

Eau Claire Comprehensive Plan 2015

Public Utilities Assessment



City of Eau Claire Wisconsin

Public Utilities Assessment

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Public Utilities Assessment

This chapter summarizes the conditions and issues of the sanitary sewer, drinking water and surface water management systems.

Public Utilities Systems Issues

The utility system issues presented in the 2005 *Comprehensive Plan* have been effectively addressed:

- 1. Sanitary Sewer Extensions:** What should the City of Eau Claire do to ensure coordination between the cost-effective extension of sanitary sewer facilities and future development in the City's Extra-territorial Review Area?

The City has entered into agreements with the five adjacent Towns regarding future trunk utility extensions, land use patterns and road improvements as they apply to properties that successfully petition for annexation to the City. The challenge now will be for groups of land owners and the City to agree on the timing, extent and equitable cost-sharing of the improvements.

- 2. Urban Sewer Service Area:** What adjustment should the City seek for its existing Sewer Service Area boundary to accommodate the municipal boundary changes accompanying the incorporation of the Village of Lake Hallie?

The City believes that there is sufficient land in the Sewer Service Area to accommodate growth through the 2030 planning period.

- 3. Regional Planning:** What should the City of Eau Claire do to encourage more effective coordination in the metropolitan area in providing the sanitary sewer and water infrastructure necessary for supporting future residential and business growth essential to the continued economic vitality of the area?

The City believes that the Intergovernmental Agreements mentioned above and described in the Land Use Analysis should provide sufficient coordination for effective perimeter and infill growth through the 2030 planning period.

- 4. Water System Improvements:** How should the City budget for the several water system improvements that were recommended in the 2014 *Water Supply and Treatment Evaluation Report*?

At 2014 study of the water system recommended and ranked in priority eight major improvements to the City water wells and filtration system totaling approximately \$19.8 million (in 2014 dollars).

- 5. Surface Water:** What should the City of Eau Claire do to ensure effective management of surface water drainage and safeguarding of the water quality in City watersheds?

The City has adopted a plan that guides and an ordinance that regulates the management of surface water and its related threats in a manner consistent with State law.

- 6. River Flooding:** Should the City acquire additional houses from the floodplain in the North Riverfronts Neighborhood and other floodplain areas?

Those houses were acquired and the area is now called North Riverfront Park.

- 7. Riverbank Stabilization:** Should there be greater emphasis placed on natural means of riverbank stabilization as opposed to rip-rap or concrete?

The Waterways Plan (2012) recommended and described natural means of riverbank stabilization.

- 8. Water Quality:** What actions should the City take to maintain or improve the quality of water entering the Chippewa and Eau Claire Rivers?

The City has strengthened its regulation of surface water and erosion control since the 2005 Comprehensive Plan.

- 9. Grading Control:** Should the City prepare an ordinance that requires comprehensive grading plans to be prepared for plats and site plans and that regulates all other site grading beyond a stated quantity?

Improved surface water protection regulations in Section 16.36 of the City Code were adopted since the prior Comprehensive Plan. These regulations encompass a broader range of land disturbances, require ponding for smaller rain events than previously, require equivalent post- and pre-development rates of runoff and mandate other practices to help cleanse runoff before it reaches natural bodies of water.

- 10. Half Moon Lake:** To what degree should the water quality be improved in Half Moon Lake?

The City has partnered with the Wisconsin Department of Natural Resources to take several steps that have resulted in greatly improved water quality in Half Moon Lake. Further improvements are needed and anticipated.

Sanitary Sewer System

The basic configuration of the City's sanitary sewer system is illustrated by Figure 6-1, which includes the location of the treatment plant, the major collection lines (interceptors) and the pumping (lift) stations.

Service to the City

Since the 1970's, it has been the policy of the City that public sewer and water service will be extended only to locations within the City of Eau Claire, those locations that have successfully petitioned for annexation or those locations subject to an intergovernmental boundary agreement.

Likewise, the City will not approve sewer extensions beyond the Sewer Service Boundary unless the regional Sewer Service Plan is amended.

Staging Plan

The City adopted a plan as part of the 1993 *Comprehensive Plan* to sequentially extend the major (interceptor) sewer lines. That plan established priority for service as follows:

1. Existing sewer areas
2. Expansions from existing lines
3. Trunk line facility expansions
4. Long-term trunk line expansions.

Sewer and water line extensions in advance of the Staging Plan may be possible depending on the circumstances relative to development demand, the cost of the extension, arrangements made for the financing of the extensions and the capacity of other City facilities such as parks and streets. The decision to provide utilities and services will be made on a case-by-case basis.

The City will design, finance and build the largest of the sewer systems lines, the interceptors, then assess the costs to the benefiting land owners. The trunk and lateral lines (along with local and collector streets) must be financed and built entirely by private land developers. In some cases, the City requires that land developers pay for off-site improvements such as installing a sewer lift station or extending a water line to a site.

Eau Claire Sewer Service Policy

Since the 1970s, it has been the policy of the City of Eau Claire that property may receive sanitary sewer service only if it is located within the City. Thus, owners of perimeter properties must petition the City for annexation and have their petition approved by the City and not successfully challenged by the Town. The reasoning for this policy has been so that:

1. The City can recover its cost for the treatment plant and interceptor lines, and the maintenance and replacement of those facilities
2. The City can manage the intensity and timing of fringe development and, thus, the flow through its system
3. The City can coordinate perimeter growth with the systems of roads, parks, drainage and other public facilities and services

4. The City can manage the quality of perimeter urban development through its zoning ordinance, which is more demanding than the regulations of the adjacent Towns.
5. The City can enjoy the benefits of tax base growth
6. The City can include in its population and civic life those new residents and business owners.

The City of Eau Claire won the right to uphold this policy through a legal challenge in the 1970s that was decided by the US Supreme Court.

By following the policy described above, the City has been able to promote a coordinated and cost-effective pattern of urban growth. The City believes that its coordinated and comprehensive management of urban growth, together with those of the Cities of Chippewa Falls and Altoona, has helped make this metropolitan region competitive with other similarly-sized metropolitan areas in terms of economic development and quality of life. Additionally, the City believes that this policy has minimized inconsistent, haphazard, unrealistic and competitive expansion that would have been without regard for present and probable future development in the overall public interest.

Major Sewage Collection Lines

Figure 6-1, Sanitary Sewer System, illustrates the location of the treatment plant, the interceptor collection lines and the lift stations.

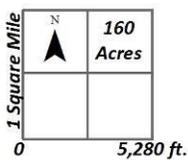
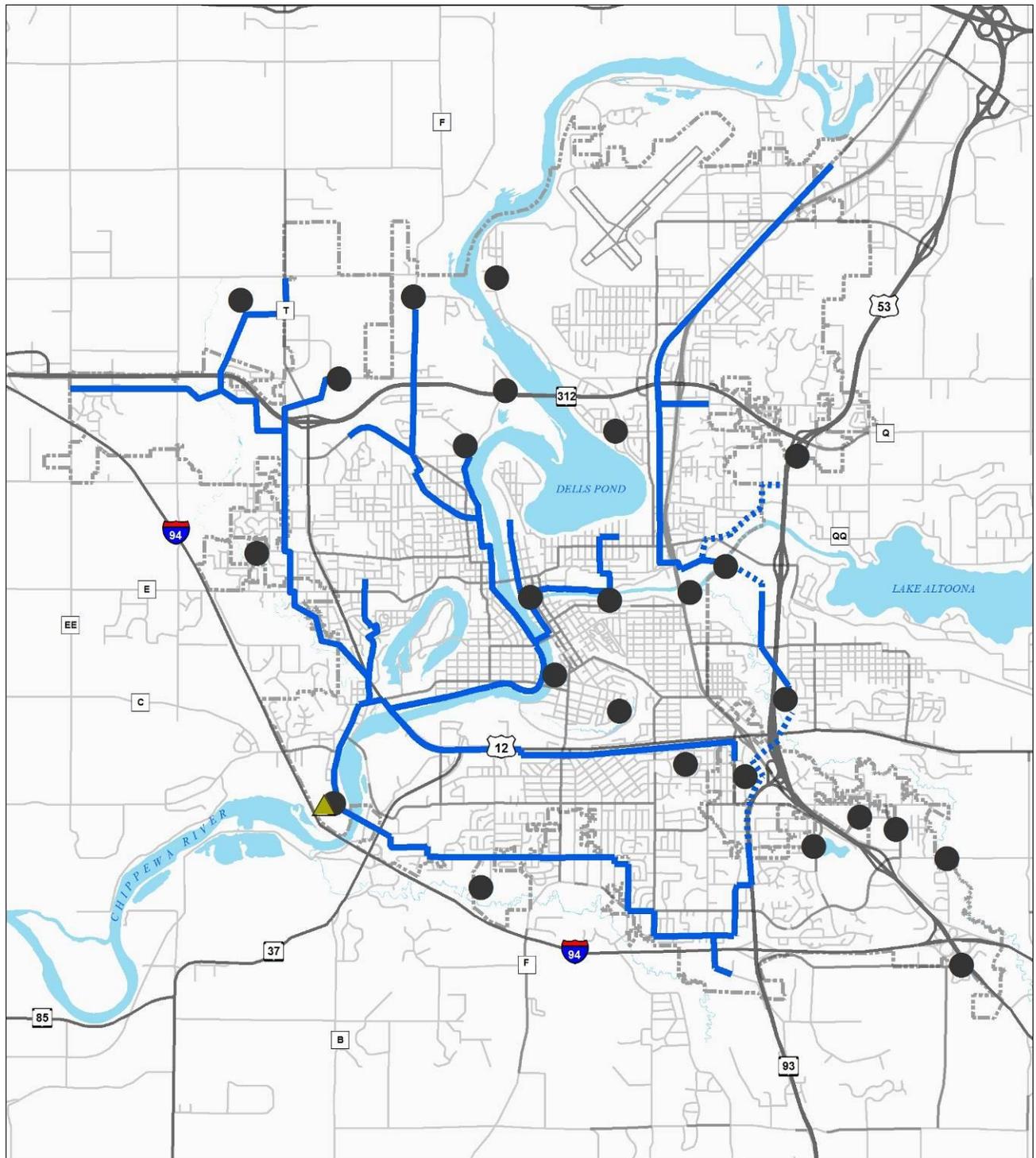
Central Interceptor

The City should take advantage of every opportunity to replace the large, reinforced concrete interceptor sewer main that was installed in 1939 across the central neighborhoods and downtown.

