TOWN OF WESTFIELD

Village Wastewater Study

Preliminary Engineering Report - 90% Draft

Vermont State Department of Environmental Conservation

Prepared for the:

Town of Westfield
38 School Street
Westfield, VT 05874

4/23/2026

AES Project No. 5301

VT DEC Loan # RF1-386-1.0

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1 PROJECT PLANNING

1.1 Location

The Town of Westfield is in Orleans County in northern Vermont. The Town borders the Town of Jay to the North, the Town of Troy to the East, the Town of Lowell to the South, and the Town of Montgomery to the west. Refer to Figure 1.1: *Project Location Map.* **The Town lies within the Lake Champlain drainage basin.**

The project is focused on the Designated Village Center area within the Town of Westfield. The report study area extends slightly beyond the Designated Village Center, as shown in Figure 1.2: Sewer Service Area, to include nearby areas within ¼-mile of the Village Center into the project. The Sewer Service Area is defined solely to identify the geographic limits of the project evaluation and does not represent the extent of any potential **future wastewater solution.**

1.2 Environmental Resources Present

The Town of Westfield is located adjacent to mountainous terrain, agricultural farmlands, and flood zones, as well as the Missisquoi River. This section briefly discusses the environmental resources present in and around the project area. Additional information is provided in the Environmental Information Document (EID), which is included in Appendix A.

1.2.1 Landmarks and Historic Features

The Town of Westfield has two buildings that are treasured by the community. The Hitchcock Museum and Library and the Community Center serve as gathering places and anchor the village center.

The Hitchcock Museum and Library is a Westfield landmark, built in 1899 with funds donated by Aaron E. Hitchcock, a local farmer, businessman, and real estate investor of the time. The museum currently houses a natural history collection, wild game trophies from around the world, ships-in-bottled, Town historical photos, documents, and farming objects.

The Westfield Community Center was formerly the Village School, circa 1860. The building has been modernized and raised onto a foundation, and is now used for senior meals and activities, civic groups, and Town/board meetings.

The Long Trail runs through the Town of Westfield, and a portion known as Hazen's Notch is a scenic and historic area. The Notch has been designated a Natural Heritage Site. Most of the land is owned by the State, but some private ownership provides access to some forests and camps.

1.2.2 Archeological Sites

The Missisquoi River, on the east side of the Town and a main water body in the Village, is designated as a corridor of "expected archeological sensitivity". Due to the nature of the land topography and slopes, and considering the distances to water, food, and other natural resources, the likelihood that archeological sites are present in this area are significant. Care will be taken during the soils investigation to coordinate with the Vermont Division for Historic Preservation (VDHP) and have an archeologist on site during test pits.

Once the Town board has selected the Alternative and directed the engineer to proceed with Step 2 and the design of the infrastructure, the preliminary design documents of infrastructure improvements will be submitted to VDHP again for a final determination of any impact on archaeological and/or historic resources.

1.2.3 Wetlands

According to the Westfield Town Plan, there are 444 acres of wetlands in the Town. While many of these are comprised of small areas scattered throughout the town, many of the wetlands in and near the project area lie in the fields along the Missisquoi River, as shown in Figure 1.3: *Village Wetlands*.

1.2.4 Floodplains

Changes in local weather patterns in recent years have increased the frequency of severe and intense storms in Vermont, which have emphasized the need to verify that proposed work can withstand the 100-year (one percent recurrence interval) and possibly the 500-year (0.5 per cent recurrence interval) flooding events. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) are used to determine the extent of the (100) year and (500) year flood.

Refer to Figure 1.4: FEMA Flood Hazard Areas shows that areas within the project adjacent to the Missisquoi River and its tributaries are prone to flooding. These areas have been designated as Zone A on the Flood Hazard Boundary Map, indicating they are areas with a 1% annual chance of flooding. Detailed analyses have not been performed for these areas and therefore there is no known base flood elevation, however it is known that these areas are prone to flooding and should be avoided for a potential wastewater disposal area. Refer to Figure 1.4: *FEMA Flood Hazard Areas*.

1.2.5 Existing Soils

Hydrologic Soil Groups are classifications developed by the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA-NRCS) to estimate the runoff potential of soils. Soils are assigned to one of four groups – A, B, C, or D – based on the infiltration rate of the soil and water transmission potential under conditions of maximum wetness (i.e., when the soil is thoroughly wetted and vegetative cover is established). Classifications may also appear as dual groups – A/D, B/D, or C/D – where drainage conditions significantly alter the soil's hydrologic behavior. These classifications are commonly used in wastewater planning and stormwater management to assess site suitability, determine appropriate system design, and evaluate potential environmental impacts.

The Proposed Sewer Service Area includes a mixture of different soil types and hydrologic soil group classifications. Much of the Proposed Service Area includes soils designated as Group B, C, D, or in dual groups. Below is a description of each hydrologic soil group description and discussion of suitability for wastewater discharge. Refer to Figure 1.5 for mapping and additional descriptions of the soils present in the Proposed Sewer Service Area and Village of Westfield.

Soils in Group A have a high infiltration rate when thoroughly wet, and are generally consisting of deep, well-drained sands or gravels with low runoff potential. Soils in this group are most favorable for infiltration-based systems, such as mounds or infiltration beds due to excellent percolation and transmissivity.

Soils in Group B have a moderate infiltration rate when thoroughly wet and are generally well-drained soils with moderate rates of water transmission (i.e., loams). Soils in this group are typically suitable for many wastewater disposal methods, though site-specific conditions must still be evaluated. Transmissivity and percolation are adequate but may be sensitive to compaction or seasonal saturation.

Soil in Group C has a slow infiltration rate when thoroughly wet, and generally consists of finer texture (e.g., clay loams) with restrictive layers or moderately high-water table. Soils in this group may require engineered solutions or alternative designs to address the slow percolation and limited water movement. These soils are not typically desirable for wastewater disposal methods, though site-specifical conditions must still be evaluated.

Soils in Group D have a slow infiltration rate when thoroughly wet and generally consisting of clays, silty clays, or soils with a high-water table or shallow impermeable layer. Soils in this group are the least favorable for infiltration-based systems and often require advanced treatment or alternative discharge methods. Mound systems with engineered fill are typical for soils in this group.

Some soils are classified as dual groups (A/D, B/D, C/D) when natural drainage is poor (D), but improved drainage (by artificial means such as underdrains or mounding) can elevate the soil's performance to match a better hydrologic group (A, B, or C). These soils initially have low permeability and transmissivity due to shallow water tables or restrictive layers. With engineered improvements, such as underdrain installation or mounding above the seasonal high groundwater, the soil potential may be restored for higher percolation and acceptable design performance.

While USGS-NRCS mapping is a good indicator of the soils present in a location, it is necessary to confirm the presence of soils through site evaluation including methods of soil borings, percolation testing, soil excavations, and seasonal high water table identification to determine if the dual classification can be relied upon for design. Dual group designations emphasize the need for long-term performance considerations, especially for systems relying on infiltration in marginal or seasonally saturated conditions.

1.2.6 Farmland and Agricultural Lands

A large portion of the report study area to the south of Route 100 is designated as agricultural land cover. Refer to Figure 1.6: Agricultural Land Cover. Furthermore, nearly the entire Designated Village Center is comprised of primary agricultural soils, see Figure 1.6.1: *Prime Ag Soils*. Prime agricultural soils are defined by the USDA as soils that have the physical and chemical characteristics necessary to produce sustained high yields of food, feed, forage, fiber, and oilseed crops with minimal inputs (such as fertilizers or irrigation). According to the USDA-NRCS, prime farmland soils possess traits of good moisture retention and drainage, favorable soil texture and structure, adequate depth and fertility, minimal risk of erosion or flooding, and consistent temperature and growing season length. In Vermont, prime agricultural soil is especially valuable because of the state's limited flat and fertile land. These soils are typically identified and classified by the Soil Survey data (SSURGO) and are protected under various state and federal policies. Most of this land is designated as conserved farmland through the Vermont Land Trust, see Figure 1.5: *Conserved Land and HSG*.

1.2.7 Conserved Lands

The Designated Village Center is surrounded by conserved lands to the south of Route 100. Many of these lands coincide with agricultural lands and prime ag soils, as discussed above. Furthermore, there are large portions of land that lie along Route 100 towards the Town of Troy that are also conserved as shown in Figure 1.5.

1.2.8 Coastal Zones

There are no coastal zones in or near the project area. As Figure 1.1: *Project Location Map* and Figure 1.2: *Sewer Service Area* show, the Town of Westfield is landlocked in northern, central Vermont. The Designated Village Center and sewer service area are not near any major water bodies, besides the Missisquoi River.

1.2.9 Rivers

The Sewer Service Area is adjacent to the Missisquoi River, and its tributaries run through the Village. The Missisquoi River runs across the northwestern part of Vermont and into southern Quebec. These rivers and streams provide cultural, scenic, and recreational value to the community. With a mix of high-elevation cold-water and slower-flowing warm water, the river supports a variety of fish and wildlife.

1.2.10 Fish and Wildlife

According to the Vermont ANR Atlas, there are no fish and wildlife habitat blocks or management areas within the sewer service area or the surrounding lands.

1.2.11 Endangered Species

The Vermont ANR Atlas indicates there are no endangered species present in the project area or along the Route 100 corridor leading to the Town of Troy. Statewide bat species are known to occur throughout Vermont and may utilize forested areas for roosting and foraging. Several of these species including Indiana bat (*Myotis sodalis*), Northern long-eared bat (*Myotis septentrionalis*), Little brown bat (*Myotis lucifugus*), Eastern small-footed bat (*Myotis leibii*), and Tricolored bat (*Perimyotis subflavus*) are listed as state threatened or species of concern, and the Northern long-eared bat is federally listed as threatened. While the ANR Atlas does not identify mapped endangered species occurrences within the project area as shown in Figure 1.7, statewide bat species must be considered if project activities involve tree clearing or forest disturbance.

ANR guidance indicates that the bat active season generally extends from June 1 through October 31, with the maternity season occurring from June 1 through July 31. No tree clearing is currently proposed; however, if a selected alternative requires forest disturbance, additional evaluation, and coordination with ANR will be completed during design and permitting, and appropriate seasonal restrictions or avoidance measures will be implemented, as necessary.

1.2.12 Hazardous Sites & Waste Production Locations

The Vermont Agency of Natural Resources (ANR) Atlas and the Vermont Environmental Research Tool (ERT) indicate that there are several locations within the Town of Westfield that are identified with hazardous materials activities, storage, and management. These include documented hazardous sites, underground storage tanks (USTs), and waste production or transfer facilities as shown in Figure 1.8. A summary of each location, the type of hazardous material activity, and any known or potential impacts to the project area is provided below.

1.2.12.1 Hazardous Sites

AOT Westfield – The ANR Atlas identifies this site (HazSites ID 880236) as associated with historical petroleum releases from underground storage tanks at the Vermont Agency of Transportation (AOT) facility in Westfield. The site includes documented contamination from gasoline-related releases. The VTDEC evaluates and tracks this location through its HazSites program. The current designation for this site is No Further Action Planned (NFAP), indicating that DEC oversight has concluded, and no ongoing remedial activities are required. No active hazardous conditions have been reported that would affect areas beyond the immediate site.

Meunier's/Westfield Garage and Crane Residence – This location appears in the ANR Atlas under HazSites ID 982392. It is mapped based on historical petroleum storage and releases associated with Meunier's Garage and the Crane Residence. The site has undergone investigation and subsequent management activity by DEC. Like the AOT Westfield site, it is designated No Further Action Planned (NFAP), indicating that documented releases have been addressed, and no additional cleanup work is currently required. There is no record of active contamination affecting groundwater or surrounding properties based on ANR Atlas data.

1.2.12.2 Underground Storage Tanks

Westfield General Store

The Westfield General Store is listed in the ANR Underground Storage Tank database as an active petroleum storage facility. The site has two operating gasoline tanks with capacities of 6000 gallons and 4000 gallons, for a total of 10000 gallons of active storage. Several older tanks have been removed. There is no active hazardous site record for this property, and no documented releases that require additional management. The active tanks remain regulated under the Vermont DEC UST program.

1.2.12.3 Hazardous Waste Production/Storage Locations

Westfield General Store

In addition to USTs, the store may produce small quantities of hazardous waste typical of general retail or service operations, such as solvents, cleaning agents, or other regulated materials. These wastes are managed under Vermont hazardous waste regulations applicable to Very Small Quantity Generators (VSQGs).

Westfield Recycling & Transfer Station

The Westfield Recycling & Transfer Station serves as a collection point for municipal solid waste and recyclables and may periodically handle household hazardous waste during district-organized collection events. The facility does not generate hazardous waste in significant quantities but serves as a temporary consolidation point for materials such as fluorescent lamps, batteries, used oil, and paints. Appropriate containment and storage practices are regulated through the regional waste district and Vermont DEC oversight.

VTrans – Westfield Maintenance Facility

The VTrans facility located in Westfield stores fuels, lubricants, antifreeze, and other maintenance-related materials. Such facilities typically generate small quantities of hazardous waste and implement Spill Prevention, Control, and Countermeasure (SPCC) procedures. Available ANR data does not indicate any active hazardous site record associated with the VTrans Westfield location.

1.2.12.4 Other Locations Beyond Town of Westfield

Several mapped hazardous sites and USTs exist in the Town of Troy, south of Westfield. These sites are outside the project planning area and are not expected to influence groundwater conditions within Westfield.

1.3 Population Trends

According to the 2020 census from the U.S. Census Bureau, the population of Westfield at that time was 534. This is a slight decrease from the 2010 census that reported a population of 536.

