

RESOLUTION NUMBER 7769

WHEREAS, the City of Beatrice has two municipal wellfields: (1) one located along the railroad tracks on the south side of the Big Blue River, known as the "City Wellfield," and (2) one located north of the Big Blue River known as the "City Farm"; and

WHEREAS, the City Wellfield served as a wellfield for Beatrice since the 1930s, but has since faced nitrate contamination issues, which led to the development of the City Farm wellfield to supply safe drinking water for the City; and

WHEREAS, on or about October 19, 2009, the Board of Public Works adopted a Wellhead Protection Plan; and

WHEREAS, said Wellhead Protection Plan was designed to protect the surface and subsurface areas surrounding the City Wellfield and the City Farm; and

WHEREAS, on or about December 13, 2021, the City purchased ground adjacent to and east of the City Farm to be positioned to provide safe, clean drinking water for the City of Beatrice in the future, which was funded by an SRF Loan from the Nebraska Department of Environment and Energy; and

WHEREAS, as part of the SRF Loan, the City was required to update its Wellhead Protection Plan; and

WHEREAS, on September 18, 2023, the Mayor and City Council adopted the updated Wellhead Protection Plan, which expanded the City's Wellhead Protection Area, for the purpose of protecting the public water supply system; and

WHEREAS, the City Wellfield is no longer used to supply drinking water to Beatrice; and

WHEREAS, the City retained Olsson, Inc., to assist the City with requesting and adopting an amendment to the City's Wellhead Protection Area removing the portion surrounding the City

Wellfield; and

WHEREAS, Olsson, Inc., developed a Memorandum recommending that the City remove the southwest portion of the Wellhead Protection Area surrounding the City Wellfield; and

WHEREAS, the Mayor and City Council for the City of Beatrice desire to adopt the amended wellhead protection area in order to remove the portion surrounding the City Wellfield from the Wellhead Protection Area.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF BEATRICE, NEBRASKA:

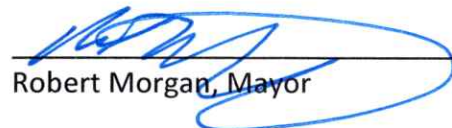
SECTION 1. That the Mayor and City Council of the City of Beatrice hereby adopt the Amended Wellhead Protection Area developed by Olsson, Inc., removing the southwest portion of the Wellhead Protection Area surrounding the City Wellfield. A copy of the Memorandum developed by Olsson recommending the adoption of the Amended Wellhead Protection Area is attached hereto, marked as Exhibit "A", and is incorporated herein.

SECTION 2. That all resolutions or parts of resolutions in conflict herewith are hereby repealed.

RESOLUTION PASSED AND ADOPTED this 20th day of April, 2026.

Attest:


Erin Saathoff, MMC, City Clerk


Robert Morgan, Mayor



MEMO

- Overnight
- Regular Mail
- Hand Delivery
- Other: Email

To:	Nebraska Department of Water, Environment, and Energy Attn: Connor McFayden, Wellhead Protection Coordinator
From:	Mallory Morton, P.E. & Joe Hinnant
RE:	Beatrice Wellhead Protection Area Amendment
Date:	February 10, 2026
Project #:	026-00088
Phase:	100
Task:	101

The wellhead protection (WHP) area for the City of Beatrice is currently established at the 20-year time-of-travel (TOT) pathways boundary for all 12 of the Beatrice municipal wells. Beatrice has two municipal wellfields: (1) one located along the railroad tracks on the south side of the Big Blue River, known as the "City wellfield," and (2) one located north of the Big Blue River known as the "City Farm wellfield." The City wellfield consists of eight municipal wells which served as the original wellfield for Beatrice. This older wellfield has faced nitrate contamination issues, which spurred the development of the City Farm wellfield. The City Farm wellfield currently consists of four active municipal wells with plans for future wells to the east as needed. Four test holes have been drilled to determine feasibility of potential municipal wells, as shown in **Figure 1**. When Beatrice contracted with Olsson to delineate an updated wellhead protection (WHP) area, the 20-year time-of-travel (TOT) pathways for the four test well locations were included.

