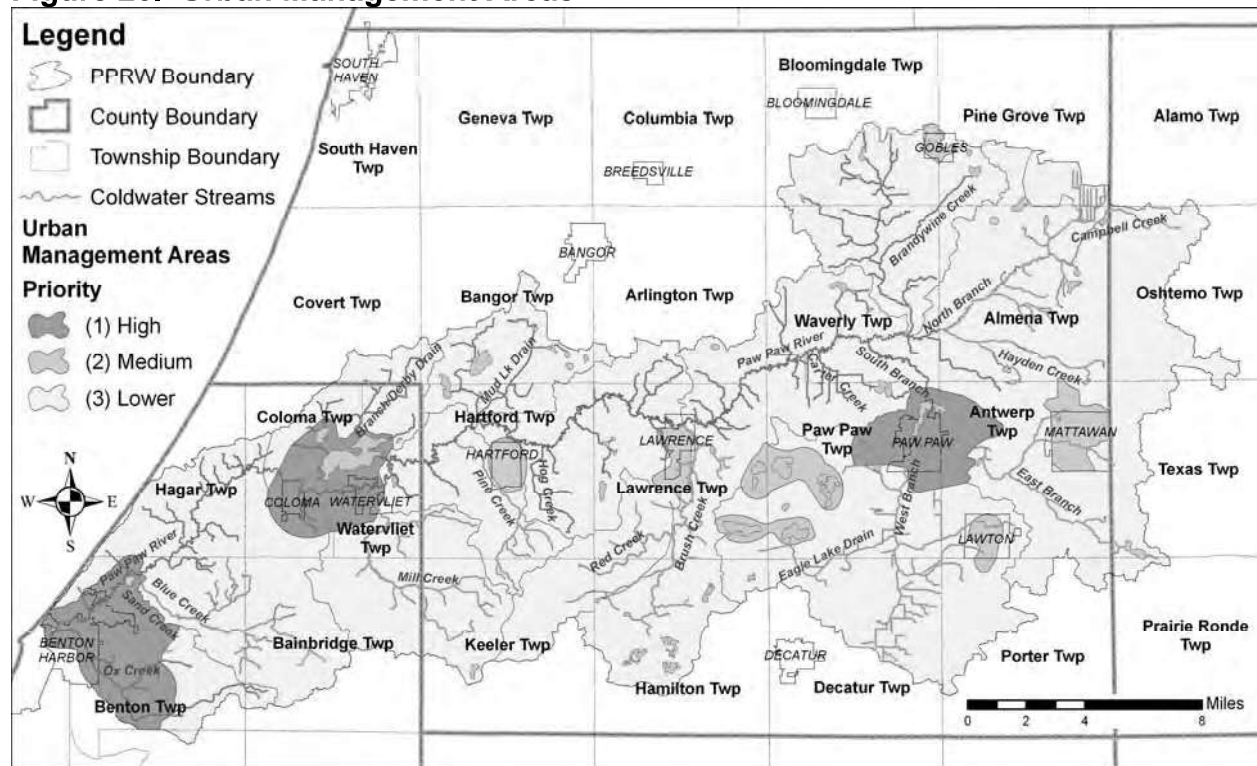


8.3 Urban Management Areas

The prioritization of urban management areas is based on significant water body impairments, amount of urban land cover and problems identified by MDEQ staff, MDNR Fisheries staff, Van Buren County Drain Commissioner or through the volunteer inventory process. The PPRW is prioritized into three categories for urban management as shown in Figure 25. The high priority urban management areas are the downstream portions of the Ox and Sand Creek subwatersheds, the Paw Paw Lake area and the Village of Paw Paw. Medium priority areas include the Villages of Lawrence, Lawton and Mattawan, the Cities of Gobles and Hartford and the area around Eagle, Three Mile, Cora, Reynolds and Christie lakes (between Lawrence and Paw Paw Villages). The high and medium priority areas are suspected to contain a majority of the urban related pollutant sources impairing or threatening water quality in the PPRW. The remainder of the watershed is in a lower priority level for urban management efforts. However, since this analysis is at a landscape scale, there may be places in the lower priority area that need attention to improve water quality in the watershed.

Figure 25. Urban Management Areas



Urban Management Area Pollutants and Sources

In the urban management areas the prioritization of pollutants and sources is based on their suspected significance to impaired water quality in these areas.

In the urban management areas, the pollutants are prioritized as follows:

1. **Sediment** is a known pollutant causing impairments in urban areas, especially in Benton Harbor (Ox Creek) and the Village of Paw Paw (Maple Lake).

2. **Nutrients** are a known pollutant in urban stormwater runoff. A study of Paw Paw Lake attributed low dissolved oxygen levels to excess nutrients. Nutrients are also suspected to be a problem in other developed lakes in the watershed.
3. **Oil, grease and metals** are a known pollutant in Ox Creek and are suspected to be causing impairments.
4. **Bacteria and pathogens** are suspected to be a problem in highly developed lake areas without municipal sewer (Eagle, Three Mile, Cora, Reynolds and Christie lakes).
5. **Temperature** is a concern because impervious surfaces in urban areas can cause increases in temperature; however, most coldwater streams in the PPRW are not located in urban areas.
6. **Pesticides** are a pollutant of concern in urban areas because of improper application on lawns and golf courses in these areas; however no data was found documenting their significance in the PPRW.

In the urban management areas, the pollutant sources are prioritized as follows:

1. **Stormwater runoff** – A majority of pollutants impairing or threatening designated uses in urban areas are found in stormwater runoff, which largely results from impervious surfaces.
2. **Streambanks** – Impervious surfaces in urban areas can alter hydrology, which causes streambank erosion.
3. **Septage waste** – Septic systems are suspected to be a source of bacteria and pathogens in lake areas lacking municipal sewer services. In addition, the failure of sewer system infrastructure in urban areas has also led to releases of untreated wastewater.

8.4 Problem Sites

Along with the priority areas, stakeholders identified several problem sites during the planning process that need attention. These sites included erosion sites, fish passage impairments and illegal wetland drainage or fill sites. A major problem site is located between Watervliet and Hartford along the Red Arrow Corridor, where a large wetland complex has been extensively ditched and drained altering the hydrology of the area.

Erosion and fish passage impairment sites are identified in Figure 26. Fish passage impairment sites result from a road crossing, dam or weir. An MDNR fisheries biologist identified the fish passage impairment sites. The fish passage sites may not be causing direct erosion problems, but may be disrupting the natural flow regime of several tributaries in the watershed. Further, the low head dams and weirs found in the watershed can impact the movement of fish and other organisms and limit their ability to reach headwater areas for spawning and nursery areas.

Following the map is a description of each erosion site, which is due to either a problematic road/stream crossing or unrestricted livestock access to a stream. Volunteers identified several of the livestock access problem sites during the Volunteer Inventory process. At the livestock access problem sites, the streambanks are eroding and most likely nutrients and bacteria/pathogens are entering the waterbodies.