3.0 Basin and Watershed Characteristics

3.1 Basin Characteristics

Wood Pond covers an area of approximately 14 acres (Figure 3-1). The lake, which is located in the City of Burnsville (Dakota County), receives stormwater runoff from a watershed of approximately 110 acres, including the lake's surface area. Wood Pond is part of the Sunset Pond watershed (including Keller, Crystal, Twin, and Earley Lakes), but is generally 'offline'. The water level in the lake is controlled at Elevation 1000.9 ft MSL by an 18-inch inlet/outlet pipe located at the west side of the lake. Discharge from the lake is conveyed southward through the trunk storm sewer system beneath Portland Avenue and eventually flows into Twin Lake.

The MPCA defines a shallow lake as a basin with a maximum depth of 15 feet or less. With a mean depth of 10 feet and a maximum depth of 14 feet, Wood Pond is technically considered a shallow lake (Figure 3-2).

Table 3-1 Wood Pond Morphometry

Lake Characteristic	Wood Pond
Lake MDNR ID	19002400
Normal Water Level (NWL)	1000.9
Surface Area (acres)	14
Mean Depth (feet)	10
Maximum Depth (feet)	14
Volume (below the NWL) (acre-feet)	132
Stratified Conditions	Polymictic
Watershed Area (acres)*	110