The City wellfield is no longer used to supply drinking water to Beatrice. Instead, water pumped by the City wellfield is supplied to industries in the vicinity. The purpose of this memo is to request amendment to Beatrice's WHP area by removing the portion surrounding the older City wellfield. For ease of review, this memo includes the required elements of a WHP plan:

- TOT pathways showing groundwater flow direction to municipal wells
- Potential contaminant source inventory (CSI) for the proposed WHP area
- Contaminant source management strategies (Attachment A)
- Emergency, contingency, and long-term planning (Attachment A)

WHP Area Delineation

In addition to well locations, **Figure 1** shows the 20-year TOT pathways for both the City Farm and City wellfields. North of the Big Blue River, groundwater flow generally follows a northeast to southwest direction. South of the Big Blue River, groundwater moves from southwest to northeast. The Big Blue River acts as a dividing line, following hydrogeologic principles by which groundwater feeds surface water in a gaining stream.

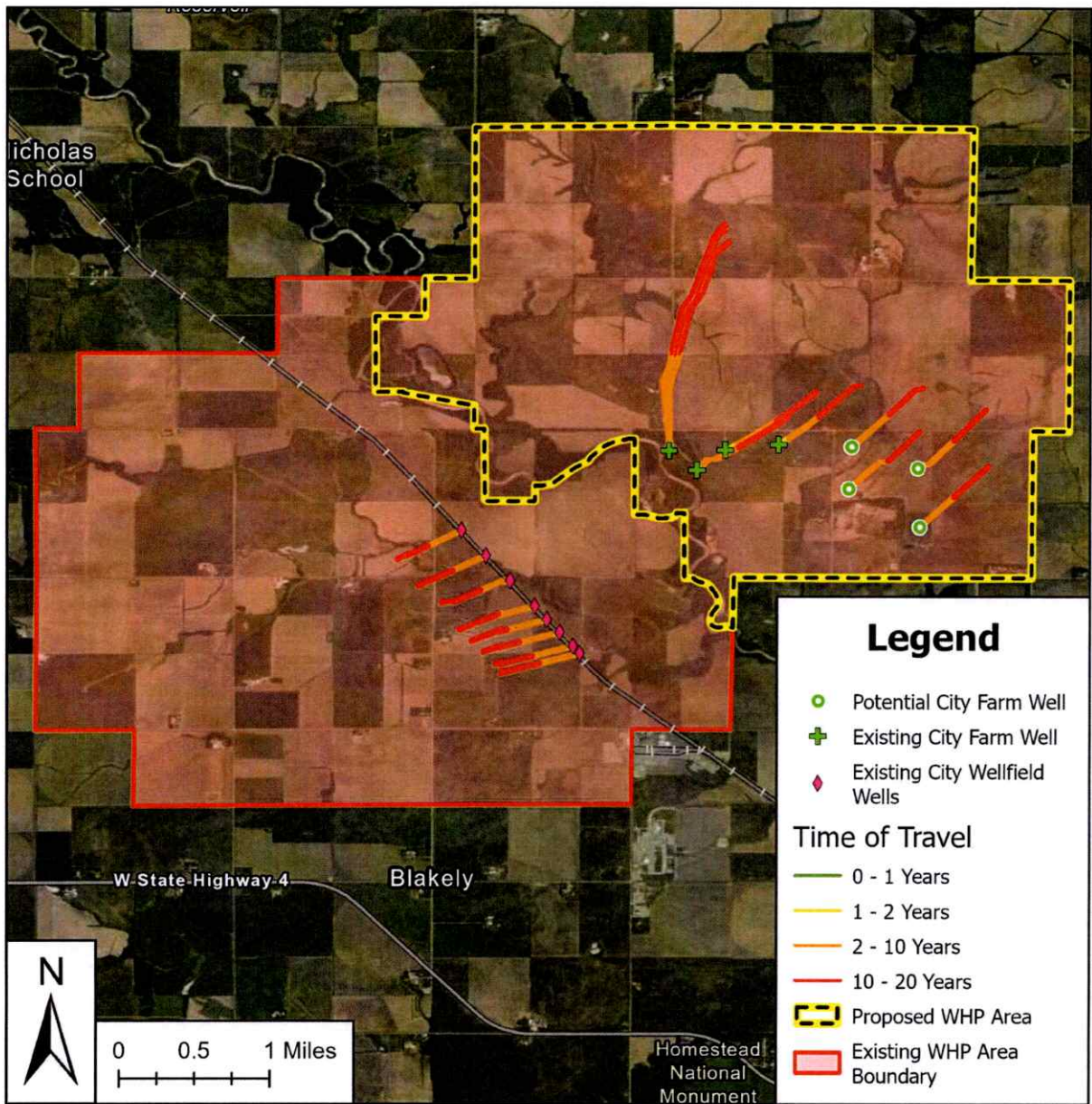


Figure 1. Map showing the existing WHP area and proposed WHP area with the city wellfield area removed.

Since the City wellfield is no longer used to supply drinking water to Beatrice and will never be used for such purposes again, the southwest portion of the WHP area has become unnecessarily restrictive. Gage County Zoning regulations currently place limitations on land uses within Wellhead Protection Overlay districts. While this is a beneficial tool for protecting drinking water supplies around the City Farm wellfield, it no longer serves the same purpose around the City wellfield. The proposed WHP area around the City Farm wellfield is shown by the yellow dashed line in **Figure 2**. The southwestern boundary has been drawn along parcel boundaries that follow the Big Blue River.

To reaffirm the delineation of this WHP area boundary, the same methodology from development of the DWPMP was followed using the MODPATH particle trace application which leverages MODFLOW groundwater flow models. In this case, the Blue Basin regional groundwater flow model was used in conjunction with MODPATH to create the composite groundwater flow pathways of the City Farm wellfield (**Figure 2**). Rather than using a single location representing each municipal well and allowing MODPATH to create a TOT pathway for each well, Figure 2 shows an expanded look at the groundwater flow direction in the area. This was done by completing several reverse particle traces emanating in concentric circles out from the City Farm wellfield wells. Model results confirm that source water supplies on the north side of the Big Blue River originate from the northeast.

