

Community Land Use Analysis & Planning using *CommunityViz*®

Presented to the STAC
August 21, 2009

by
Bill McGowan, Ed.D and Carol Bason
University of Delaware
Coastal Community Enhancement Initiative





Discussion

1. Our Goals
2. The Process
3. The “100-Acre Wood” – a land use model
4. “Painting” the County
5. County-wide model
6. Looking locally



Our Goals

1. Provide an iterative visualization tool to be used in working meetings between community stakeholders performing growth planning
2. Use a cost effective mapping tool that provided a set of “crayons” to visually “paint” a picture of the community vision for growth (i.e. a “what if” analysis)
3. Create a land use capacity model that represented the **character** of a community, with a geographical feature and an associated set of land use designations that did not represent zoning, political boundaries, or ownership
4. Provide build-out land capacity and demographic impacts analysis based on the resulting “paint” of land use

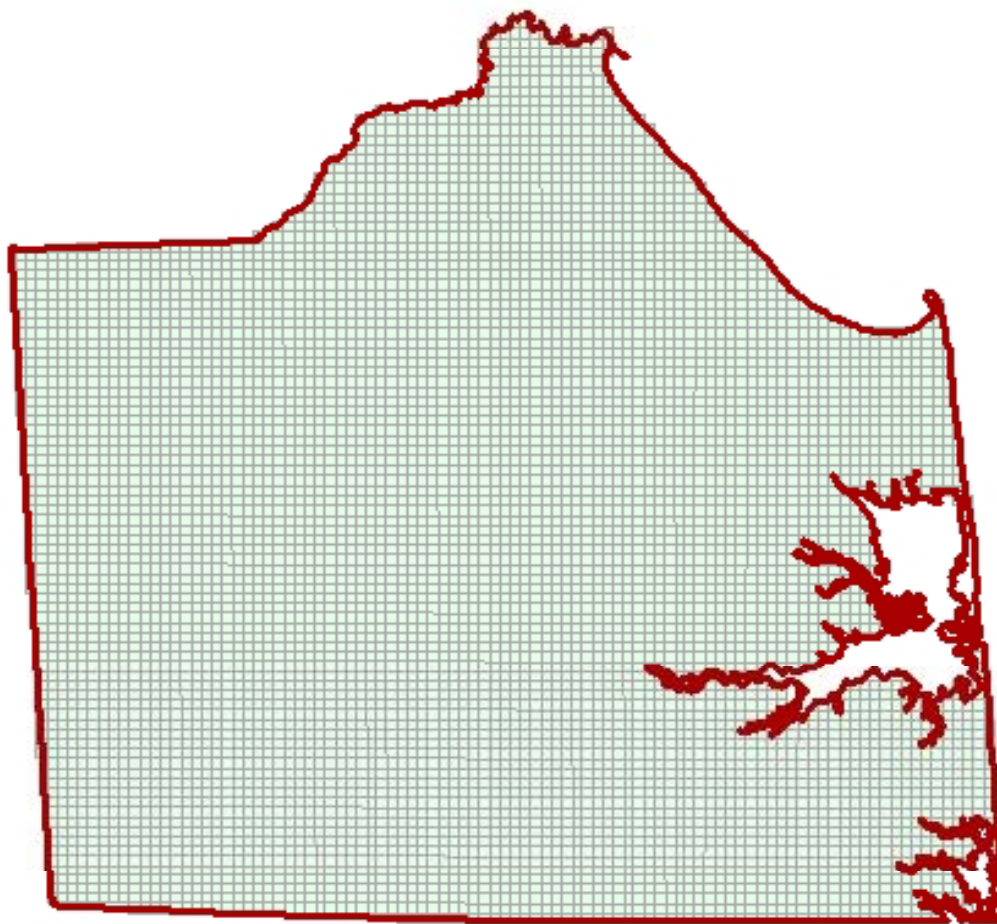


The Process

1. Define geographical features
2. Define land use designations
3. Validate community land use and “Paint” designation for each feature
4. Run Land Capacity Analysis and Build-Out
5. Analyze Demographics/Validate Results
6. Perform Comparative Analysis on Scenarios

Sussex County Grid – 938 Square Miles

Our “100-Acre Wood”



Land Use Designations for County-wide Model

(per 100 acre tile)

