

Queues

1: NYS Route 311 & SB Ramp

Saturday Holiday Build Condition



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR	ø1	ø4	ø5	ø6	ø8	ø12
Lane Configurations	↑	↗	↖	↑	↖	↗						
Volume (vph)	531	559	131	814	2	329						
Lane Group Flow (vph)	571	601	141	875	120	358						
Turn Type		Perm	Perm			Perm						
Protected Phases	2			2 1	4 12		1	4	5	6	8	12
Permitted Phases		2	2 1			4 12						
Detector Phase	2	2	2	2	4	4						
Switch Phase			1	1	12	12						
Minimum Initial (s)	4.0	4.0					2.0	4.0	2.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0					8.0	20.0	8.0	20.0	20.0	8.0
Total Split (s)	38.0	38.0	73.0	73.0	27.0	27.0	35.0	8.0	25.0	28.0	26.0	19.0
Total Split (%)	38.0%	38.0%	73.0%	73.0%	27.0%	27.0%	35%	8%	25%	28%	26%	19%
Yellow Time (s)	3.5	3.5					3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5					0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Lead/Lag	Lead	Lead					Lag	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max					Min	None	Min	None	None	Min
Act Effct Green (s)	34.0	34.0	73.0	73.0	19.0	19.0						
Actuated g/C Ratio	0.34	0.34	0.73	0.73	0.19	0.19						
v/c Ratio	0.90	0.64	0.23	0.64	0.37	0.75						
Control Delay	36.4	3.9	4.6	2.3	37.6	25.5						
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0						
Total Delay	36.4	3.9	4.6	2.9	37.6	25.5						
LOS	D	A	A	A	D	C						
Approach Delay	19.7			3.1	28.5							
Approach LOS	B			A	C							
Queue Length 50th (ft)	368	13	2	4	67	88						
Queue Length 95th (ft)	413	25	45	94	115	187						
Internal Link Dist (ft)	782			341	692							
Turn Bay Length (ft)		375	150			200						
Base Capacity (vph)	633	935	612	1360	395	536						
Starvation Cap Reductn	0	0	0	170	0	0						
Spillback Cap Reductn	0	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.90	0.64	0.23	0.74	0.30	0.67						

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green, Master Intersection

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Lane Group	ø16
Lane Configurations	
Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	16
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	21.0
Total Split (%)	21%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Min
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Queues

1: NYS Route 311 & SB Ramp

Saturday Holiday Build Condition

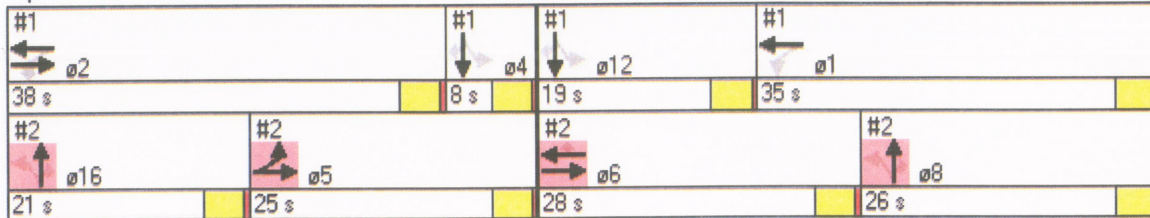
Intersection Signal Delay: 15.0

Intersection LOS: B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: NYS Route 311 & SB Ramp



Queues

2: NYS Route 311 & NB Ramp

Saturday Holiday Build Condition



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	ø1	ø2	ø4	ø8	ø12	ø16
Lane Configurations												
Volume (vph)	293	345	339	84	2	102						
Lane Group Flow (vph)	318	375	368	91	656	111						
Turn Type	Prot			Perm		Perm						
Protected Phases	5	5 6	6		8 16		1	2	4	8	12	16
Permitted Phases				6		8 16						
Detector Phase	5	5	6	6	8	8						
Switch Phase		6			16	16						
Minimum Initial (s)	2.0		4.0	4.0			2.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0		20.0	20.0			8.0	20.0	20.0	20.0	8.0	8.0
Total Split (s)	25.0	53.0	28.0	28.0	47.0	47.0	35.0	38.0	8.0	26.0	19.0	21.0
Total Split (%)	25.0%	53.0%	28.0%	28.0%	47.0%	47.0%	35%	38%	8%	26%	19%	21%
Yellow Time (s)	3.5		3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Lead/Lag	Lag		Lead	Lead			Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes		Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min		None	None			Min C-Max	None	None	Min	Min	
Act Effct Green (s)	23.4	51.2	23.8	23.8	40.8	40.8						
Actuated g/C Ratio	0.23	0.51	0.24	0.24	0.41	0.41						
v/c Ratio	0.77	0.39	0.83	0.20	0.85	0.16						
Control Delay	17.6	3.4	53.6	7.8	38.3	4.0						
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0						
Total Delay	17.6	3.9	53.6	7.8	38.3	4.0						
LOS	B	A	D	A	D	A						
Approach Delay		10.2	44.5		33.3							
Approach LOS		B	D		C							
Queue Length 50th (ft)	107	61	223	0	356	0						
Queue Length 95th (ft)	128	69	370	39	514	31						
Internal Link Dist (ft)		341	524		763							
Turn Bay Length (ft)	200			250		250						
Base Capacity (vph)	414	957	447	449	818	747						
Starvation Cap Reductn	0	242	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.77	0.52	0.82	0.20	0.80	0.15						

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green, Master Intersection

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Queues

2: NYS Route 311 & NB Ramp

Saturday Holiday Build Condition

Intersection Signal Delay: 27.6

Intersection LOS: C

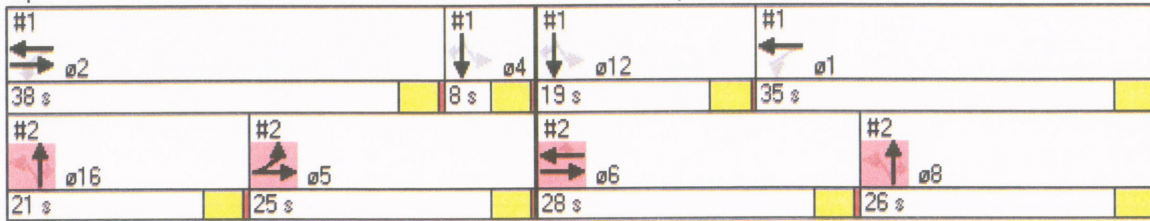
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: NYS Route 311 & NB Ramp



Queues

3: NYS Route 311 &

Saturday Holiday Build Condition



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↗
Volume (vph)	331	359	840	285	328	823
Lane Group Flow (vph)	360	390	903	306	353	885
Turn Type	Perm pm+pt			Perm		
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	27.0	27.0	49.0	76.0	24.0	24.0
Total Split (%)	27.0%	27.0%	49.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max
Act Effct Green (s)	23.0	23.0	72.0	72.0	20.0	20.0
Actuated g/C Ratio	0.23	0.23	0.72	0.72	0.20	0.20
v/c Ratio	0.81	0.62	0.95	0.24	0.91	0.96
Control Delay	52.5	10.2	31.8	2.4	67.8	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	10.2	31.8	2.4	67.8	28.9
LOS	D	B	C	A	E	C
Approach Delay	30.5			24.4	40.0	
Approach LOS	C			C	D	
Queue Length 50th (ft)	218	18	248	34	222	66
Queue Length 95th (ft)	#361	107	#494	45	#386	#377
Internal Link Dist (ft)	596			782	909	
Turn Bay Length (ft)		150	800			500
Base Capacity (vph)	443	625	947	1297	389	921
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.62	0.95	0.24	0.91	0.96

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 73 (73%), Referenced to phase 4:EBT and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Queues

3: NYS Route 311 &

Saturday Holiday Build Condition

Intersection Signal Delay: 31.8





Intersection LOS: C

Analysis Period (min) 15

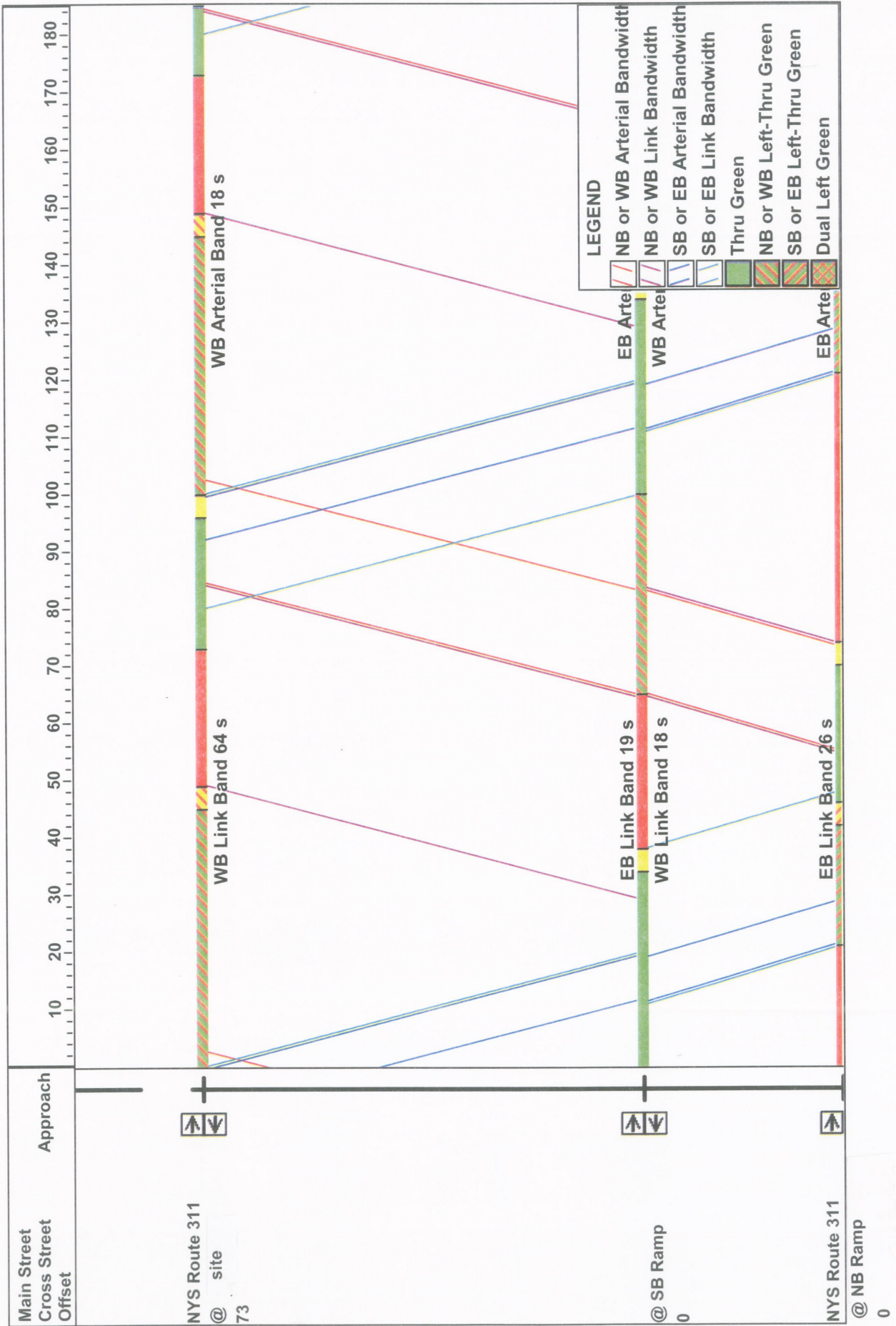
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: NYS Route 311 &

 02	 04	 03
24 s	27 s	49 s
	 08	
	76 s	

NYS Route 311



Build Condition Diamond Interchange Level of Service Analysis I-84 at NYS Route 311 ramps

Movement* HCM Page 26-8	Control Delay		HOLIDAY SATURDAY PEAK HOUR			DEIS Traffic SATURDAY PEAK HOUR			Adjusted*** (Unadjusted) Level of Service
	Group	Delay	Group	Delay	Total Delay (Sec/Veh)	Adjusted*** (Unadjusted) Level of Service	Group	Delay	
WTL	a	32.8	13.9	46.7	C (D)**	25.8	19.0	44.8	C (D)**
WTT	a	32.8	2.8	35.6	B (D)**	25.8	7.7	33.5	B (C)**
WR	a	13.8	0.0	13.8	B (B)	45.0	0.0	45.0	D (D)
WRR	c	40.5	0.0	40.5	C (D)	45.1	0.0	45.1	D (D)
WRLL	c	36.0	2.8	38.8	B (D)**	20.5	7.7	28.2	B (C)**
ETL	d	49.8	3.6	53.4	C (D)**	20.5	19.0	39.5	B (D)**
ETT	d	49.8	1.6	51.4	C (D)**	45.2	10.7	55.9	C (E)**
ER	d	29.6	0.0	29.6	C (C)	45.2	8.9	54.1	C (D)**
ERR	f	18.1	0.0	18.1	B (B)	13.2	0.0	13.2	B (B)
ERLT	f	35.5	1.6	37.1	B (D)**	25.0	4.1	29.1	B (C)**
ERLL	f	35.5	3.6	39.1	B (D)	25.0	10.7	35.7	B (D)

* orientation follows Highway capacity Manual see Figure J-12

NYS Route 311 treated as East-west

Ramps treated as North-south

Italics U-turn with low volume

** Delays may include acceleration and deceleration that does not occur between signals.

*** Adjusted is average per intersection
Unadjusted is not adjusted for intersections traveled through

Build Condition Overall Delay Assessment I-84 at NYS Route 311 ramps

Movement	HOLIDAY SATURDAY PEAK HOUR		DEIS Volumes SATURDAY PEAK HOUR	
	Delay (Sec/Veh)	Delay (Seconds)	Delay (Sec/Veh)	Delay (Seconds)
EB-T	32.8	17,416.8	25.8	11,945.4
EB-R	13.8	7,714.2	45.0	20,790.0
WB-L	3.6	471.6	10.7	1,401.7
WB-T	1.6	1,302.4	4.1	3,029.9
SB-L,T	36.0	3,996.0	20.5	2,378.0
SB-R	40.5	13,324.5	45.1	12,222.1
EB-L	13.9	4,072.7	19.0	4,465.0
EB-T	2.8	966.0	9.3	3,180.6
WB-T	49.8	16,882.2	45.2	15,503.6
WB-R	29.6	2,486.4	18.5	1,646.5
NB-L	35.5	21,371.0	43.3	22,819.1
NB-T,R	18.1	1,882.4	13.2	1,372.8
total	4242	91,886.2	3822	100,754.7
Overall	Secs/ veh,	21.7	Secs/ veh,	26.4

Level of Service C

Level of Service C

NYS Route 311 treated as East-west
Ramps treated as North-south

Saturday traffic based on DEIS volumes
Holiday Saturday Traffic based on FEIS sensitivity analysis
Source: Highway Capacity Manual, Transportation Research Board, National Research Council, Washington D.C. 2000, chapter 26.

Appendix K

TRAFFIC IMPROVEMENTS

**Table K-1
Improvement Program Summary**

Intersection	Potential Improvements		
	DEIS Suggested	Revised Improvement Program	Responsible Party
1. NYS Route 311 and NYS Route 164	Add NYS Route 311 right and left turn lanes Signalize	Revise Geometrics ⁴ ----- Signalize ¹	NYS DOT ³ ----- Applicant
2. NYS Route 311 and Fair Street	Signalize & add Fair Street right turn lane	Widen curb radii on Fair Street (See FEIS Figure K-1)	Applicant/County
3. NYS Route 311 and Ludingtonville Road	None	None	not applicable
4. NYS Route 311 and Westbound Ramp I-84	Signalize, add NYS Route 311 left lane & off-ramp turn lane	Signalize, add NYS Route 311 left turn lane & off-ramp turn lane (Figure K-3) or roundabout	Applicant
5. NYS Route 311 and Eastbound Ramp I-84	Signalize, add NYS Route 311 left lane & off-ramp turn lane	Signalize, add NYS Route 311 left turn lane & off-ramp turn lane (Figure K-3) or roundabout	Applicant
6. NYS Route 311 and Ludington Court	None	None	not applicable
7. NYS Route 311 and Longfellow Drive	Add NYS Route 311 left turn lane as part of Terry Hill Rd upgrade	None ⁵	not applicable
8. NYS Route 311 and Terry Hill Road	Signalize & add NYS Route 311 left turn lane	Signalize & add Terry Hill Northbound right turn lane and NYS Route 311 left turn lanes (See FEIS Figure K-2)	County
9. NYS Route 311 and NYS Route 52	Increase NYS Route 311 turn radii for storage. Retime traffic signal	Retime traffic signal as needed	NYS DOT ³
10. NYS Route 52 and Barrett Hill Road	Add NYS Route 52 left turn lane. ³ Add NYS Route 52 center turn lane	Left turn lane on TIP post 2010 ----- Signalize ¹	NYS DOT ³ ----- Applicant
11. NYS Route 52 and Horse Pound Road	Add NYS Route 52 center turn lane	Add NYS Route 52 center turn lane ²	Kent Manor
12. Fair Street and Terry Hill Road	None	None	not applicable
13. NYS Route 311 and Access Road	Signalize /Add NYS Route 311 left and right turn lane	Signalize /Add NYS Route 311 left and right turn lane (Figure K-4)	Applicant

¹ Item to be bonded by Applicant and only constructed if warranted and permitted.
² Applicant for Kent Manor is to bond. Kent Manor project approved.
³ New York State Department of Transportation.
⁴ Currently being redesigned by the New York State Department of Transportation.
⁵ Traffic can use North Terry Hill Road as alternative access to NYS Route 311.
Source: Tim Miller Associates, Inc., 2007.

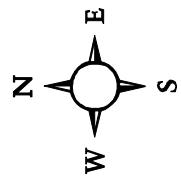
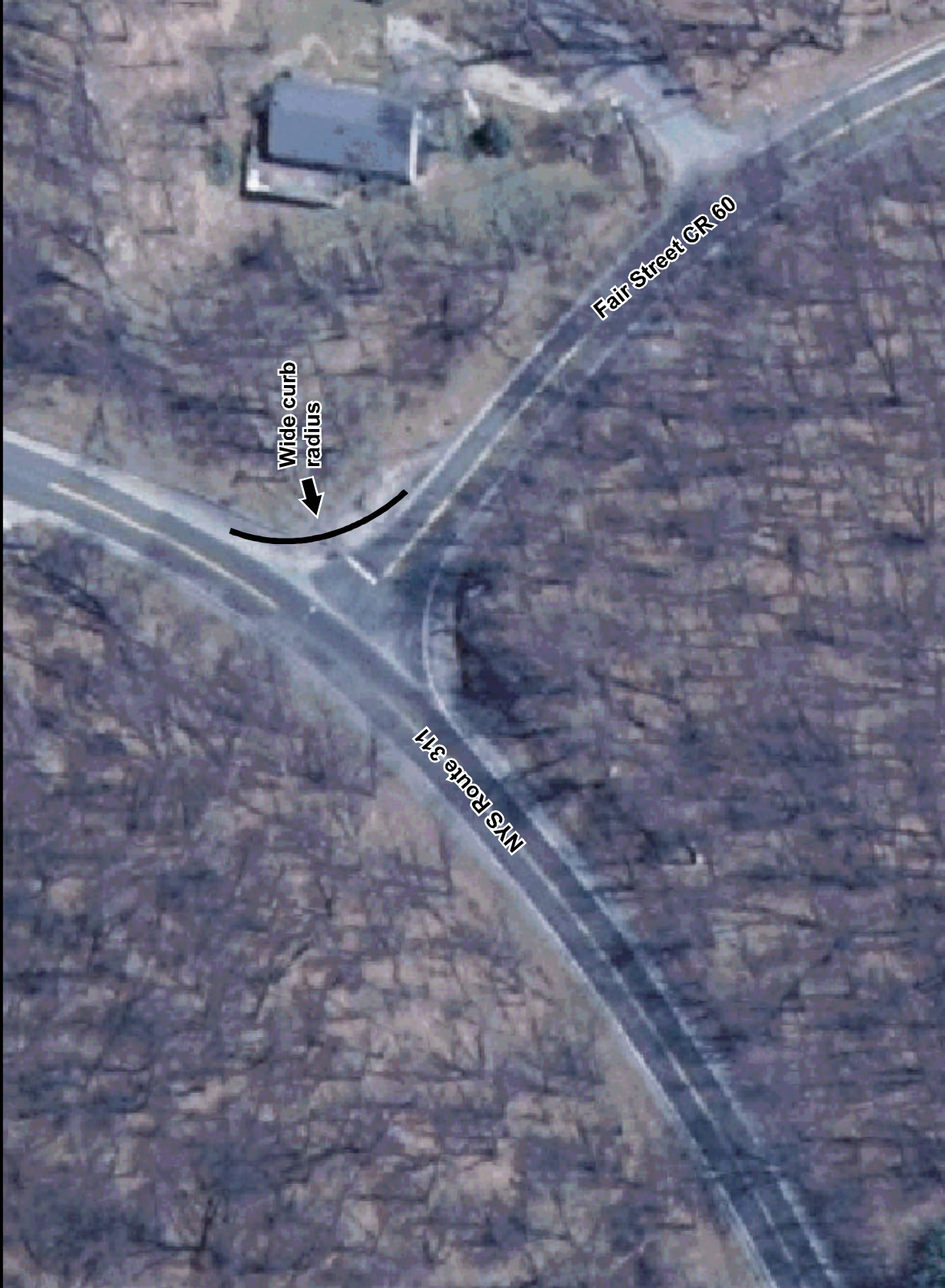
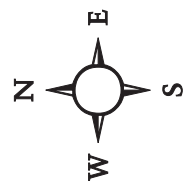
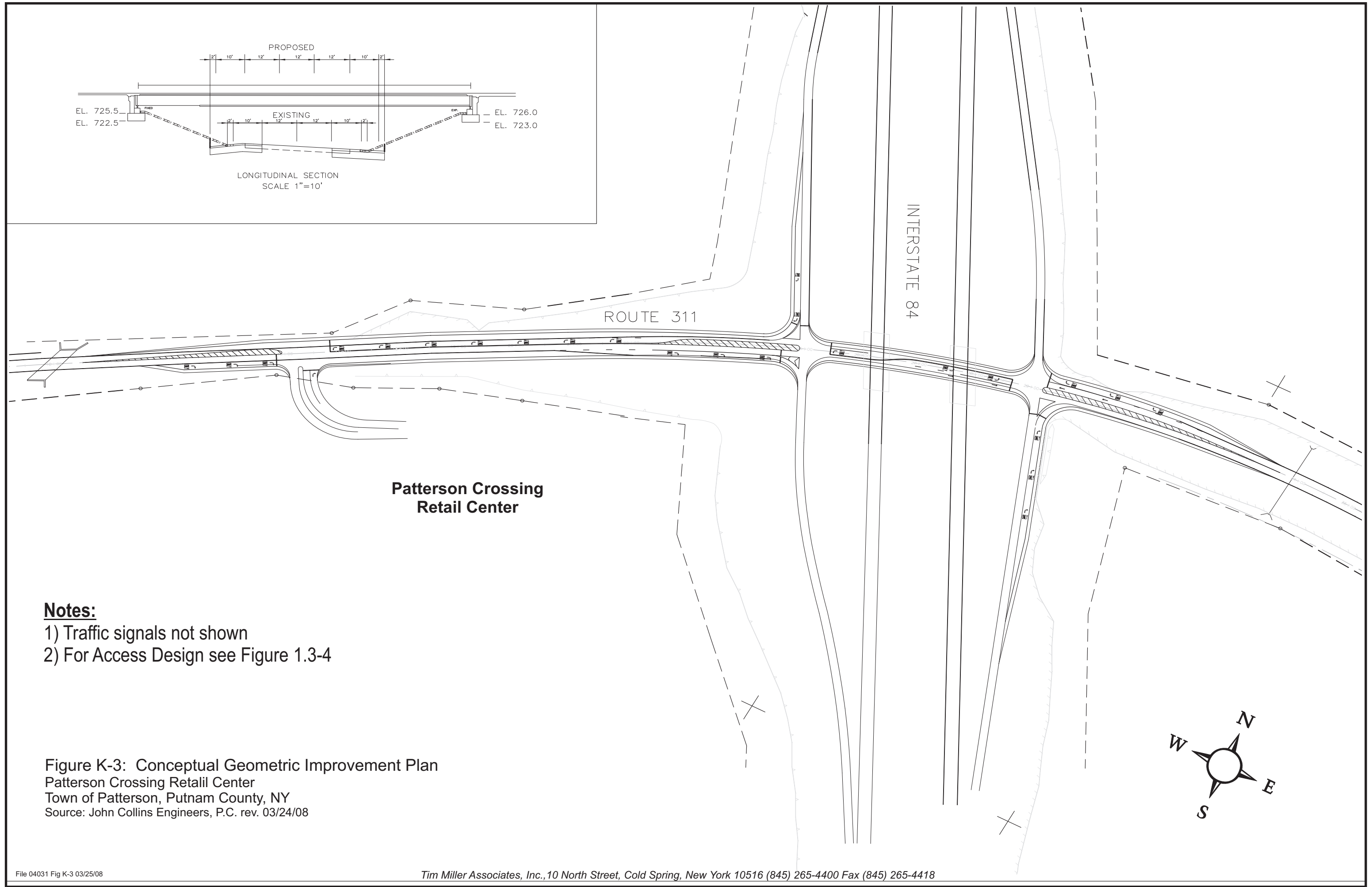


Figure K-1: Potential Improvement Schematic NYS Route 311/Fair Street
Patterson Crossing Retail Center
Town of Patterson and Town of Kent,
Putnam County, New York
Aerial Photo Source: NYS GIS Clearinghouse

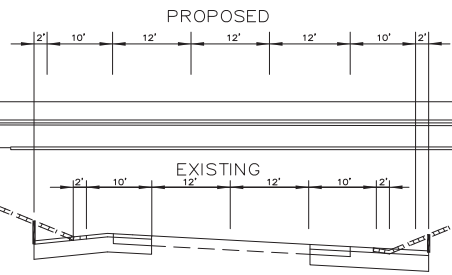


Figure K-2: Potential Improvement Schematic Terry Hill Road/NYS Route 311
 Concept Plan for Potential Improvements
 Patterson Crossing Retail Center
 Town of Patterson and Town of Kent,
 Putnam County, New York
 Source: John Collins Engineers, P.C., 6/18/07
 Scale: 1" = 65'





EL. 725.5
EL. 722.5



LONGITUDINAL SECTION
SCALE 1"=10'

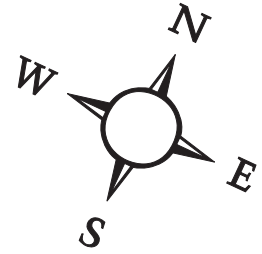
ROUTE 311

INTERSTATE 84

**Patterson Crossing
Retail Center**

- Notes:**
- 1) Traffic signals not shown
 - 2) For Access Design see Figure 1.3-4

Figure K-3: Conceptual Geometric Improvement Plan
 Patterson Crossing Retail Center
 Town of Patterson, Putnam County, NY
 Source: John Collins Engineers, P.C. rev. 03/24/08



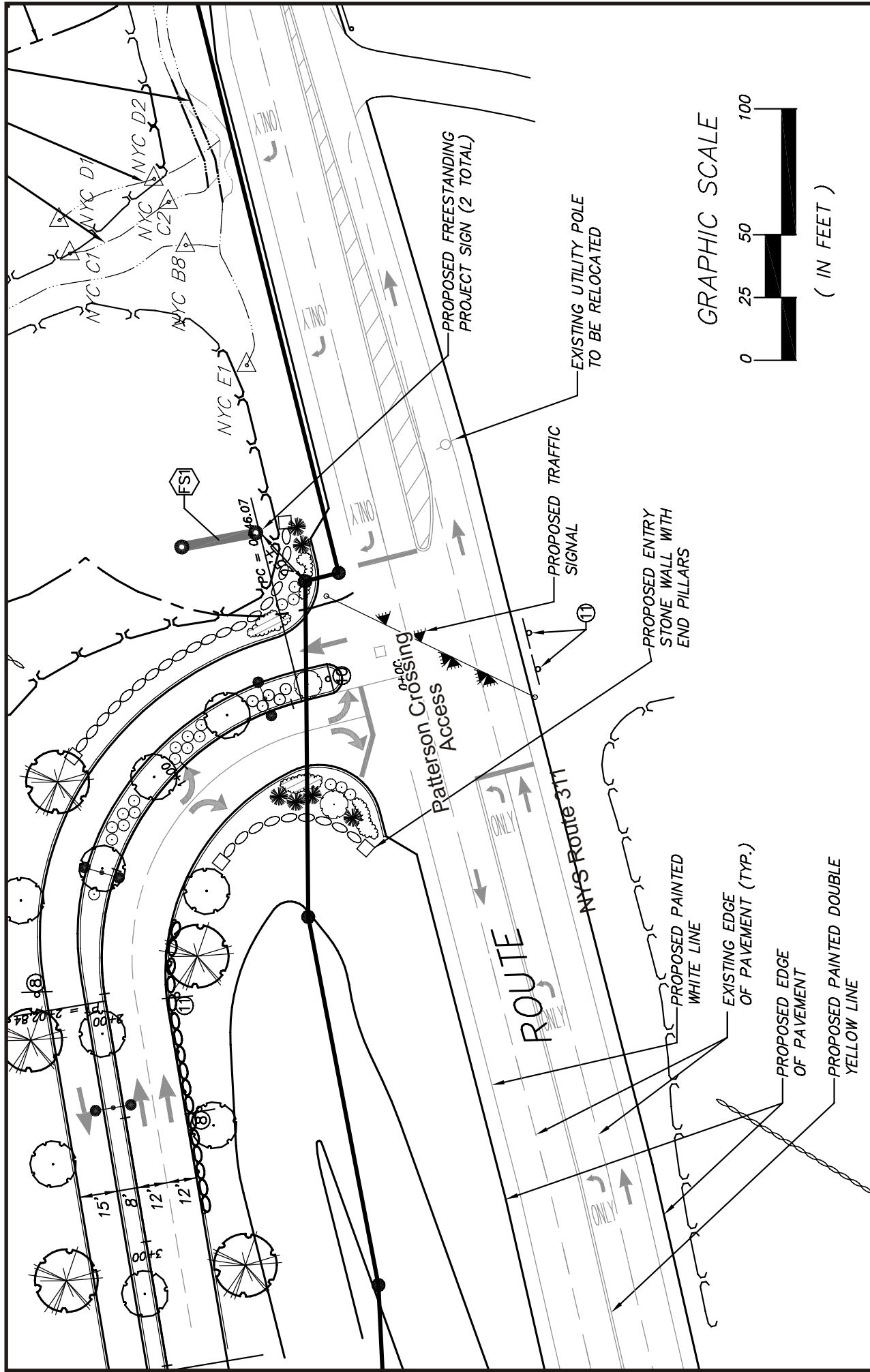


Figure K-4: Patterson Crossing Access Road/NYS Route 311
 Patterson Crossing Retail Center
 Town of Patterson and Town of Kent,
 Putnam County, New York

Source: Insite Engineering, Surveying & Architecture, P.C., 11/30/07
 Scale: Graphic

Appendix L

TRAFFIC INTERNAL ANALYSIS

L.1 Internal Traffic Circulation

Introduction

The Applicant proposes a two-way access road connecting to NYS Route 311 which will be used for exiting and entering the site. All the customers and employees would access the individual buildings from internal driveways intersecting the main site access road. These driveways will connect to customer/employee parking areas.