* Includes surface area of lake

3.2 Watershed Characteristics

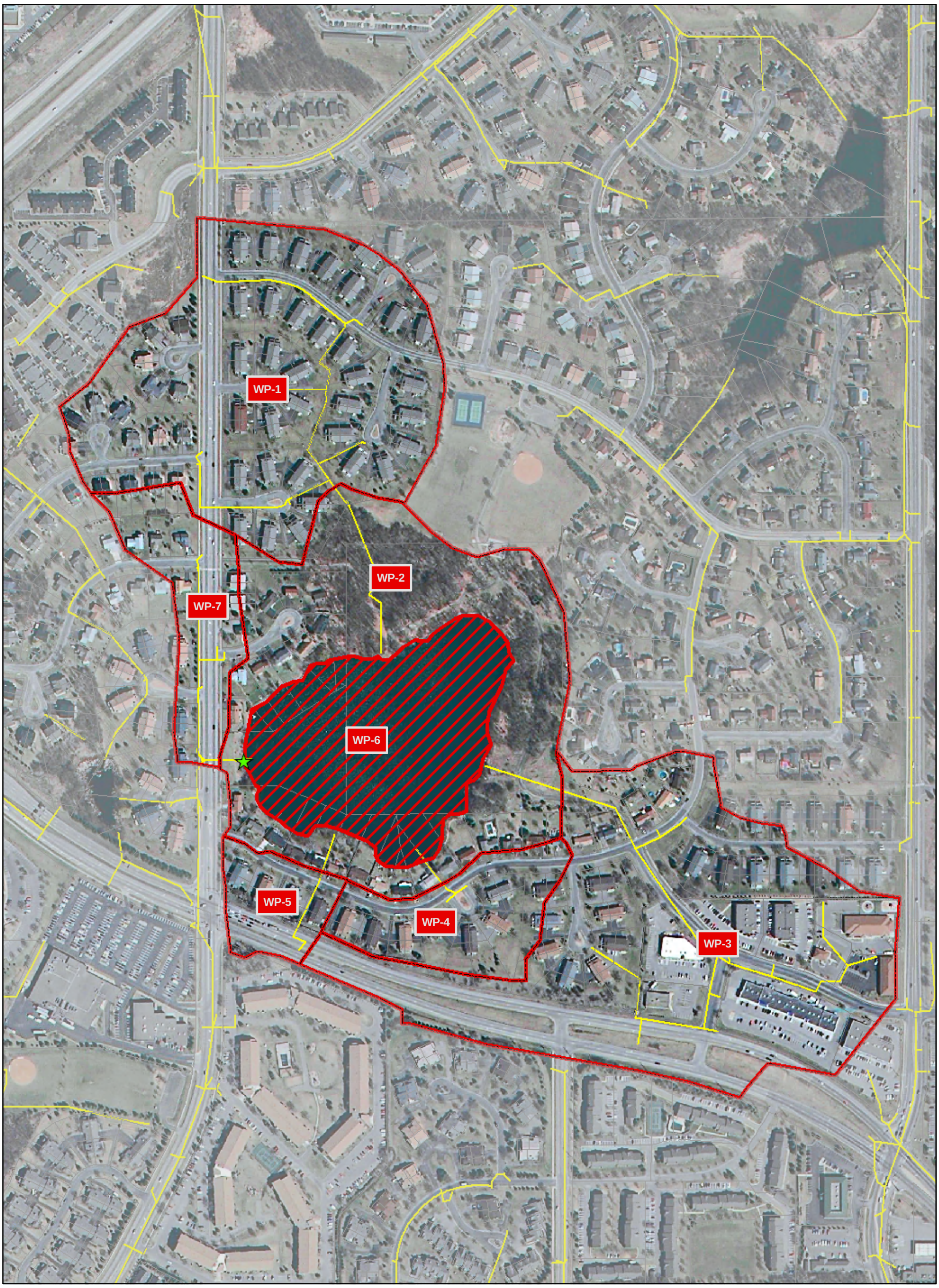
3.2.1 Land Use

The 110-acre Wood Pond watershed was divided into subwatersheds for purposes of the study (Figure 3-1). The Wood Pond watershed is fully developed, with no significant changes in land use classification expected for the foreseeable future. Therefore, future land use was assumed to be the same as existing land use. Existing land use conditions were determined using GIS land use information from the City and 2006 aerial photography. The Wood Pond watershed is predominantly low- and medium-density residential land use (Figure 3-3). A portion of the watershed area (22%) is characterized as right-of-way, primarily segments of County Road 42 and Portland Avenue. There is

some commercial land use southeast of the lake along County Road 42. Wood Park is located along the northeast shoreline of Wood Pond. The existing land use conditions for the Wood Pond watershed are summarized in Figure 3-4.

3.2.2 Soils

The infiltration capacity of soils affects the amount of direct runoff resulting from rainfall. Soils with a higher infiltration rate have a lower runoff potential. Conversely, soils with low infiltration rates produce high runoff volumes and high peak runoff rates. According to the Dakota County Soil Survey (USDA, 1983), the underlying soils in the Wood Pond watershed are predominantly classified as hydrologic soil group B, with moderate infiltration rates. There are pockets of hydrologic soil group B/D in the northwest portion of the watershed; the B/D soil group indicates that the soil has poor infiltration capacity in its natural (undrained) condition. Figure 3-5 depicts the hydrologic soils group classification for soils within the Wood Pond watershed.