Table 1			
Census Year	**Population[1]**	↑ or ↓	**% Change**
1900	646		
1910	613	↓	5.11%
1920	490	↓	20.07%
1930	448	↓	8.57%
1940	354	↓	20.98%
1950	358	↑	1.13%
1960	347	↓	3.07%
1970	375	↑	8.07%
1980	418	↑	11.47%
1990	422	↑	0.95%
2000	503	↑	19.19%
2010	536	↑	6.56%
2020	534	↓	0.37%

[1]*Source: United States Census Bureau*

The census data demonstrates population decline in the Town from 1900 to 1960, but then it began to increase in the latter half of the 20th century until the most recent Census. The trend from the last 40 years indicates that the population of the Town may be stabilizing.

The Village is not listed separately in the census data, however based on the 2023 American Community Survey, the average household size is approximately 2.68. With an estimated 63 parcels included in the Sewer Service Area, it gives an estimated Village population of 168, about 32% of the Town's population.

In the last 20 years, the Town population has increased about six percent. Assuming similar trends in the Village, the village population is estimated to grow to about 178. Based on recent studies looking at infill development in urban areas, dedicated efforts to expand residential housing in the Village indicates population growth could be expected to increase by about 5% in addition to natural population growth.

1.4 Public Participation and Community Feedback

Public outreach was conducted throughout the development of this Preliminary Engineering Report to inform residents of the project and to solicit feedback regarding wastewater needs, alternatives, and potential impacts. Public meetings were held at the 30 percent, 60 percent, and 90 percent stages of project development, and opportunities for public comment were provided at each meeting.

Feedback received from residents and stakeholders identified several key themes:

- Questions regarding the need for the project, including whether there is sufficient evidence of failure or inadequate on-site wastewater systems within the Village Center.
- Requests for clarification regarding the basis for the project, including its relationship to Act 250 considerations, housing, housing development potential, and long-term planning objectives.
- Significant concern regarding the cost of a municipal wastewater system and the potential financial burden on property owners;
- Interest in understanding how many properties would be required to connect and how costs would be distributed.

During public meetings, it was acknowledged that a comprehensive investigation of existing on-site wastewater systems has not been performed as part of this study. The project has instead been developed as a proactive planning effort intended to address long-term wastewater management needs, support future growth within the Village Center, and provide infrastructure that may be necessary to meet regulatory and land use objectives.

Public input indicates that, while there is interest in understanding future wastewater solutions, there is also uncertainty regarding the immediate need for system implementation and strong concern regarding affordability. These concerns are reflected in the evaluation of alternatives and are further addressed in the user cost and affordability analysis presented in Section 6.0.

Continued public engagement will be important as the Town evaluates funding opportunities, refines project assumptions, and considers whether and how to proceed with implementation.

2 EXISTING FACILITIES

The Town of Westfield does not currently have a municipal sewer system. The homes and businesses in the Designated Village Center and surrounding area are served by individual, private septic systems located on their properties. The Town sent a survey to the 65 properties included in the Proposed Sewer Service Area (PSSA) asking for information on the existing wastewater systems. The Town received responses from 28 property owners (43%), which helped to inform the general statements made in Chapter 2 and Chapter 3 of this report.

A blank copy of the survey is attached in Appendix B.

2.1 Existing Facilities Mapping

Since the Town does not have their own municipal wastewater infrastructure, the Town does not possess a map of existing individual, private septic systems used by residents. The Town plans to perform site visits to each location within the PSSA to flag at-grade where wastewater pipes exit structures and pathways to existing septic systems, if known. The Town intends to perform this work with assistance from property owners within the PSSA. These locations will be integrated into GIS to map the existing wastewater systems and serve as a reference for the design phase when it may be necessary to determine connection points for a potential new collection system.

The Vermont ANR Public Water Sources and Drinking Water databases indicate that Westfield Fire District 1 operates a regulated public water supply serving portions of the Town of Westfield. This system includes one or more public wells and associated distribution infrastructure that supply potable water to customers within the Fire District service area. In addition to the public system, properties outside the Fire District are served by individual private wells or springs, which are not regulated as public water supplies but provide drinking water for residential use.

The location of the public water supply and Fire District service area is shown in Figure 2.1: Westfield Public Wells. Many properties within the service area depend on private wells, and the approximate locations of these private drinking water sources are shown on Figure 2.2: Westfield Private Wells.

The reliance on private wells for drinking water, combined with the presence of a limited public water system, highlights the importance of protecting groundwater quality within the service area. Improved wastewater collection and treatment could reduce the potential for groundwater contamination and provide indirect protection of both public and private drinking water sources. Water supply considerations will be reviewed during design and permitting to ensure compatibility with the selected wastewater alternative and protection of existing sources.

2.2 History

It is unknown when most of the privately owned septic systems were constructed. Many are thought to be original to the construction of the buildings, though some have been replaced in recent years. All 26 survey responses gave an indication of when their system was built. Twelve percent of respondents indicated their system was constructed before 1970, 19% between 1970 and 1989, 15% between 1990 and 2006, 19% after

2007, and 31% did not know. A more detailed evaluation of septic system status and dates of construction will be completed during design. There have not been any recorded violations of regulatory requirements for any of the privately owned septic systems in Westfield.

2.3 Condition of Existing Facilities

The Town and property owners have indicated that most of these septic systems use traditional in-ground trench disposal fields. Some properties may have another type of system such as a mound, at-grade system, or other. Based on available information, some existing systems may be vulnerable to flooding and other site constraints, although survey responses indicate that many systems are functioning adequately for current use. However, of the 26 property owners that answered the survey, the majority (62%) of respondents indicated that they do not have any issues with their septic system, 23% did not answer, and 15% indicated they may occasionally experience wetness, sewage on the ground, or basement backups.

Most of the properties in the PSSA are residential, and from the survey it appears that most of the homes are 3-bedroom. Very few property owners have a copy of the design documents, as it is assumed that most of the systems were constructed prior to State Wastewater permits (and therefore exempt from the permit requirements). However, it is assumed that the systems have the capacity to manage the wastewater flows from their respective buildings. Many of the existing systems do not have any capacity to add additional connections.

The estimated wastewater flows for current usage are summarized in the table below. These design flow estimates were calculated in accordance with Section 1-803 of the Vermont Wastewater System and Potable Water Supply Rules (effective November 6, 2023). There are approximately 71 parcels within the proposed sewer service area, of which the majority are residential. Design flow for residential parcels was estimated based on a standard 3-bedroom single-family residence at 70 gallons per day (gpd) per bedroom, unless otherwise specified in survey responses. The remaining parcels include commercial, institutional, or mixed-use properties, for which flow estimates were determined using appropriate unit rates, such as 15 gpd per employee or seat, depending on the specific type of use (Refer to Appendix C for design flow calculations).

Table 2

Type of Connection	Design Flow (gpd)
Residential (59)	26,110
Commercial (12)	4,970
Total Estimated Daily Flow	**31,080**

Future wastewater demand is influenced by various factors, including population growth, regional development, and commercial expansion. For this study, projections are based on the current estimated flows and anticipated growth trends. Applying a projected 6% population increase over the next 20 years, along with an additional 5% increase attributed to infill development, the future wastewater flow is estimated to reach approximately 35,000 gpd.

2.4 Financial Status of any Existing Facilities

The existing septic systems are privately owned, and therefore residents do not pay a sewer tax quarterly or annually, and there are no shared O&M costs associated with wastewater disposal. Without a municipal system, the Town does not currently have any existing debts or reserve accounts related to wastewater utility. The American Community Survey reported the median household income (MHI) in 2023 to be $90,625. This is higher than the MHI reported throughout the State of Vermont in 2023 as $81,211.

2.5 Water/Energy/Waste Audits

At this time, the Town of Westfield has not conducted any water, energy, or waste audits associated with this project.

3 NEED FOR PROJECT

The purpose of this project is to evaluate wastewater management alternatives for the Village of Westfield that support long-term community needs, including protection of water resources, accommodation of future development, and establishment of a sustainable wastewater management approach.

Unlike many wastewater infrastructure projects, this effort is not based on a documented pattern of widespread septic system failures. Rather, it is a proactive planning initiative driven by long-term land use goals, regulatory considerations, and the desire to provide infrastructure necessary to support future growth within the Village Center.

Key factors influencing the need for this project are described below.

- Protect water quality in the Missisquoi River
- Safeguard human health near water wells
- Ease economic burdens of septic system replacements
- Expand housing options and boost economic activity
- Build and maintain a modern wastewater system with affordable user rates and no impact on the municipal tax rate

3.1 Community Planning

The Town of Westfield Town Plan identifies the development of community wastewater infrastructure as an important long-term objective for the Village Center. The Plan emphasizes the need to support appropriate growth, improve infrastructure, and facilitate housing development within designated growth areas.

In particular, the Town Plan recognizes that the absence of centralized wastewater infrastructure may limit opportunities for increased housing density, redevelopment, and efficient use of land within the Village Center. As a result, the development of a community wastewater system has been identified as a potential strategy to support these planning goals.

This planning-level objective is one of the factors driving the evaluation of wastewater alternatives presented in this report. However, it is noted that this initiative is not based on a documented pattern of widespread septic system failures, and public feedback has indicated that residents have questions regarding the timing and necessity of system implementation.

Accordingly, this report evaluates whether development of a community wastewater system is technically feasible and financially practical, and whether it represents an appropriate long-term investment for the Town.

3.2 Health, Sanitation, and Security

Wastewater in the Village of Westfield is currently managed through individual, privately owned septic systems. These systems vary in age, design, and condition, and many were constructed prior to current regulatory standards. Based on available information and survey responses, a majority of property owners do not report active system failures, although some respondents noted occasional issues such as wet areas, odors, or backups.

Portions of the Village are located in areas with shallow soils, high groundwater, and proximity to the Missisquoi River and associated floodplain areas. These environmental conditions may limit the long-term performance and reliability of on-site wastewater systems, particularly during periods of high groundwater or flooding.

While a comprehensive inventory or inspection program has not been conducted to document system conditions, these site constraints present a potential long-term risk to groundwater and surface water quality, particularly as systems age or if wastewater loading increases over time.

3.3 Existing System Limitations

Existing on-site systems may face limitations related to age, site constraints, uncertain reserve capacity, and ability to support future development. While some property owners reported occasional issues and there have been complaints about seasonal sewage odors, a comprehensive inspection program has not been completed. Many systems appear to be functioning for current use, although some may be nearing the end of their useful life.

A wastewater permit search revealed that some of the properties in the Sewer Service Area have already replaced their original septic system. A detailed search should be conducted during design to make sure that the properties that need to upgrade their system are included in the project and those that already have are not.

3.4 Regulatory and Land Use Considerations

In 2024, Vermont introduced Act 181, new legislation aimed at revising land use planning, including a focus on infill development of vacant areas within the Designated Village Center. The intent is to balance growth, protecting natural resources, and the state's rural character. Studies have shown that infill development leads to population growth by increasing population density by building residential housing on vacant or underutilized parcels to accommodate more residents. Infill development may specifically encourage the creation of multi-family units and accessory dwelling units (ADUs), which can help meet housing demand and affordability challenges. The Town hopes to take advantage of this new law to encourage the expansion of infill with these higher density dwellings in the village area. However, the existing wastewater infrastructure in the Village does not currently support such development. This report seeks to study alternatives that will improve wastewater disposal and treatment in the Village and allow for increased density.

Based on recent studies that evaluated infill development in urban areas, dedicated infill efforts to expand residential housing in the Village indicate population growth could be expected to increase by about 5% in addition to natural population growth. Much of the undeveloped land in the Sewer Service Area is conserved as dedicated farmland by the Vermont Land Trust and cannot be developed in the future. This limits infill development to increasing density through multi-family housing and accessory dwelling units.

4 ALTERNATIVES CONSIDERED

Wastewater planning for small rural communities in Vermont has increasingly emphasized solutions that are compatible with local environmental constraints, long term affordability, and manageable operational requirements. While conventional centralized wastewater treatment facilities have proven effective in larger municipalities, they are often economically and technically impractical for small village centers such as Westfield due to limited flows, dispersed development, and challenging site conditions. As a result, state and federal agencies, including the VT Department of Environmental Conservation and the U.S. Environmental Protection Agency (EPA), encourage evaluation of decentralized and semi centralized wastewater systems as viable long-term strategies for rural communities, while also recognizing that regional treatment solutions may be appropriate where existing infrastructure is available.

Based on the needs identified above in Chapter 3, this study evaluates both regional and local wastewater management approaches. These include conveying wastewater to an existing permitted treatment facility outside of Westfield as well as local indirect discharge systems that rely on soil-based treatment and dispersal. Indirect discharge systems collect and treat wastewater prior to dispersal into the subsurface through methods such as leach fields, mounds, or geotextile sand filter systems, rather than discharging directly to surface waters.

Given the size of the Designated Village Center, an estimated design flow of approximately 35,000 gallons per day, and the proximity of the service area to the Missisquoi River and associated flood hazard areas, construction of a new direct discharge wastewater treatment facility within Westfield was determined to be neither feasible nor permittable. Accordingly, the alternatives evaluated in this chapter focus on either connection to an existing regional treatment facility or implementation of local soil-based treatment and dispersal systems that comply with Vermont regulatory requirements.

Preliminary screening of potential wastewater treatment and disposal locations within Westfield incorporated available soil surveys, geologic mapping, parcel information, and input from local Town officials. Areas within or near the Village Center that appeared to provide adequate land area, suitable soil, and sufficient separation from groundwater and bedrock were prioritized for further consideration. As the project advances, site specific investigations including soil borings, percolation testing, and evaluation of seasonal high groundwater levels will be completed to confirm suitability and refine system design. Results from these investigations will inform the final selection and design of the wastewater treatment and disposal alternative for the Village of Westfield. Based on this planning framework, Section 4.1 introduces the general wastewater management options applicable to Westfield, including collection, conveyance, treatment, and disposal methods. These options form the building blocks for the complete wastewater alternatives evaluated later in this chapter. Subsequent sections combine these components into defined alternatives and apply consistent criteria to support comparison and selection of a preferred wastewater solution.