- **Rural Areas**

- T100A-Rural

- (1 DU/100A; e.g. Ag District areas; Preserves)*

- T20A-Rural

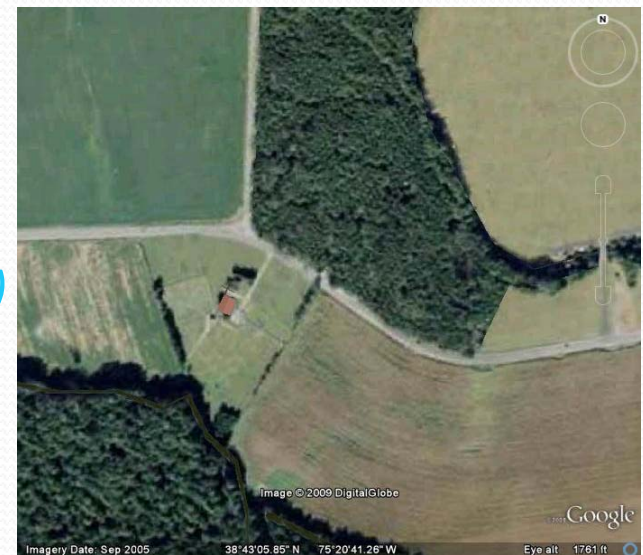
- (1 DU/20A; Rural areas, AG, Recreation)*

- T5A-Rural

- (1 DU/5A; Rural areas, AG, Recreation & Camping)*

- T1-Rural Village

- (1DU/A; Sussex rural villages)*



T100A-Rural

Land Use Designations for County-wide Model

(per 100 acre tile)

- **Urban Areas**

- T2-SubUrban (*2DU/A; All Residential; e.g. Cluster subdivisions*)
- T4-SubUrban (*4DU/A; All Residential; e.g. higher density beach communities*)
- T4-Mixed SubUrban (*4DU/A; Mixed Use; e.g. Developing Areas and ESDA*)
- T6-Urban Mixed (*6DU/A; e.g. Town Centers*)
- T8-Town Center (*8DU/A; e.g. Municipalities*)

4 units per acre



Land Use Designations for County-wide Model

(per 100 acre tile)

- **Nonresidential Areas**

- TM-Business (*Highway Commercial Zoning*)
- T30K-Employment Center (*Planned Industrial Zoning*)
- T200K – Retail (*Large regional shopping centers*)

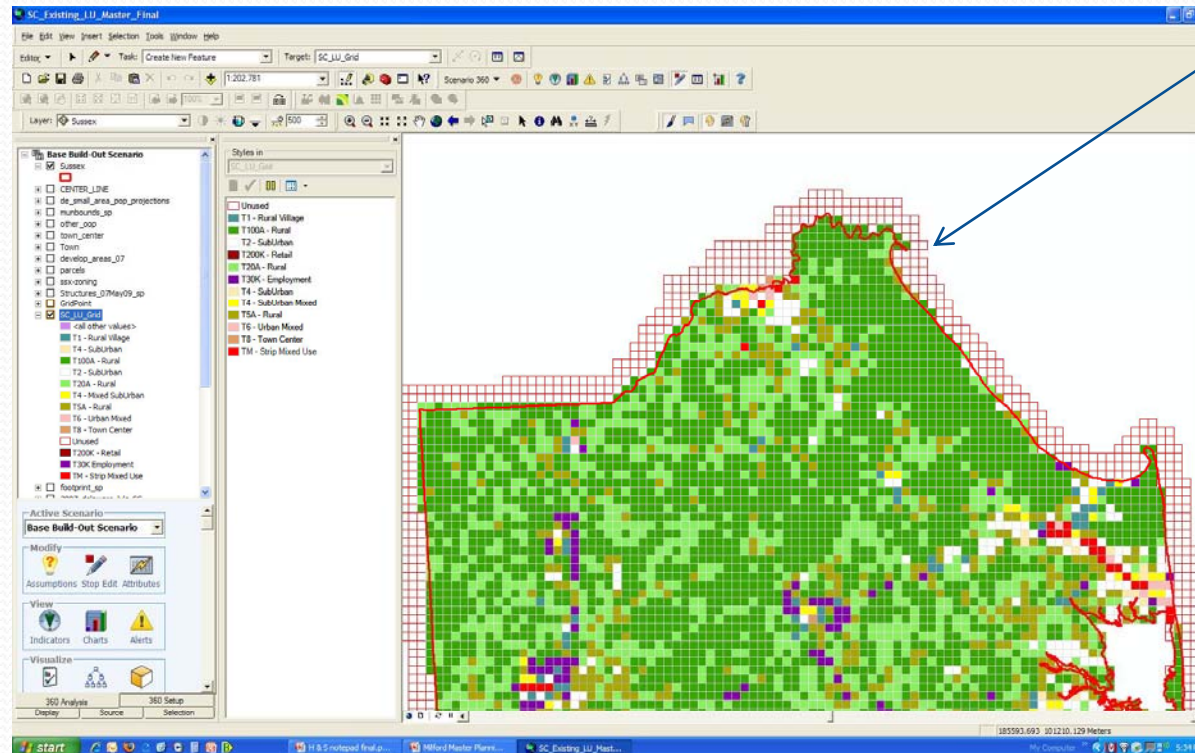
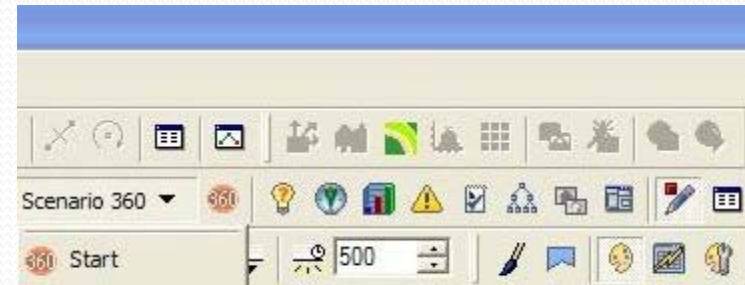


