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Table 1.1 Population Change GLT Territory Municipalities 1970-2000

NAME	POPULATION 1970	POPULATION 2000	+ / -- CHANGE	NAME	POPULATION 1970	POPULATION 2000	+ / -- CHANGE	NAME	POPULATION 1970	POPULATION 2000	+ / -- CHANGE
Albion	6577	8042	1465	Gates	26442	29275	2833	Penfield	23782	34645	10863
Arcadia	15245	14889	-356	Greece	75136	94141	19005	Perinton	31568	46090	14522
Avon	6117	6443	326	Hamlin	4167	9355	5188	Phelps	6330	7017	687
Barre	2135	2124	-11	Henrietta	33017	39028	6011	Pittsford	25058	27219	2161
Batavia	17338	16256	-1082	Hopewell	2347	3346	999	Riga	3746	5437	1691
Batavia	5440	5915	475	Huron	1739	2117	378	Rochester	296233	219773	-76460
Bergen	2281	3182	901	Irondequoit	63675	52354	-11321	Rose	2356	2442	86
Bethany	1978	1760	-218	Junius	1111	1362	251	Rush	3287	3603	316
Brighton	35065	35588	523	Kendall	2183	2838	655	Savannah	1676	1838	162
Butler	1593	2277	684	Le Roy	7991	7790	-201	Sodus	8754	8949	195
Byron	2020	2493	473	Lima	3445	4541	1096	Stafford	2461	2409	-52
Caledonia	3832	4567	735	Lyons	6015	5831	-184	Sterling	2589	3432	843
Canandaiga	5419	7649	2230	Macedon	5488	8688	3200	Sweden	11461	13716	2255
Carlton	2540	2960	420	Manchester	7840	9258	1418	Tyre	837	899	62
Chili	19609	27638	8029	Marion	3784	4974	1190	Victor	5071	9977	4906
Clarendon	1969	3392	1423	Mendon	4541	8370	3829	Victory	1251	1838	587
Clarkson	3642	6072	2430	Mentz	2338	2446	108	Walworth	4584	8402	3818
Conquest	1362	1925	563	Montezuma	857	1431	574	Webster	24739	37926	13187
E.Bloom	3151	3361	210	Murray	4638	6259	1621	W.Bloom	1990	2549	559
E.Rochester	0	6650	0	Ogden	11736	18492	6756	Wheatland	4265	5149	884
Elba	2312	2439	127	Ontario	6014	9778	3764	Williamson	6356	6777	421
Farmingto	3565	10585	7020	Palmyra	7417	7672	255	Wolcott	3764	4692	928
Gaines	2385	3740	1355	Parma	10748	14822	4074	York	3166	3219	53
Galen	4619	4439	-180	Pavilion	2122	2467	345				

Table 2.1 GLT Territory Land Coverages 2001

Land Cover	Percentage	Acres
Open Water	1.18%	15,316
Developed, Open Space	8.88%	115,631
Developed, Low Intensity	4.08%	53,102
Developed, Medium Intensity	1.62%	21,035
Developed, High Intensity	0.59%	7,674
Barren land (Rock/Sand/Clay)	0.32%	4,125
Deciduous Forest	16.11%	209,736
Evergreen Forest	0.52%	6,770
Mixed Forest	4.60%	59,865
Shrub/Scrub	1.77%	22,997
Grassland/Herbaceous	0.36%	4,649
Pasture/Hay	26.69%	347,571
Cultivated Crops	23.53%	306,474
Woody Wetlands	8.88%	115,704
Emergent Herbaceous Wetlands	0.89%	11,616
	100.00%	1,302,266

Table 2.2 GLT Territory Changes in Land Cover 1992 - 2001

Land Cover	1992	2001	Percent Change
Open Water	1.10%	1.18%	0.08%
Developed Land	10.03%	15.16%	5.13%
Deciduous Forest	22.93%	16.11%	-6.83%
Evergreen Forest	0.16%	0.52%	0.36%
Mixed Forest	4.85%	4.60%	-0.26%
Pasture/Hay	42.18%	26.69%	-15.49%
Cultivated Crops	16.55%	23.53%	6.99%
Woody Wetlands	1.85%	8.88%	7.03%
Emergent Herbaceous Wetlands	0.34%	0.89%	0.55%
Barren/Scrub/Grassland	0.00%	2.44%	2.44%
	100.00%	100.00%	

Table 2.3 Monroe County Land Coverages 2001

Land Cover	Percentage	Acres
Open Water	1.17%	4,983
Developed, Open Space	15.48%	66,077
Developed, Low Intensity	9.02%	38,478
Developed, Medium Intensity	4.01%	17,128
Developed, High Intensity	1.52%	6,480
Barren land (Rock/Sand/Clay)	0.37%	1,581
Deciduous Forest	14.52%	61,971
Evergreen Forest	0.39%	1,659
Mixed Forest	4.40%	18,763
Shrub/Scrub	1.78%	7,598
Grassland/Herbaceous	0.56%	2,370
Pasture/Hay	22.77%	97,195
Cultivated Crops	17.06%	72,829
Woody Wetlands	6.20%	26,466
Emergent Herbaceous Wetlands	0.76%	3,225
	100.00%	426,801

Table 2.4 Wayne County Land Coverages 2001

Land Cover	Percentage	Acres
Open Water	1.59%	6,241
Developed, Open Space	5.76%	22,571
Developed, Low Intensity	1.03%	4,043
Developed, Medium Intensity	0.29%	1,150
Developed, High Intensity	0.11%	428
Barren land (Rock/Sand/Clay)	0.08%	314
Deciduous Forest	21.50%	84,214
Evergreen Forest	0.91%	3,559
Mixed Forest	6.79%	26,592
Shrub/Scrub	1.53%	5,980
Grassland/Herbaceous	0.18%	687
Pasture/Hay	30.80%	120,620
Cultivated Crops	18.09%	70,834
Woody Wetlands	10.25%	40,146
Emergent Herbaceous Wetlands	1.09%	4,278
	100.00%	391,657

