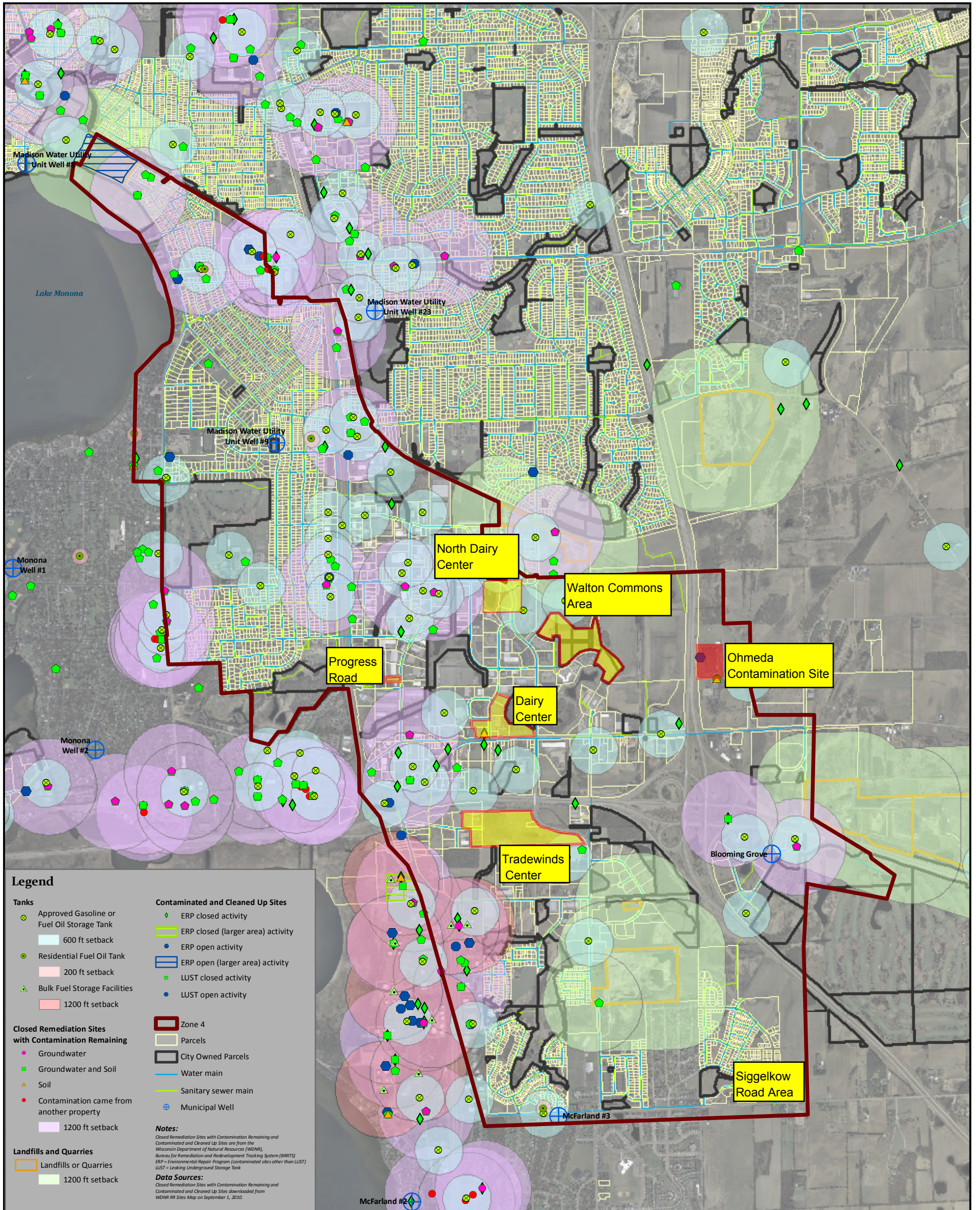


**Madison Water Utility
Pressure Zone 4 Well Siting Study**

Summary of Potential Well Sites
March 24, 2011

	Site	Status	Comment
1	Dairy Center	In consideration	Several suitable properties in this area are available.
2	Tradewinds	In consideration	Several suitable properties in this area are available.
3	Siggelkow Road	Ruled out	The site appears to be too close to a suspected inactive fault zone that may reduce the ability of the aquifer to provide sufficient quantities of water to the proposed well.
4	Progress Road	Ruled out	Available property is too small.
5	Walton Commons	Ruled out	Land was purchased partly with federal funds and is dedicated to development as part of the Bioag Gateway.
6	North Dairy Center	In consideration as an alternate to Dairy Center or Tradewinds	At least one potentially suitable property in this area is available.

I:\4131\Tables-General\[Site Comparison_110321.xls]Dairy Center



Madison Water Utility Pressure Zone 4 Well Siting Study

Dairy Center Summary

March 24, 2011







Status	In consideration
Background	This site was originally identified for evaluation because there are several undeveloped parcels in this area not immediately adjacent to identified known or potential sources of contamination.
Primary Reason for Exclusion	NA
Advantages	<p>Relatively centrally located in southern portion of pressure zone.</p> <p>Within 1,600 feet of a 16-inch water main through a partly-developed area.</p> <p>Properties in the area are for sale.</p> <p>The only documented groundwater contamination sites within 10 to 50 year zones of contribution (ZOCs) are limited to two properties with minor petroleum contamination plumes, from leaking underground tanks, that do not extend beyond the respective source properties. The 100 year ZOC intersects a 1,200 foot radius two additional sites with residual petroleum contamination.</p>
