns from N. Thompson to NY 337 and adding a left turn lane on the southbound approach of Burdeck Street at this intersection might accommodate the predicted traffic under the moderate growth scenario. Total re-design of this intersection so that North Thompson Road is aligned at a right angle to Burdeck Street is an option that should be looked at regardless of the magnitude of growth that is expected in the corridor.

2. **Add Through Lane on NY 337 in the Southbound Direction Between Rotterdam Square Mall North Entrance and Putnam Road:** This option should be considered if it is expected that RSM will become 100 percent occupied and if Schermerhorn Hollow Village and Hollywood Plaza both expand. This option would require the acquisition of right-of-way along this stretch of NY 337. If pursued, the town should consider collecting partial or full financing from area developers. It should be noted, however, that the 1000 vehicles per hour per lane threshold is just that, a threshold, and does not imply that the segment of NY 337 between RSM North and Putnam Road cannot carry more than 1000 vehicles per hour without shutting down. Driveway consolidation and turn movement control can do much to improve the operation of a highway that carries threshold volumes. Construction of additional highway is both expensive and disruptive; consequently access management should be pursued to the fullest extent before a decision for construction of an additional lane is made.

3. **Eliminate the At-grade Railroad Crossing Located on Burdeck Street Between Mariaville and Princetown Roads:** CSX operates in this area. Trains going through this area can stall traffic for ten minutes or more. The at-grade crossing not only interferes with the smooth operation of traffic but also is a potential safety concern. Grade separating the tracks from the street system would improve the operation of Burdeck Street.