To: **Town of Stillwater DGEIS Technical Team**
From: **Chris Round, Sr. Planner**
Subject: **Final - Technical Memorandum No. 1**
DGEIS Buildout/Growth Projections-
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Buildout Analysis

Introduction

A buildout analysis is an estimate of the overall development potential of a land area given a set of assumptions and constraints. The analysis in this case is the buildout potential of the entire Town of Stillwater. The buildout estimates will provide the basis for estimating growth that will occur in the Town over a ten (10) year period (2007-2017).

Utilizing the Town's zoning regulations, as well as environmental and regulatory constraints an estimate of the total number of residential dwelling units and the floor area of commercial/industrial space was prepared.

The analysis was performed utilizing ArcGIS (geographic information software) and data supplied by the Town, Saratoga County and the NYS GIS Clearinghouse. It should be understood that the data available for this analysis is not detailed enough to allow parcel specific estimates but is suitable for preparing this landscape level estimate.

Zoning

The Town is divided into eight (8) zoning districts with varying permissible densities. A copy of the Town's zoning map is attached as Figure 1. Residential development is allowed in five (5) of the eight districts and the balance of the zones allow commercial, office, or industrial development. A list of the districts is presented in Table 1 and a summary of the allowed uses follows.

Table 1: Zoning Districts

District Code	District Name
RR	Rural Density Residential District
LDR	Low Density Residential District
RM	Moderate Density Residential District
RRD	Residential Resort District
B-1	Neighborhood Business District
B-2	General Business District
ID	Industrial District
PDD	Planned Development District

Permissible Uses by District

Rural Density Residential District (RR) – Single and two-family dwellings, farm worker housing, mobile homes, bed and breakfasts, agricultural uses, animal harboring, mobile homes, and home occupations, public and semi-public uses, small animal hospital or kennel, sand/gravel/soil removal and processing, and commercial greenhouses.

Low Density Residential District (LDR) – Single and two-family dwellings, farm worker housing, bed and breakfasts, commercial greenhouses, farms, animal harboring, and home occupations, boarding houses, public and semi-public uses, sand/gravel/soil removal and processing, and small animal hospital or kennel.

Moderate Density Residential District (RM) – Single family, two-family dwellings, three and four family dwellings, home occupations, boarding houses, and public and semi-public uses.

Residential Resort District (RRD) – Single family dwelling, bed and breakfasts, restaurants, taverns, seasonal dwelling, parks, private recreational areas, and places of worship. Minimum lot size is 21,750 square feet.

Neighborhood Business (B-1) – Retail stores, personal services, offices, banks, gasoline stations, shopping plazas, studios, enclosed entertainment facilities, restaurants, taverns, commercial garages, public and semi-public uses, funeral homes, and single or two-family homes.

General Business (B-2) – Non-residential uses permitted in B-1, movie theaters, amusement uses, motor vehicle service and sales, bed and breakfasts, commercial greenhouses, convenience stores, day care centers, farm and construction equipment sales, commercial garages and carwashes, fast food restaurants, funeral homes, galleries, hotels and motels, social clubs and organizations, and wholesale businesses and storage.

Industrial District (ID) – Auto body shops, asphalt plants, bulk storage, freight or trucking terminals, heavy and light industrial manufacturing or processing, research and development, sand/gravel/soil removal and processing, warehousing, bulk fuel storage, adult uses, contractors yards, and junkyards. Uses that exceed environmental contamination thresholds established in the performance standards are prohibited.

Planned Development District (PDD) – This district requires rezoning by the Town Board and enables land use to be more flexible and permits a greater mix of uses, primarily to enable a higher density of structures on the property in order to provide larger green space in the remaining portions of the property. However, uses may include residential, commercial and industrial; design requirements are intended to provide a unique and beneficial development community.

Table 2 presents the permitted density in each of the Town's zoning districts. Density for the residential districts is expressed as minimum lot size and dwelling unity per acre. Commercial and industrial densities are expressed as floor area ratio.

