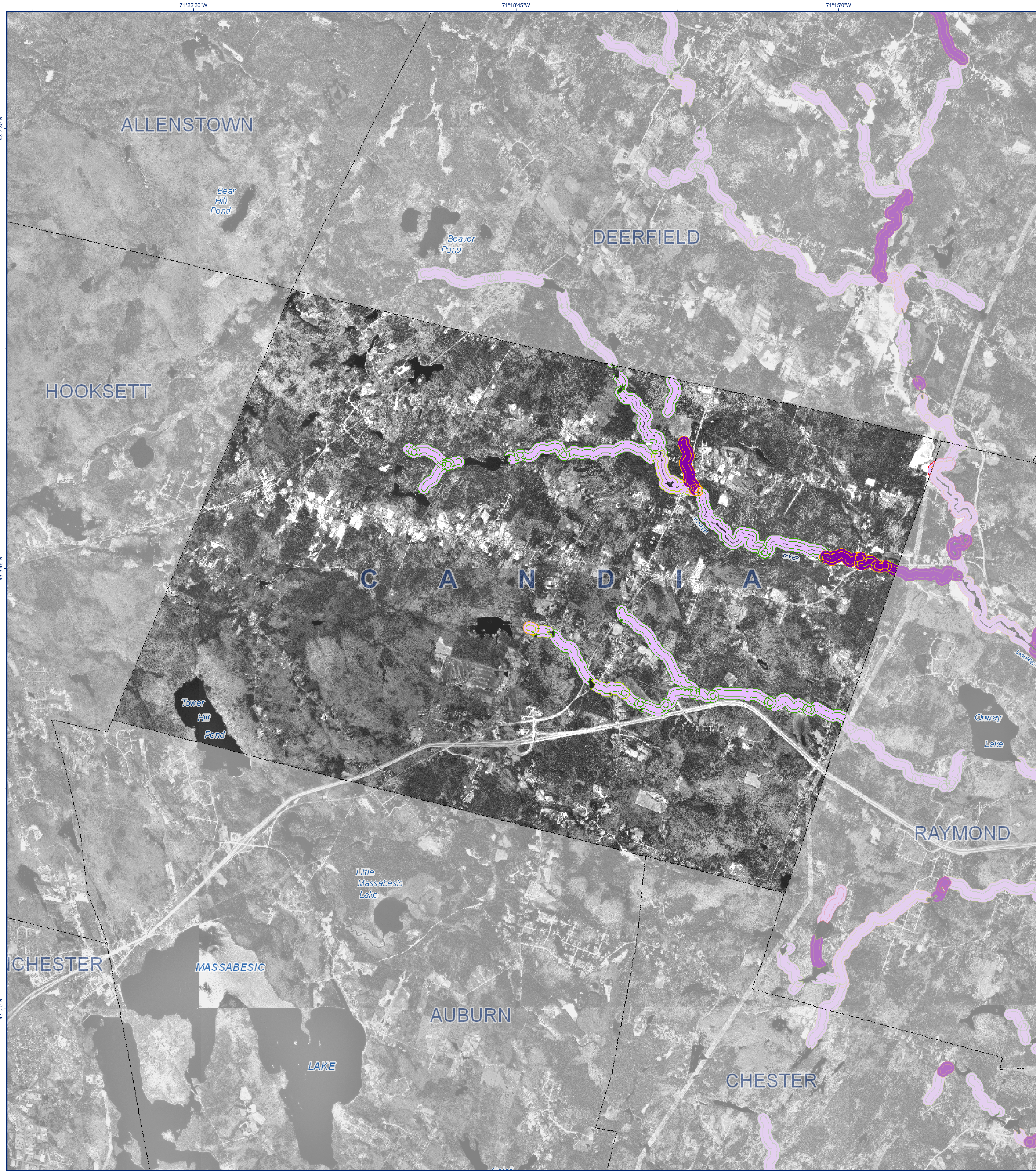


# STREAM BUFFER CHARACTERIZATION STUDY

## Town of Candia, NH



### Project Description:

The Complex Systems Research Center at the University of New Hampshire conducted a characterization of 2<sup>nd</sup> order and higher streams within the Piscataqua/Coastal Basin of coastal New Hampshire. Existing GIS and remote sensing data were used to map a suite of anthropogenic factors, including land use, impervious surface coverage, and transportation infrastructure, within standard buffers around each stream segment. These factors were then analyzed to produce a categorical indicator representing the status of each stream.

Processing began using the GRANIT hydrography data to identify perennial streams/streams of order 2 or higher. Each stream segment was buffered by 150' to support water quality analyses and by 300' to support habitat analyses, and the buffers were then combined with land use data derived from 1998 USGS Digital Orthophotographs (DOOs). Finally, the buffer/land use composites were categorized

based on the degree to which each buffer was impacted by human activity.

Specifically, the buffer categories reflect the percent of land area within each buffer mapped as either developed, transportation, or agriculture, and include:

| Category          | Decision Rule   |
|-------------------|-----------------|
| Intact            | <10% impacted   |
| Mostly Intact     | 10-25% impacted |
| Somewhat Modified | 25-50% impacted |
| Altered           | >50% impacted   |

The buffer characterizations are depicted on the map and summarized in the tables below. The map also displays the 300' buffers based on the degree of imperviousness in 2005, and the townwide conservation lands data. Impervious surface coverage by town for 1990, 2000, and 2005, as well as conservation lands acreage by town, are also reported.