Disadvantages	<p>Hydrogeologically down-gradient from the Ohmeda groundwater contamination plume</p> <p>Somewhat close to two sites closed with residual groundwater contamination</p>
Site Buildability	<p>None of the available sites are within the mapped 100-year floodplain.</p> <p>Portions of the properties on the lots on the east side of Dairy Drive abut or extend into mapped wetlands.</p> <p>A high pressure gas pipe in this area will likely require a minimum 100-foot setback.</p> <p>Soils in the area have low to moderate bearing capacity and high water table.</p>
Contaminated Sites Summary	<p>Four sites with groundwater contamination exceeding groundwater quality enforcement standards are shown on the Wisconsin Department of Natural Resources GIS system within the 100-year zone of contribution (ZOC) identified using the Dane County groundwater flow model. The contaminants of concern at all of these sites are petroleum related and do not appear to have migrated much beyond the boundaries of the source properties.</p> <p>Two additional sites with the 100-year ZOC are currently being investigated for petroleum contamination in groundwater.</p> <p>The Datex-Ohmeda site is currently under investigation for dissolved chlorinated solvents (primarily trichloroethylene and related contaminants) in groundwater. The plume extends at least as far as the existing Madison Water Utility property on Femrite Drive west of the interstate.</p>

Legend for Contamination Maps:






Contours on contamination maps labeled “10 YR”, “50 YR”, and “100 YR” show the estimated areas of the bedrock aquifer (“zones of contribution”) that contribute groundwater to a well at the “example well location” over period of 10, 50 and 100 years at an average pumping rate for Madison water supply wells. These zones of contribution were estimated using the Dane County Regional Aquifer Flow Model developed cooperatively by the Wisconsin Geological and Natural History Survey and the United States Geological Survey.

