

**REQUEST FOR GARDEN STATE PARKWAY
INTERCHANGE 20 NEEDS STUDY**

Township of Upper

Prepared by



April 2013

BACKGROUND

Upper Township in Cape May County has invested time and resources, with support from the State of New Jersey, to develop extensive plans for their future growth, including plan endorsement for two town centers, located in Marmora and Seaville. Additional studies have been performed to assess the capability of the transportation network and economic viability of the future plan goals. Within those efforts, there is a belief that that Upper Township and the Garden State Parkway (GSP) would benefit from the modification of GSP Interchange 20 from partial access to full access. The following provides information that supports the request and serves as the stimulus for the New Jersey Turnpike Authority (NJTA) to incorporate a GSP Interchange 20 Needs Study into their future program.

In obtaining center designation from the State Planning Commission, Upper Township chose to focus their development on US Route 9 in both Marmora and Seaville as shown in **Figure 1**. US Route 9 serves as a north-south regional corridor linking the coastal communities and the eastern coastline from Cape May to points in Northern New Jersey. Within Cape May County and

UPPER TOWNSHIP INFORMATION

Land Area: 68.5 sq. miles

Population: 12,373

Density: 181 people/ sq. mile

Profile:

- Northern most Cape May County municipality
- Completely within either the New Jersey Department of Environmental Protection (NJDEP) Coastal Zone, or the Pinelands Management Area
- Current Development: mostly rural with pockets of housing and highway oriented retail/services