Table 2.5 Tax Abatement Programs

	Participating Acres	Percentage of County
Monroe County		
305 Lands (Agriculture)	85,982	20%
480 & 480a Lands (Forest)	307	0%
Wayne County		
305 Lands (Agriculture)	154,982	40%
480 & 480a Lands (Forest)	645	0%
Total	**241,916**	

Table 2.6 Species Richness, 1996		
Classification and Numerical Values	**Percentage**	**Acres**
Very Low (0-67)		
Sand Flats	0.09%	1,228
Barren	0.00%	58
Orchard	1.34%	17,390
Subtotal	***1.43%***	***18,675***
Low (68-104)		
Evergreen plantation	0.53%	6,890
Shrub Swamp	1.67%	21,715
Cropland	40.22%	523,815
Open Water	4.10%	53,348
Roads	1.25%	16,242
Urban	6.47%	84,192
Golf Course	0.17%	2,199
Subtotal	***54.40%***	***708,401***
Moderate (105-125)		
Evergreen Wetland	0.07%	888
Mixed Wetland	0.01%	83
Successional Shrub	3.47%	45,224
Pasture	12.78%	166,383
Emergent Marsh	0.71%	9,250
Suburbs	0.06%	796
Subtotal	***17.09%***	***222,622***
High (126-148)		
Successional Hardwoods	11.73%	152,816
Deciduous Wetland	4.21%	54,880
Evergreen Northern Hardwood	2.26%	29,464
Subtotal	***18.21%***	***237,159***
Very High (149-162)		
Sugar Maple Mesic	8.86%	115,346
Oak	0.00%	62
Subtotal	***8.86%***	***115,408***
Total	**100.00%**	**1,302,266**

Table 2.7 Species Richness Levels within Protected Lands	
Level of Species Richness	**Percentage of all Protected Land**
Very Low (0-67)	1.40%
Low (68-104)	41.13%
Moderate (105-125)	18.56%
High (126-148)	27.98%
Very High (149-162)	10.93%
	100.00%

Scenic Resources: Four Classifications | Twelve Typologies

The creation of typologies involves classifying a complicated landscape into a series of characterized elements. In Monroe and Wayne Counties the following types of landscapes are typical of scenic vistas and view corridors.

Working Land
Monroe and Wayne Counties have many areas where agricultural lands are the predominant land use. The scenic qualities of working lands can be broken down into five general categories. The dominant quality of agricultural land use determines its typology.

Mixed Agriculture (horses, mixed fields, buildings)

This category covers a wide range of mixed agriculture, areas in which no one crop, planting style, or field use is standard. It includes pastures with buildings, small fields with hedges, rural outbuildings, and all of the above.

Orchards

The location of Monroe and Wayne Counties upon the southern shore of Lake Ontario lends mildness to the winter that makes fruit culture productive and profitable near the lake shore. Orchards can be found throughout the counties, but are primarily concentrated in the northern portion of Wayne County.

Field Crop (hay, oats, barley, soybeans)

Agricultural field crops present a uniform color and texture to a field, and enhance any topography that may be present on the landscape. The apparent smoothness of a field acts as a foil to the rough lines of woodlots, the squareness of architectural structures, and the skyline.

Row Crop (corn, cabbage, potato, other)

Agricultural row crops present a combination of uniform color and texture, but introduce the additional element of lines. Landscapes with row crops have an enhanced sense of linearity, offset by the rough textures of surrounding woodlots.

Fallow/Abandoned

Fallow or abandoned agricultural lands may involve areas of meadow, mixed small shrubs, or success ional vegetation aging into forest. The varied textures and colors may be extreme (think of bright asters amid patches of rough bull thistle mixed with tall, wispy grasses). These landscapes offer a wide diversity of plant and animal life and appear to be richly varied to the eye. With unpredictable edges this landscape may incorporate varied spaces and views.

Corridors

Linearity is the defining characteristic of corridors. Scenic views may vary across the corridor. The act of viewing or traveling in a linear motion determines a corridor and may involve footpaths, rail trails, canals, roadways, or creeks.

Road

This category is focused upon roads and the experience of traveling. Views and vistas may alter depending upon location within the corridor. Part of their beauty is their linear quality and the speed at which viewing occurs.

Water

The typology of a water corridor focuses upon the experience of viewing along the water. As with a roadway, the eye travels in a linear fashion. The changing views and vistas along the feature are arranged along the path of travel of your eye or your body. These are generally slower in travel and viewing speed.

Water Features

Landscapes including water as the predominant characteristic are included in this typology. Water may be in the form of creeks, marshes, ponds, small lakes, embayments, or Lake Ontario. The scale of the water feature determines its impact upon the eye and its typological association.

Small Water Feature (creeks, marshes, ponds, small lakes)

This category encompasses water features and waterways that are of a smaller scale. They may be maintained (farm ponds) or wild (marshes), linear (canals) or meandering (creeks) in edge.

Large Water Feature (embayment view, lake view)

This category involves views of the large embayments and Lake Ontario. These dynamic water systems are generally connected to the lake, with edges that may be dramatic (cliffs) or linear (beaches).

Beach

This category encompasses the edges of the embayments and lake, and may involve stretches of sand beach, stone beach, marshland, or grasses. It may have a monochromatic quality (in the case of beaches or grasslands) or be very varied in topography and texture (cliff faces).

