

SECTION 3. COMMUNITY PROFILE

TRANSPORTATION

transportation infrastructure

Road System. Barre City has a well-established road system that is not anticipated to require major changes in configuration except for limited new residential streets and possible modifications to various intersections to improve traffic flow. There are nearly 50 miles of roads in Barre City, and the city is responsible for the repair and maintenance of more than 47 miles of those roads. The VTtransparency website (<https://vtrans.vermont.gov/vtransparency>) is a good source for ongoing daily traffic counts that reflect activity on our roads.

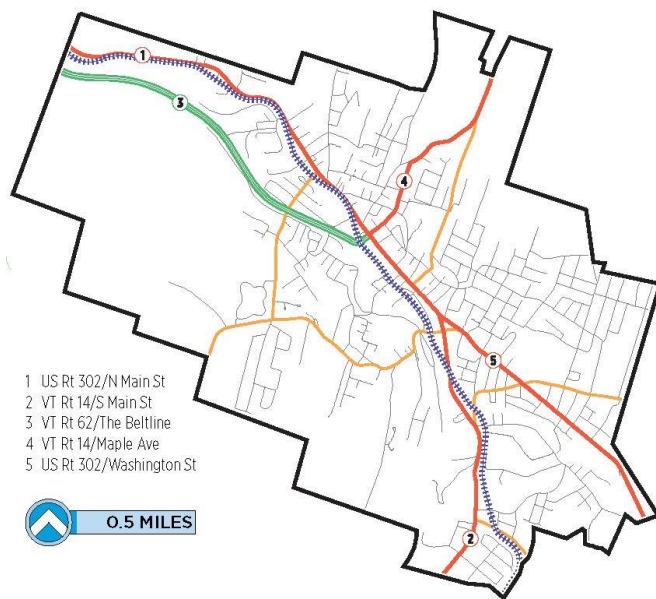


Figure 8. Street Network Map

Approximately 20% of the city’s annual budget (\$1.7 million in 2018) is allocated to roads, including annual funding for street reconstruction of more than \$337,500. The cost of road repair and maintenance is substantially affected by petroleum prices through the cost of vehicle fuel and asphalt. Given that the life span of an asphalt road is typically 10 to 15 years, the city currently needs to resurface 3 to 5 miles each year to keep up with street maintenance.

Highways. The city road system includes two highways, Vermont Route 14 and U.S. Route 302, which function as regional arterial highways carrying the majority of traffic traveling through the region as well as the majority of traffic moving around within the region. Route 14 carries north-south traffic between Royalton and Newport. Route 302 is a popular, east-west route for those traveling to/from New Hampshire and Maine. Another state highway, Route 62, travels five miles between the city and Interstate 89 and is classified as part of the interstate highway and expressway system. These highways are the only examples of the “arterial” road type in Barre City.

Barre City has accepted Route 14 and Route 302 as Class 1 roads, which gives the city greater control over the use and design of these roads, but also makes the city responsible for their repair and maintenance. The state remains in control of and responsible for Route 62.

Road Safety and Congestion. A number of safety and congestion issues have been identified on the city's more heavily traveled streets and at busy intersections:

- Congestion and delays at the intersections along North Main Street have been largely addressed by the North Main Street Reconstruction Project (discussed below).
- The Route 14 and Quarry Street intersection has been studied and a traffic signal will be installed, along with improved turning lanes and the widening of Quarry Street beginning in the summer of 2022.
- No action has been proposed to address concerns at the Route 14 and Circle Street intersection, the Summer and Seminary Street intersection, and the Route 302 and Berlin Street intersection.

The presence of two arterial highways in downtown Barre City generates a substantial amount of through traffic. In 2018, approximately 16,000 vehicles a day travel on North Main Street between Maple Avenue and Washington Street. This traffic is both a blessing and a curse for our downtown revitalization efforts. The highways bring travelers through downtown, many of whom would otherwise not drive into the city and some of whom can be enticed to stop at local businesses and attractions. The highways also bring congestion, noise and dirt, and may discourage some people from walking around downtown. The North Main Street Reconstruction Project has reduced congestion, mitigated the negative impacts of the high traffic volume to some degree, and created a downtown atmosphere that encourages travelers to stop in Barre City.

Despite the recent improvements, the fact remains that the segment of Route 302 running through the downtown has two conflicting uses. As a major transportation corridor it includes both through (transport trucks and other travelers moving within and passing through region) and local (downtown residents, shoppers and workers) traffic. Those motorists whose destination is downtown, then park and become pedestrians. The parking and pedestrian traffic hinders the flow of through traffic, while the through traffic generates noise, dust and odors and hampers pedestrians.