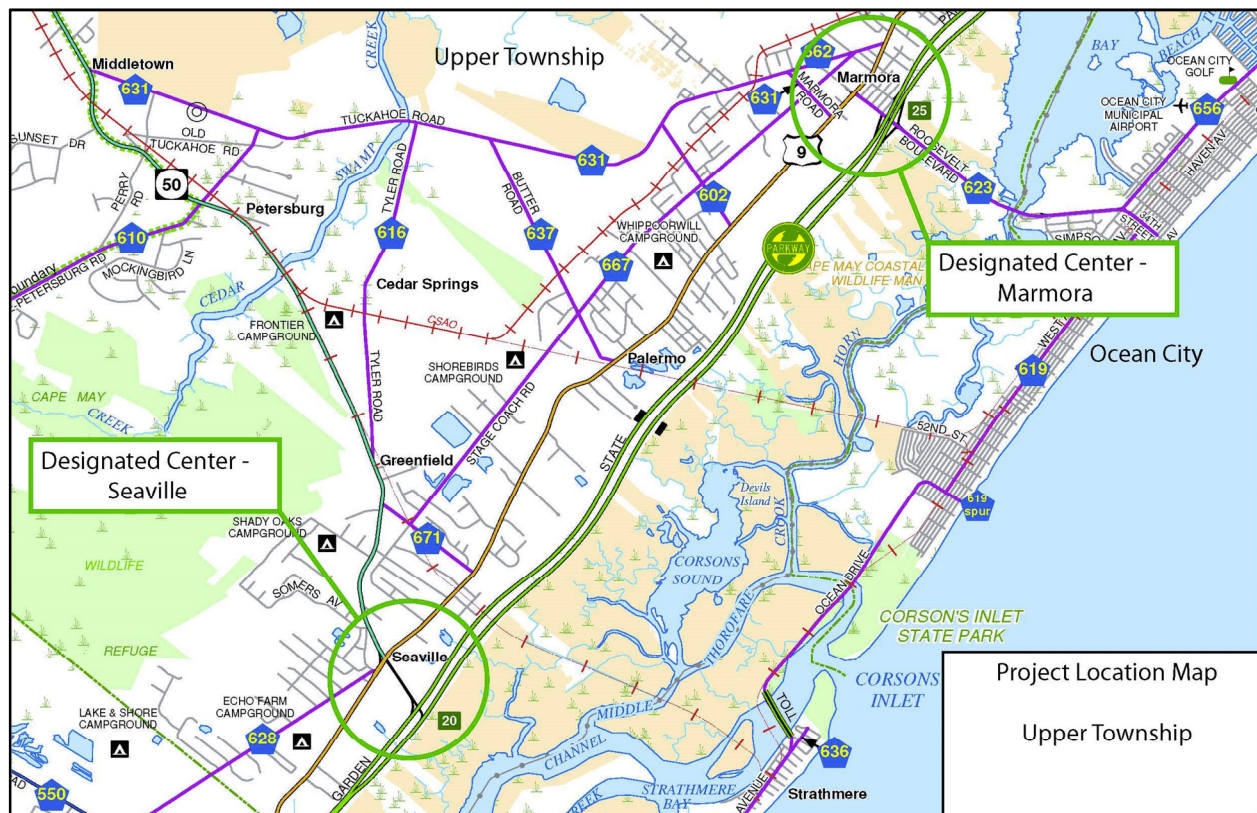


Figure 1 – Project Location Map

REQUEST FOR GARDEN STATE PARKWAY INTERCHANGE 20 NEEDS STUDY

Upper Township, US Route 9 is functionally classified as an Urban Minor Arterial and serves primarily as a local alternative to the Garden State Parkway (GSP). Access connections from US Route 9 to the GSP occur at Marmora (**Interchange 25 – Figure 2**), where full north and south access is provided and Seaville (**Interchange 20 – Figure 3**), where access to the GSP southbound and from the GSP northbound are available.



Figure 2 – Interchange 25



Figure 3 – Interchange 20

Currently there are limited options for regional access to and from the designated centers. This was further complicated by the permanent closure of the Beesley's Point Bridge, forcing Route 9 traffic to cross the Great Egg Harbor River using the GSP. This closure constrains access to Marmora entering from the north and leaving from the south, by forcing all vehicles through the interchange at Milepost (MP) 25. This interchange area is also burdened by eastbound access on Roosevelt Boulevard serving as the sole connection from Marmora to Ocean City. Both the GSP and US Route 9 provide regional access to and from the south. County and local roads connect with Route 50, which serves as the sole regional route to and from the west.

JUSTIFICATION

Upper Township views the need for a full access interchange at MP 20 as part of their larger development plan objectives. During the process of plan designation, their focus was to establish a growth scenario that centralized development and reduced the impact on environmental resources and the probability of sprawl. One of the primary reasons for locating centers in Marmora and Seaville was the proximity to GSP access. The following information is offered in support of the request.

Access

Currently the interchange at MP 20 provides access from the GSP northbound and to the GSP southbound but there's no access from the GSP southbound and to the GSP northbound. The present condition provides few choices for vehicles wishing to travel north from the Seaville region. The alternatives are drive north on Route 9 for 5 miles or enter the GSP southbound at

REQUEST FOR GARDEN STATE PARKWAY INTERCHANGE 20 NEEDS STUDY

MP 20, travel approximately 2 miles and turn around at the Ocean View Rest Area in order to head north. Within the length of the GSP south of the Great Egg Harbor River, full access occurs at MP 25, 17, 13, 11, 10, 9, 6, 4, and 0. Within that range, the distance between MP 25 and 17 nearly doubles the distance of the next largest separation.

Planned Development

Upper Township's future plans include development and redevelopment of an approximate 1-mile stretch of Route 9 near the intersection of Roosevelt Boulevard (CR 623). The planned development area is commonly referred to as the Marmora Village Center and includes transforming Route 9 into a traditional main street and creating a network grid roadway system to increase vehicular and pedestrian connectivity (**Figure 4**). To create the main street feel on Route 9, Upper Township applied for and was granted a change to the desirable typical section (DTS) for Route 9 between MP 23.2 and 29.2 from a four-lane section to a two-lane section.

The vision for a village center in Marmora requires a complete street network that is compatible with the adjacent proposed mixed-use development. The Master Plan Re-examination Report and the design for the center at Marmora have proposed buildings fronting on the street with parking in the rear and side which encourages pedestrian traffic between uses. The village center has a variety of land uses which create the base for the street network structure. The land uses include mixed-use blocks, comprised of buildings containing commercial retail on the first floor, office and commercial on the second and residential use in other buildings within the same block. Further from the hub of the village center, away from U.S. Route 9, there will be residential and retail only blocks (**Figure 4**).