Legend



Tanks

-  Approved Gasoline or Fuel Oil Storage Tank
-  600 ft setback
-  Residential Fuel Oil Tank
-  200 ft setback
-  Bulk Fuel Storage Facilities
-  1200 ft setback




Closed Remediation Sites with Contamination Remaining

-  Groundwater
-  Groundwater and Soil
-  Soil
-  Contamination came from another property
-  1200 ft setback

Landfills and Quarries

-  Landfills or Quarries
-  1200 ft setback

Contaminated and Cleaned Up Sites

-  ERP closed activity
-  ERP closed (larger area) activity
-  ERP open activity
-  ERP open (larger area) activity
-  LUST closed activity
-  LUST open activity


 Zone 4

 Parcels

 City Owned Parcels

 Water main

 Sanitary sewer main

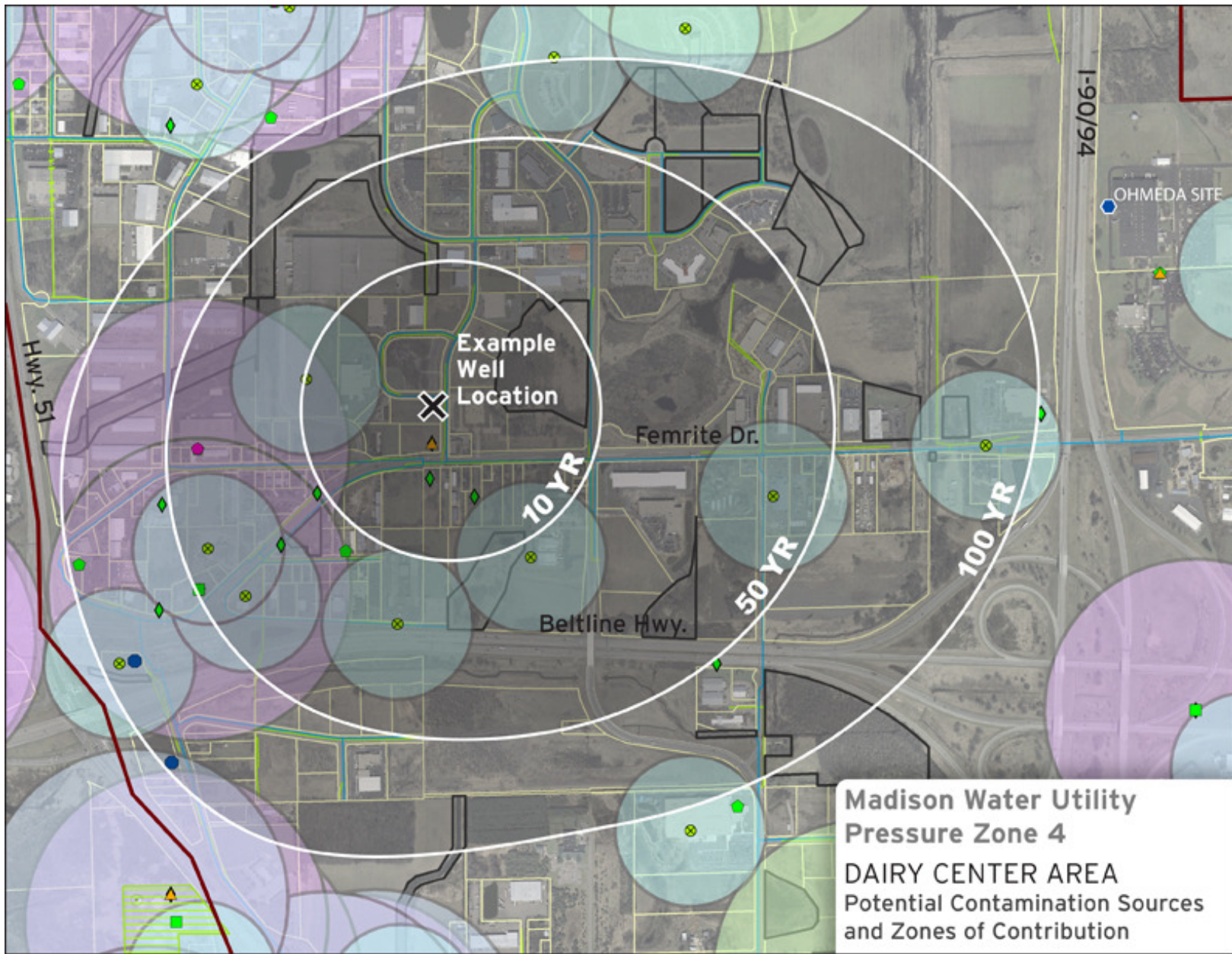
 Municipal Well

Notes:

*Closed Remediation Sites with Contamination Remaining and Contaminated and Cleaned Up Sites are from the Wisconsin Department of Natural Resources (WDNR), Bureau for Remediation and Redevelopment Tracking System (BRRTS)
ERP = Environmental Repair Program (contaminated sites other than LUST)
LUST = Leaking Underground Storage Tank*

Data Sources:

Closed Remediation Sites with Contamination Remaining and Contaminated and Cleaned Up Sites downloaded from WDNR RR Sites Map on September 1, 2010.

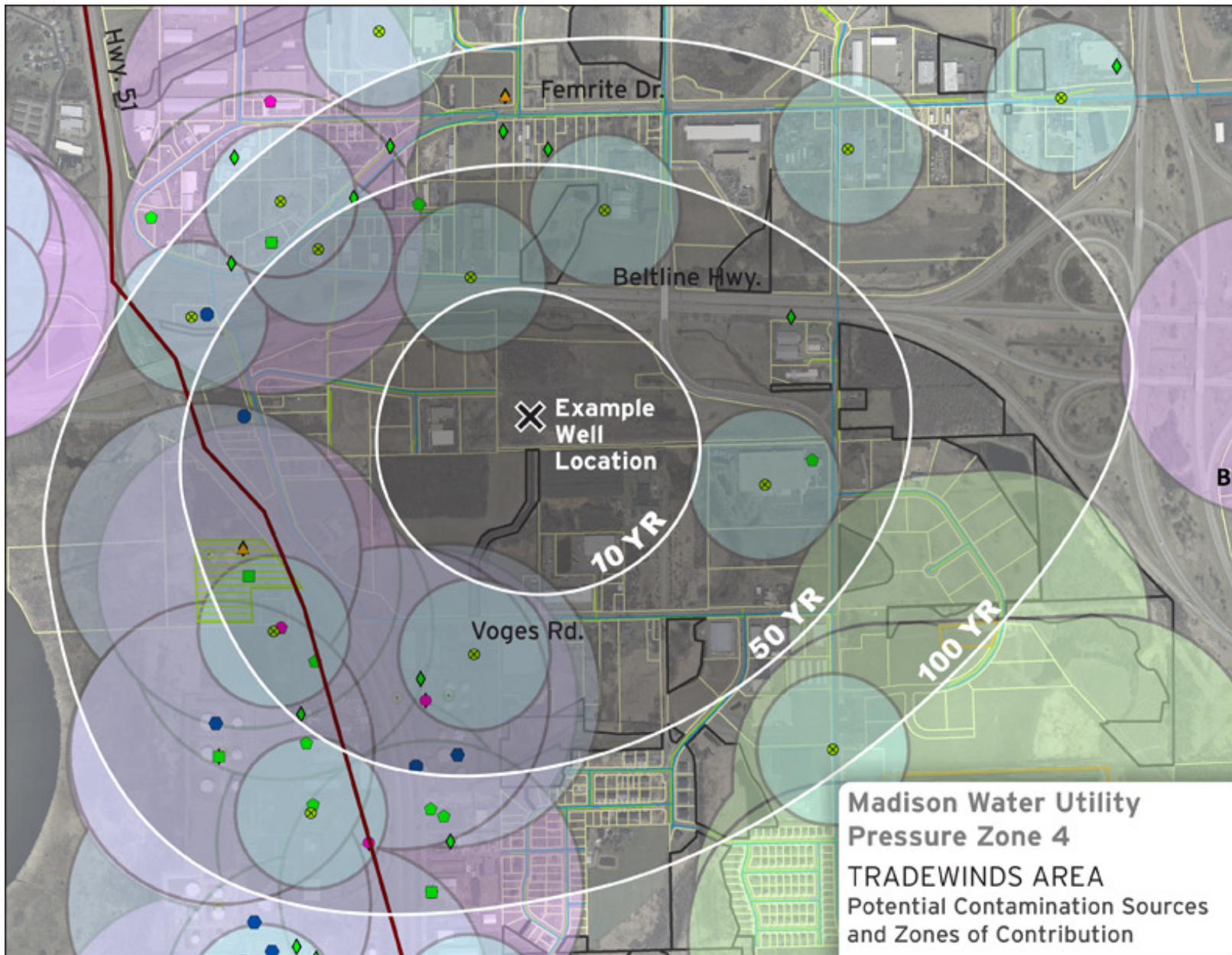


**Madison Water Utility
Pressure Zone 4 Well Siting Study**

Tradewinds Area Summary

March 24, 2011

Status	In consideration
Background	This site was originally identified for evaluation because it is in a relatively large tract of undeveloped land not immediately adjacent to identified known or potential sources of contamination.
Primary Reason for Exclusion	NA
Advantages	<p>Relatively centrally located in southern portion of pressure zone</p> <p>Within 3,000 feet of a 16-inch water main through largely un-developed area</p> <p>Properties in the area are for sale</p>
Disadvantages	<p>Hydrogeologically down-gradient from the Ohmeda groundwater contamination plume</p> <p>Proposed lots 1 through 5 in the Tradewinds Business Center may be within 600 feet of a 500 gallon gasoline aboveground storage tank at Franklin Fueling Systems on Marsh Road, a NR 811 variance would be required for these lots.</p> <p>The 50 and 100 year zones of contribution (ZOCs) include the northern portion of the Terminal Drive/Triangle Street tank farms.</p>
Site Buildability	<p>Several of the available proposed lots (3 through 7, 14, 15, and 16) in the Tradewinds Business Center area are currently with the mapped 100-year floodplain.</p> <p>Most of the proposed lots on the north side of Tradewinds Parkway are mapped as filled wetlands.</p> <p>Soils in the area have low to moderate bearing capacity and high water table.</p>
Contaminated Sites Summary	<p>Nine sites with groundwater contamination exceeding groundwater quality enforcement standards are shown on the Wisconsin Department of Natural Resources GIS system within the 100-year zone of contribution (ZOC) identified using the Dane County groundwater flow model. The contaminants of concern at all of these sites are petroleum related and do not appear to have migrated much beyond the boundaries of the source properties.