Barre City's response to high traffic volume will be to pursue traffic calming strategies (such as on-street parking, crossing bulb-outs, and lane narrowing), ensuring that the speed of traveling vehicles is low enough to preserve the safety of those who are walking and biking. The priority of the city is to maintain an inviting environment for shopping and recreation, and to protect property values on arterial and connector streets. Enforcement and street design that support the posted speed limits has a small effect on the total time it takes a driver to cross the city, but a large effect on livability and the value of properties in our densely settled community.

Bridges and Culverts. Barre City is responsible for the maintenance of 15 bridges. Two deficient bridges have been replaced since 2005 – the Granite Street bridge and the Prospect Street bridge. All the bridges over the Stevens Branch have now been replaced, so there are no longer any bridges in the city that are structurally or functionally deficient. The May 2011 flood destroyed the Harrington Avenue bridge over Gunner Brook; and was removed during the flood mitigation efforts completed for that area. The 2009 Stevens Branch Watershed River Corridor Plan includes a list of bridges and culverts that should be improved to address stormwater and flooding issues.

Bridges and culverts are a critical interface between the built and natural environment. During a storm or flood, if the amount of water attempting to pass under or through a bridge or culvert exceeds the structure's capacity, the structure can wash out, and the road infrastructure and nearby development can be damaged. To reduce the potential for storm and flood damage, bridges and culverts need to be sized appropriately to accommodate swollen streams and drainage ways. The city currently requires culverts of a size adequate to carry a 25-year storm in accordance with state and federal requirements. Larger culverts could be required, which would increase initial construction costs, but would reduce the likelihood of future flood damage. At a minimum, the city should consider requiring culverts that will be carrying a stream to be adequately sized for a 50-year storm.

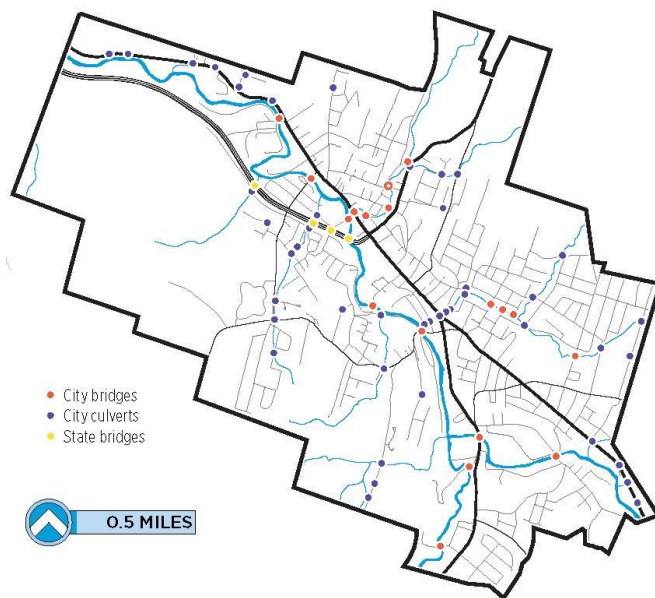


Figure 9. Bridge and Culvert Map

Bridges and culverts also need to be inspected and maintained to remain fully functional. Debris can accumulate under or in bridges and culverts, reducing the amount of water they can accommodate. Preventing debris – yard waste, sediment and trash – from entering drainage ways and rivers can help maintain flows and reduce flooding potential. There are also a number of abandoned abutments located in the city's rivers. These structures reduce the carrying capacity of the stream channels, and create an opportunity for debris to back up and cause upstream flooding.

Neighborhood Streets. The majority of Barre City's road mileage is composed of neighborhood streets. Most of these streets are intended to serve local traffic and it is important to discourage their use by through traffic in order to protect quality of life in the city's residential neighborhoods. Strategies to avoid neighborhood streets being treated as connector streets involve: narrowing travel lanes, designating one-way, and closing streets to vehicle traffic. These streets were built over time to varying standards. To address their deficiencies, the city is engaged in an ongoing street reconstruction project list, which involves taking the street down to its base, replacing underground infrastructure and rebuilding the street. Connector streets in Barre City should be officially designated, and designed to different standards than neighborhood streets. Any street not a designated connector street should be designed to minimize or prohibit through traffic.

Due to historical land development practices prior to the enactment of the city’s subdivision ordinance, Barre City has a number of “paper streets” that can create a challenge to building on some lots in the city. A “paper street” is a strip of land that was intended to become a street, but the street was never built and the strip of land remained privately owned despite the fact that adjoining lots were created. Decades later, ownership and therefore the right to use some of these “paper streets” to access adjoining lots or install utilities (thus allowing the lots to be built upon) is uncertain. Tracing the ownership of these strips of land and resolving the uncertainties could facilitate infill development on some of the city’s undeveloped lots.