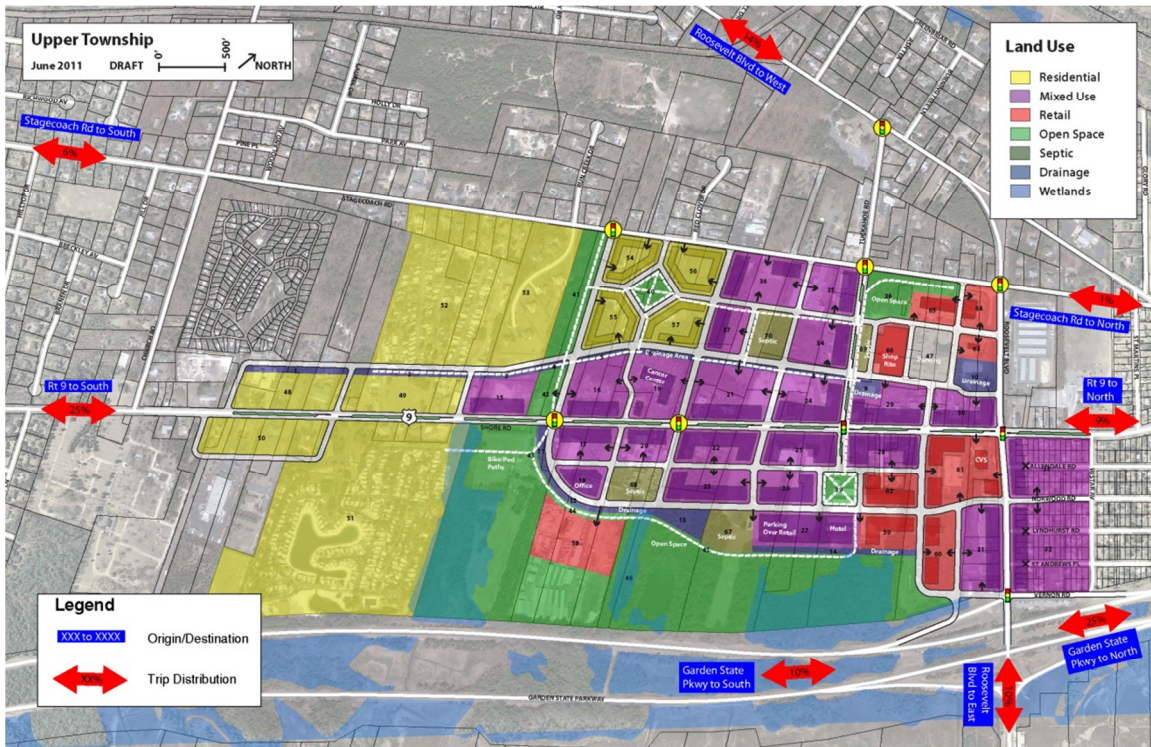


Figure 4 – Marmora Village Center Land Use Map

The Marmora Village Center has redevelopment potential of over 1.6 million square feet of office and commercial development and 1,300 residential units based on the May 2012 market and financial feasibility analysis of the Marmora Village Center (**Appendix A**).

Traffic Analysis

During the advancement of planning for future development of the centers, Upper Township recognized the need to incorporate a local and regional transportation network to support this growth. Due to Marmora being the more likely location for initial development, Upper Township focused the study of future growth and traffic patterns in that area.

The land use figure shows sites including complete redevelopment, partial redevelopment, and existing sites that are recently developed and are not anticipated to change under the Marmora Village Center redevelopment plan (or if they do they would be anticipated to generate a similar number of trips as the existing land use). Some of these existing sites include Shoprite, CVS, Plaza 9 strip mall, EconoLodge hotel, Cancer Center, Wawa, and Bayberry Cove residential development. After removal of these sites, and partial credit where applicable, the net developable area is 0.96 million square feet and 724 residential units. **Appendix B** includes trip generation information for the project including a table indicating the sites that were removed from the trip generation calculations.

After accounting for internal trip capture, the net PM peak hour trips generated by the developable land are 1287 entering and 1355 exiting. The Saturday (SAT) peak hour trips generated is estimated at 1554 entering and 1628 exiting after accounting for an estimated internal trip capture (using the same internal trip capture rate, 17% reduction, as was calculated for the PM peak hour). **Appendix B** contains AM, PM and SAT peak hour net trips generated.

A review of the existing travel patterns from Traffic Impact Studies submitted to Upper indicates that approximately 45% of the trips generated as a result of the proposed Marmora Village Center development will use the GSP Interchange 25 to access the site (see **Appendix C** for traffic flow figure). This results in a projected additional 1200 vehicles using the interchange in the PM peak hour and over 1430 vehicles in the SAT peak hour.

As part of Upper Township's request for a change in access classification, traffic analysis was completed for anticipated non-seasonal weekday conditions with the existing roadway volumes and proposed traffic associated with the Marmora Village Center. Based on existing traffic volumes, and net trips generated, the PM peak hour was designated as the controlling peak and selected for analysis. The traffic simulation analysis indicated that a two-lane Route 9 supported by the proposed roadway network could accommodate future traffic volumes with complete build-out of the Marmora Village Center. Although the scenarios indicated acceptable overall traffic operations, it is important to note that it was assumed that changes to the GSP southbound interchange ramps (i.e., providing for direct access to the southbound on-ramp from the site) are included in the proposed assumptions as a means to alleviate the projected congestion in and around the interchange. Additionally, it was noted that there's potential for substantial queuing on eastbound CR 623 for traffic turning left to access the northbound GSP on-ramp as the proposed Marmora Village Center is anticipated to add around

350 vehicles to the existing number of vehicles making this turn in the PM peak hour and over 400 vehicles during the SAT peak hour.