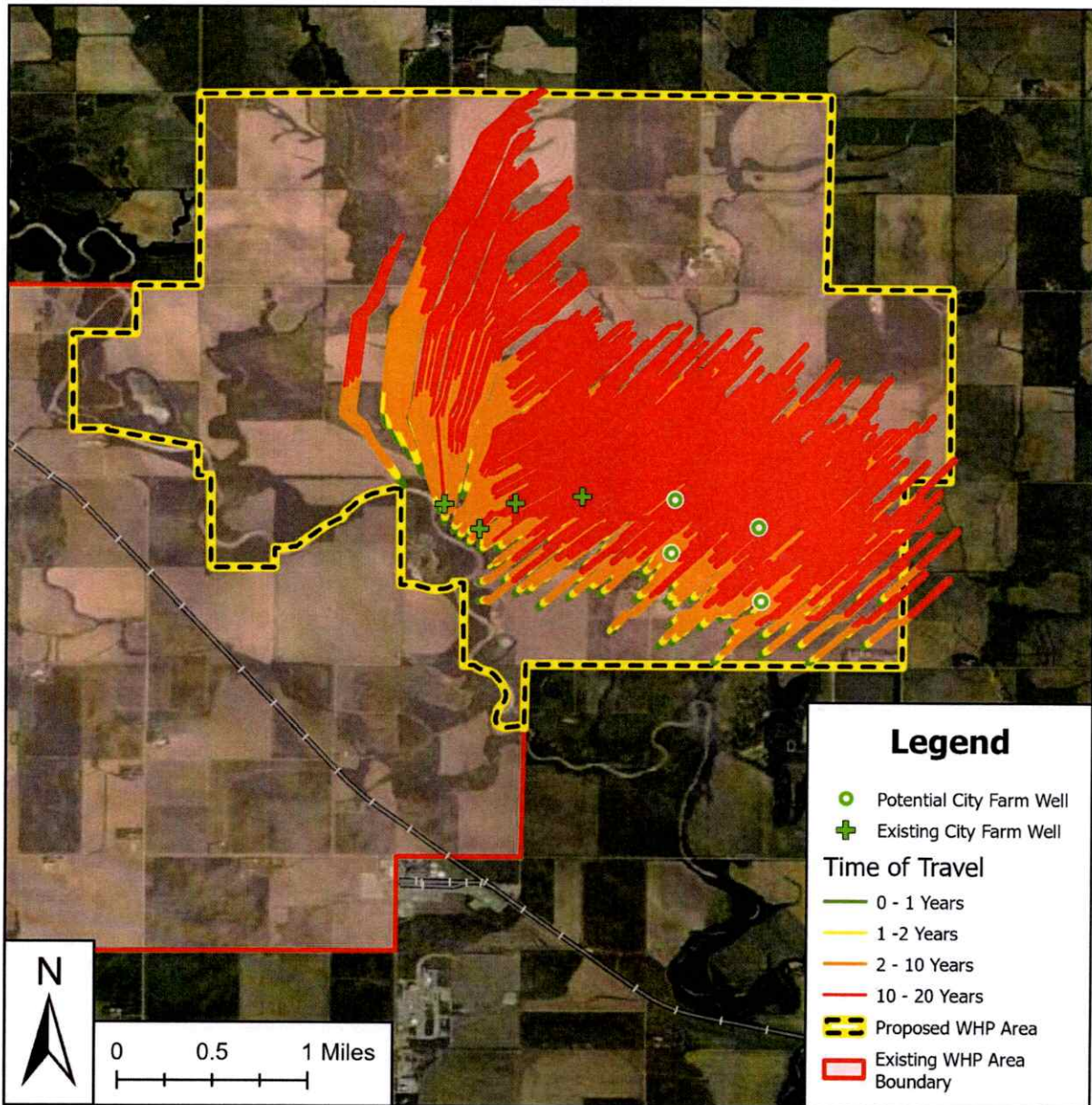


Figure 2. Groundwater flow direction in the vicinity of the City Farm wellfield.

Potential Contaminant Source Inventory

The Potential CSI remains unchanged from the approved DWPMP from 2023. The following figure is included to identify any potential contamination sources (**Figure 3**). There is 1 active air quality program (AIR), 6 active livestock waste control (LWC) program, and 4 active on-site wastewater treatment (OWT) programs within the proposed WHP area boundary. The total number of sites active and inactive includes 2 AIR, 6 LWC, 4 OWT, and 1 National Pollutant Discharge Elimination System Permits and Compliance (PCS) program; compliance of which is regulated by DWEE to reduce any potential contamination.