4.1 Wastewater Collection/Conveyance

Wastewater collection and conveyance systems transport wastewater from individual properties within the service area to a centralized treatment or disposal location. The selection of an appropriate collection and conveyance approach is a key component of overall system feasibility, as it directly affects capital cost, constructability, long term operation and maintenance requirements, and the ability to accommodate future growth within the Village of Westfield. For this study, multiple collection and conveyance methods commonly used in small rural communities were evaluated at a conceptual level to determine their applicability to local conditions.

4.1.1 Gravity

A gravity sewer system conveys wastewater through sloped piping that allows it to flow naturally by gravity from where it is generated to the treatment or disposal location. These systems are usually installed with a consistent slope and alignment so that flow velocities remain high enough to keep solids suspended and prevent blockages. Because they depend entirely on downward flow, gravity sewers must maintain a continuous slope along their entire length.

In areas with uneven terrain, the pipes may need to be placed quite deep in the ground, sometimes more than 12 feet, especially where the ground surface rises or the system extends over a long distance. Manholes are installed at regular intervals, generally not more than 300 feet apart, and at any location where the pipe alignment, grade, or diameter changes. Where changes in elevation make continuous gravity flow impossible, pump stations are required to lift wastewater to a higher elevation so that it can continue flowing by gravity toward the treatment or disposal site. The pressurized pipe, or force main, connected to a pump station is typically a minimum of 4 inches in diameter.

Within the Westfield Village Center, existing development patterns and roadway alignments provide sufficient opportunity to maintain gravity flow across much of the proposed service area, allowing gravity sewer collection to serve as the primary collection method for the Village.

Gravity sewer systems offer several advantages for operation and maintenance. They typically have lower annual costs than mechanical or pressure systems and are easier to expand as new service connections are needed. The presence of manholes allows for simple inspection and maintenance access, and additional laterals can be connected without significant disruption. These characteristics make gravity sewers particularly suitable for a small municipal system intended to support long term Village use and potential infill development.

4.1.2 Low Pressure Force Main

Low pressure sewer systems convey wastewater through small diameter pressurized pipes rather than relying on gravity flow. Wastewater from each building is collected in a small tank containing a grinder pump that macerates solids and pumps the wastewater into a shared pressurized main. These systems operate automatically, with pumps cycling on and off based on wastewater levels within each unit wet well. The pressurized network then transports wastewater through shallow buried piping to the treatment or disposal location. The grinder pumps used in low pressure systems are submersible units typically housed within precast concrete or polyethylene vaults installed outside of each home or building. Because conveyance occurs under pressure, piping can follow natural ground contours without requiring precise slopes or deep excavation. This flexibility can reduce excavation depth, limit conflicts with existing utilities, and minimize disruption to roadways when compared to conventional gravity sewer systems.

For the Village of Westfield, low pressure sewer systems could be considered for areas where site conditions such as uneven topography, shallow bedrock, or high groundwater could increase the depth and cost of gravity sewer installation. The reduced excavation depth and smaller pipe diameters associated with low pressure systems can offer construction flexibility in localized constrained areas.

However, low pressure sewer systems require mechanical pumping equipment at each connected property, resulting in higher electrical demand and increased operation and maintenance responsibilities over the life of the system. Long term performance depends on proper maintenance and periodic replacement of individual grinder pumps, which adds operational complexity for a small municipal wastewater utility. Each installation must also include adequate emergency storage capacity, and the pressurized mains may require periodic flushing to maintain system performance. Future system expansion can be more costly than gravity sewer extensions, and installation of pump units and associated controls requires access to private properties.

Based on these considerations, low pressure sewer systems were not selected as the primary method of wastewater collection for the Village of Westfield.

4.1.3 STEP/STEG

Septic Tank Effluent Pump (STEP) and Septic Tank Effluent Gravity (STEG) systems combine onsite primary treatment with centralized conveyance. Each property is equipped with a septic tank that provides solids separation prior to discharge to a shared collection network. Clarified effluent is either pumped through a low pressure main or conveyed by gravity to a shared pump station, where it is transported to the treatment or disposal location. Septic tanks provide additional storage capacity during temporary power loss or equipment malfunction.

While these systems reduce solids conveyance and pumping energy compared to grinder pump systems, they introduce several operational and administrative challenges. Each property requires installation, inspection, and periodic pumping of a septic tank, increasing long term maintenance obligations and the need for coordinated management across the service area. System performance depends on consistent maintenance at all properties, and failure at individual locations can affect downstream conveyance and treatment.

Smaller diameter piping limits hydraulic capacity and can constrain future system expansion. STEP configurations require pump installation and electrical service at each property, increasing energy demand, equipment replacement costs, and operational complexity. STEG configurations still require centralized pumping and rely on sufficient slopes between properties and the pump station. Both approaches require access to private properties for maintenance and repairs, which can complicate municipal operations and increase administrative burden. Based on these considerations, STEP and STEG systems were not further evaluated.

4.1.4 Centralized Pump Station(s)

A centralized pump station system collects wastewater from various parts of the service area and conveys it to a single or limited number of pump stations for transfer to the final treatment and disposal site. This approach is often selected where natural slopes do not allow continuous gravity flow or when combining several smaller collection areas into one system provides operational efficiencies.

In this type of system, wastewater is conveyed through gravity or low-pressure sewers to a central wet well, where submersible pumps lift the flow into a force main that carries it under pressure to the discharge point. Each pump station is generally equipped with duplex pumps for redundancy, automatic controls, and essential appurtenances such as valves, flow meters, and alarms. The stations are designed to manage variable flows and can be expanded or modified to accommodate future development within the service area.

For Westfield, a centralized pumping configuration could provide a balance between decentralized systems and a regional connection. Consolidating wastewater flows into one or two main pumping stations would reduce the number of individual pump units, simplify maintenance responsibilities, and centralize electrical and monitoring systems. This can also make the system easier to monitor and maintain over time, particularly if operated under municipal or shared utility management.

However, centralized pump stations involve higher capital costs and require careful siting to minimize environmental impacts. These facilities must be carefully located to minimize visual, noise, and odor impacts and must include backup power and alarm systems to ensure reliability during power outages or peak flow. Regular inspection and preventive maintenance are essential to maintain consistent performance and prevent mechanical failures. Overall, a centralized pump station option could provide Westfield with a dependable and manageable wastewater conveyance system, particularly in areas where full gravity service is not feasible, but a combined collection and pumping network is desired.

4.2 Wastewater Treatment and Disposal

Soil-based wastewater treatment and disposal systems are the most common method of onsite wastewater management in Vermont. These systems rely on a combination of primary treatment in a septic tank and secondary treatment and dispersal through soil, which provides both filtration and biological treatment. Onsite wastewater disposal in Vermont often requires alternative system designs due to the prevalence of shallow soils, high groundwater, and restrictive site conditions. In these situations, traditional in-ground leach fields may not provide the required vertical separation for effective treatment. One widely used soil-based alternative is a mound system.

4.2.1 Traditional Mound

Mound systems are a widely used onsite wastewater disposal method in Vermont, especially where soils are shallow, slow-draining, or bedrock/groundwater is located close to the surface. A traditional mound system consists of a septic tank, a dosing tank with a pump, a mound of engineered structure (sand, gravel built above the native soils), and a pressure distribution network of pipes within the mound. Mound systems are designed to elevate the wastewater disposal area above limiting site conditions.

The wastewater flows into a traditional septic tank, where solids settle to the bottom and lighter materials float to the top. Between the two layers, there is a layer of partially clarified effluent that would flow through the tank to the dosing tank pump chamber/wet well. The partially clarified effluent is collected in the dosing tank pump chamber/wet well where it is pumped in controlled doses to the mound, ensuring even distribution across the designated mound area. The partially clarified effluent is dosed to prevent overloading within the mound system and enhances aeration of the treatment zone. The mound structure is composed of an internal perforated and pressurized pipe network surrounded by layers of varying permeation media (sand, gravel) and set above the existing native soils. The pipes are perforated to allow for the effluent to disperse through the perforations into the variably sized media (sand, gravel) where it trickles downward through the layers for organic material and pathogen breakdown. This process involves aerobic bacterial breakdown through the sand and gravel layers. After the treated effluent passes through the mound system, the effluent reaches the native soils below where final filtration and purification can occur.

While mound systems are effective under many site conditions, they have several disadvantages that are important for municipal scale applications. Mound systems require substantial land area and significant quantities of imported sand and gravel, increasing construction cost and site disturbance may limit placement in areas with flood hazard constraints or adjacent land uses. Long term performance depends on careful dosing, vegetation management, and protection from compaction or disturbance. In addition, expansion of mound systems to accommodate future flow increases can be difficult once the initial footprint is established. Due to these limitations, traditional mound systems were considered but not advanced as the primary disposal method for Westfield.

4.2.2 Soil-Based Disposal with Geotextile Sand Filter

A soil-based disposal system incorporating Geotextile Sand Filter (GSF) technology is a viable wastewater treatment and dispersal alternative for areas with limiting site conditions, including shallow native soils, high seasonal groundwater, or low-permeability soil types. These systems provide enhanced pretreatment compared to conventional septic systems and can improve the reliability and performance of subsurface disposal fields.

In a typical configuration, wastewater first undergoes primary treatment in septic tanks, where settleable solids and floatable materials are removed. The clarified effluent is then conveyed to a dosing or recirculation tank, which provides flow equalization and controlled distribution to the downstream treatment components. From this tank, effluent is pressure-dosed to the GSF treatment modules.

GSF modules consist of a corrugated plastic core surrounded by sand media and wrapped in a geotextile fabric. Effluent is distributed across the modules and passes through the geotextile layer, where a biologically active film develops on the fabric surface. This biofilm promotes aerobic treatment processes, allowing microorganisms to break down organic matter and reduce biochemical oxygen demand (BOD) and suspended solids. As the effluent continues downward through the surrounding sand layer, additional filtration and treatment occur, providing further removal of fine particulates, pathogens, and nutrients.

Following treatment within the GSF system, the effluent is conveyed to a soil-based dispersal area, such as a mound or shallow subsurface field, where final treatment and infiltration occur. The improved effluent quality produced by the GSF system enhances the performance of the receiving soil and can reduce the required size and depth of the disposal field compared to conventional systems.

For the Westfield study area, GSF-based systems offer advantages in locations where traditional soil-based disposal methods may be constrained by site conditions or limited available land area. The modular nature of GSF units allows for flexibility in layout and scalability, which can be beneficial for phased implementation or accommodating future growth. In addition, these systems generally require less imported sand and a smaller footprint than conventional mound systems, while maintaining consistent treatment performance under variable loading conditions.

GSF systems require proper design, including controlled dosing and appropriate hydraulic loading rates, as well as periodic inspection and maintenance to ensure long-term functionality. These requirements are consistent with standard municipal operation and maintenance practices for decentralized wastewater systems.

The applicability, sizing, and final configuration of any GSF-based system would be subject to review and approval by the Vermont Department of Environmental Conservation (VT DEC) based on the proposed design flow and permitting requirements. Based on their performance characteristics, adaptability, and reduced footprint, soil-based disposal systems incorporating GSF technology were retained for further evaluation in the alternatives analysis.

4.2.3 Soil Based Drip Dispersal System

Soil based drip dispersal systems distribute treated wastewater through a network of small diameter tubing installed near the ground surface. Effluent is applied in small, timed doses at evenly spaced emitters, allowing uniform infiltration into the upper soil horizon. The tubing is typically installed at shallow depths, which can reduce surface disturbance during construction and allow the system to follow existing topography and avoid obstacles.

Drip dispersal systems can be land efficient and visually unobtrusive, making them suitable for some constrained sites. However, their performance is highly dependent on shallow soil conditions and consistent system operation. Because the dispersal zone is located close to the ground surface, these systems are sensitive to seasonal high groundwater, freezing conditions, and soil saturation. These factors can limit reliability in areas with variable groundwater levels or flood prone conditions.

Drip dispersal systems also require increased mechanical and operational oversight. Reliable performance depends on continuous operation of pumps, filtration units, control panels, and automatic flushing systems. Emitters are susceptible to clogging and require routine monitoring and maintenance to prevent system failure. For municipal scale applications, cumulative operation and maintenance demands increase long term cost and complexity. In addition, large scale soil-based drip dispersal systems are less commonly implemented in Vermont, which can introduce permitting uncertainty and limit operational familiarity. Expansion of drip dispersal systems to accommodate future flow increases may also be constrained by shallow soil conditions and available land area. Therefore, soil-based drip dispersal systems were considered but not advanced for further evaluation as part of the wastewater alternatives for Westfield.

4.3 Evaluation of Alternatives for Westfield Village Wastewater System

4.3.1 Alternative 1 – Gravity Sewer Collection and Force Main to Troy Pump Station

This alternative consists of the Town of Westfield establishing a municipal utility to collect Village wastewater via collection system and pump untreated wastewater to the Troy-Jay Regional Wastewater Treatment Facility (WWTF) for treatment. A regional connection to the Troy-Jay WWTF was evaluated as one potential alternative for long-term wastewater management in Westfield. The Troy-Jay WWTF is located along VT Route 101 in the Village of Troy, approximately 4 miles north of Westfield's Village Center. The facility provides secondary treatment and discharges to the Missisquoi River under an active discharge permit (Permit No.: 3-1311) managed by the Troy-Jay Wastewater Treatment District. The plant currently serves both the Towns of Troy and Jay, including Jay Peak Resort, and has established collection and pumping infrastructure that could be extended to accommodate additional flow from Westfield.