Employment
Center

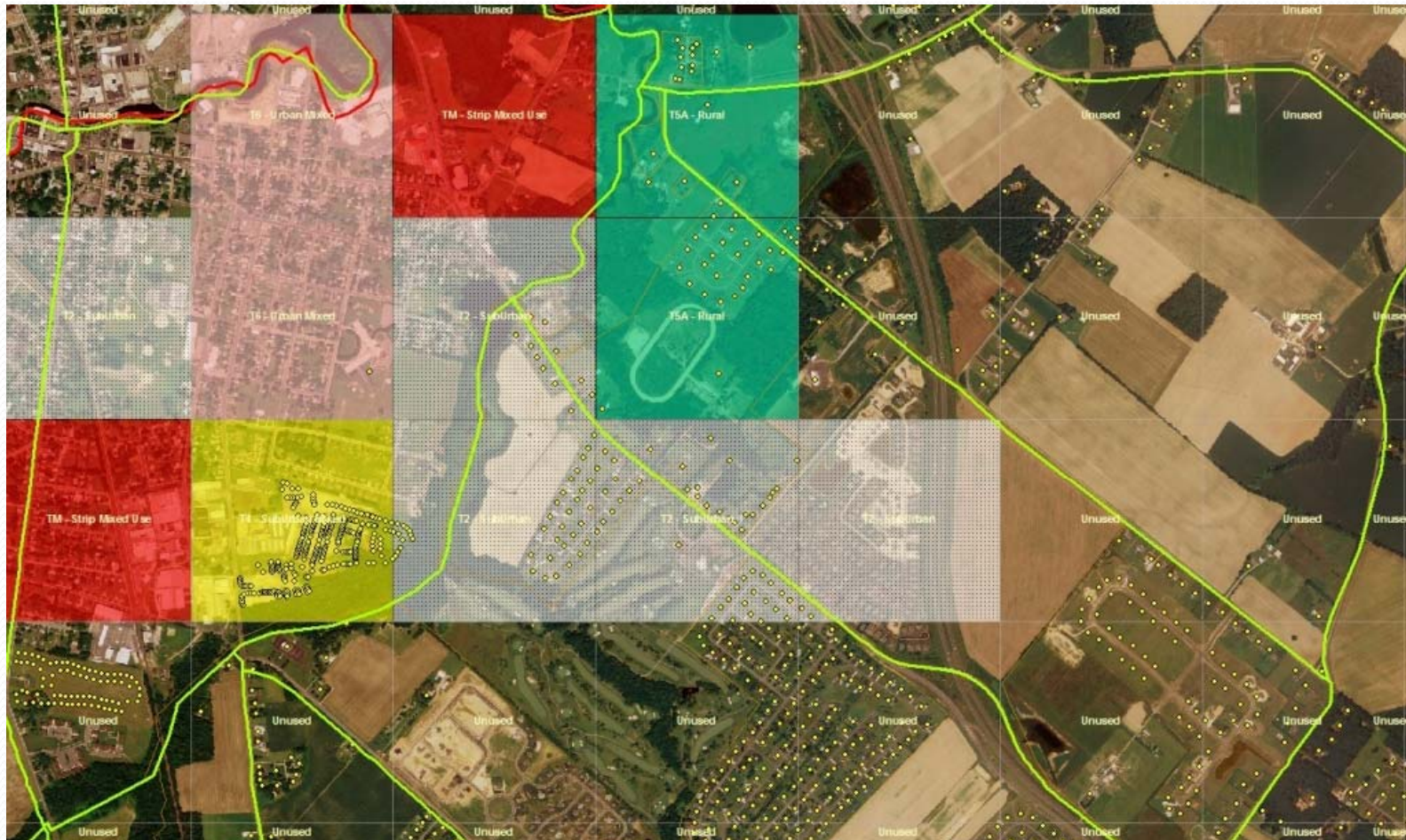


Painting the County.....