Sidewalks. The recent “Complete Streets” movement has focused attention on the importance of developing roadways that can be used by everyone not just drivers – pedestrians, bicyclists, children, seniors, people with disabilities, etc. Sidewalks are a critical component of a “complete street” and allow people to safely walk both as a means of transportation and as a way to improve health and fitness.

Barre City has approximately 21 miles of sidewalks, but the majority of older neighborhood streets were not constructed with sidewalks. There has not been a recent inventory of the condition of existing sidewalks in the city. The city has also not developed a long-range plan for extending the sidewalk system, although new sidewalks have been built in recent years, usually as a result of grant funding. When sidewalks and other pedestrian infrastructure are installed or repaired, precedence should be given to projects that provide the highest value connection: where demand is great and where an improved walking connection will significantly increase the value of nearby properties in Barre City.



Figure 10. Pedestrian Network Map

Not only is funding needed to build new sidewalks, but existing sidewalks need to be maintained. The lifespan of a typical concrete sidewalk is 20 to 40 years, which suggests that the city should be replacing between ½ and 1 mile of existing sidewalk annually. While the city allocates funds annually for sidewalk maintenance, the amount is not enough to keep up with the need to repair or replace existing sidewalks. Often sidewalks are not replaced due to their condition but for other reasons such as a need to tear up a good sidewalk to access underground infrastructure or a need to meet

accessibility requirements in high traffic areas, etc. Downtown sidewalks are maintained by city staff, and most residential neighborhood sidewalks are maintained by the property owner of which the sidewalk runs through.

The city needs a sidewalk plan or policy that would address the following questions:

- What sidewalks are critical due to high pedestrian traffic?
- What are the key destinations for pedestrians?
- Where are new sidewalks needed?
- What external funding is available for new sidewalk construction?
- Should all new neighborhood streets include sidewalks?
- Who should pay for sidewalk repairs (abutting owners or city)?
- Who should be responsible for clearing snow off sidewalks?
- When should sidewalks be removed?
- What is the process for notice when sidewalk removal is proposed?

Paths and Trails. Both formal multi-use paths and informal trails exist within the city. The paths may provide alternative travel routes for pedestrians and bicyclists, while the trails are primarily used for recreation. The city's multi-use paths are not well-integrated into the transportation system and currently function as individual segments rather than a connected network. As mentioned above, the city has not developed a long-range plan for meeting the needs of pedestrians and bicyclists.

For a number of years, the city has been actively engaged in planning for the Central Vermont Regional Path (CVRP), which when complete will run from the railroad junction in Montpelier, through Montpelier, Berlin, Barre City, and into Barre Town. Some portions of the CVRP are already constructed, while other portions are in various stages of planning and design. Barre City and Barre Town are currently studying the segment of path between Depot Square and the existing Millstone Hill Path in Barre Town (the "City-Town Connector" segment). One segment of the path was constructed at the rear of the newly renovated Enterprise Aly parking lot, and the Metro Way path is to be constructed during 2020. The city continues working on plans for another segment of the CVRP, which will extend between the Granite Museum and Depot Square in downtown Barre (the "Museum" segment).

Since 2005, both Barre City and Town of Barre have established Path Committees to move forward with the implementation of the CVRP. Planning for the CVRP was re-activated as a result of a \$500,000 bequest from Charles Semprebson to each community. Both committees have identified potential paths that would support the connection of the two municipalities, as was Charles Semprebson's wish.

The CVRP will enhance recreational opportunities, and will provide links to important cultural and historic resources. It will connect neighborhoods to each other, and residential areas to downtown merchants. The path will provide a mode of access to work, school, and community amenities. It will promote a healthy lifestyle by providing a safe and enjoyable place for families and friends to exercise and socialize. The portions of the CVRP within Barre City could also serve as a backbone for a future bike and pedestrian network within the city.

Parking. The city is the principal provider of downtown parking with more than 500 parking spaces in several municipal lots in addition to on-street parking. The availability of public parking downtown has made it possible to reduce or eliminate on-site parking requirements, which supports our efforts to increase the occupancy of downtown buildings. Today, Barre City has an ample supply of public parking, and with the redevelopment of the Enterprise Aly Parking Lot and the creation of the Keith Avenue Parking lot, supply is good. Those willing and able to park and walk a short distance to their destination will seldom have difficulty finding a space downtown. As the number of people working, living and visiting downtown increase, additional parking will be needed as discussed below. Improvements are also needed to increase the quantity and quality of accessible parking spaces and to provide safe pedestrian access within parking lots.

Additionally, two specific types of parking are needed downtown:

- Short-term parking conveniently located to downtown businesses. Much of this need could be met by relocating long-term parking (for building employees and residents) away from the prime parking spaces during business hours.
- Overnight parking for downtown residents. Parking overnight from November 15 to April 1 is prohibited on all city streets to facilitate snow removal and is limited in public parking lots year-round. The city also restricts the length of time vehicles may remain in most public parking spaces without being moved (some city parking is by permit only and overnight/long-term permits are available for those spaces). Changes to these policies and/or construction of a parking structure (see discussion below) could address the limited supply of overnight parking downtown. Barre City should adopt a modern winter parking policy that allows street parking city-side.