Topography

Landscapes dominated by topography have rolling topography or geologic elements. Although elements of other features (agriculture, water, or corridor) may also be present, dramatic topography is the predominant scenic quality of this type.

Grade Change

This category encompasses the rolling topography of Wayne and Monroe Counties. While the underlying geology of these features may be radically different, their surface is usually has a moderate slope with no harsh edges and very gradual elevation change.

Geology

This category captures the essence of surprising topographic features in the area, including dunes, cliffs, quarries, or other unusual features.

Scenic Resources: Caveats

The viewshed analysis only classifies land in the GLT Territory along routes traveled through Wayne and Monroe Counties by the Cornell Team during their two days of fieldwork. The Cornell Team determined driving routes based on suggestions from the GLT and using GIS to choose roads that traveled over high points, usually atop drumlins, or near unique natural features, such as streams, bays, or valleys. The results, therefore, are not exhaustive in their analysis of the GLT Territory's scenic resources.

In the process of creating criteria for the evaluation of scenic views and classifying the typologies, the Cornell Team may have exhibited biases based on personal experiences of the landscape, the qualities of the season during which the team conducted fieldwork, and vantage point or direction of travel among others. The team certainly missed many beautiful scenic vistas in the GLT due to the sampling nature of the inventory, the inability to stop due to traffic, or lack of car pull-offs. The evaluations and photographs taken by the team are of sites deemed by the team members to be scenic on a certain date in time. As a consequence, typologies familiar to the GLT may be missing from the inventory.

The team suspects that landscapes incorporating scenic views of small towns/settlements, urban views of attractive streets and neighborhoods, land uses and roadways, and suburban views of mixed land use may also be present in the GLT Territory, but vistas containing scenic elements of this nature were not identified. The team encourages the GLT to continue identifying additional scenic vistas and typologies. Further evaluation of scenic resources should include a methodology that weights scenic landscapes in a more systematic approach. Much research has been conducted on evaluating qualitative aspects; such a method is possible for future evaluation of the land, but the Cornell Team was not able to incorporate this method given the limited time allotted for this project.

While the Cornell Team drove only routes in Wayne and Monroe Counties, the viewshed analysis extended into the entire GLT Territory; therefore, the team used the entire GLT Territory acreage in its calculations. The GIS Spatial Analysist calculated viewsheds from ground level and does not represent a person's eye level when walking, standing, or driving along a road. The viewshed analysis tool also does not take into account tree cover or the manmade environment. However, one can assume viewpoints taken in this analysis, particularly from high points or those extending over large areas of land, are not blocked by trees or negatively impacted by the modern built environment; the Cornell Team would not have recorded these points in such a case. With this in mind, aerial image referrals and field checks should be performed to ensure scenic resource quality.

Conservation Suitability Analysis Detailed Methodology

Developing the Model Criteria
Using the GLTs mission statement and results of a priority setting session held in June 2007, the Cornell Team developed a set of criteria for incorporation into the conservation suitability model. The team identified five major criteria: water resources, farmland, habitat, land assemblage, and scenic/recreational/historic resources. Next, the team selected data sets, or sub-criteria, that spatially represented each of the major categories in GIS. Not all criteria identified by the GLT, particularly those resulting from the June meeting, could be included in the model since some of the criteria required a location by location evaluation and data to spatially represent other criteria are not available.

Ranking the Criteria
Once the Cornell Team identified appropriate criteria and sub-criteria for the conservation suitability model, the team ranked the datasets representing each sub-criterion. A similar ranking scheme standardizes the sub-criteria so that each dataset is equally represented in the suitability model. The team used a ranking scheme of 1 to 4 with 4 representing the most suitable aspect of the dataset and 1 representing the least desirable aspect (see Table 4.1). For instance, land within one-quarter mile of the Lake Ontario shore is the ideal land area to protect for migratory bird habitat; therefore, the team assigned a 4 to the one-quarter mile buffer of the lake shore. As these buffers fall further from the shore, the assigned rank decreases because protection of this land is not as important to migratory bird habitat. Data that could be evaluated with a positive or negative response, such as whether or not land is within a 100-foot buffer of a stream, were assigned a 4 for yes and a 1 for no.

After assigning a ranking scheme to each of the sub-criterion, the Cornell Team converted the corresponding GIS data from polygons to raster files. While polygons represent spatial data using points, lines, or shapes, rasters spatially represent data using grid cells. In this conservation suitability model each grid cell represents a 30m by 30m piece of land. Once converted to rasters, the team reclassified the data using the 1 to 4 ranking scheme.

Weighting the Criteria
The final step in developing the model is weighting the sub-criteria relative to other sub-criteria. The weight assigned to a sub-criterion is relative to its importance or value. For instance, the GLT is interested in protecting water resources; therefore, the Cornell Team assigned the highest weight to the representative sub-criteria, riparian corridors and

wetlands, so that they are valued more in the suitability model. Equal weights can also be assigned to the criteria if the criteria are equally important. Equally weighting the criteria in a suitability model also allows the model developer to evaluate the sensitivity, or accuracy, of the model. For this reason, and in order to provide the GLT with two conservation options, the team developed two weighting systems, one equally weighted and the other using the GLT conservation priorities. In the equal weighting system the team assigned 20 points to each of the five main criteria and divided the points evenly among the sub-criteria. For the GLT Priorities system, the Cornell team assigned weights ascertained using the Analytic Hierarchy Process. Table 4.2 in Chapter 4 shows both weighting systems by criteria and sub-criteria.

Analytic Hierarchy Process

A land trust may value certain criteria more highly than others. For example, they might feel that protecting habitat is more important than protecting scenic resources, and protecting water resources is more important than protecting habitat. In this case, the land trust would want to weight data associated with water resources more highly than data associated with scenic resources.