“Painting” the County



Paint and Land Use Model Validation



Land Cover / Structures / Building Footprints / 2006/2007 Aerials / TAZ's



Land Use Model Variables

- Density
 - Nonresidential Square Footage
 - Mixed Use Percentage
 - Build Efficiency Percentage
 - Land Use Efficiency Percentage (Seasonal Vacancies)
-
- *Along with the tile area, the above land use variables generate the build-out values and County-wide summaries for number of dwelling units, nonresidential floor area, and number of buildings*



Land Use Model Assumptions

- **Focus:**
 - Residential Dwelling Units
 - Nonresidential Floor Area (Square Footage) and Employees
- **Impacts:**
 - Population Demographics
 - Residential & Nonresidential Taxes
 - Commercial Employee Statistics
 - Water and Wastewater Usage
 - Vehicle Trips
- **Land Use Constraint:**
 - “Out-of-Play” GIS layer from *Strategies for State Policies and Spending* (2004) database
 - Examples: rights of way, agricultural easements, and publically-owned lands, water...












Land Use Demographics – Unit Level

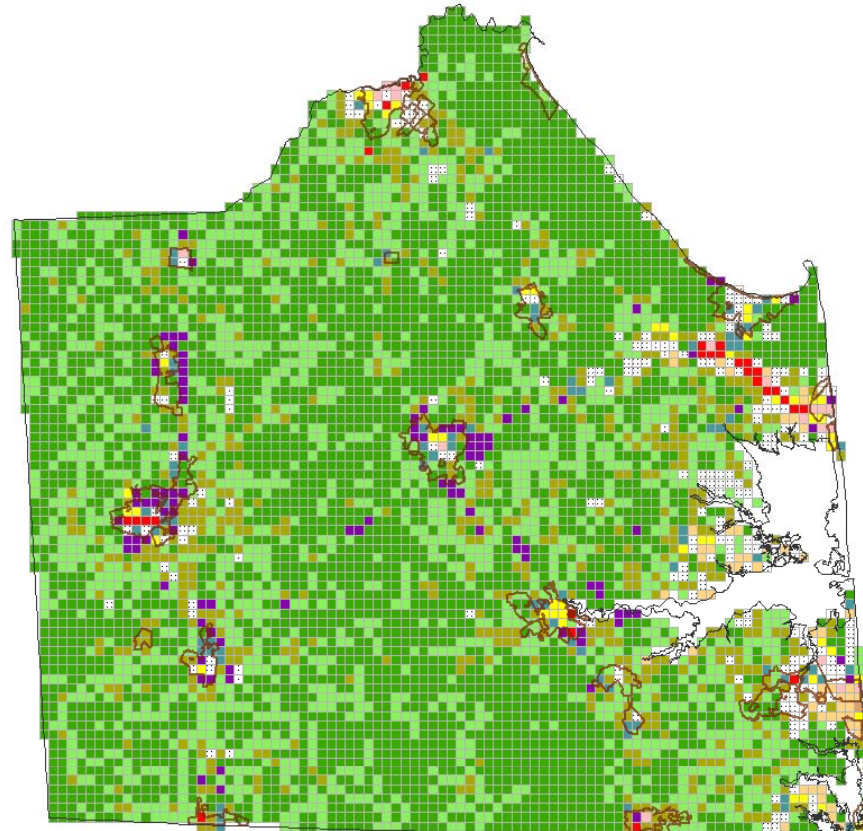
Land-Use Models Table										
Land-Use Layer: SC_LU_Grid										
Attribute Name	T2 - SubUrban	Unused	TM - Strip Mixed	T1 - Rural Village	T100A - Rural	T200K - Retail	T20A - Rural	T4 - SubUrban	T4 - SubUrban Mi	T
LU Children per DU	0.7	0	0.6	0.6	0.7	0	0.7	0.4	0.6	0.
LU Com Tax Rate	0	0	20	15	0	25	0	0	20	0
LU EE VTD	0	0	20	20	0	40	0	0	20	0
LU EE Waste Water	0	0	20	20	0	20	0	0	20	0
LU EE Water Use	0	0	25	25	0	25	0	0	25	0
LU LBCS Activity	1100	1100	9990	9990	1100	2100	1100	1100	9990	70
LU LBCS Function	1100	1100	9990	9990	1100	2100	1100	1100	9990	50
LU Residents per DU	2.41	0	2.41	2.41	2.45	0	2.45	2.63	2.41	2.
LU Tax Rate per DU	100	0	85	85	85	0	85	100	100	80
LU VTD per DU	10	0	10	10	10	0	10	10	10	10
LU Waste Water per DU	300	0	300	300	300	0	300	300	300	300
LU Water Use per DU	300	0	300	300	300	0	300	300	300	300