While the traffic analysis showed that it may be possible to mitigate most of the traffic impacts associated with non-seasonal traffic, it is not anticipated that seasonal conditions can be accommodated with the proposed roadway improvements as part of the Marmora Village Center.

In addition to the seasonal influx of traffic travelling to and from Ocean City, there's a large increase in traffic in and around Interchanges 20 and 25 as a result of campground activity. There are 1479 campground sites in Seaville and Greenfield that would utilize Exit 20, and there are another 1039 sites in Marmora and Palermo that utilize Exit 25. The number of campground sites in Seaville and Greenfield is comparable to the number of residential properties (approximately 1366) in these areas.

As a result of the influx of seasonal visitors, conditions at GSP Interchange 25 remain congested through large windows of time during the summer. Queues along Route 9, Tuckahoe Road and Roosevelt Boulevard extend for significant distances, exceeding reasonably acceptable conditions. Since the existing summer conditions cannot be accommodated by the roadway network, it is reasonable to assume that the additional estimated 1200+ peak hour vehicles accessing the interchange during the summer season will only further magnify the impacts on both local and regional roads including the GSP mainline as traffic exiting from the GSP southbound exit ramp at Interchange 25 queues back to the mainline.

CONCLUSIONS

From the results of the traffic analysis, we would expect that a full access interchange at MP 20 would show modest benefits (from an overall congestion/delay standpoint) for the non-seasonal weekday condition, although as mentioned, the proposed Marmora Village Center is anticipated to add over 1200 vehicles to the interchange during the PM peak hour. The need for an interchange at MP 20 is more strongly based on seasonal situations where the existing conditions (queues, travel times, delays, etc.) are substantial and will impact regional traffic on the GSP as well as local roads. The additional trips, as a result of the Marmora Village, will only further exacerbate the existing conditions to the point where it would be expected to have a major impact on access to/from the GSP Interchange 25.

As a result of the planned development, there's a clear need to evaluate both improvements to Interchange 25 as well as improvements at Interchange 20. The existing interchange configuration and physical conditions at Interchange 25 are anticipated to limit the amount of improvements that can be made to accommodate the additional traffic projected. There's limited ability to increase capacity of the existing interchange, whereas improvements at Interchange 20 would "remove" traffic from Interchange 25, thereby reducing the demand at the interchange and the magnitude of improvements needed at Interchange 25.

Interchange 20 Needs Study - Appendix A
Economic Analysis

**Marmora Village Center
Market and Financial Feasibility Analysis
Upper Township, New Jersey**

Final Report

**Submitted to Upper Township, NJ
May 2012**



REPORT ORGANIZATION

Executive Summary	page 3
Section I – Market Analysis	page 5
Section II – Case Study Analysis	page 22
Section III – Peer Review	page 38
Section IV – Development Recommendations	page 40
Section V – Financial Feasibility & Incentives	page 48



Executive Summary

Green Door Advisors (GDA) was retained by Upper Township (Upper) and its partners, the New Jersey Department of Transportation and the Municipal Land Use Center at the College of New Jersey, to provide an economic assessment for the Marmora Village Center (Marmora) in the Township of Upper, located in Cape May County in Southern New Jersey. The Township of Upper is seeking to leverage its market position as a primarily inland community adjacent to New Jersey's southern shore resort communities to create a walkable traditional downtown that attracts residents, businesses, and visitors, and increase the economic base of the township.

Through this economic analysis GDA identified a market opportunity to create a mixed-use restaurant anchored Marmora Village Center on Route 9 South between Roosevelt Boulevard and Tuckahoe Road. The proposed village center is concentrated around existing retail uses and proximate to Exit 25 on the Garden State Parkway and the Roosevelt Boulevard access point for Ocean City. This strategic location allows future development to leverage existing retail activity in a highly visible and accessible location for tourists and residents. Based on an analysis of tourism, resident demographics, and existing supply, GDA estimated that there is sufficient market demand to support a restaurant-anchored village center with additional ground floor retail and office or residential uses above, along with a 100 key (room) hotel in the late stages of development. A significant portion of this demand is driven by the strong tourist base within Cape May County and the southern portion of Atlantic County. Laws prohibiting the sale of alcohol within Ocean City create a strong opportunity for a restaurant-anchored village center in Marmora to capture this unmet demand and become a local destination for tourists and residents alike, but will be enhanced by additional flexibility in liquor licenses to provide ample support for new restaurants.