The site's internal road network is designed to separate the vast majority of truck delivery services from customer activities and keep trucks away from the existing residential areas west of the site. Truck traffic is diverted from employee and customer traffic using a truck service road prior to reaching the first building (Building H). The truck service road runs from the site access road along the rear (east) of Buildings A, B, C, and D and away from houses along the main access road. Deliveries to all buildings except the 2000 square foot Building H would be directly from the truck service road. This configuration confines the vast majority of truck loading, unloading, and movement to behind the proposed buildings, thereby limiting visual and noise impacts to local residents.

Two turn arounds are provided to allow trucks to return to the site exit without traversing the main access road. See Figure L-1 for anticipated truck routing and access points. Most tractor trailer trucks would be traveling to and from the Interstate 84 interchange. Smaller delivery trucks would also utilize Interstate 84 unless already making deliveries in nearby towns. Under these circumstances the site would be accessed using the state roadways (NYS Route 311 and NYS Route 52).

Customers and employees will use the front and/or side of the buildings for parking and access. Egress from Building G will be permitted onto the truck service road as this portion of the road has no truck loading areas. All other customer and employee access during normal working hours will be directed to the main access road.

The first right turn on the main access road upon entering from NYS Route 311 brings vehicles to Building H. As there are no conflicting movements, this intersection is not analyzed. Left turns into the entrance and exiting movements from the entrance are prohibited. The third curb cut in the main access road is for vehicles exiting Building H.

There is a second through lane along a portion of the western frontage road starting at the Kent and Patterson Town Line. This additional through lane will function, at times, as a left turn lane. There are six main accesses to the parking areas south of the access road, one into each main parking area and two, without aisle parking, are between major retail sections. Major internal intersections are shown in Figure L-2; A road runs directly in front of nearly all of the buildings allowing ease of access between major parking areas and pickup/dropoff at the buildings. This also allows most internal trips to take place without traveling away from the buildings and to the main access road.

The traffic demand on parking area driveways along the western frontage road was estimated based on the square footage of the building associated with that parking area. Where more than one access point to a building's parking area is proposed, trips were divided between the associated access points serving the parking area.

Access points between two buildings service both buildings. Prohibiting parking along the access aisles serving two buildings or a group of buildings improves mobility by eliminating parking conflicts (e.g. waiting for vehicles to pull into and out of parking spaces). The access aisles serving two buildings are thus projected to have slightly higher peak volumes than access aisles serving a single building. During off peak times when the parking conflicts are reduced and the probability of obtaining a parking space directly in front of the building entrance improves, the direct access aisle is expected to attract more use than the access aisle between two buildings. Detailed plans for signing and stripping internal roads and parking areas will be provided as part of final site design.

Emergency Access

The project site has an existing telecommunication facility with a driveway to Concord Road near Echo Road. Under the revised plan, this access is no longer connected to the project's internal road network by way of the emergency access road. The relocated emergency access road connects the site near the home improvement store with Concord Road to the west in the vicinity of Woodstock Road as shown in Figure L-3. In an emergency, should the site access be blocked, emergency access would occur through this access road. An access road off of Fair Street was investigated. This approach was abandoned due to physical constraints including steep slopes and the ability to site stormwater management facilities. Direct access is prohibited to Interstate 84 to the east.

Emergency access is available onto the truck service road, otherwise customer and employee access is restricted behind buildings B, C, and D. Building A, the wholesale warehouse, has limited customer pickup and employee parking along the service road. The main access road includes a median cross over at the Town line to provide maximum flexibility should an emergency lane reassignment along the main access road be needed.

Trip Generation and Assignment

The trip generation data included in Table L-1 is based on a single land use, "Shopping Center", as defined by the Institute of Transportation Engineers' Trip Generation. These project generated trips are referred to as external trips. The external trips begin or end off-site. Each vehicle arriving at and each vehicle leaving the proposed development is counted as a trip. External trips consist of passby trips and non-passby trips. Internal trips, those that begin and end on-site, are not included in Table L-1.

Table L-1 Change in Patterson Crossing Retail Center Project Holiday Trip Generation						
Land Uses	Trips					
	P.M. Peak Hour			Saturday Peak Hour		
	IN (Trips)	OUT (Trips)	Total Trips	IN (Trips)	OUT (Trips)	Total Trips
Shopping Center 405,850 gross leasable square feet - Holiday Season	789	789	1578	1277	1227	2504
Shopping Center 374,340 gross leasable square feet. {820} - Holiday Season	745	745	1490	1199	1151	2350
Reduction in trips	44	44	88	78	76	154
<i>Trip Generation</i> , Institute of Transportation Engineers, 7th edition, Washington, DC, 2003.						

Internal trips are trips between uses on the site. Once on site, a vehicle may make multiple internal trips. The number of internal trips is related to the number of vehicles on-site and the number of uses on the site. The number of vehicles on site is related to the number of external trips associated with the proposed development. Based on the uses proposed on the site, the internal trips were projected as a standard 10 percent of the external trips. For the sake of this analysis a sufficient number of internal trips were assigned to Building H to provide a higher trip generation equivalent to a bank of 2000 square feet on a Saturday peak hour.

Table L-2 shows the internal trips and external trips anticipated on the internal site roads. The highest concentration of site trips occurs along the main access/frontage road shown in Figure L-2. This figure depicts the worse case internal circulation, the Holiday Saturday peak hour, on the frontage road. Internal traffic using the internal roads directly in front of the buildings are not shown on Figure L-2. Internal trips between uses in the same parking area (e.g. trips between the Retail Store E and F) may occur as pedestrian trips, and are also not shown on these figures. Internal trips along the main service road were increased to test sensitivity to internal traffic that would shift from directly in front of buildings to the main access road. Right turn internal trips are more likely to occur because of the ease of the movement through the network when compared to left turn internal trips.

Table L-2						
Patterson Crossing Retail Center Trips (Internal and External)						
Trip Type	Trips					
	P.M. Weekday Peak Hour			Saturday Peak Hour		
	IN (Trips)	OUT (Trips)	Total (Trips)	IN (Trips)	OUT (Trips)	Total (Trips)
Shopping Center 374,340 gross leasable square feet. {820} holiday	745	745	1,490	1,199	1,151	2,350
Internal (10%) ² Holiday	75 *	75 *	150	118 *	118 *	236
Shopping Center 374,340 gross leasable square feet. {820} Non-Holiday	718	778	1,496	1,062	980	2,042
Internal (10%) ² Non-Holiday	75 *	75 *	150	102 *	102 *	204
¹ Trip Generation, Institute of Transportation Engineers, 7th edition, Washington D.C., 2003.						
² A portion of these trips would be pedestrian trips.						
* Five percent of the total volume rounded by direction. Thus a 50-50 split in directional passby traffic.						

Level of Service

Table L-3 shows the expected levels of service along the site's main access road. Level of service analysis is shown in Attachment L-A. Levels of service D or better are anticipated with the exception of level of service E or better at the truck service road and the access to the parking lot at Buildings D, C, E, and F. The level of service was calculated using volumes set for the holiday Saturday peak hour (worse case).

Drivers expect longer than usual delays during peak shopping periods in shopping centers, thus the typical criteria may not apply.

Customers and employees that use the truck service road to exit the site during peak times will find themselves delayed attempting to access the main road. Such delays will assist in self enforcing customers, with the exception of those exiting from Building G, from using the truck access at that time. Hence, the longer delays are desirable for operational purposes to discourage customer use of the truck access.

Stores have limited check out counters that can limit the flow of customers exiting the store. Delays along the main access road are primarily due to vehicles attempting to access the main road primarily to exit the site. Delays at store checkouts and the design of the access road are instrumental in spreading out the release of traffic onto internal roads and NYS Route 311.

Table L-3 Unsignalized Internal Intersections Level of Service Summary									
FEIS ¹ Intersection Roads	Lane Group (Approach Direction Movement)	DEIS Saturday Peak Hour				Holiday Saturday Peak Hour			
		V/C Ratio	95th % Queue (Veh.)	Delay (secs./ vehicle)	LOS	V/C Ratio	95th % Queue (Veh.)	Delay (secs./ vehicle)	LOS
Main Access Road and Truck Access to Service Road									
Site Access	SB - L	0.11	0.36	27.2	D	0.10	0.33	20.9	C
Truck Service Access	WB - L, R					0.37	1.56	49.4	E
Main Egress Road and Building H Egress									
Building H	SB - L, R	0.49	2.56	28.8	D	0.15	0.51	34.2	D
Building G Access and Main Access Road									
Main Access Road	SB - L, T	0.08	0.24	24.7	C	0.10	0.34	11.4	B
Building G	WB - L, R	0.54	2.98	30.8	D	0.17	0.61	31.7	D
Main Access Road and Buildings E, F, D, and C									
Main Access Road	SB - L, T	0.16	0.59	10.2	B	0.23	0.87	11.5	B
Buildings E, F, D, and C Access	WB - L, R	0.40	1.86	23.6	C	0.63	3.79	41.0	E
Main Access Road and Buildings D, and C (Adjacent to Garden Center)									
Main Access Road	SB - L, T	0.16	0.58	9.6	A	0.27	1.10	10.7	B
Building D and C Access	WB - L, R	0.36	1.60	19.1	C	0.67	4.57	33.5	D
Main Access Road and Home Improvement Access									
Main Access Road	SB - L, T	0.14	0.49	8.8	A	0.19	0.70	9.4	A
Home Improvement Access	WB - L, R	0.39	1.87	15.7	C	0.41	1.98	18.0	C
Main Access Road and Home Improvement and Wholesale Warehouse Access									
Main Access Road	SB - L, T	0.18	0.66	8.3	A	0.20	0.75	8.5	A
Home Improvement and Wholesale Access	WB - L, R	0.26	1.04	11.3	B	0.34	1.54	12.7	B
Main Access Road and Wholesale Warehouse Access									
Main Access Road	SB - L, T	0.11	0.38	7.8	A	0.12	0.40	7.9	A
Wholesale Warehouse Access	WB - L, R	0.14	0.50	9.6	A	0.19	0.68	10.1	B
LOS is Level-of-Service (see Table J-1 for level-of-service criteria for typical day).									
V/C is Volume to Capacity Ratio.									
95th % Queue (Veh.) is the 95th percentile queue length in vehicles.									
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound.									
L = left, R = right, T = through, T, R = through and right, (e.g. WB-L Westbound left).									
¹ FEIS Building H compared to DEIS turn around, and FEIS Building G compared to DEIS Home goods.									

Appendix L

Attachment A

INTERNAL TRAFFIC ANALYSIS

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	Service Access w/ Main egress				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/25/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Truck Service access</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1105	2	24	1175			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.95	0.95	1.00		
Hourly Flow Rate, HFR (veh/h)	0	1163	2	25	1236	0		
Percent Heavy Vehicles	0	--	--	100	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration			TR	LT	T			
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				1		46		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.95	1.00	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	48		
Percent Heavy Vehicles	0	0	0	0	0	50		
Percent Grade (%)	0			0				
Flared Approach		N			Y			
Storage		0			2			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		25		49				
C (m) (veh/h)		251		131				
v/c		0.10		0.37				
95% queue length		0.33		1.56				
Control Delay (s/veh)		20.9		49.4				
LOS		C		E				
Approach Delay (s/veh)	--	--	49.4					
Approach LOS	--	--	E					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JAG	Intersection	Building H Egress Main access
Agency/Co.	TMA	Jurisdiction	Town of Patterson
Date Performed	5/25/07	Analysis Year	Build Condition
Analysis Time Period	Saturday Peak Hour Holiday		
Project Description <i>Patterson Crossing</i>		North/South Street: <i>Main Access Road</i>	
East/West Street: <i>Building H Egress</i>		Intersection Orientation: <i>North-South</i>	
		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		1102			1138	
Peak-Hour Factor, PHF	1.00	0.95	1.00	1.00	0.95	1.00
Hourly Flow Rate, HFR (veh/h)	0	1160	0	0	1197	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		T			T	
Upstream Signal		0			0	
Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5		33			
Peak-Hour Factor, PHF	0.95	1.00	0.95	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	5	0	34	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		Y			N	
Storage		1			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration							<i>LR</i>	
v (veh/h)							39	
C (m) (veh/h)							263	
v/c							0.15	
95% queue length							0.51	
Control Delay (s/veh)							34.2	
LOS							<i>D</i>	
Approach Delay (s/veh)	--	--				34.2		
Approach LOS	--	--				<i>D</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	Building G/Main Access				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/25/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Building G Access</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1068	3	61	1100			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.95	0.95	1.00		
Hourly Flow Rate, HFR (veh/h)	0	1124	3	64	1157	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration			TR	LT	T			
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				5		34		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.95	1.00	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	5	0	35		
Percent Heavy Vehicles	0	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			Y			
Storage		0			1			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		64		40				
C (m) (veh/h)		627		231				
v/c		0.10		0.17				
95% queue length		0.34		0.61				
Control Delay (s/veh)		11.4		31.7				
LOS		B		D				
Approach Delay (s/veh)	--	--	31.7					
Approach LOS	--	--	D					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	Buildings C-F/Main access				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/25/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Buildings C-F</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		923	5	155	960			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	971	5	163	1010	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration			TR	LT	T			
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				1		148		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	155		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		163		156				
C (m) (veh/h)		715		249				
v/c		0.23		0.63				
95% queue length		0.87		3.79				
Control Delay (s/veh)		11.5		41.0				
LOS		B		E				
Approach Delay (s/veh)	--	--	41.0					
Approach LOS	--	--	E					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	Building C/Main access				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/28/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Building C/Home Improv Access</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		703	3	226	735			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	740	3	237	773	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration			TR	LT	T			
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				2		221		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	2	0	232		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		237		234				
C (m) (veh/h)		873		351				
v/c		0.27		0.67				
95% queue length		1.10		4.57				
Control Delay (s/veh)		10.7		33.5				
LOS		B		D				
Approach Delay (s/veh)	--	--	33.5					
Approach LOS	--	--	D					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	Home Impr./ Main access				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/25/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Home Improvement Access 4</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		530	7	184	553			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	557	7	193	582	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	2	0		
Configuration			TR	LT	T			
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				2		180		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	2	0	189		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		193		191				
C (m) (veh/h)		1018		465				
v/c		0.19		0.41				
95% queue length		0.70		1.98				
Control Delay (s/veh)		9.4		18.0				
LOS		A		C				
Approach Delay (s/veh)	--	--	18.0					
Approach LOS	--	--	C					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	Home Impr. HW/ Main access				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/25/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Home I & Wholesale Warehouse</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		303	4	239	316			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	318	4	251	332	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				1		234		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	246		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		251		247				
C (m) (veh/h)		1249		716				
v/c		0.20		0.34				
95% queue length		0.75		1.54				
Control Delay (s/veh)		8.6		12.7				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.7					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	JAG		Intersection	wholesale Wareh/ Main access				
Agency/Co.	TMA		Jurisdiction	Town of Patterson				
Date Performed	5/25/07		Analysis Year	Build Condition				
Analysis Time Period	Saturday Peak Hour Holiday							
Project Description <i>Patterson Crossing</i>								
East/West Street: <i>Wholesale Warehouse</i>			North/South Street: <i>Main Access Road</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		154	12	159	158			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	162	12	167	166	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				1		153		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	161		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		167		162				
C (m) (veh/h)		1415		874				
v/c		0.12		0.19				
95% queue length		0.40		0.68				
Control Delay (s/veh)		7.9		10.1				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.1					
Approach LOS	--	--	B					

Appendix L

Attachment B

FIGURES

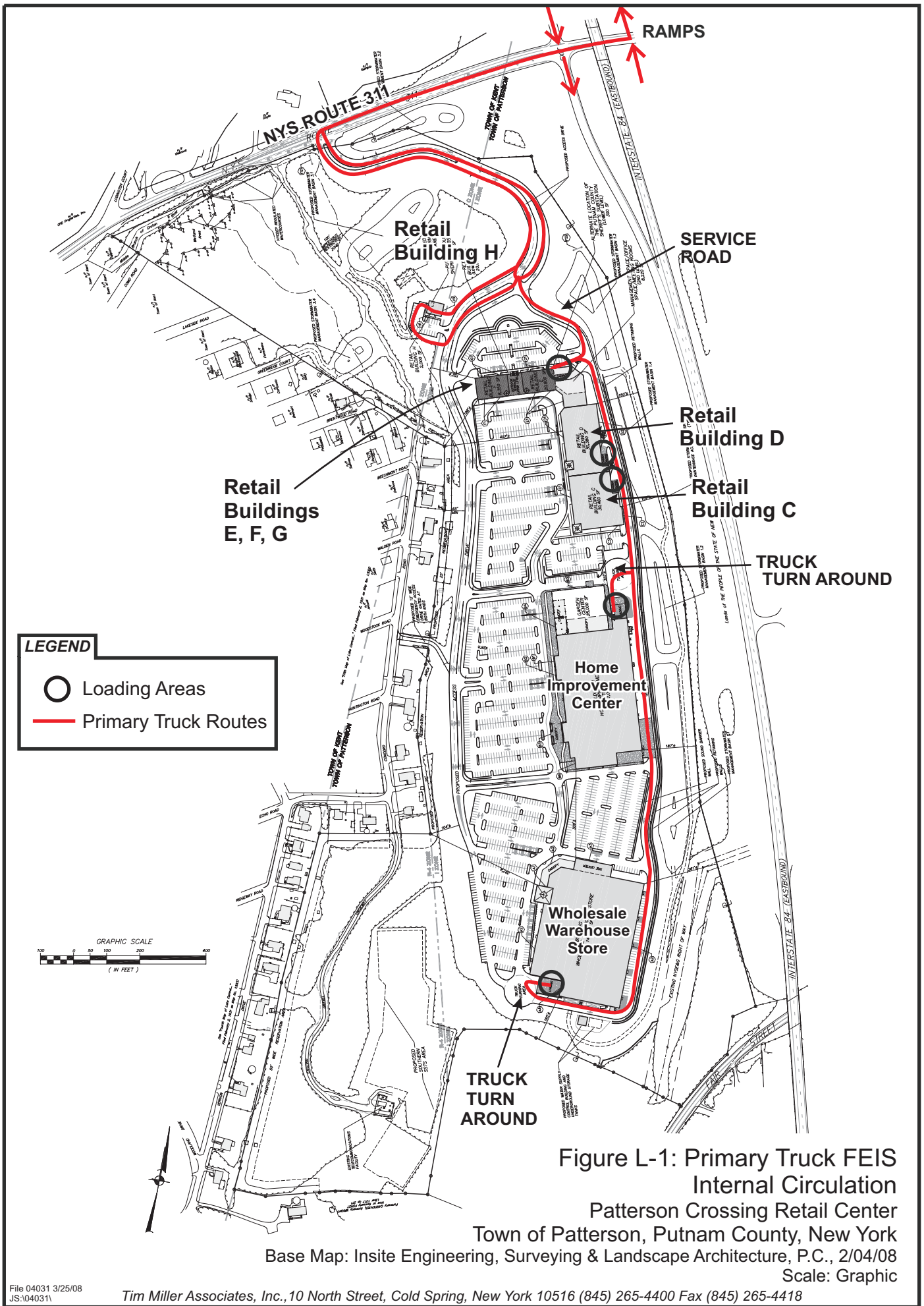
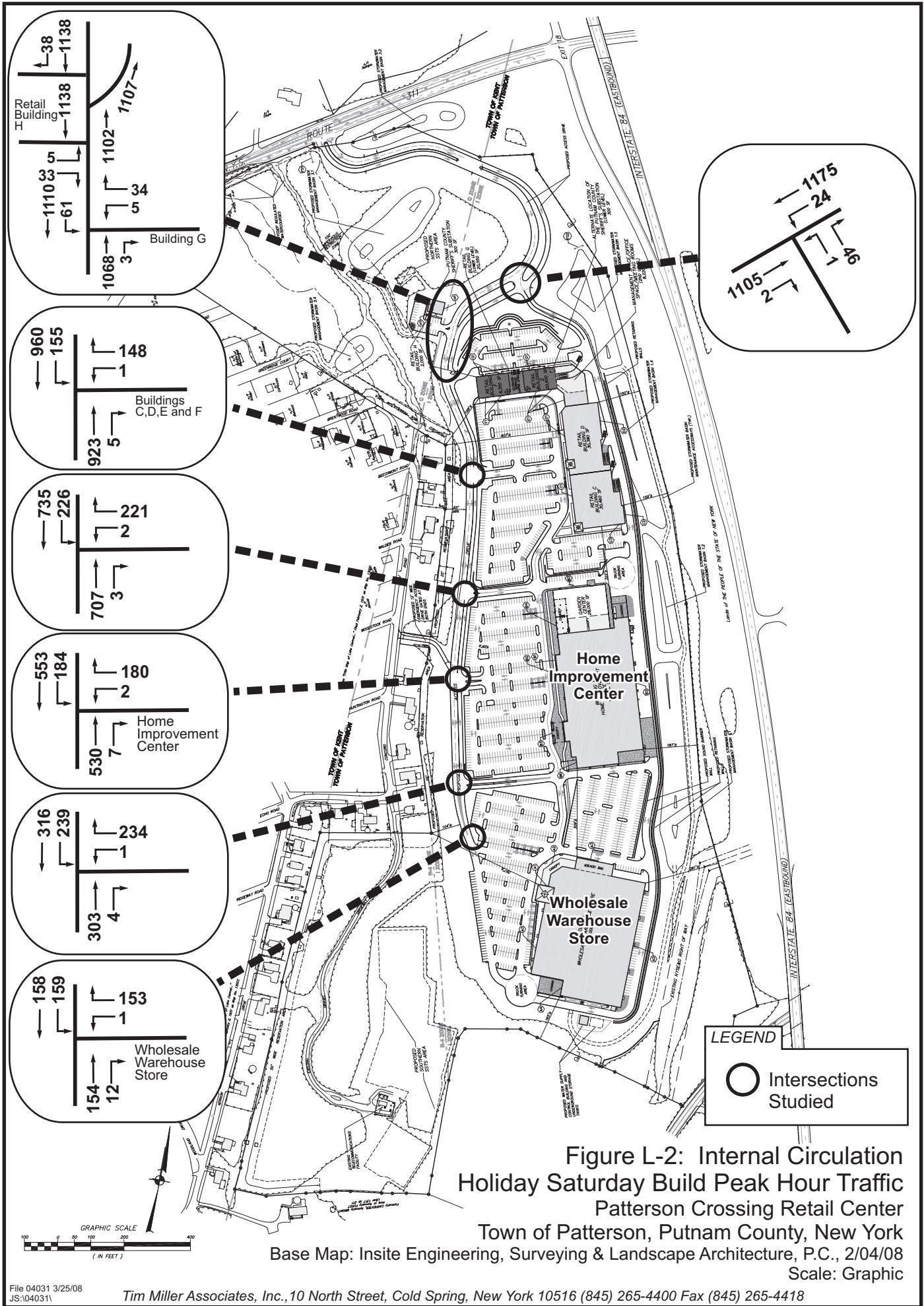


Figure L-1: Primary Truck FEIS
 Internal Circulation
 Patterson Crossing Retail Center
 Town of Patterson, Putnam County, New York
 Base Map: Insite Engineering, Surveying & Landscape Architecture, P.C., 2/04/08
 Scale: Graphic



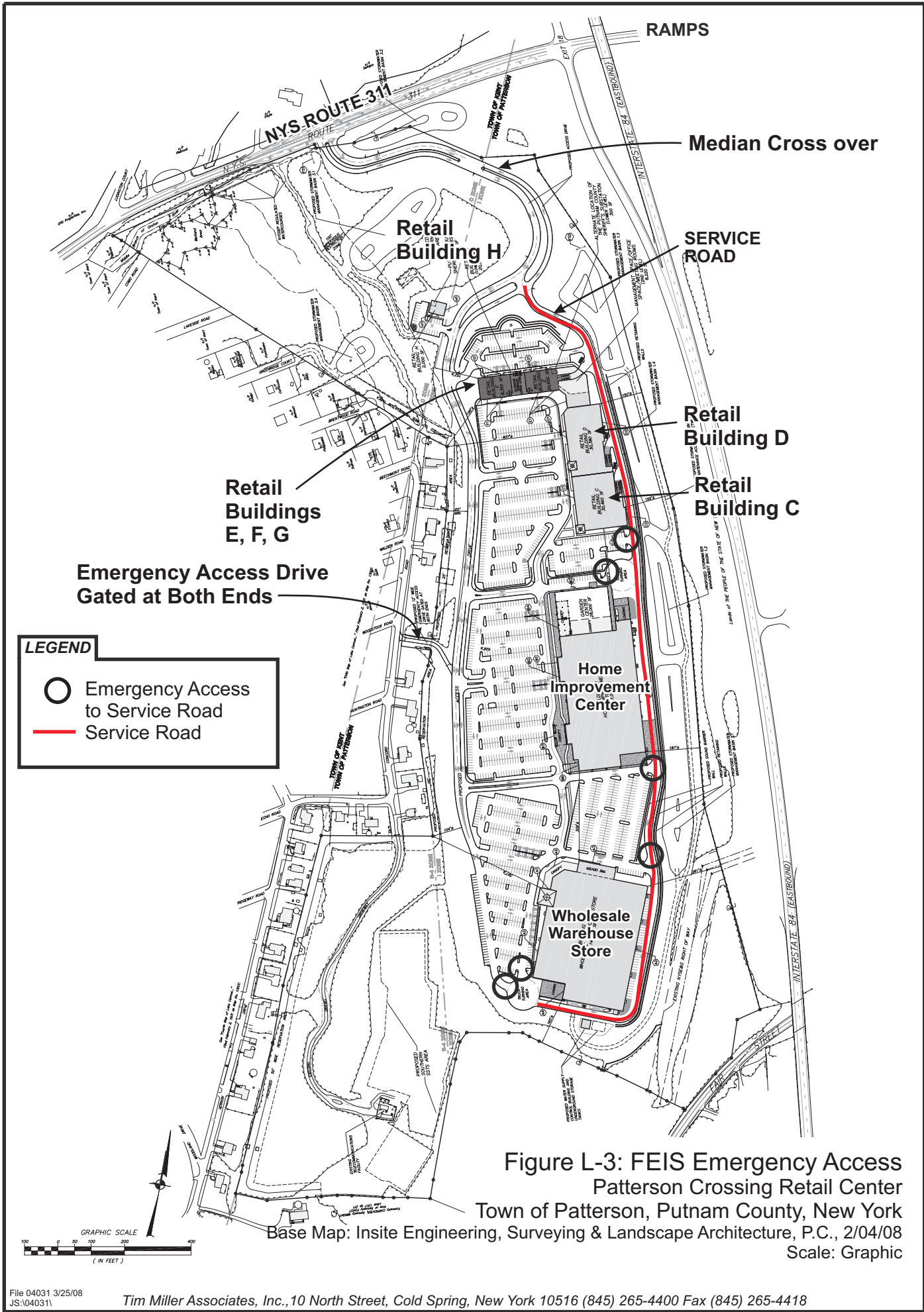


Figure L-3: FEIS Emergency Access
 Patterson Crossing Retail Center
 Town of Patterson, Putnam County, New York
 Base Map: Insite Engineering, Surveying & Landscape Architecture, P.C., 2/04/08
 Scale: Graphic

Appendix M

STREET WORKS RENDERINGS

Patterson Crossing



View from the new public space

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Development and Consulting Group

June 2007

Patterson Crossing

A new development that will:

- **Enhance Kent's and Patterson's image at a gateway location**
- **Support the towns, county and state economic development**
- **Provide substantial private funds to improve public infrastructure**
- **Implement Kent's and Patterson's master plan visions**

The Enhanced Plan

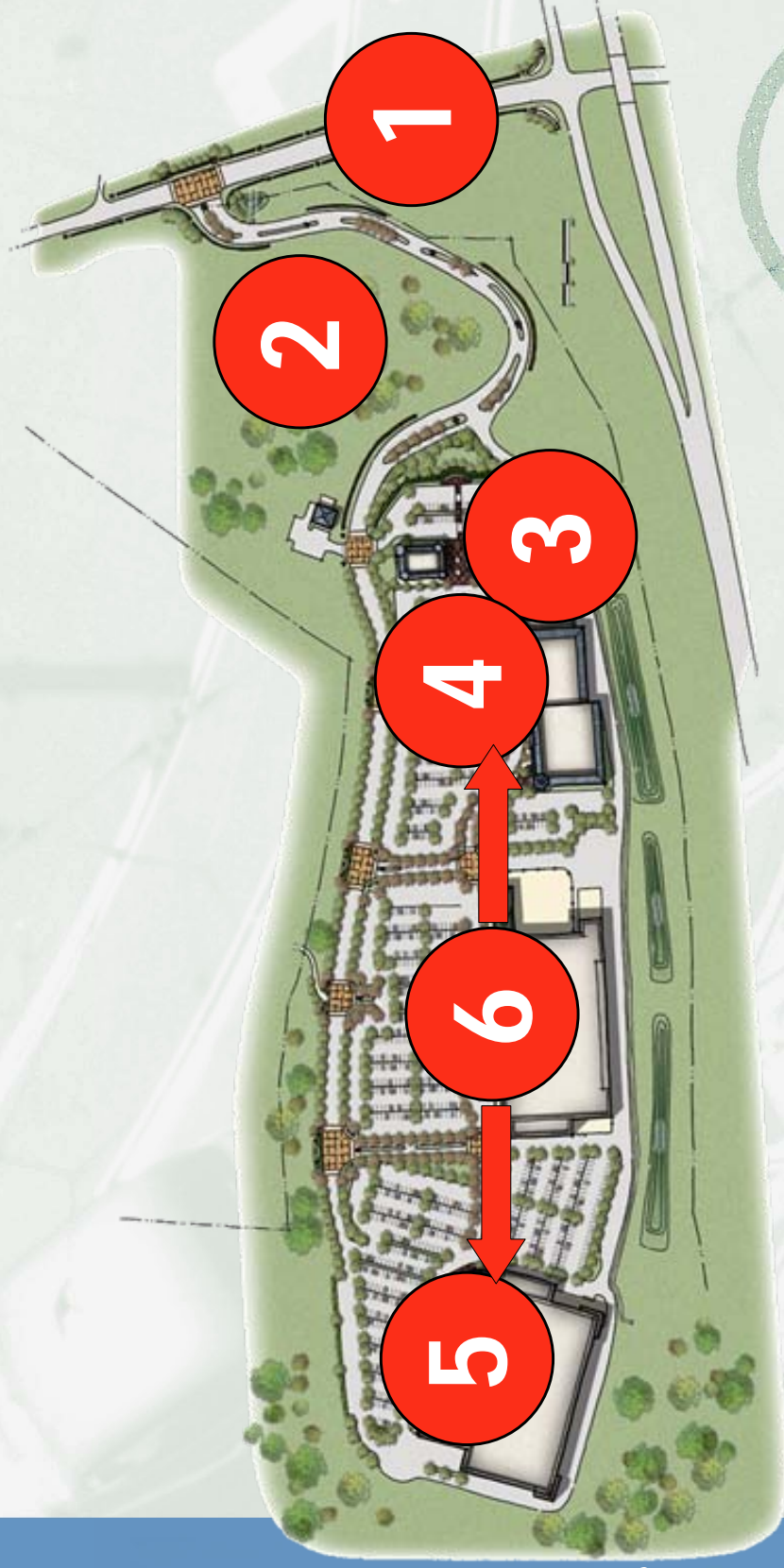


June 2007

The Enhanced Plan

Enhancements improve the experience.