</p> <p>Eight additional sites with the 100-year ZOC are currently being investigated for petroleum contamination in groundwater.</p> <p>The Datex-Ohmeda site is currently under investigation for dissolved chlorinated solvents (primarily trichloroethylene and related contaminants) in groundwater. The plume extends at least as far as the existing Madison Water Utility property on Femrite Drive west of the interstate.</p>
Notes	The quality of the fill soils in portions of the Tradewinds area will need to be evaluated for geotechnical properties and potential contamination on an individual site basis.



**Madison Water Utility
Pressure Zone 4 Well Siting Study**

Siggelkow Road Area Summary
March 24, 2011

Status	Ruled out
Background	This site was originally identified for evaluation because it did not appear to be downgradient from the former Ohmeda facility.
Primary Reason for Exclusion	The site appears to be too close to a suspected inactive fault zone that may reduce the ability of the aquifer to provide sufficient quantities of water to the proposed well.
Advantages	<p>Located far from the existing unit well #9</p> <p>Unlikely to be impacted by contamination from former Ohmeda facility</p> <p>Preliminary work did not identify potential contamination sources within the 100 year zone of contribution (ZOC), which is mostly rural; however, 75 percent of ZOC was not included in initial contamination assessment.</p>
Disadvantages	<p>Appears to be very close to a suspected inactive fault zone. Poor well yields were documented at the former Town of Blooming Grove Well and at the Yahara Golf Course.</p> <p>Relatively close to McFarland well #3</p> <p>Much of surrounding area (and zone of contribution) is not within Madison corporate limits and not is controlled by Madison zoning.</p> <p>Availability of property within existing Madison boundaries is very limited. The only significant undeveloped tract is a Madison city park.</p> <p>The nearby water mains are 12 inches or less in diameter. The closest 16" main is approximately 8,500 feet away by road.</p>
Notes	Details for McFarland Well #3: 700 feet deep, 260 feet of casing; static 49 feet, 1,200 gpm at 218 feet, specific capacity of 7.1 gpm/ft.