The market demand can support several short-term redevelopment projects that will begin to transform the character and density within the proposed Marmora Village Center. In addition to these potential redevelopment projects, the investment in streetscape, open space, pedestrian connections, and infrastructure will be an important component to creating a vibrant and walkable village center. A walkable environment will also be achieved through design standards and development plans, including planning surface parking at the rear of buildings, establishing a mix of uses in one-story to three-story developments, redeveloping underused buildings and parking lots, and concentrating new development in one area.

GDA has provided redevelopment recommendations for five priority sites along Route 9 South, from the intersection with Roosevelt Boulevard to Tuckahoe Road. These sites include site A, a restaurant-anchored mixed-use development at the corner of Route 9 South and Roosevelt with office space on the second floor. The other recommended mixed-use developments on Route 9 South are site C and site E, both of which propose two floors of residential units above ground-floor retail space. Two sites, B and D, recommend single-story retail development to accommodate the existing retail demand within the Village Center. GDA recommends that these single-story retail developments include rear-parking and other design features to create a walkable, and less suburban-style environment.

GDA also provided recommendations for three additional parcels that present an opportunity for mid-term and long-term development. GDA recommends 2-3 stories of residential units above ground floor retail for each of these additional sites, increasing density and activity within the village center. Finally, one site is reserved for development of a mid-scale branded hotel of approximately 100 rooms. The redevelopment



recommendations for each of the priority, mid-term, and long-term sites are included in the following table, and are discussed in more detail throughout this report.

2012-2022 Marmora Village Center Recommended Redevelopment Program

ADDRESS	Development Recommendations	Ground Floor Retail SF	2nd Floor Retail	2nd Floor Office	Approx. Res. Units	Hotel Keys/SF
A 4 Route US 9 South	Ground floor retail	13,500	3,500	10,000	N/A	N/A
B 10 Route US 9 South	Single-story retail	3,500	N/A	N/A	N/A	N/A
C 11 Route US 9 South - Part	Multi-family residential (condos) above ground floor retail	12,000	N/A	N/A	24	N/A
D 11 Route US 9 South - Part	Single-story retail	18,000	N/A	N/A	N/A	N/A
E 29 33 Route US 9 South	Multi-family residential (apts) above ground floor retail	10,000	N/A	N/A	20	N/A
PRIORITY SITES TOTAL:		57,000	3,500	10,000	44	
Mid-Term Opportunity Site (2015-2017):						
F 35 47 Route US 9 South	Multi-family residential above ground floor retail	13,000	N/A	N/A	26	N/A
Long-Term Opportunity Site (2017-2022):						
G 11D Route US 9 South	Multi-family residential above ground floor retail	20,000	N/A	N/A	40	N/A
H 11 Kahoe and Norwood Rds, adjacent to open space	Hotel with restaurant	N/A	N/A	N/A	N/A	100
MID-TERM AND LONG-TERM SITES TOTAL:		33,000	N/A	N/A	66	100
TOTAL RECOMMENDED DEVELOPMENT:		90,000	3,500	10,000	110	100

The total anticipated demand over the next 15 years is shown on the following table, including totals for the 5-year increments. While this table demonstrates total market demand, the amount of feasible development is constrained by land availability, zoning and height restrictions, availability of 2nd story uses for mixed-use development, and developer expectations for lease-up or sales horizons. GDA reflected this ongoing demand by providing recommendations for 3 priority development sites, as well as mid-term and a long-term redevelopment sites.

Total Marmora Market-Supportable Development (Demand-Driven, excluding hotel), 2012-2026

Market Supportable New Development: 5-Year Totals				
	2012-2016	2017-2021	2022-2026	Total
For-Rent Housing	166	173	231	570
For-Sale Housing	135	140	140	415
Total Units	301	313	371	985
Office SF	0	1,450	850	2,300
Retail SF	77,200	6,000	22,000	105,200
Total Commercial SF	77,200	7,450	22,850	107,500