1. Community gateway design
2. Pleasant entry drive
3. Outdoor gathering place
4. Collection of local tenants
5. Collection of national tenants
6. Well designed pedestrian connections



CAMARDA
REALTY INVESTMENTS

June 2007

The Enhanced Plan

Enhancements improve the experience.

7. Sensitive

lighting



8. Parking & roadways softened



9. Community center



10. Cohesive architectural style



11. Improved tenant prototypical architecture



12. Cohesive signage program



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Development and Consulting Group

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Patterson Crossing's Design Concept

The design character of Patterson Crossing will incorporate the simplicity and functionality of the County's equestrian rural architecture and landscape.



Equestrian Rural Architecture



Stone walls

Fences



Pastoral landscape

New Gateway

The Project creates a new gateway to both Patterson and Kent along Route 311.

- The site sits at the gateway to both Kent and Patterson.
- The edges of Route 311 will be defined by stone walls and fences that reflect the area's historically rural character.



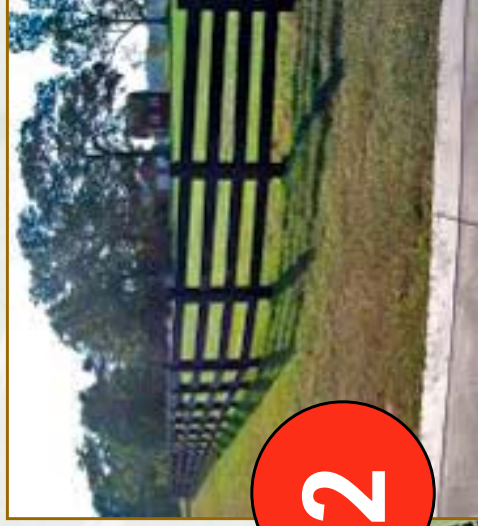
CAMARDA
REALTY INVESTMENTS

Street-Works LLC
Development and Consulting Group

June 2007

New Gateway

1. Stone gateways
2. Fence edge
3. Mile marker directional signage



Pleasant Entry Drive

The Gateway elements continue into Patterson Crossing.

- The entrance drive is shaped and softened by landscaping.
- Fencing defines the edges.
- Historically inspired mile posts mark the way.

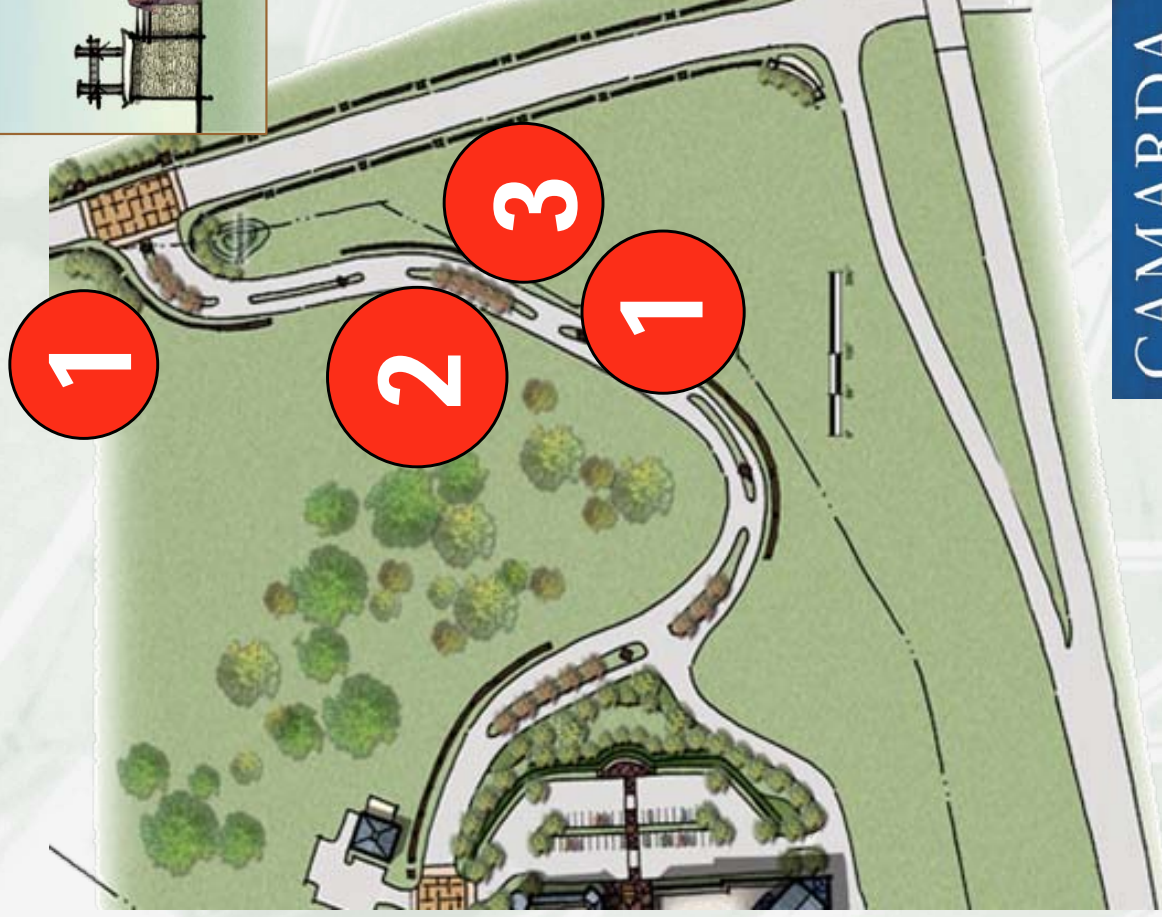
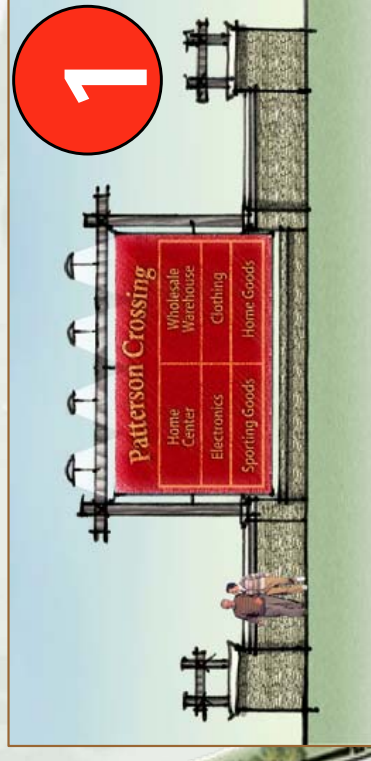


CAMARDA
REALTY INVESTMENTS

June 2007

Pleasant Entry Drive

1. Entrance drive project signage
2. Landscaped medians
3. Historically inspired directional signage



3

2

1

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Development and Consulting Group

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Parking & Roadway Areas Softened

A large site gains comfortable scale through landscaping.

1. Rows of trees define the major on-site drives.
2. Trees establish the boundaries of each parking area.
3. Mile markers and stone walls mark destination locations.

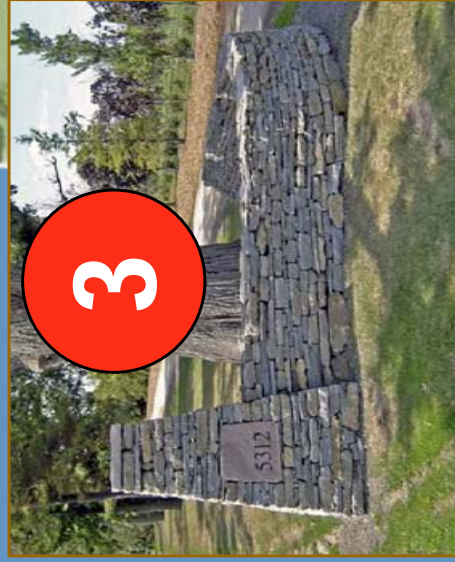


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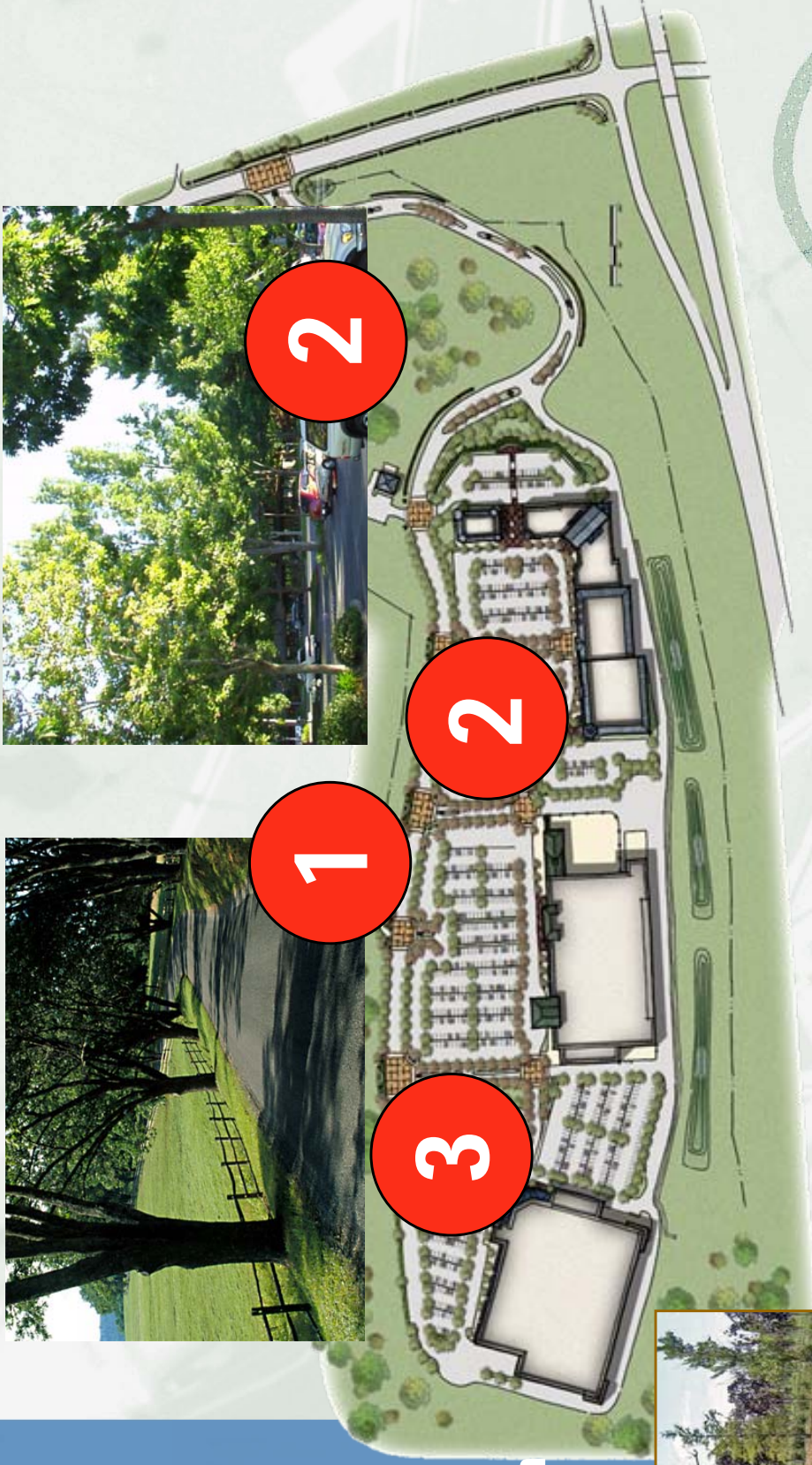


2

3



3



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Development and Consulting Group

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Collection of Local and National Tenants

1. Large anchors draw a steady stream of customers.
2. Smaller local tenants benefit from the regular visibility generated by the anchors.

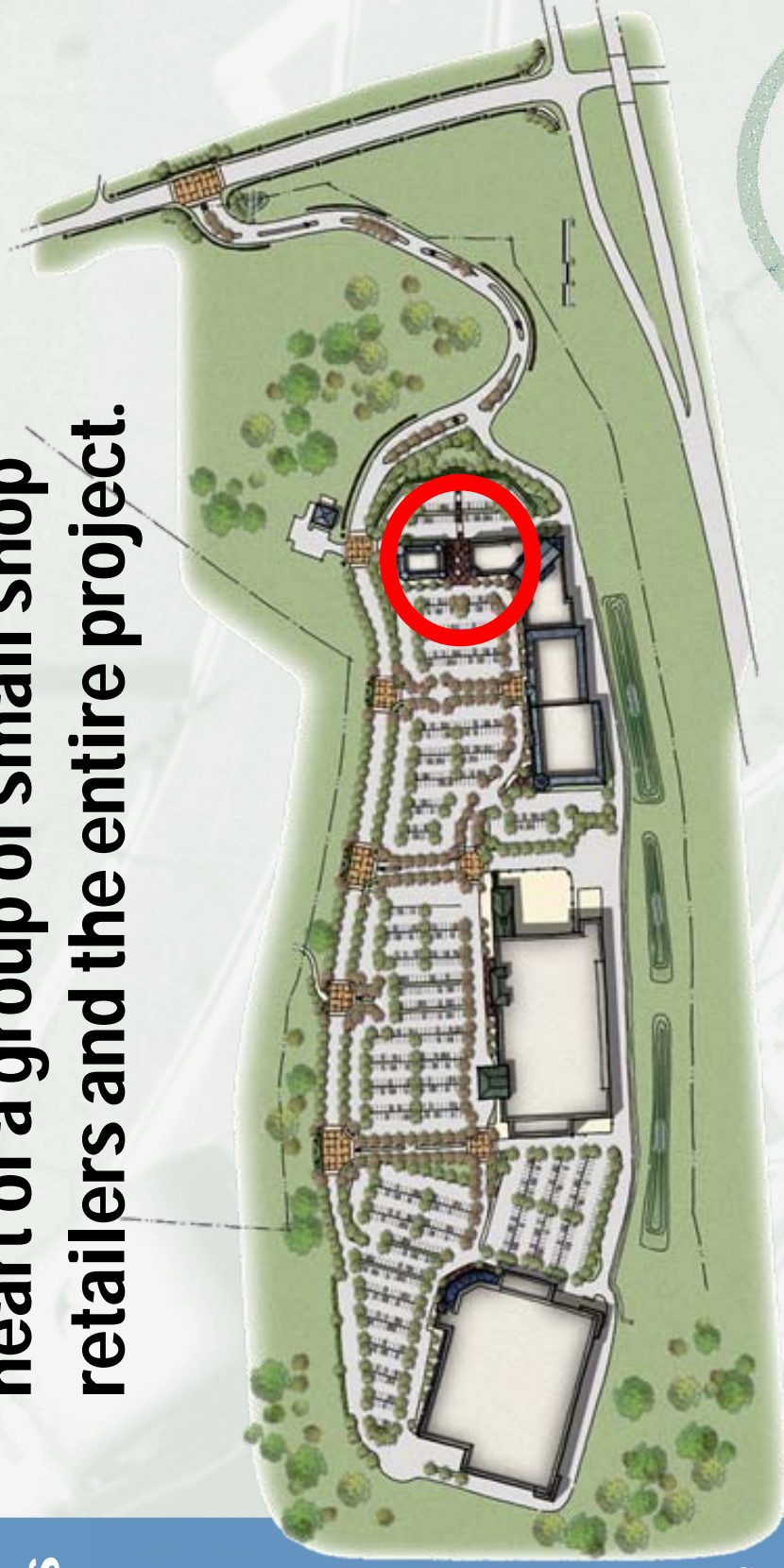
A mix of tenant types, large and small, ensure a strong center and are organized on the site to benefit each other.



Outdoor Gathering Place

- The public plaza serves as a focal point for the small retail.
- The space anchors great sidewalks that connect all of the retail creating a more walkable site.

A new public open space is the heart of a group of small shop retailers and the entire project.



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Development and Consulting Group

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Outdoor Gathering Place

1. A stone fireplace invites visitors to linger.
2. Casual seating accommodates outdoor gathering.
3. The public open space becomes the identity of the project and a new great place for Patterson and Kent.



Community Center

- An upper story space will be made available for community use.
- The two-story building component gives the center a focal point for the community as well as the center.

A gathering room is available to the public.



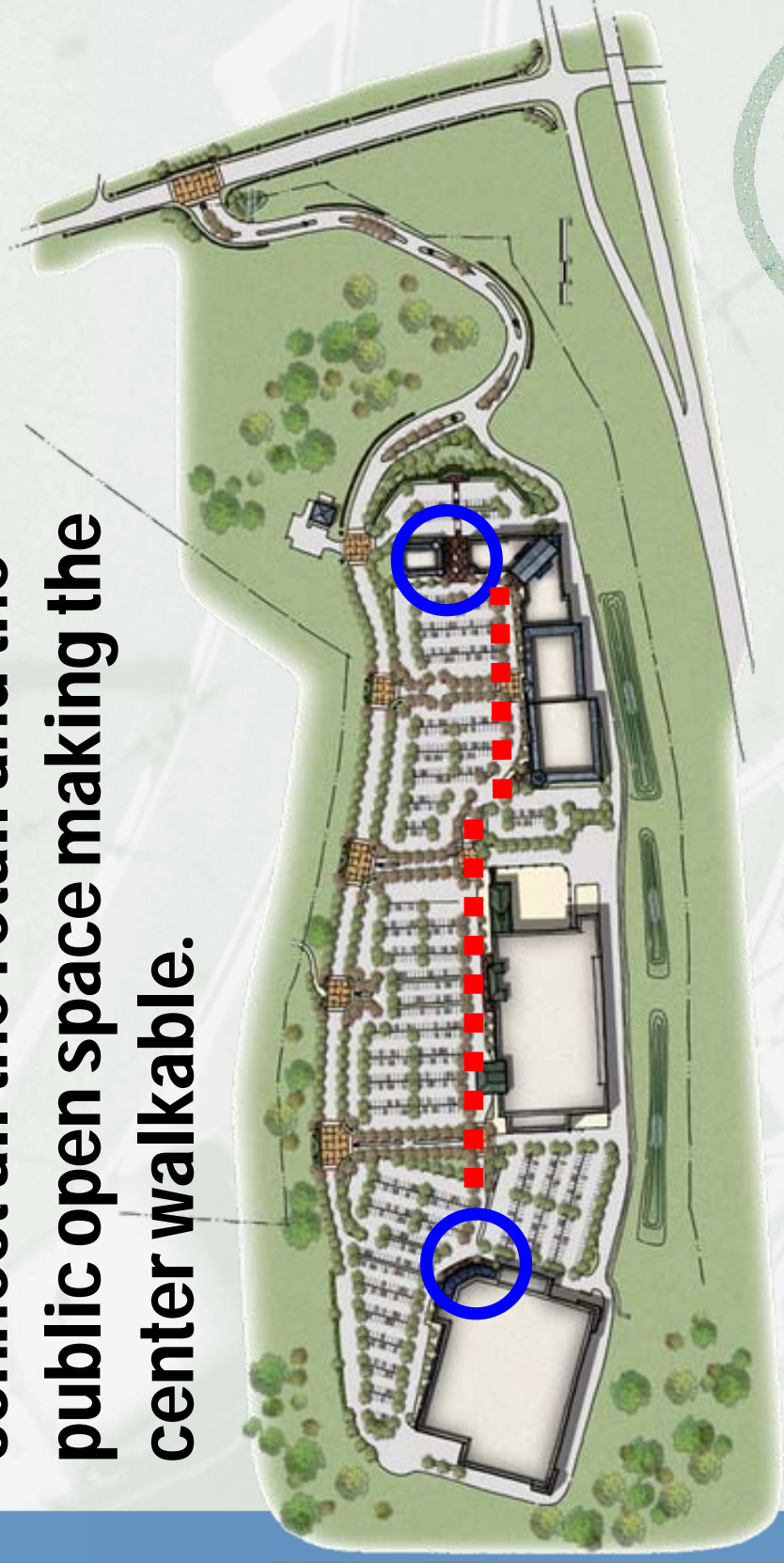
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June 2007

Well Designed Pedestrian Connections

Carefully crafted sidewalks connect all the retail and the public open space making the center walkable.



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Well Designed Pedestrian Connections

- Sidewalk organization will follow a model that we know works.
- Sidewalks are treated as a public amenity and help support the retail.
- Street trees offer shade and add character.
- An “Amenity Zone” provides places to linger and wait, with the option to have a café space if needed.



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Sensitive Lighting

Sensitive lighting design minimizes light pollution impact on neighbors.

- Lighting will be carefully controlled at the storefront, at the buildings and in the parking fields.
- Cutoff fixtures will be used to minimize stray light while maintaining safety and security.



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Cohesive Architectural Style

- Simple building forms, details and materials tie all the buildings together.
- A single color unifies the whole.
- The architecture is appropriate for small or large tenants.



Rural equestrian architecture is the basis of the building design.



Town Hall



June 2007

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Building Design

- Simple building forms, details and materials tie all the buildings together.

- A single color unifies the whole.

Break down the scale of the buildings through the use of smaller elements or “kit-of-parts” .



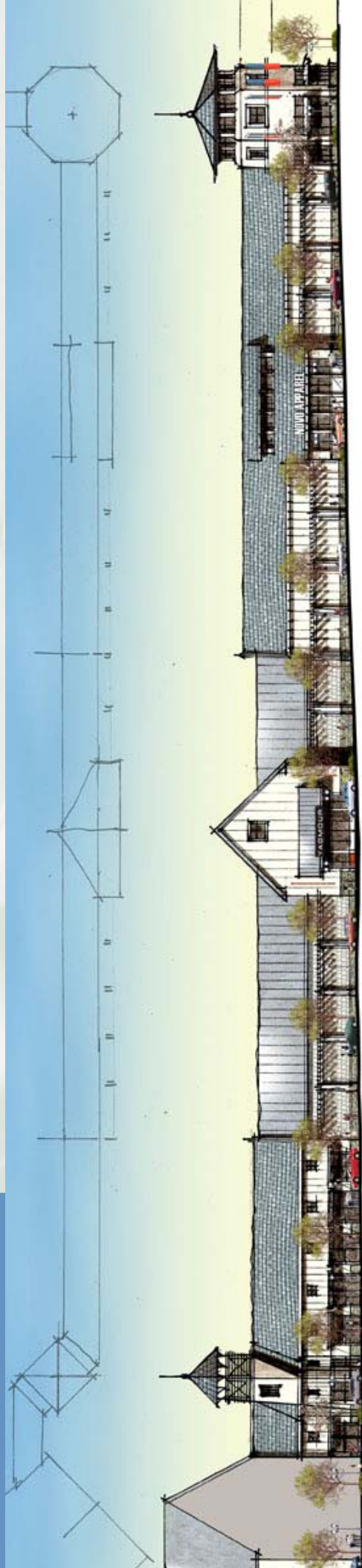
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Building Design: Kit of Parts

Break down the scale of the buildings through the use of smaller elements or “kit-of-parts”.



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Development and Consulting Group

Building Design: Kit of Parts

•Vertical Towers

Break down the scale of the buildings through the use of smaller elements or “kit-of-parts”.