Table 2 Zoning Districts & Permissible Densities

Symbol	Zoning District	Minimum Lot Size/ Land Area Per DU.	Residential Density (DU/Acre)	Commercial FAR
B-1	Neighborhood Business District	10,000 ft.^{2}	4.356	0.4
B-2	General Business District	6,000 ft.^{2}	7.26	0.4
ID	Industrial District	1 acre	1	0.4
LDR	Low Density Residential District	--		
	No Water + No Sewer	2 acres	0.5	--
	Water + Sewer	1 acre	1	--
	Water Or Sewer	1.5 acres	0.666	--
PDD	Planned Development District	Flexible	--	--
RM	Moderate Density Residential District			
	No Water + No Sewer	1 acre	1	--
	With Water And Sewer	10,000 ft.^{2}	4.356	--
	With Water Or Sewer	20,000 ft.^{2}	2.178	--
R-R	Rural Residential District	2 acres	0.5	--
RRD	Residential Resort District	21,750 ft.^{2}	2.002	--

DU: Dwelling Unit

FAR: Floor Area Ratio

The LDR and RM zones allow for increased development with the addition of public water or sewer facilities. This is important to note because the extension of water and/or sewer may occur in certain areas of the Town during the evaluation period contemplated in this GEIS. To address this issue two (2) buildout scenarios are to be completed:

- **Scenario A**- The Baseline buildout (no extension of infrastructure).
- **Scenario B**- Allowing for expanded water/sewer service areas.

Development Assumptions

For the purpose of the buildout analysis the following assumptions were utilized:

- Certain lands were excluded from future development based on current use or ownership. This information was collected from the real property

assessment tax roll property classification. Examples include cemeteries, landfills, public parks, and lands protected by conservation easements.

- Lands where development is currently proposed or approved were excluded. This includes projects approved but not built and projects currently under the review of the Planning Board. The Luther Forest Technology Campus (LFTC) was excluded under this category. A summary of projects in the "Development Pipeline" is presented in the Growth Projections section of this analysis. The buildout and growth projections will utilize the actual number of units proposed or approved.
- Certain residential lands, already developed to some extent, may be available for future development. Lands located in residential zones already occupied by a residence (or farm) are considered underdeveloped or underutilized if the area of the parcel exceeds five (5) times the minimum lot size after allocating land for the existing residence.
- Lands located in commercial zones that is already developed or occupied by a commercial development were evaluated on a parcel by parcel basis. The assumption is that in an active development climate, underutilized commercial properties will be redeveloped and trend toward maximum utilization.

Regulatory/Environmental Constraints

Certain environmental and regulatory constraints reduce density or effectively restrict development from occurring. The following environmental/regulatory constraints were applied to lands that were vacant or considered underutilized:

- Slopes greater than 15%,
- NYSDEC wetlands and 100 foot buffer (upland area),
- National Wetland Inventory (NWI) wetlands,
- 100-Year FEMA floodplains,
- Regulated streams including a 50 foot buffer,
- Areas outside of existing sewer districts where depth to bedrock is <26 inches.

A composite of the environmental constraints is presented as Figure 2. The resultant land areas available for development are presented in Table 3.

Table 3: Unconstrained Land by Zoning District

Symbol	Zoning District	Total Area (Acres)	Unconstrained Area Available for Development (Acres)
B-1	Neighborhood Business District	125	44
B-2	General Business District	367	55
ID	Industrial District	523	194
LDR	Low Density Residential District	8,362	4,668
	With Water And Sewer	93	48
	With Water OR Sewer	1,059	693
PDD	Planned Development District	1,282	0
RM	Moderate Density Residential District	44	20
	With Water And Sewer	143	95
	With Water OR Sewer	243	55
R-R	Rural Residential District	10,484	4913
RRD	Residential Resort District	140	39
	Total	**22,865.32**	**10,824**

Residential Results

The potential for residential development was then calculated utilizing the permissible densities (as identified in Table 2) after allowing the following land areas for roads and utilities.

- If the unconstrained land is >20 acres, then reduce the unconstrained land by 10% to account for roads & utilities.
- If the unconstrained land is 5 - 20 acres, then reduce the unconstrained land by 15% for roads & utilities
- If the unconstrained land is <5 acres, then there are no reductions to the unconstrained land.

A summary of the results is provided in Table 4.

Table 4: Potential Residential Units - Scenario A

Zoning Symbol	Zoning District	Total Potential Residential Dwelling Units
LDR	Low Density Residential District	1,488.5
	With Water And Sewer	12.8
	With Water OR Sewer	303.0
RM	Moderate Density Residential District	4.7
	With Water And Sewer	60.3
	With Water OR Sewer	52.1
R-R	Rural Residential District	1,933.7
RRD	Residential Resort District	12.6
	Total	**3,867.8**

A dot density map schematically illustration the potential residential development is presented as Figure 3. A total of 3,867 residential dwelling units could be constructed under the baseline scenario. This estimate does not include projects already approved or under review of the Planning Board.

As noted previously water and sewer services are likely to be expanded during the study period. The planned expanded services areas were identified in the associated water and sewer planning studies. Utilizing this information an additional 200 homes could be built under Scenario B.