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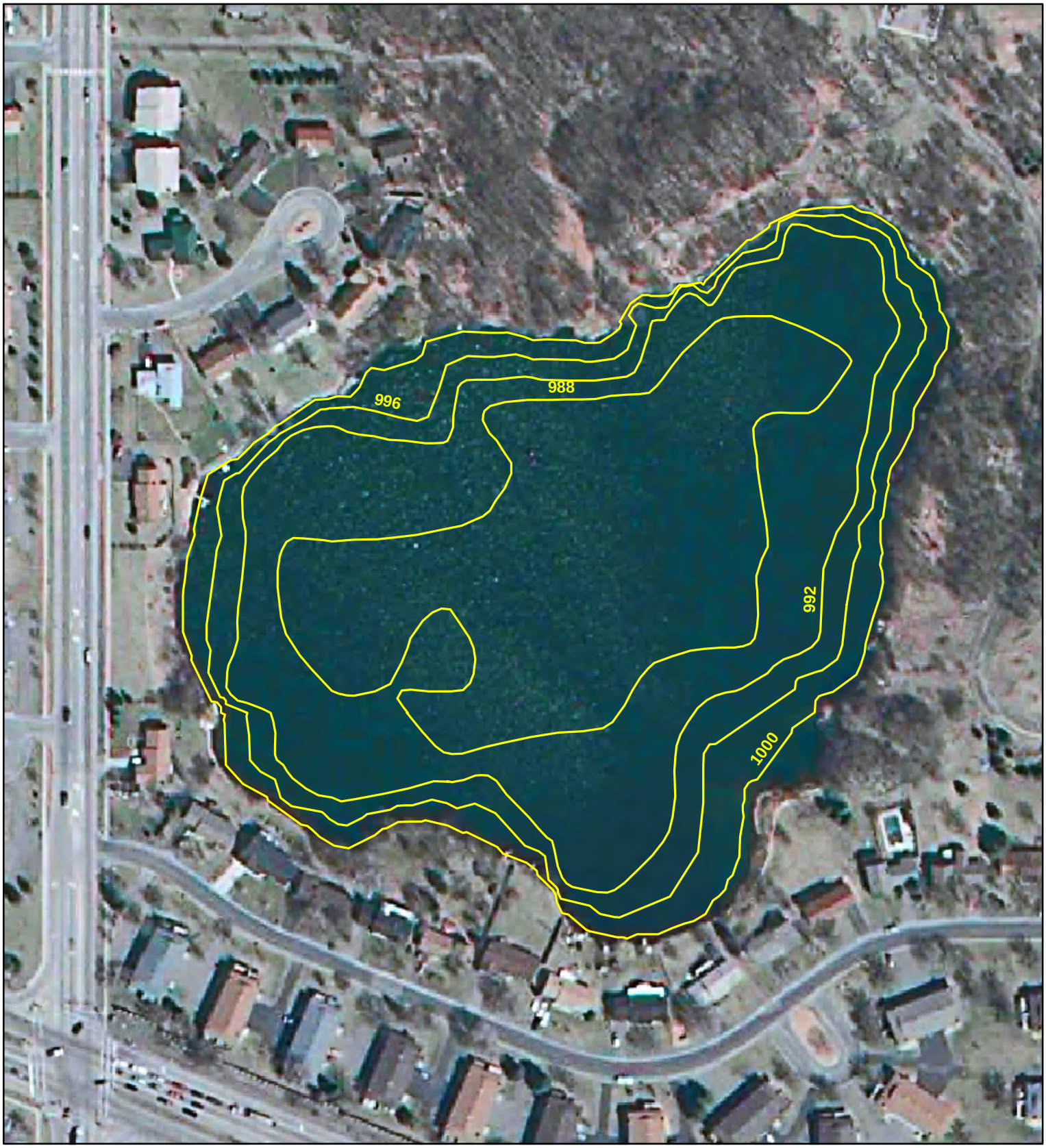
Wood Pond
Existing Subwatersheds
Parcels
Wood Pond Inlet/Outlet
Storm Sewer