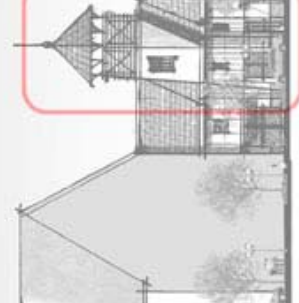
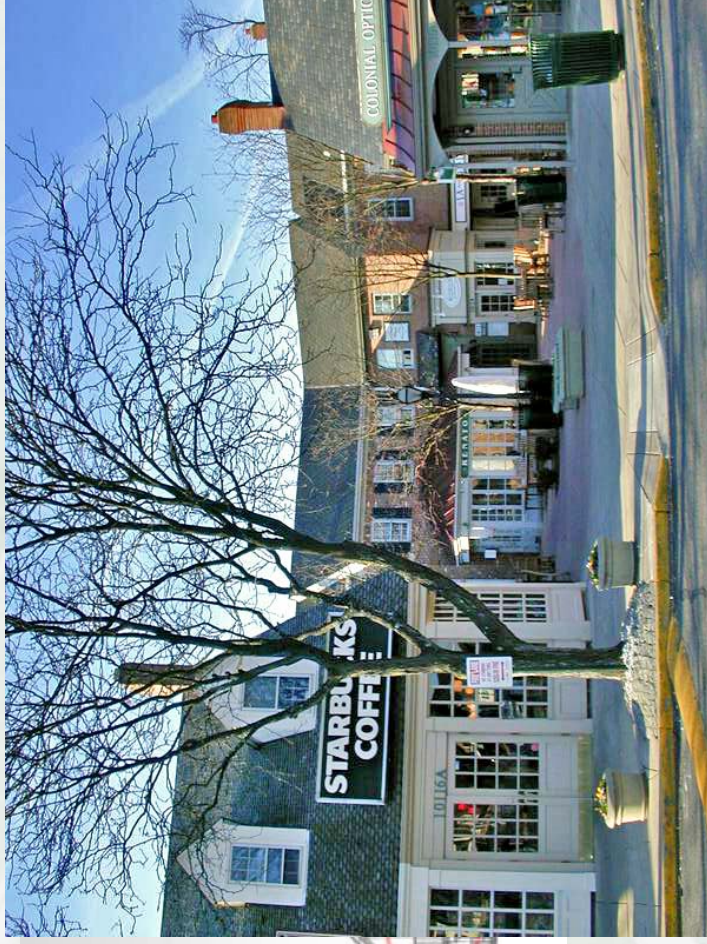
CAMARDA
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Building Design: Kit of Parts

- Vertical Towers
 - Bay Windows
- Break down the scale of the buildings through the use of smaller elements or “kit-of-parts”.**



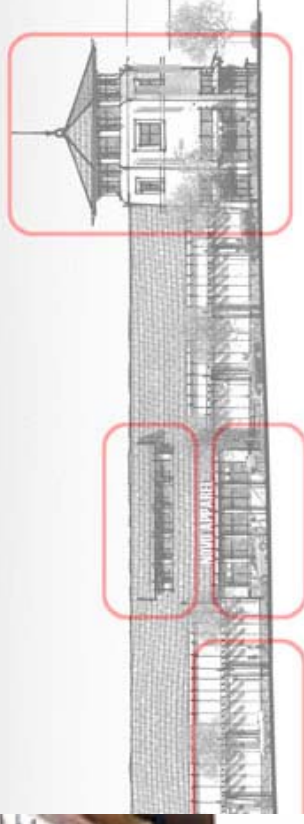
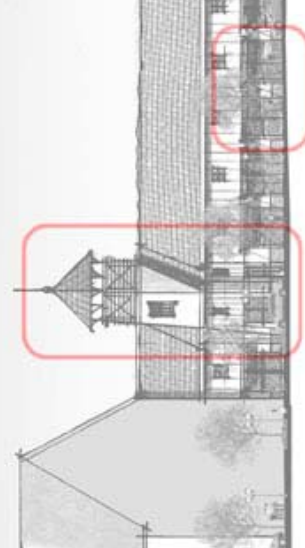
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Development and Consulting Group

Building Design: Kit of Parts

- Vertical Towers
 - Bay Windows
 - Awnings and Canopies
- Break down the scale of the buildings through the use of smaller elements or “kit-of-parts”.**



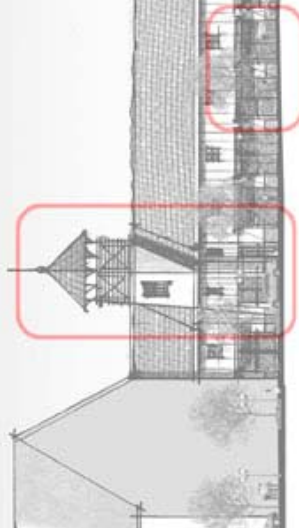
June 2007

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REALTY INVESTMENTS

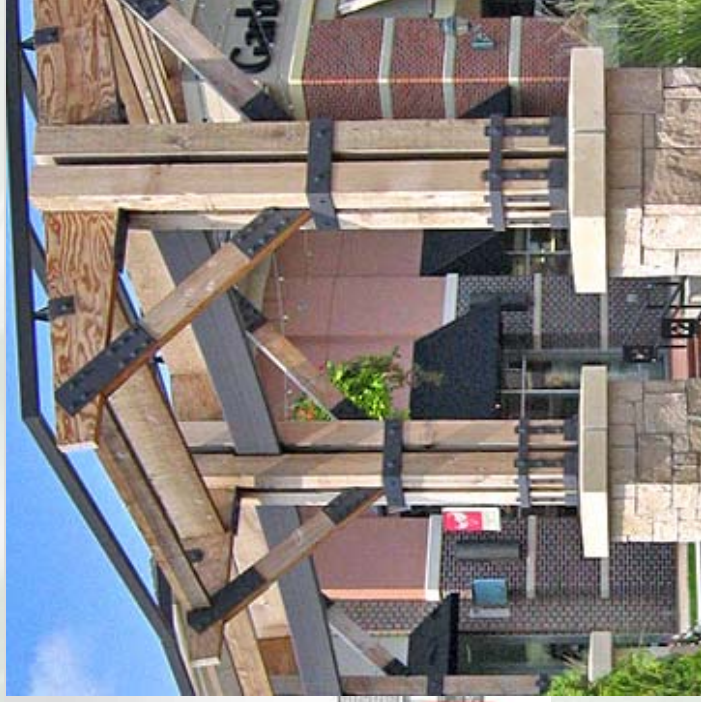
Street-Works LLC
Development and Consulting Group

Building Design: Kit of Parts

- Vertical Towers
 - Bay Windows
 - Awnings and Canopies
- Break down the scale of the buildings through the use of smaller elements or “kit-of-parts”.**



- Trellises and Arcades



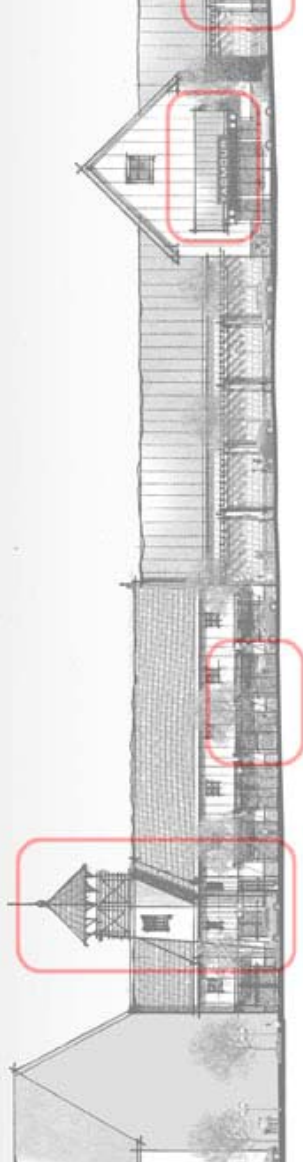
CAMARDA
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June 2007

Building Design: Kit of Parts

- Vertical Towers
 - Bay Windows
 - Awnings and Canopies
- Break down the scale of the buildings through the use of smaller elements or “kit-of-parts”.**



- Trellises and Arcades
- Shed Dormers

Building Design: Kit of Parts

•Rural precedent is our guide here as well.

The final level of detail comes from a cohesive and simple tenant signage package.



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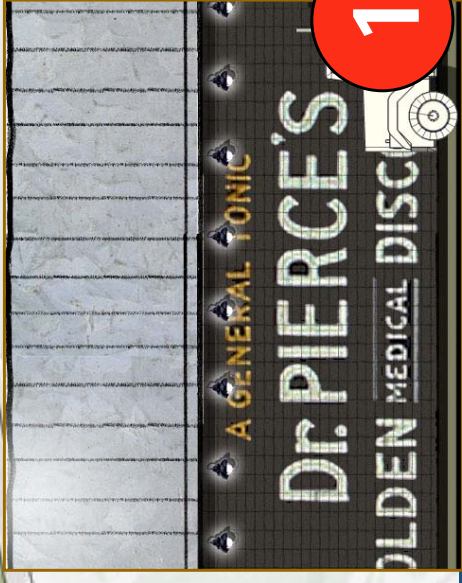
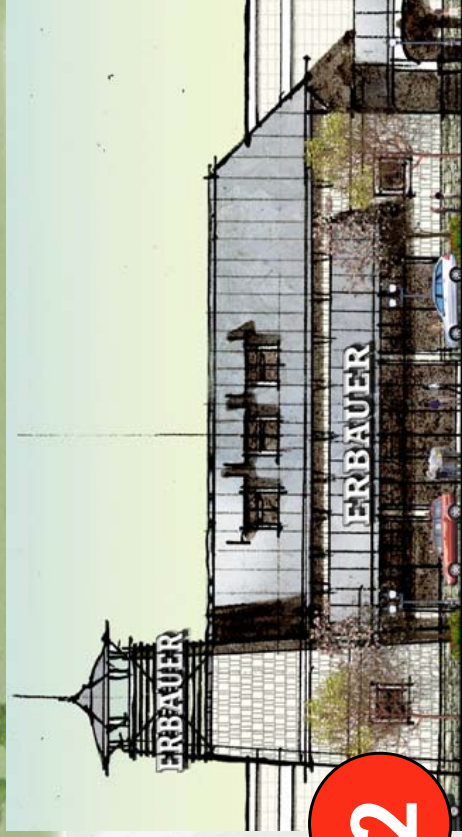
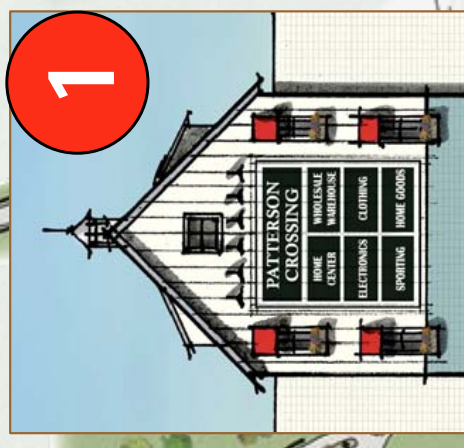
Cohesive Signage Program

The final level of detail comes from a cohesive and simple tenant signage package.



1. Large scale and simple signs face the highway.

2. Tenant signage is understated and cohesive.



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Building Design: Anchors

- All tenants take on the common architectural style.
 - The same “kit of parts” - materials, color scheme and design – applies.
- The elements that are a part of the smaller scale buildings apply to the anchors as well.**



June 2007

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Patterson Crossing



View from the new public space

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June 2007

Elevations



June 2007

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Elevations



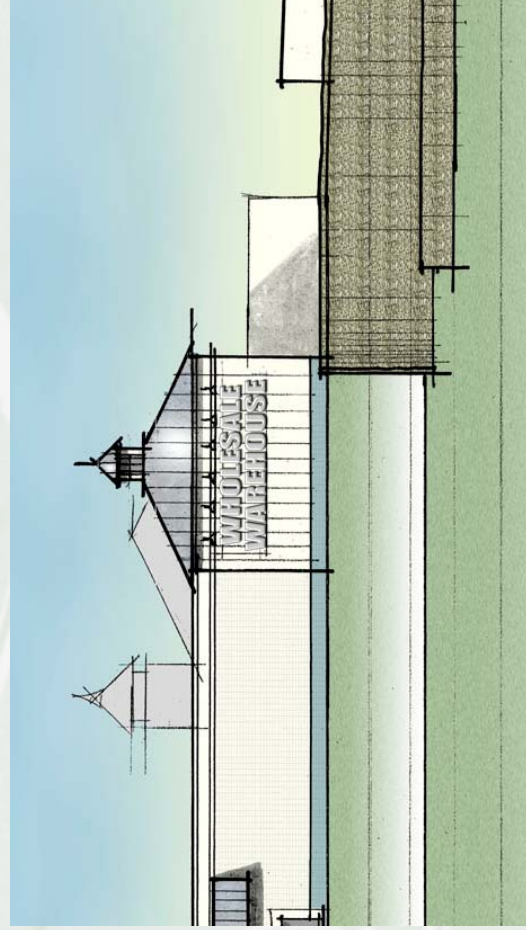
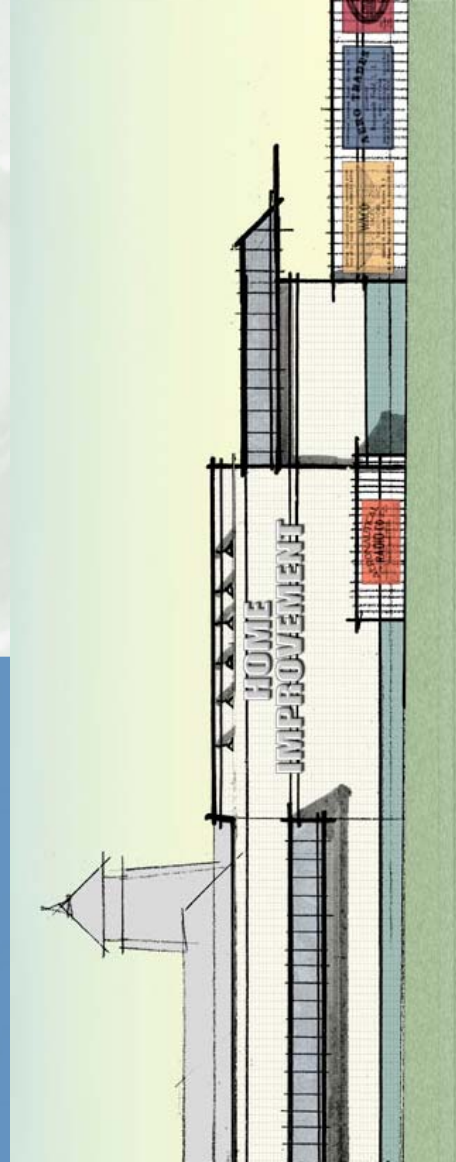
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Elevations

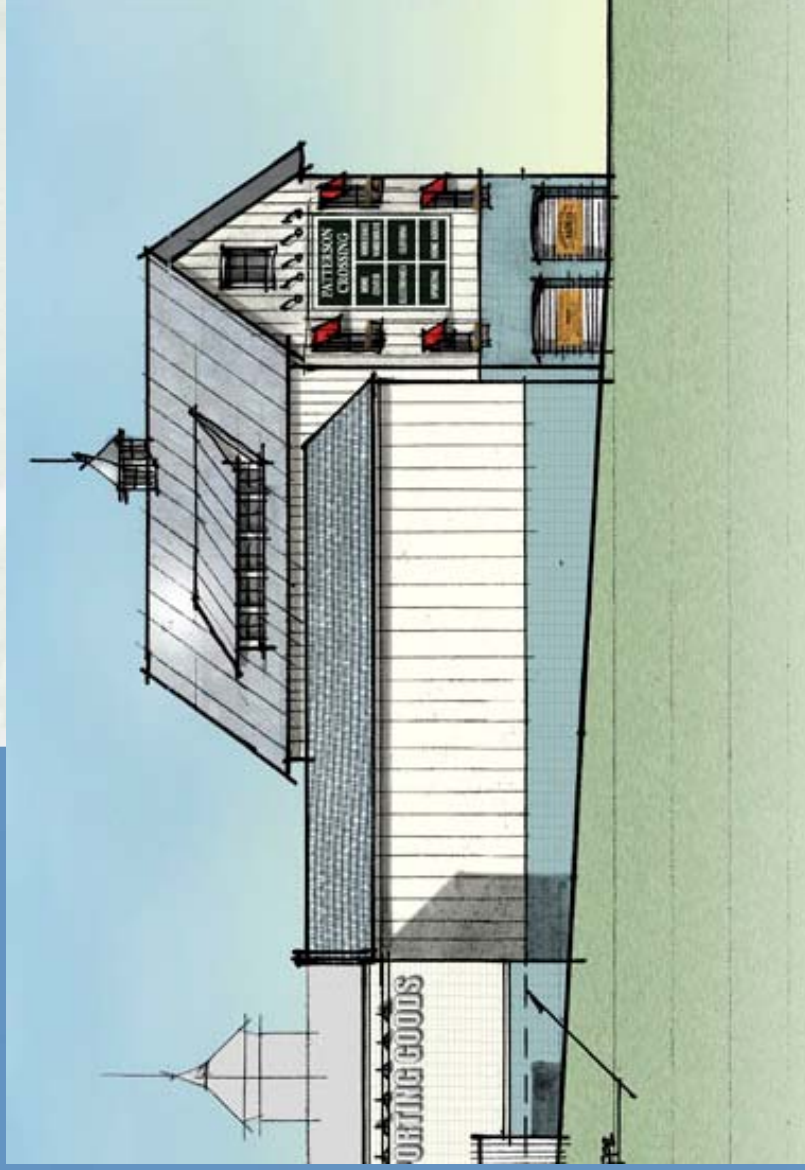


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CAMARDA
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Elevations



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REALTY INVESTMENTS

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Development and Consulting Group

June 2007

Appendix N
SEQRA DOCUMENT

PLANNING DEPARTMENT

P.O. Box 470
1142 Route 311
Patterson, NY 12563

Melissa Brichta
Secretary

Richard Williams
Town Planner

Telephone (845) 878-6500
FAX (845) 878-2019



**TOWN OF PATTERSON
PLANNING & ZONING OFFICE**

ZONING BOARD OF APPEALS

Howard Buzzutto, Chairman
Mary Bodor
Marianne Burdick
Martin Posner
Lars Olenius

PLANNING BOARD

Herb Schech, Chairman
Michael Montesano
David Pierro
Shawn Rogan
Maria Di Salvo

**State Environmental Quality Review
Notice of Completion of Draft Environmental Impact Statement
and
Notice of SEQRA Hearing**

July 27, 2006

Lead Agency: Planning Board of the Town of Patterson
P.O. Box 470, 1142 Route 311
Patterson, NY 12563

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

A Draft Environmental Impact Statement has been completed and accepted for the proposed action described below. Comments are requested and will be accepted by the contact person until September 8, 2006. A public hearing on the Draft EIS and site plan will be held on August 23 and 24th from 6 pm to 11 pm. at the Patterson Recreation Center, 65 Front Street, Patterson, NY 12563.

Name of Action: Patterson Crossing Retail Center

Description of Action: Patterson Crossing Realty, LLC proposed to construct a 434,050 s.f. retail center on a 90.46± acre parcel which lies within the Town of Patterson and the Town of Kent.

Location: The project is located on the west side of Interstate Route 84 and the south side of NYS Route 311, Town of Patterson and Town of Kent, Putnam County, approximately 1,700 feet west of the Ludingtonville Road intersection. The Project consists of tax lots 33.-2-23, 22.-3-1, 34.-2-3 in the Town of Patterson and tax lots 22.-2-48 in the Town of Kent

Potential Environmental Impacts:

1. The proposed action will require the physical alteration of approximately 60 acres and the permanent conversion of 32.4 acres of site into impervious surface. This disturbance may have an adverse impact on surface water quality and quantity through increased erosion, loss of vegetation, changes in hydrology and increased pollution from the creation of large areas of impervious surfaces.
2. The proposed action may substantially increase the quantity of traffic on the area's roads.
3. The creation of large areas of impervious surface may restrict groundwater recharge and affect available ground water resources.
4. The proposed action may adversely affect human and community resources through increase noise, increased demand for fire or police services, and increased light pollution.

A copy of the Draft/Final

EIS may be viewed on the Internet at : pattersonny.org

A copy of the Draft/Final

EIS may be obtained from: Patterson Planning Department
P.O. Box 470, 1142 Route 311
Patterson, NY 12563
845-878-6500

A copy of this notice must be sent to:

Department of Environmental Conservation, Division of Environmental Permits, 625 Broadway,
Albany, NY 12233-1750

Chief Executive Officer, Town of Patterson

Any person who has requested a copy of the Draft/Final EIS

Any other involved agencies

Environmental Notice Bulletin, Environmental Notice Bulletin, 625 Broadway, Albany, NY 12233-1750

Copies of the Draft EIS must be distributed according to 6NYCRR 617.12(b).

The ENB SEQRA Notice Publication Form - *Please check all that apply.*

Deadline: Notices must be received by 6 p.m. Wednesday to appear in the following Wednesday's ENB.

<input type="checkbox"/> Negative Declaration - Type I	<input checked="" type="checkbox"/> Draft EIS
<input type="checkbox"/> Conditioned Negative Declaration	<input checked="" type="checkbox"/> with Public Hearing
<input type="checkbox"/> Draft Negative Declaration	<input type="checkbox"/> Generic
<input type="checkbox"/> Positive Declaration	<input type="checkbox"/> Supplemental
<input type="checkbox"/> with Public Scoping Session	<input type="checkbox"/> Final EIS
	<input type="checkbox"/> Generic
	<input type="checkbox"/> Supplemental

DEC Region #3	County: Putnam	Lead Agency: Planning Board of the Town of Patterson
---------------	----------------	---

Project Title: Patterson Crossing Retail Center

Brief Project Description: The action involves the construction of a 434,050 s.f. retail center on a 90.46± acre parcel which lies within the Town of Patterson and the Town of Kent

Project Location The project is located on the west side of Interstate Route 84 and the south side of NYS Route 311, Town of Patterson and Town of Kent, Putnam County, approximately 1,700 feet west of the Ludingtonville Road intersection. :

Address: P.O. Box 470, 1142 Route 311 City: Patterson State: NY Zip:12563

Phone: 845-878-6500
Fax: 845-878-2019

For Draft Negative Declaration/Draft EIS: Public Comment Period ends:9/8/06

For Public Hearing: Date 8/23/06 and 8/24/06 Time:6:00 pm

Location: Patterson Recreation Center
 65 Front Street
 Patterson , NY 12563

For Conditioned Negative Declaration: In summary, conditions include:

Contact Person: Richard Williams Sr., Planner

E-mail:rdw@bestweb.net

PLANNING DEPARTMENT
P.O. Box 470
1142 Route 311
Patterson, NY 12563

Melissa Brichta
Secretary

Richard Williams
Town Planner

Telephone (845) 878-6500
FAX (845) 878-2019



TOWN OF PATTERSON
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Lars Olenius

PLANNING BOARD
Herb Schech, Chairman
Michael Montesano
David Pierro
Shawn Rogan
Maria Di Salvo

August 24, 2006

Re: **Patterson Crossing Retail Center**
DEIS Public Hearing and Written Comment Period

Dear Involved Agency:

Previously, you had received notice on the completion of a draft Environmental Impact Statement for the Patterson Crossing Retail Center from the Patterson Planning Board acting as Lead Agency. The notice indicated that a public hearing on the Draft EIS and site plan would be held on August 23 and 24th from 6 pm to 11 pm. at the Patterson Recreation Center, 65 Front Street, Patterson, NY 12563, and further that written comments would be accepted until September 8, 2006. On August 23, 2006 the Patterson Planning Board, as Lead Agency extended the time available for public consideration of the Draft EIS by rescheduling the date of the public hearing and the date for written comment. The new dates are as follows:

A **public hearing** on the Draft EIS and site plan will be held on **September 13th and 14th** at 6 p.m. at the Patterson Recreation Center, 65 Front Street, Patterson, NY 12563. **Written comments** are requested and will be accepted by the contact person until **September 25, 2006**. at the address shown above.

Please feel free to contact my Office if you have any further questions.

Sincerely yours,

Richard Williams
TOWN PLANNER

cc: Distribution List

PATTERSON CROSSING
SEORA DEIS Circulation List

NYS Department of Environmental Conservation
Division of Environmental Permits
625 Broadway
Albany, NY 12233-1750

Mrs. Margaret Duke
Regional Permit Administrator
Region 3
NYS DEC
21 South Putt Corners Road
New Paltz, NY 12561

NYS Department of Transportation
4 Burnett Boulevard
Poughkeepsie, NY 12603

Mr. John M. Dunn, P.E.
Chief Design Section
New York State Health Department
Bureau of Water Supply
Room 478, Tower Building
Empire State Plaza
Albany, NY 12237

New York City
Department of Environmental Protection
Bureau of Water Supply
465 Columbus Avenue
Valhalla, NY 10595

Mr. John Lynch, Director
Putnam County
Department of Planning and Development
841 Fair Street
Carmel, NY 10509

Mr. Michael J. Budzinski, P.E.
Director of Engineering
Putnam County Health Department
Division of Environmental Health Services
1 Geneva Road
Brewster, NY 10509

Mr. Harold J. Gary
Putnam County
Department of Highways & Facilities
842 Fair Street
Carmel, NY 10512

Supervisor
Town of Patterson
P.O. Box 470
1142 Route 311
Patterson, NY 12563

Planning Board
Town of Patterson
P.O. Box 470
1142 Route 311
Patterson, NY 12563

Zoning Board of Appeals
Town of Patterson
P.O. Box 470
1142 Route 311
Patterson, NY 12563

Mr. Ted Kozwolski
Environmental Conservation Inspector
Town of Patterson
P.O. Box 470
1142 Route 311
Patterson, NY 12563

Fire Code Enforcement Officer
Town of Patterson
P.O. Box 470
1142 Route 311
Patterson, NY 12563

Stantec Consulting Services, Inc.
Dutchess Court Plaza, Suite 201
Route 22
Pawling, NY 12564

Patterson Library
1167 Route 311
Patterson, NY 12563

Kent Library
47 Sybil's Crossing
Kent Lakes, NY 10512

Supervisor
Town of Kent
25 Sybil's Crossing
Kent Lakes, NY 10512

Zoning Board of Appeals
Town of Kent
25 Sybil's Crossing
Kent Lakes, NY 10512

Planning Board
Town of Kent
25 Sybil's Crossing
Kent Lakes, NY 10512

US Army Corps. of Engineers
26 Federal Plaza
New York, NY 10278-0090

New York State Thruway Authority
New York Division
Attn: Darrin J. Scalzo
4 Executive Boulevard
Suffern, NY 10901

Hudson Valley Realty Corp.
Suite 1
1699 Route 6
Carmel, NY 10512

Insite Engineering Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, NY 10512

Tim Miller and Associates
10 North Street
Cold Springs, NY 10516

Appendix O

THE 2002 LAKE CARMEL WATER
QUALITY MONITORING REPORT

Fig



**Princeton
Hydro, LLC**
1108 Old York Road
Suite 1, P.O. Box 720
Ringoes, New Jersey 08551

(P) 908-237-5660 ■ (F)908-237-5666

Consulting, Engineering and
Planning Services for
Water and Wetland Resources

The 2002 Lake Carmel Water Quality Monitoring Report Town of Kent, Putnam County, New York

Prepared for:

Town of Kent
531 Route 52
Carmel, New York 10512

Prepared by:

Princeton Hydro, LLC
1108 Old York Road
Suite 1, P.O. Box 720
Ringoes, New Jersey 08551

Project No. 74.02

January 2003

*The 2002 Lake Carmel Water Quality Monitoring Report
Town of Kent, Putnam County, New York*

Introduction

Lake Carmel is an approximately 218-acre water body located in Kent, Putnam County, New York. As requested by the Town of Kent, Princeton Hydro conducted an ecological assessment of Lake Carmel. The assessment had three primary tasks:

1. Collect and analyze a variety of physical, chemical and biological data on Lake Carmel.
2. Conduct an aquatic plant survey, similar to that conducted in 1999.
3. Conduct a fishery survey of Lake Carmel.

The data generated as part of these tasks were used to conduct a holistic ecological assessment of Lake Carmel. In turn, the assessment was used to evaluate the current status or "health" of the lake, quantify the relative effectiveness of the sterile grass carp which were stocked in the lake in 1999 to control excessive rooted plant growth, and provide guidance in the management of the lake's fishery.

The ecological assessment of Lake Carmel was conducted on 11 September 2002. This water quality report summarizes the findings of the assessment and a list of the physical, chemical and biological parameters that were monitored during this assessment are listed in Table 1.

A Surveyor IV Hydrolab was used to collect the *in-situ* data at two monitoring stations from surface to bottom at 0.5 to 1.0 meter intervals. The first station was located at the northern end of the lake, while the second station was located approximately mid-lake. The *in-situ* data included temperature, dissolved oxygen (DO), pH and conductivity. Water clarity was also measured at each monitoring station with a Secchi disk. In addition to *in-situ* monitoring, discrete, sub-surface water quality samples were collected at the mid-lake station and transported to a State-certified laboratory for chemical analysis.

Biological samples were also collected at the mid-lake station for the analysis of phytoplankton (free-floating algae) and zooplankton (micro-animals that live in the open waters). Observational data were also collected on the lake's resident community benthic (mat) algae. A quantitative aquatic plant survey was also conducted at select locations within Lake Carmel. Finally, a fishery survey was conducted to provide information on the lake's current fishery community.

*The 2002 Lake Carmel Water Quality Monitoring Report
Town of Kent, Putnam County, New York*

Table 1
List of the Physical, Chemical and Biological Data
Collected During the 2002 Monitoring Program of Lake Carmel

<p><i>In-situ</i> monitoring of dissolved oxygen, temperature, pH and Conductivity</p> <p>Secchi depth</p> <p>Chlorophyll <i>a</i></p> <p>Total Phosphorus</p> <p>Ammonia-N</p> <p>Nitrate-N and Nitrite-N</p> <p>Total Suspended Solids</p> <p>Alkalinity</p> <p>Phytoplankton and Zooplankton</p> <p>General Observations on the Aquatic Plants and Mat Algae</p> <p>Electrofishing Survey</p>
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***In-situ* Water Quality Data**

As previously described, *in-situ* data were collected with a Hydrolab Survey IV meter at the two designated monitoring stations during the 11 September monitoring event. On 11 September 2002, Lake Carmel was well mixed and thermal stratification was not detected. That is, the surface waters were not separated from the bottom waters by large differences in temperature, and hence density. This thermal separation typically occurs when the difference in temperature within one meter is greater than 1°C. Table 2 displays the *in-situ* data from the 11 September 2002 monitoring event.

Long periods (i.e. days to weeks) of dry and hot conditions, especially during the summer, can result in thermal stratification, even in relative shallow lakes such as Lake Carmel. Such conditions can result in a depletion of dissolved oxygen in the bottom waters and a subsequent release of phosphorus from the sediments, fueling additional levels of algal growth. However, such conditions were not observed at Lake Carmel on 11 September 2002. The lake was well mixed from surface to bottom (Table 2).

It should be noted that unusually high winds were experienced throughout the Mid-Atlantic States on 11 September 2002; such high winds were experienced in the Lake Carmel watershed during the September sampling event. These extremely high winds resulted in intense wave action

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and the development of white caps on Lake Carmel. Thus, the well-mixed conditions and absence of thermal stratification were expected. However, as will be described throughout the report, these high winds had a substantial impact on the water quality and ecology of Lake Carmel.

Dissolved Oxygen

Based on State water quality criteria, a minimum dissolved oxygen (DO) concentration of 5.0 mg/L is required to sustain a healthy and diverse aquatic ecosystem. On 11 September 2002 DO concentrations were consistently above 11.00 mg/L, from surface to bottom at the mid-lake monitoring station. These higher DO concentrations were most likely due to several factors. First, elevated levels of algal and aquatic plant photosynthesis produce DO.

Another factor that contributed toward the well-oxygenated conditions of Lake Carmel were the high winds. These windy conditions allowed the lake to easily mix and constantly introduced oxygen from the atmosphere into the water through diffusion. The impact the winds had on the water quality of Lake Carmel were obvious when DO concentrations in the main body of the lake were compared to those in the southern end of the lake. The main body of the lake was exposed to the prevailing winds and had DO concentrations varied between 11.54 and 12.92 mg/L. In contrast, the southern end of the lake, which was sheltered from the prevailing winds, had a surface water DO concentration of only 5.39 mg/L (Table 2). Thus, based on these data, the unusually high winds during the 11 September 2002 sampling event, were responsible for the elevated DO concentrations in the main body of the lake.

pH

The optimal range of pH for most aquatic organisms is between 6.0 and 9.0. On 11 September 2002, the pH of Lake Carmel varied from 7.35 to 9.38. Once again there was a significant difference between the sheltered southern end of the lake and the main body. In the southern end, the water's pH value was 7.35, well within the optimal range. Slightly elevated pH levels in the main body of the lake were most likely due to in-lake biological activity. As aquatic plants and algae photosynthesize, they increase the pH of the surrounding waters. Such elevated pH values tend to be temporary and will decline as levels of photosynthesis decline.