Hallie Interceptor

The City had previously sized its interceptor to serve the western half of the area previously known as the Town of Hallie. Now that that location is an incorporated Village, no annexations to Eau Claire are possible and the City will not extend sewer, according to its long-standing policy. In addition, the Town stated at the hearing before the State Department of Administration that sewer service from Eau Claire or Chippewa Falls would not be needed, as they could use on-site systems. That unused treatment capacity could now be reallocated and the Sewer Service Area redrawn when the regional sewer plan is updated later in this decade (before 2010).

The sewage interceptor lines have adequate capacity to handle the flows forecast for their service areas. Previous capacity problems have been resolved through improvements during the past ten years and by diversions away from lines that run through Downtown to a line that passes through Altoona and southeastern Eau Claire.



-  Wastewater Treatment Plant
-  Lift Stations
-  Existing Trunk Lines
-  Planned Trunk Lines

Figure 6-1
Sanitary
Sewer System

Northwest Interceptor

The Northwest Interceptor was built and serves the Sherman Creek valley out to US Highway 312 (the North Crossing). The line was recently extended to rescue a subdivision of large-lot houses south of the highway that was built with individual wells and on-site systems that were failing. This interceptor is now available to serve a large Stage 3 area planned for housing and industry all around the intersection of Claremont Avenue (County Highway T) and US 312.

The commercial development on either side of Highway 312 near I-94 is in Union Township and served by on-site systems. That location will eventually need service from the City via a casing under Highway 312, including a lift station. Until then, service will be from on-site systems.

Seymour Interceptor and Lift Station

A lift station and interceptor line was installed on the east side of the city in conjunction with the US 53 realignment. That lift station will replace another and help relieve an interceptor line in central Eau Claire. It will also increase the capacity available to locations presently in the Town of Seymour. Sewage from the Seymour area will be routed under the Eau Claire River and through an interceptor that was extended to serve Altoona in the early 1980s. It was determined that it would be more cost effective to serve the cities of Eau Claire and Altoona from a single treatment plant rather than upgrade the Altoona plant.

Otter Creek Valley

Two lift stations were built to serve trunk line extensions area near Otter Creek.

South of I-94

Gravity sewer is available to serve some of the growth along US 93 south of I-94 but a lift station will be necessary to broaden the service area.

As the area south of the Oakwood Mall was served, a force main and lift station were installed to serve the area east of along Highway 53 south of I-94 including land near Otter Creek.

Cameron Street at I-94

There is a lift station near Sherman Creek at Vine Street and an interceptor line available to serve land east of I-94, including the Sherman Heights neighborhood and other land that is presently in Union Township, both east and west of the freeway. A freeway interchange has been discussed with the Wisconsin DOT for that location, which could boost intensive growth on both sides of the highway.

First Street Interceptor

A sewer line has been extended under US 312 to serve development along the Chippewa River. As part of that subdivision process, the land developer was able to secure a major wooded site and convey it to the City for Northwest Community Park.

Jeffers Road Corridor

A sewer line in the Jeffers Road corridor north of Wisconsin Highway 312 has also been installed to serve industrial and residential growth. A lift station will be needed to serve the part of this area that is downhill toward the river.

City Sanitary Sewer Service Available to the Adjacent Towns and Village

The five Towns adjacent to the City of Eau Claire – Brunswick, Union, Wheaton, Seymour and Washington – plus the Village of Lake Hallie are each served entirely by private, on-site wastewater systems, which are generally thought to be in good condition.

On-Site Systems

Permits for private waste disposal systems are reviewed and issued by the respective County – Eau Claire or Chippewa. A sanitary permit is needed before County Building Permits, County Land Use Permits or Town Building Permits can be issued, as required by State law. In addition, sanitary permits are required before installing, repairing, altering or reconnecting any septic system. Sewage systems are required by State law to be inspected and pumped if necessary at least every three years by a person licensed by the State.

Much of the following information was obtained from the *Sewer Service Area Plans* prepared by the City of Eau Claire in 2013 for each of the five Towns.

Village of Lake Hallie

In 2002, the Town of Hallie petitioned the State of Wisconsin and was incorporated as the Village of Lake Hallie, having met the standards prescribed in Section 66.0207, Wisconsin Statutes. That meant, among other things, that landowners in the new Village could no longer petition the City of Eau Claire for annexation. According to the Town's incorporation petition they assumed that the new village would continue to develop with on-site sewage systems. Presently, the Village of Lake Hallie does not receive any sanitary sewer service from another municipality.

Without a change in the City's sewer service extension policy, the only way that the Village of Lake Hallie will be serviced from Eau Claire would be either (a) detachment or incorporation of property from the Village to the City or (b) the City being compelled to serve the Village by the Wisconsin Department of Natural Resources or the courts.

City of Altoona

The City of Altoona operates its own sanitary sewage collection system consisting of 23 miles of pipe. In 1984, Altoona abandoned its waste water treatment plant and reached an agreement with the City of Eau Claire to receive and treat Altoona's waste water. Two 24-inch force mains near Otter Creek connect the two systems.

Town of Brunswick

The major trunk line for the City of Eau Claire sanitary sewer system that may some day serve land presently in the Town of Brunswick runs east-west just north of I-94. A collection line will be extended southwest from there to a pump station located along either Lowes or Taylor Creek below Highway 37. It was indicated in the 2005 *Eau Claire Comprehensive Plan* that urban development, annexation and sewer service in the Town of Brunswick is anticipated only in the long-term time range.

Figure 6-2, City Sanitary Sewer System near the Town of Brunswick, illustrates that pattern of the existing sewer trunk and local service lines.

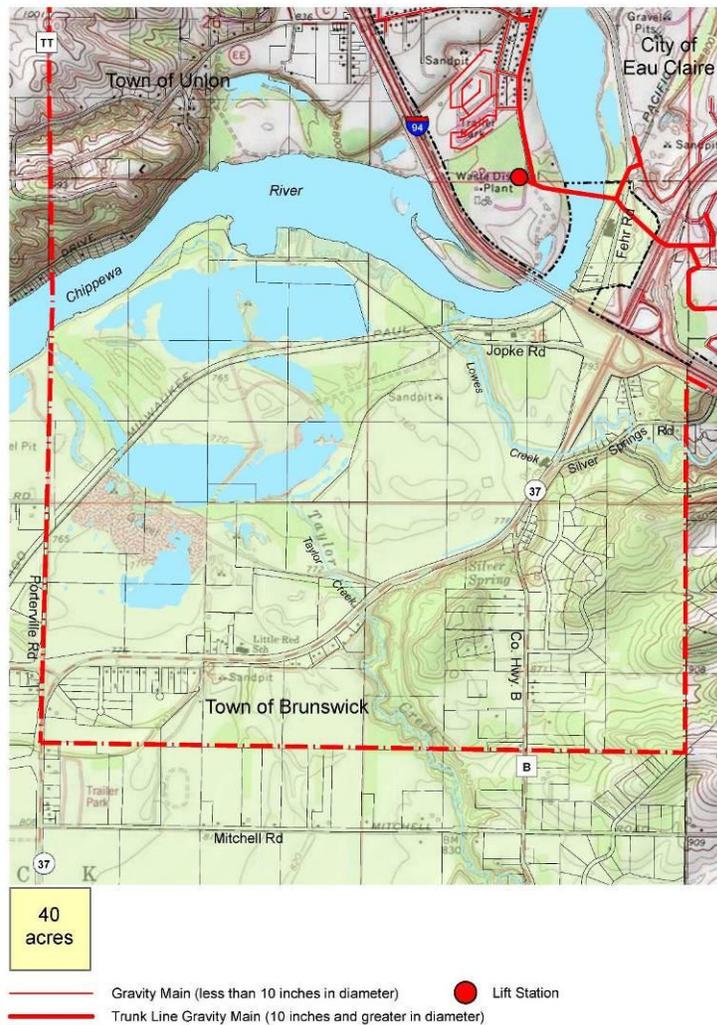


Figure 6-2: City Sanitary Sewer System near the Town of Brunswick

Town of Union

Wastewater Treatment in the Town of Union

The Town of Union is served almost entirely by private, on-site wastewater systems, which are generally thought to be in good conditions. However, there are a few older systems in the Town which fail to meet state standards every year that are typically eligible for replacement through the Wisconsin Fund due to their position in shallow, well-drained soils and/or shallow bedrock.

In 1996, the Town issued a permit for construction of a sanitary sewer along Sherman Creek Road, Kernan Court, West Cameron Street and Dorret Road. The permit included conditions that forty-nine properties in the Town and abutting newly constructed City sewer lines would be allowed to connect to and receive City sewer service in exchange for payment of a connection fee to the City.

City Sanitary Sewer System Available to the Town of Union

The Sewer Service Area in the Town of Union extends from County Highway T on the north around to the interchange of Highway 312 and I-94 in the northwestern corner of the city then south of the I-94 corridor all the way to the Chippewa River. Consequently, sanitary sewer lines may be extended to these perimeter growth locations from six points:

- A trunk line along Sherman Creek and County Highway T that crosses Highway 312 just west of County Highway T near Mill Run Golf Course.
- Two lines that drain (from the north and the south) to a future lift station that will be located near the interchange of I-94 and US Highway 312. That lift station will pump wastewater east to the 21 inch trunk line that runs along the south side of Highway 312 starting at County Highway EE.
- A line that will be routed under I-94 north of County Highway E down to a lift station that exists near Sherman Creek at Vine Street. This line may be fed from a lift station that would be located west of county Highway TT and north of County Highway E and would serve a broad valley that extends to the southwest beyond the boundary of the Sewer Service District.
- A line that will be routed under I-94 near just south of the County Road E interchange.
- A line under I-94 at County Highway EE (Crescent Avenue).

