Three pollutants were chosen to represent the pollution potential of this urban area. Phosphorus was chosen because it is commonly associated with surface water enrichment, and is also a pollutant generated by rural land uses. Suspended solids was chosen for the same reasons. In addition, many urban pollutants attach themselves to suspended solids in runoff, and therefore suspended solids can be used as a general indicator of other particulate pollutants generated and transported from urban areas. Lead was chosen because of its toxicity, and because it, along with many other heavy metals, is one of the most commonly detected priority pollutants in urban runoff (USEPA, 1983).

It is important to note that the western edge of the village of Campbellsport, which includes significant commercial and industrial acreage, drains to the West Branch of the Milwaukee River in the Lake Bernice Subwatershed.

Estimated urban loads in the Campbellsport Study Area for suspended solids and phosphorus are 93,000 pounds and 240 pounds respectively. The urban contribution of these materials is relatively low compared to other sources within the subwatershed. Although the established urban areas contributes about 20 percent of the suspended sediment load generated within the subwatershed, this percentage becomes less significant (under five percent) when the contributing sediment sources in upstream subwatersheds are considered. These same areas are estimated to contribute about 10 percent of the subwatershed nonpoint source phosphorus load. The significance of these urban phosphorus contributions are also less for the Milwaukee River mainstem, which receives a considerable pollutant load from upstream.

It should be noted that although existing urban areas are overshadowed by rural sources in the production of suspended sediment, there has been a considerable pollution potential associated with past construction activities. It is estimated that between 1967 and 1985, urban land uses in the study area increased by 146 acres, or about eight acres per year. Over half of this occurred within the village of Campbellsport where 92 acres were converted to urban land uses between 1967 and 1985, or an annual average conversion of about five acres. Land use categories experiencing the greatest change in the study area were residential, which increased by 71 acres, and transportation, communication, and utility uses which increased by 36 acres. Recreational land use, including any attendant parking and street access, increased by 29 acres. The change in urban areas within the village followed the same trend, with residential, transportation, communication, and utility land uses experiencing the greatest growth.

The potential construction erosion from 146 acres of development is considerable, about 4,100 tons in total or about 230 tons per year. This annual erosion potential is similar to the estimated sediment delivered to surface waters from all sources within the subwatershed. Even if only a portion of the construction erosion made its way to surface waters, the loading would have been considerable.

Urban pollutants of primary concern for the established urban land uses in the Campbellsport Study Area include: heavy metals, typified by lead; pathogens; oils and greases; and a wide array of hazardous materials that can make their ways into urban storm sewer systems and surface waters.

Table 27 shows the relative pollution potential of the major urban land uses in the study area. Commercial and institutional lands, both which have a high capability of generating urban pollutants, produce the majority of the lead load. Although these lands make up only 22 percent of the urban area, they contribute 67 percent of the lead load. Industrial lands, making up only three percent of the study area, contribute an additional 14 percent of the lead load. Residential lands in the study area combine to produce a significant portion of the lead load (16 percent), but these lands cover nearly 54 percent of the urban area. The residential lands take on a greater significance as sources of pesticides, human disease causing pathogens, and a wide array of chemicals often improperly used or disposed.

Map 4 shows the anticipated urban land use in the study area for the year 2000, projected to increase from 455 acres to 731 acres. Table 28 shows the nature and extent of the proposed development. A total of 276 acres of new development are anticipated over the next 12 years. All of the anticipated growth is expected to occur in the residential and industrial land use categories which are expected to grow by 104 percent and 127 percent respectively. Residential land use will continue to dominate the urban landscape, growing to comprise 68 percent of the urban land use in the year 2000. Most of the anticipated growth is anticipated to occur within the existing village limits. However, some is expected to occur adjacent to the eastern edge of the municipal boundary in Auburn Township. It is also important to note that a small part of the anticipated development is anticipated to occur in the western portion of the village, in the drainage to the West Branch of the Milwaukee River.

The water quality implications of future development are two-fold. First is the pollution potential attendant to construction site erosion if not properly controlled. Second is the pollution potential of new urban impervious surfaces, if appropriate stormwater control practices are not used.

Potential construction erosion impacts are dramatic. The construction site erosion potential for 276 acres of development is about 7,700 tons of sediment, or about 650 tons of sediment per year. This is equivalent to about three times the existing annual estimated sediment load from all sources within the entire subwatershed. Even if only 25 percent of the potential eroded sediment is delivered to surface waters, the annual sediment load would equal more than one-half of the existing subwatershed sediment load. Water resources impacts from construction site erosion are potentially catastrophic.

The increase in lead load from new urban areas is estimated to be about 30 percent if control practices are not used. Residential, commercial, industrial, and institutional land uses would make roughly equivalent contributions to the lead loading. Commercial, industrial, and institutional