The Maine Shoreland Zoning Law states that within a ten year period, no more than 40 percent of the total volume of trees exceeding four inches in diameter may be harvested within 250 ft of Maine's rivers, lakes, wetlands and within 75 ft of certain streams. In addition, the Shoreland Zoning Law mandates that the maximum allowable clearing size be 25 percent of a lot or 10,000 ft^2, whichever is larger. Furthermore, the Shoreland Zoning Law states that within shoreland zones clear-cuts greater than 5,000 ft^2 must be separated by a minimum of 100 ft (Brian 1998).

CLEARED LAND

Cleared land is very influential in the impact that a watershed has on a water body. Cleared land, which is mostly, if not completely, free of trees and shrubs, lacks any significant buffering capability and is highly susceptible to stormwater runoff and erosion. Among the various land uses included within the cleared land category are open land, golf course, agriculture, and park. Open land is defined as land that has been cleared for logging or development and is devoid of all vegetation other than grass. Of particular concern to the health of Long Pond North are the golf course and agricultural areas. Both land uses are traditionally phosphorus intensive and may act as potentially significant non-point sources of pollution to Long Pond North.

In 2003, cleared lands comprised 2.4 percent of the extended watershed and 1.7 percent of the Long Pond North direct watershed. Approximately 3.3 percent of the extended watershed in 1991 was designated as cleared land (CEAT 1995) (Table 5). The decrease in the amount of cleared land since 1991 can be partially attributable to the methodological differences explained in the wetlands discussion section. Additionally, some of the cleared land that existed in 1991 has since reverted and is currently classified as regenerating land. The Maine Shoreland Zoning Law states that clearings in the forest canopy cannot exceed 250 ft^2 within 100 ft of great ponds or within 75 ft of tributary streams (Brian 1998). The impacts of cleared land, which can be a significant non-point source of pollution, are greatly reduced by this ordinance.

As was the case in 1995, there are currently no large scale agricultural practices within the watershed. The most notable cleared lands are the horse farm, golf course, and large residential lawn, all of which are in the town of Belgrade. Ground-truthing revealed a recently cleared area on Blueberry Hill in Rome. The area has been cleared of forest cover and only small shrubs remain. The clearing is located on a steep, rocky slope, making it prone to erosion and

significant stormwater runoff. This cleared land is buffered, however, by the forested area adjacent to Long Pond North.

REGENERATING LAND

Forested areas that were cut for logging or agricultural purposes and have since begun to revert by growing small shrubs and trees are termed regenerating lands. These lands have characteristics of forested land such as root systems and a developing canopy and are more effective in preventing erosion and reducing runoff than is cleared land.

The percentage of the Long Pond North watershed classified as regenerating land has decreased substantially since 1991. In 1991, 15.1 percent of the watershed was comprised of regenerating land (Table 5). Analysis of the 2003 DOQs revealed that 2.2 percent of the Long Pond North extended watershed is composed of regenerating land. During the twelve year period between 1991 and 2003, regenerating land within the extended watershed decreased by approximately 808 acres (327 ha) (Table 10). Much of what was previously categorized as regenerating land is now classified as forest and is located primarily in the northwestern section of the watershed (Figure 9).

COMMERCIAL AND RESIDENTIAL

To generate the 2003 land-use map, residential and commercial areas were designated using ArcGIS® (Figure 9). Residential and commercial properties were identified on the DOQs by the presence of lawns, docks, cars, roofs, and other indicators of residence. Dense tree cover prevented the identification of every residence and associated lawn within the Long Pond North watershed using GIS. However, manual house counts were performed to improve accuracy in the number of commercial and residential properties. To accurately quantify shoreline and non-shoreline residential areas, the number of residences pertaining to each category was multiplied by a lot size of one acre for non-shoreline and half an acre for shoreline residences as suggested by the Maine DEP (Bouchard pers. comm.). The same calculations were also performed using house counts obtained in the 1995 CEAT report. Ground-truthing was used to discriminate between commercial and residential properties.

Residential and commercial lands have high runoff rates due to their association with lawns and impervious surfaces such as roofs and driveways. Those lands closest to Long Pond North or to tributaries will have the greatest effect on water quality due to runoff.

Developed land occupied 5.3 percent of the extended watershed in 2003 as compared to 4.4 percent in 1991 (Figure 10). This increase in developed land is consistent with Belgrade and Rome's vision of transitioning from seasonal to year-round towns. Future development will focus less on the construction of seasonal residences and more on year-round properties.

The house count found that 20 shoreline and 43 non-shoreline residences have been constructed within the direct watershed since 1995 (Table 6). Clearing land for development, especially for shoreline residences, can significantly impact water quality. Implementation of properly designed buffers, however, can greatly reduce nutrient loss through erosion and minimize residential impact on Long Pond North water quality.

Table 6. A comparison of house counts for both shoreline and non-shoreline residences in Long Pond North watershed in 1995 and 2006. 1995 data collected by CEAT.

	1995	**2006**
Shoreline	247	267
Non-shoreline	169	212