To explore and develop a better understanding of their priorities, land trusts can take advantage of academic models and tools designed to aid complex decision-making. One such model is the Analytic Hierarchy Process (AHP), developed by Dr. Thomas L. Saaty, of the University of Pittsburgh, in the 1970s. The model is designed to help users consider all relevant factors, both tangible and intangible, in making the best decisions.[1] The Cornell Team used the SuperDecisions software, developed by Dr. Saaty, to fine-tune and quantify the GLTs priorities.[2]

SuperDecisions first requires decision-makers to arrange all relevant considerations into a hierarchical model of criteria and sub-criteria. As described above, the Cornell Team created this model based on the GLTs mission statement, the June 2007 priority-setting session, and the availability of GIS data. A graphical representation of the model is presented as Figure 4.1. SuperDecisions then requires users to make a series of pairwise comparisons in which the user indicates the degree to which a given criterion is more or less important than another. To implement this step of the process, the Cornell Team developed a questionnaire consisting of 19 pairwise comparisons, and

[1] University of Pittsburgh. 2007. Thomas L. Saaty Faculty Profile. Online. http://www.business.pitt.edu/faculty/saaty.html (accessed 13 November 2007).

[2] Creative Decisions Foundation. 2007. SuperDecisions. Online. http://www.superdecisions.com (accessed 13 November 2007).

distributed it to the GLT Executive Director, staff, and board members at their November 2007 meeting. The full questionnaire is provided as Figure 4.2.

The Cornell Team completed the SuperDecisions process by converting responses to a numerical scale and calculating the average answer of all 14 questionnaire respondents. The Team then inserted the calculated values into SuperDecisions and ran the model to produce numerical priority values for use in the GIS conservation suitability model. See Chapter 4, Table 4.2 for these values. The final step of the SuperDecisions process, which assessed the consistency of the GLT's priorities, is described herein.

Running the Conservation Suitability Model

Upon assigning the weighting systems to the conservation criteria, the Cornell Team ran the suitability model in GIS. Using the Raster Calculator in the Spatial Analyst extension of GIS, the Team multiplied the ranked sub-criteria, spatially represented as rasters, by their assigned weight and summed the result. The resulting "suitability score" indicates the conservation value of the land, represented by each 30m by 30m raster cell, when all criteria are considered. The Cornell Team ran the conservation suitability model using the two previously described weighting systems, Equal Weight and GLT Priorities. The suitability scores ranged from 32 to 87 on a scale of 1 to 100, with 100 being the most important, for the Equal Weight system and 30 to 87 for the GLT Priorities system.

Classifying the Suitability Scores

After running the conservation suitability model, the Cornell Team classified the results in order to represent the conservation suitability of the land. The team classified the results of the Equal Weight model into four categories using natural breaks. The natural breaks classification method sorts data values using "apparent natural groupings." In order to test the fitness of the GLT Priorities weighting system, the team assigned the same natural breaks to the GLT Priorities results. By using the same classification ranges, the thresholds for conservation suitability are comparable between the two models. The Cornell Team designated the values in the top category, above 58, as Most Suitable; values between 52 and 57 as Highly Suitable; values between 46 and 51 as Moderately Suitable; and values in the bottom category, below 45, as Least Suitable.