An additional lift station will be needed along Sherman Creek between County Highway E and West Menomonie Street for a small basin in that vicinity.

Refer to Figure 6-3, City Sanitary Sewer System near the Town of Union, for an illustration of the trunk and local service sewer lines and lift stations.

In 1993, the City annexed a large area along the southern side of Highway 312 that included many residences with polluted water wells. Under an agreement with the Town of Union, the City extended a 21 inch sewer trunk line along Town streets, most notably Sherman Creek Road. The agreement allowed properties abutting the route to connect to City sewer without annexation although water service would only be made available upon joining the City.

There is sufficient capacity in the downstream trunk lines and the treatment plant to serve the forecast development in the Sewer Service Area for this 20 year planning period and beyond.

The sequence of sewered urban development will likely begin with those locations that are near existing lines within the freeway ring and progress outward to locations that require the mostly costly infrastructure improvements.

Portions of the Sewer Service Area in Union are already occupied by semi-rural lots that are not likely to be resubdivided, particularly south of County Highway E. These locations will probably not be served with City sewer (or water) lines because of the cost inefficiencies of serving large lots, although they could become part of the City if they wished.

North of Highway 312, most of the land has been developed with industrial or commercial activities that have their own wastewater and water systems. These properties could be served with City utilities in the future if their use intensifies and they petition for annexation.

However, their presence will make it more expensive to serve locations to the north (presently outside of the SSA) unless they themselves receive municipal utility lines.

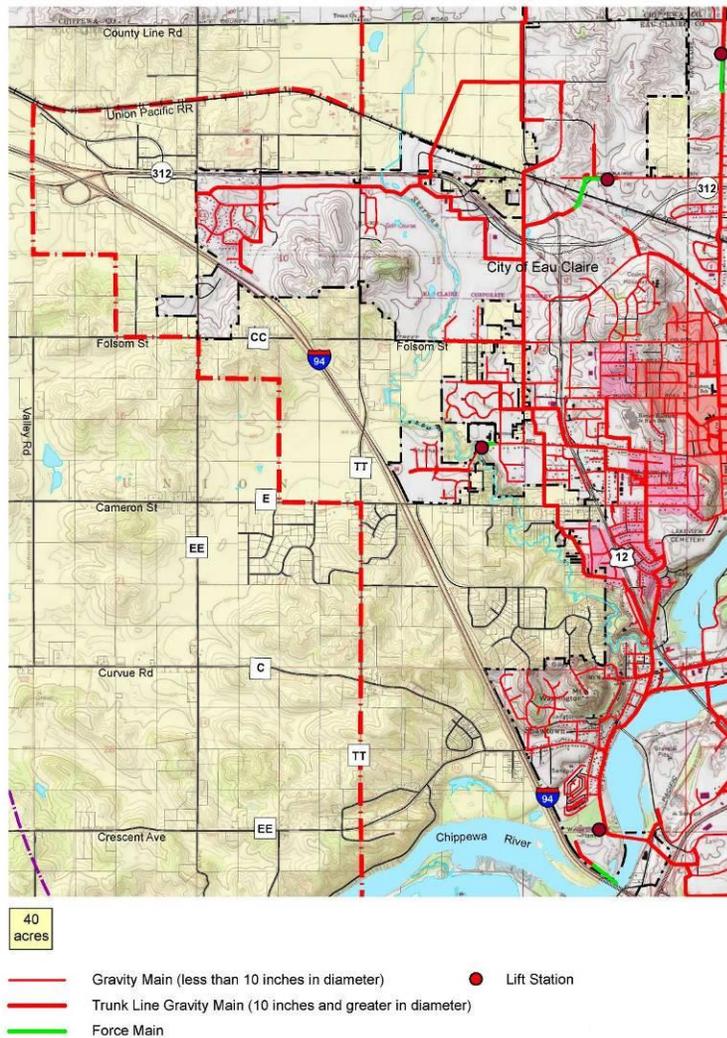


Figure 6-3: City Sanitary Sewer System near the Town of Union

Town of Wheaton

Municipal sanitary sewer lines could be extended into the relatively small Sewer Service Area (SSA) of the Town of Wheaton from lines along County Highways T or F (Jeffers Road). There is ample capacity downstream in these lines and the treatment plant to serve the Wheaton SSA for the 20 year planning period and beyond. This trunk line runs westerly of Clairemont Avenue (US 12) to the treatment plant near I-94 and the Chippewa River. Thus, it also serves the Town of Union. No additional lift stations or low pressure sewer mains are expected to be needed in the sewer areas east of County Highway F.

Refer to Figure 6-4, City Sanitary Sewer System near the town of Wheaton, for an illustration of the trunk lines.

The Wheaton SSA is relatively free of semi-rural residential lots that would encumber urban-scale subdivisions and the economic extension of municipal sewer lines if the property owners sought that service.

The sanitary sewer line along County Highway T has been sized so that it could eventually be extended north to serve growth in that road corridor all the way to US Highway 29, if property owners successfully petition for annexation of their property to the City.

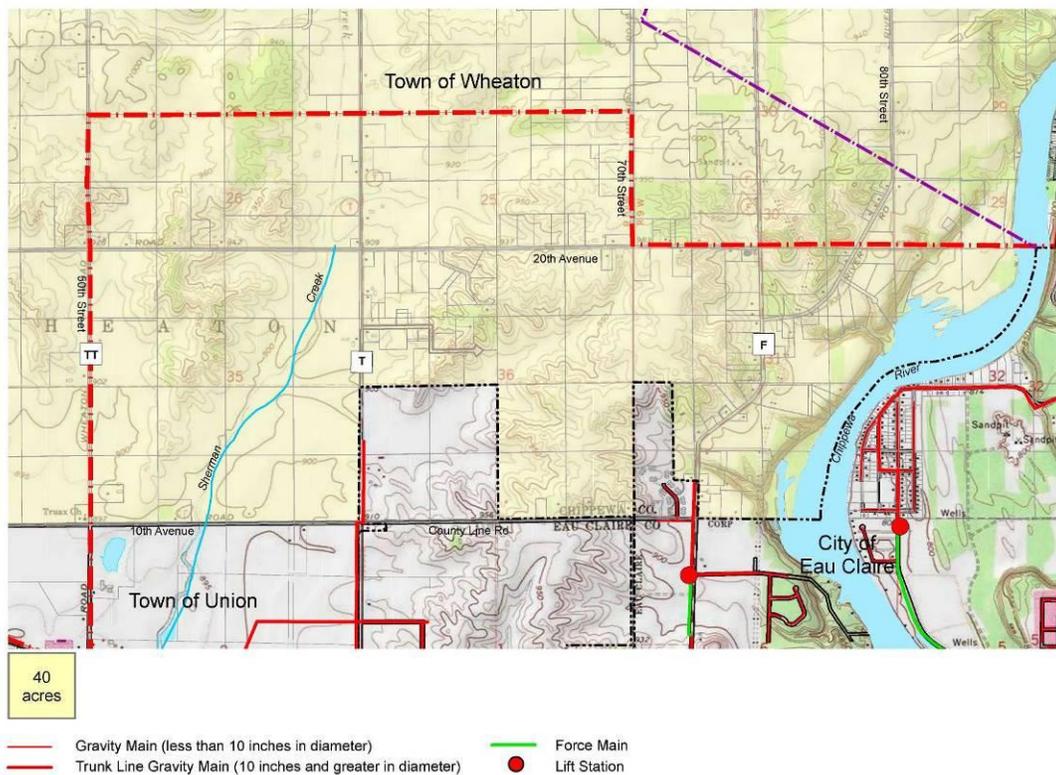


Figure 6-4: City Sanitary Sewer System near the Town of Wheaton

Town of Seymour

Municipal sanitary sewer service could be extended into the Town of Seymour upon partial annexation properties from either of two points along a major trunk line that runs along the Highway 53 corridor. The first potential connection point is along the south side of the Eau Claire River near US 53 and the other is a lift station and force main located southeast of the interchange of US Highway 53 and Wisconsin Highway 312. That trunk sewer line follows US 53 south to I-94, where it turns west to the wastewater treatment plant west of the Chippewa River.

Refer to Figure 6-5, City Sanitary Sewer System near the Town of Seymour, for an illustration of the trunk and local service sewer lines and lift stations.

There is sufficient capacity in the trunk sewer to serve most of the Town of Seymour that is within the present Sewer Service Area (SSA). The sewer staging plan shown in the 2005 *Eau Claire Comprehensive Plan* calls for service to proceed generally from the southwest to the northeast in Seymour within the SSA.

However, much of Seymour within the SSA is developed with semi-rural, large-lot housing, which is served by individual on-site wastewater treatment facilities. This pattern is more pronounced south of Olson Drive (County Highway Q) and, especially, south of Tower Drive. This concentration of on-site systems may pose a threat to water quality in Lake Altoona and to the water wells of the neighborhood. North of Olson Drive, there are fewer residences, the parcels are larger and there is more farming.

Approximately 40 percent of the undeveloped or large-lot acreage in the Seymour SSA is estimated to be amenable to residential use at urban densities, totaling about 800 acres. The balance is occupied by large-lot housing with on-site utilities that cannot feasibly be resubdivided and served with City utilities. That semi-rural pattern is a market response to the hilly, forested landscape near Lake Altoona in the absence of sustainable planning.