4.3.1.1 Description

A new gravity collection system would be constructed within Westfield Village to collect wastewater from connected properties, consistent with the approach described in Section 4.1. Flow would be directed to a central pump station located near the southern edge of the service area, which would then be discharged through a new force main along VT Route 100/101 to the existing Troy pump station located at 6849 Route 100, approximately 2 miles north of Westfield Village Center. The centralized pump station would include duplex submersible wastewater pumps, a wet well, control panel, backup power, and telemetry for system monitoring. The force main would consist of high-density polyethylene (HDPE) pipe, approximately 4 inches in diameter, designed to maintain minimum velocities of 2 feet per second. Installation of the gravity collection piping would require open-trench construction, with depths generally ranging from 5 to 12 feet. PVC sewer mains (8-inch minimum diameter) would be laid at a minimum slope to promote gravity flow, with precast concrete manholes spaced about 250 feet apart. Cleanouts and air release valves would be placed along the force main alignment.

Based on topography, approximately 2 miles of force main would be required between Westfield Village and the Troy pump station. Intermediate air release and isolation valve structures would be needed at high points and road crossings. The Troy-Jay WWTF would receive untreated wastewater from Westfield and provide full secondary treatment.

4.3.1.2 Design Criteria

Design criteria for this alternative are based on the Vermont Environmental Protection Rules Chapter 1 – Wastewater System and Potable Water Supply Rules and applicable VTDEC guidance for wastewater conveyance systems.

4.3.1.3 Map

A schematic layout map depicting the proposed gravity collection network in the Village, the new centralized pump station location, and the force main alignment following VT Route 100/101 to the Troy–Jay PS in shown in Figure 4.1.

4.3.1.4 Environmental Impacts

The proposed regional connection would occur primarily within existing road rights-of-way, minimizing impacts on undisturbed land. Potential temporary construction impacts include soil disturbance, erosion, and traffic disruption during trenching and pipeline installation. No direct impacts are anticipated on wetlands, floodplains, or critical habitats. The Missisquoi River will continue to receive treated effluent under the existing Troy-Jay WWTF permit. Any new pump station site would be reviewed for archaeological and historic resources prior to construction.

4.3.1.5 *Land Requirements*

Land requirements include a relatively small easement or acquisition of approximately 2400 SF for the new pump station and easements or rights-of-way for sewer and force main installation along Route 100/101. Most of the alignment would utilize public or municipal right-of-way. Permanent access easements may be required for force main, air release structures and valve boxes.

4.3.1.6 *Potential Construction Problems*

Potential challenges include areas of shallow ledge and high groundwater near the river valley, as well as limited access for trenching along narrow road corridors. Blasting or rock removal may be required in some areas. Traffic management along Route 100/101 will also be a consideration during construction. Proper trench safety and dewatering procedures will be required to manage groundwater and maintain construction stability.

4.3.1.7 *Sustainability Considerations*

The regional connection approach supports regionalized wastewater management, reducing the number of small decentralized systems requiring oversight. It allows the Town of Westfield to partner with an established treatment facility, leveraging existing infrastructure and professional operations staff. While this approach requires continuous pumping of wastewater to the regional facility, operational activities would be largely limited to collection system maintenance and pump station operation. Treatment process control, compliance monitoring, and discharge permitting would remain the responsibility of the regional utility.

4.3.1.8 *Water and Energy Efficiency*

This alternative does not provide opportunities for water reuse or on-site recycling, but energy efficiency can be incorporated through variable frequency drives (VFDs), energy-efficient pumps, and SCADA monitoring to optimize pump run times.

4.3.1.9 *Green Infrastructure*

The project does not directly incorporate green stormwater infrastructure; however, construction will follow erosion prevention and sediment control best practices.

4.3.1.10 *Other*

Operational resilience can be enhanced through redundant pumps, backup power generation, and remote monitoring. The system's simplicity allows for reliable operation, though dependence on mechanical systems increases the need for ongoing maintenance and skilled personnel.

4.3.1.11 *Cost Estimates*

The construction costs for this alternative include installation of the Village collection system, construction of a new centralized pump station, and installation of the force main extending from Westfield to the Troy–Jay Pump Station. These costs include excavation and backfilling, placement of gravity sewer piping and manholes, construction of the pump station structure and associated electrical and control components, and installation of approximately 2 miles of 4-inch HDPE force main with the required air-release and isolation valve structures. Additional construction elements include roadway restoration, erosion control, traffic management during installation, and rock excavation where ledge is encountered. The Opinion of Probable Construction Cost for Alternative 1 is presented in the table below.

Table 3 - Alternative 1 – Collection & Pump to Troy Pump Station
Opinion of Probable Construction Cost

Item	Cost	
Collection System Construction	$	3,008,950
Conveyance to Troy Pump Station Construction	$	2,047,745
Design, Permitting, Land Acquisition, Legal, Bonding etc.	$	4,154,337
Opinion of Probable Total Construction Costs	**$**	**9,211,032**

**Refer to Appendix D for detailed cost estimates*

4.3.2 Alternative 2 – Soil-Based Disposal (Gravity Sewer Collection and On-Site Treatment)

Alternative 2 includes the collection and conveyance of wastewater from connected properties within the proposed sewer service area through a common 8-inch gravity sewer. Wastewater from the Proposed Sewer Service Area will flow by gravity to a centralized treatment and disposal site where it will receive primary treatment in septic tank(s), followed by recirculation and dosing prior to discharge to a soil-based treatment and disposal system. Pretreatment of septic tank effluent will be provided by a geotextile sand filter or equivalent technology acceptable to VT DEC, and final dispersal will occur through an engineered absorption bed system. This alternative represents a decentralized, land-based indirect discharge wastewater solution consistent with Vermont's Indirect Discharge Rules.

A conceptual location for the centralized treatment and disposal area is shown in Figure 4.2: On-Site Treatment System. The mapped site south of the Village Center appears to have initial feasibility for a soil-based disposal system, subject to field confirmation through borings, percolation testing, groundwater monitoring, and final regulatory review.

4.3.2.1 Description

4.3.2.2 Design Criteria

Design criteria for this alternative are based on Vermont's Indirect Discharge Rules and applicable VT DEC guidance for land-based indirect discharge systems. Based on the current planning-level design flow of approximately 35,000 gpd, the system would require septic tank pretreatment ahead of the recirculating filter or equivalent pretreatment process. Using the Vermont septic tank sizing standard for indirect discharge systems greater than 6,500 gpd, the minimum required septic tank capacity is 0.75 times the design flow plus 1,125 gallons, or approximately 27,375 gallons. For planning purposes, a total septic tank capacity of 28,000 gallons may be assumed, subject to final design and compartment configuration.

The recirculation/dilution tank and dosing system would be sized in accordance with Vermont recirculating sand filter design criteria. At a minimum, the recirculation/dilution tank should provide one day of emergency storage above the high-water alarm level and a minimum liquid operating volume of at least 80 percent of the daily design flow. For a 35,000 gpd design flow, this corresponds to a minimum operating volume of approximately 28,000 gallons plus 35,000 gallons of emergency storage, or approximately 63,000 gallons of usable storage volume, exclusive of additional volume needed for pump submergence, controls, and dead storage. Pretreatment of septic tank effluent would be provided by a recirculating sand filter or other VT DEC-approved equivalent technology. If a proprietary GSF-based system is pursued as the pretreatment/dispersal approach, final tank sizing, recirculation requirements, and dosing configuration will be subject to VT DEC review and acceptance for the proposed 35,000 gpd design flow.

Because the proposed design flow exceeds 30,000 gpd, final pretreatment configuration and permitting should be coordinated directly with VT DEC to confirm whether the proposed pretreatment technology will be accepted as a recirculating sand filter or equivalent under the Indirect Discharge Rules.

4.3.2.3 Map

A layout map of Alternative 2, depicting the gravity collection system and on-site soil-based treatment and disposal is provided in Figure 4.2

4.3.2.4 Environmental Impacts

Construction of a local treatment and disposal system would require site disturbance associated with excavation, placement of engineered fill, and installation of treatment components. Temporary impacts may include soil disturbance, erosion, and construction traffic. Long term environmental performance would depend on proper system operation, monitoring, and protection of the disposal area. Environmental resource mapping completed for this study indicates that no endangered species have been identified in the vicinity of the conceptual disposal area, and that a properly selected parcel would be expected to avoid Class II and Class III wetlands as well as the flood hazard zones associated with the Missisquoi River shown in Figure 1.4.

4.3.2.5 Land Requirements

The collection system will be constructed within the Town of Westfield's right-of-way area. The Town has not yet determined whether connection to a Village wastewater system will be mandatory or voluntary. Once a determination has been made, the Town may proceed with securing easements for individual connections during final design. This alternative will require property acquisition or an easement on the selected disposal parcel for the construction, operation, and long-term maintenance of the wastewater disposal system. The extent of the acquisition or easement and the total land area needed will depend on which parcel is ultimately selected and the configuration required for the Eljen GSF soil-based disposal system.

4.3.2.6 Potential Construction Problems

Potential construction challenges for this alternative include subsurface rock, shallow groundwater, and restrictive soils that may affect excavation and placement of the GSF sand beds. Access limitations, natural resource constraints, and site impairments may also influence feasibility, particularly if multiple parcels are evaluated for the disposal area, as each may present different conditions. Construction within Village roads will require maintaining traffic and navigating around existing utilities, with the potential for utility conflicts or specialized excavation where rock or groundwater is encountered. Private sanitary services will need to remain operational during construction, and their configurations will be verified during preliminary design.

4.3.2.7 Sustainability Considerations

This alternative could support sustainable wastewater management by relying on natural soil treatment processes that require minimal mechanical equipment and low energy input. Long term sustainability depends on consistent operation, monitoring, and maintenance of treatment components and protection of the disposal area. The Town would be responsible for ongoing compliance with indirect discharge permit requirements.

4.3.2.8 Water and Energy Efficiency

Energy use for this alternative would be limited primarily to the dosing pump serving the disposal field, resulting in lower operational energy demand. Water efficiency measures may be incorporated into the Town's wastewater ordinance through requirements for water-efficient fixtures, with applicability to existing and new properties to be determined during final design.

4.3.2.9 Green Infrastructure

The project does not directly incorporate green stormwater infrastructure; however, construction will follow erosion prevention and sediment control best practices.

4.3.2.10 Other

Long term system reliability depends on continued access to the treatment and disposal site, maintenance of system components, and timely response to equipment failures or performance issues. Any future modifications or expansions would require additional permitting and potentially additional land.

4.3.2.11 Cost Estimates

Construction costs for Alternative 2 include installation of the gravity collection system within existing roadways, construction of the recirculation/dosing tank and dosing station, and installation of the Eljen GSF soil-based disposal system. These costs mainly include trench excavation and backfilling, placement of sewer piping and manholes, installation of recirculation/dosing tank, dosing chamber and pump, construction of distribution piping, placement of the engineered sand layer, and installation of the GSF modules. Site grading, erosion prevention measures, and restoration of disturbed areas are also included in the overall construction cost.

Table 4 - Alternative 2 – Collection & Onsite Treatment / Disposal
Opinion of Probable Construction Cost

Item	Cost	
Collection System Construction	$	3,008,950
Conveyance to Troy Pump **Station Construction**	$	2,573,868
Design, Permitting, Land Acquisition, Legal, Bonding etc.	$	5,264,852
Opinion of Probable Total Construction Costs	**$**	**10,847,670**

** Refer to Appendix D for detailed cost estimates*

4.3.3 Alternative 3 – No Action

4.3.3.1 Description

Under the No Action alternative, properties within the Designated Village Center would continue to rely on existing private septic systems for wastewater collection, treatment, and disposal. No new municipal wastewater infrastructure would be constructed, and the Town would not establish a wastewater utility. Operation, maintenance, and replacement of onsite systems would remain the responsibility of individual property owners. This alternative represents continuation of current conditions without intervention by the Town.

4.3.3.2 Environmental Impacts

Environmental resource mapping and field observations conducted as part of this study indicate that several existing onsite wastewater systems within the Village are in areas constrained by shallow soils, high groundwater, and proximity to surface waters. Continued reliance on individual septic systems increases the potential for system failures, particularly during high groundwater conditions and flooding events associated with the Missisquoi River and adjacent low-lying areas.

Failed or underperforming systems can result in untreated or partially treated wastewater reaching groundwater, nearby wetlands, drainage features, and surface waters. This may contribute to nutrient loading, bacterial contamination, and degradation of water quality, with potential impacts to environmental resources and neighboring properties. Under the No Action alternative, these risks would remain unaddressed and may increase over time as systems age and development pressures change.

4.3.3.3 Land Requirements

This alternative does not require acquisition of land or easements.

4.3.3.4 Potential Construction Problems

This alternative has not been evaluated for construction impacts as it does not require action to be taken by the Town of Westfield.

4.3.3.5 Sustainability Considerations

This alternative does not address sustainability concerns for the Town, Designated Village Center, or neighboring communities. This No Action alternative does not provide benefits to the community though sustainable utility management practices because the Town will not act to form a utility that would require management. There are no environmental, social, or economic benefits that have been evaluated for this alternative.

4.3.3.6 Water and Energy Efficiency

This alternative does not include practices to promote water reuse, conservation, or efficiency improvements. This alternative does not require the Town to act as a utility to provide efficiency of water and energy practices, as no infrastructure will be produced by this alternative. The Town will not be responsible for management of the private septic systems.

4.3.3.7 *Green Infrastructure*

This alternative does not implement green infrastructure.

4.3.3.8 *Cost Estimates*

This alternative has no immediate capital cost assumed by the Town of Westfield. By implementing this No Action alternative, the maintenance cost of septic system continues to fall on private septic system owners. The cost to the Town of Westfield for implementing this alternative would be $0.