Interchange 20 Needs Study - Appendix B
Trip Generation

Land Use

Residential

Mixed Use

Retail

Open Space

Septic

Drainage

Wetlands

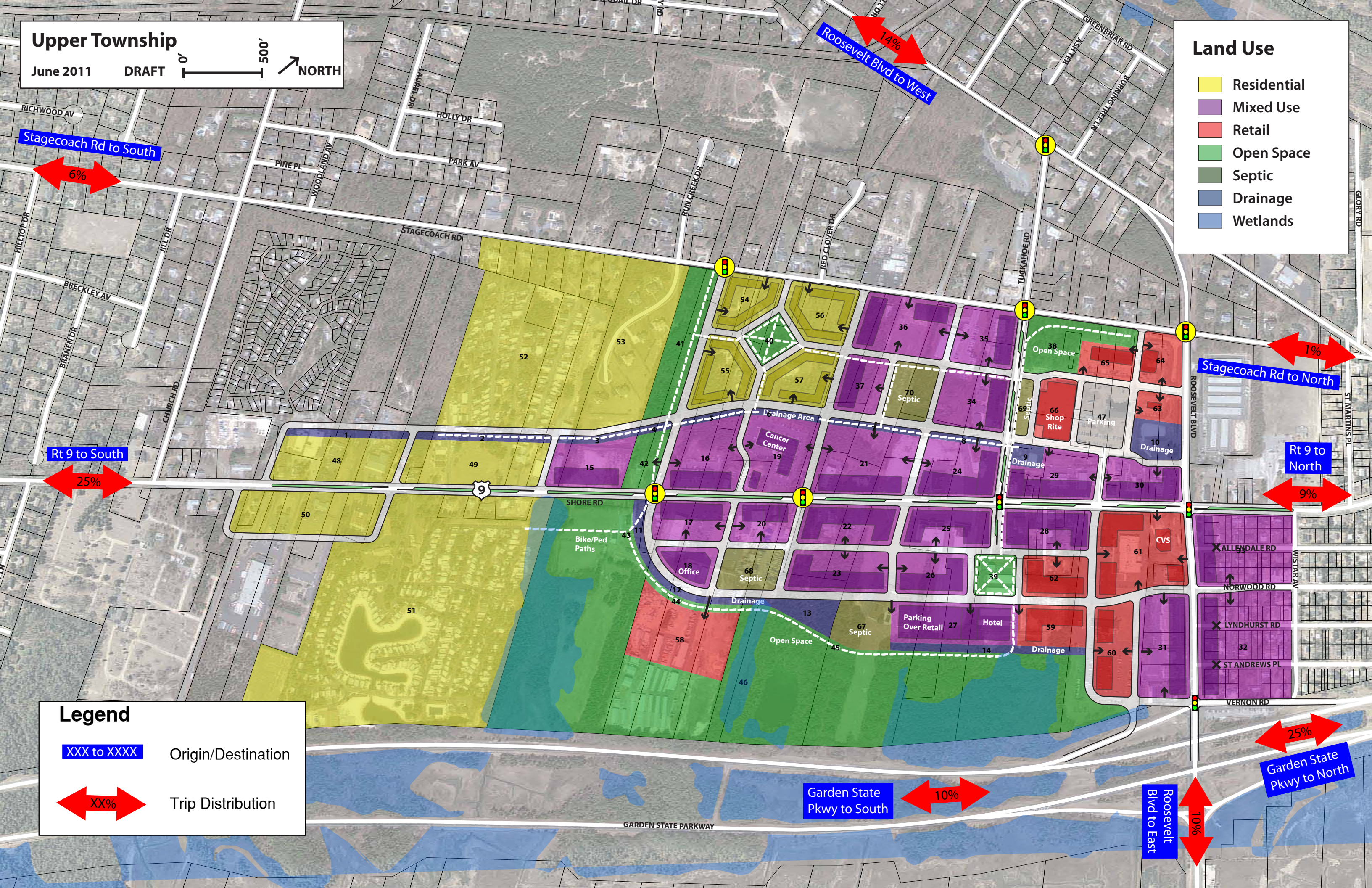
Legend

XXX to XXXX

Origin/Destination

XX%

Trip Distribution



Upper Township - Form Based Code

Trip Generation Analysis

LU Map				Existing Site Information			Total Net Developable Area		Total Net Developable Area Percentage		Total Net Trip Generation			Total Net Trip Generation Per Site			
ID	Type	Bldg_Area	Res_Units	LU Credit Full/Partial/None	Land Use	Trip Credit	Bldg	Res Units	Bldg	Res Units	Enter	Exit	Total	Site ID	Enter	Exit	Total
15	MixedUse	40,873	13	None	Empty	0%	40,873	13	4%	2%	51	56	107	15	51	56	107
16	MixedUse	54,403	17	Full	No Change	100%								13			
17	MixedUse	33,533	10	Full	Plaza 9	100%								12	26	29	55
18	MixedUse	21,017	6	None	Boat Storage	0%	21,017	6	2%	1%	26	29	55				
19	MixedUse	55,389	17	Full	No Change	100%											
20	MixedUse	27,229	8	Full	Plaza 9	100%											
21	MixedUse	69,990	20	Full	No Change	100%								9	60	66	126
22	MixedUse	43,424	14	None	Commercial	0%	43,424	14	5%	2%	54	59	113	8	162	177	339
23	MixedUse	47,218	14	None	Empty	0%	47,218	14	5%	2%	58	64	122				
24	MixedUse	48,287	15	None	Commercial	0%	48,287	15	5%	2%	60	66	126				
25	MixedUse	39,836	13	None	Empty Dealership	0%	39,836	13	4%	2%	50	54	104				
26	MixedUse	33,742	10	Full	Econo Lodge	100%											
27	MixedUse	70,279	350	None	Empty	0%	70,279	350	7%	48%	164	134	298	6	221	199	420
28	MixedUse	40,192	13	Partial	1/2 credit	50%	20,096	7	2%	1%	25	27	52	7	79	88	167
29	MixedUse	43,003	14	Full	No Change	100%								4			
30	MixedUse	34,487	11	Full	Commercial	100%											
31	MixedUse	60,365	11	Full	No Change	100%								2	71	80	151
32	MixedUse	116,151	20	Partial	Commercial/Res.	25%	87,114	15	9%	2%	105	117	222	1	178	198	376
33	MixedUse	79,749	20	Partial	Residential	25%	59,812	15	6%	2%	73	81	154				
34	MixedUse	44,527	14	Partial	Commercial Strip Mall	32%	30,227	10	3%	1%	38	41	79				