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Conductivity

Conductivity is a measure of the capacity of water to carry an electrical charge. However, conductivity can also represent the amount of dissolved ions (i.e. nutrients and salts) in the water. A waterbody with an extremely low level of productivity will tend to have conductivity concentrations less than 0.1 $\mu\text{mhos/cm}$, while a highly productive waterbody can have conductivity concentrations greater than 0.4 to 0.5 $\mu\text{mhos/cm}$. On 11 September 2002 the conductivity in Lake Carmel varied between 0.5784 and 0.6193 $\mu\text{mhos/cm}$ (Table 2).

Based on these conductivity values, Lake Carmel appears to have a moderate to high level of productivity. However, it should be mentioned that the conductivity measurements made on 11 September 2002 may have been unusually high as a result of the high winds mixing the lake and re-suspending settled material back into the water column. Thus, the conductivity of Lake Carmel may actually be lower during more seasonally normal conditions.

Table 2
***In-situ* Data Collected at Lake Carmel on 11 September 2002**

Monitoring Station and Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	pH (units)	Conductivity ($\mu\text{mhos/cm}$)
Northern End Surface	23.94	5.39	7.35	0.6193
Mid-lake Surface	23.53	12.92	9.38	0.5788
1.0	23.49	12.69	9.37	0.5792
2.0	23.50	12.80	9.37	0.5789
3.0	23.46	12.62	9.35	0.5784
3.5	23.27	11.54	9.25	0.5793

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Water Clarity

During the 11 September 2002 monitoring event, water clarity was measured with a Secchi disk at each monitoring station. The Secchi depth was to the bottom of the lake at the southern end, at a depth of 0.5 meters (1.6 feet). At the mid-lake station the Secchi depth was 0.75 meters (2.5 feet). This low mid-lake secchi depth was attributed to a combination of abundant algae concentrations, and the turbid conditions caused by heavy wind weather conditions.

Based on our in-house database on lakes and ponds throughout the Mid-Atlantic States, most lay people perceive a waterbody as being "dirty", "scummy" and unacceptable for recreational use if the Secchi depth is less than 1 meter (3.3 feet). Based on past water quality data, the mid-lake, open waters of Lake Carmel are known to have Secchi depths greater than 2 meters (6.6 feet). Therefore, based on the data collected during the 11 September 2002 sampling event, the water clarity of Lake Carmel could be considered slightly unacceptable by the layperson for recreational use. However, it should be emphasized that the relatively low Secchi depths, measured during the 11 September 2002 sampling event, were attributed primarily to the high winds re-suspending settled material back into the water column.

Discrete Water Quality Data

In addition to the *in-situ* monitoring, some discrete water samples were collected at the mid-lake monitoring station, during the 11 September 2002 monitoring event. Mid-lake samples (0.5 m below the water's surface) were collected and analyzed for total phosphorus (TP), ammonia-N ($\text{NH}_4\text{-N}$), nitrate ($\text{NO}_3\text{-N}$), nitrite ($\text{NO}_2\text{-N}$), total suspended solids (TSS), chlorophyll *a* and alkalinity. The discrete water quality data are summarized in Table 3.

Total Phosphorous (TP)

For the vast majority of freshwater systems in the northeastern portion of the United States, TP is the primary nutrient limiting algal and aquatic plant growth. Therefore, TP is a critical parameter in assessing the water quality of a freshwater ecosystem. For Lake Carmel, surface water TP concentrations were 0.07 mg/L during the 11 September 2002 monitoring event. These results are potentially unfavorable for the lake. Based on criteria established by the US EPA, waterbodies with TP concentrations greater than 0.03 mg/L are generally productive systems and can be prone to algal blooms. In addition, our in-house data of Mid-Atlantic waterbodies also reveal that TP concentrations greater than 0.06 mg/L typically result in aesthetically displeasing algal blooms that negatively impact recreational use.

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TP concentrations were obviously above the US EPA threshold of 0.03 mg/L for productive system, as well as Princeton Hydro's in-house threshold of 0.06 mg/L for nuisance algal blooms. Thus, the elevated in-lake TP concentrations were responsible for the large amounts of blue-green algae blooms and scums that plagued Lake Carmel in August and early September. Once again, it must be emphasized that these elevated TP concentrations may be the direct result of the high winds. Studies have shown that a large portion of the phosphorus in aquatic ecosystems is adsorbed onto sediment / soil particles. Thus, the re-suspension of settled material due to the prevailing winds could easily produced a temporary increase in the in-lake TP concentrations.

Nitrogen

Although phosphorus is typically the primary limiting nutrient in freshwater ecosystems, nitrogen is usually the secondary limiting nutrient. In terms of algal and aquatic plant growth, three of the most important forms of dissolved inorganic nitrogen include ammonia-N ($\text{NH}_4\text{-N}$), nitrite ($\text{NO}_2\text{-N}$), and nitrate-N ($\text{NO}_3\text{-N}$). All of these nitrogen parameters were sampled in the surface waters of Lake Carmel during the 2002 monitoring event.

Since algae easily assimilate $\text{NH}_4\text{-N}$, concentrations, this form of nitrogen tends to be low in most natural freshwater ecosystems. That is, surface water $\text{NH}_4\text{-N}$ concentrations tend to be < 0.05 mg/l. On 11 September 2002 the water column of Lake Carmel had a $\text{NH}_4\text{-N}$ concentration of 0.05 mg/L. Thus, the concentration of this form of nitrogen was high but not excessive.

Nitrate-N is another form of dissolved inorganic nitrogen that is readily assimilated by algae and aquatic plants for growth. The State and Federal drinking water standard for nitrate-N is 10 mg/L. In contrast, nitrate-N concentrations > 1 mg/L in the surface waters of a lake or pond during the growing season (April through September) typically fuel high rates of algal growth and are associated with highly productive systems. The surface nitrate-N concentration at the mid-lake station was 0.07 mg/L. Thus, the nitrate-N concentration measured on 11 September 2002 was not considered high.

Total Suspended Solids

In addition to the nutrients phosphorus and nitrogen, total suspended solid (TSS) concentrations were measured in the sub-surface waters of Lake Carmel. TSS is a direct measurement of the amount of particulate matter in the water column. High TSS concentrations produce a brown or green color, depending upon the major contributor(s) to the turbidity (i.e. sediments and/or algae). Under most conditions, TSS concentrations greater than 25 mg/L produce a turbid appearance and are general perceived as a water quality problem to the layperson.

The measured surface water TSS concentration was 17 mg/L, which was below the turbidity threshold of 25 mg/L and not considered excessive. However, the water clarity, as measured with a Secchi disk, of the lake was still relatively low. Inorganic particulate matter alone cannot account

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for the turbid conditions of Lake Carmel. Therefore, phytoplankton (free floating algae) must account for a large portion of the observed turbidity in Lake Carmel.

Alkalinity

Alkalinity is a measurement of water's capacity to resist a change or shift in pH; it is also known as the "buffering capacity" of a waterbody. Alkalinity is typically expressed in terms of calcium carbonate (mg CaCO₃/L) with concentrations ranging from 20 mg of CaCO₃/L (soft) to 200 mg of CaCO₃/L (hard) in most natural freshwater ecosystems. The alkalinity at the mid-lake station was 71.5 mg of CaCO₃/L. This indicates that the water in the Lake Carmel is moderately hard and has a moderate amount of buffering capacity to resist change in pH levels.

Chlorophyll a

Chlorophyll *a* is a pigment all groups of algae possess and utilize in the process of photosynthesis. Since all algae possess chlorophyll *a*, measuring its concentration in lake water is an excellent means of quantifying the relative biomass of phytoplankton (algae) within the open waters of a waterbody.

In general, chlorophyll *a* concentrations greater than 30 mg / m³ are considered unfavorable for recreational water use. At concentrations greater than this threshold, algal blooms and surface scums are obvious to the layperson. As shown in Table 3, the chlorophyll *a* concentration in Lake Carmel was well above the 30 mg/m³ threshold for recreational waterbodies. The measured late summer chlorophyll *a* concentration in Lake Carmel was 60.2 mg/m³. Thus, phytoplankton accounted for a large portion of the turbidity experienced in Lake Carmel during the 11 September 2002 sampling event.

Sub-surface water chlorophyll *a* concentrations were high in Lake Carmel. However, if conditions were still, with little or no wind, scums of blue-green algae would have accumulated on the water's surface. Such surface scums are generally thought of as more of a nuisance relative to turbid waters. In any event, based on the concentration of chlorophyll *a*, algal densities attained nuisance densities in Lake Carmel, toward the end of the growing season. In addition, the high densities of algae were directly attributed to the high TP concentrations in the lake. Thus, the long-term objective for the in-lake management of Lake Carmel should be the reduction of these TP concentrations.

Since the TSS concentration was not considered excessive but the chlorophyll *a* concentration was considered above the nuisance threshold (Table 3), the relatively low water clarity was primarily due to high amounts of algal biomass. However, it should also be noted that 11 September 2002 was an extremely windy day; white caps were observed on Lake Carmel. Such wind energy, over a relatively shallow waterbody such as Lake Carmel, re-suspends settled material, including algae. Thus, the high winds contributed toward the turbid conditions of Lake Carmel.

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Fecal Coliform

Coliform bacteria are a group of bacteria that belong to the family Enterobacteriaceae. These bacteria consist of species found in the environment and in the intestinal tract of warm-blooded animals. Fecal coliform are a sub-group of the coliform group that are derived from the feces of warm-blooded animals. While fecal coliform themselves are not a pathogenic group of bacteria, they are indicators of such organisms and therefore make excellent water quality indicators in terms of evaluating the general health of potable or "wadeable" waters.

As part of the 11 September 2002 monitoring program Princeton Hydro reviewed in-lake fecal coliform data collected by the Township of Kent. There were two sampling stations in Lake Carmel for the collection of fecal coliform samples. One station was mid-lake, while the other station was near one of Lake Carmel's swimming beaches. For bathing beaches within the State of New York, the level of fecal coliform deemed to pose a problem, in terms of public health, is 200 colonies per 100 mls filtered. Fecal coliform counts taken at both the mid-lake and beach stations were of no public health concern, with none of the samples being greater than 20 counts per 100 mls. However, it should be emphasized that regular sampling of the beach areas are required through the swimming season, in order to ensure fecal coliform levels do not exceed the threshold of concern in terms of public health.

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Table 3**Discrete Monitoring of Lake Carmel at Mid-Lake Station 11 September 2002**

Water Quality Parameter	Concentration (mg/L)
Total Phosphorus	0.07
Ammonia-N	0.05
Nitrate-N	0.07
Total Suspended Solids	17
Alkalinity	71.5
Nitrite-N	<0.003
Chlorophyll <i>a</i> (mg / m ³)	60.2

Secchi depth = 0.75 m (2.5 feet)

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Phytoplankton and Zooplankton Communities

In order to obtain a more holistic assessment of the general health and water quality condition of Lake Carmel, samples were collected for phytoplankton and zooplankton. Phytoplankton are free-floating, microscopic algae, found in the open waters of lakes and ponds. They form the base of the aquatic food web, however, some groups can produce a variety of nuisance conditions. Zooplankton are micro-animals that live in the open waters of a lake or pond. Many zooplankton are a source of food for forage or young game fish and some directly graze on phytoplankton. Thus, some large-bodied zooplankton provide a natural means of controlling excessive algal growth through grazing. Given the important ecological impacts and roles phytoplankton and zooplankton play in the aquatic ecosystem, samples were collected for both of these groups of organisms.

A sub-surface water sample was collected and preserved with Lugol's for the identification and enumeration of the phytoplankton. In contrast, a mid-depth (2 meters or 6.6 feet) water sample was collected with a Schindler Plankton trap for the identification and enumeration of the zooplankton. All microscopic work for the analysis of the phyto- and zooplankton were conducted at Princeton Hydro's biological laboratory. The results of these analyses are provided in Appendix A.

Five groups of algae were identified in Lake Carmel, however, the dominant group in terms of diversity, biomass and abundance were the blue-green algae, also known as the cyanobacteria. Blue-green algae are the algal group responsible for most of the water quality problems experienced in freshwater ecosystems. Some of these undesirable impacts include aesthetically displeasing algal blooms / surface scums, the generation of taste and odor problems, the production of cyanotoxins, and clogging treatment plant intakes and filters.

All four genera of blue-green algae identified in Lake Carmel are well known to generate aesthetically displeasing surface scums and produce cyanotoxins. In particular, the relatively large "green balls" floating in Lake Carmel were colonies of *Coleosphaerium* and/or *Microcystis*. High TP concentrations (> 0.06 mg/L), as was measured in Lake Carmel (Table 3), favor the development of large blooms of blue-green algae, especially during the late summer and early fall when water temperatures attain their seasonal maxima.

In terms of abundance, the copepods were the dominant group of zooplankton, while the cladocerans were the dominant zooplankton in terms of biomass (Appendix A). Three large, herbivorous (algae-eating) zooplankton were identified in Lake Carmel: two cladocerans (*Daphnia* and *Ceriodaphnia*) and a copepod (*Diaptomus*). These zooplankton are a source of food for fish and can serve as an effective means reducing algal abundance through grazing. Unfortunately, most herbivorous zooplankton will not feed on colonial blue-green algae. The most effective means of reducing the blue-green algae densities is to reduce the in-lake phosphorus concentrations. With lower phosphorus concentrations, other algal groups will dominant the lake, such as green algae and diatoms. These other algal groups are easily controlled through the grazing of zooplankton.

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Fishery Survey

The fishery survey of Lake Carmel was conducted with a boat-based electroshocking system. Specifically, the system was a Coffelt Electroshocker, mounted on a 16 ft Boston Whaler and powered by a 4 HP Honda generator. The electroshocking unit was mounted in the bow of Princeton Hydro's Boston Whaler. A series of ten transects along the shoreline of Lake Carmel were conducted during the fishery survey. Stunned fish were collected, measured, identified to species and returned to the lake. The fishery data are summarized in Table 4.

The dominant fish species was the largemouth bass, accounting for 38.1% of the total number of fish collected during the survey. A large number of the bass were between 1 and 6 inches in length. Bluegill was the second most common species during the survey, accounting for 17.3% of the total number of collected fish. A large portion of the bluegills varied in length between 1 and 3 inches. A total of thirteen other species accounted for 18.6% of the total number of collected fish. These species included American eel, pumpkinseed sunfish, yellow perch, white perch, alewife, white sucker, rock bass, longear sunfish, golden shiner, black crappie, smallmouth bass and sterile grass carp (not including the grass carp that were found dead). The remaining 26.0% of collected fish were sunfish fry, all of which were too small to identify to species in the field.

Based on the observations made on 11 September 2002, an assessment was made of the fishery community of Lake Carmel. The dominance of young bluegill and largemouth bass, relative to sub-adult and adult fish, indicate that spawning habitat is readily available for these fish. Observations made during the survey identified a wide variety of habitat for spawning such as gravel and sand bottoms, fallen trees, aquatic vegetation and rocks.

In contrast to the young fish, there were relatively lower numbers of sub-adult and adult fish. Such data indicate that while spawning was high, survival to older age classes was relatively low. This indicates that the fishery community more than likely experiences high amounts of predation and/or competition.

Based on the collected data, the habitat within Lake Carmel supports a large, healthy and diverse community of fish. The dominant species, in terms of the number of fish collected, was the largemouth bass. Based on the large number of fry and young fish collected and observed during the survey, the sterile grass carp did not appear to negatively impact the rates of reproduction of the largemouth bass. However, as mentioned above, high rates of predation and/or competition may have had an impact on the number of game-sized fish. For example, of the 176 largemouth bass collected during the survey, only 15% of these fish were greater than 6 inches in total length. The largest of the collected largemouth bass was 19 inches. Thus, while the sterile grass carp did not appear to impact the rates of reproduction of other fish, the decline in the number of rooted aquatic plants may have reduced the survival rates of the fish to adulthood, due to a reduction in the amount of cover and refuge.

In order to compensate for this possible impact of a reduction in the amount of habitat cover for young fish, the Town of Kent may want to add physical structure to Lake Carmel. Without

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adequate cover, survival rates of young fish are often low, and high natural mortality rates can be an important factor limiting fisheries yields in some lakes. Structural features provide safety from predators, substrate from food organisms, and in some cases spawning habitat. Also, predators, including most game species, tend to concentrate around structural features in search of prey. By concentrating fish into specific areas, the addition of fish cover, such as artificial habitat, can increase fishing success.

Typical structural habitat includes docks and piers, fallen logs, brush piles, rock reefs and drop-offs as well as constructed artificial habitat. The best habitat design depends on the targeted fish species, available building materials and lake morphometry. Three general design characteristics should be incorporated:

- ✓ Maximum structural complexity to increase the number and variety of hiding places and attachment surfaces for food organisms.
- ✓ Sufficient weight for stability so the habitat stays in place.
- ✓ Non-toxic materials which do not deteriorate in a short period of time.

Examples of artificial habitat structures include the following:

- **Brush Piles** - Brush may be held together using a frame constructed of heavy wood or simply bundled together and weighted down with a concrete block to sink. Piles consisting of green trees, such as Christmas trees, and brush with thicker branches are sturdier and longstanding. Largemouth bass, bluegill and other panfish use brush piles for cover.
- **Cribs** - Cribs are wooden frames constructed of heavy logs and are generally filled with large rocks and brush. Target species include walleye, bass, panfish and catfish.
- **Stake beds** - Stake beds, generally constructed of green limber, consist of sawmill stakes and two-by-fours weighed down by concrete construction blocks. Primary target fish species are largemouth bass, crappie and panfish.
- **Piping** - Suitable fish cover can be made from vitrified clay, PVC or corrugated polyethylene pipes bundled together in a pyramid shape with a cement plug for a ballast. Catfish and bullhead, in particular, use reefs made from pipes.
- **Plastic structures** - A variety of structures made of plastic have been designed specifically to serve as fish cover.

Artificial habitat should be placed in areas of the lake which lack natural cover, where they will be used by the targeted species of fish, and are accessible to fishermen. In addition, the structure must not pose a hazard to boat traffic, being placed at sufficient depths to allow safe passage. Also, for the sake of safety, such structure should not be placed in or adjacent to identified swimming

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areas. Signs should be placed near the installed structures to notify the community of their presence and function.

The habitat location targeted for the installation of structure should have a firm substrate such as sand, stone or clay. Soft bottoms of silt or mud are not recommended because the heavier structural material may eventually subside and disappear. Artificial habitat should not be placed directly on existing productive bottom habitat, such as natural shoals or submerged trees and brush. Generally, several smaller structures at a variety of water depths and locations are preferable to one large unit structure.

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Sterile Grass Carp and Their Impact on the Aquatic Plant Community

A total of at least 1,500 sterile grass carp (*Ctenopharyngodon idella*) were added to Lake Carmel on 18 August 1999 to control nuisance densities of rooted aquatic plants. In order to quantitatively evaluate the impact the sterile grass carp had on the resident community of aquatic plants, a series of quadrants were established throughout Lake Carmel. These quadrants were between one and two square feet in area and were placed along the lake bottom, approximately 7 feet from the shoreline. All of the above-sediment plant biomass was harvested from within each quadrant. The plants were placed in plastic baggies and transported to Princeton Hydro's biological laboratory where they were separated by species and weighted.

The methodology described above was conducted on 18 August 1999, the same day the sterile grass carp were added to the lake, and on 11 September 2002, approximately two years later. The pre- and post-stocking data were compared to quantify the relative effectiveness the sterile grass carp had on controlling excessive densities of rooted aquatic plants in Lake Carmel.

Above-sediment aquatic plant biomass data were graphically illustrated in Figures 1 and 2 (Appendix A). Figure 1 displays pre- and post-stocking data from the northeastern cove, while Figure 2 displays pre- and post-stocking data from the southern end of the lake. Both sets of data clearly indicate that the sterile grass carp effectively reduced the amount of above-sediment plant biomass in Lake Carmel.

In the northeastern cove pre-stocking (August 1999) plant biomass varied between 148 and 278 grams, while post-stocking (September 2002) plant biomass varied between 0.8 and 44 grams (Figure 1). In the southern cove, pre-stocking (August 1999) plant biomass varied between 267 and 410 grams, while post-stocking (September 2002) plant biomass varied between 6 and 103 grams (Figure 2). Although no formal statistical analysis was conducted, the data obviously reveal a significant decline in plant biomass since the sterile grass carp have been stocked in Lake Carmel.

A list of the identified aquatic plants identified in Lake Carmel during the August 1999 and September 2001 sampling events are provided in Appendix A. The identified plants were essentially the same; the major difference between the two sampling events was the amount of plant biomass (Figures 1 and 2). In 1999 the dominant plant in Lake Carmel was coontail, with elodea as the sub-dominant. In 2002 these species remained the most abundant plants in Lake Carmel.

Based on the collected data, there was a substantial reduction in the amount of aquatic plant biomass, since sterile grass carp have been introduced into Lake Carmel. While aquatic plants were still observed in Lake Carmel in 2002, their densities were no longer considered a nuisance as they were in 1999. This was the targeted management goal; the complete eradication of rooted aquatic

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plants was not desired. Aquatic plants provide structural habitat and refuge for a variety of invertebrates and fish, as well as produce oxygen and aid in reducing shoreline erosion.

While the overall response of Lake Carmel to the sterile grass carp has been positive, there is a certain degree of concern over the turbid in-lake conditions. It is possible that the feeding of the sterile grass carp disturbs the bottom, re-suspending sediment and associated nutrients back into the water column. To a lesser extent, the excretory waste products produced by the carp could also contribute to the elevated nutrient concentrations which, in turn, fuel algal growth.

In spite of these potential impacts, the local community approves of the use of sterile grass carp as an effective, non-chemical alternative to mechanical weed harvesting. In addition, based on observations made by the local community through the course of the 2002 growing season, nuisance densities of algae were only experienced chiefly during the month of August. Finally, as previously mentioned, it is possible that the nuisance turbid conditions in the late summer were attributed to high winds and not solely on the sterile grass carp.

Based on these observations, it is recommended that additional sterile grass carp not be stocked in Lake Carmel, at least for the next growing season. Instead, both grass carp and rooted aquatic plant densities should be closely monitored over the next few years before further management practices are undertaken.

During the 11 September 2002 fishery survey, a number of sterile grass carp were observed throughout the lake. One of the carp was stunned, collected and measured during the electrofishing operation. This collected fish was 24" in total length. The current population of grass carp continues to control rooted aquatic plant growth. On 11 September 2002 the distribution of aquatic plants in Lake Carmel remained minimal. This is in spite of the discovery of approximately 30 dead sterile grass carp found over the 3-4 days prior to the 11 September 2002 sampling event. Based on the data at hand, it appears that a local electrical storm was more than likely responsible for the dead carp.

In conclusion, the current population of sterile grass carp prevented the existing community of rooted aquatic plants from reaching nuisance densities. In spite of the recent loss of approximately 30 sterile grass carp, it is recommended that no additional sterile grass carp be added to the lake. Instead, the relative abundance of rooted aquatic plants should be monitored during the 2003 growing season.

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**Table 4 – Summary of the 11 September 2002 Fishery Survey
at Lake Carmel, Putnam County, New York**

Species	Total Number Caught	Percentage of fish caught
Sunfish Fry (sp.)	120	25.97
Yellow Perch	24	5.19
Pumpkinseed	31	6.71
Largemouth	176	38.10
American Eel	4	0.87
Bluegill	80	17.32
Alewife	5	1.08
Grass Carp	2	0.43
White Sucker	1	0.22
Rock Bass	5	1.08
Longear Sunfish	1	0.22
Golden Shiner	2	0.43
Black Crappie	4	0.87
Smallmouth Bass	5	1.08
White Perch	2	0.43
Total	462	100.00

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Conclusions and Recommendations

1. Lake Carmel was not thermally stratified and the entire water column was well oxygenated from surface to bottom during the 11 September 2002 monitoring event. Such conditions minimizes the chemical release of phosphorus from the sediments. Thus, the elevated phosphorus concentrations measured in Lake Carmel were attributed to re-suspended particulate material and/or surface runoff from the watershed.
2. For the most part, pH values throughout Lake Carmel, during the 11 September 2002 monitoring event, were slightly above the optimal range for most aquatic organisms. These alkaline pH values were more than likely due to elevated levels of algal productivity throughout the water column.
3. In general, water clarity, as measured with a Secchi disk during the monitoring event, was below the acceptable minimal threshold of 1 meter (3.3 feet). Based on the biological data collected during the 11 September 2002 monitoring event, the seasonal decline in water clarity was attributed primarily to a high abundance of phytoplankton, specifically blue-green algae, in the water. Thus, the Secchi depth values measured in Lake Carmel were unacceptable for a recreational waterbody.
4. In-lake TP concentrations were high in the water column of Lake Carmel, during the 11 September 2002 monitoring event. TP concentrations were 0.07 mg/l. Typically, productive systems have TP concentrations greater than 0.03 mg/l and nuisance blooms are almost certain to occur in Mid-Atlantic waterbodies when TP concentrations exceed 0.06 mg/l. Thus, TP concentrations in Lake Carmel were indicative nuisance blooms of algae.
5. TSS concentrations were moderate in Lake Carmel during the 11 September 2002 monitoring event. These data indicate that the relatively low water clarity during the monitoring event was most likely attributed to a high abundance of algae and not chiefly suspended inorganic material.
6. Based on measurements of alkalinity, Lake Carmel can be described as having a moderate buffering capacity, with a moderately hard level of hardness.
7. The concentration of chlorophyll *a*, a photosynthetic pigment all freshwater algae possess, was 60.2 mg/m³ during the monitoring event. This concentration was well above the threshold of 30 mg/m³, identified for recreational waterbodies.

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8. The dominant phytoplankton in Lake Carmel were, by far, the blue-green algae. These algae were responsible for the nuisance blooms and surface scums, experienced in Lake Carmel during the late summer of 2002.
9. Three genera of herbivorous (algal eating) zooplankton were identified in Lake Carmel. Thus, the lake has the potential to control excessive algal densities through grazing. However, blue-green algae are not easily grazed by zooplankton. Thus, the first course of action that needs to be implemented is to reduce the in-lake phosphorus concentrations. Lowering the phosphorus concentration will reduce the abundance of blue-green algae and favor other algal groups that are easily controlled by zooplankton. In order to accomplish this task, the incoming phosphorus load, originating from the lake's watershed, needs to be reduced. Lake Carmel needs to update its phosphorus-based stormwater load contribution, in order to quantify existing loads and prioritize potential projects that would reduce this current load.
10. The fishery community of Lake Carmel was healthy and diverse. Largemouth bass and sunfish were the dominant fish. The large number of fry and young fish indicate that stocking the lake with sterile grass carp had a negligible impact on the reproductive rates of the other fish. However, the number of game-sized fish was relatively small. High amounts of predation and/or competition on young fish are probably responsible for these observed conditions.
11. The substantial reduction in the amount of vegetative cover within the lake, probably reduced refuge habitat for young fish. Thus, in order to increase the survivorship of the young fish to game-sized fish, physical structure should be strategically installed in Lake Carmel.
12. The aquatic plant data collected in 1999 and 2002 clearly demonstrate that stocking the lake with sterile grass carp substantially reduced the amount of above-sediment plant biomass. Thus, the targeted management goal of eliminating nuisance levels of rooted aquatic plants was achieved. However, given the magnitude of the level of control, in conjunction with the moderately turbid conditions, it is recommended that the Town holds on adding more sterile grass carp, at least in 2003. Instead, the Town should continue to closely monitor the relative densities of rooted aquatic plant biomass. The decision to add more carp should be based on a measurable increase in aquatic plant abundance.
13. Finally, the Town should closely monitor both phosphorus and algal concentrations in Lake Carmel during the 2003 growing season, in order to determine if the conditions observed in 2002 were simply the result of the unusually high winds experienced during the 11 September 2002 sampling event.

Appendix P

CONFORMANCE OF THE
PROPOSED ACTION WITH THE
TOWN OF KENT ZONING CODE

CONFORMANCE OF THE PROPOSED ACTION WITH THE TOWN OF KENT CODE

Town of Kent Code § 77-60 Approval of Site Plans

A) Purpose. The Town of Kent values the rural mixed-use character of the Town, and wishes to encourage residential and nonresidential growth supporting adaptive reuse of existing structures and development of new structures, designs, and land uses that preserve the historic, scenic and environmental character of the Town of Kent. To that end, the following regulations are intended to direct the development of the land to accomplish this purpose.

***Discussion.** The modified plan presented in the FEIS proposes one 2,000 square foot building in Kent. This would include 1,700 square feet of retail space and 300 square feet of space for use by the Putnam County Sheriff's Department as a substation (see Figure P-1 at the end of this Appendix). The proposed building incorporates landscaping and architectural features that draw on the aesthetic, historic, and rural character of the Town of Kent. The commercial use of this site is consistent with the land use designated for this site in the 1990 Town of Kent Master plan. Further, the commercial development of this property is consistent with the aims articulated in the Town's determination that the Interim Development Law was necessary. Specifically the Town Board has noted:*

“That the increased growth and development of residential developments are placing severe pressure on available water supply, open and recreational space, community character, natural resources, and transportation infrastructure of the Town...The Town also desires to expand its commercial and business tax base to help diversify and stabilize the Town's revenue fund. Increasing the number and type of taxable non-residential development would reduce the tax strain experienced by property owners due to a general lack of commercial land use in the Town. The City of New York is also actively purchasing land and development rights in the Town as a means of protecting its water supplies, but at the cost to the Town of further reducing the lands available for revenue producing non-residential uses.”

The proposed retail center offers the kind of non-residential development described here. It would help to expand the commercial tax base of the Town of Kent and would address the current loss of tax revenue to areas outside of the County in a location appropriate for the proposed commercial use.

According to the site plan, the 2,000 square foot retail building will be set back a minimum of approximately 360 feet from the property line to the west and approximately 600 feet from NYS Route 311. The design concept for the proposed building and landscaping will reflect the historically rural architecture and pastoral landscape that exists in Putnam County. This design concept includes stone walls, wooden fences, and tree plantings along the frontage of NYS Route 311 and the entry drive to the proposed development. Most of the subject property within the Town of Kent will remain as open, vegetated land after construction.