Figure 4.1 Super Decisions Model of GLT Conservation Criteria and Sub-criteria

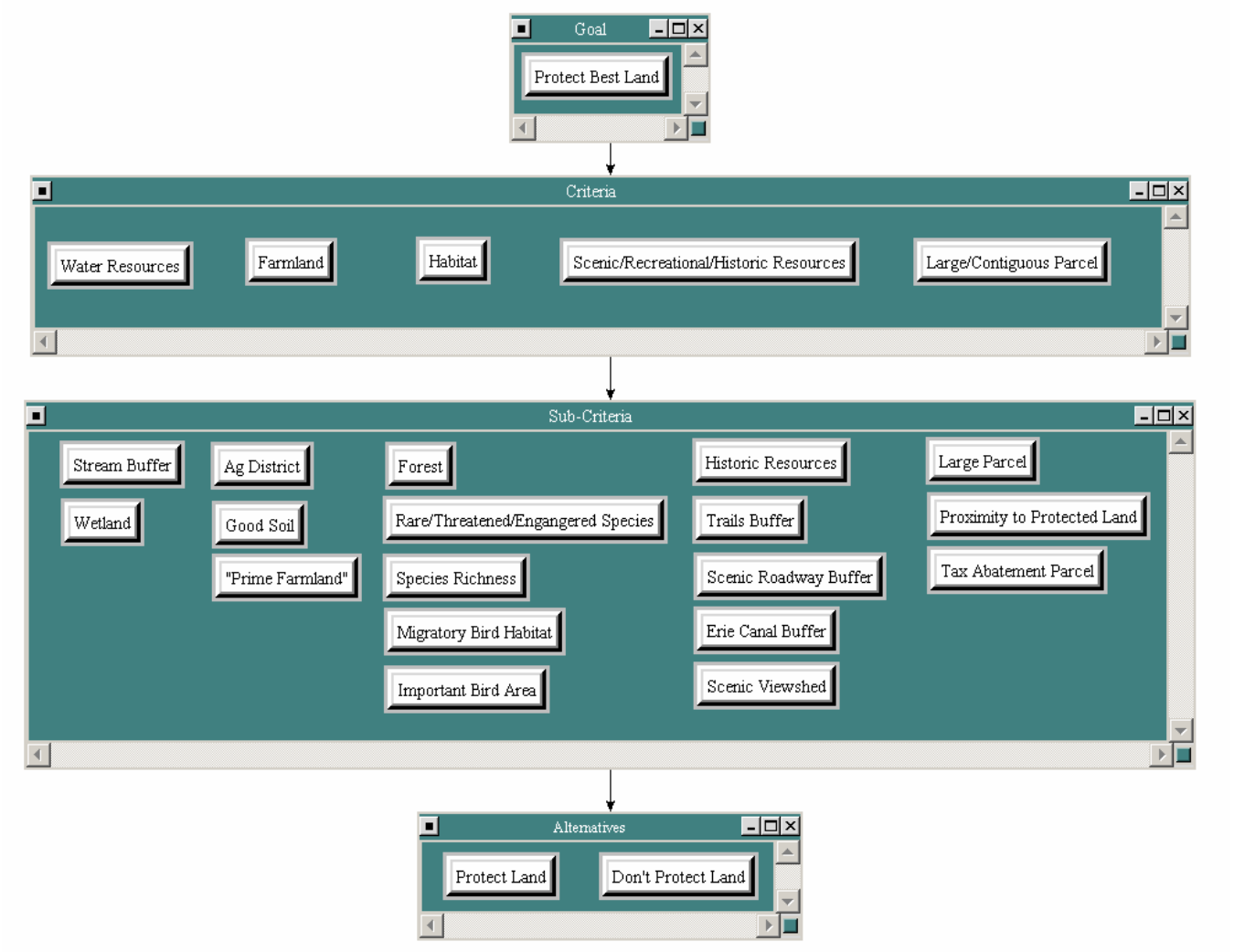

Figure 4.2 GLT Suitability Analysis Criteria Weighting Questionnaire

Instructions: Circle the phrase that best completes each statement, in your opinion.

General Priorities

Protecting "Water Resources" is _____ protecting "Farmland".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Water Resources" is _____ protecting "Habitat".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Water Resources" is _____ protecting "Scenic/Recreational/Historic Resources".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Water Resources" is _____ protecting "Large/Contiguous Parcels".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Farmland" is _____ protecting "Habitat".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Farmland" is _____ protecting "Scenic/Recreational/Historic Resources".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Farmland" is _____ protecting "Large/Contiguous Parcels".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Habitat" is _____ protecting "Scenic/Recreational/Historic Resources".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting "Habitat" is _____ protecting "Large/Contiguous Parcels".

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting “Scenic/Recreational/Historic Resources” is _____ protecting “Large/Contiguous Parcels”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Water Resources

Protecting “Stream buffers” is _____ protecting “Wetlands”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Farmland

Protecting “Land in Ag Districts” is _____ protecting “Good farmland/soil”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Habitat

Protecting “Forest Habitat” is _____ protecting “Land with rare/threatened/endangered species”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting “Forest Habitat” is _____ protecting “Bird Habitat”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting “Land with rare/threatened/endangered species” is _____ protecting “Bird Habitat”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Scenic/Recreational/Historic Resources

Protecting “Historic Resources” is _____ protecting “Land along Trails”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting “Historic Resources” is _____ protecting “Scenic Resources”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Protecting “Land along Trails” is _____ protecting “Scenic Resources”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Large/Contiguous Parcels

Protecting “Large parcels” is _____ protecting “Land that is close to protected land”.

Extremely more important than	Very strongly more important than	Strongly more important than	Moderately more important than	Equally as important as	Moderately less important than	Strongly less important than	Very strongly less important than	Extremely less important than

Consistency Assessment of GLT Conservation Priorities

As noted in Chapter 4, the Cornell Team employed a decision-making model to help clarify and quantify the GLT's priorities. Using SuperDecisions software, the Team developed a conceptual model and a corresponding questionnaire, which they distributed at a November 2007 meeting to the Executive Director and Board. The Team explained the model and questionnaire and provided a table defining each of the criteria and sub-criteria. Each criterion corresponds to a general category of the GLT's priorities. Each sub-criterion corresponds to a specific GIS data layer. The definition table is presented in Chapter 4 of the report. The questionnaire and model diagram are included in this appendix.

The original questionnaire was eight pages long. To save time and avoid burdening the GLT with unnecessary questions, the Cornell Team opted to simplify the questionnaire by assuming that certain pairwise comparisons were sufficiently similar to allow the GLTs response to one to be applied to the other. These simplifications were made only at the sub-criteria level. For example, because the Prime Farmland and Soil layers are both based on soil data, we grouped them together in the questionnaire under the name "Good farmland/soil." When entering questionnaire responses into SuperDecisions, the average response to this question was entered for both the Prime Farmland layer and the Soil layer.

To process the GLT's responses in the SuperDecisions model, the Team needed to assign numeric values to the responses and calculate the average answer. The SuperDecisions software assigns a value of 9 to the response Extremely More Important, 7 to Very Strongly More Important, 5 to Strongly More Important, 3 to Moderately More Important, and 1 to Equally As Important. The Team intended to use this same scoring system, however they were uncertain how to handle values in the Less Important range. The original intent was to assign negative values to these responses, but because the Equally As Important response was scored 1, this system would have skewed the averages toward whichever criterion was listed first in each pairwise comparison. Simply changing the 1's to 0's was one possible solution, however we worried that this would skew averages toward the "equally" condition because the gap between equal and moderate was arbitrarily larger than all others.

To overcome this challenge, the Team used its own scoring system, similar to that described above, but instead assigned values from 8 through -8, with 0 being "equally as important." The Team tabulated the results and calculated the average for each. They then converted these responses back to the verbal scores for entry into SuperDecisions.