0 500 1,000
Feet

Figure 3-1

WOOD POND WATERSHED

Wood Pond Use
Attainability Analysis
City of Burnsville
Burnsville, Minnesota



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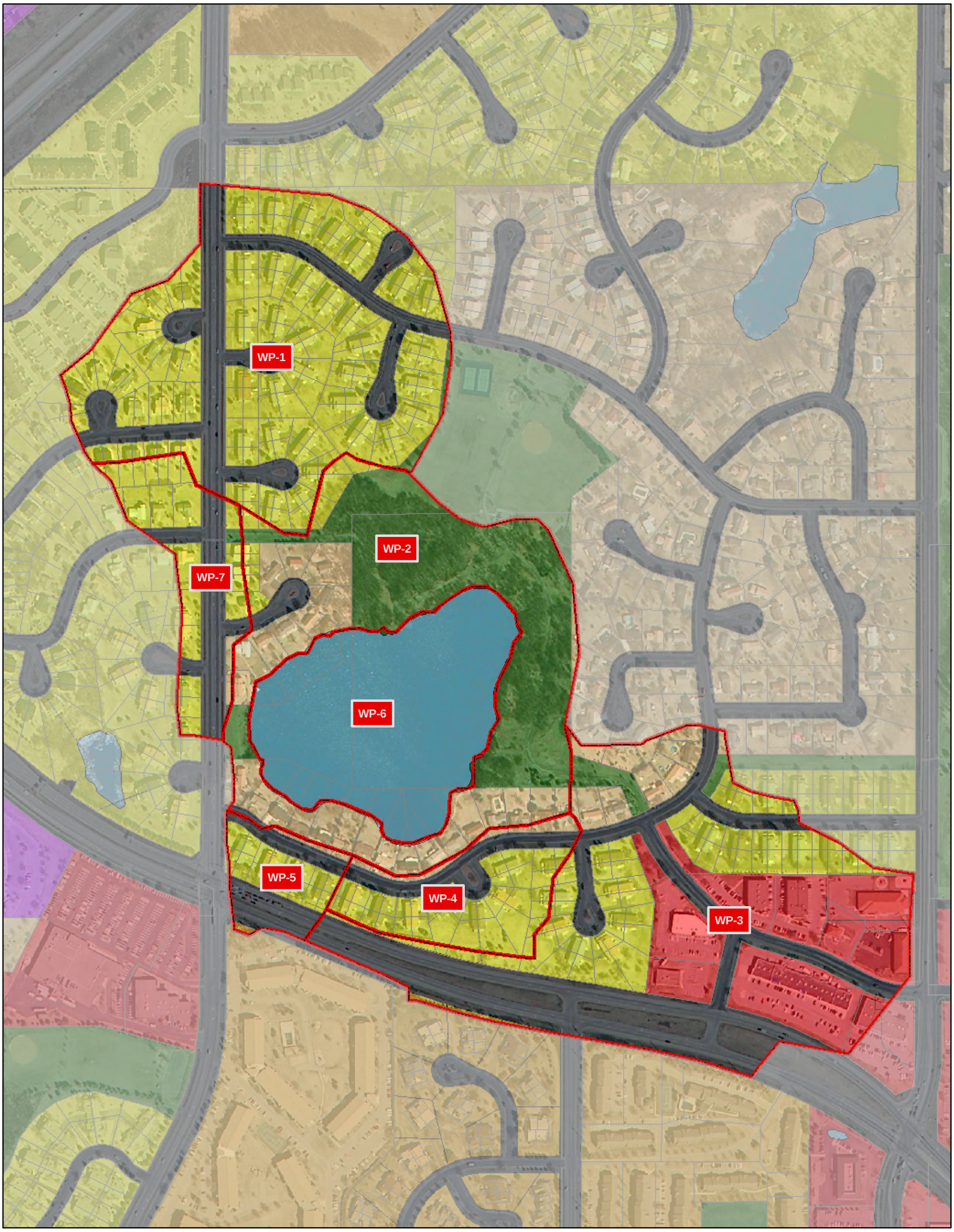
Wood Bond Bathymetry

0 100 200 400
Feet

Figure 3-2

WOOD POND BATHYMETRY

Wood Pond Use
Attainability Analysis
City of Burnsville
Burnsville, Minnesota



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Land Use

- Commercial
- Industrial/Office
- Institutional
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Golf Course
- Natural/Park/Open
- Open Water
- Highway