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The proposed tree lined entry drive from NYS Route 311 will make a long curve towards the eastern property boundary along Interstate 84 and then west, back towards the center of the property and the proposed 2,000 square foot building. This placement of the access roadway close to the highway allows for the preservation of woods and the creation of a stormwater basin in front of the retail building, and it situates the entering traffic away from the residences along the western property line within the Town of Kent.

The western portion of the property in Kent is comprised of a wetland, an Impervious Restriction Zone, and existing woods that would remain undisturbed. One proposed stormwater basin will be constructed here. It will be replanted with native plants after construction.

The area along the western property line will have a six foot high fence and a screen planting adjacent to the two residential properties situated closest to the proposed building (refer to Figure P-1 and Drawing SP-2.1 of the attached drawing set). Existing vegetation will screen the views of the building from the west and north. With the combination of the retained woodland and wetland areas and traditional architectural and landscape details using natural materials, the proposed design supports the historic, scenic, and environmental character of the Town of Kent.

B) Consistency Requirement. Before approving any use that is subject to a conditional use permit or site plan review, the Planning Board must make a written finding that the proposed use, site layout and architectural appearance will enhance and be protective of the aesthetic, historic and environmental features of the Town. In preparing a plan for development of land the applicant shall give attention to the goals and objectives and the stated land use policies for the Town in the specific area where the development is proposed. The Planning Board shall determine whether the site use, site design and architecture proposed by the Applicant comply with the land use and environmental protection policies and objectives of the Town of Kent Master plan.

Discussion. *The uses of the subject property within the Town of Kent are consistent with the Town of Kent Master plan. As stated previously, the modified plan proposes 1,700 square feet of retail space and 300 square feet of space for the Putnam County Sheriff's Department's use as a substation. Of the 16.4 acres of the subject property within the Town of Kent, approximately 15 acres will remain as open space after construction. Most of this will be undisturbed during construction, therefore meeting the Town of Kent's goals for environmental protection.*

The plan for the development within the Town of Kent has been modified to further minimize the visual impact of the development. The proposed building area has been reduced from a footprint of 15,647 square feet in four buildings to one building with a footprint of 2,000 square feet. The site plan and building design incorporate features designed to improve the visual character of the retail center specifically in relation to the visual character of the Kent locale, as set forth above. The plan proposed for the retail center incorporates details that emulate the aesthetics of historically rural Putnam County; it leaves much of the

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area around the building in its pre-development state, and the architectural and landscape details draw on the details found in the traditional buildings and landscape features in the vicinity.

Consistent with the Town of Kent Master Plan, the proposed retail center would provide a greater variety of land uses within the Town and would focus future commercial growth in an appropriate location, near major transportation infrastructure, at the crossroads of Interstate 84 and NYS Route 311. Further, the Master Plan discourages strip commercial development. In the proposed project, commercial uses are clustered in one area in the overall plan, avoiding the land use impacts and the aesthetic impacts of strip mall development. Further, the deep setbacks of the proposed development in the Town of Kent is another feature of the project that is consistent with the 1990 Master Plan.

C) Applicability. Site Plan approval by the Planning Board, in accordance with this section, is required for the following uses and activities:

- 1) All conditional use permit activities and all activities for which a use variance has been approved.
- 2) New construction, extension, alteration, addition or change of use of land or structure.
- 3) Extension, alteration, or additions to a nonconforming building.
- 4) All permanent or temporary uses of vacant land.

D) Exemptions. Construction of a single-family dwelling and accessory structures thereto on a lot legally in existence as of the date of this chapter, or on a lot approved by the Planning Board for single-family residential use pursuant to the Town Subdivision Regulations.

Discussion: N/A

E) Where site plan approval is required by this chapter, no building permit or certificate shall be issued by the Building Inspector until such plan has been approved by the Planning Board as provided herein. No premises shall be occupied or used and no certificate of occupancy shall be issued until all of the requirements of this chapter, and any condition of Planning Board approval, have been complied with.

F) Site Plan Approval Waiver.

Discussion: N/A

G) Application. An application for site plan approval shall be submitted to the Planning Board for such purpose. The application shall be submitted to the Planning Board by 12:00 noon at least 21 days prior to the date set for the regular meeting of the Board, and shall be made prior to the application for a building permit. The application shall be complete and in a form acceptable to the Planning Board and shall be accompanied by a detailed site plan. The site plan shall use as a base map an accurate boundary and

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topographic survey of the property depicting all existing improvements and grades prepared by a New York State licensed engineer, a landscape architect, or an architect licensed by the State of New York and shall include the following information:

Discussion: *The plans prepared for the application for site plan approval and included in the FEIS depict the existing conditions including grades, and all improvements and changes to the grades proposed for the development. The existing site conditions, including topography, can be found on Drawing EX-1.*

- 1) A location map, at a convenient scale, showing the applicants entire property and all boundaries, easements, and streets within 500 feet thereof.

Discussion: *See VM-1 Vicinity Map.*

- 2) The location, size, use and architectural design of all existing buildings and structures.

Discussion: *See SP-1 for location, size and use. While specific design plans have not yet been developed, the examples of the architectural style proposed for the building are presented in Appendix M of the FEIS.*

- 3) The location of all property lines and structures within 200 feet of the property boundary, with topography extended 50 feet outward from the site property and 200 feet outward along existing roads.

Discussion: *See Drawing SP - 3.1.*

- 4) Any proposed division of buildings into units of separate occupancy.

Discussion: *See Drawing SP-1 showing one 2,000 square foot building that would include 1,700 square feet of retail space and 300 square feet for use as a Putnam County Sheriff Department substation.*

- 5) Existing topography and proposed grade elevations, soil types, wetlands, and watercourses, floodplains, bedrock outcrops, slopes in excess of 10%, and location of vegetation

Discussion: *All of the above required information can be found in the following locations: Existing topography: Drawing EX-1. Proposed grade elevations: Drawing SP-3.1. Soils types: Drawing SP-4.2. Wetlands and watercourses: Drawings EX-1, SP-2.1, SP-3.1, SP-4.1 and SP-4.2. Flood Plains: DEIS Figure 4.6-4. Bedrock outcrops Drawing EX-1. Slopes in excess of 10% DEIS Figure 4.3-2. Location of existing vegetation: Drawing EX -1.*

- 6) All existing and proposed roads, driveways, parking and loading areas including access and egress drives.

Discussion: *See Drawings SP-1, 2.1 and 3.1.*

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7) The location of outdoor storage areas.

Discussion: *No outdoor storage areas are proposed.*

8) The location of fire access roads and fire protection features.

Discussion: *See Overall Site Plan SP-1 and Drawing SP-3.1.*

9) The location, description and design of all existing and proposed site improvements, including pavement, walkways, curbing, drains, culverts, retaining walls, fences, parks, open spaces, and recreation areas.

Discussion: *See Drawings SP-1, SP-2.1, SP-3.1. Landscaping and parking are discussed in Sections M and P below. No parks or recreation areas are proposed. The open space is described in Section B above.*

10) The location, design and description of water supply and sewage disposal facilities.

Discussion: *See Grading and Utilities Plan SP-3.1 and Chapters 4.4 Groundwater and 4.10 Utilities in the DEIS and FEIS.*

A gravity fed concrete septic tank would service the proposed building in the Town of Kent. A primary subsurface sewage treatment system (SSTS) in the Town of Kent, with an area of approximately 5,000 square feet, would be located roughly 60 feet to the north of the proposed 2,000 square foot building. A second SSTS located in the Town of Patterson in the southwest portion of the project site will treat the wastewater from the buildings proposed in the Town of Patterson. The SSTS designs would meet all the requirements and standards set forth by the Putnam County Department of Health (PCDH) and the NYCDEP. All wastewater would be treated on-site and discharged subsurface. Water quality impacts including increased levels of phosphorous would not result from the proposed project.

Three on-site wells, two existing located in the Town of Patterson and one future well in the Town of Kent, will supply the water demand of the project. The locations of these wells were selected in order to limit potential draw-down effects on neighboring wells. Well monitoring tests conducted for the project indicate that there is ample water supply available at the project site, and that operation of the facility will not result in impacts to off-site wells serving nearby residents.

11) The location, design, and description of stormwater management facilities, including proposed grading plan for same.

Discussion: *See Grading and Utilities Plan SP-3.1, Sediment and Erosion Control Plan SP-4.2, Chapter 4.5 of the DEIS and Chapter 4.5 of the FEIS. The preliminary Stormwater Pollution Prevention Plan (SWPPP) was developed to comply with all applicable regulations of the Towns of Patterson and Kent, NYCDEP Watershed Regulations, NYSDEC General Permit GP-02-01, and*

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related guidelines, including the New York State Stormwater Management Design Manual and the New York State Standards and Specifications for Erosion and Sediment Control. It will be reviewed by applicable agencies and authorities and will be modified if necessary to their satisfaction prior to commencing construction.

Stormwater runoff would be collected in constructed drainage systems and transported to stormwater basins for treatment before discharged from the site. The treatment train for the bulk of the runoff would be constructed in a series of three sequential stormwater basins. Runoff from a smaller portion of the development would receive two levels of treatment through paired basins. The last pond in each series of basins is designated as a "wet extended detention pond" per the NYSDEC Design Manual. Stormwater detention basins were sized to meet the 90% treatment requirement of the NYSDEC.

- 12) The location, height, size and design of all signs.

Discussion: *Refer to Design Concept Elevations 1 and 2 (FEIS Figures 4.13-6 and 4.13-7) for conceptual illustrations of signage. See Landscape and Layout Plan SP-2.1 and Site Details D-1. Details of other proposed signs will be included in the final site plan.*

- 13) The location, height, size and species of landscape plantings on a landscape plan.

Discussion: *See Landscape and Layout Plan SP-2.1.*

- 14) The location and design of lighting and communication facilities.

Discussion: *See Lighting Plan L-1. Details of other proposed lighting fixtures will be included in the final site plan.*

- 15) The location, type and design of all waste and refuse handling facilities.

Discussion: *See Overall Site Plan SP-1. Details of waste enclosure will be included in the final site plan.*

- 16) The character and location of all power distribution and transmission lines.

Discussion: *See Grading and Utilities Plan SP-3.1.*

- 17) The location and description of all subsurface site improvements and facilities.

Discussion: *See Grading and Utilities Plan SP-3.1.*

- 18) Identification of amounts of cut and fill for all disturbed areas, including before and after profiles of parking lots, driveways and roads.

Discussion: *See Grading and Utilities Plan SP-3.1 and Access Road Profile PR-1. The final earthwork numbers presented in the FEIS are 565,000 CY of fill*

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and 592,000 CY of cut. This represents the total earthwork volumes necessary to construct the entire project. From a mass earthwork perspective, the project has been balanced. The proposed development in Kent as shown would only take place as part of the larger proposed project.

For profiles, refer to Drawing PR-1.

19) Adequate provisions for the handling of stormwater runoff, including retention/detention, piping, or channeling to existing or proposed drainage systems during and after construction.

Discussion: *See Grading and Utilities Plan SP-3.1, Sediment and Erosion Control Plan SP-4.2, and Chapter 4.1 of the FEIS*

20) Phasing of development, if any.

Discussion: *From a development phasing standpoint the project will be built in a single phase. With regard to construction phasing, see the Overall Phasing Plan SP-4.1 attached to this FEIS.*

21) A signature block for Planning Board endorsement.

22) The name and address of the owner of the property proposed for development along with the signature of said owner.

23) The name and address of the applicant, along with the signature of said applicant.

24) At the request of the Planning Board, any other pertinent information as may be deemed necessary to determine and provide for the proper enforcement of this chapter.

Discussion: *Items 21 through 24 will be provided for site plan approval.*

H) Information Waiver

Discussion: *N/A*

I) State environmental quality review. No application shall be deemed complete until the substantive procedural requirements of the State Environmental Quality Review Act (SEQRA) have been completed.

Discussion: *A Draft EIS has been submitted, accepted by the Lead Agency, and public hearings held. This Final EIS will be followed by Findings that will comply with the substantive procedural requirements of the State Environmental Quality Review Act.*

J) Site plan design criteria. The following Criteria and standards are intended to provide a framework for development within which the site designer is free to exercise creativity, invention, and innovation while recognizing the historic, scenic and visual

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qualities inherent in the Town of Kent. The following standards are in addition to any other site plan, conditional use permit, and subdivision requirements of this chapter and the Town Subdivision Regulations.

K) Relationship of Structure to Site.

1) In the site plan design, consideration shall be given to the use of traditional forms and layouts which are distinctive evidence of the area, and in particular, of any specially designated or recognized scenic or historic districts within the vicinity of the proposed development. The importance of local historic, architectural, environmental, and other features of significance to the property and of nearby properties shall be recognized as an integral part of the review process.

***Discussion.** Refer to Appendix M of this FEIS for illustrations of features and architectural elements to be used in developing the final design. Elevations of proposed architecture included in the FEIS show structures that draw on traditional barn and stable design in the relationships between building elements, roof slopes, a variety of traditional siding and roofing materials. In addition, the drawings illustrate signage and a range of decorative features including window boxes and awnings that are part of the design concept (see Figures 4.13-6 and 4.13-7 in the FEIS.) All are conceptual in nature and provide a general framework for the architectural design of the final project.*

As stated above, the proposed retail building and substation, landscaping, and entry design utilize traditional forms. Although setback deeply from NYS Route 311, the architecture for the proposed building is compatible with the simple rural architecture found locally. The landscape treatment along NYS Route 311 and the entry drive is in an equestrian style appropriate to rural Putnam County and includes stone walls with end pillars, wood fences, shade trees and complementary landscape planting. Existing stone walls in the area of the wetland and the watercourse and between the two proposed stormwater basins will be retained. The entry landscape will utilize distinctive signage and lighting to enhance the gateway to the Towns of Kent and Patterson at this location.

Native plants, which contribute to local identity, will be used in the areas to be revegetated beyond the buildings and parking areas. Parking areas will be planted with trees and shrubs typical of landscape and garden plantings used traditionally in the surrounding area, as documented in the DEIS Chapter 4.7 Vegetation and Wildlife and per SP-2.1 Layout and Landscape Plan.

No local historic, architectural, environmental or other features of significance are located on the project site. A Phase I A and B Archeological Assessment was conducted for the project site. No resources of cultural import were found. The site is not located near a scenic or historic district in the Town of Kent.

2) The site plan shall be planned to accomplish a desirable transition with the streetscape to provide for adequate planting, safe pedestrian movement, and safe ingress, egress, and parking for vehicles.

***Discussion.** With regard to the transition from streetscape to internal roadway*

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and parking: Landscaping with stone walls, a wooden fence, and plantings will be included as part of the gateway treatment of this entry area. The boulevard style drive will be lined with regularly spaced shade trees and other plantings that will provide safe and attractive conditions. The gentle grade, suitable site distance, and serpentine curve of the access road will provide a safe and comfortable drive up to the entrance to the main parking area and beyond this to the parking area for the building in the Town of Kent. Sidewalks will be provided along the two sides of the building within the parking lot.

With regard to safe ingress: Detailed studies of the traffic patterns and volumes at the site and vicinity were conducted as part of the DEIS. Based on those studies a traffic signal at the entrance to the proposed development from NYS Route 311 will be installed by the Applicant which would include widening the road.

- 3) Site planning in which setbacks and yards are in excess of minimum are and bulk requirements are encouraged to provide a variation in relationship between buildings.

Discussion. N/A

- 4) Parking shall, wherever feasible, be located to the rear or sides of buildings so as not to interfere with front landscape treatment.

Discussion. *The parking in the proposed plan is located to the west and north sides of the proposed building. It does not affect the front landscape treatment. Viewed in relation to the main access road and the view into the main area of the retail center, the parking area of the 2,000 square foot building is to the side and rear of the building, set back approximately 600 feet from NYS Route 311. The deep setback between NYS Route 311 and the parking area includes areas of undisturbed vegetation and new planting that would provide screening of the parking from the road.*

- 5) Without restricting the permissible limits of the applicable zoning district, the height and scale of each building shall be compatible with its site and the existing, or anticipated adjoining buildings. The Planning Board shall determine the visual compatibility of a proposed use or site plan change, including concerns for the proportion of the front façade, proportion and arrangement of windows and other openings within the façade (fenestration), roof shape, and spacing of structures along the street front or roadway, including consideration of setbacks and the treatment of yards.

- 6) The Planning Board shall encourage the use of a combination of common materials, landscaping, buffers, and visual interruptions to create attractive transitions between buildings of different architectural styles.

Discussion (5 and 6). *The height and scale of the building conform to the bulk requirements of the Commercial Zone of the Town of Kent. The proposed building would use common materials and traditional rooflines and fenestration in a harmonious relationship with other buildings within the new development. See*

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the illustrations in Appendix M of this FEIS for the architectural detailing proposed. The landscape features include stone walls and wood fences. New streetside landscaping at the entrance, along the access road, and around the building would transition to the areas of existing trees and shrubs in the undisturbed portions of the site.

7) Newly installed and renovated utility services and service revisions necessitated by exterior alteration shall be underground unless otherwise allowed by the Planning Board.

Discussion. *The utilities for the proposed project will be underground.*

L) Relationship of nonresidential to residential uses and districts.

1) Site plans proposed for nonresidential uses adjacent to a residential district or a residential property shall be reviewed with regard to the impact of the development on that district. The Planning Board is hereby expressly authorized to require such additional front, side and rear yard setbacks as may be required to ensure that the nonresidential use does not interfere with the quiet enjoyment of neighboring residential lands.

Discussion. *The Patterson Crossing Retail Center project has been designed to minimize noise and visual impacts to adjoining properties. The building in the Town of Kent portion of the development would be located approximately midway between Interstate 84 and the western property line, where the residential properties abutting the subject property in the Town of Kent are located. The building is sited a minimum of approximately 360 feet from the residential properties adjacent to this west property line. Vegetation within the buffer zone to the west of the building would be preserved, therefore noise from this building would be expected to be unobtrusive and view to the building would be shielded. The proposed entry drive is located at the eastern side of the property, where it would have the least noise impact on nearby residents.*

The modified plan proposes a six foot high fence and landscaped buffer along the western boundary of the project site as part of the noise mitigation proposed for the project as a whole. The project plans call for preservation of a 50' wide (minimum) "Reservation Area" along a portion of the property line to the west to be preserved as a conservation easement or by restrictive covenant as a buffer between the proposed development and the adjacent properties. Within the Town of Kent, this Reservation Area would extend from the boundary between the Town of Patterson and Kent just west of Concord Road and approximately 240 feet west, ending near Stormwater Basin 3.4 (see Site Plan SP-1). The six foot high fence will be installed, and a double row of evergreen trees will be planted 25 feet inside the property line along this side of the site to further buffer noise and views into the development from adjoining properties. Additional evergreens will be planted along the western side of the fence further buffering the adjacent residences from views of the proposed development. The fence will be installed at a density of 4 pounds per square foot or greater (FEIS 4.9-14). To avoid impacts to neighboring residents, no outdoor loudspeaker systems would be used in any of the proposed stores. Music may be played near the small retail

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shops out onto the outdoor courtyard/public space. Views into the new building in the Town of Kent portion of the property from the west would be limited by the existing trees on the largely undeveloped western half of the property lying within the Town of Kent.

- 2) Parking areas access aisles and parking facing or adjacent to property for residential use, and street lines shall be set back an additional 25 feet from the minimum yard setback to provide a visual and noise buffer. The twenty five foot buffer shall be planted with a mixture of evergreen and deciduous plantings at a planted height so as to completely screen the parking area from neighboring properties and streets. The species, type, location, and planting height of such landscaping shall be subject to the approval of the Planning Board.

Discussion. *The buffer between the parking for the proposed building on the Town of Kent portion of the development and the adjacent residential properties is well in excess of the 55 foot set back (30 feet minimum plus 25 feet additional) required by the Town Code. As described above, the project plans call for the preservation of a 50' wide "Reservation Area" at the southwest corner of the property lying within the Town of Kent. Evergreen trees will be planted along this fence line. Combined with the existing trees in the restricted 100 foot impervious zone, these plantings will provide a visual screen of the parking. The plans and plant lists are provided on the Layout and Landscape Plan (Drawing SP-2.1). Refer to Figure 4.13-5B showing a profile of the west property line.*

M) Landscape, buffering, and site treatment

- 1) Where possible, natural and existing topographic features and patterns that contribute to the beauty and character of a site or neighborhood shall be preserved.

Discussion. *As described above, of the 16.4 acres of the subject property lying within the Town of Kent, more than 15 acres will be preserved as open space after construction, and most of this will remain undisturbed during construction. The wetland at the northwest corner of the property will be preserved, and the alterations of the topography will be limited to regrading for two stormwater basins, the entry road, the 2,000 square foot building and the parking area. The basins in the stormwater system will be landscaped with native plants to reestablish the natural beauty in these areas of the site.*

- 2) Grades of walks, parking spaces, terraces, and other paved areas shall be of such width, as determined by the Planning Board, to easily accommodate pedestrian movement.

Discussion. *Details of parking space dimensions and grading within the parking areas, sidewalks, and roadways will be provided in the Application for site plan approval and will afford safe and comfortable pedestrian movement.*

- 3) Landscape treatment shall be provided to enhance architectural features, strengthen vistas, and visual corridors, and provide shade.

Discussion. *As shown on the site plan, the buildings in the proposed*

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development are arranged so that the symmetrical façade and entry plaza of the main area of the retail center, in the Town of Patterson, come into full view midway along the boulevard style access road. The landscape plan provides regularly spaced shade trees along this internal roadway. The building proposed for the Kent portion of the development is to the side of this main view. Mixed landscape plantings are provided on all sides of the proposed building and parking area to enhance the architecture, and trees are provided for shade at the edges of the parking.

- 4) Unity of design shall be achieved by repetition of certain plant varieties and other materials and by coordination of adjacent elements.

Discussion. *Much of the existing vegetation will be retained on the subject property within the Town of Kent, and areas around proposed stormwater basins will be replanted with native plants, providing coherence and preserving the local identity in the landscape. Planting plans for areas around the proposed building and along the internal roadway specify a limited list of species appropriate for the physical conditions and to create a unified overall design.*

- 5) Plant material shall be selected for its structure, texture, and color, and in consideration of its ultimate growth pattern. Vegetation indigenous to the area and others that will be harmonious to the design and exhibit good appearance shall be used.

Discussion. *Plants specified for the developed areas of the proposed project will be appropriate for the conditions along roadways, parking areas, and buildings, so that they would maintain good health. In addition, the selection of species and varieties would be made considering the ultimate height and spread of the plants, as well as their textures, colors, and other characteristics to create a harmonious design capable of maintaining a good appearance in the long term.*

- 6) In locations where plants will be susceptible to injury by pedestrian or motor traffic, appropriate curbs, tree guards, or other devices shall be installed and maintained. The Planning Board may require the use of markers to delineate curbing and other sensitive features to alert snow plow operators of the existence of such features and curbing.

Discussion. *Curbs are provided to protect plantings and management of stormwater, and sidewalks are clearly defined. Guards and markers to prevent injury to plantings will be incorporated with the final site plans as necessary.*

- 7) Parking areas and trafficways shall be enhanced with landscaped islands, containing trees and tree groupings. The interior (i.e. nonperimeter) areas of proposed parking shall be appropriately landscaped, and such landscaping shall comprise not less than 15% of the land area of the proposed parking facility. When hydrologic group "A" soils are present on the site, the landscaped islands shall be depressed to allow capture of stormwater.

Discussion. *The landscape plan indicates trees, shrub groupings and rock walls for the planting areas on either side of the entrance to the parking area. Similar*

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plantings are also proposed for a landscaped island which extends from the foundation planting in the front of the building. (See SP-2.1) There are no type "A" soils on the site.

The boulevard style entrance road incorporates trees and shrubs planted along both sides of the trafficway as well as between the entrance and exit lanes.

8) Screening of service yards, commercial vehicles, commercial trailers, passenger vehicles, parking areas, refuse containers, and other places that tend to be unsightly, shall be accomplished by use of walls, fencing, planting, or combinations of these with all such enclosures being compatible in material, texture, and color with the principal buildings of the site.

Discussion. *Landscape plantings and a six foot noise barrier fence will be installed to screen views of the parking and refuse containers as shown on the landscape plan and described previously.*

9) Landscaping shall be designed and maintained so as not to create hazardous conditions.

Discussion. *The landscape plan for the proposed project will provide appropriate plants and a planting design that will allow for adequate visibility and otherwise safe conditions, and will be maintained so as not to create hazardous conditions.*

N) Lighting

1) Exterior lighting shall enhance the building design and the adjoining landscape. Lighting standards and building fixtures shall be of a design and size compatible with the building and adjacent areas, as determined by the Planning Board.

2) The number of light standards and the intensity of lighting shall be appropriate to illuminate the location for safety without glare to adjoining properties.

3) Freestanding lights shall be appropriate to the design of the structures and shall not exceed 15 feet in height above the ground level below the location of the light fixture.

4) Illumination at the property line shall not exceed 0.2 foot-candles.

5) To assure that site lighting does not adversely affect neighboring properties, the Building Inspector and the Zoning Administrator shall have the authority to require reasonable changes on the site lighting fixtures to reduce and minimize glare and the splaying of light at the property lines, and to assure continued compliance with this section.

Discussion. *The lighting design for the project minimizes the visual impact to the surrounding area by limiting the height, size, intensity, and glare of lighting (see Lighting Plan L-1). The design proposed will illuminate the developed portion of the site at night to provide pedestrian and vehicle safety and security.*

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The lighting has been designed to comply with the codes for the Towns of Patterson and Kent.

A regular pattern of pole-mounted lights will illuminate the entrance area, internal roadways, and parking lots. The lighting style will enhance and be compatible with the project architecture and the surrounding area. A detail of the proposed light pole standard will be included in the final site plan.

The lighting specifications proposed and shown in the photometric lighting plans will ensure that no measurable light levels will be emitted from this project onto any adjoining property in excess of 0.2 footcandles at any time. Lighting at the site access may extend onto NYS Route 311 to assure traffic safety at appropriate hours.

O) Stormwater Management

1) Provide for compliance with the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from MS4 under General Permit GP-02-01.

Discussion. *As a NYSDEC regulated Municipal Separate Storm Sewer Systems (MS4), the Town of Kent, and other MS4s in the Middle Branch watershed, have the NYSDEC imposed burden to reduce current phosphorous loading to achieve the reservoir Total Maximum Daily Load (TMDL). A program for achieving phosphorous reductions has been established in the NYSDEC draft document entitled New York City Watershed Croton Reservoir System Phase II Phosphorous TMDL Nonpoint Source Implementation Plan (TMDL Implementation Plan). The TMDL Implementation Plan states that the plan is largely structured to use existing programs to achieve phosphorous reductions. Applicable to the Middle Branch Reservoir, these programs include:*

- NYSDEC General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (Permit GP-02-02);*
- Putnam County Croton Plans;*
- NYCDEP Croton Strategy; and,*
- NYCDEP East of Hudson Water Quality Investment Funds, including the Putnam County Septic Repair Program.*

The project Stormwater Pollution Prevention Plan (SWPPP) specifies on site stormwater treatment measures that will reduce post construction phosphorous loads from the site to below pre-construction levels. The project has been revised and now includes additional stormwater treatment measures to further reduce existing phosphorous loads unrelated to the proposed development. The on-site stormwater management practices now proposed are designed and will be constructed by the Applicant in accordance with the SWPPP (FEIS Appendix F).

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- 2) Provide for compliance with the New York City Department of Environmental Protection regulations for stormwater discharges.

***Discussion.** The Patterson Crossing Retail Center SWPPP has been prepared in accordance with, and satisfies the requirements of, New York State and City regulations, including those set forth in GP-02-01, and GP-93-06. The latter is incorporated by reference into the New York City Watershed Rules and Regulations (WR&R). In addition, to address concerns raised by the New York State Watershed Inspector General, off-site stormwater treatment facilities that exceed the requirements of New York State and City regulations are proposed. These facilities will treat currently untreated stormwater from NYS Route 311, Interstate 84, and the Putnam County Highways Facility and will achieve a 8.28 lbs/yr reduction in existing phosphorous loads in New York City's public drinking water supply watershed.*

The proposed modification of State Route 311 by NYSDOT would be subject to Memoranda of Understanding between NYSDOT and NYSDEC and between NYSDOT and NYCDEP. Under the terms of these agreements, NYSDOT would be required to comply with the erosion and sediment control and stormwater management provisions of the (WR&R). By complying with these regulations, impacts associated with erosion and sedimentation and increases in post-construction pollutant loading in stormwater from construction activities, and new impervious surfaces, will be addressed.

P) Building Design

- 1) Proposed building design shall recognize compatible building forms indigenous to the community and the neighborhood in which the project is located. In particular, building design shall consider the historic character of the Town of Kent. Adaptive reuse of existing structures is strongly encouraged.

***Discussion.** As described previously, the proposed building, in its scale, materials and architectural details, recognizes indigenous building forms found throughout the County and will employ compatible materials and architectural style. No structures are available on site for reuse.*

- 2) Materials proposed for new structures and the rehabilitation of existing structures shall have good architectural character and be selected for harmony with traditional building materials. Except when wholly impractical natural materials shall be used.

***Discussion.** The Patterson Crossing Retail Center will comply with the Town of Kent Code regarding building design and materials. The project has been reduced in scale, buildings reconfigured and the site plan has been modified to incorporate architectural details and gateway features that are designed to improve the visual character of the retail center in relation to the Kent/Patterson community. A presentation assembled by the Applicant's architectural consultant, Street-Works LLC, which is reproduced in Appendix M of the FEIS, illustrates the improvements and features being considered in the Patterson Crossing Retail Center plan. The aesthetic features being considered include a rural architectural style and features to break down the scale of the proposed*

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buildings. It is noted that the Patterson Crossing Retail Center Plan Enhancements illustrated in Appendix M are conceptual designs and further project-specific architectural details, including the types of materials to be used, will be developed as part of the final plans for the project.