After all responses for Criteria and Sub-Criteria are entered, the SuperDecisions software asks users to enter values for Alternatives. In this step, the user indicates which alternative (for example, Parcel A or Parcel B) is 'better' in terms of the given criterion or sub-criterion. This process is repeated for all criteria and sub-criteria and every combination of alternatives. Because the GLT Territory is comprised of hundreds of thousands of parcels, this step of the decision-making process is best handled in the GIS. So in this project, SuperDecisions is used only to calculate the priority values to be entered into the Raster Calculator for the GIS suitability analysis. To run the model, the Team entered equal values (1's) for each of the Alternative comparisons.

The priority values calculated by SuperDecisions based on the GLT's average responses have been presented in Chapter 4 of this report. To assess the robustness of these priorities, the Cornell Team analyzed the consistency of the responses. The boxplot presented in Table 4.1 below shows the range of responses provided for each pairwise comparison in the questionnaire.

The analysis indicates a fairly strong consensus on questions 1 and 16. This suggests that the GLT is quite consistent in its belief that Protecting Water Resources is strongly more important than protecting Farmland. The group is similarly consistent in its belief that Protecting Historic Resources is strongly *less* important than protecting Land Along Trails.

The greatest degree of variability is found for questions 10 and 6. This suggests inconsistency within the GLT regarding the relative importance of protecting Scenic/Recreational/Historic Resources as compared to protecting Large/Contiguous Parcels. A similarly wide range of values is apparent on the question of the relative importance of protecting Farmland versus protecting Scenic/Recreational/Historic resources.

Figure 4.3 Boxplot of GLT questionnaire responses

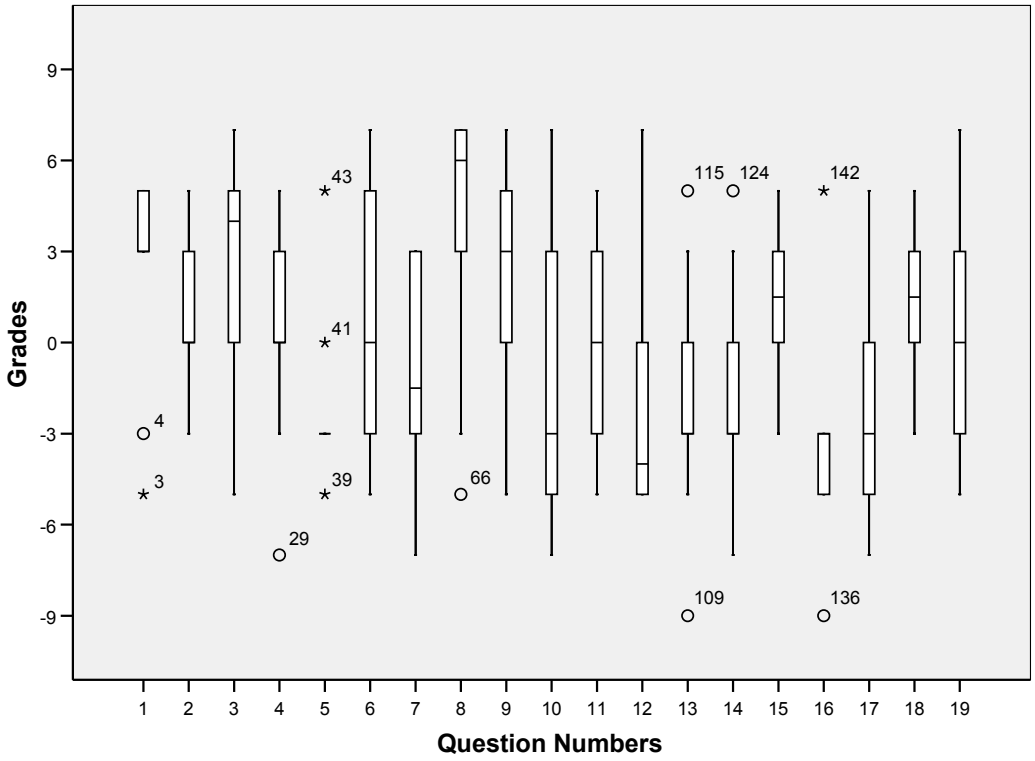

Table 4.1: Comparison of Conservation Suitability between Equal Weight and GLT Priority Systems

	Equal Weight		GLT Priorities	
Suitability	Acreage	Percent of Total	Acreage	Percent of Total
Most	83,992.28	10.26%	45,350.33	5.54%
Highly	223,364.34	27.29%	102,231.42	12.49%
Moderately	284,065.15	34.71%	130,884.23	15.99%
Least	227,035.86	27.74%	539,991.66	65.98%
TOTAL	818,457.64	100.00%	818,457.64	100.00%

Table 4.2: Test Parcel Reference

Parcel ID	Last Name	First Name	Tax ID	Acres	Town	County	GLT Value	Equal Weight	GLT Priorities	Percent Difference
1	Cornwall Trust	Frederick	65119-00-693461	258.25	Williamson	Wayne	Yes	2.138	1.876	60.74%
2	Welker	Floyd	61118-00-630893	45.8	Ontario	Wayne	Yes	1.775	1.537	75.12%
3	Cassidy	Timothy	158.02-1-35.122	31.53	Chili	Monroe	Maybe +	2.012	1.783	63.24%
4	Quakenbush	Marian	029.03-1-32	115.3	Clarkson	Monroe	Maybe -	1.991	1.860	57.54%
5	Schnepf	Barbara	108.14-01-13	13	Penfield	Monroe	No	1.719	1.563	70.32%
6	Noce	Elizabeth	190.09-01-01	6.3	Henrietta	Monroe	No	1.715	1.533	73.01%
7	Hotel	Roger	62111-00-974025	36.76	Macedon	Wayne	No	2.085	2.249	41.22%

Conservation Suitability Analysis: Caveats

The Cornell Team reiterates that the overlay and suitability maps are only two methods of many used to evaluate the conservation suitability of land. Not all conservation factors important to the GLT can be spatially represented as GIS data and are, therefore, not included in the overlay analysis or the suitability model. Furthermore, the conservation suitability model is only as good as the data and the assumptions used to develop it. The Cornell Team obtained data sets used in the model from various sources, and created some data of their own. Finally, the data sets date to different years and may not reflect current land use. Thus, this suitability analysis does not perfectly replicate the landscape and should not be the only factor considered in land conservation decisions. Nevertheless, it provides a good starting point for more detailed land conservation assessments.