The results – County-Wide












Community Land Use Designations

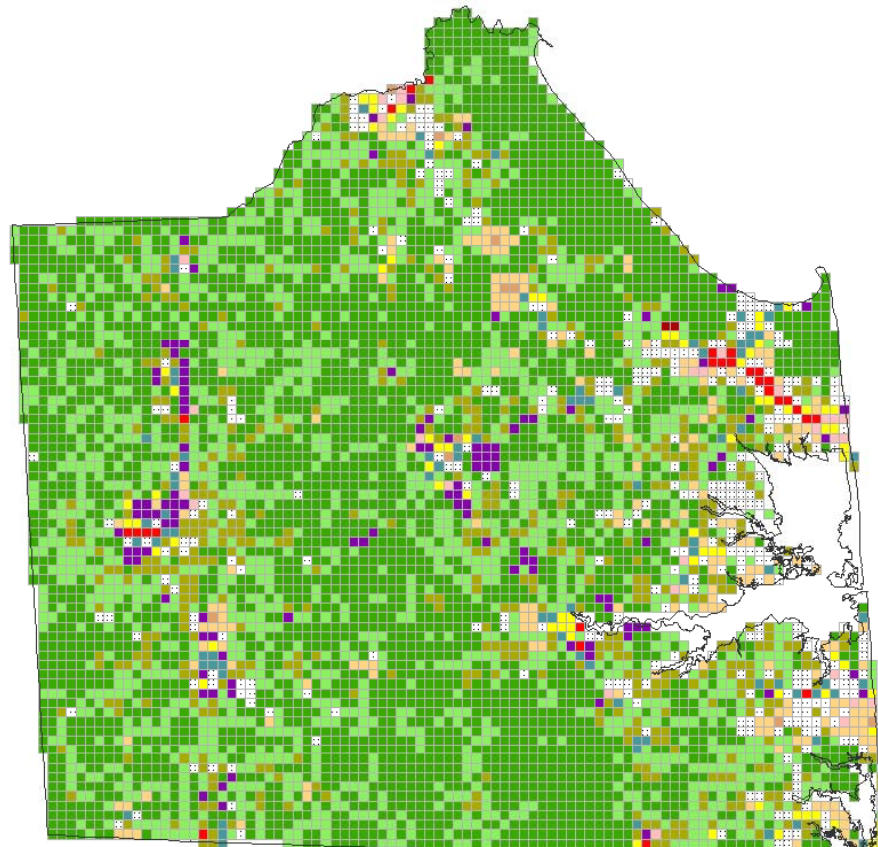
-  T100A—Rural
-  T20A – Rural
-  T5A – Rural
-  T1 – Rural Village
-  T2 – SubUrban
-  T4 – SubUrban
-  T4 – SubUrban Mixed
-  T6 – Urban Mixed
-  T8 – Town Center
-  TM –Strip Mixed Use
-  T30 – Employment / Planned Industrial



County-wide Scenario -- Existing Land Use






Community Land Use Designations

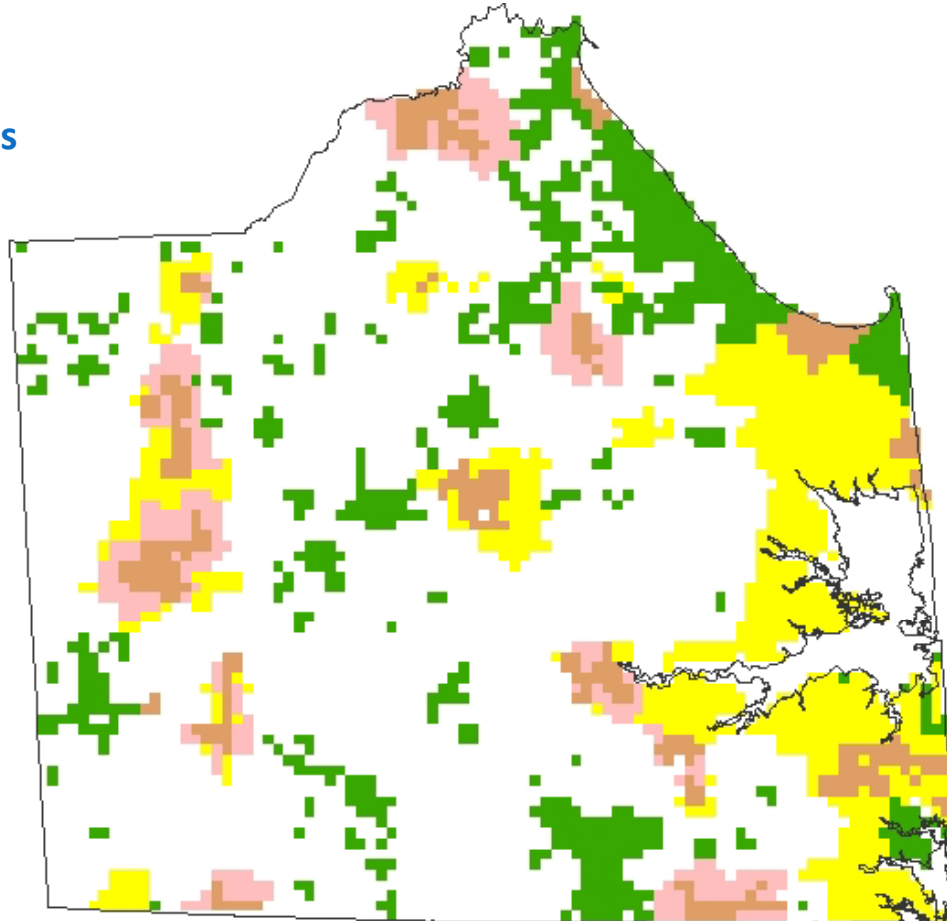
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-  T6 – Urban Mixed
-  T8 – Town Center
-  TM –Strip Mixed Use
-  T30 – Employment / Planned Industrial
-  T200 -Retail