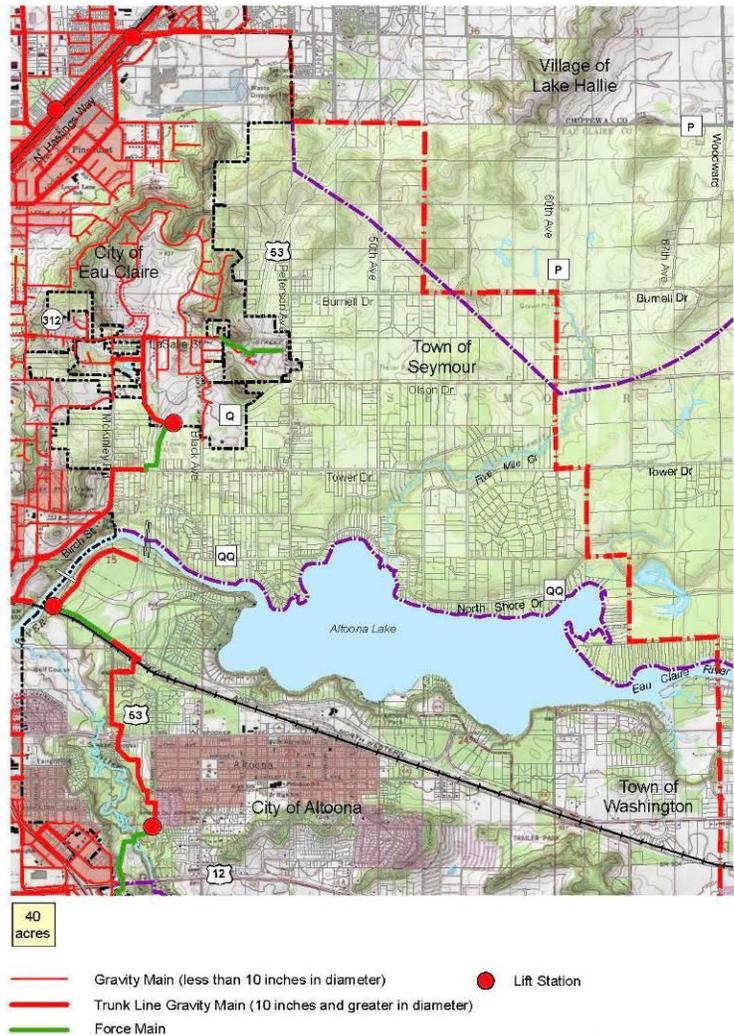


Figure 6-5: City Sanitary Sewer System near the Town of Seymour

Town of Washington

The vast majority (85 percent) of the Town of Washington relies on private sanitary service, with the exception of the Washington Heights area, which is connected to the City of Eau Claire system. Overall, the public sanitary sewer lines in the Town are in good condition.

Sewer Service Agreements with the Town of Washington

Two portions of the Town of Washington receive sewer and water service from the City of Eau Claire, as described below.

Washington Heights

Washington Heights is a long and winding peninsula of the Town that extends into southeastern Eau Claire from approximately Otter Creek near the Hillcrest Golf and Country Club. Sewer service there was originally provided by the Washington Heights Sanitary District, which fed into the system that was owned and operated by the City of Altoona. When Altoona abandoned its treatment plant in favor of draining to the Eau Claire plant, the City acquired the sanitary district, in 1981. That district provided sanitary sewer services to an area that was once south of the City of Eau Claire, basically between Fairfax Street and London Road south of Clairemont Avenue. The district also provided water service to locations in what became south-central Eau Claire, as described below.

Under the purchase agreement, all properties in the district served by both sewer as well as water lines could continue receiving City service without annexation. New sewer connections were allowed in the former district without annexation. New water connections were allowed in the water service areas, but new sewer connections there require annexation.

All properties within the sewer portion of the district have municipal wastewater service. All have municipal water service.

All connections pay the same rate as City of Eau Claire customers. The sewer connection fees must be paid with the plumbing permit and cannot be placed on tax rolls.

Oakwood Hills and Lowes Creek Road Areas

A portion of the Town of Washington extends well north of I-94 and past Lowes Creek Road up the State Street corridor to nearly Hamilton Avenue. Part of the area north of Lowes Creek Road was once served by the Washington Sanitary District, which was acquired by the City in 1981 from the City of Altoona. The district also provided water service there. Since 1981, those properties have been served by the City of Eau Claire even though they remain in the Town of Washington. Most of the parcels still have no public sewer service, and a few in the State Street corridor do not have public water service, either.

The City of Eau Claire needed to extend sanitary sewer from its treatment plant to serve the newly annexed Oakwood Hills area and shopping center by crossing streets in the Town of Washington. Under a 1982 agreement, abutting properties along the route were allowed to connect to the City sanitary sewer lines without annexation but they were required to pay the sewer connection fee with the plumbing permit. No water service was involved with this agreement. For large undeveloped parcels along the route, only one sewer connection line was

allowed per lot. Subsequent land division requires that the property be annexed to the City when sewer service is provided.

Under a separate agreement with the Town of Washington in 1987, the City was allowed, at the request of abutting property owners, to extend municipal utilities along Halsey Street from Hamilton Avenue to East Lowes Creek Road. Property owners along Halsey Street who wish to connect to that sewer line must join the City.

City Sanitary Sewer System Available to the Town of Washington

Municipal sanitary sewer service could be provided to the Washington Sewer Service Area upon annexation via an interceptor line that runs to the treatment plant along Golf and Grover Roads. That same line runs north along Highways 93 and 53 to serve the City of Altoona (through an agreement) and portions of Eau Claire north of the Eau Claire River. Figure 6-6, City Sanitary Sewer System near the Town of Washington, illustrates that pattern of the existing sewer interceptor and local service lines.

Sewer line extensions from the Golf-Grover interceptor to locations south of I-94 have already been constructed in the Highways 93 and 53 corridors. Future links may be built along County Highway F and East Lowes Creek Road. A sewer lift station (a pump) exists near a low spot along Highway 53 while a future lift station will be needed near Lowes Creek along County Highway F.

East of Highway 53, future development will be served by either the City of Altoona (via the interceptor described above) or by the City of Eau Claire. A lift station near Otter Creek and County Highway AA (Prill Road) will collect wastewater from area to the east of Otter Creek and south of Hamilton Avenue (extended). Whether that area becomes annexed to Eau Claire or Altoona remains to be determined.

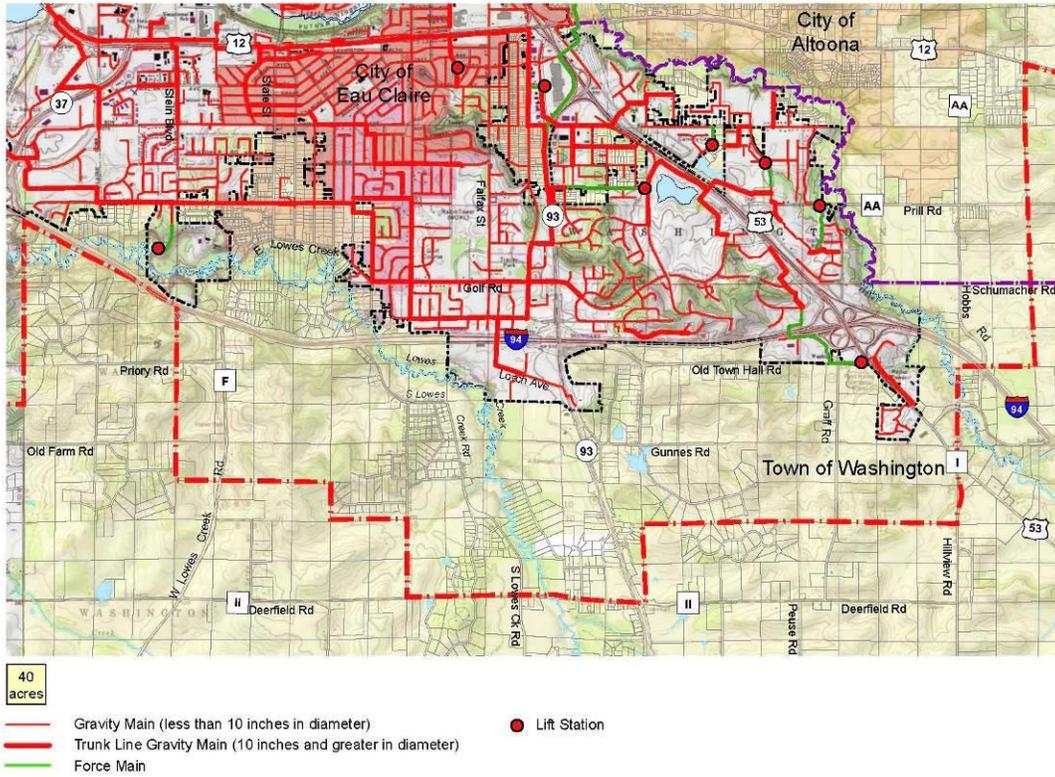


Figure 6-6: City Sanitary Sewer System near the Town of Washington

Thus, sanitary sewer service to urban development in the present Town of Washington could be via the five connections described above.

Within the Sewer Service Area, there are several locations that have been divided into residential parcels that are not likely to ever be resubdivided and served with City wastewater lines. A few other small locations are so hilly that may not be economically feasible to serve because of the lift stations that will be required. Engineering analysis will be needed to conclusively make those decisions. Nevertheless, there remain large areas that are feasible to serve with sanitary sewer and develop at urban densities.

Municipal Sewage Treatment Plant

The City of Eau Claire wastewater treatment plant is located near the Chippewa River in the southwestern corner of the city, and was upgraded in 2014 based on a plan adopted in 2007.

In 2007, the plant was treating an average of 5.32 million gallons of sewage per day with a forecast of 6.9 million gallons per day for the year 2030.

The plant improvements in 2014 are expected to be able to handle the projected flow and loadings to meet current state and federal requirements for water quality beyond the 2030 planning year.