Commercial/Industrial Results

The Town's zoning ordinance regulates density in the business and industrial districts with the use of Lot Coverage, Building Height and Floor Area Ratio (FAR) requirements. FAR is defined as the relationship (ratio) of the total floor area of a building to lot size. Lot Coverage is generally defined as all areas covered by buildings, pavement, and other non-permeable surfaces and is also regulated as a permissible ratio of non-permeable area to lot size. Building height affects density indirectly by restricting the number of floors that may be constructed in a commercial structure.

The Town's zoning regulations limit the FAR to 0.4 (or 40%). From a practical standpoint, after deducting the environmentally constrained areas and applying the height restrictions (35 feet or 3 stories) in the B1 & B2 districts; it is difficult to exceed a FAR of 0.3 while supporting all site requirements (i.e., parking, greenspace, stormwater management, etc.) Similarly, a FAR of 0.4 is difficult to achieve in the industrial zone. For the purpose of the estimate, a FAR of 0.3 and 0.4 were utilized with the thought the actual FAR will be closer to the 0.3 figure.

An estimate of the commercial and industrial development potential was calculated by applying the noted Floor Area Ratio to the unconstrained lands in the non-residential districts. A summary of the results is presented in Table 5.

Table 5 Commercial/Industrial Results

Zone	Land Area		Unconstrained Area available for Development		Potential Floor Area (sq. ft.)	
	Acres	sq. ft.	Acres	sq. ft.	FAR 0.3	FAR 0.4
B-1	124.8	5,436,260.25	27.6	1,201,365.46	358,933.64	479,070.19
B-2	367	15,983,155.84	41.4	1,801,609.14	540,482.74	720,643.66
ID	522.5	22,762,702.14	171.3	7,462,457.73	1,932,109.75	2,613,126.61
				Total	**2,831,526.13**	**3,812,840.46**

As presented in the table approximately 359,000-479,000 square feet of commercial space could be constructed in the Town's B-1 District. The B-2 District would allow somewhere between 540,000 to 720,000 square feet of commercial space. The Town' Industrial District has the capacity for 1.9 to 2.6 million square feet of development.

Growth Projections

Introduction

As discussed, the buildout analysis is an estimate of the total potential for development; it does not reflect the rate or location of growth that could occur. The growth projection utilizes the buildout estimate as the starting point for estimating the growth rate. In developing the growth projections a number of factors are to be evaluated including local building permit trends, the inventory of approved subdivisions, and a discussion paper provided by the Capital District Regional Planning Commission (CDRPC) regarding regional growth rates.

For this evaluation a ten (10) year term (2007-2017) has been selected as the basis for analysis. Ten years coincides nicely with the planned buildout of the first pod of the LFTC. Given the uncertain nature of the development of the Campus and the changing nature of the local real estate market; a longer term forecast becomes increasingly more speculative.

Building Permit Activity

The Town of Stillwater tracks building permit construction and reports information to the US Census. Building permits issued for the years 1990-2006 for single family homes/multi-family home is presented in Table 6.

Table 6 Summary of Building Permits 1990-2006

Year	No. of Dwelling Units
1990	44
1991	59
1992	17
1993	44
1994	64
1995	35
1996	23
1997	25
1998	53
1999	27
2000	40
2001	35
2002	38
2003	36
2004	62
2005	70
2006	50
Total	722
Average	42

Construction during this time period consisted overwhelmingly of single family homes. Only 14 of the 635 dwelling units reported were constructed as part of duplex or multi-family projects. On average the Town issued 37 building permits per year with a peak of 64 Single Family permits issued in 1994. Data prior to this time was not consistently reported however, a record of 76 single family permits was issued in 1989. The Town's permit records do not include a breakdown of commercial/industrial space constructed during this period.

Projects in the Review Pipeline

Another factor influencing the rate of residential growth is the available inventory of approved residential subdivision lots. Several residential subdivision projects have been approved in recent years but have not yet been fully constructed. A summary of the projects and their status is presented as Table 7. A total of 427 units of Single family housing have been approved or are pending approval.

Table 7 Projects in the Development Pipeline

Project	Category	No. of Lots	Status
Battle Ridge	SFR	7	Approved
Brown's Beach Resort (1)	PDD	--	Pending
Grozniak	SFR	12	Approved
Luther Forest Technology Campus(1)	PDD	30	Pending
Revolutionary Heights	SFR	160	Proposed
Saratoga Glen Hollow	PDD	21	Approved
Saratoga Lake Cluster	SFR	29	Application Pending
Stillwater Woods	SFR	47	Approved
Stonybrook	SFR	12	Pending
Turning Point PDD	PDD	80	Pending
White Sulphur Springs	SFR	29	Approval Spring 2007
Total	--	**427**	

SFR: Single Family Residential
PDD: Planned Development District
(1) Site specific estimates for development and associated traffic studies have been prepared.