County-wide Scenario -- Existing Land Use with Pipeline

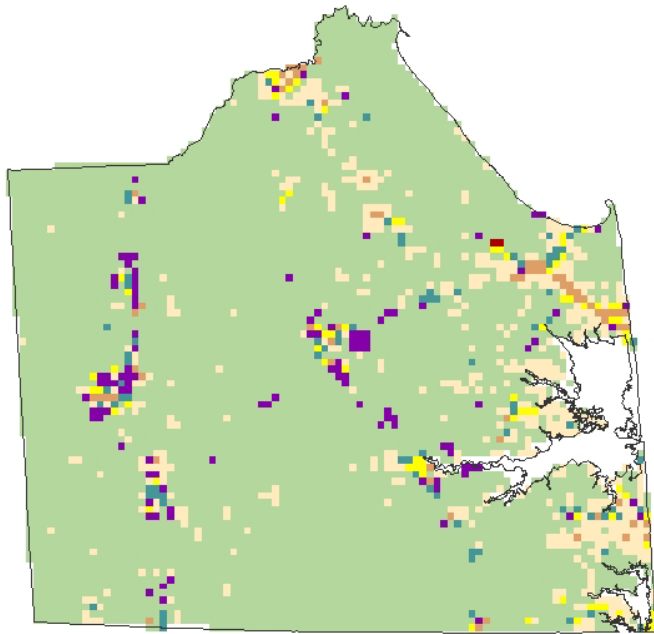
Community Land Use Designations

-  T100A – Rural
-  T2 – SubUrban
-  T4 – SubUrban Mixed
-  T6 – Urban Mixed
-  T8 – Town Center



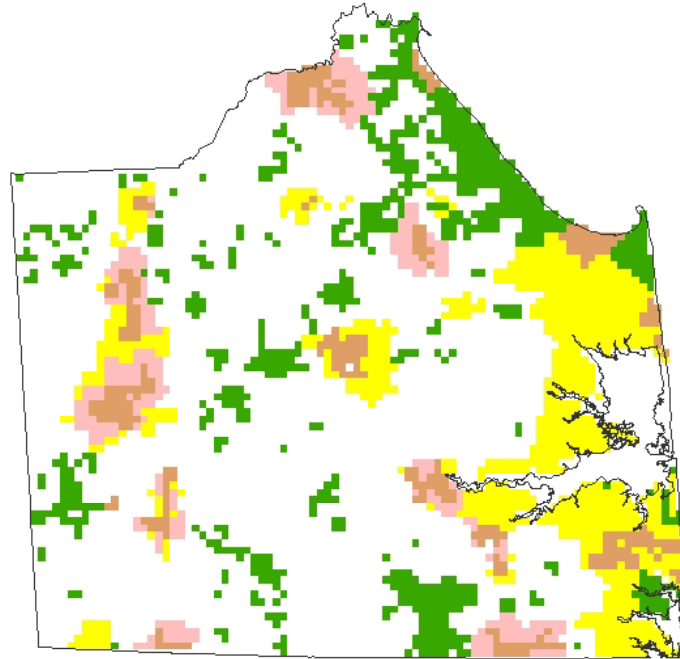
Scenario -- Sussex County Growth, Comprehensive Plan

Sussex County Land Use Comparison



**Existing with Pipeline Land Use –
Rural Combined**

SC Growth Plan Land Use



Land Capacity Model – Buildable Area Comparison

Community Landscapes	Existing (Buildable Acres)	Pipeline (Buildable Acres)	SC Growth Plan (Buildable Acres)
Rural (T100A-Rural, T20A-Rural, T5A-Rural)	442,000	413,000	15,000
Residential SubUrban (T2-SubUrban, T4-SubUrban)	25,000	48,000	346,000
Mixed Use (T1-Rural Village; T4-Surburban Mixed; T6-Urban Mixed; T8-Town Center); TM- Strip Mixed)	16,000	21,000	131,000
Nonresidential (T30-Employment Centers)	9,000	10,000	N/A
Public Lands, State Wetlands, AG Easements	108,000	108,000	108,000