The city's public parking was not enforced during the Main Street Reconstruction Project, and prior to the project, meters and the parking meter program really was not a big priority. When the Main Street project was substantially complete in the fall of 2012, a city staffed parking team was created to ensure that meters, tickets and the parking lots got the attention needed. The city has a plan to improve the Merchants Row area and the area between North Main Street and Summer Street, where much of the public parking is located. The Keith Avenue Parking lot was created from the removal of the Ormsby Computer Store building and lots adjacent to, after the construction of the Downstreet Housing Apartment building was complete. The Pearl Street Parking lot, behind the Downtown Rentals building (fka the City Hotel) and a local tavern is slated to be redeveloped in the summer of 2020, turning the parking spaces ninety degrees, and egress will be onto Pearl Street, rather than Summer Street. These projects will improve traffic circulation, parking organization, pedestrian safety, stormwater management, and aesthetics, and were a significant public investment.

Parking fees were resumed in the fall of 2012 after the Main Street project was substantially complete. A system of varying rates was implemented to encourage desired parking behaviors (ex. making long-term parking in prime spots more expensive or only allowing users to purchase a limited amount of time in a prime spot) and address some of the current concerns about downtown parking. There is a webpage under the Police Department devoted to parking, the meters and enforcement. There are also individual maps of each of the lots that show the different types of parking, from metered rated spaces, to handicapped, to shared use (daytime and overnight parking spaces), as well as the spaces designated by Council to specific parking per parking agreements.

The city included in the TIF District application the locating of a multi-level parking structure downtown to address the increased demand for parking that was anticipated as a result of City Place, Downstreet Housing and further redevelopment of downtown buildings. A parking structure would provide a greater number of spaces in a more compact area, potentially freeing up some of the land now used as parking lots for green space or infill development. As with the improvements to public parking lots discussed above, this is an expensive project that would likely require a revenue stream to offset construction costs and ongoing operation. The city has been able to fund a portion of parking improvements and construction through TIF district revenues through the Enterprise Aly reconstruction, the Keith Avenue development and the Pearl Street redevelopment. The groundwork for a parking structure was created when the Keith Avenue parking lot was completed in 2019. Until parking conditions become might tighter in Barre City, a parking structure or additional parking lots should only be considered after a careful cost-benefit analysis.

Public Transit. Barre City is home to a large number of residents who cannot drive or do not have access to a vehicle. This group includes senior citizens, youth, people with disabilities, people whose driving privileges have been revoked, or people who cannot afford a vehicle and people who have chosen to live without a vehicle. According to the 2010 Census Bureau estimates, there are approximately 620 households living in Barre City without a vehicle (15% of all households in the city, the second highest rate of households without a vehicle in Vermont). For these residents, public transit is a necessity. The result of the 2020 Census will be a good indicator if this gets better or not.

The region's primary public transit provider is Green Mountain Transit Authority (GMTA), which merged with Chittenden County Transportation Authority (CCTA) in 2011. Currently, the city is served by several of GMTA's fixed bus routes – the City Commuter, which travels between downtown Barre and Montpelier, and the Barre Hospital Hill, which travels between Barre City and Berlin. There is also the Hannaford Shopping Special, traveling each Tuesday from N. Main Street onto to S. Main Street into Barre Town, to the Hannaford's Supermarket. The City Route Mid-Day travels the same as the City Commuter during off-peak hours. And finally, the Barre Link Express runs between the UVM Medical Center in Burlington to the District Court House on N. Main Street. Connections are possible from these two routes to other local bus routes and to commuter buses that travel outside the region to Burlington and St. Johnsbury. GMTA also operates several special shuttle routes each week primarily designed to transport residents of the city's senior and public housing to shopping centers and medical services. In 2018, GMTA provided over 30,000 trips to Barre City residents under the special transportation services (deviations), like medical treatment, prescription shopping and Washington County Mental Health needs.

GMTA continually re-evaluates bus stops and routes and is working to better align its routes and service with riders' needs. While the service provided by the existing routes should be maintained, the city recognizes that as it is currently operated, GMTA is not able to meet the transportation needs of some transit-dependent residents. The following needs have been identified:

- A circulator bus route serving Barre City neighborhoods. Montpelier has a circulator route and the estimated cost to Barre City for such service would be \$30,000 to \$40,000 each year.
- Extension of the City Commuter route to Graniteville, which would serve the employees of Wilson Industrial and the South Main Street corridor.
- Service for those who work second or third shift, weekends or other non-traditional hours.
- More efficient connections between buses.