3) Building components such as windows, roofline, doors, eaves, and parapets shall have well designed proportions and relationships to one another and be compatible with the historic character of the Town of Kent and the neighborhood surrounding the proposed project.

Discussion. *Final architectural plans shall comply with this requirement. Refer to Appendix M of the FEIS for illustrations of the contemplated architecture. All presented features are conceptual in nature and provide a general framework for the architectural design of the final project.*

4) Mechanical equipment such as air conditioners, satellite dishes, or other utility hardware, located on roofs, the ground or buildings shall be screened from public view with materials harmonious with the building, specified as to color so as to blend with their surroundings, or located so as not to be visible from any public way or lands.

Discussion. *The Patterson Crossing Retail Center will comply with the Town of Kent Code regarding the location and screening of mechanical equipment. Rooftop HVAC equipment will be screened from view from development grade elevations using a number of methods. These would include establishing set backs from the edge of the buildings based on equipment sizes, constructing parapets of a height sufficient to block views of the equipment from the remainder of the development, and building individual screens for equipment that extends beyond the parapets. Views of rooftop equipment from elevations above those on-site would be offset through the six foot high noise barrier fence and evergreen plantings along the western boundary of the project site.*

Q. Parking and Loading

1) Parking shall not be located within a front, side or rear yard setback.

2) The Planning Board may allow parking spaces within a yard setback line if it finds that such parking will not detract from the aesthetic character of the area and is otherwise consistent with the purposes of this section.

Discussion (1 and 2). *As indicted on the site plan, no parking is proposed within any setback.*

3) The Planning Board shall determine the dimensional requirements for access and internal driveways for the particular use proposed, and may require dimensions for site driveways and access roads other than the minimum dimensions for driveways and access roads stated elsewhere in this chapter. The Board shall, as much as practicable, locate driveways for nonresidential uses so that the center line of such driveway shall line up with the center line of a street or driveway opposite the proposed use.

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Discussion. *Unobstructed access to the parking areas is provided by the main entrance road which has been designed to provide two lanes out of the site north of the Kent/Patterson Town Line and two lanes into the site south of that line. A median is provided to allow passing of disabled vehicles. Total cross sectional pavement width has been established at 39 feet which is greater than the minimum dimensions for driveways and access roads stated elsewhere in this chapter of the Town code.*

Due to physical constraints and the presence of protected natural resources it is not possible to align the center of the access driveway with the center line of a street or driveway opposite the proposed use. The final design of the driveway access at NYS Route 311 is under permit and authority of the New York State Department of Transportation (NYSDOT), which has reviewed preliminary plans and has conceptually agreed to the proposed locations of the access drive.

- 4) Notwithstanding the requirements for off-street loading spaces as specified in Article XI of this chapter the Planning Board may require additional space(s) for delivery vehicle loading,

Discussion. *All loading proposed is off-street.*

R) Material and Equipment Storage

- 1) Material and equipment other than as shown on an approved site plan shall be stored so as not to be visible from adjoining or nearby properties public roads. Storage of materials shall be within wholly enclosed structures approved for such use, or shall be screened from view by fencing or landscaping, as determined by the Planning Board. In no case shall the height of stored material exceed the height of such screening. No outdoor storage of material shall be permitted within 100 feet of any principal structure used for residential purposes located in a nonresidential district.

- 2) Adequate facilities for disposal of refuse shall be provided. All refuse disposal units, or locations for deposit of refuse, shall be screened from view and designed so as to be fireproof and/or fire retardant, and to prevent access by rodents, dogs and vermin such as cats. All such enclosures shall remain closed at all times, and shall be designed to prevent blowing of paper and refuse.

Discussion (1 and 2). *The proposed retail space and police substation within the Town of Kent will comply with the Town of Kent Code with regard to storage and screening of materials and equipment. The proposed uses would not result in the storage of materials or equipment outside of the building. Refuse disposal facilities will be provided, located, and secured according to the regulations in the Town Code.*

S) Ecological Considerations

- 1) The proposal shall result in minimal degradation of unique or irreplaceable land types and in minimal adverse impact upon areas of environmental concern.

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Discussion. *No unique or irreplaceable land types have been identified on the project site. The project site consists almost entirely of successional deciduous woodland typical of the region, with limited brushlands and one wetland. The wetland measures approximately half an acre and therefore does not fall under the regulatory authority of the Town of Kent which regulates wetlands at least forty thousand square feet in size and greater.*

The wetland, located adjacent to the Middle Branch of the Croton River, is regulated only by the US Army Corps of Engineers. With regard to the need for a U.S. Army Corps of Engineers (USACE) Jurisdictional Determination and or Permit: as this area is not on the project site and the Proposed Action would not result in its dredging or filling, there is no requirement for USACE involvement. In past correspondence from the USACE (see Appendix A herein) the USACE's position is as follows: "If the applicant can design the project to completely avoid waters of the United States, including wetlands, then written authorization from this office would not be necessary. In addition, if no written authorization would be necessary, no written confirmation of the limits of Corps jurisdiction would be necessary, either."

This wetland would not be disturbed by the proposed development. Only treated stormwater discharges would be directed toward the wetland via an existing channel. The channel does not meet the definition of a Town regulated watercourse (it must have flowing water at least nine months of the year) and it too is not under regulatory authority of the Town of Kent.

As part of the Proposed Action, beneficial stormwater treatment practices both on- and off-site are proposed to reduce existing pollutant loads that contribute to the water quality degradation of Lake Carmel and the East and Middle Branch Reservoirs.

- 2) The proposal shall conform with the existing geological and topographic features to the end that the most appropriate use of the land is encouraged.

Discussion. *As described above, much of the subject property within the Town of Kent will be undisturbed during construction, and the development will preserve the existing wetland and drainage corridor. Alterations of the topography will be limited to the entry road, building, parking area, and stormwater basins. No blasting will be required in the Town of Kent. The proposed development is considered an appropriate use of the land in this location according to the Town of Kent Master Plan, and the land use affords an appropriate balance between ecological and economic development considerations.*

T) Drainage. The proposed development shall be so designed as to provide for proper surface water management through a system of controlled drainage that preserves existing drainage patterns and protects other properties and the environment. All drainage plans shall be reviewed and approved by the Planning Board Engineer.

Discussion. *Although construction of the project would require grading for the*

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proposed building, parking area, access road, and two stormwater basins, existing drainage patterns would generally be maintained. In the proposed project, potential impacts to surface water are addressed through implementation of the on-site and off-site treatment practices set forth in the SWPPP, which also includes an Erosion and Sediment Control Plan. Combined, these measures will prevent erosion and sedimentation and will achieve a significant reduction in current phosphorous loads entering the reservoirs. The revised project layout and stormwater management system have been specifically developed to reduce post-construction phosphorous loads from the site to below pre-development levels. Refer to the DEIS and the revised stormwater management plan in the FEIS for details on proposed stormwater management for the project.

For many years, Lake Carmel has suffered from heavy pollutant loading from surrounding roadways and residential developments. As part of the Proposed Action, beneficial stormwater treatment practices are proposed to reduce existing pollutant loads that contribute to water quality degradation of Lake Carmel, the Great Swamp and the East and Middle Branch Reservoirs. Improvement measures to treat stormwater from Interstate 84, NYS Route 311, and the Putnam County Highways Facility, located on the opposite side of NYS Route 311 from the project site, would be constructed as part of the development of the Patterson Crossing Retail Center. Without the project, these beneficial stormwater treatment improvements would not be implemented and the associated water quality improvement to Lake Carmel would not be realized.

U) Traffic

1) All entrance and exit driveways shall be located with due consideration for traffic flow, so as to afford maximum safety to traffic on public streets and shall meet all current design standards of the appropriate state, county or Town authority unless specifically waived or modified by that authority.

Discussion. *The proposed entrance road into the site from NYS Route 311 would be improved with right and left turn lanes and a new traffic signal. See Section 4.8 of the FEIS for a description of the proposed entrance road intersection and traffic analysis. The final design of the entrance road at NYS Route 311 is under permit and authority of the New York State Department of Transportation (NYSDOT), which has reviewed preliminary plans and has conceptually agreed to the proposed locations of the access drive. Final design of the intersection will conform to all design standards of the State.*

2) On site circulation shall be designed for ease of use and to connect safely with adjoining properties where appropriate.

Discussion. *The Applicant proposes a two-way road connecting to NYS Route 311 which will be used for exiting and entering the site. This boulevard style road has three lanes at the intersection with NYS Route 311 allowing right and left turns for traffic exiting the site. The road makes a long, broad curve around to the entrance to the proposed building parking area within the Town of Kent.*

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The parking lot for the 2,000 square foot building in Kent is designed to provide easy ingress and egress off of the main internal roadway. In the Town of Patterson, nearly all the stores are interconnected by the road along the front of the major buildings permitting internal circulation without use of the main access road. The proposed parking design is intended to discourage internal trips on the main north-south access road which would be utilized by patrons traveling into and out of the retail center.

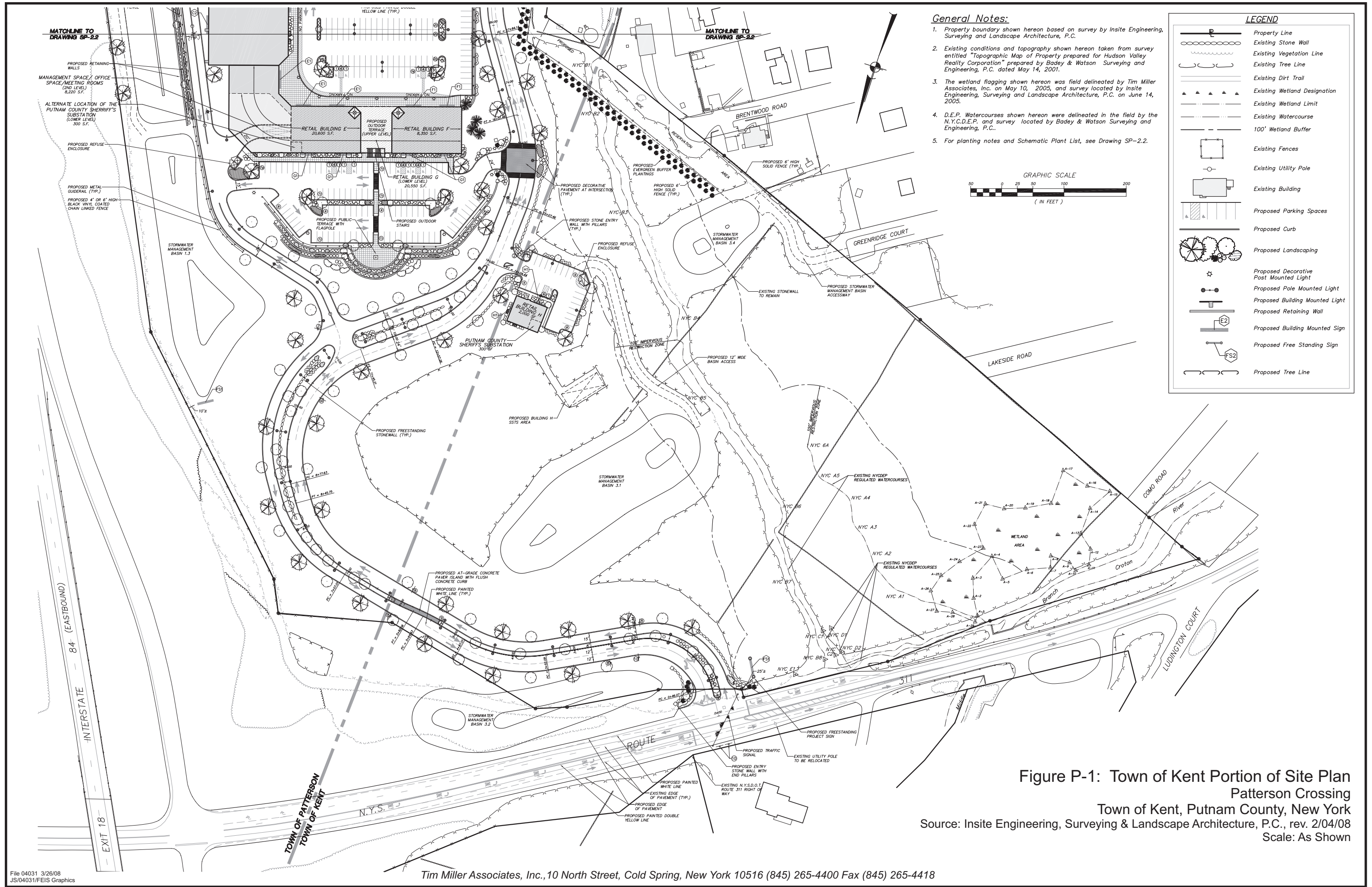
Note: In compliance with Section 77-6D under the existing code which states, "No driveway shall provide access to a lot located in another district, which lot is used for any use prohibited in the district in which such driveway is located.", the proposed entrance road to the Patterson Crossing Retail Center is not a driveway and this road will not provide access to a lot located in another district that would be used for a use prohibited in the district in which the road is located. As the Patterson Crossing Retail Center site is bounded by NYS Route 311, Interstate 84, Fair Street and residential development, the entrance road would provide access to only those uses proposed for the retail center, which are permitted in the existing zoning districts, and would not provide access or other connection to uses outside of the project site.

V) Pedestrian circulation. Pedestrian circulation shall be separated from motor vehicle circulation. Appropriate walkways shall be provided on the site and its approaches as determined by the Planning Board.

***Discussion.** According to the site plan, a sidewalk will be provided on two sides of the proposed 2,000 square foot building in the Town of Kent. The landscaped median along the entry drive road includes an at-grade paver island allowing for safe crossing at this location.*

W) Architectural review. In addition to the requirements of this section and the Town Subdivision Regulations, during review of any site plan the Planning Board may, at its discretion, consult with one or more persons or firms having experience in building architecture and design matters as to the appropriate design of building exterior facades, fenestration, roof lines, lighting, massing, color, and materials. In reviewing the architectural appearance of proposed buildings and landscaping the Planning Board shall evaluate the compatibility of the proposed development with that found elsewhere in the vicinity of the project. The Board may, at its discretion, consult with one or more persons or firms having experience in landscape architecture and landscape planting as to the appropriate design of lawns and open space around proposed buildings and uses, and the appropriate species, size and number of plants to be installed. The architectural review authority of the Planning Board shall not be limited by the provisions of this section but shall extend to the full authority to conduct such reviews as may be conferred on the reviewing agency by the Town Law, the State Environmental Quality Review Act, and the chapter, as amended. The reasonable cost of any architectural review shall be borne by the Applicant.

***Discussion.** Architecture for the Proposed Action is addressed in Section P above.*



General Notes:

1. Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
2. Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bady & Watson Surveying and Engineering, P.C. dated May 14, 2001.
3. The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on May 10, 2005, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on June 14, 2005.
4. D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bady & Watson Surveying and Engineering, P.C..
5. For planting notes and Schematic Plant List, see Drawing SP-2.2.

LEGEND	
	Property Line
	Existing Stone Wall
	Existing Vegetation Line
	Existing Tree Line
	Existing Dirt Trail
	Existing Wetland Designation
	Existing Wetland Limit
	Existing Watercourse
	100' Wetland Buffer
	Existing Fences
	Existing Utility Pole
	Existing Building
	Proposed Parking Spaces
	Proposed Curb
	Proposed Landscaping
	Proposed Decorative Post Mounted Light
	Proposed Pole Mounted Light
	Proposed Building Mounted Light
	Proposed Retaining Wall
	Proposed Building Mounted Sign
	Proposed Free Standing Sign
	Proposed Tree Line

Figure P-1: Town of Kent Portion of Site Plan
Patterson Crossing
Town of Kent, Putnam County, New York
 Source: Insite Engineering, Surveying & Landscape Architecture, P.C., rev. 2/04/08
 Scale: As Shown

Appendix Q

TOWN OF KENT COMMENTS OF
JANUARY 2008 AND RESPONSES &
KENT SITE PLAN APPLICATION

TOWN OF KENT COMMENTS OF JANUARY 2008 AND RESPONSES

A copy of each of the three letters from the Town of Kent noted below can be found at the end of this appendix.

1. Letter from Rohde, Soyka & Andrews Consulting Engineers, P.C., January 10, 2008

Comment 1.a.i.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 4, see the discussion under subparagraph “2)”. Reference is made to “Appendix M in the DEIS.” This appendix is the Wastewater Report. There are no buildings shown.

Response 1.a.i.: The reference to the DEIS was incorrect. The text now reads “...Appendix M of the FEIS.”

Comment 1.a.ii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 4, subparagraph “3)” Existing property lines and structures extend 100 feet past the property line of the parcel under consideration versus the required 200 feet. Topography extends 100 feet past the property line and is greater than the required 50 feet. The road topography extends more than the required 200 feet east of the property line, but only 100 feet to the west of the property line.

Response 1.a.ii.: The site plans, contained at the end of this appendix, have been revised to comply with all property line, structure and topography depiction requirements.

Comment 1.a.iii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 4, the discussion under subparagraph “4)” identify the type of business that would be expected to occupy the 1,700 square foot commercial space proposed for the Town of Kent.

Response 1.a.iii.: The proposed 1,700 square feet of retail space in Kent would house a bank or other retail use appropriate for that location.

Comment 1.a.iv.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 4, discussion under subparagraph “5)” the references to the DEIS figures should read 4.6-4 and 4.3-2, not 3.2-4 and 3.1-2 respectively.

Response 1.a.iv.: Comment noted. Corrections were made.

Comment 1.a.v.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 4, the discussion under subparagraph “8)” What are the proposed fire protection features for this project?

Response 1.a.v.: As documented in Chapter 4.11, subsection 4.11.2 Fire Protection of the accepted DEIS dated July 27, 2006, the Patterson Fire Department has advised the Applicant of its intent and readiness to be the responding agency for emergencies on the project site (see Appendix B of the DEIS for documentation). There is a county-wide Mutual Aid agreement in place in Putnam County, a plan that allows assistance between

all County Fire Departments. The Officer-in-Charge of the fire has the capability to request assistance whenever it is deemed necessary.

The Patterson Fire Department has all necessary equipment and manpower to respond to calls from the project site according to the Department's Chief Smith. While Chief Smith raised questions during the preparation of the DEIS regarding the adequacy of the water supply for fire protection, it is anticipated that the proposed water supply and 270,000 gallon on-site storage tank(s), far in excess of the 60,000 gallons requested, will cover fire protection water requirements for the entire project site. The 270,000 gallon buried storage tank(s) for fire protection will be separate from the potable water supply.

The detached building layout reduces the chance of a major fire spreading throughout the development. Additionally, no buildings are located adjacent to the residential homes to the west, and a substantial buffer is provided by the parking areas. Additional fire protection measures will be incorporated into the building design, including fire sprinkler systems for all of the buildings. Fire hydrants will be installed according to Town standards.

The proposed access roads are designed to accommodate fire engines and truck traffic. In addition to the regular vehicular access from NYS Route 311, an emergency access drive located at a point more central to the site and west of Building B is incorporated in the modified site plan. This location, off of Concord Road near its intersection with Woodstock Road and closer to NYS Route 311, allows for reduced response times and enhanced emergency traffic circulation through the local road network.

Comment 1.a.vi.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008):

Page 4, discussion under subparagraph "9)" building H is so isolated from the rest of the site that it will have to be a destination establishment in and of itself. On-site foot traffic to or from this store is highly unlikely and is discouraged by the site layout.

***Response 1.a.vi.:** It is not unusual for a retail center to include one or more satellite buildings on separate building pads that provide additional shopping to patrons. The Dutchess Mall on Route 9 South of Interstate 84, the Newburgh Mall on Route 300 north of Interstate 84 and The Highlands Shopping Center at the intersection of Routes 312 and Interstate 84 all incorporate satellite uses in their retail mix. Building H at the Patterson Crossing Retail Center would be occupied by a satellite retail use such as a bank.*

It is acknowledged that pedestrian traffic would be very unlikely between the main retail buildings and Building H. This is generally the case for satellite uses. As a result, the traffic analysis includes additional internal traffic trips six times that normally allotted to a use of the square footage proposed for Building H.

Comment 1.b.i.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008):

Page 5, discussion under subparagraph "11)" reference is made to "Chapter 4.5 of the FEIS". The FEIS was not available for review.

Response 1.b.i.: Refer to Chapter 4.5 of this FEIS.

Comment 1.b.ii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 5, discussion under subparagraph “12)” defer to Neil Wilson for comments on the design of all signs.

Response 1.b.ii.: Final sign design will be presented with the final site plans and building elevations to be presented to the Town of Kent Planning Board.

Comment 1.c.i.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 6, discussion under subparagraph “14)” reference is made to the drawing entitled Lighting Plan L-1. Said drawing was not submitted for review.

Response 1.c.i.: Refer to Drawing L-1 provided with this FEIS.

Comment 1.c.ii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 6, discussion under subparagraph “16)” the applicant proposes to supply the details of the waste enclosure at the time of final site plan submission.

Response 1.c.ii.: Details of the waste enclosure are set forth in the revised site plans included at the end of this appendix.

Comment 1.c.iii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 6, discussion under subparagraph “16)” there are no power distribution or transmission lines shown on the drawings, nor are any identified in the Legend.

Response 1.c.iii.: As noted in the DEIS, all utilities will be underground.

Comment 1.c.iv.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 6, discussion under subparagraph “17)” as stated above, Electric and telephone utilities do not appear on the drawings. Additionally, all stormwater piping shown on the plans is stated as being 15 inches in diameter, unless otherwise shown. No other size is shown on the plans even though the outlet from a stormwater management practice is usually larger than 15 inches in diameter.

Response 1.c.iv.: As noted in the DEIS, all utilities will be underground. The final site plan sheets will include details on the stormwater pipes.

Comment 1.c.v.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 6, discussion under subparagraph “18)” the parking lot profile for Retail Building H is not shown.

Response 1.c.v.: Refer to Figure Q-1 at the end of this appendix.

Comment 1.c.vi.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 6, discussion under subparagraph “19)” adequate provisions for the handling of stormwater runoff have not been demonstrated. The stormwater management practices within the town of Kent have been revised from the original plan as

shown in the DEIS. A revised Stormwater Pollution Prevention Plan has not been submitted for review.

Response 1.c.vi.: Refer to the revised Stormwater Pollution Prevention Plan contained in Appendix F of this FEIS.

Comment 1.d.i.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 10, Refer to the second paragraph that addresses the fence and plantings between the commercial zone and the residential zone. The fence and plantings do not extend along the full property line.

Response 1.d.i.: The FEIS site plan shows the extent of the proposed fencing and planting along a portion of the western property line. The fence and buffer landscaping have been proposed in the areas adjacent to developed residential properties. Green Ridge Court is the last road extending to the property boundary of the proposed development within the Town of Kent (see the Figure 1.3-3). Note that while two other roads (Lakeside and Como) are shown on the Site Vicinity Map, these roads have not been extended to the property boundary. Beyond Green Ridge Court there is no development adjacent to the property line nor is disturbance proposed on the subject property adjacent to this area, therefore no screening or buffering is proposed.

A twelve foot wide access way to Stormwater Basin 3.4 is proposed from Green Ridge Court. The proposed six foot high fence and double row of evergreen trees will extend to a location beyond Brentwood Road where the access to Stormwater Basin 3.4 is proposed. This opening for the access road does not impact views of the proposed building and parking area from Brentwood Road. The fence and evergreen screen are proposed to run along the outer edge of the 50 foot reservation area. Existing vegetation to be retained between the property line and the proposed building in the Town of Kent will provide additional screening in the direction of the proposed building.

Another section of fence would be provided along the property line to the west of Brentwood Road to screen northerly views opened up as a result of site work, including stormwater basins and the landscaped access road to the development. See Figure Q-2 of this appendix for a line of sight profile of this view. Views towards NYS Route 311 across the site to the northwest from this location would be through approximately 500 feet of existing woods.

At the end of Greenridge Court there is no development activity planned. The fence and landscaping will not extend beyond the proposed access to Stormwater Basin 3.4. The view from the end of that road towards the building, which include approximately 80 feet of existing deciduous woods; then approximately 160 feet of open area adjacent to Stormwater Basin 3.4; and then approximately 50 feet of existing woods within the Impervious Restriction Zone. Beyond these areas is the edge of the retail center parking lot. No unobstructed view to the buildings would exist. Northeast of this location approximately 400 feet of existing trees would be retained between the property boundary and Stormwater Basin 3.1. Views towards the northwest from this location will be largely unchanged since no development is proposed in this area.

Comment 1.d.ii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 10, the statement is made that the fence will be installed at

a density of 4 pounds per square foot or greater (FEIS 4.9-14). The FEIS was not available for review, however, it appears that the applicant will provide not only a visual barrier, but also a sound barrier, as well.

Response 1.d.ii.: *The Applicant will install a fence that will act as both a visual and noise barrier between the adjacent residences and the retail center. Refer to Chapter 4.9 of the FEIS for additional information on the six foot high noise barrier fence.*

Comment 1.d.iii.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 10, discussion under subparagraph “2)” the last line refers to Figure 4.13-5B. Provide the name of the document where this can be found.

Response 1.d.iii.: *Figure 4.13-5B can be found in the FEIS immediately following Section 4.13, Cultural Resources.*

Comment 1.e.i.: Proposed Actions with the Town of Kent (letter Rohde, Soyka & Andrews, January 10, 2008): Page 14, see the discussion above subparagraph “2)” submit the revised SWPPP for review.

Response 1.e.i.: *Refer to the revised February 4, 2008 Stormwater Pollution Prevention Plan contained in Appendix F of this FEIS.*

Comment 2.a.i.: “Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008): EX-1: The boring logs indicate that refusal occurred at a shallower depth than shown on the drawing for the following borings: 24-22’/45’; 25-37’/45’; 26-21”/40’; 27-27’/35’; 28-6’-6”/20’; 30-5’-6”/20’; and 31-13’/15’.

Response 2.a.i.: *The FEIS drawing has been revised to eliminate the depths shown at the boring locations. Reference is made to the actual soil boring logs which are included in the DEIS and FEIS. The boring logs provide a more complete and detailed description of soil conditions encountered. Based on the adjacent cut slopes for Interstate 84 and NYS Route 311, bedrock is limited in the northern and eastern portions of the site. It is anticipated that most of the boring refusal noted in these areas are boulders encountered by the borings.*

Comment 2.b.i.: “Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008): SP-2.1: The visual / sound barrier and plantings do not extend for the full length of the property line between the commercial and residential zones.

Response 2.b.i.: *The revised site plan included in this FEIS shows the extent of the proposed fencing and planting along a portion of the western property line. The fence and evergreen screening have been proposed in the areas adjacent to developed residential properties. The northern portion of this west property line contains no development and therefore no screening or buffering is proposed.*

Comment 2.b.ii.: “Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008): SP-2.1: The reservation area does not extend for the full length of the property line between the commercial and residential zones.

Response 2.b.ii.: *The proposed reservation area extends along the areas where there is adjacent residential development. While not required, the Applicant incorporated this area of no development into the project plan to further offset impacts to the existing adjacent residential development.*

Comment 2.b.iii.: **“Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** SP-2.1: Sign 11 shows opposite the entrance drive but does not appear on the Sign Table.

Response 2.b.iii.: *The referenced sign designation has been coordinated with the sign table on the FEIS drawing.*

Comment 2.c.i.: **“Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** SP-3.1: Provide a profile for the access road to stormwater basin 3.4.

Response 2.c.i.: *Future revised site plans will include a profile for the access drive to stormwater basin 3.4. Refer to the end of this appendix for a depiction of the access drive profile.*

Comment 2.c.ii.: **“Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** SP-3.1: Provide a profile for the access road to stormwater basin 3.1

Response 2.c.ii.: *Future revised site plans will include a profile for the access drive to stormwater basin 3.1. A profile of the access drive is provided at the end of this appendix.*

Comment 2.c.iii.: **“Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** SP-3.1: Refer to stormwater basin 3.2: Show the riprap emergency overflow at the overflow point, not the top of the berm. The emergency overflow, as shown, will cause the overflow to flow onto Route 311 and across the entrance road to the retail center. Demonstrate that this is acceptable to the NYSDOT.

Response 2.c.iii.: *The emergency overflow for stormwater basin 3.2 has been located to permit extreme stormwater runoff to discharge in a location which will allow stormwater flows in extreme conditions to follow their natural down gradient path. It is noted that the stormwater outlet piping will be designed for a 100-year, 24-hour (Extreme Storm) design storm and the emergency overflow is only provided to accommodate flows in excess of this storm.*

Comment 2.c.iv.: **“Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** SP-3.1: Provide the size of the outlet pipes from each stormwater basin.

Response 2.c.iv.: *The sizes of the proposed outlet pipes for each stormwater basin are included on the revised site plans contained at the end of this appendix.*

Comment 2.d.i.: **“Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** SP-4.1: The description for work area 16 references the “... Proposed Lake Carmel Stormwater Improvement Area” Demonstrate that the town Board of the Town of Kent has agreed to form this improvement area.

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Response 2.d.i.: *The improvements noted are not intended to be conveyed to the Town, nor are they proposed to be maintained by the Town; the Applicant will not request that the Town of Kent form an "improvement area" for the proposed stormwater features. The Applicant is proposing to fund and construct the improvements, and also provide their long-term maintenance. Therefore, there is no Town Board related agreements necessary.*

Comment 2.e.i.: **"Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** D-1: Provide a detail of the proposed visual/sound barrier between the commercial and residential zones.

Response 2.e.i.: *The revised site plan at the end of this appendix provides details of the proposed fencing between the commercial and residential properties.*

Comment 2.f.i.: **"Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** D-2: Generic swales are not acceptable. Swales should be individually designed for the conditions specific to the swale such as volume of flow and slope.