Improvements were also completed in 2007 to the Otter Creek lift station, and future improvements are expected at the Eau Claire lift station.

The plant serves the City of Eau Claire, City of Altoona and portions of the Town of Washington sanitary district.

Assessment Policy

The policy of the City of Eau Claire is that 100 percent of the cost of extending sewer or water lateral lines (along with local and collector streets) will be paid by the land developer. Sewer interceptors, which are major lines that serve a broad area and collect sewage from the lateral lines, will usually be financed, designed and built by the City and their costs assessed to all the benefiting landowners. In some cases, the City requires that land developers pay for off-site improvements such as installing a sewer lift station or extending a water line to a site.

Thus, taxpayers in the older neighborhoods no longer share the cost of utilities for fringe development, as they did prior to 1990, when the City paid 40 percent of the cost. This was an important change. No longer can it be said that compact, sewerd fringe growth costs the rest of the City money, at least not for local streets, sewer lines or water lines.

(Regarding park improvements in new areas, since the City does not, as of 2014, have an ordinance requiring a land developer to give parkland and/or cash to the City for park improvements, some or all of those costs are still being spread across the entire community.)

Regional Sanitary Sewer System Plan

The West Central Wisconsin Regional Planning Commission prepared the *Chippewa Falls – Eau Claire Urban Sewer Service Plan for 2025*, a document that meets the requirements of the Wisconsin Department of Natural Resources.

Purpose

The purpose of this plan was to:

1. Project future needs for sewer service and establish the geographic extent of the sewer service areas for the year 2025;
2. Provide technical data for designing cost-effective and environmentally sound sewage treatment configurations;
3. Define the procedures for reviewing boundary and plan amendments;
4. Identify sensitive environmental areas and protect them from development; and
5. Guide government interaction and be used to prepare community plans.

Acreage Estimates

The plan estimated the amount of land that would be needed to accommodate development out to the year 2025 based on a forecast of households and jobs minus the land that should be protected for environmental purposes. The analysis considered major undeveloped areas in the cities, both sewered and unsewered, and planned land use from local plans. The average and peak total sewage flows to each major sewage line (called interceptors) was estimated along with the average daily and peak flows to the two treatment plants.

Sewer Service Area Boundary

Based on the estimate of sewered urban acreage needed for residential, commercial and industrial needs to the year 2025, a boundary of the Sewer Service Area was drawn. The alignment of that boundary is illustrated by Figures 6-2 through 6-6 in this chapter that address the pattern of City sanitary sewer lines near the Towns of Brunswick, Union, Wheaton, Seymour and Washington.

Water System

An overview of the water system is presented below. A more complete description and analysis is available in *Water Supply and Treatment Evaluation* and in *Water System Evaluation*, prepared by the City in 2014 and are summarized on pages 6-22 and 6-23.

Supply and Filtration

Potable water in Eau Claire is obtained from the groundwater supply via 15 wells located along the northeast shore the Chippewa River north of Dells Pond. The wells are drilled approximately 100 feet deep into sand and gravel deposits overlaying granite bedrock. The purification plant, is located near the wells, was upgraded in 2000 to produce up to 22 million gallons per day. Summer peak demands have been in the range of 16 to 19 million gallons per day. Thus, there have been very few sprinkling bans. Refer to Figure 6-7, Water Storage and Distribution System.

Distribution and Storage

The water distribution system consists of pipes ranging in size from 2 to 36 inches, most of which are in good condition. There are a few long dead ends that need to be looped. The storage system has 1.5 days of capacity, which is adequate. *Water System Evaluation* was prepared to anticipate the improvements necessary to maintain and enlarge the network. .

Pressure Zones

The North Pumping Station, located near the well field, has the ability to serve locations up to an elevation of approximately 1020 to 1030 feet above sea level. Four zones of the city require booster pumps because their elevations are above 1030 feet. These zones are located in the northeast (up to 1151), northwest (up to 1120), southeast (up to 1157) and southwest (up to 1030). Two locations in the northeast and the southwest require additional pump pressure to lift water to the required elevations. Refer to Figure 6-8, Water System Pressure Zones.

Service Area

The present service area boundaries for the water system are defined by the existing City limits and actions of the former Washington Heights Sanitary District. The future service area boundary is assumed to coincide with that of the sanitary sewer system. The City of Altoona is excluded from the water service area boundary.

Future development in the areas northeast and southeast of the City can be served by the existing high pressure zones in those areas. Development in the northwest has been aided by a recent system improvements there.

Regional Planning

As with the sanitary sewer system and the road system, prior lack of regional planning and agreement has foreclosed opportunities for efficient growth and has increased public and private costs. Very-large-lot housing with private wells has made many perimeter locations uneconomic to be served by public lines. In a specific instance, water service to a sub-area was blocked or harmed when a Town allowed potential hilltop water tower sites to be subdivided for housing.