- Service for high school students, particularly those living too far to walk/bike to school. The lack of public transit for high school students generates traffic congestion within the city at the start and end of the school day.

More formal bus shelters with route maps and schedules would also encourage more people to ride the bus.

GMTA also provides an elderly and disabled transportation program that includes:

- Deviated fixed routes
- Washington Co. Mental Health transportation services
- Medicare transports
- Meals site programs
- Central Vermont Substance Abuse transportation services
- Ticket to ride (an allowance program for non-ambulatory and ambulatory services for disabled persons and their families)
- Ridematch program
- PATH and various other third party transports

Rail. The Washington County Railroad line travels through Barre City largely paralleling Main Street. This line and others built in the 1870's and 1880's made the rapid expansion of the granite industry and associated growth of the city possible by linking the quarries in the region to distant markets. After a long period of dormancy, the rail line was reactivated by the Vermont Rail System and began shipping freight in 2010, and continues, known as the "Granite Train" moving grout between the quarry and a staging area. With higher fuel prices likely in the future, rail access is again becoming an important economic development asset that Barre City can capitalize on.

To accommodate increased freight traffic and future passenger rail service, upgrades to the tracks and road crossings are needed. The rail line crosses 15 streets in Barre City, and most of those crossings are marked only by signage indicating presence of the rail line. Currently, trains must travel very slowly through the city due to the condition of the tracks and crossings.

Fortunately, the use of the land adjoining the rail corridor in Barre City did not change significantly during the period when rail service was suspended. Most of the corridor remains in industrial or commercial use, and there has been little new residential development that would conflict with resumption of rail traffic. However, when trains were not using the rail corridor, people began to use it as an informal pathway through the city. This has created a conflict now that rail service has resumed. The return of trains to the city has also brought increased noise, which people are no longer accustomed to hearing. The city, however, has no control over the use of the rail line and its associated impacts on nearby property and can do little to address the concerns that some citizens have raised about the resumption of rail service.

Passenger rail service is available in Montpelier on Amtrak's Vermonter line, which runs once each day between Washington, DC and St. Albans.

Air. Edward F. Knapp State Airport, a general aviation airport in Berlin, is located four miles from downtown Barre City. The state-owned airport does not offer scheduled airline service, but can accommodate corporate or chartered planes. The airport has fueling and repair facilities. The airport

completed major improvements in 2010, which included constructing a new taxiway, repaving the runway, and expanding the apron near the terminal area. The airport contains two paved runways, one measuring 5,000 by 100 feet and the other 4,000 by 100 feet, and has electronic navigation equipment.

The nearest commercial airport is Burlington International Airport, which located approximately 40 miles from Barre City.

travel patterns & trends

Traffic. The city's most heavily traveled road segment is North Main Street with approximately 15,000 vehicles per day traveling through downtown. Despite perceptions to the contrary, the amount of traffic downtown has not increased significantly in recent decades. Traffic has increased on Route 62, however, due to development near the interstate in Berlin.

Commuting. During the past 20 years, the commuting patterns of city residents have changed. Fewer residents are working in the city and the places that Barre City residents commute to are becoming increasingly varied and distant. This change has implications for residents' transportation needs, and it affects many other aspects of daily life – household budgets, time available to participate in leisure, family or community activities, childcare needs, etc. At the same time that more residents are commuting longer distances, a greater percentage are also driving alone to work. Reversing the current commuting trends would benefit Barre City economically, socially and environmentally.

transportation improvements & planning

North Main Street Reconstruction. The reconstruction of North Main Street from Route 62 to the City Hall Park, completed in 2013, replaced all utilities, street lighting, sidewalks, completely reconstructed the road surface, revitalized the streetscape to improve the appearance of downtown and optimized the timing of the lights to facilitate traffic flow. The North Main Street Reconstruction Project replaced our downtown sidewalks and redesigned the crosswalks to improve pedestrian safety. The revitalized streetscape has greatly improved the appearance of our downtown.

Access Management. Vehicles entering and existing roadways contribute to congestion and create opportunities for accidents. Managing where and how vehicles can safely enter or exit a roadway is particularly important on heavily traveled, densely developed and/or high-speed corridors. Access management is a set of techniques that can be used to control access to such roadways in order to increase the capacity of these roads, manage congestion, and reduce crashes.

Once development occurs, it is often difficult and costly to make changes to vehicular entrances/exits making it important to consider access management during the development review process. Although the city's main roads are already largely developed with only limited access control, new development and re-development should include consideration for access management. The city's revised zoning ordinance includes some access management provisions including limiting the number of driveways per lot and controlling driveway design to some extent.