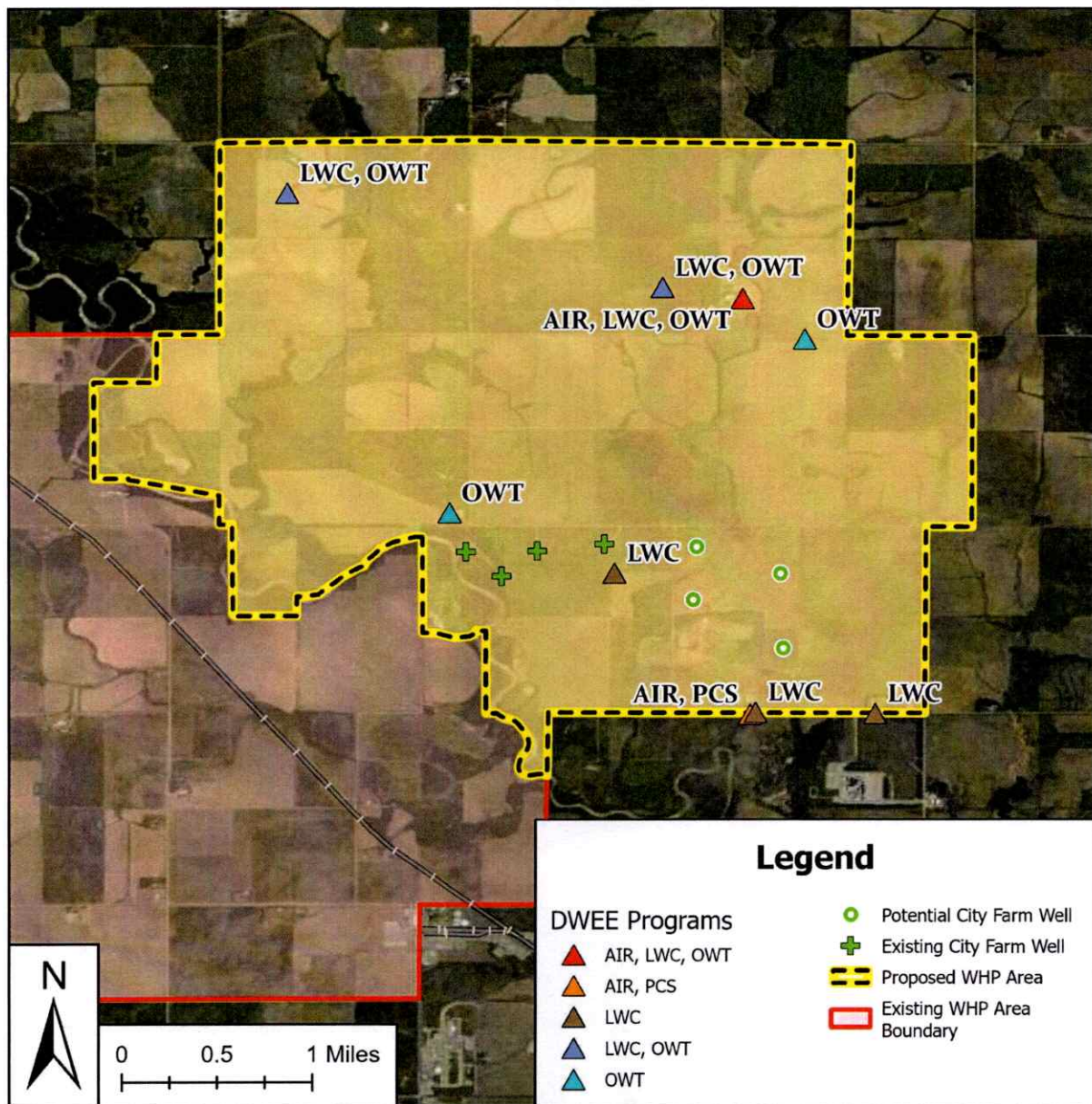


Figure 3. Potential Contaminant Source Inventory

To conclude the potential CSI, the following land use map is provided to highlight the current land use within the proposed WHP area (**Figure 4**). This figure displays the 2025 National Land Cover Database coverage from the Multi-Resolution Land Characteristics Consortium. There are 5,046 acres in the proposed WHP area with 4,055 classified as cultivated crops in the WHP area, approximately 80% of the proposed WHP area. Grassland/Herbaceous constitutes approximately 9% of the proposed WHP area with 442 acres.