35	MixedUse	39,782	12	Partial	Commercial	37%	24,982	8	3%	1%	31	34	65	10	179	196	375
36	MixedUse	60,635	18	None	2 small buildings	0%	60,635	18	6%	2%	75	83	158				
37	MixedUse	28,097	9	None	Empty	0%	28,097	9	3%	1%	35	38	73				
48	Residential		5	Full	Commercial	100%								19			
49	Residential		5	None	Res/Empty	0%		5		1%	1	1	2	17	1	1	2
50	Residential		5	None	Commercial	0%		5		1%	1	1	2	18	1	1	2
51	Residential		307	Full	No Change	100%											
52	Residential		132	Full	NC	100%											
53	Residential		14	Partial	7 single fam. Houses	50%		7		1%	2	1	3	16	2	1	3
54	Residential		50	None	8 single family houses	0%		50		7%	12	6	18	14	48	24	72
55	Residential		50	None		0%		50		7%	12	6	18				
56	Residential		50	None		0%		50		7%	12	6	18				
57	Residential		50	None		0%		50		7%	12	6	18				
58	Retail	114,398		None	Storage Units	0%	114,398		12%		134	152	286	11	134	152	286
59	Retail	48,730		None	Empty	0%	48,730		5%		57	65	122				
60	Retail	60,508		None	Commercial	0%	60,508		6%		71	80	151				
61	Retail	121,428		Partial	3/4 credit	75%	30,357		3%		35	40	75	3	35	40	75
62	Retail	46,318		None	1 house	0%	46,318		5%		54	61	115				
63	Retail	22,195		Full	No Change-Drive Thru	100%											
64	Retail	36,212		None	Empty	0%	36,212		4%		42	48	90	5	42	48	90
65	Retail	31,832		Full	Stripmall/pharmacy	100%											
66	Retail	38,832		Full	Shoprite - NC	100%											
Res		-	1,317				-	724	-	100%	-	1,356					
Mixed Use		1,132,207	-				621,896	-	65%	-	845	-					
Retail		520,452	-				336,522	-	35%	-	393	-					
Total		1,652,659	1,317				958,418	724	100%	100%	1,290	1,356					

Site ID	Enter	Exit	Total
1	178	198	376
2	71	80	151
3	35	40	75
4	0	0	0
5	42	48	90
6	221	199	420
7	79	88	167
8	162	177	339
9	60	66	126
10	179	196	375
11	134	152	286
12	26	29	55
13	0	0	0
14	48	24	72
15	51	56	107
16	2	1	3
17	1	1	2
18	1	1	2
19	0	0	0

Notes:

- Trip credit partial percentages existing square footages, number of existing residential units, or engineering judgement

- Assumed that Mixed Use (621,896 sf) is 85% Retail and 15% Office for trip generation purposes