5 SELECTION OF AN ALTERNATIVE

The purpose of this chapter is to evaluate the technically feasible wastewater alternatives identified in Chapter 4 and to determine the alternative that best meets the long-term needs of the Town of Westfield. The evaluation considers both life-cycle cost and non-monetary factors, including environmental protection, operational considerations, regulatory requirements, and community impacts. These factors are considered together to support the selection of a practical, reliable, and sustainable wastewater solution.

Three alternatives were evaluated:

- Alternative 1 – Gravity Sewer Collection and Force Main to Troy Pump Station
- Alternative 2 – Gravity Sewer Collection and On-Site Treatment
- Alternative 3 – No Action

Alternatives 1 and 2 represent implementable wastewater solutions, while Alternative 3 is included for comparison purposes but does not address existing or future wastewater needs.

5.1 Life Cycle Cost Analysis

A life cycle present worth cost analysis was performed to compare the action alternatives on a consistent economic basis. The analysis summarized in the table below converts capital and operation and maintenance costs to present day dollars over a defined planning period and allows alternatives with different cost structures to be compared directly.

Table 5 – Life Cycle Present Worth Cost Analysis

Option	Capital Cost	Annual O&M	Period (N)	Real Interest Rate (i)	USPW* (O&M) Multiplier	Total O&M (20 Years) (USPW)*	PW**
Alternative 1 – Gravity Sewer Collection and Forcemain to Troy Pump Station	$9,211,032	$54,400	20	2.0%	16.35	$889,518	**$10,100,550**
Alternative 2 – Gravity Sewer Collection and On-Site Treatment	$10,847,670	$148,400	20	2.0%	16.35	$2,426,553	**$13,274,223**
Alternative 3 – No Action	$ -	$ -	-	-	-	$ -	**$ -**

**USPW= Uniform Series Present Worth*

***PW= Present Worth*

Capital costs include both construction and non-construction costs. Construction costs include all direct construction items, while nonconstruction costs include engineering design, permitting, legal, land acquisition, bonding and other administrative or soft costs. Annual operation and maintenance (O&M) costs include power, routine maintenance, inspection, and other recurring activities required to operate the system, and are based on estimated O&M cost 2025 dollars. The uniform series present worth (USPW) multiplier is based on a 20-year planning period and a real interest rate of 2.0 percent as per the latest OMB Circular No. A-94. Salvage value at the end of the planning period was assumed to be zero for this planning level evaluation. Present Worth (PW) represents the sum of capital cost and the present worth of operation and maintenance costs.

The analysis indicates that while both action alternatives require substantial initial investment, Alternative 2 results in higher capital costs and higher long-term operation and maintenance costs. As a result, Alternative 2 has a significantly higher present worth over the planning period. Under the no action alternative, no municipal wastewater infrastructure would be constructed, and no municipal capital or operation and maintenance costs are assumed. Costs associated with private onsite system maintenance and replacement are borne by individual property owners and are not included in this analysis.

5.2 Non-Monetary Factors

Non-monetary factors were also reviewed to compare the alternatives. These include environmental considerations, public health protection, land requirements, permitting, construction impacts, and long-term operation and maintenance responsibility.

Alternative 1 would convey wastewater to an existing regional treatment facility that operates under an active SPDES permit. This approach limits reliance on local soil and groundwater conditions and places final treatment and discharge outside the Village. Construction within Westfield would largely be confined to existing road corridors and a pump station site. Operation of the system would focus on the local collection and pumping infrastructure, with treatment provided by the regional facility.

Alternative 2 would involve treatment and disposal of wastewater within Westfield using a soil-based system. This alternative would require identification, acquisition and long-term control of a suitable disposal parcel, completion of detailed site investigations, and ongoing monitoring and maintenance of the disposal system. Long-term performance would depend on soil conditions, groundwater levels, and continued management of the treatment area, increasing operational responsibility for the Town.

The No action alternative would leave existing onsite systems in place and does not address aging infrastructure, potential system failures, or future development needs. Continued reliance on individual systems may increase the risk of water quality impacts over time.

When cost and non-cost factors are considered together, the alternatives differ in overall financial commitment, operational complexity, environmental risk, and long-term management needs. These differences provide a basis for decision making as the project advances to the next phase.

5.2.1 Community Input and Public Considerations

Public outreach conducted as part of this study included community meetings and stakeholder engagement at key stages of the PER development. Feedback received from residents within the proposed service area indicates that project cost and affordability are primary concerns. Feedback included questions regarding the need for the project and significant concern regarding affordability.

These concerns are reflected in the affordability analysis presented in Section 6.0 and have been considered in evaluating project feasibility. Continued public engagement and refinement of funding strategies will be important as the project advances.

5.3 Recommended Alternative

Based on the evaluation of life-cycle costs presented in Section 5.1 and the consideration of non-monetary factors presented in Section 5.2, **Alternative 1 – Gravity Sewer Collection and Force Main to Troy Pump Station** is identified as the recommended wastewater alternative for the Village of Westfield.

Alternative 1 provides the most favorable combination of cost-effectiveness, technical feasibility, environmental protection, and operational sustainability among the alternatives evaluated. The life-cycle cost analysis indicates that Alternative 1 has the lowest total present worth cost, approximately 20 percent lower than Alternative 2. In addition, Alternative 1 avoids the need to develop a large land-based wastewater disposal system within the Town, thereby reducing risks associated with site constraints such as shallow soils, high groundwater, and floodplain conditions.

From an operational standpoint, Alternative 1 benefits from the use of an existing regional treatment facility and is anticipated to include coordination with the Troy-Jay Wastewater Treatment Facility for operation and maintenance of key system components. This approach reduces the Town's long-term operational responsibilities and provides access to experienced certified operators.

Alternative 2 – Soil-Based Disposal with On-Site Treatment – remains technically feasible; however, it presents greater uncertainty related to site suitability, permitting complexity, and long-term operation and maintenance. It also has a higher capital cost and higher annual operation and maintenance cost compared to Alternative 1.

Alternative 3 – No Action – is not considered a viable long-term solution, as it does not address existing constraints related to wastewater management or support future development within the Village Center.

While Alternative 1 is identified as the recommended alternative based on technical and economic considerations, implementation of a municipal wastewater system will depend on the development of a funding strategy that results in affordable user costs. While Alternative 1 is identified as the recommended alternative based on technical and economic considerations, implementation of a municipal wastewater system will depend on the development of a funding strategy that results in affordable user costs. Advancement of the project will be contingent upon securing external funding and achieving an acceptable level of affordability for system users. Accordingly, Alternative 1 is recommended as the preferred wastewater solution; however, advancement of the project will be contingent upon securing external funding and achieving an acceptable level of affordability for system users.

6 USER COST AND AFFORDABILITY ANALYSIS

6.1 Introduction

This section presents an evaluation of the estimated user costs associated with the recommended wastewater alternative and assesses the affordability of the project relative to the Town of Westfield's median household income (MHI). This analysis is intended to support project planning, inform funding strategy, and demonstrate consistency with Vermont Department of Environmental Conservation (VT DEC) and Clean Water State Revolving Fund (CWSRF) affordability considerations.

The purpose of this analysis is to determine whether the proposed project can be implemented at a cost that is reasonable and sustainable for the community.

6.2 Basis of Analysis

User costs were evaluated based on an estimated 83 total Equivalent Residential Units (ERUs) within the proposed service area. This includes approximately 59 residential ERUs and 24 non-residential ERUs (commercial, institutional, or other uses). One ERU is assumed to represent the typical wastewater flow from a single-family residence.

Total system costs, including capital and O&M costs, are distributed across all users based on total ERUs. Residential affordability is evaluated based on the portion of these costs attributed to each residential user.

The total estimated project cost for the recommended alternative is approximately $9.8 million. Annual operation and maintenance (O&M) costs are estimated at $54,400 per year, including system operation, routine maintenance, administrative costs, and a reserve allowance for equipment replacement and repairs.

User costs are calculated assuming a 30-year financing term and a 2.0 percent interest rate, consistent with typical Vermont Clean Water State Revolving Fund (CWSRF) program assumptions. These assumptions are used to estimate annual debt service and total annual system cost.

All cost estimates are planning-level and will be refined during final design.

The user cost analysis is based on the following assumptions:

- Recommended Alternative: Alternative 1
- Total Project Capital Cost: $9,211,032
- Annual Operation & Maintenance (O&M): $54,400
- Finance Period: 30 Years
- CWSRF Interest Rate: 2.0%
- Median Household Income (MHI): $90,625
- Residential ERUs: 59
- Total ERUs: 83

Annual O&M costs include operation, routine maintenance, administration, and reserve allowance for future repair and replacement. All cost estimates are planning-level and will be refined during subsequent phases of project development. This analysis evaluates a range of funding scenarios to illustrate the effect of grant assistance on user affordability.

6.3 Annual Cost of Service

Annual cost of service consists of two primary components: (1) annual debt service associated with financing the project cost and (2) annual operation and maintenance (O&M) costs. For this analysis, O&M is assumed to be constant at $54,400 per year, and total annual cost of service is evaluated under a range of funding scenarios to illustrate the effect of grant assistance on user costs.

The scenarios evaluated include a full loan scenario and multiple partially grant-funded scenarios. Debt service was calculated assuming a 30-year financing term and a 2.0 percent interest rate. The resulting annual cost of service for each scenario is summarized below.

Annual cost per ERU was calculated by distributing total annual cost of service across 83 total ERUs. Monthly cost per ERU was then derived by dividing annual cost per ERU by twelve. These values provide a basis for assessing system-wide cost recovery under each funding scenario.

Table 6 – Alternative 1: Annual Cost of Service by Funding Scenario

Funding Scenario	Grant Share	Loan Amount	Annual Debt Service	Annual O&M	Total Annual Cost of Service	Annual Cost per ERU	Monthly Cost per ERU
Scenario A – 100% Loan	0%	$9,211,032	$411,272	$54,400	$465,672	$5,611	$468
Scenario B – 50% Grant / 50% Loan	50%	$4,605,516	$205,636	$54,400	$260,036	$3,133	$261
Scenario C – 80% Grant / 20% Loan	80%	$1,842,206	$82,254	$54,400	$136,654	$1,646	$137
Scenario D – 90% Grant / 10% Loan	90%	$921,103	$41,127	$54,400	$95,527	$1,150	$96

**Scenario D is included as an additional sensitivity case to illustrate the effect of a more favorable subsidy package.*

Annual cost per ERU was calculated by distributing total annual cost of service across 83 total ERUs. Monthly cost per ERU was then derived by dividing annual cost per ERU by twelve. These values provide a basis for assessing system-wide cost recovery under each funding scenario.

6.4 Affordability Analysis

Affordability of the proposed wastewater project was evaluated by comparing the estimated annual residential user cost to the Town of Westfield's Median Household Income (MHI) of **$90,625**. For purposes of this analysis, the **annual cost per Equivalent Residential Unit (ERU)** presented in **Table 6** is used as a surrogate for the annual residential user charge. This approach is considered appropriate for planning-level analysis because both residential and non-residential users are assumed to contribute proportionally to system costs under the proposed ERU-based rate structure.

As shown in **Table 6 – Alternative 1: Annual Cost of Service by Funding Scenario**, project affordability is highly sensitive to the level of grant assistance and principal forgiveness applied to the project. Under **Scenario A** (100 percent loan financing), the estimated annual residential user cost is approximately **$5,611 per ERU**, or approximately **$468 per month**. This represents approximately **6.2 percent of MHI**, which substantially exceeds commonly referenced wastewater affordability benchmarks. Accordingly, the project would not be considered affordable under a fully debt-financed scenario.

Under **Scenario B** (50 percent grant / 50 percent loan), the estimated annual residential user cost is approximately **$3,132 per ERU**, or approximately **$261 per month**. This represents approximately **3.5 percent of MHI**. Although this scenario reflects a substantial reduction in user cost relative to Scenario A, it remains above generally accepted affordability thresholds and would likely continue to impose a significant financial burden on many users.

Under **Scenario C** (80 percent grant / 20 percent loan), the estimated annual residential user cost is approximately **$1,646 per ERU**, or approximately **$137 per month**. This represents approximately **1.8 percent of MHI**. At this funding level, the estimated user cost falls within a range that may be considered more manageable for residential users, although it remains near the upper end of commonly cited affordability benchmarks.

Under **Scenario D** (90 percent grant / 10 percent loan), the estimated annual residential user cost is approximately **$1,150 per ERU**, or approximately **$96 per month**. This represents approximately **1.3 percent of MHI**. Of the scenarios evaluated, this funding condition is the more consistent with typical affordability benchmarks for small rural communities and would likely provide the most financially sustainable outcome for Westfield residents.

Overall, the affordability analysis indicates that implementation of Alternative 1 is highly dependent upon the amount of grant and subsidy funding obtained. Based on the scenarios evaluated in **Table 6**, a funding package in the range of approximately **80 to 90 percent grant assistance and/or principal forgiveness** would likely be necessary to reduce annual user costs to a level that may be considered affordable for Westfield residents. As the project advances, refinement of grant assumptions, financing terms, and final ERU allocation will be important to further define likely residential user costs and confirm long-term financial feasibility.

6.5 Funding Considerations

Implementation of the proposed wastewater system will require a combination of funding sources to reduce the financial burden on system users. Potential funding sources include:

- Vermont Clean Water State Revolving Fund (CWSRF);
- USDA Rural Development Water and Waste Disposal Program;
- Northern Border Regional Commission (NBRC);
- Community Development Block Grant (CDBG) Program.

These programs may provide a combination of low-interest loans, grants, and principal forgiveness, depending on eligibility and funding availability. The level of grant funding secured will have a direct and significant impact on user costs and overall project affordability.

6.6 Summary of Affordability Evaluation

The affordability analysis indicates that, while the proposed wastewater system is technically feasible and represents the most cost-effective action alternative evaluated, estimated user costs are highly sensitive to the level of grant and subsidy funding obtained.