### Stream Buffer Characterization

- Intact
- Mostly Intact
- Somewhat Modified
- Altered

### Percent Impervious by 300-ft Buffer Segment

- Less Than 10%
- Greater Than 10%

### Conservation Lands

- Level 1, 2, or 2A

### 150-ft Buffer Stream Characterization Data Summary

| Town Name     | Total Acres   | Land Area     |             | Surface Water Area |            | 150' Buffer Area |            |            |               | Percent of Town Buffer Acreage Categorized as: |            |            |            |
|---------------|---------------|---------------|-------------|--------------------|------------|------------------|------------|------------|---------------|--|------------|------------|------------|
|               |               | Acres         | % of Town   | Acres              | % of Town  | Acres            | % of Town  | Intact     | Mostly Intact | Somewhat Modified                              | Altered    |            |            |
| <b>Candia</b> | 16557         | 19340         | 98.9        | 217                | 1.1        | 489              | 2.5        | 2.1        | 0.2           | 0.2  | 0.0        | 0.0        | 0.0        |
| <b>Total</b>  | <b>759673</b> | <b>708144</b> | <b>93.2</b> | <b>51529</b>       | <b>6.8</b> | <b>25279</b>     | <b>3.6</b> | <b>2.7</b> | <b>0.7</b>    | <b>0.4</b>                                     | <b>0.2</b> | <b>0.2</b> | <b>0.2</b> |

### Townwide Conservation Lands Data Summary

| Town Name     | Acres        | Townwide Conservation Lands |             |
|---------------|--------------|-----------------------------|-------------|
|               |              | % of Town                   | % of Land   |
| <b>Candia</b> | 2908         | 10.3                        | 10.4        |
| <b>Total</b>  | <b>75596</b> | <b>10.0</b>                 | <b>10.7</b> |

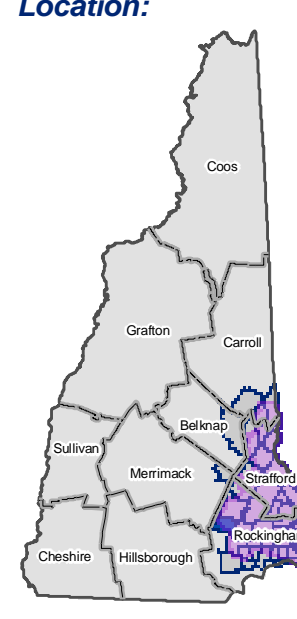
### 300-ft Buffer Stream Characterization Data Summary

| Town Name     | Total Acres   | Land Area     |             | Surface Water Area |            | 300' Buffer Area |            |            |               | Percent of Town Buffer Acreage Categorized as: |            |            |  |
|---------------|---------------|---------------|-------------|--------------------|------------|------------------|------------|------------|---------------|--|------------|------------|--|
|               |               | Acres         | % of Town   | Acres              | % of Town  | Acres            | % of Town  | Intact     | Mostly Intact | Modified                                       | Altered    |            |  |
| <b>Candia</b> | 16557         | 19340         | 98.9        | 217                | 1.1        | 1035             | 5.4        | 4.2        | 0.4           | 0.7  | 0.0        | 0.0        |  |
| <b>Total</b>  | <b>759673</b> | <b>708144</b> | <b>93.2</b> | <b>51529</b>       | <b>6.8</b> | <b>52037</b>     | <b>7.3</b> | <b>3.9</b> | <b>1.6</b>    | <b>1.3</b>                                     | <b>0.6</b> | <b>0.6</b> |  |

### Townwide Impervious Surface Data Summary

| Town Name     | Acres      | Townwide Impervious Surface Coverage |            |            |
|---------------|------------|--------------------------------------|------------|------------|
|               |            | Area 1990                            | Area 2000  | Area 2005  |
| <b>Candia</b> | 2.1        | 3.0                                  | 3.5        | 3.5        |
| <b>Total</b>  | <b>4.4</b> | <b>6.4</b>                           | <b>7.5</b> | <b>7.5</b> |

### Map Location:



### Map Notes:

- Stream reaches were identified, attributed, and buffered based on their extent from confluence to confluence. Buffers were developed to guide the determination of segments in specific situations, e.g. where confluences existed on one river bank but not on the opposing bank. These procedures occasionally yielded very short stream segments and therefore relatively small buffers.
- Because only 2<sup>nd</sup> order and higher perennial streams were analyzed, some discontinuities exist in the input data set and thus in the buffers.
- At points of confluence and in other locations where buffers overlapped, the most impacted category was assigned to the overlap area.
- Data was processed for the Piscataqua/Coastal Basin, which includes all or part of 48 municipalities. Six of these towns - Alton, Derry, Hampstead, Pittsfield, South Hampton, and Wolfeboro - were not included in the printed map set as they have no streams that extend into the Watershed.
- Only 300' buffers were analyzed with respect to impervious surface data due to the 30-meter resolution of the source satellite imagery.
- Conservation lands shown on the map and summarized in the table include only those classified as permanently protected (Level 1, 2, or 2A) in the GRANIT database.

### Data Sources:

- Stream buffers were created from 1:24,000-scale New Hampshire National Hydrography Dataset (NHNHD) stream centerlines (2005)
- Impervious surface data was generated from Landsat 5 TM (30m resolution) imagery (1990, 2000, 2005)
- Land Use data was created from 1998 USGS Digital Orthophotographs
- Conservation Lands were based on April, 2006 version of GRANIT data layer

### Map by:

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