To determine acreage for both parcel size and conservation suitability classes, the Cornell Team calculated these areas using GIS. In regards to parcel size, this method was necessary because of incomplete parcel data for Wayne County. For consistency and ease of data analysis, the team used this method for Monroe County as well.

The accuracy of a suitability model depends heavily on the size of the raster cells that represents the data. In this model, the Cornell Team used 30m by 30m grid cells. All data sets incorporated in the model had a grid cell size either a few decimal points above or below this cell size, so little to no precision was lost during calculations. Although a smaller grid cell size would provide more accuracy, this model's grid cell size is sufficient for conveying the suitability results on the scale of Monroe and Wayne Counties, comprising 810,000 acres.

Table 5.1 Land Owners of the Arcadia Focus Area With Holdings Over Fifty Acres

Print Key/ Parcel ID	Property Code	Owner Name	Street Address	Town	Acres
70115-00-090041	240	Horch, William	4289 Deneef Rd	Lyons, NY 14489	218.19
68115-00-926663	130	Datthyn, Kenneth	4607 Rt 88	Sodus, NY 14551	177.41
69113-00-507515	105	Eicher, Joseph		Newark, NY 14513	167.84
68114-00-798855	852	Town Of Arcadia,	100 East Miller St	Newark, NY 14513	158.39
69113-00-732964	120	Belcher, Gerald C.	7186 Maxison Dr	Lyons, NY 14489	151.10
68111-00-717595	120	Speigal As Trustee, Jacqueline	1520 Welcher Rd	Newark, NY 14513	123.35
69115-00-788654	120	Shultz, Harold	7200 Powell Rd	Lyons, NY 14489	112.79
69112-00-534010	240	Sloan, David C.	7153 Old Lyons Rd	Lyons, NY 14489	109.36
69114-00-753167	140	Boyd, Mark Steven	6994 Wunder Rd	Lyons, NY 14489	104.40
70114-00-231371	105	Pacello, James Jr	3297 Maple St Rd	Lyons, NY 14489	101.01
68114-00-573642	130	Bodine, Andrew	221 Prospect St	Newark, NY 14513	99.42
69113-00-735756	120	Johnson, James K.	3183 Lembke Rd	Lyons, NY 14489	98.87
69113-00-842296	105	Brady, James	Vanwickle Rd	Lyons, NY 14489	97.37
69115-00-453588	105	Datthyn, Jacob	4847 Fish Farm Rd	Sodus, NY 14551	93.21
68113-00-914922	240	Piampiano, Michael & Laurie	3232 Route 88 North	Newark, NY 14513	90.56
70115-00-138301	323	Doyle, William W. III	5006 Mcmullen Rd	Lyons, NY 14489	87.91
69115-00-258116	130	Datthyn, Kevin J.	4791 Route 88 North	Sodus, NY 14551	86.39
68112-00-916364	105	Kline, Dennis R.	1959 Route 88 N	Newark, NY 14513	85.39
69113-00-372462	240	Hutteman, Robert W.	6879 Fairville Station Rd	Newark, NY 14513	80.97
69111-00-110682	117	Pieters, Donald E.	1561 Vanauken Rd	Newark, NY 14513	80.64
69113-00-172095	120	Jones, Donald W.		Sodus Point, NY 14555	80.51
69114-00-537965	120	Bastian, David C.	4079 Arc-Zur-Norr Rd	Sodus, NY 14551	79.24
68112-00-758614	120	Frey, Gerald T.	2227 Route 88 North	Newark, NY 14513	78.90

68114-00-822598	130	Johnson, Jack D.	4935 Congdon Rd	Williamson, NY 14589	76.93
69112-00-071046	240	Dewilde, Albert J. Sr		Newark, NY 14513-0171	76.81
69112-00-465285	240	Hartnagel, James	445 Stafford St	Palmyra, NY 14522	75.52
68112-00-888509	120	Bartucca, Domenico	2288 Rt 88 N	Newark, NY 14513	75.06
69113-00-847078	120	Manketelow, Brian	3353 Pilgrimport Rd	Lyons, NY 14489	74.52
68114-00-648411	240	Tack, Carl F.	3693 Rt 88 N	Newark, NY 14513	71.19
69114-00-103105	240	Austin, Rick	3433 Heidenreich Rd	Lyons, NY 14489	70.67
68111-00-838721	105	Graybill Real Estate LLC,	101 West Maple Ave	Newark, NY 14513	70.51
68114-00-557824	322	Wayne County Motorcycle,		Newark, NY 14513	69.90
68113-00-690342	120	Reynolds, Wallace H.	4529 Minsteed Rd	Marion, NY 14505	67.68
68112-00-838298	843	County Of Wayne,	Church St	Lyons, NY 14489	66.15
69113-00-514922	105	Wambach, Everett C.	2590 Culver Rd	Rochester, NY 14609	64.22
68112-00-629535	240	Vick, Carmen J.	2174 Ryder Rd	Newark, NY 14513	63.89
69113-00-490771	105	Parker, Dolores	3146 Arc-Zur-Norr Rd	Lyons, NY 14489	62.95
69112-00-604210	240	Sharpless, James	1979 Shuler Rd	Lyons, NY 14489	62.38
69114-00-000417	240	Metcalfe, Ralph F.	6591 Carpenter Rd	Lyons, NY 14489-1012	62.21
69114-00-307103	105	Mcevoy, Edward	3398 Heidenreich Rd	Lyons, NY 14489	62.18
69113-00-819420	105	Brady, James	Box 389	Lyons, NY 14489	61.96
69112-00-666980	240	Gardner, John F.	2505 Lembke Rd	Lyons, NY 14489	61.79
68114-00-999728	240	Steinrotter, Wilhelm & Patricia	4015 Fish Farm Rd	Sodus, NY 14551	61.13
70114-00-076729	240	Bastian, David Lewis N.	7392 Zurich Rd	Lyons, NY 14489	60.87
68113-00-735164	240	Michaels, Kevin & Valerie	2693 Route 88 North	Newark, NY 14513	60.44
68112-00-532127	113	Bastian, Lawrence E.	1803 Rt 88 N	Newark, NY 14513	60.14
69112-00-024793	120	Pulver, Gareth	6531 Pulver Rd	Newark, NY 14513	60.02
69112-00-290165	120	Bauer, Harold E.	1872 Arc-Zur Norris Rd	Newark, NY 14513	59.87
69113-00-737615	240	Pecoy, Edward	3063 Lembke Rd	Lyons, NY 14489	58.87
68112-00-637876	117	Gansz, Michaele C.	2430 Ryder Rd	Newark, NY 14513	58.69
69114-00-852463	120	Clements, Terry Lee	3645 Lembke Rd	Lyons, NY 14489	58.66