**Madison Water Utility
Pressure Zone 4 Well Siting Study**

Progress Road Summary

March 24, 2011

Status	Ruled out
Background	This site was originally identified for evaluation because there is at least one un-developed parcel in the area not immediately adjacent to identified known or potential sources of contamination.
Primary Reason for Exclusion	Available property is too small.
Advantages	Relatively centrally located in Pressure Zone 4
Disadvantages	Hydrogeologically down-gradient from the Ohmeda groundwater contamination plume during portions of the year
	The nearby water mains are 12 inches or less in diameter. The closest 16" main is approximately 4,000 feet away by road.
	Limited available land. Undeveloped parcel size of 1 acre is sub-optimal.

**Madison Water Utility
Pressure Zone 4 Well Siting Study**

Walton Commons Area Summary
March 24, 2011

Status	Ruled out
Background	This site was originally identified for evaluation because is undeveloped city-owned property.
Primary Reason for Exclusion	Land was purchased partly with federal funds and is dedicated to development as part of the Bioag Gateway.
Advantages	<p>Relatively close to the boundary of Pressure Zone 6</p> <p>Within 300 feet of a 16-inch water main</p> <p>City-owned property</p>
Disadvantages	<p>City-owned property is dedicated for bio-ag development and would be very difficult to re-purpose for municipal services.</p> <p>Hydrogeologically down-gradient from the Ohmeda groundwater contamination plume</p>

Madison Water Utility Pressure Zone 4 Well Siting Study

North Dairy Center Summary

March 24, 2011

Status	In consideration as an alternate to Dairy Center or Tradewinds
Background	This site was identified as an alternate for evaluation because there is at least one available undeveloped parcel in this area that may be suitable as a well location. This area was added for consideration after potential limitations were identified on sites in the Dairy Center (south) and Tradewinds areas.
Primary Reason for Exclusion	NA
Advantages	<p>Relatively centrally located in southern portion of pressure zone.</p> <p>Within 100 to 500 feet of a 16-inch water main.</p> <p>At least one property in the area is for sale.</p>
Disadvantages	<p>Relatively close to three sites closed with residual groundwater contamination and one active site with petroleum and solvent contamination in groundwater.</p> <p>Variance would be required for proximity to active underground storage tank systems.</p>
Site Buildability	<p>The area is not within the mapped 100-year floodplain.</p> <p>Soils in the area have low to moderate bearing capacity and high water table.</p>
Contaminated Sites Summary	<p>Three sites with groundwater contamination exceeding groundwater quality enforcement standards are shown on the Wisconsin Department of Natural Resources GIS system within the 100-year zone of contribution (ZOC) identified using the Dane County groundwater flow model. The contaminants of concern at all of these sites are petroleum related and do not appear to have migrated much beyond the boundaries of the source properties.</p> <p>Two inactive landfills are located within the 50-year ZOC.</p> <p>The former Safety-Kleen facility on Daniels Street is currently under investigation for petroleum contamination and solvents in soil and groundwater.</p> <p>The Datex-Ohmeda site is currently under investigation for dissolved chlorinated solvents (primarily trichloroethylene and related contaminants) in groundwater. The plume extends at least as far as the existing Madison Water Utility property on Femrite Drive.</p>