Involvement in Transportation Planning. The Planning Commission has had only limited involvement in various transportation issues in the city. Most of the transportation planning has been

managed by the City Engineer and the Transportation Advisory Committee. The Planning Commission should become more involved in transportation planning as it relates to land use patterns. The Transportation Advisory Committee, the Paths, Routes & Trails Committee and the Planning Commission will meet not less than quarterly to ensure coordination to improve pedestrian safety and access, decrease traffic congestion and speeding, and align neighborhood development with the goals of the Municipal Plan.

PUBLIC UTILITIES

water

Water System. Municipal water is available throughout Barre City. As of 2011, the city water system included the following:

- **Water Supply.** Thurman W. Dix Reservoir and Dam are located approximately four miles east of the city in the Town of Orange. The dam impounds water from the Orange Brook, creating the reservoir that supplies the city with drinking water. Barre City owns the dam, which was built in 1950, the reservoir and 1,200 acres of surrounding land. At normal levels, the reservoir has a surface area of 119 acres and stores 1,070 acre-feet of water. The reservoir has a drainage area of approximately 11.4 square miles. The city has adopted a Source Protection Plan, as required by state law, which was mostly recently updated in December of 2015.
- **Filtration Plant.** A water filtration plant located at 164 Reservoir Road in the Town of Orange, which went online in 1994 and is staffed by 3.3 city employees. The operating cost of the water filtration plant is approximately \$1.6 million per year, and has remained steady since 2011. The plant has a maximum treatment capacity of 6 million gallons per day (2 million gallons per day for each of the three filtering units).
- **Distribution System.** There are approximately 78 miles of distribution piping that deliver water to more than 4,100 service connections. There are two pump stations - one for Fire District #8 and one for the Cobble Hill area. System pressure is maintained throughout the remainder of the distribution system by the height of the water in the Clearwell Storage Tank.
- **Storage Tanks.** The water system includes three storage tanks: the 2 million gallon Clearwell Storage Tank located at the filtration plant; the 375,000-gallon Bailey Street Storage Tank located at 190 Bailey Street; and the 1 million gallon Pierce Road Storage Tank located at 23 Pierce Road, which is a cast in place concrete tank built in 2003. The Pierce Road tank was part of a project to upgrade the city's water distribution system to ensure an adequate supply of water to fight a major fire.
- **Fire Hydrants.** There are approximately 270 fire hydrants connected to water system. There are both city-owned and private fire hydrants in Barre City. In recent years, some developments have been required to install hydrants when deemed necessary for firefighting purposes. The city maintains the private hydrants and charges the owners an annual service fee.

Some areas of Barre Town are served by the city water system: South Barre Fire District #2 (Route 14/South Barre Road); Richardson Road area; Route 14/East Montpelier Road area; Cassie Street area; Camp Street area; Trow Hill area; and Tamarack Lane area.

Water Department. The Water Department, which is part of the Public Works Department, has a service department at the Public Works complex on Burnham Street. The Water Department has up

to five employees. The Water Department and Wastewater Treatment Department share one billing clerk and a meter-reader.

System Capacity and Use. The city water system currently supplies an average of 1.3 million gallons of water per day to its customers. The maximum daily water demand in recent years has been approximately 3.4 million gallons. The capacity of the filtration plant is 6 million gallons per day.

Planned Improvements. The Water Department and Wastewater Treatment Department operate on revenues generated from rate payers. City water and sewer rates need be at a level to continue to fund required improvements to keep the departments' infrastructure and operations updated and efficient. Planned improvements to the city's water transmission and distribution system include: water meter replacements, replacement of lines on Quarry Street, upgrades to the west side transmission main loop, and establishing a regular flushing program for small diameter lines. There were significant upgrades made to the water treatment plant between 2008 and 2012, and currently there are no planned improvements for that facility.

wastewater

Wastewater System. Municipal wastewater is available throughout Barre City. As of 2018, the city's wastewater system included the following:

- **Treatment Facility.** The city's wastewater treatment facility, located at 69 Treatment Plant Drive, has the capacity to treat 4 million gallons per day with a current demand of 2.7 million gallons per day. The plant discharges treated liquid effluent into the Stevens Branch of the Winooski River. The facility first went online in 1960 with major upgrades in 1977 and 1995. An upgrade in 2002 increased the plant's capacity from 3.4 to 4.0 million gallons per day.
- **Collection System.** There are approximately 58 miles of sanitary sewer piping.

Barre City's wastewater system also serves parts of the Town of Barre. As of 2011, the town had an allocated of 1.5 million gallons per day and a current demand of 1.1 million gallons per day. The city works closely with the Town of Barre regarding future capacity needs for those areas of the town served by the plant.

Wastewater Department. The Wastewater Treatment Department, which is a division of the Public Works Department, has up to 4.3 employees.