CDRPC Growth Projections

The Capital District Regional Planning Commission (CDRPC) prepares population projections for the Capital District area on a regular basis. The CDRPC 40 year (2000-2040) population projections were included in the Town's 2006 Comprehensive Plan.

The CDRPC utilizes a two step process to prepare its population estimates. The first quantitative stage involves the use of a log-linear regression projection based on historic Census data and U.S. Census Bureau estimates; and a qualitative second stage using judgments of the likelihood and extent of future population change within particular jurisdictions.

According to the CDRPC estimates, Stillwater's population is expected to grow by 1,476 people from 7,522 (2000 Census) to 8,998 over the next 40 years. This represents a 19 percent increase or <0.5% per year. From 1990-2000 Stillwater's population increased at a similar rate (<0.45 % per year).

CDRPC Alternative Development Scenarios

The CDRPC working with the Capital District Transportation Committee (CDTC) and the Center for Economic Growth (CEG) recently assisted in the preparation of "*Effects of Alternative Development Scenarios in the Capital District*" ("Alternative Development Report") The Alternative Development Report, issued as a draft September 2006, was prepared in part to assess the impacts of new growth that could occur in the Capital District as a result of a project such as the Luther Forest Technology Campus (LFTC).

The Alternative Development Report presents four (4) development scenarios for discussion. They are:

- **Scenario 1 - Status Quo Trend**- The baseline scenario is based on the CDRPCs 2040 population projections. This scenario assumes growth will occur consistent with local historic trends and patterns.
- **Scenario 2 - Concentrated Growth** – This scenario utilizes the 2040 population projections however growth is distributed/allocated to a locale in proportion to its current population.
- **Scenario 3 - Trend Hyper-Growth** - This scenario assumes that growth in the Capital District will occur at a rate equal to the overall U.S. rate of growth. Growth is distributed consistent with the baseline scenario methodology. .
- **Scenario 4 - Concentrated Hyper-Growth –** Utilizing the Scenario 3 growth rates growth is allocated to locale based on current population centers (similar to Scenario 2.)

As noted, the 'Trend' growth scenarios (Scenario 1 & 3) assume the location of new development will occur consistent with the sprawling pattern of the last several decades. Contrarily, the concentrated growth scenarios (Scenario 2 & 4) assume a change of the historical pattern and a move toward 'Smart Growth' with growth taking place in the region's population centers and limited growth occurring in rural areas.

Growth rates for each time period under each scenario are as follows:

Table 8: CDRPC Growth Rates

Time Period	Scenario 1 & 2	Scenario 3 & 4
2000-2010	3.934 %	9.5%
2010-2020	2.6684%	8.7%

The growth rates for Scenario 1 and 2 represent a slowing of the rate of growth based on the CDRPC analysis of current trends. The rate of growth under Scenarios 3 & 4 represents an increase over historical rates. The Alternative Development Report speculates that for growth to occur at a rate equal to that of the U.S. Growth Rate (i.e., the Hyper-Growth scenario) "*there would need to be more successes in the various economic development efforts to attract and nurture new employers*."[1] The report further suggests that growth at these rates might possibly occur in the event the LFTC campus were to approach buildout.

The population projections for 2010 and 2020 from the Alternative Development Report are presented in Table 9. We note that although the CDRPC prepared 40 year projections; we have chosen to limit our presentation to the 2000-2020 period. The actual population projections differ from the projected rate of growth because the growth rates were developed on a county-wide basis and other factors not described here (such as the availability of land).

Table 9 Alternative Growth Scenarios
Population Projections 2010 & 2020

	2010		2020	
	Population	Net Increase	Population	Net Increase
Scenario 1	7920	4.6%	8303	4.8%
Scenario 2	7823	4.0%	8031	2.6%
Scenario 3	8992	19.5%	10911	21.3%
Scenario 4	8338	10.8%	9256	11.0%

Stillwater's 2000 Population: 7522

The CDRPC did not prepare estimates of housing growth by municipality; they did prepare projections of households. The number of housing units can be extrapolated from the household projections by dividing the number of households by a housing unit vacancy rate. Housing vacancy for Stillwater was reported at 91% in the 2000 Census-and the NYS average was reported at 92%.

We calculated this equivalent housing unit (EHU) from the household projections utilizing the 92% vacancy rate. The number of new housing units is presented as change in the number of units over the past reported figure. The results are presented in Table 10.