- Existing Subwatersheds
- Parcels

0 500 1,000
Feet

Figure 3-3

WOOD POND WATERSHED
EXISTING AND FUTURE LAND USE

Wood Pond Use
Attainability Analysis
City of Burnsville
Burnsville, Minnesota

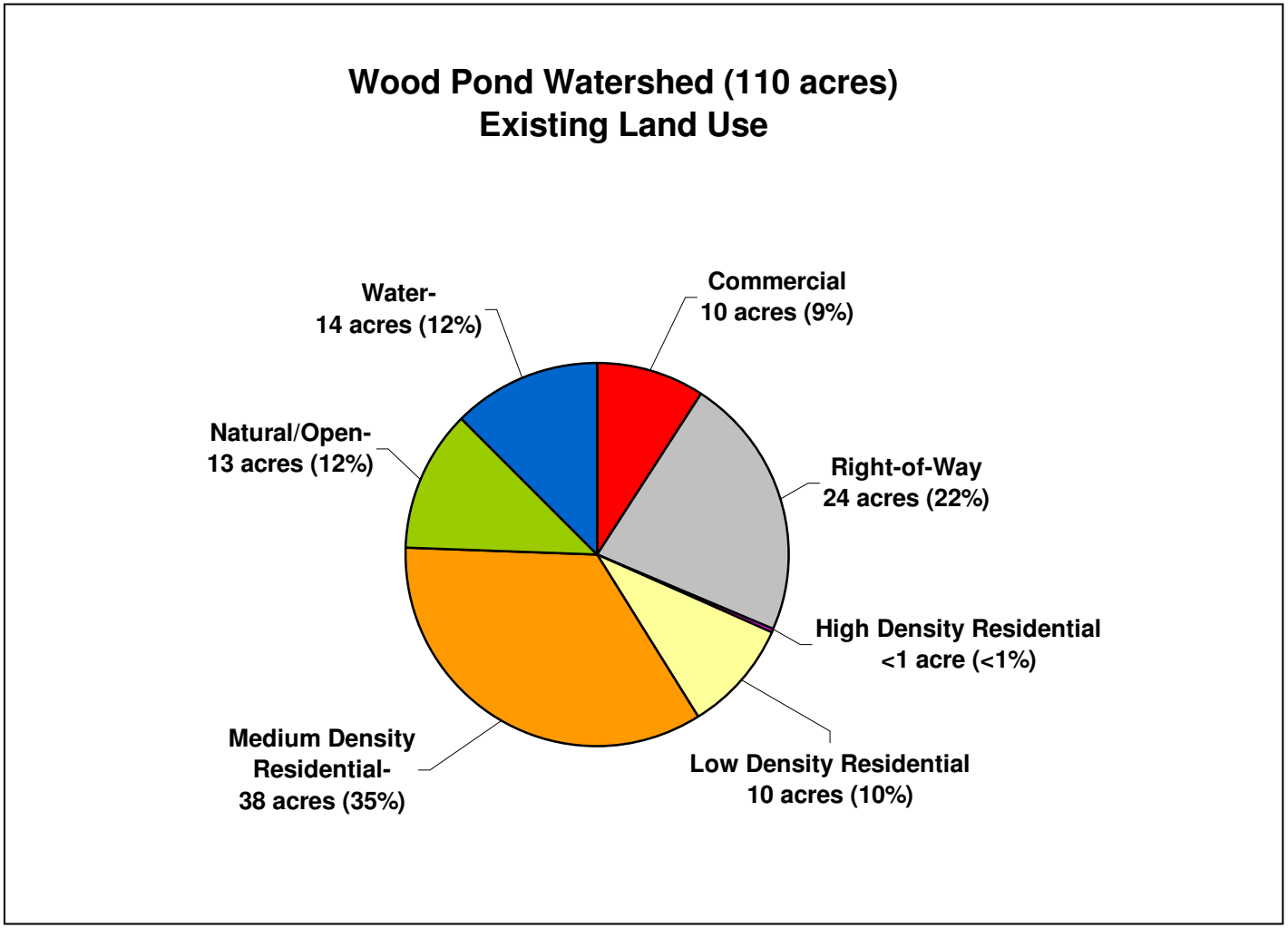
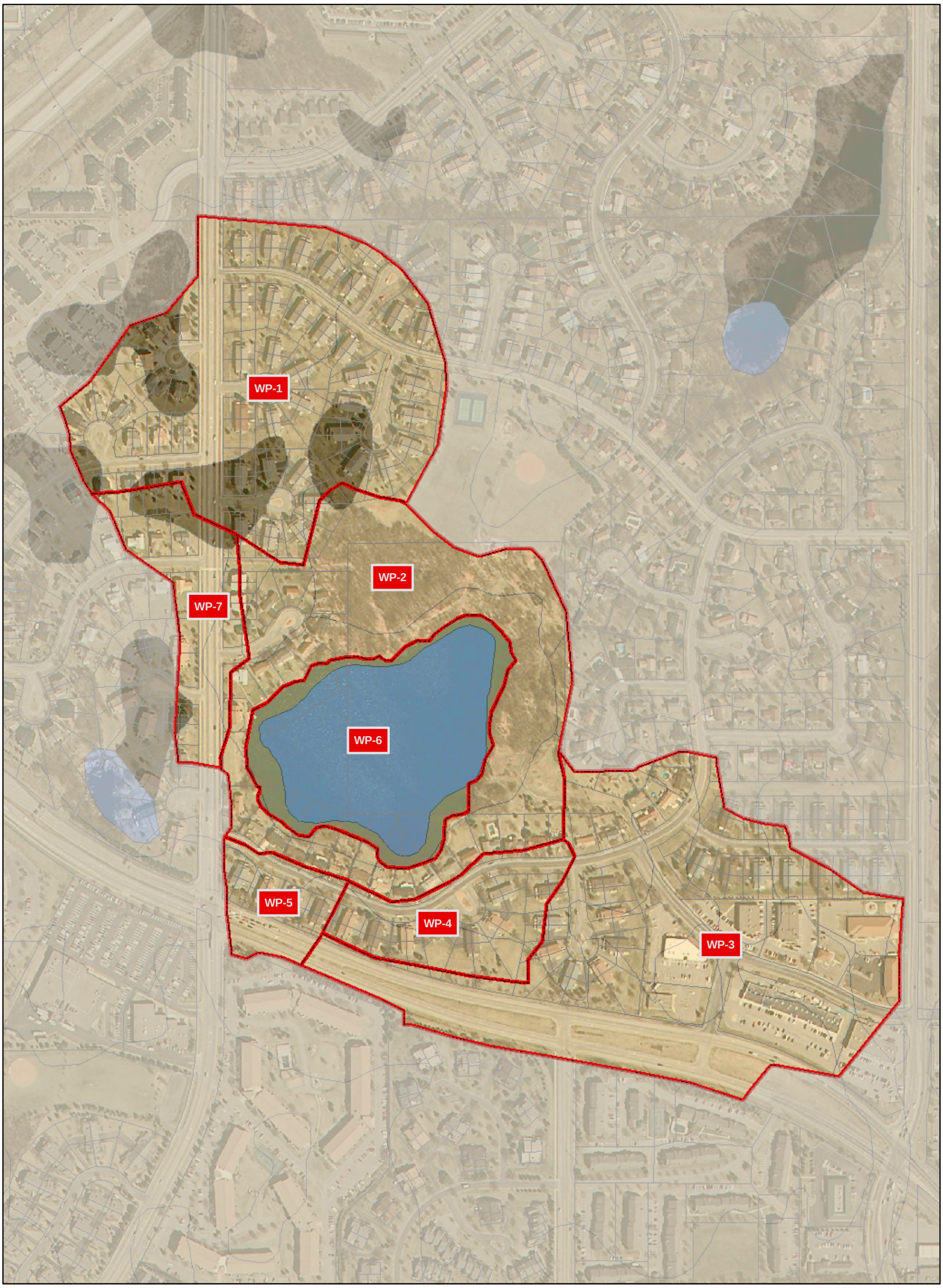

Wood Pond Watershed (110 acres)
Existing Land Use
Commercial
10 acres (9%)
Right-of-Way
24 acres (22%)
High Density Residential
<1 acre (<1%)
Low Density Residential
10 acres (10%)
Medium Density
Residential-
38 acres (35%)
Natural/Open-
13 acres (12%)
Water-
14 acres (12%)

Figure 3-4



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Existing Subwatersheds

Parcels

Hydrologic Soil Type

- A - High Infiltration Capacity
- B - Moderate Infiltration Capacity
- B/D - Low Infiltration Capacity
- W - Open Water

0 500 1,000
Feet

Figure 3-5

WOOD POND WATERSHED
INFILTRATION CAPACITY OF SOILS

Wood Pond Use
Attainability Analysis
City of Burnsville
Burnsville, Minnesota