As demonstrated by the funding scenarios presented in **Table 6**, a fully debt-financed project would result in annual user costs that substantially exceed commonly referenced affordability benchmarks. Even under a 50 percent grant scenario, estimated annual residential user costs would likely remain above levels typically considered affordable for small rural communities. The analysis indicates that only at grant funding levels in the range of approximately **80 to 90 percent**, including grant assistance and/or principal forgiveness, do estimated annual user costs begin to fall within a range that may be considered more manageable for Westfield residents.

Public feedback received during preparation of this report is consistent with these findings and indicates that affordability is a primary factor influencing whether the project can advance. Concerns expressed by residents generally reflect the potential financial burden associated with annual user charges, particularly in a community where no municipal wastewater utility currently exists.

Accordingly, advancement of the project will depend in large part on the Town's ability to secure sufficient external funding to reduce user costs to an acceptable and sustainable level. As the project moves forward, further refinement of project costs, financing terms, grant assumptions, and ERU allocation will be necessary to better define likely user charges and confirm long-term financial feasibility.

7 CONCLUSION / RECOMMENDATIONS

This Preliminary Engineering Report evaluates wastewater management alternatives for the Village of Westfield to address long-term infrastructure needs, support future growth within the Village Center, and provide a sustainable wastewater management solution for the community.

Based on the alternatives analysis presented in Chapter 4 and the evaluation of life-cycle costs and non-monetary factors presented in Chapter 5, Alternative 1 – Gravity Sewer Collection and Force Main to Troy Pump Station is identified as the preferred wastewater solution for the Village of Westfield. This alternative provides the most favorable overall combination of technical feasibility, environmental protection, operational sustainability, and cost-effectiveness among the alternatives evaluated. In comparison to Alternative 2, it avoids the need to develop a large land-based treatment and disposal system within Westfield and results in the lowest life-cycle cost of the implementable alternatives.

At the same time, the analysis demonstrates that implementation of a municipal wastewater system represents a significant financial undertaking for the community. The user cost and affordability analysis presented in Section 6.0 indicates that, without substantial grant, subsidy, and/or principal-forgiveness funding, the cost to users is likely to be burdensome. Public feedback obtained during preparation of this report reflects these concerns and indicates that affordability is a primary factor influencing whether the project can proceed.

Accordingly, while Alternative 1 is recommended as the preferred wastewater alternative, advancement of the project should be contingent upon development of a funding package that results in manageable user costs. Based on the scenarios evaluated in this report, a high level of outside funding participation will likely be necessary to make the project affordable for Westfield users.

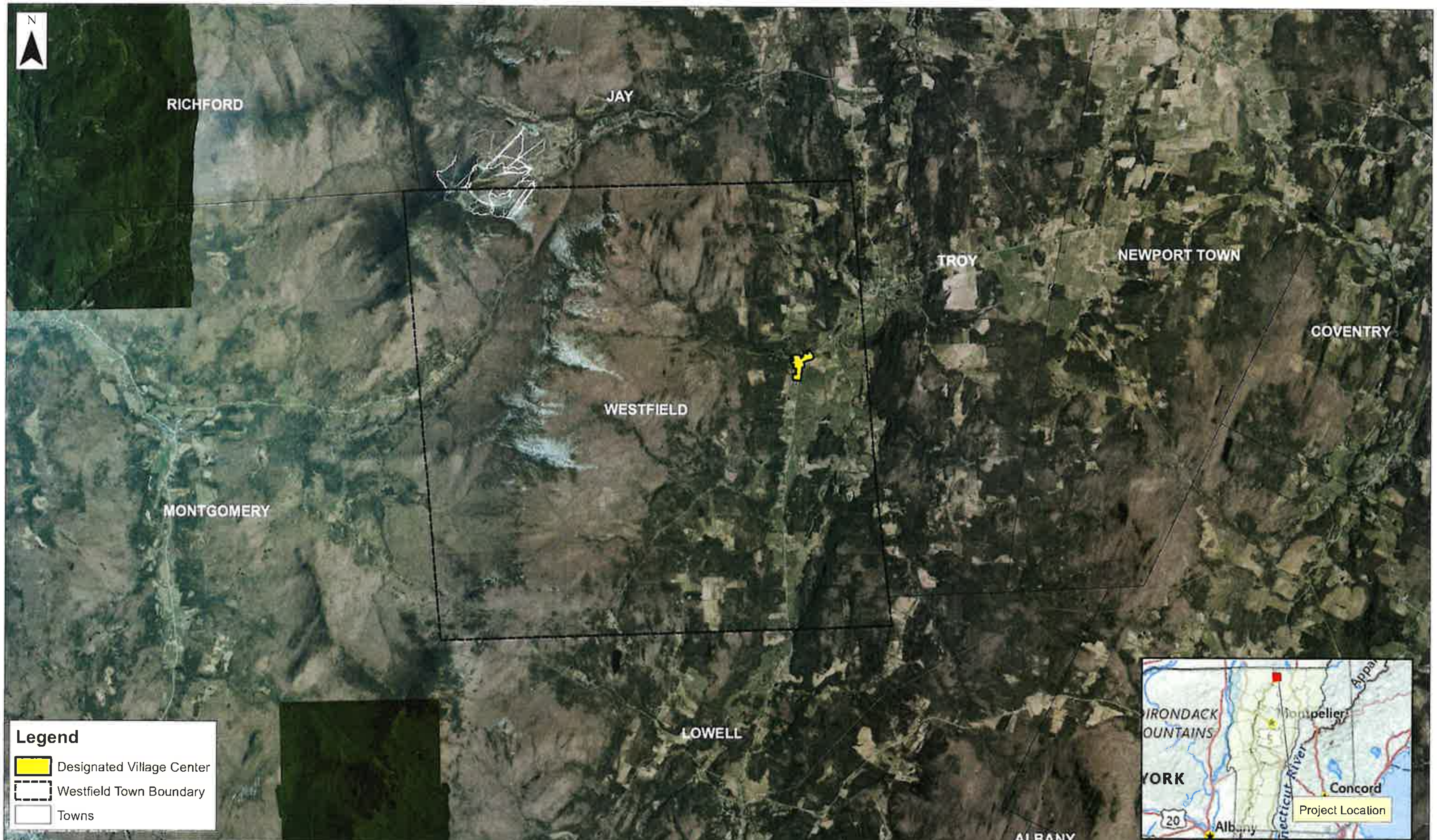
It is recommended that the Town continue to coordinate with the Vermont Department of Environmental Conservation, funding agencies, and the Troy-Jay Wastewater Treatment Facility to:

- Refine project cost estimates and user cost projections;
- Evaluate available grant, subsidy, and principal-forgiveness opportunities;
- Confirm treatment capacity and develop service and operation agreements with Troy-Jay;
- Continue public outreach and engagement to inform future decision making; and
- Advance the project to the next phase only if an acceptable affordability outcome can be achieved.

If sufficient external funding cannot be secured to reduce user costs to an acceptable level, the Town should consider deferring implementation, modifying project scope, or re-evaluating alternative approaches before proceeding to final design and construction.

This report provides the technical and financial basis for future decision-making by the Town of Westfield. Any advancement of the project beyond the planning stage should be based on continued coordination with regulatory agencies, refinement of project assumptions, confirmation of regional service arrangements, and demonstration that the project can be implemented at an affordable cost to system users.

FIGURES



AES

5301
Town of Westfield
Village Wastewater Study

Figure 1.1:
Project Location Map

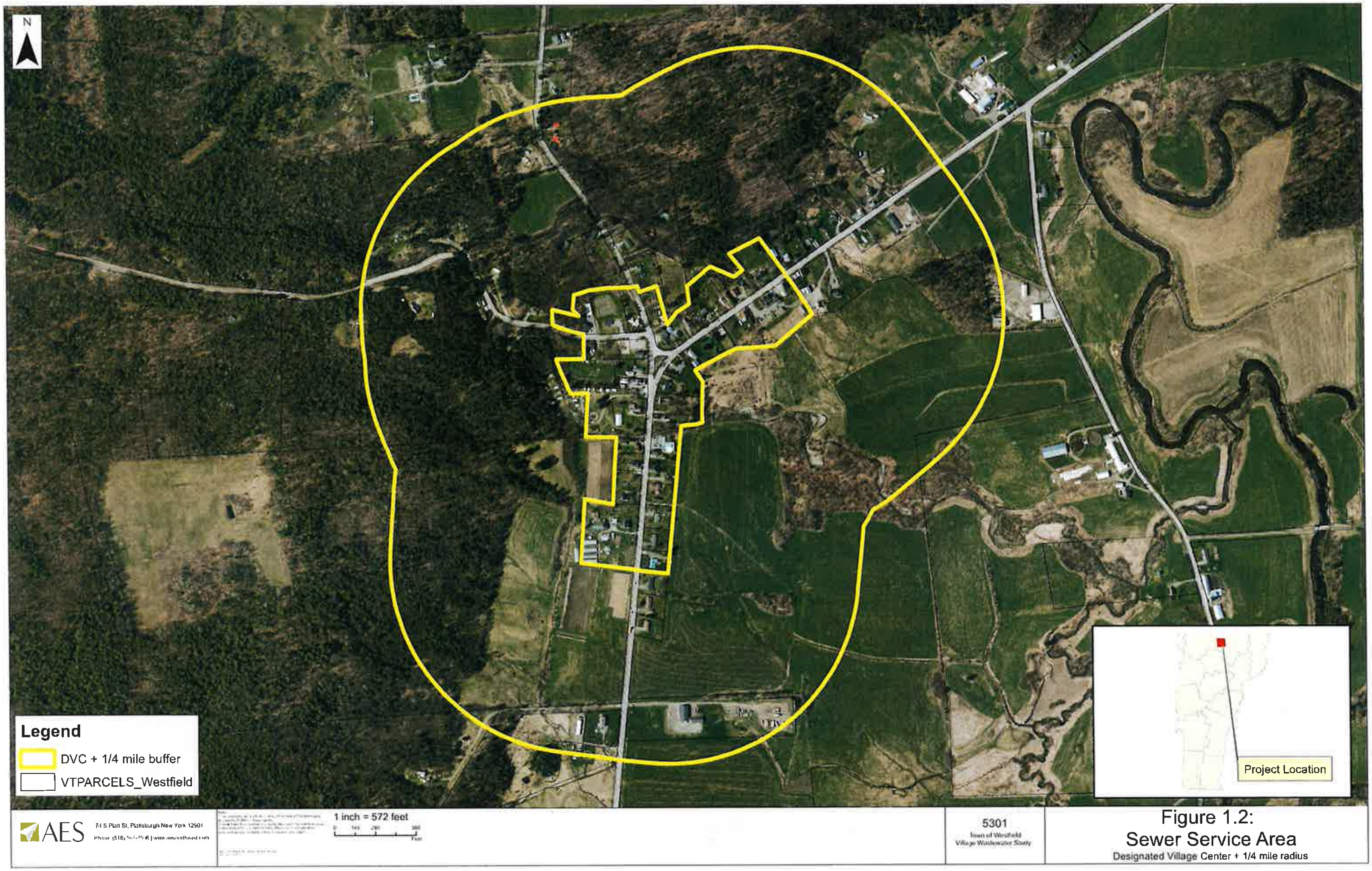
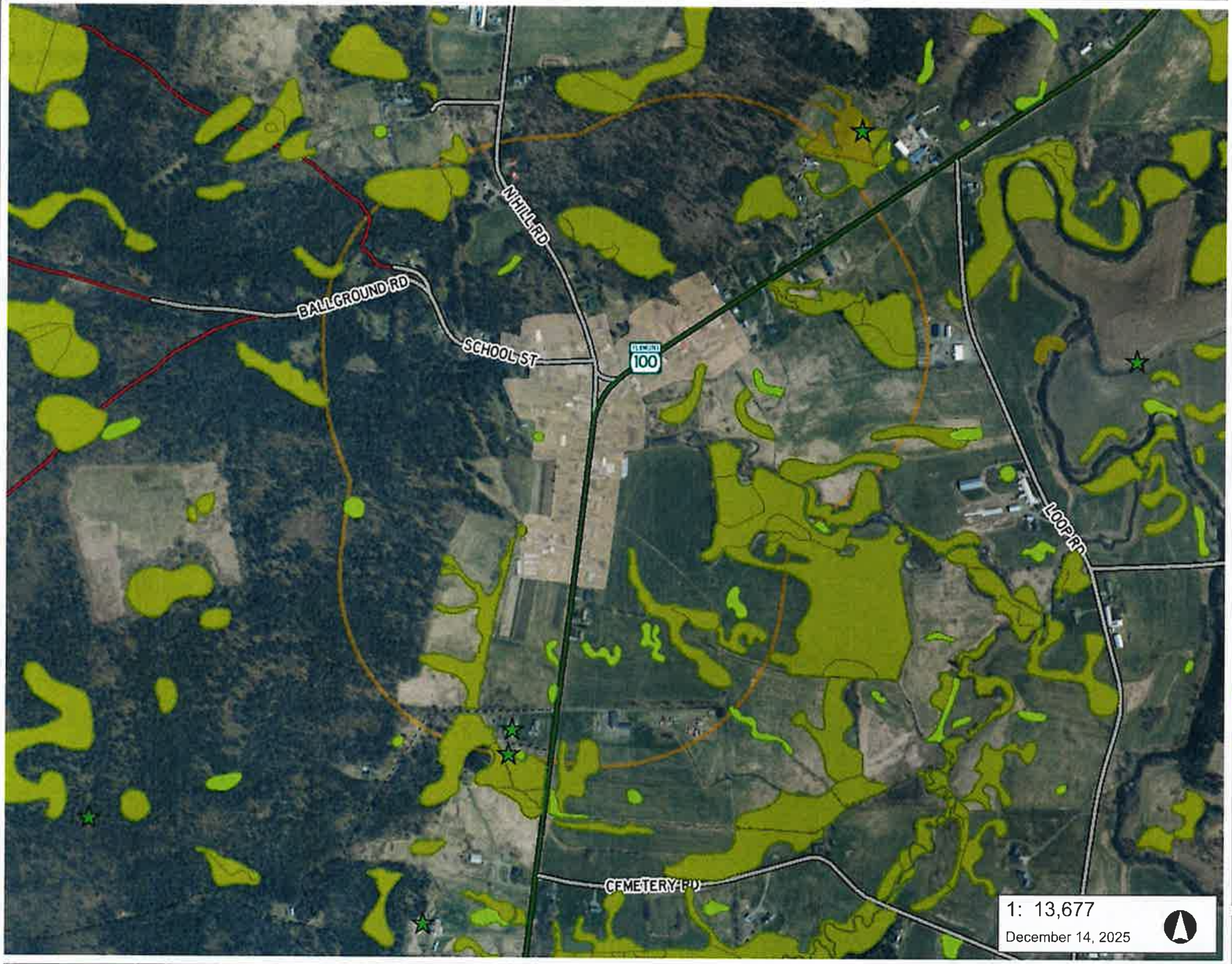