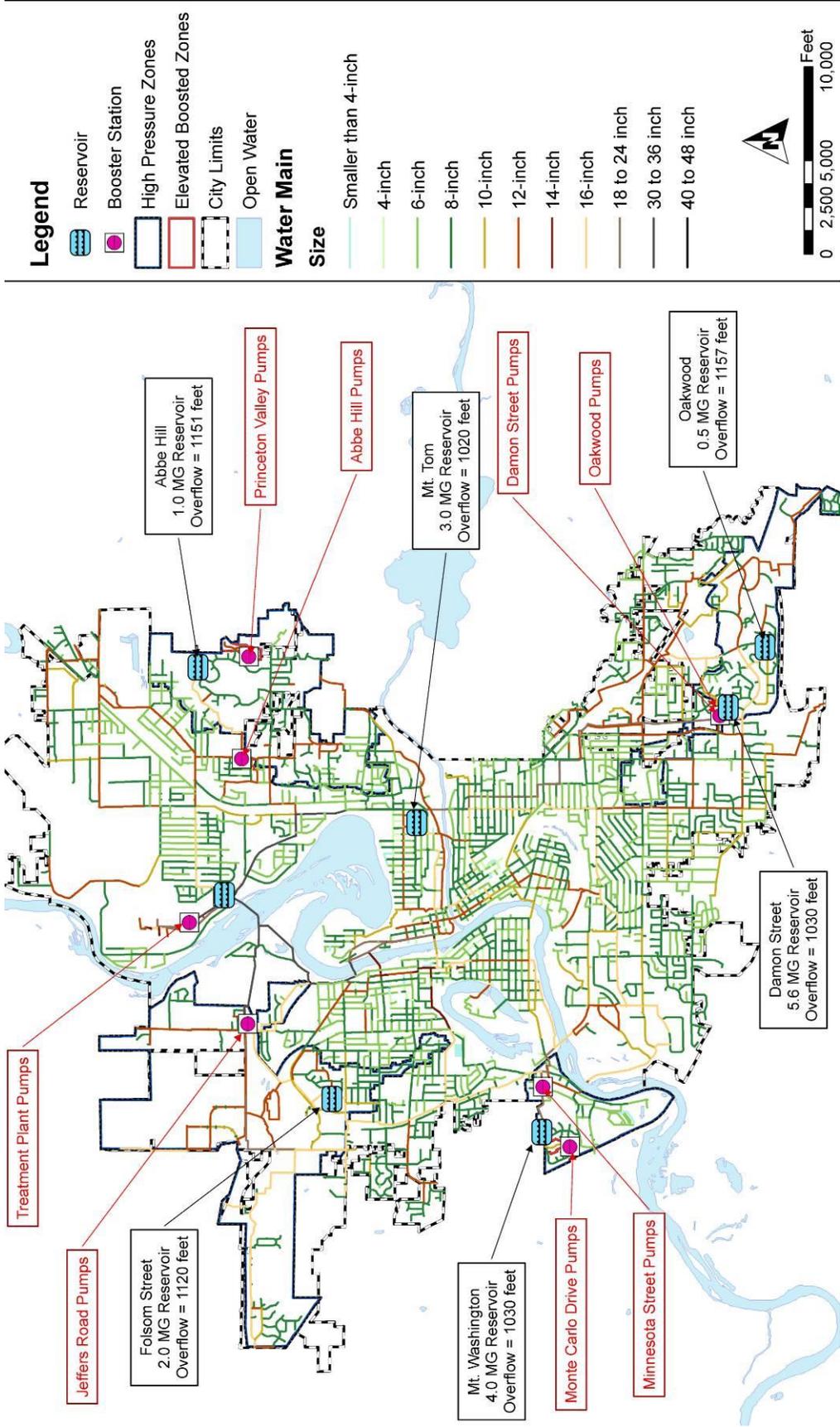


Figure 6-7: Water Storage and Distribution System

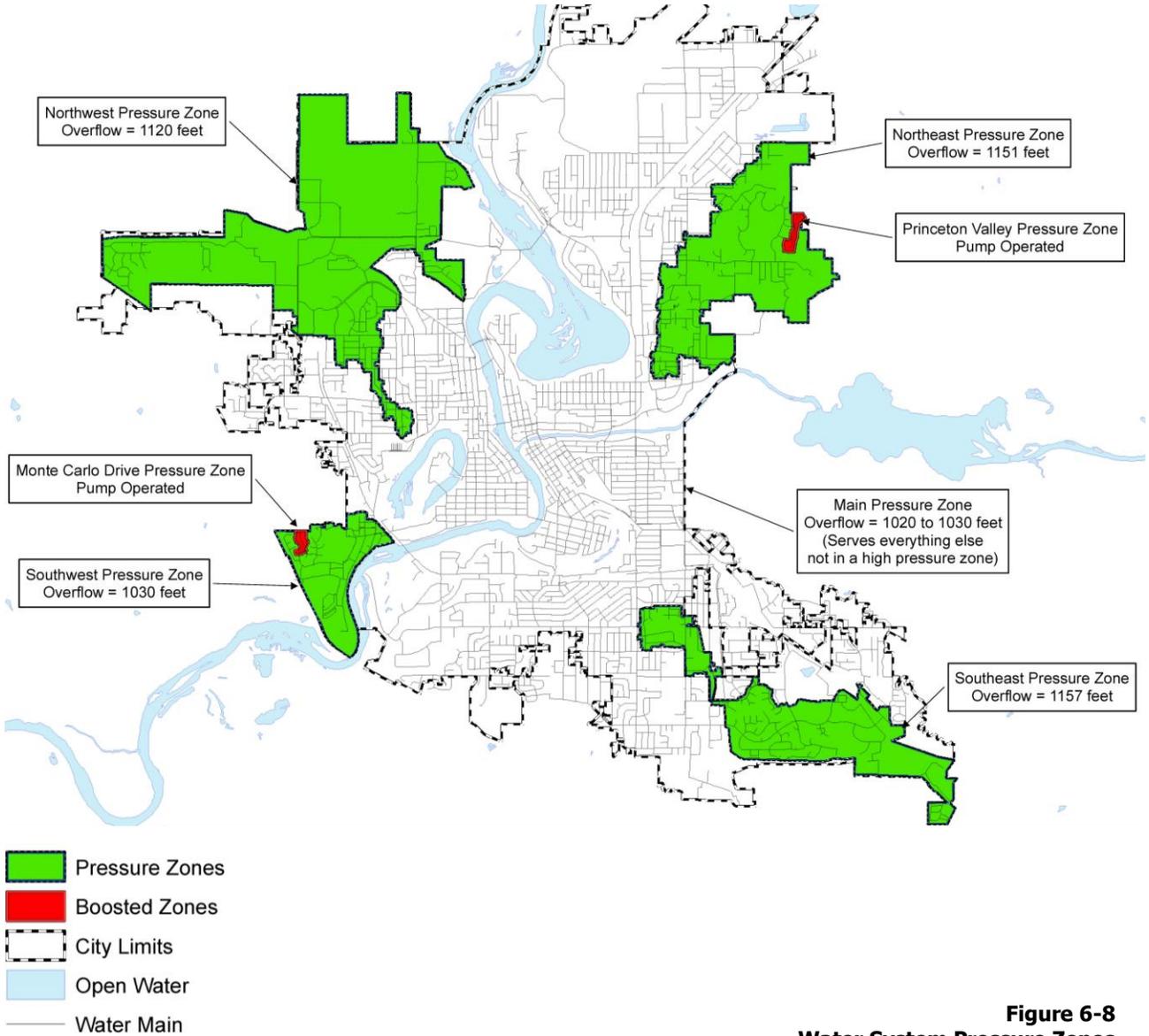


Figure 6-8
Water System Pressure Zones

Evaluations of the Water Supply, Treatment and Distribution Systems, 2014

In 2014, two related studies were prepared that assessed the City's water system, one for the well field and filtration system and another for the water distribution system.

Water Supply and Treatment Evaluation

This study identified modifications that would improve the quality and efficiency of the water system, focusing on the well field and filtration system. Its major recommendations, in order of priority, are listed below.

1. Filter Rehabilitation

First, rehabilitate the filters at the water treatment plant. This includes media replacement, under-drain replacement, addition of air water backwash, valve replacement, flow meter replacement, improvements to the settling basins, and improvements to the computerized control system. Opinion of Probable Cost = \$4,017,000 (2014 dollars)

2. Water Supply Improvements

Abandon Well 4 because of its proximity to the backwash water basin and its level of high manganese. Site two new wells north of existing Well 19. Opinion of Probable Cost = \$3,885,600 (2014 dollars)

3. Permanent Stand-by Power

Install a permanent 4,160 volt diesel generator at the water treatment plant that will operate processes in the plant to achieve treatment of an average day's flow. Opinion of Probable Cost = \$1,518,000 (2014 dollars)

4. Aeration and pH Study

Study the pH control system to improve performance and reduce costs. Opinion of Probable Cost = \$25,000 (2014 dollars)

5. Settling Basin Improvements

Modify the settling basins to fully use the improvements recommended for the filters and to increase system performance at high flow rates. Opinion of Probable Cost = \$ 6,841,000 (2014 dollars)

6. Raw Water Metering, Flow Pacing and Computer Controls

Begin to fully automate the water treatment plant to improve the accuracy of measurement, improve water quality and reduce costs. Opinion of Probable Cost = \$696,000 (2014 dollars)

7. Finished Water Storage Improvements

Construct a 1,000,000 gallon clear well to provide finished water storage redundancy at the water treatment plant. Also, modify the filter backwash process to pump water from the clear well and allow the backwash water tower to be retired. Opinion of Probable Cost = \$2,349,000 (2014 dollars)

8. Raw Water Supply Improvements-Well 11

After installing new wells north of the existing wells, remove Well 11 from service and replace it. Opinion of Probable Cost = \$526,400 (2014 dollars)

Water Distribution Evaluation

This study addressed water needs and system expansion required to serve current and future customers; assumed City expansion through annexation and projected population growth within the current City limits and future annexation areas; and took into account the five *Sewer Service Area Plans* prepared by the City in 2013. Its major recommendations were:

1. River Crossing

The 30-inch pipe that crosses the Chippewa River near the water treatment plant has reached its useful life and supplies the entire Northwest Pressure Zone with average day and maximum-day demands. A second 30-inch pipe crossing the river is recommended for redundancy immediately.

2. Pressure

The system experiences pressures exceeding the requirement of 100 pounds per square inch in low areas around the Chippewa River and in other low areas in each pressure zone.

3. Fire Flow

The City has some isolated places of fire flow less than 500 gallons per minute. These are often dead-ends, areas with small pipe or areas with old pipe. The report contains a description and cost estimate to resolve each deficiency.

4. Critical Lines

The water system has a number of main lines that are critical to its operation, and the City should be prepared for alternative water pumping and fire protection measures in the case one of these main lines were to fail.

5. Pressure Zone Pumping Capacity

No pressure zone was found to be deficient in reliable pumping capacity through Year 2035. However, the city has a few distinct areas with high or low pressure, and the report includes a description and cost estimate for resolving each.

6. Pressure Zone Storage

No pressure zone was found to be deficient in storage unless the City wants to have complete fire protection in storage alone, in which case the Southeast zone may need additional storage for fire protection.

7. Water Demand in Future Service Areas

The report included an estimate of water demand by properties forecast to be annexed from each of the five adjacent Towns, including residential, commercial, industrial and public customers.

8. Water Infrastructure to Serve Future Service Areas

The study recommended approximate routes for major water lines extending from the current City system out into the present Urban Sewer Service Areas of the Towns of Brunswick, Union, Wheaton, Seymour and Washington. Also shown were the approximate locations for future pressure boosting or reducing stations and elevated storage and pressure tanks (water towers).

9. Capital Improvements Plan

The report included a detailed budget for improvements to address:

- The existing system -- static pressure and fire flow deficiencies
- River crossings
- Water facilities maintenance
- Storage facilities maintenance
- Booster station maintenance
- The inter-connect with the Village of Lake Hallie
- Serviced to future annexed properties

City Water Service Available to the Sewer Service Areas of the Adjacent Towns, Village and City

There is no public drinking water service in any of the five adjacent Towns or the Village of Lake Hallie; all water service in those communities is provided by individual, private wells.

In the past, the City has extended water lines to a few houses in the Town of Union whose wells had become contaminated. However, the City’s policy is now firm that it will only extend City utilities upon annexation or an intergovernmental boundary agreement.

The City of Altoona has its own public water source, storage and distribution system, including six wells, two elevated storage and pressure tanks and 33 miles of mains.

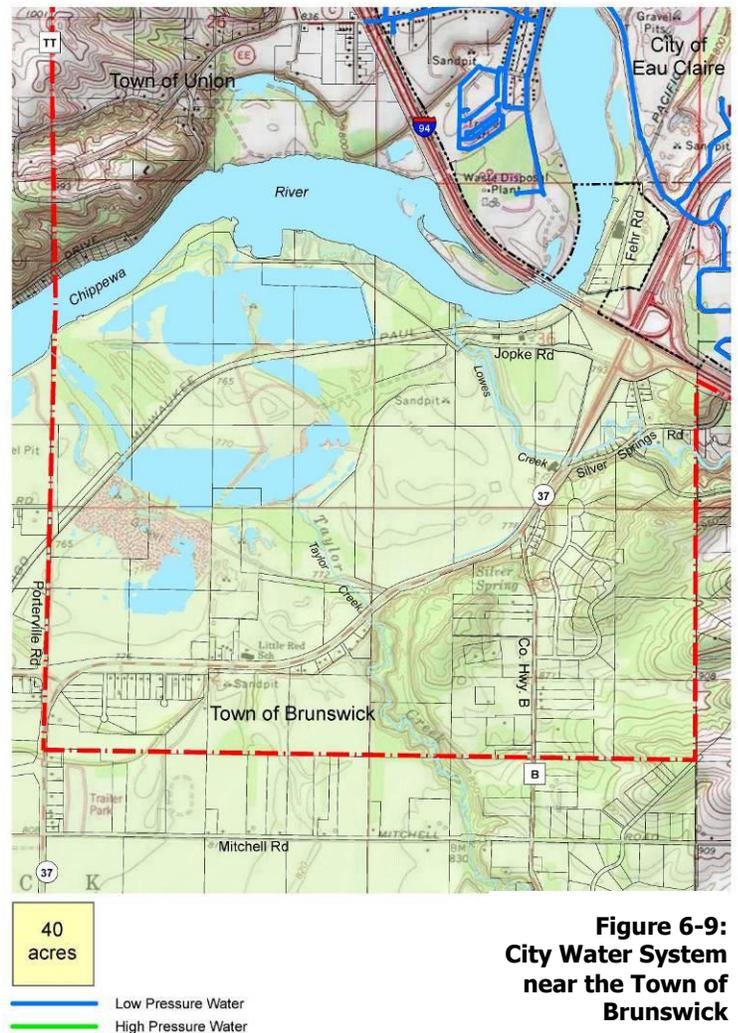
The Counties of Eau Claire and Chippewa each administer rules governing new private water well locations and existing private water systems.