System Capacity and Use. In 2011, our wastewater facility had a committed reserve capacity of less than 0.5 million gallons per day and an uncommitted reserve of nearly 0.9 million gallons per day (enough to serve more than 4,000 additional homes). The wastewater treatment facility is limited to a maximum discharge of 7,306 pounds of phosphorus annually based on the Lake Champlain Phosphorus TMDL (total maximum daily load) established in 2002. Recent upgrades to the treatment plant have greatly improved the plant's effectiveness at phosphorus removal. The plant currently discharges 4.5 pounds per day or 22% of the maximum allowed. It should be noted, however, that the limit on phosphorus does not increase if the plant's flow increases.

Planned Improvements. As with many cities, Barre City faces the challenge of repairing and upgrading our aging water and sewer lines. To the extent feasible, replacement of old pipes should

be coordinated with street reconstruction and scheduled as part of an ongoing capital improvement program. Planned improvements to the city's wastewater infrastructure collection system include: continued replacement or lining of trunk lines, replacing lines on Washington Street and Quarry Street; and siphon replacement. At the wastewater treatment facility, improvements are needed to the primary clarifiers, grit removal, and the dewatering room.

storm sewers

Barre City does not have a municipal stormwater utility, but is responsible for a significant amount of stormwater infrastructure. (Also see discussion of stormwater in the Natural Environment chapter of this plan.)

The city has completed a major upgrade of the downtown stormwater system as part of the North Main Street Reconstruction Project. Stormwater from North Main Street and the buildings along it is now collected and directed to retention ponds. With the completion of this project, a major source of stormwater entering the city's wastewater treatment plant has been eliminated. As a result, the potential for combined sewer overflows during heavy storms (when the amount of stormwater flowing into the treatment plant overwhelms its capacity resulting in sewer back-ups and/or releases of untreated wastewater to the river) has been significantly reduced.

As the city continues to upgrade its underground infrastructure, remaining stormwater drains flowing into the sanitary sewers will be separated so that stormwater is not directed to the wastewater treatment plant.

solid waste

Solid Waste Management. Barre City government does not directly provide trash and recyclable collection and disposal services. City households and businesses can contract with one of several private, licensed haulers that pick up trash and recyclables. Barre City is a member of the Central Vermont Solid Waste Management District (CVSWMD), along with 18 other municipalities in the region. As a CVSWMD member, the city's obligation under state law to plan for solid waste disposal is met by the district. The district's Solid Waste Implementation Plan, as most recently adopted, is incorporated into this plan by reference.

Landfill Siting. The district's waste is being hauled through transfer stations and to the New England Waste Services of Vermont, Inc. Landfill in Coventry, Vermont. The landfill owner recently received approval in 2018 to expand the landfill by an additional 51 acres to accommodate the state's trash. The Moretown Landfill closed in early 2013, making the Coventry landfill the only disposal site in the state.

Barre City's zoning ordinance allows recyclables and solid waste services as conditional uses within the general business and industrial zones only.

In May 2015, CVSWMD proposed amendments to its Solid Waste Implementation Plan including new landfill siting criteria. The new criteria would not allow a landfill within Barre City, however, landfill development in neighboring towns could have a substantial effect on the Barre City road system and city property owners. Thus far, CVSWMD has been unsuccessful in its efforts to site a new lined

landfill disposal facility in the district. It has turned its attention to the zero-waste campaign educating people on recycling, composting, reuse and reducing toxins.

Solid Waste Generation. Each Vermont resident currently generates an average of one ton of waste per year. Currently about one-third of that waste is recycled, reused or composed, while two-thirds is landfilled or incinerated. CVSWMD has adopted a goal of working to achieve “zero waste” in the district and believes that its zero waste goal can help create new businesses and jobs through waste-based economic development, strengthen existing businesses, and protect public health and the environment. It is estimated that landfilling/incineration creates one job per 10,000 pounds of material, while composting creates four jobs, sorting and processing of recyclables creates 10 jobs, remanufacturing 25 jobs, and reuse business between 28 and 296 jobs.

Recycling. CVSWMD has had a mandatory recycling ordinance since 1994 that requires all households and businesses in the district to recycle: glass (all colors), cans (tin, steel and aluminum), foil and pie plates, aerosol cans, plastics #1-#7, newspaper, magazines, catalogs, paperbacks, white and colored office paper, paper mail, envelopes, brown and colored paper bags, boxboard, corrugated cardboard and phone books. CVSWMD is also actively promoting composting. Residents can purchase home composting units from the district at a discounted price, and the district has established programs to compost food waste from schools, restaurants and other businesses.