TRIP GENERATION - Upper Township Form Based Code

Entire Project Area

Land Use	Type	Square Footage	Units	AM PEAK					PM PEAK				
				IN		OUT		TOTAL	IN		OUT		TOTAL
820	Shopping Center	1,482,828	0	461	61%	295	39%	756	1898	49%	1976	51%	3874
715	Single Tennant Office	169,831	0	271	89%	34	11%	305	44	15%	249	85%	293
230	Residential Condominiums/Townhouse	0	1,317	69	17%	337	83%	406	334	67%	164	33%	498
TOTAL ADDITIONAL TRIPS		1,652,659	1,317	801	-	666	-	1467	2276	-	2389	-	4665

Entire Project Area with reductions for existing land uses (i.e., CVS, Shoprite, Residential Development)

Land Use	Type	Square Footage	Units	AM PEAK					PM PEAK				
				IN		OUT		TOTAL	IN		OUT		TOTAL
820	Shopping Center	865,133	0	336	61%	215	39%	550	1323	49%	1377	51%	2700
715	Single Tennant Office	93,284	0	158	89%	20	11%	178	27	15%	150	85%	177
230	Residential Condominiums/Townhouse	0	724	43	17%	209	83%	252	204	67%	101	33%	305
TOTAL ADDITIONAL TRIPS		958,418	724	537	-	444	-	980	1554	-	1628	-	3182
TOTAL ADDITIONAL TRIPS AFTER INTERNAL CAPTURE				482	-	396	-	878	1287	-	1355	-	2642
INTERNAL TRIP CAPTURE PERCENTAGE				10%	-	11%	-	10%	17%	-	17%	-	17%

Trip Generation Source: ITE Trip Generation Manual, 8th Edition

USE	AM Peak	PM Peak	Comments
820	$\text{Ln}(T) = 0.59 \text{Ln}(X) + 2.32$	$\text{Ln}(T) = 0.67 \text{Ln}(X) + 3.37$	Peak hour of Adjacent Street, 1000 Square Feet Gross Leasable Area
715	$T = 1.66(X) + 22.94$	$T = 1.52(X) + 34.88$	Weekday, AM/PM Peak Hour
230	$\text{Ln}(T) = 0.80 \text{Ln}(X) + 0.26$	$\text{Ln}(T) = 0.82 \text{Ln}(X) + 0.32$	Peak hour of Adjacent Street, Dwelling Units

Notes:

Internal trip capture assumes 5% transit credit and 2% non-motorized credit

TRIP GENERATION - Upper Township Form Based Code

Entire Project Area

Land Use	Type	Square Footage	Units						SAT peak				
				IN		OUT		TOTAL	IN		OUT		TOTAL
820	Shopping Center	1,482,828	0						2571	52%	2374	48%	4945
715	Single Tennant Office												
230	Residential Condominiums/Townhouse	0	1,317						230	54%	196	46%	425
TOTAL ADDITIONAL TRIPS		1,482,828	1,317	0	-	0	-	0	2801	-	2570	-	5370

Entire Project Area with reductions for existing land uses (i.e., CVS, Shoprite, Residential Development)

Land Use	Type	Square Footage	Units						SAT Peak				
				IN		OUT		TOTAL	IN		OUT		TOTAL
820	Shopping Center	865,133	0						1812	52%	1672	48%	3484
715	Single Tennant Office												
230	Residential Condominiums/Townhouse	0	724						137	54%	116	46%	253
TOTAL ADDITIONAL TRIPS		865,133	724						1949	-	1788	-	3737
TOTAL ADDITIONAL TRIPS AFTER INTERNAL CAPTURE									1618	-	1484	-	3102
INTERNAL TRIP CAPTURE PERCENTAGE									17%	-	17%	-	17%

Trip Generation Source: ITE Trip Generation Manual, 8th Edition

USE		SAT Peak	Comments
820		$\text{Ln}(T) = 0.65 \text{Ln}(X) + 3.76$	Saturday, Peak Hour of Generator, 1000 Square Feet Gross Area
715		No Data	
230		$T = 0.29(X) + 42.63$	Saturday - Peak Hour of Generator, Dwell units

Notes:

Internal trip capture assumes 5% transit credit and 2% non-motorized credit

Interchange 20 Needs Study - Appendix C
Traffic Flow Figure

Land Use

Residential

Mixed Use

Retail

Open Space

Septic

Drainage

Wetlands

Legend

XXX to XXXX

Origin/Destination

XX%

Trip Distribution

XX

Site

9

Signalized Intersection

122

Unsignalized Intersection

* NOTE: Sites 51 and 52 are existing developed residential areas that will generate no additional trips.