The City report, *Water System Evaluation* (2014) provided a general, long range plan for extending the City water system into each of the five adjacent Towns, assuming successful annexation petitions from property owners and full development of the Sewer Service Areas.

Town of Brunswick

Similar to sanitary sewer service, drinking water needs in the Town are met entirely by private wells. Water quality is currently sufficient to meet local needs, and there are no known problems at this time.

After a successful petition for annexation, municipal water service would be available to properties in the Town of Brunswick from line that runs along Short Street. Based on *Water System Evaluation* (page 216), mains would be constructed along County Road B and Highway 37. Because the area is lower than the main pressure zone, pressures would exceed the allowable range. A pressure reducing station was recommended just south of the intersection of Short Street and Highway 37.



**Figure 6-9:
City Water System
near the Town of
Brunswick**

Town of Union

Similar to sanitary sewer service, drinking water needs in the Town are met mostly by private wells. Water quality is currently sufficient to meet local needs, and there are no known problems at this time.

City Water System Available to the Town of Union

The City of Eau Claire water system is divided into low pressure and high pressure zones. The high pressure zones involve use of additional pressure and storage towers, and sometimes pumps, to provide adequate water pressure at elevations higher than those served by the rest of the system. A high pressure zone exists in northwestern Eau Claire, extending from nearly the Chippewa River to the Chippewa County border on the north and the interchange of I-94 and Highway 312 in the northwest.

Based on *Water System Evaluation* (page 224) water mains of at least 12-inch diameter are recommended to be constructed along the major roadways in the Town in coordination with successful annexation petitions. Properties would be served by four pressure zones: the Southwest zone, the Monte Carlo Drive zone, the Main zone and the Northwest zone.

The northern areas are recommended to be served by the Northwest pressure zone. A new booster station would pump water from the Main zone to the Northwest zone from West Folsom Street to the existing dead end along North Town Hall Road. Connections and check valves would be required among the zones.

The existing Monte Carlo Drive booster could provide adequate pumping capacity to the zone to meet the potential maximum day demands. If development in the extended Monte Carlo Drive pressure zone exceeded 50 units, storage would be required there.

In 1964, the City extended water service under I-94 at Crescent Street and into the Town of Union without requiring annexation. This was done because several water wells along Pauline Street failed as a result of the construction of I-94. The next year, the City Plan Commission adopted a resolution requiring annexation whenever a Town property is served with City utilities, and that has been the policy ever since.

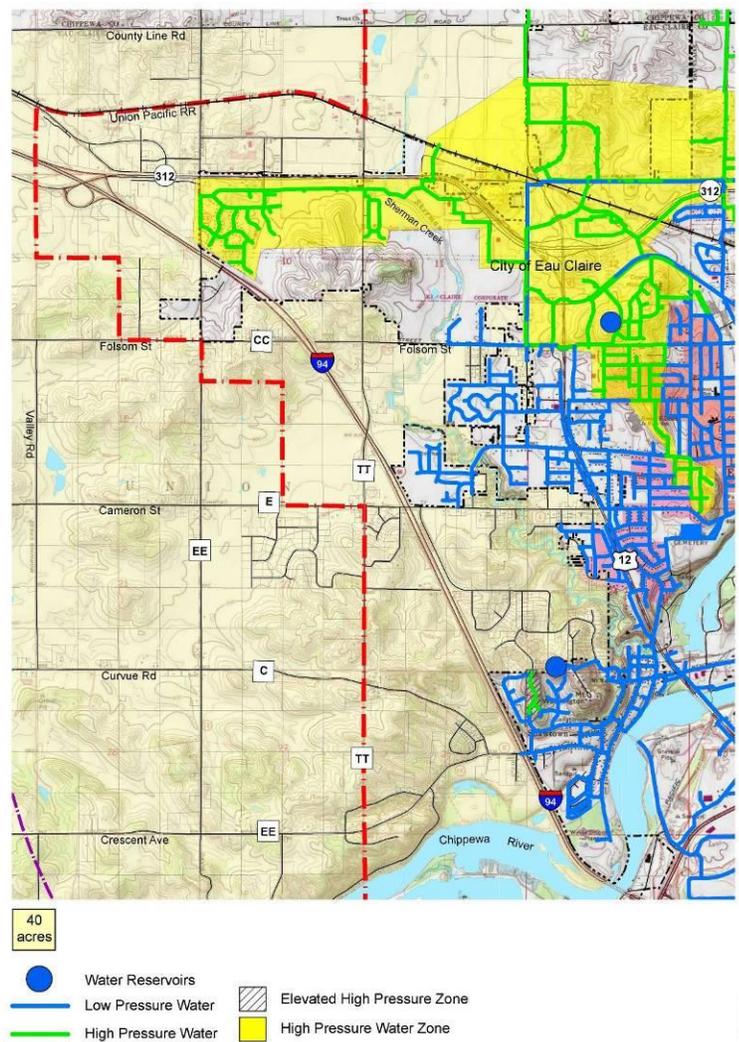


Figure 6-10: City Water System near the Town of Union

Town of Wheaton

All homes and businesses in the Wheaton Sewer Service Area receive their drinking water from private, on-site wells. According to the *Town of Wheaton Comprehensive Plan*, the Town does not anticipate installing such infrastructure in the next 25 years.

City Water System Available to the Town of Wheaton

As with the municipal sanitary sewer service, City water lines are also readily available to the Wheaton SSA upon annexation from end points of 12-inch lines along County Highways T and F (Jeffers Road). Refer to Figure 6-11, City Water System near the Town of Wheaton. The high pressure zone serving northwest Eau Claire is expected to serve proposed development in this area.

Based on *Water System Evaluation* (page 224) water mains of at least 12-inch diameter would be constructed along the major roadways in the Town. The Town will be served by the Northwest pressure zone. With the anticipated land development, the transmission mains would have acceptable pressures. Until a storage tank is constructed, the available flow in the entire zone is that of the booster station.

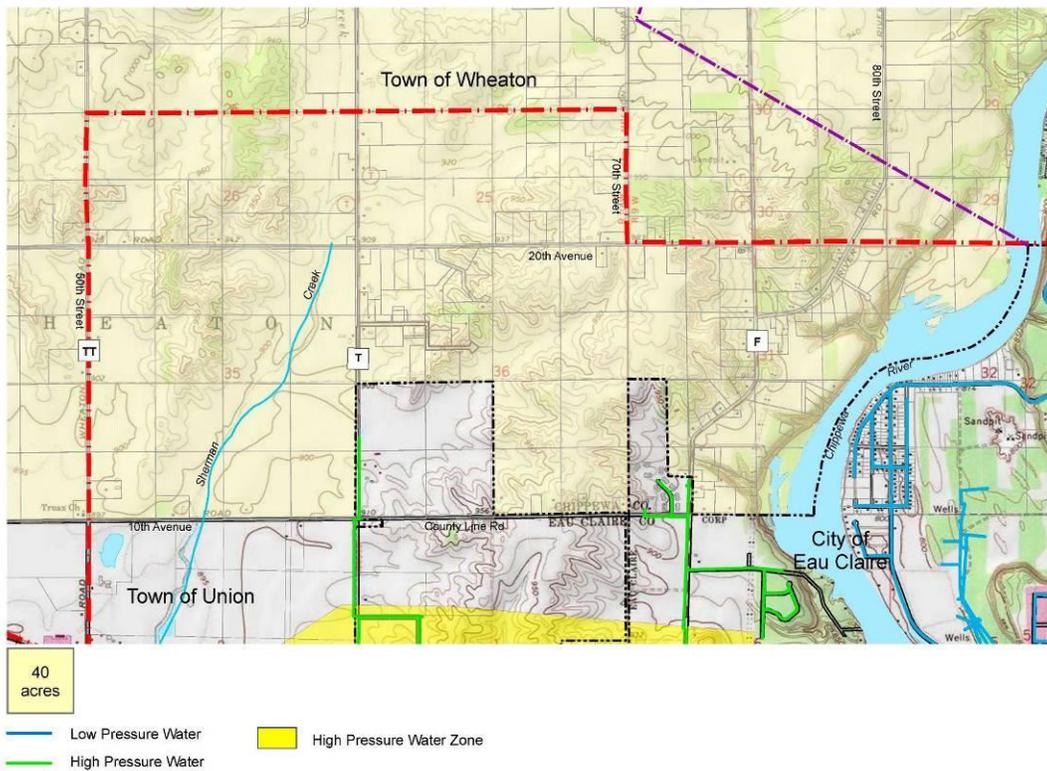


Figure 6-11: City Water System near the Town of Wheaton

Town of Seymour

Similar to sanitary sewer service, drinking water needs in the Town are met entirely by private wells. Water quality is currently sufficient to meet local needs; there are no known problems.

City Water System Available to the Town of Seymour

The City of Eau Claire water system is divided into low pressure and high pressure zones. The high pressure zones involve use of additional pressure and storage towers, and sometimes pumps, to provide adequate water pressure at elevations higher than those served by the rest of the system.

The Eau Claire water system has been extended to the boundary of the Town of Seymour at several locations, so it would be easy to extend and loop lines.

Based on *Water System Evaluation* (page 221), water mains of at least 12-inch diameter would be constructed along the major roadways in the Town. The majority of the Town would be served by the Main pressure zone and a smaller portion to the north by the Princeton Valley zone. The major portion of the Town would be served by the 10-inch water main from County Road Q along with the 8-inch water main from Gala Street. Two pressure reducing station were recommended to provide additional water capacity from the Northeast zone in the case of a fire flow event.