Act 148, Vermont’s universal recycling law went into effect in 2012, and bans 3 major categories of materials from trash bins. They are 1) leaf, yard debris and clean wood; 2) food scraps; and 3) “blue bin” or specific types of recyclables (glass, metal, plastic, etc.). In 2018, the Act was revised for food waste being banned in your trash and in the landfills beginning July 1, 2020, and that haulers must provide for food scraps collection to non-residential customers and to apartment buildings with 4 or more units. And, the 2019 amendment to the law includes the prohibition of single use plastics products such as plastic bags at a point-of-sale situation, some plastic straws and stir sticks, and Styrofoam cups and containers, meat and fish packaging.

Former City Landfill. Barre City is responsible for the ongoing monitoring of its closed, unlined municipal landfill on Farwell Street. Leachate from this former landfill has contributed to reduced water quality in nearby Gunner Brook, which the state now classifies as an impaired waterway (see Natural Environment chapter of this plan). The site is now known as Tarquinio Recreation Field and has a baseball field and soccer fields, as well as other open space areas.

electric utility

Electric Distribution and Service. Green Mountain Power (GMP) provides electricity in Barre City, including three-phase power to the city’s industrial and commercial areas. GMP operates three substations within the city and has a maintenance facility located on Blackwell Street. GMP provides the city with adequate electric services with minimal disruption, and has historically had the lowest average rates for any major investor-owned utility in New England. In recent years, GMP has expanded and upgraded its infrastructure to meet customer demand for reliable and affordable power.

Electric Transmission Infrastructure. VELCO (Vermont Electric Power Company) owns the 115-kV transmission line that brings electricity to the city. The transmission line corridor travels through the city, parallel to Route 62, then crosses Prospect Street and continues in a southeasterly direction.

VELCO's 2009 Vermont Long-Range Transmission Plan included a proposed project to upgrade the Barre substation (in Barre Town on Upper Prospect Street near the city line) and install a second 115/34.5 kV transformer by 2018 to address identified reliability issues, and was completed during the 2019-2020 construction season. Upgrades to the North End Substation on Railroad Street, and South End Substation on S. Main Street were completed in 2017. The project has been worked on throughout 2019 and expects to be done in early 2020.

Efficiency Utility. Efficiency Vermont, the statewide energy efficiency utility, provides technical advice and financial incentives to businesses and homeowners. Efficiency Vermont can assist with identifying cost-effective steps to lower energy costs through energy-efficient buildings, equipment and lighting. Contact them directly at 888-921-5990 or visit their website at www.efficiencyvermont.com. More information about energy usage and conservation is presented in the Energy chapter of this plan.

Power Generation. As of 2011, there were no electricity generating facilities operating in Barre City, but the city has completed a project to generate power at the Nelson Street Pressure Reduction Valve Control Vault (a component of the city's water system). Water arrives at this site from the treatment plant at a high pressure, which must be lowered before the water enters the distribution pipes that serve downtown. The energy produced as a result of this pressure reduction is harnessed to generate electricity. The power is net metered and offsets the electricity used within the city's water system.

telecommunications utilities

Wired Telephone Service. Consolidated Communications provides wired telephone and DSL (digital subscriber lines for high-speed internet) service in Barre City. Their district office within the city is located downtown on Elm Street; this location ensures that DSL service, which is based on distance from the district office, is available throughout the city.

Wireless Telephone Service. Wireless telephone service is available in the city from several national providers. Several companies have antennas mounted on the roof of North Barre Manor and the City Auditorium, which provide coverage throughout most of the city and generate revenue to offset the operating costs of the Civic Center. Cellular antennas have also been mounted on several locations throughout the City, including poles and rooftops. The city encourages the continued practice of mounting antennas on existing structures in a manner that results in the infrastructure being effectively blended into its surroundings and not highly visible.

Cable Service. Charter Communications offers cable service throughout the city. In addition to television service, customers may opt to receive phone service and/or broadband internet service over cable. Charter Communications has a sales and service location downtown on North Main Street.

Satellite Service. Both television and broadband internet service are also available via satellite from multiple national providers. The city's zoning regulations allow such satellite dishes to be installed in residential districts without a zoning permit.

Fiber Optic Cable. FirstLight, a fiber optic company, has multiple miles of fiber optic network across seven Vermont counties, including Washington County, and downtown Barre City. The networks provide high-capacity connections to community anchor institutions (schools, libraries, colleges, state government offices, public safety communications networks, etc.).

Central Vermont Fiber is a nonprofit organization made up of 18 Central Vermont towns, of which the City is a member. The goal is to have fast, dependable and affordable internet to every Vermonter within the member towns. They are currently seeking funding to aid in the planning process, and hope to be a self-sustaining entity once up and running.

Public Wi-Fi. There is a public Wi-Fi network in our downtown business district. As more people are using wireless devices (laptops, smart phones, tablet computers, etc.), they expect to have a connection wherever they are and wherever they need it. A free public Wi-Fi network supports efforts to attract office and professional jobs downtown, and allow those workers to patronize nearby businesses while taking their work along with them.