69111-00-091867	113	Schoenacker, Terry B.	1639 Vanauken Rd	Newark, NY 14513	56.40
69114-00-070949	120	Hammond, John & Betty	4076 Fish Farm Rd	Sodus, NY 14551	55.14
69112-00-537843	240	Smith, John	2442 Arcadia-Zurich Norris	Newark, NY 14513	52.48
69113-00-642430	120	Wiegand, Bruce A.	2871 Lembke Rd	Lyons, NY 14489	52.02
69112-00-824365	120	Raes, Charles Jr	1985 Ross Rd	Lyons, NY 14489	50.74
68112-00-625713	220	Frey, Jeanne B.	2356 Ryder Rd	Newark, NY 14513	50.70
69112-00-304004	240	Marsh, Dana G.	1737 Arc-Zur-Norr Rd	Newark, NY 14513	50.29

Table 5.2: Comparison of Conservation Suitability Using Equally Weighted Criteria between Arcadia Focus Area and Monroe and Wayne Counties

	Focus Area		Counties	
Suitability	Acreage	% of Total	Acreage	% of Total
Most	2,495	24.91%	83,992.28	10.26%
High	4,360	43.53%	223,364.34	27.29%
Moderate	2,627	26.23%	284,065.15	34.71%
Least	534	5.33%	227,035.86	27.74%
TOTAL	10,017	100.00%	818,457.64	100.00%

Conservation Focus Areas: Caveats

Landowner data for both focus areas are based on tax parcel records, and are subject to change as property is purchased and sold. Trail data for the Zurich Bog in the Arcadia Focus Area were not available for this report. The trails depicted include the snowmobile trails and trails identified by the Genesee Transportation Commission (GTC). According to data from the GTC, the Wallington to Newark Trail and Wayne County Power Corridor Trail are currently in the planning stages.

Assessing the Appropriateness of Conservation Limited Development Projects[3]

In order to assess the appropriateness of a proposed CLDP, or before developing a CLDP, the GLT must ask or answer, as appropriate, the following questions:

1. What type of conservation targets is the GLT trying to protect?
2. Are these conservation targets compatible with some development?
3. Is the real estate market ripe? Where, within GLT Territory?
4. Is there financial capacity among land trusts, developers, or investors to do Conservation Development projects?
5. What types of parcels are best suited to Conservation Development in GLT area?
6. What types of development would GLT be comfortable endorsing as part of Conservation Development?
7. Does the GLT believe that a Conservation Development can meet multiple community objectives? If so, what objectives?
8. Does GLT have an interest in advocacy role, such as working with government on site plan review?
9. Is appropriate zoning (or other land use regulations) in place that would allow a CLDP? Which municipalities within the GLT Territory allow CLDP in local land use regulations?

[3] Midler, Jeff. Ph.D Candidate Cornell University, Natural Resources Department. Lecture notes: Conservation Land Development Protection, October 23, 2007.

Table 6.1 Comparison: Types of Conservation and Limited Development Projects[4]

Type of Development	Who Conducts	What is Allowed	Economics	Stewardship
Type 1: Conservation Buyer Projects	usually by land trusts	development usually restricted to a single house	lower-cost approach to preservation	private owner
Type 2: Conservation and Limited Development Projects	land trusts; developers; landowners; investors	usually 5-25% full-density buildout	typically economically self-sustaining	land trust active
Type 3: Conservation Subdivisions	for-profit developers	full density buildout but clustered	market approach	various
Type 4: Conservation-Oriented Master Planned Communities	for-profit developers	large-scale, mixed use	market approach	large-scale conservation potential

[4] Midler, Jeff. Ph.D Candidate Cornell University Natural Resources Department. Lecture notes: Conservation Land Development Protection, October 23, 2007.

GLT Contacts List

New York State
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http://www.dec.ny.gov

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New York Conservation Foundation, Inc.
http://www.nycf.org

275 Madison Ave.
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The Nature Conservancy in New York
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(703) 841.5300 p

New York League of Conservation Voters
http://www.nylcv.org

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New York State Soil and Water Conservation Committee
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The Wildlife Conservation Society
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2300 Southern Boulevard
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Sodus Bay Sportsman's Club
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