Figure 1.2:
Sewer Service Area
Designated Village Center + 1/4 mile radius

Westfield Wetlands Map

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Wetland Projects
- Wetland - VSWI
  - Class 1 Wetland
  - Class 2 Wetland
  - Wetland Buffer
- Wetlands Advisory Layer
- Roads
  - Interstate
  - US Highway; 1
  - State Highway
  - Town Highway (Class 1)
  - Town Highway (Class 2,3)
  - Town Highway (Class 4)
  - State Forest Trail
  - National Forest Trail
  - Legal Trail
  - Private Road/Driveway
  - Proposed Roads
- Town Boundary
- Village Center Boundary
- Village Center 0.25 mile buffer

695.0 0 348.00 695.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 1140 Ft. 1cm = 137 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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NOTES

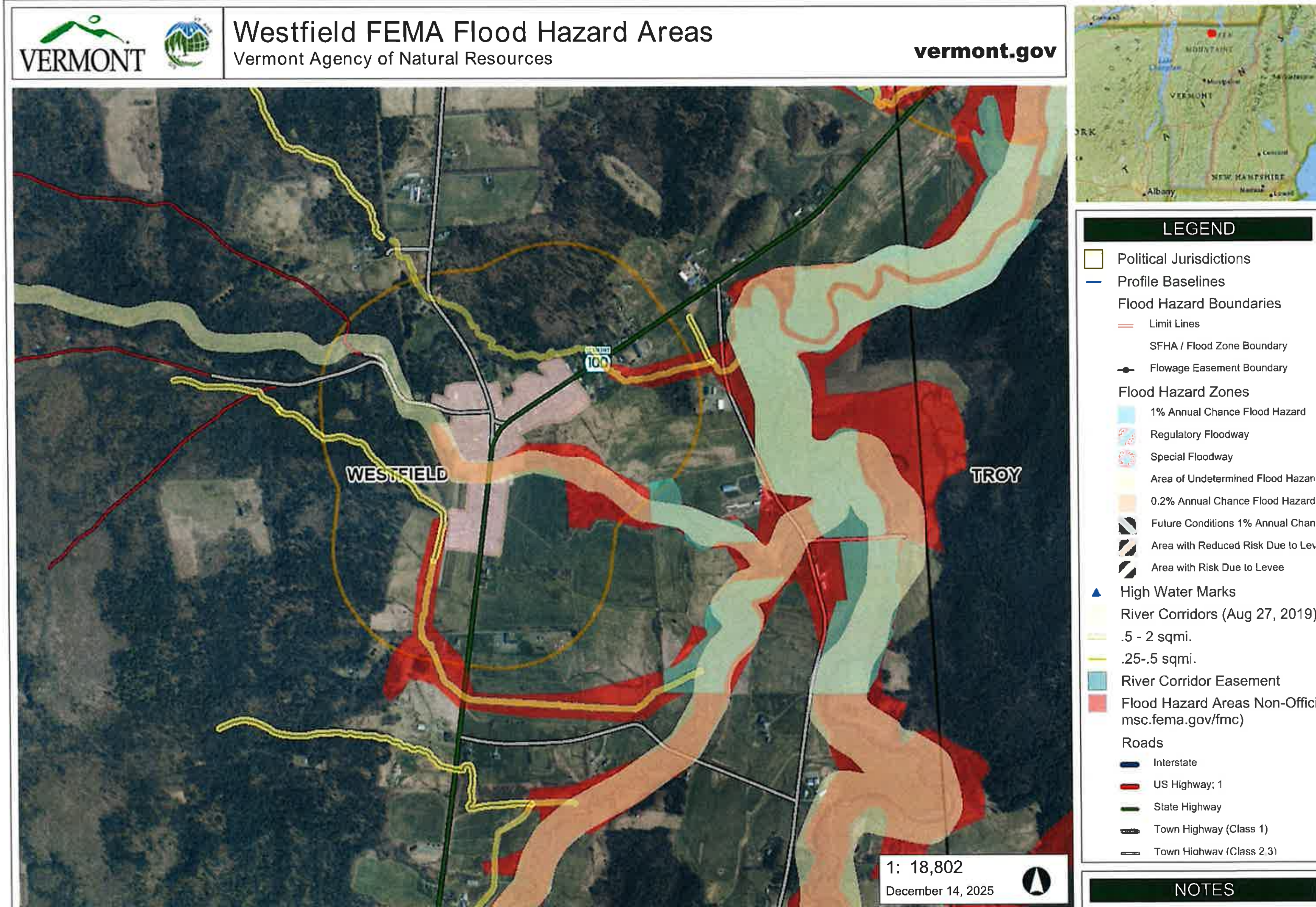
Map created using ANR's Natural Resources Atlas

Figure 1.3

Westfield FEMA Flood Hazard Areas

Vermont Agency of Natural Resources

vermont.gov



NOTES

Map created using ANR's Natural Resources Atlas

Figure 1.4

955.0 0 478.00 955.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 1567 Ft. 1cm = 188 Meters

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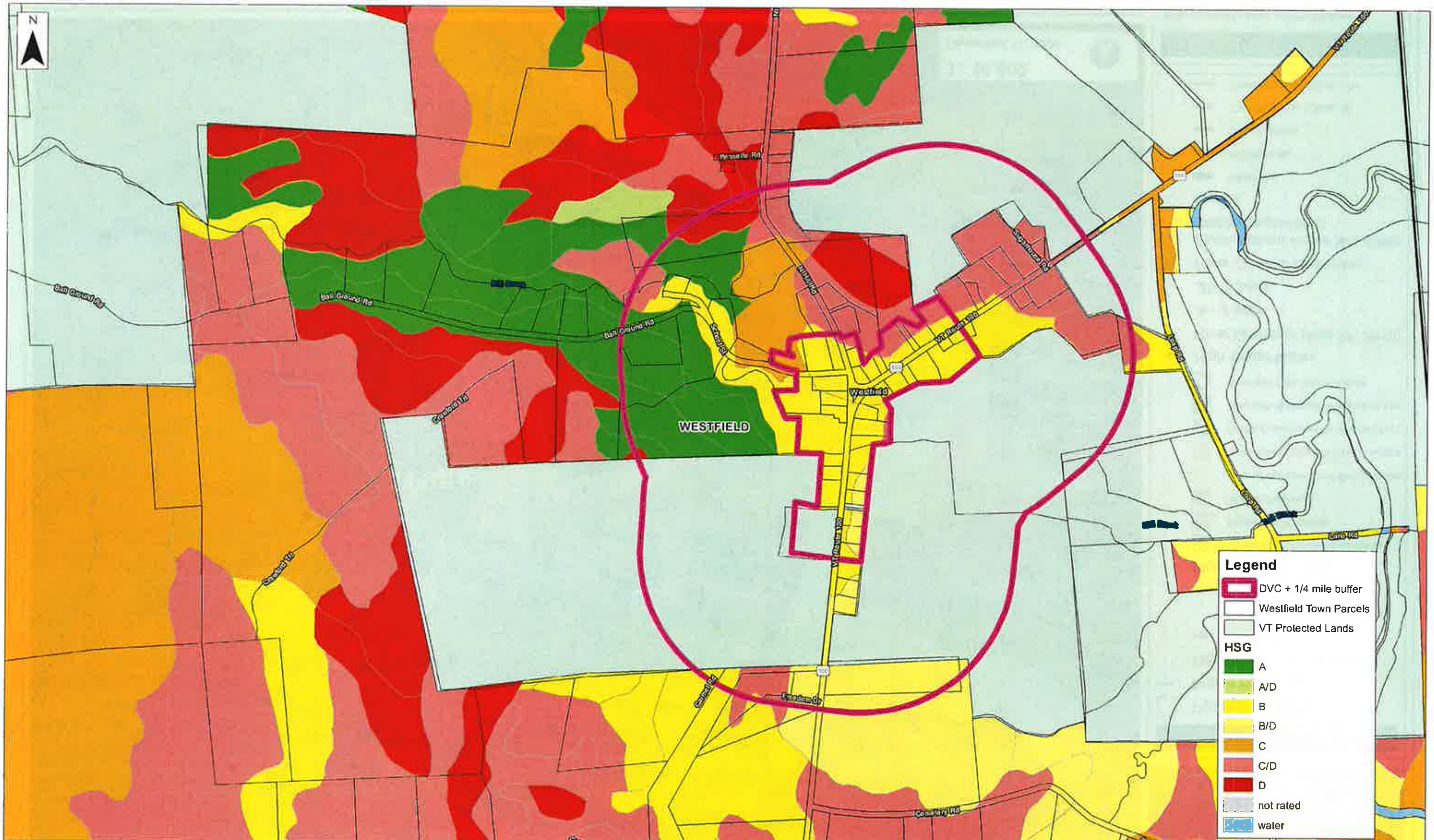
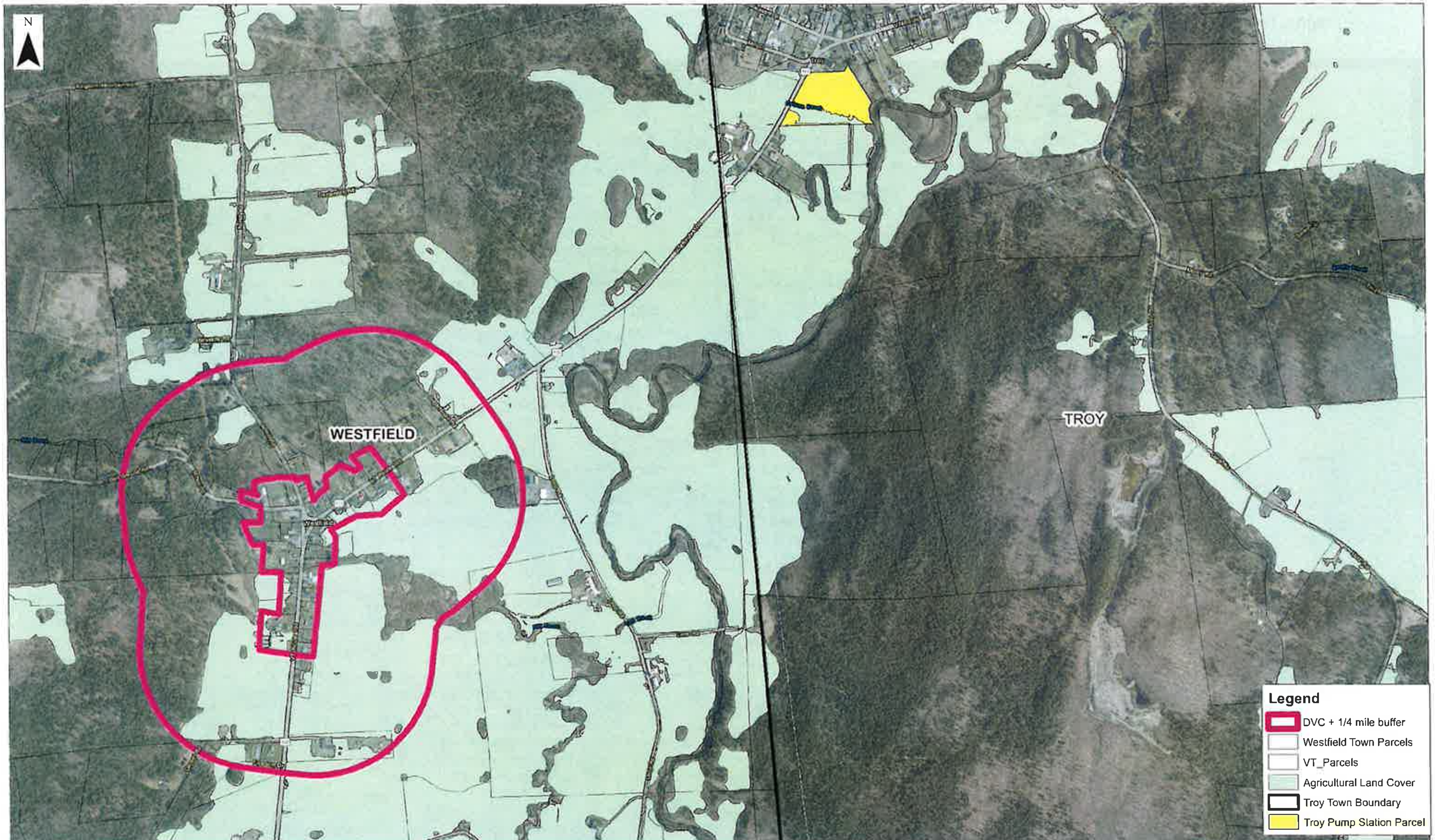