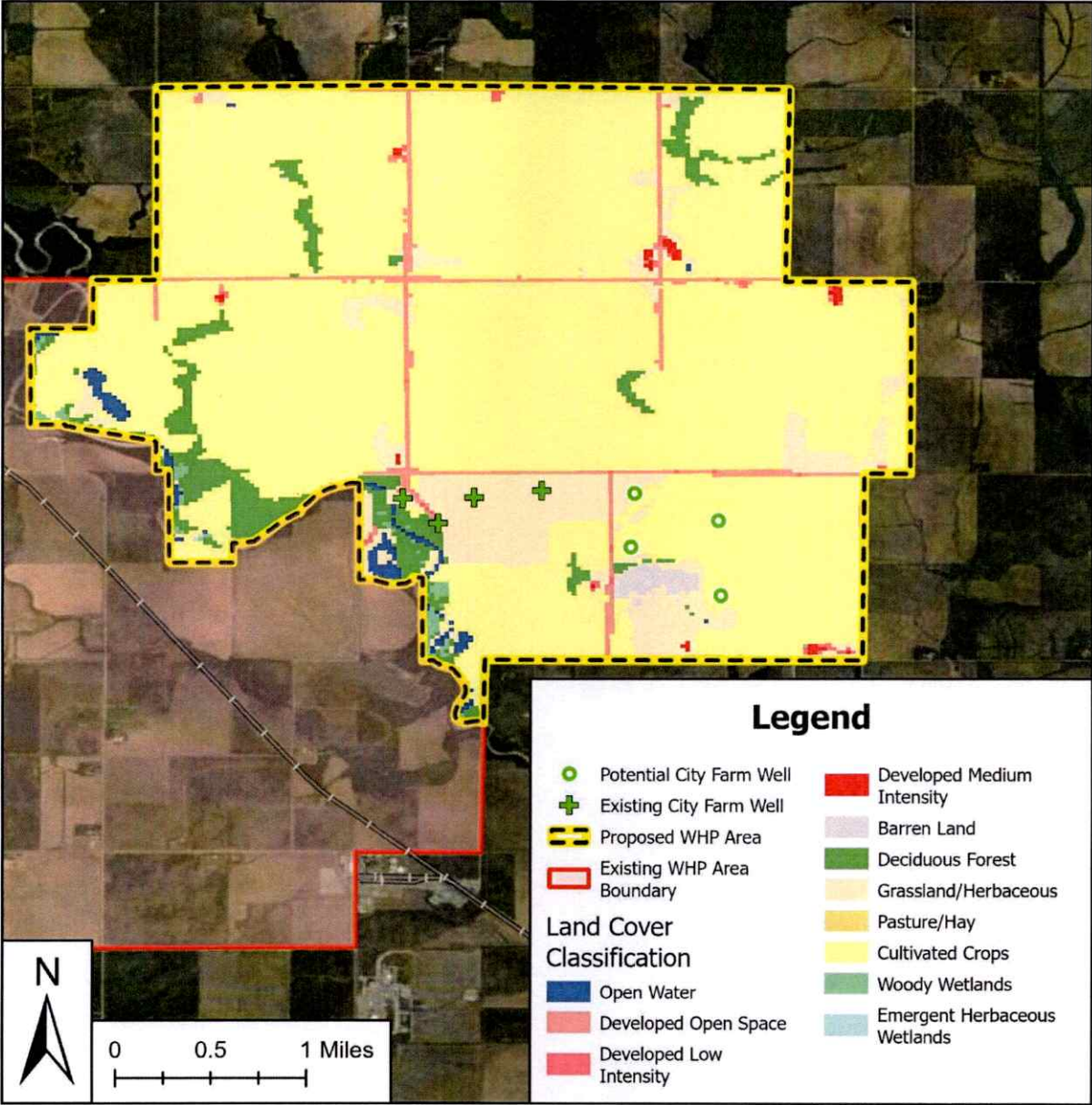


Figure 4. 2025 Land Use Classifications from National Land Cover Dataset

Recommendations

Based on the current evaluation and findings, it is recommended that the WHP area boundary be amended to better reflect present-day groundwater use and land management needs. Since the City wellfield is no longer utilized as a source of drinking water for Beatrice and will not be used for this purpose in the future, the WHP area encompassing the City wellfield has become overly restrictive. Therefore, it is recommended to remove the southwest portion of the WHP area, specifically the area associated with the City wellfield, from Beatrice's WHP area.

The revised WHP area boundary should align with parcel boundaries that follow the Big Blue River. This adjustment will allow Gage County Zoning regulations to focus protective measures on the City Farm wellfield, which continues to serve as a critical source of drinking water. Retaining the WHP overlay in this area will ensure that current and potential land uses are regulated appropriately to minimize risks from potential contaminant sources.