[1] The Effects of Alternative Development Scenarios in the Capital District- A discussion document prepared for the Capital District Committee's Quality Region Taskforce Working Group A" page 33

Table 10 Alternative Growth Scenarios
Household Projections & Equivalent Housing Units 2010 & 2020

Scenario	2010				2020				New Homes (2007-2017)
	HH	EHU	Change	Increase	HH	EHU	Change	Increase	
1	3046	3311	257 (77.1)	8.4%	3295	3581	270 (189)	7.5%	266.1
2	3008	3270	216 (64.8)	7.0%	3187	3464	194 (135.8)	5.6%	200.6
3	3458	3759	705 (211.5)	23.0%	4331	4708	949 (664)	20.2%	875.5
4	3206	3485	431 (129.3)	14.1%	3674	3993	508 (355)	12.7%	484.3

HH: Households
EHU: Equivalent Housing Units
Notes:
1. Stillwater Census 2000: 3054Housing Units
2. Number presented in parentheses represents the increase in EHUs that may occur during the study period (2007-2017). .
3. Household projections were prepared by the CDRPC for the *Effects of Alternative Development Scenarios in the Capital District"* and adapted for this effort.

Under the Hyper-Growth Scenario (Scenario 3) 705 new dwelling units (70 per year) are projected to be constructed for the 2000-2010 term and 949 dwelling units (94.9 per year) for the 2010-2020 term. Assuming growth would occur at equal increments throughout the term; we calculated the number of housing units that would be constructed during the study period by simple proration: 30% of the 2000-2010 growth would occur during 2007-2010 and 70% of the 2010-2020 growth would occur from 2010-2017. This figure is presented in the last column of the table ("New Homes 2007-2017")

The projected number of new homes contrasts with 308 new single family home constructed 1980-'90 and 391 units constructed 1990-2000. The Hyper-growth scenario would double or triple the number of housing units constructed in Stillwater. To date approximately 244 Single Family building permits have been issued (2000-2006).

Conclusions

A total of 3868 units of single family housing could be constructed in the Town under the current zoning regulations and the assumptions and constraints utilized. Based on the anticipated expansion of water and sewer services this number increases to 4,071. Similarly up to 1.2 million square feet of commercial/retail space and 2.6 million square feet of industrial square feet could be constructed in the Town.

Historically, the Town has issued an average of 42 single family permits per year over the last 16 years. There are 427 pending/approved subdivision lots in the 'available residential inventory'.

The CDRPC indicates growth rates of the Capital District could double or triple (approaching 8 to 9%) over a ten year period- mirroring the overall growth rate of the U.S. This growth is predicated on the success of projects like the LFTC. Utilizing the CDRPC projections; 70 to 95 homes per year could be constructed in Stillwater during 2000-2020. Extrapolating these figures, it is estimated 875 new homes could be constructed from 2007 -2017.

A summary of the various growth projections is presented as Table 11. Analyzing the various projections the Town's Technical team believes approximately 60 to 70 homes/year could be constructed in any given year and 500-600 residential units could be constructed over the next 10 years.

Table 11 Summary of Residential Projections

CDRPC Alternative Development Scenarios		**Average Year x 10**	**Best Year x 10**	**Estimated 10 Year Development (2007-2017)**
Scenarios1 & 2	*Scenarios 3 & 4*			
200-266 D.U.	484-875 D.U.	420	760	500-600

Historically, commercial/industrial growth within the Town has been negligible. The Town's residents generally travel to adjacent communities for its primary shopping needs. Demand for retail and commercial service will grow with population. Residents will continue to seek local services and shopping opportunities out of convenience. Therefore it is anticipated that up to 50,000 square feet of retail/commercial space will be constructed during the study period. Demand for industrial space/facilities will be spurred by the demand for support services for the first and subsequent phases of LFTC. It is anticipated that up to 100,000 square feet of industrial space will be constructed during the same period.

Table 12 Summary of Commercial/Industrial Projections

Category	**Buildout Potential**	**Estimated 10 Year Development 2007-2017**
Commercial/ Office/Retail	0.9-1.2 MSF	50,000 SF
Industrial	1.9-2.6 MSF	100,000 SF

MSF: Million Square Feet

Distribution of Growth

We assigned projected growth to specific geographic locations within the Town in order to complete subsequent analyses (i.e., traffic analysis). For this exercise the Town was divided into smaller planning areas (traffic planning areas) and it was assumed that residential development would initially occur in those areas where approved subdivision lots are available. After approved lots are consumed we assumed subsequent development would be distributed throughout the Town in proportion to the net area available for development in each of the planning areas. The resultant distribution of growth is presented on Figure 4.