Example For Demonstration Purposes Only

Land Capacity Model – Dwelling Units Comparison

Community Landscapes	Existing (DU's) Winter/Summer	Pipeline (DU's) Winter/Summer	SC Growth Plan (DU's) Winter/Summer
Rural (T100A-Rural, T20A-Rural, T5A-Rural)	47,000 53,000	43,000 50,000	700 700
Residential SubUrban (T2-SubUrban, T4-SubUrban)	34,000 44,000	81,000 101,000	344,000 482,000
Mixed Use (T1-Rural Village; T4-Surburban Mixed; T6-Urban Mixed; T8-Town Center); TM- Strip Mixed)	17,000 26,000	23,000 39,000	205,000 369,000
Nonresidential (T30-Employment Centers)	0	0	(Incorporated in Mixed Use)

Example For Demonstration Purposes Only

Community Land Use – Growth Scenario

Old Rural – 15,000 acres



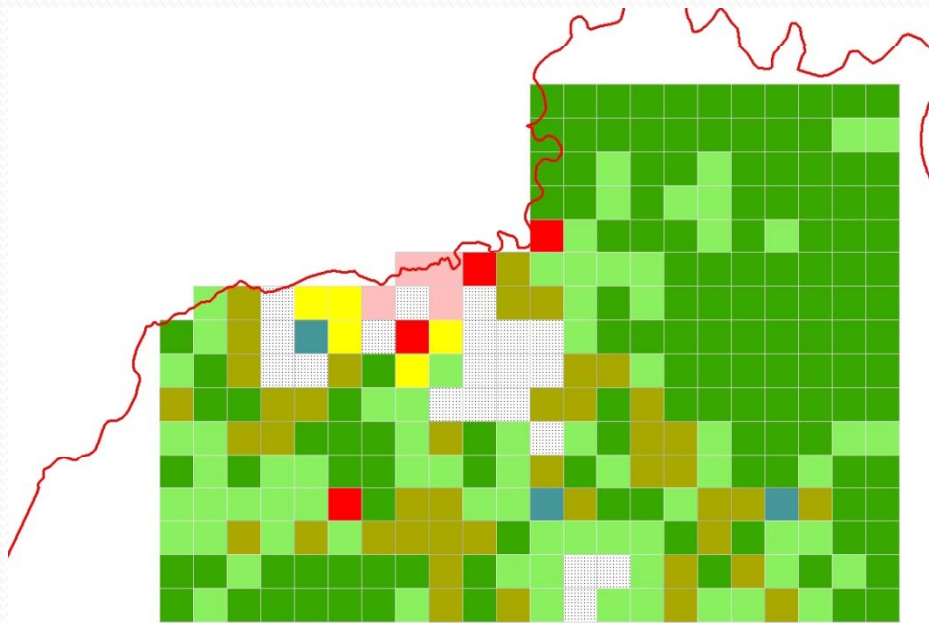
“New Rural” = “Sub-Urban” 346,000 Acres





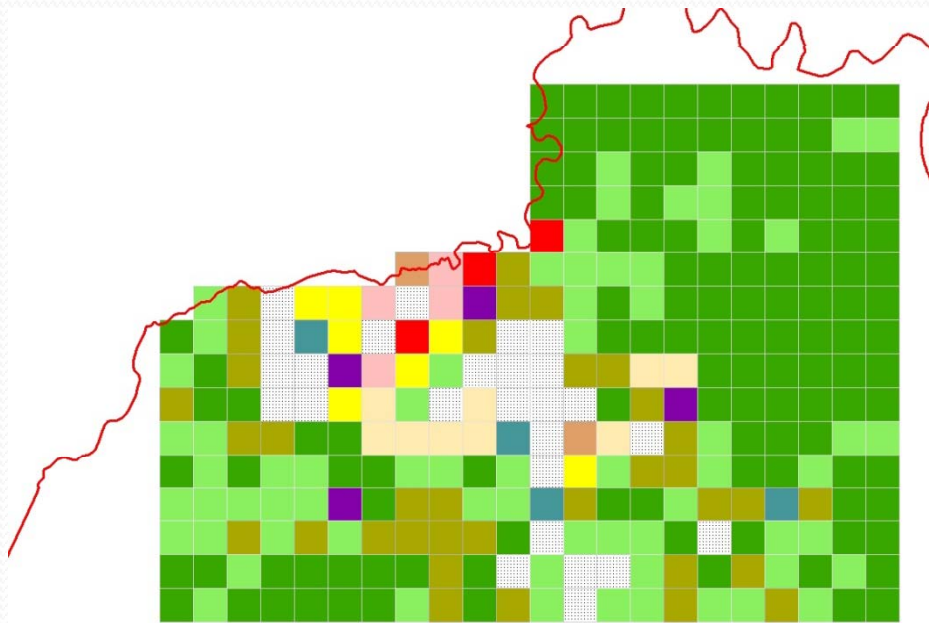
Looking Locally

Local Land Use Model – Existing Scenario



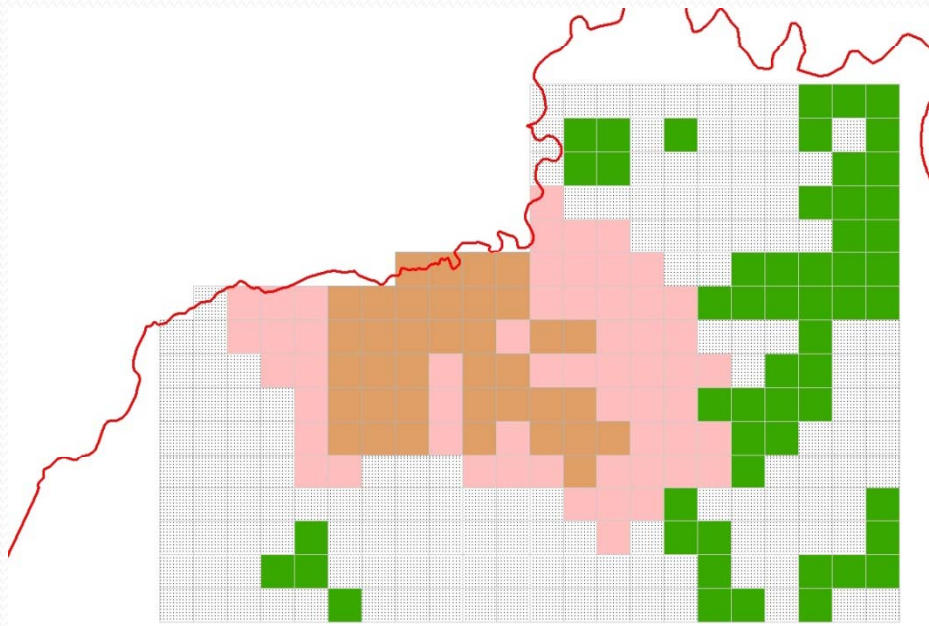