Response 2.f.i.: *The FEIS drawings include details of generic swales showing the intended construction for these improvements. The revised site plans at the end of this appendix include details of each of the different types of swales proposed for the improvements.*

Comment 2.g.i.: **"Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** D-4: Provide the outlet diameters for each stormwater basin shown.

Response 2.g.i.: *Revised site plans at the end of this appendix include the sizes of outlet pipes for each of the stormwater basins.*

Comment 2.g.ii.: **"Drawings: (letter Rohde, Soyka & Andrews, January 10, 2008):** D-4: Provide a section through each stormwater basin showing the elevation for Water Quality, channel Protection, Overbank Flood and Extreme Storm.

Response 2.g.ii.: *Revised site plans at the end of this appendix include cross sections through each of the stormwater basins as well as the water elevations of the water quality volume, channel protection volume, overbank flood volume, and extreme storm volume.*

2. Letter From LRC Planning Services, LLC, January 10, 2008

Comment 1: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): The applicant should be advised that a new application form is available on the Town website. A completed application form should be provided.

Response 1: The Applicant has submitted the new application form as part of its amended site plan submission to the Kent Planning Board. The amended site plan submission is included at the end of this appendix.

Comment 2: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): Sheet L-1 “Lighting Plan” is missing from the plan set. Pursuant to §77-60(N)(4) illumination at all property lines shall not exceed 0.2 footcandles.

Response 2: Refer to Drawing L-1 provided with the FEIS.

Comment 3: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): Building elevations need to be provided. This would include exterior colors and materials for the proposed building and wall mounted signage.

Response 3: Building elevations and wall mounted signage will be presented with the final site plans.

Comment 4: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): Details (i.e., colors, materials, etc.) Of the freestanding sign at the site entrance have not been provided. The signage schedule on Sheet SP-1, “Overall Site Plan”, indicates that a variance for the size of the freestanding sign will be required.

Response 4: Details of the free standing entrance sign will be provided with the final site plans. The Applicant will apply for a variance for the sign as required.

Comment 5: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): A cross section analysis of the proposed improvements in relation to nearby habitable structures (if any), and to motorists on Route 311 and Route 84 should be prepared to allow the Planning Board to analyze the potential visual impact of the structure on residents, and to develop appropriate mitigation.

Response 5: A cross section of the line of site profile from Interstate 84 through the property is provided in Figure 4.13-4 of the FEIS. An additional cross section showing the line of site profile between NYS Route 311 and Brentwood Road is provided as Figure Q-2. The cross sections show a six foot high fence along the 50 foot reservation area with a double row of evergreen trees. Existing trees will be preserved. See Response 1.d.i. above for a discussion of views of the structures and proposed improvements in the Town of Kent from nearby residences.

Comment 6: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): The location of the wetland boundary must be verified by the Town Wetland Inspector.

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Response 6: *Comment noted. The wetland boundary flags were reconfirmed on January 10, 2008, and a copy of the survey depicting its location will be provided to the Town wetland inspector for use in his verification of the line.*

Comment 7: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): A note must be placed on the site plan stating that there shall be no exterior display of goods for sale except as shown on the approved site plan and that no vehicles shall be parked and offered for sale on the site.

Response 7: *Comment noted. The requested note will be added to the final site plan.*

Comment 8: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): The site plan must be submitted to the Putnam County Planning Department for recommendations pursuant to GML §239-M.

Response 8: *Comment noted. It is expected that the Kent Planning Board will refer the site plan to the Putnam County Planning Department as required under GML § 239.m.*

Comment 9: “Site Plan” (letter from LRC Planning Services, LLC, January 10, 2008): We will await receipt of the final EIS and findings Statement before providing any further comments on the environmental review and the site plan

Response 9: *Comment noted.*

3. Letter from Cornerstone Associates, January 9, 2008

Comment “Summary of Project” (letter from Cornerstone Associates, January 9, 2008):

The applicant is proposing to construct a commercial retail center consisting of 382,560 square feet of retail space and 1,750 parking spaces to be situated on 90.42+/- acres on the southerly side of Route 311. The parcel is located within the towns of Patterson and Kent (16.4 acres). The applicant proposes to construct on-site water (well), waste water (septic) and stormwater systems on the property.

***Response Summary of Project:** The project involves the construction of approximately 382,560 square feet of retail, office, meeting room and County Police Substation space. Please note that 1,700 square feet of the retail space and 300 square feet for the substation are proposed in the Town of Kent.*

Comment “Natural Resources 1” (letter from Cornerstone Associates, January 9, 2008):

A map which depicts existing topography and highlights all slopes over 10% has not been provided. There is a substantial amount of cut and fill noted within the town of Kent area that is required to construct the access road and stormwater basins.

***Response Natural Resources 1:** DEIS Figure 4.3-3 (Slope Disturbance Map) illustrated slopes ranging from 0 to 8 percent, 8 to 15 percent, 15 to 25 percent, and greater than 25 percent. The table also specified the acreage, square footage, and percentage of the site that is occupied by each category. DEIS Figure 4.3-4 (Steep Slopes Disturbance Map) indicated the extent of disturbance of slopes 15 percent and greater in the Towns of Kent and Patterson.*

In Response 4.3-2 of the FEIS, the following is noted:

“...The Applicant will apply for a steep slopes disturbance permit in accordance with the Town of Kent Code for final Town approval before being able to disturb slopes considered to be steep. The Project is proposed to disturb 2.5 acres of slopes in excess of 15%, in the Town of Kent, to construct stormwater management facilities, for the 2,000 square foot Building H, associated parking and the site access road. It should be noted that the majority of the disturbed slopes will be graded to create ponds and then re-vegetated...”

Comment “Natural Resources 2” (letter from Cornerstone Associates, January 9, 2008):

It would appear that soil borings were not conducted in the area of proposed stormwater basin 3.4 and it is unclear if soil borings were conducted in appropriate areas of proposed stormwater basins 3.1 and 3.2 in the Town of Kent or at any of the proposed stormwater basins in the Town of Patterson. Soil information is also not depicted in the area of the proposed septic systems.

***Response Natural Resources 2:** A series of different soil testing has been conducted for the project. This includes the initial borings in early 2004 which were conducted in order to determine general soil types and depth of rock throughout the cut portions of site. A second series of borings were conducted in late 2004 and 2005 relative to the analysis of the northern and southern SSTS area and specifically in support of the mounding analysis performed for the SSTS. In addition, percolation tests and deep hole tests were done in both the north and south SSTS areas which were witnessed by PCDOH and NYCDEP. This information is included in the appendix to the Wastewater*

Report. Deep hole tests were also performed in, or adjacent to, the proposed stormwater basin areas, as shown on FEIS Figure 4.5-7 (Stormwater Testing Plan) to assess the soils conditions in these areas which were witnessed by NYCDEP. All relevant soil information is included in an appendix to the project SWPPP (Appendix F of this FEIS).

Comment 1 (letter from Cornerstone Associates, January 9, 2008): The wetland boundaries have not been verified to insure that the delineation comports with the requirements found in the Town of Kent Wetlands Ordinance. The location of any off-site wetlands within 200' of the subject property should be depicted and any wetland buffer reflected on the subject site should be shown. Has the ACOE certified the wetland delineation and made a jurisdictional determination?

Response 1: *The wetland was delineated by a Professional Wetland Scientist from Tim Miller Associates, Inc. on May 10, 2005. The wetland was revisited by TMA on January 10, 2008. Minor changes observed in the resource were flagged and surveyed by the Project Engineer.*

The boundaries of off-site wetlands in the vicinity of the site are depicted on DEIS and FEIS Figure 4.6-1 (NYSDEC Freshwater Wetlands Map) and Figure 4.6-2 (National Wetlands Inventory Map). Neither figure depicts any wetlands within two hundred feet of the project site. This was confirmed during site visits by the Applicant's consultant.

Wetlands are defined in 39A-4 of the Kent Town Code as areas that "have a contiguous area of at least forty thousand (40,000) square feet..." The wetland on the Kent portion of the site is less than 40,000 square feet (approximately 22,000 square feet), and is therefore not a wetland regulated by the Town. The Applicant, however, remains sensitive to the environmental features of the site. The proposed stormwater basins originally sited within the drainage area have been relocated to points outside of such area. See the plan set included with this FEIS for a depiction of the proposed location of the stormwater basins.

A jurisdictional determination was not requested from the United States Army Corps of Engineers because the proposed project does not involve dredging or filling in any wetland, or in other waters of the United States, as defined in Section 404 of the Clean Water Act.

In correspondence from the ACOE, (Refer to Appendix A Correspondence) it is stated that "If the Applicant can design the project to completely avoid waters of the United States, including wetlands, then written authorization from this office would not be necessary. In addition, if no written authorization would be necessary, no written confirmation of the limits of Corps jurisdiction would be necessary either."

Comment 2 (letter from Cornerstone Associates, January 9, 2008): The stream segment classification and any 303d listed impairment should be provided.

Response 2: *As noted in FEIS response to comment 4.5-60, Lake Carmel is included on the Final New York State 2006 Section 303(d) List of Impaired Waters (approved July 5, 2007), which identifies septic systems as the source of elevated phosphorous in*

the lake. NYSDEC has assigned a C classification to the Middle Branch Croton River, which is tributary to the lake.

Comment 3 (letter from Cornerstone Associates, January 9, 2008): The location of the well and septic systems on the adjoining properties are not shown.

Response 3: *The proposed subsurface sewage treatment area is located more than two hundred feet away, and down gradient, from the closest well or septic system associated with the eleven residences on Vernon Drive in the Town of Kent. As such, there is no State or County requirement to show the locations of the wells or septic systems associated with these residences.*

Comment 4 (letter from Cornerstone Associates, January 9, 2008): Soil information for the property located in Patterson is not provided.

Response 4: *DEIS Figure 4.2-1, Soils Map, depicted all United State Department of Agriculture designated soils types, and their boundaries, on and adjacent to the project site in both the Towns of Patterson and Kent.*

A variety of soil tests have been conducted for the project. These include the initial borings completed in early 2004 to determine general soil types and depth of rock throughout the cut portions of site. A second series of borings were conducted in late 2004 and 2005 to evaluate the northern and southern SSTS areas and specifically to support the mounding analysis performed for the southern SSTS. In addition, percolation tests and deep hole tests were conducted in both the north and south SSTS areas which were witnessed by PCDOH and NYCDEP. This information is included in the appendix to the Wastewater Report. Deep hole tests were also performed in, or adjacent to, the proposed stormwater basin areas to assess the soils conditions in these areas. These too were witnessed by NYCDEP. Refer to FEIS Figure 4.5-7, Stormwater Testing Plan for test pit locations, and to FEIS Appendix F (SWPPP) for a summary of the testing conducted.

Comment 5 (letter from Cornerstone Associates, January 9, 2008): The proposed septic system located in the Town of Patterson is in close proximity to a significant number of single family residences. Has an analysis been conducted to determine potential impacts to the potable water supply to the adjoining residents in the Town of Kent?

Response 5: *Some DEIS commenters expressed concerns regarding the proximity of the southern SSTS to off-site private wells (both in Patterson and in Kent) and the potential for the SSTS to impact off-site wells. The southern SSTS has been modified. Absorption trenches have been moved further away from the westerly property line because of modifications to the Site Plan, additional analysis, and comments from agencies and the public. These modifications are described in the revised Wastewater Report (Appendix H).*

The proposed southern SSTS absorption trenches have been sited to maximize the separation distance to adjoining wells. Putnam County Department of Health (PCDOH) and New York State Department of Environmental Conservation (NYSDEC) regulations require a minimum 100 foot separation distance between wells and an SSTS. A 200 foot

separation distance is required if the well is downgradient in the direct line of drainage (downhill) from the SSTS. Private wells adjacent to the Patterson Crossing Retail Center site, in the vicinity of the SSTS system, are not downgradient in the direct line of drainage of the southern SSTS system, and therefore a 100 foot separation distance should apply.

The southern SSTS area is generally flat at its high point and slopes gently to the west and gradually steeper to the east. The western property boundary in this area borders the relatively densely developed area of Lake Carmel. The SSTS was moved so that it is at least 200 feet from the nearest property line. The SSTS is proposed to be located primarily on the eastern slope, which pitches away from the developed area of Lake Carmel and towards Interstate 84. The existing ground slope in the proposed SSTS area ranges from generally flat to 15 percent with an average slope less than 10 percent.

The closest private well to the southern SSTS system is located in the Town of Patterson, and will be at least 205 feet from the closest absorption trench. The design of the SSTS will provide a minimum 275 foot separation distance between the SSTS absorption trenches and the western property line in the Town of Kent. This will provide a separation distance of greater than 200 feet between the SSTS and any private wells in the Town of Kent, which is well in excess of regulatory standards.

Soil testing was performed and witnessed by representatives of the Putnam County Health Department (PCHD) and New York City Department of Environmental Protection (NYCDEP) (See Appendix H of this FEIS for the results of field testing). The geotechnical engineer has conducted detailed hydrogeological evaluations of the two proposed SSTS areas. Additional information related to the on-site soils analyses is presented in the Hydrogeology Investigation (DEIS Appendix E).

It should be noted that the PCDOH and the NYCDEP are responsible for the approval of the Patterson Crossing Retail Center SSTS, and therefore also are reviewing the SSTSs to ensure the public health and safety are protected. These agencies have been identified as Involved Agencies in the SEQRA review of the Patterson Crossing Retail Center project and have been provided pertinent plans, studies, and environmental documentation to assist the Lead Agency in their review of the Proposed Action.

DEIS Section 4.4 (Groundwater) discussed the results of a hydrogeological investigation/mounding analysis (included in DEIS Appendix E) performed by GeoDesign on the project site to assess the soils and groundwater in relation to the proposed SSTS. The analysis was based on field investigations, review of existing data and preparation of a three-dimensional computer model using an 11,000 gallon per day sewage flow rate applied to the area of the proposed SSTS. The simulation run for the site predicted there will be no leachate breakout at the ground surface, no leaching trench flooding and a minimum three year travel time for the leachate to reach the nearest property line. DEIS Section 4.4.4, Mitigation, provided a discussion of the recommendations made to further mitigate potential adverse impacts related to the proposed SSTS.

The proposed northern SSTS is at its closest point approximately 400 feet from the nearest property line.

Comment 6 (letter from Cornerstone Associates, January 9, 2008): Water usage is described as approximately 15,675 gallons per day. Has an analysis been conducted to determine possible long-term effects to the water supply of properties in the surrounding area?

Response 6: *DEIS and FEIS Sections 4.4, Groundwater, analyzed the potential long term impacts on the water supplies of surrounding properties. The DEIS and FEIS concluded, based largely upon the groundwater study conducted by GeoDesign and well pumping tests provided in Appendix H of the DEIS, that 73,607 gallons per day or 51.1 gallons per minute would be available to recharge the aquifer within the project boundaries. This conservative estimate is substantially greater than the project water demand of 15,675 gallons per day (gpd) or 10.9 gallons per minute (gpm). Therefore, the project is not anticipated to have an adverse affect upon local groundwater recharge or groundwater availability to any wells on, or off, the site.*

Further, as discussed in DEIS and FEIS Section 4.4, no influence or drawdown attributable to the on-site pumping wells was observed in any of the private off-site monitoring wells. Well monitoring data and further discussion of the pump test results was provided in the Patterson Crossing Retail Center Water Supply Report (DEIS Appendix H). The full 72-hour pump test of the proposed wells was performed in accordance with Putnam County Department of Health standards.

Comment 7 (letter from Cornerstone Associates, January 9, 2008): There is question not only to the stormwater quantity and typical stormwater quality issues (TSS, BOD, TP, TN) but to other potential pollutant loadings that may originate from the proposed development (e.g. pesticide storage in the proposed garden center, grease from restaurants, petroleum from parking lot run off, thermal from impervious areas etc.) under current zoning for potential tenants. Has this been considered in containment design and the design of the stormwater system (and future maintenance requirements)? What methods have been considered to protect adjoining properties and downstream elements from a catastrophic spill? Have NYSDEC heightened stormwater requirements been considered?

Response 7: *The analysis of impacts in the DEIS and FEIS examined a broad range of threats to water quality that could reasonably be expected from the project. The Stormwater Pollution Prevention Plan, and proposed off-site stormwater treatment measures, far exceed current regulatory requirements. We note that NYSDEC has not adopted the "heightened stormwater treatment requirements" set forth in Draft General Permit for Stormwater Discharges GP-0-08-001. However, the Applicant's engineer has reviewed the SWPPP and site development plans to ensure that the project can comply with the proposed permit.*

Comment 8 (letter from Cornerstone Associates, January 9, 2008): The existing vegetation should be shown in the plans. This is necessary to develop pre-construction run-off curve numbers.

Response 8: *Existing vegetation on the project site was identified in Section 4.7 of the DEIS which noted that the site consists almost entirely of successional deciduous woodland with limited brushlands. These vegetation communities were shown on DEIS Figure 4.7-1, Aerial Photograph of Project Site.*

A curve number (CN) is an empirical parameter used for predicting direct runoff and it is based upon the ground cover and hydrologic soil group in each subcatchment. The CN characterizes the runoff properties in each subcatchment based upon these particular soils and ground covers. The CN value is a primary input parameter for the SCS runoff equation, as used in HydroCAD.

The pre-construction curve numbers used in determining pre-construction runoff characteristics for the Patterson Crossing Retail Center project were developed by the project engineer and based on the existing ground cover, soil types and land use on the project site. Table 1, below, identifies the CNs utilized in the SWPPP to determine pre-construction runoff characteristics, and the land use/ground cover and hydrologic group of each soil, upon which each CN is based.

Table 1 Curve Numbers (CN)	
Land Use/Ground Cover/Soil Group	CN Value
>75% Grass Cover, C Soil	
Woods, C Soil	70
1-Acre Lots 20% Impervious, C Soil	79
Suburban Shopping Center, C Soil	94
Paved Parking and Roofs	98

Comment 9” (letter from Cornerstone Associates, January 9, 2008): There is no analysis of the wetland buffer impacts and proposed mitigation. Stormwater discharge to the indicated intermittent watercourse has not been analyzed for erosion potential.

Response 9: *DEIS and FEIS Sections 4.6 (Wetlands) included a detailed analysis of the potential direct, and indirect, impacts on Town and Federally regulated wetlands, wetland buffers, watercourses, and waterbodies associated with erosion and sedimentation, post construction changes in stormwater discharge, alteration of the natural wetland hydrology, changes to existing streams on the site, and water quality in Lake Carmel.*

The DEIS and FEIS disclose that the one on-site wetland is not regulated by the Town of Kent or the NYSDEC, but rather only by the US Army Corps of Engineers (ACOE). The wetland would not be directly impacted by any proposed activity. In addition, no activities are proposed within 100-foot of the wetland, (there is no regulated buffer for ACOE wetlands) therefore no direct impacts on the wetland or its buffer are anticipated. Accordingly there is no permit required from the ACOE.

The DEIS and FEIS further concluded that implementation of the stormwater management facilities specified in the project SWPPP would prevent indirect impacts on the wetland, or its buffer, associated with erosion and sedimentation during construction, and post construction changes in the peak rates of stormwater discharge or pollutant loading.

DEIS and FEIS Section 4.5, Surface Water, identified how the stormwater mitigation measures proposed in the SWPPP would further protect and preserve the wetland, the watercourses on the site, and water bodies down gradient of the project site, from thermal impacts, water quality impacts, nutrient loading, erosion and sedimentation.

Finally, the FEIS further describes, in detail, how stormwater will be collected from Concord Road, detained in stormwater management Pond 3.4 then discharged back into the watercourse at non-erosive velocities that would prevent further erosion of the channel.

Comment 10 (letter from Cornerstone Associates, January 9, 2008): The project directly abuts a densely developed residential community in which residents depend on the continued adequate supply of clean potable water from individual wells. In addition, the project is located within a TMDL phosphorus restricted basin and therefore potentially impacts the drinking water supply to residents of the city of New York. The area is also tributary to a 303(d) listed impaired water body (Lake Carmel) which is an important recreational resource to area residents. Other than proposed 25' and 50' wide reservation areas, the plans do not contain adequate information to determine if all impacts have been fully identified, assessed as unavoidable and adequately mitigated.

Response 10: *The Applicant prepared a DEIS in response to a Positive Declaration issued by the Town of Patterson. The DEIS scope was established by a scoping outline developed by the Patterson Planning Board, acting as lead agency, in cooperation with all other involved agencies and interested parties. The accepted scope outlining the information to be covered in the DEIS as adopted on April 14, 2005 is provided in Appendix A of the DEIS.*

The DEIS was originally submitted to the Town of Patterson on November 30, 2005 for completeness review. Based upon comments received from the lead agency and its consultant, the Applicant submitted a revised DEIS to the Planning Board on May 24, 2006; additional revisions were made and the DEIS was submitted again on July 27, 2006. The lead agency reviewed the DEIS for adequacy with respect to its scope and content for the purpose of public review, and issued a Notice of Completion for the DEIS and a Notice of SEQRA Hearing on July 27, 2006. The Planning Board conducted Public Hearings on the DEIS on September 13 and September 14, 2006. The open written public comment period was closed on September 25, 2006.

This FEIS, prepared pursuant to the State Environmental Quality Review Act (SEQRA), provides responses to agency and public substantive comments received by the lead agency on the DEIS prepared for the Patterson Crossing Retail Center project. The FEIS has been prepared in accordance with Section 8-0101, et. seq. of the Environmental Conservation Law and the regulations promulgated by NYSDEC thereunder, which appear at 6 NYCRR, Part 617.

In accordance with SEQRA, the Patterson Crossing Retail Center DEIS and FEIS fully analyzed, and disclosed all potential adverse environmental impacts, including those on Geology, Soils, Topography, Groundwater, Surface Water, Wetlands, Streams and Waterbodies, Vegetation and Wildlife, Traffic and Transportation, Noise, Utilities, Community Services and Facilities, Socioeconomics, Cultural Resources, Cumulative Impacts, and Air Quality. The DEIS and FEIS also examined Alternatives, Adverse

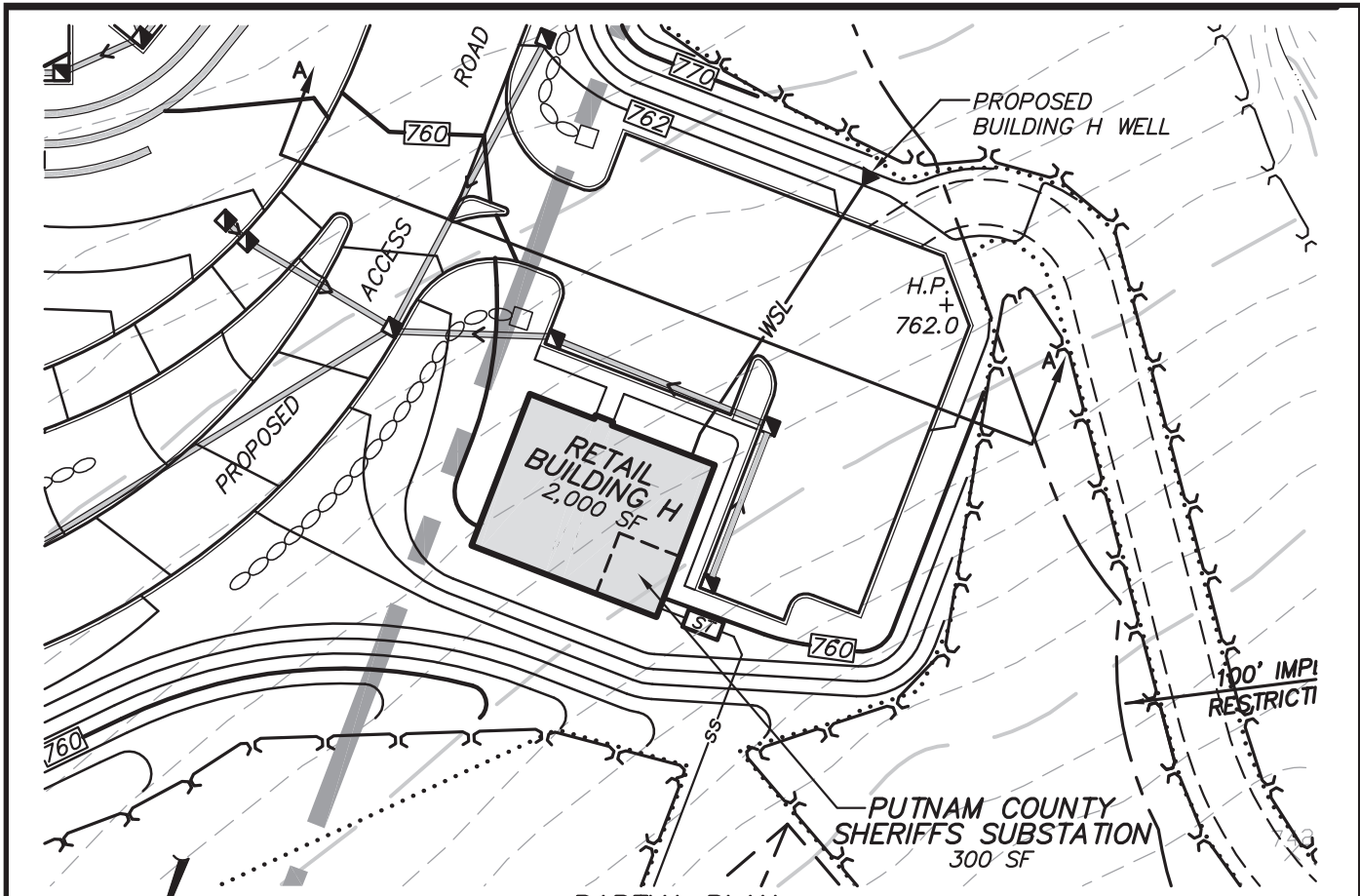
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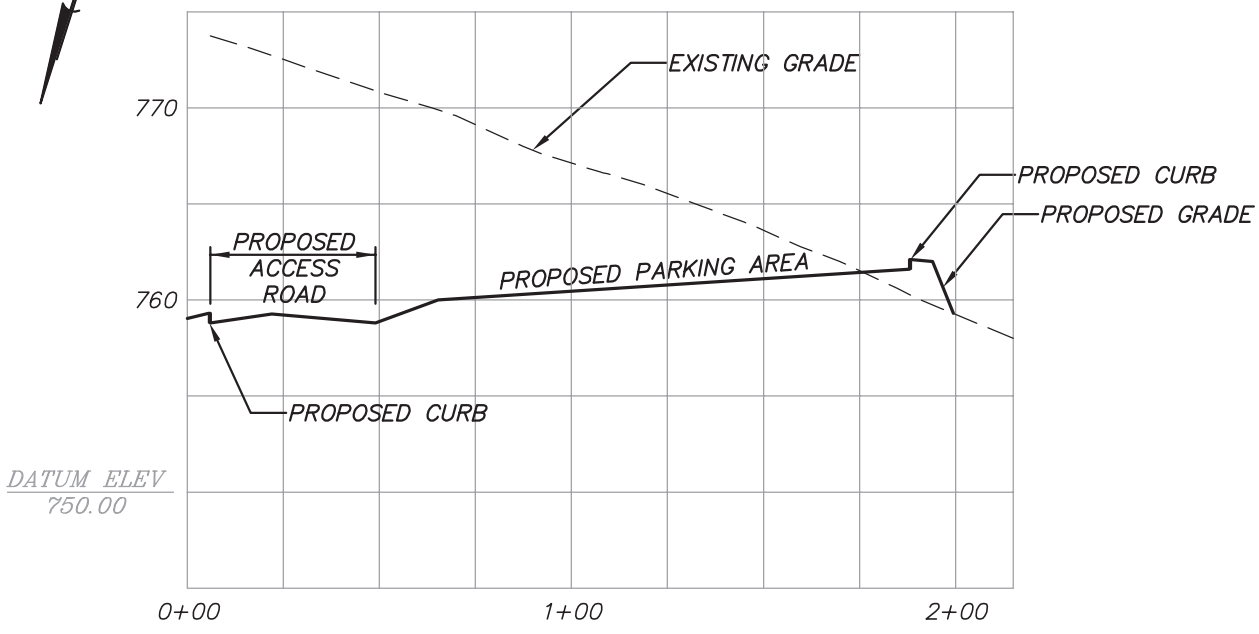
Environmental Effects that Cannot be Avoided, Irreversible and Irretrievable Commitments of Resources and Growth Inducing Impacts.

Combined, the DEIS and FEIS contained well over two hundred tables and figures, as well as seventeen appendices including SEQRA Documentation, Correspondence & Contacts, Retail Market Data, Boring Logs and Boring Locations, Hydrogeology Investigation (Mounding Analysis), a Stormwater Pollution Prevention Plan, a Water System Report, Patterson Crossing Water Supply Report, Air Quality Technical Report, PART Bus Route, Traffic Study, a Wastewater Report, a Phase 1 Cultural Resources Report, Wetland Data Sheets, and a Blasting Mitigation Plan. Traffic Internal Analysis, Traffic Improvements, Patterson Crossing Plan Enhancements, 2002 Lake Carmel Water Quality Monitoring Report, Conformance of the Proposed Action with the Town of Kent Zoning Code, and Town of Kent Comments of January 2008 and Responses & Kent Site Plan Application.

The Applicant notes that in his January 9, 2008 correspondence to the Kent Planning Board, the commentor acknowledged that he was “aware that there have been prior submissions including the scoping document, DEIS, SWPPP, and FEIS” and that he has “...not reviewed these documents...” In the Applicant’s view, in the absence of a thorough review of the DEIS and FEIS and supporting materials, the views expressed by the commentor are unfounded.



PARTIAL PLAN
SCALE: 1" = 50'



SECTION A-A
SCALE: HORIZ. 1" = 50'
VERT. 1" = 10'

Figure Q-1
Patterson Crossing
Town of Patterson, Putnam County, New York
Source: Insite Engineering, Surveying & Landscape Architecture, P.C.
Date: 12/03/07