The existing Princeton Valley booster can provide adequate pumping capacity to the zone to meet the potential maximum day demands. However, the reliable supply capacity of the Princeton Valley booster station is less than 500 gallons per minute (gpm) and is recommended to be increased to at least 500 gpm. If future development in the extended Princeton Valley pressure zone exceeded 50 units, storage would be required there.

However, as with the wastewater system, it will likely be difficult to resubdivide the many semi-rural lots that already exist in Seymour and make the extension of water lines economically feasible in the near future. The northern part of Seymour offers greater potential for urbanization as it has not been subdivided to the extent the southern half has.

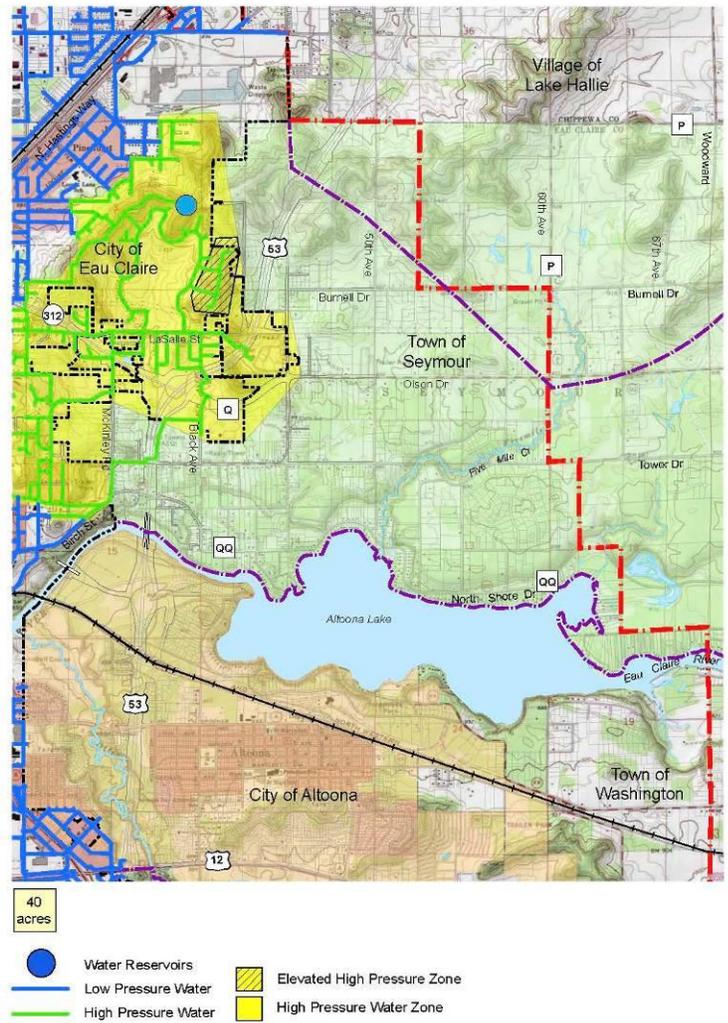


Figure 6-12: City Water System near the Town of Seymour

Town of Washington

Similar to sanitary sewer service, 80 percent of resident water needs are met through private wells. Approximately 20 percent of the households are served by the City of Eau Claire water supply. Although it is important to continue to monitor closely over time, no known water quantity or water quality issues exist at this time in the Town.

City Water System Available to the Town of Washington

The City of Eau Claire water system is divided into low pressure and high pressure zones. The high pressure zones involve use of additional pressure and storage towers, and sometimes pumps, to provide adequate water pressure at elevations higher than those served by the rest of the system. A high pressure zone exists in southeastern Eau Claire, as illustrated by Figure 6-13, City Water System near the Town of Washington.

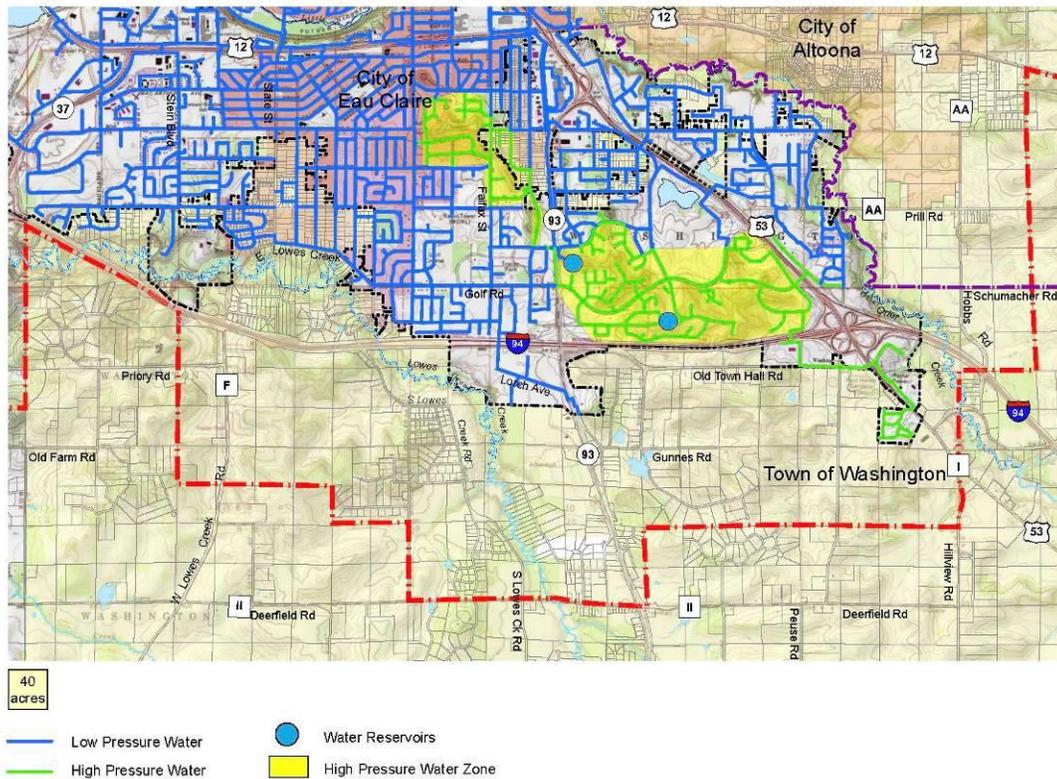


Figure 6-13: City Water System near the Town of Washington

To provide water to locations that may petition for annexation from the Town of Washington, low pressure water lines may be extended under I-94 along County Road F, South Lowes Creek Road and just west of Highway 93. The latter extension has already been built to serve commercial development south of the I-94 interchange.

The high pressure system can be extended to serve areas above elevation 935 between Highways 93 and 53. A line for that purpose has been installed under the freeway and along Highway 53 to initially serve a housing development there. Eventually, that service will be looped back to the existing high pressure system to equalize pressure throughout the lines and

avoid water becoming stagnant. An additional high pressure zone will be needed to serve areas above elevation 935 to the west of Lowe's creek.

Based on *Water System Evaluation* (page 227), water mains of at least 12-inch diameter were assumed to be constructed along the major roads to serve full development. The Town would eventually be served by three pressure zones: the Southeast zone, the proposed Mischler Road zone and the Main zone.

There is sufficient capacity in the water well and storage systems to serve growth forecast in the Sewer Service Area during this 20 year planning period. However, *Water System Evaluation* determined that a booster station would be needed between West Lowes Creek Road and Highway 93 in the vicinity of Mischler Road if development there exceeded 50 housing units. Until a storage tank is constructed in that vicinity, the available flow in that zone would be derived from on the booster station.

A pressure reducing station may be needed near Graff Road and Old Town Hall Road to alleviate the high pressures experienced around Prairie Circle.

Surface Water Management

Water Quality Management

Please refer to the assessment of surface water management in the Natural Resources Assessment chapter of this plan.

Flood Control

Surface water management consists of flood or runoff control and water quality management. Flood control in Eau Claire is now well engineered and regulated for the most part as a result of improvements recommended by studies prepared in 1991 and 2000. The entire city has been studied on a sub-basin basis, and the City has detailed topographic maps superimposed over aerial photographs.

Certain flood-prone properties along the Chippewa River have been acquired by the City and converted to open land including park space. Other properties still remain in the 100-year or 500-year flood zones, however.

Stormwater Utility

The City has established a stormwater utility through Chapter 19 of the City Code. That ordinance allows the city to levy a fee on all properties to cover the cost of constructing and maintaining improvements needed to handle surface water ponding and drainage plus administrative costs.

Appendix A:

City of Eau Claire Sewer Service Policy

Since the 1970s, it has been the policy of the City of Eau Claire that property may receive sanitary sewer service only if it is within the City. Thus, owners of perimeter properties must petition the City for annexation and have their petition approved by the City and not successfully challenged by a Town.

The reasoning for this policy has been:

- 1.** So the City can recover its cost for the treatment plant and interceptor lines, and the maintenance and replacement of those facilities
- 2.** So the City can manage the intensity and timing of fringe development and, thus, the flow through its system
- 3.** So that the City can coordinate perimeter growth with the systems of roads, parks, drainage and other public facilities and services
- 4.** So that the City can manage the quality of perimeter urban development through its zoning ordinance, which is more demanding than the regulations of the adjacent Towns.
- 5.** So that the City can enjoy the benefits of tax base growth
- 6.** So that the City can include in its population and civic life those new residents and business owners.

Benefits of the Current Policy

By following this policy, the City has been able to promote a coordinated and cost-effective pattern of urban growth. The City believes that its coordinated and comprehensive management of urban growth, plus those of the Cities of Chippewa Falls and Altoona, has helped make this metropolitan region competitive with other similarly-sized metropolitan areas in terms of economic development and quality of life. Additionally, the City believes that this policy has minimized inconsistent, haphazard, unrealistic and competitive expansion that would have been without regard for the overall public interest.