Example For Demonstration Purposes Only

Local Land Use Model – Pipeline Scenario



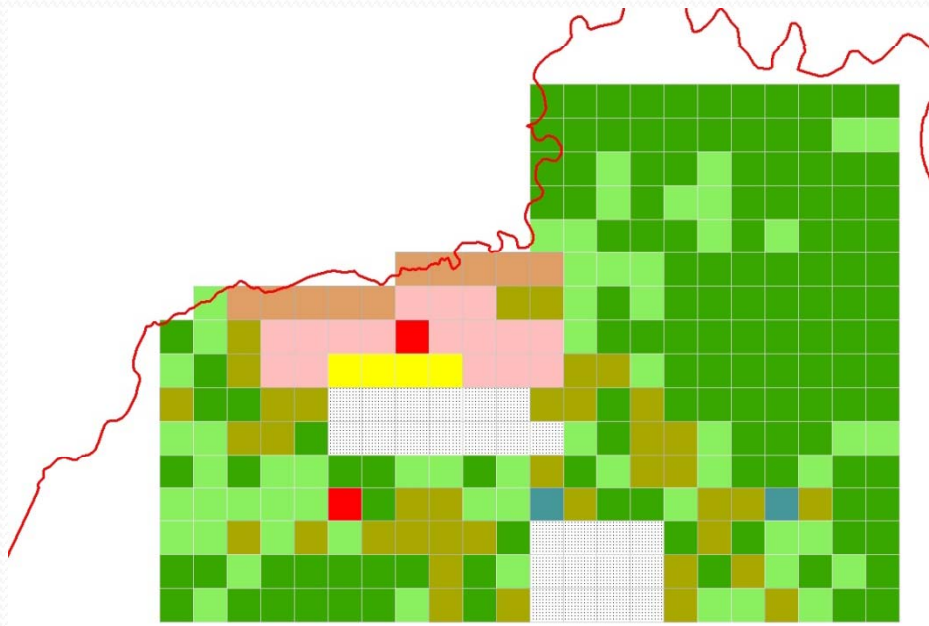
Example For Demonstration Purposes Only

Local Land Use Model – SC Growth Plan Scenario



Example For Demonstration Purposes Only

Local Land Use Model – “What-If” Scenario



Example For Demonstration Purposes Only

Example: Land Capacity Analysis

Scenario:	Existing LU	Pipeline	Growth Plan	What If?
Dwelling Units	9,000	14,000	52,000	17,000
Residents	23,000	34,000	132,000	42,000
Children	6,000	8,000	24,000	8,000
VTD (res)	93,000	136,000	491,000	158,000
Non-res Floor Area	4,000,000	5,000,000	29,000,000	10,000,000
Employees	5,000	8,000	36,000	12,000
VTD (Employee)	85,000	117,000	685,000	226,546
Commercial Tax Base	185,000	236,000	1,300,000	437,000

*Example For Demonstration Purposes Only;
Seasonal variations not considered*

Discussion.....



Thank you!



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