AES
5301
Town of Westfield, VT
Village Wastewater Study
Figure 1.5:
Conserved Lands and HSG

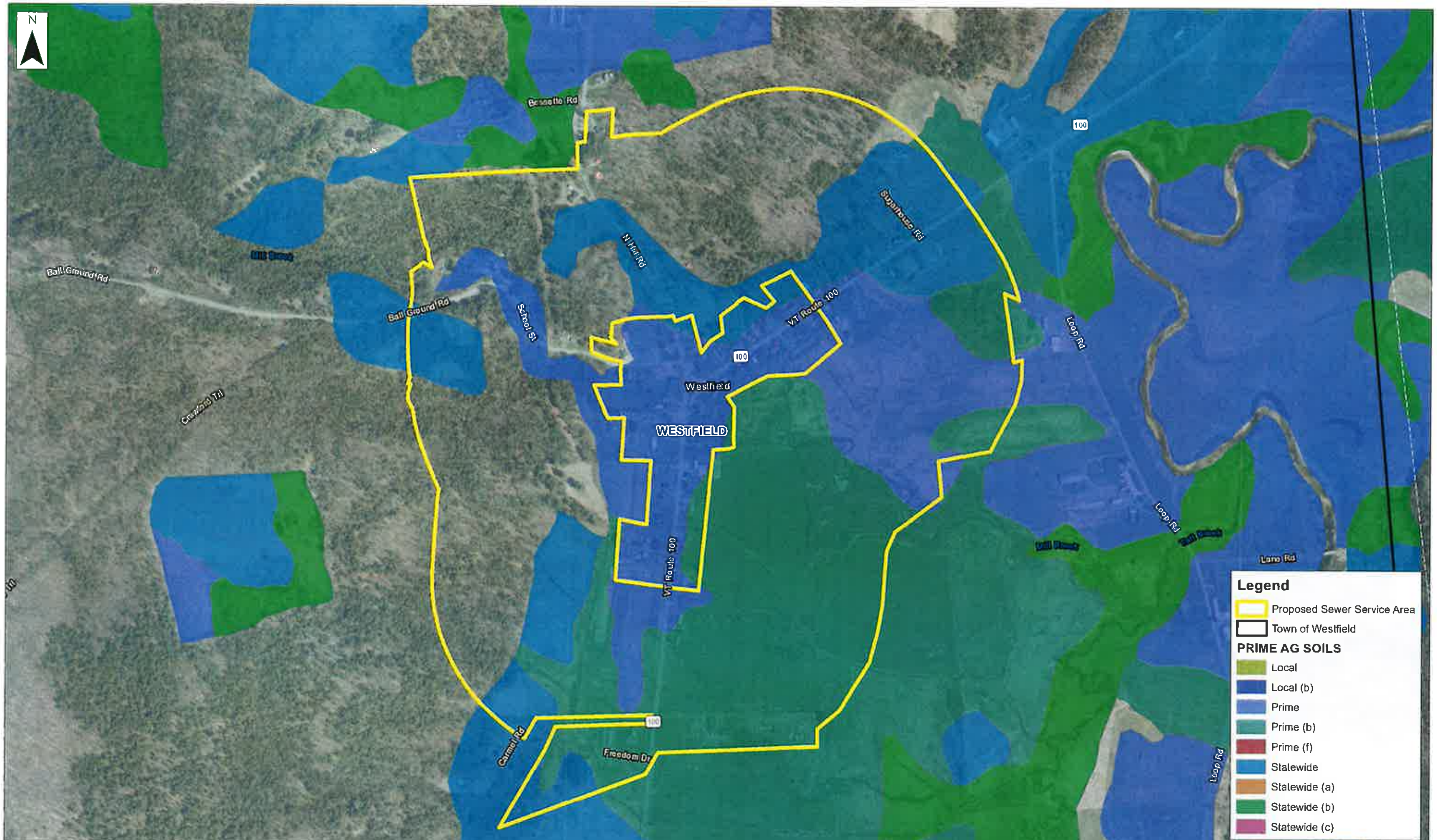


AES

1 inch = 961 feet

5301
Town of Westfield, VT
Village Wastewater Study

Figure 1.6:
Agricultural Land Cover



AES 74 South Platt St, Plattsburgh, New York 12901 Phone: (518) 561-1598 | www.aesnorthcast.com

1 inch = 625 feet

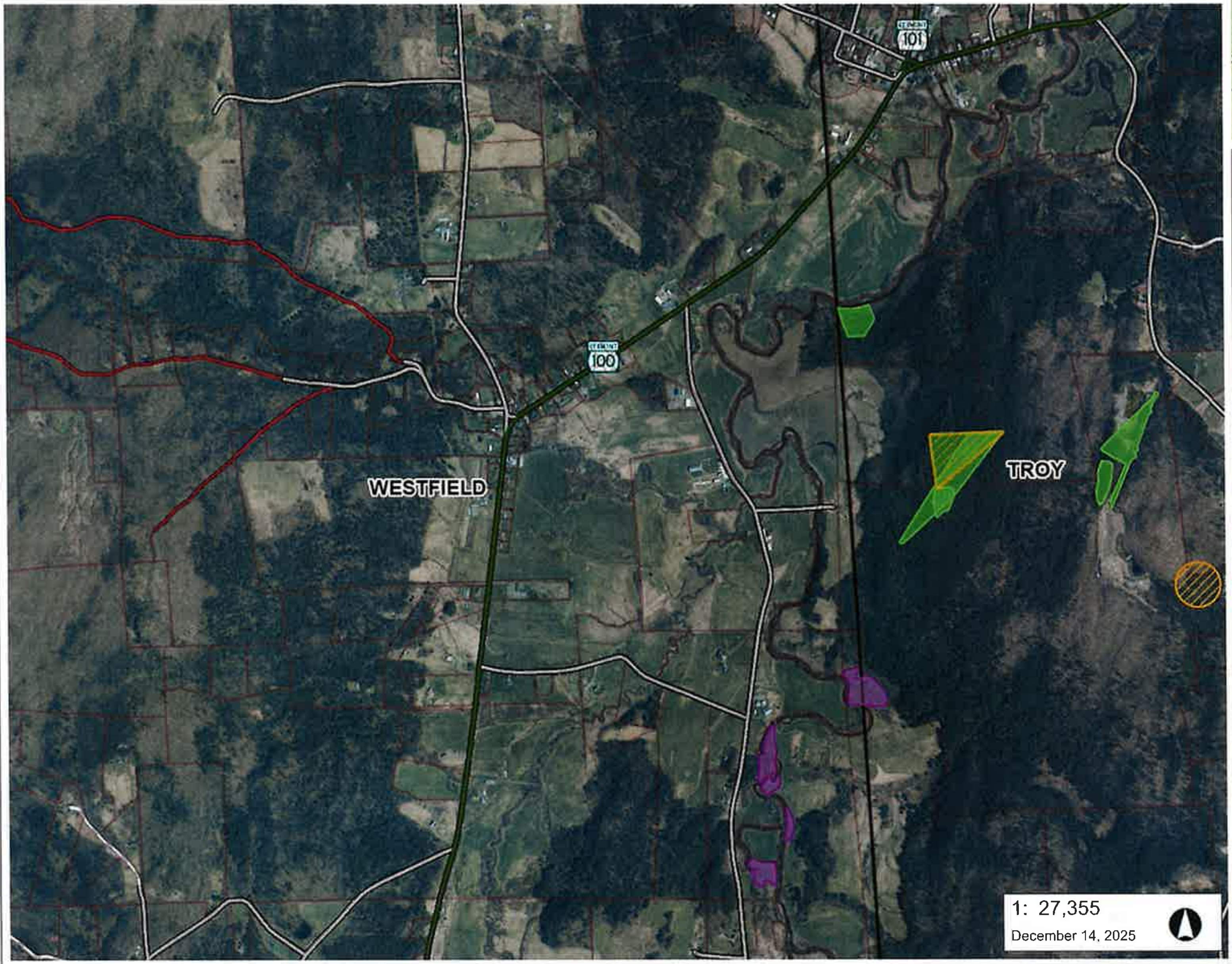
5301
Town of Westfield, VT
Village Wastewater Study

Figure 1.6.1:
Prime Ag Soils
Agriculturally Important Soil Units

Westfield Endangered Species Map

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Uncommon Species and other
- Plant
- Animal
- Natural Community

Rare Threatened and Endange
- RTE Animal
- RTE Plant

Significant Natural Communitie

Deer Wintering Areas

Indiana Bat Hibernacula

Indiana Bat Summer Range
- Observed
- Potential

Northern Long-Eared Bat

Tricolored Bat

Parcels (standardized)

Roads
- Interstate
- US Highway; 1
- State Highway
- Town Highway (Class 1)
- Town Highway (Class 2,3)
- Town Highway (Class 4)
- State Forest Trail
- National Forest Trail
- Legal Trail
- Private Road/Driveway

1,390.0 0 695.00 1,390.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 2280 Ft. 1cm = 274 Meters

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NOTES

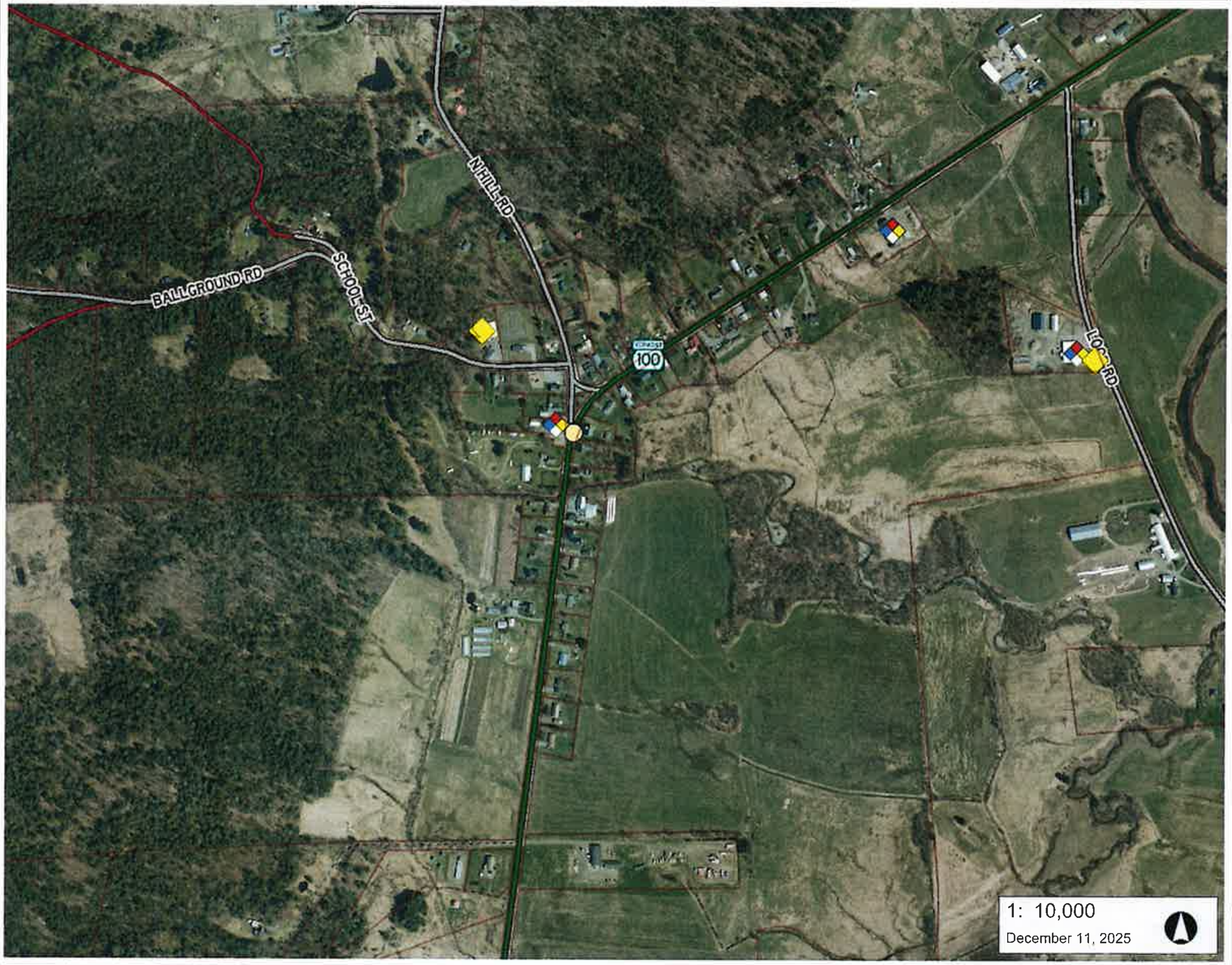
Map created using ANR's Natural Resources Atlas

Figure 1.7

Westfield Hazardous Sites Map

Vermont Agency of Natural Resources

vermont.gov



1: 10,000

December 11, 2025

LEGEND

- Landfills
  - OPERATING
  - CLOSED
- Land Use Restrictions
  - Class IV GW Reclass
  - Class VI GW Reclass
  - Deed Restriction
  - Easement
  - Land Record Notice
  - Other
- Hazardous Site
- Hazardous Waste Generators
- Brownfields
- Salvage Yard
- Aboveground Storage Tank
- Underground Storage Tank (w
- Dry Cleaner
- Architectural Waste Recycling
- Parcels (standardized)
- Roads
  - Interstate
  - US Highway; 1
  - State Highway
  - Town Highway (Class 1)
  - Town Highway (Class 2,3)
  - Town Highway (Class 4)
  - State Forest Trail

508.0 0 254.00 508.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 833 Ft. 1cm = 100 Meters

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NOTES

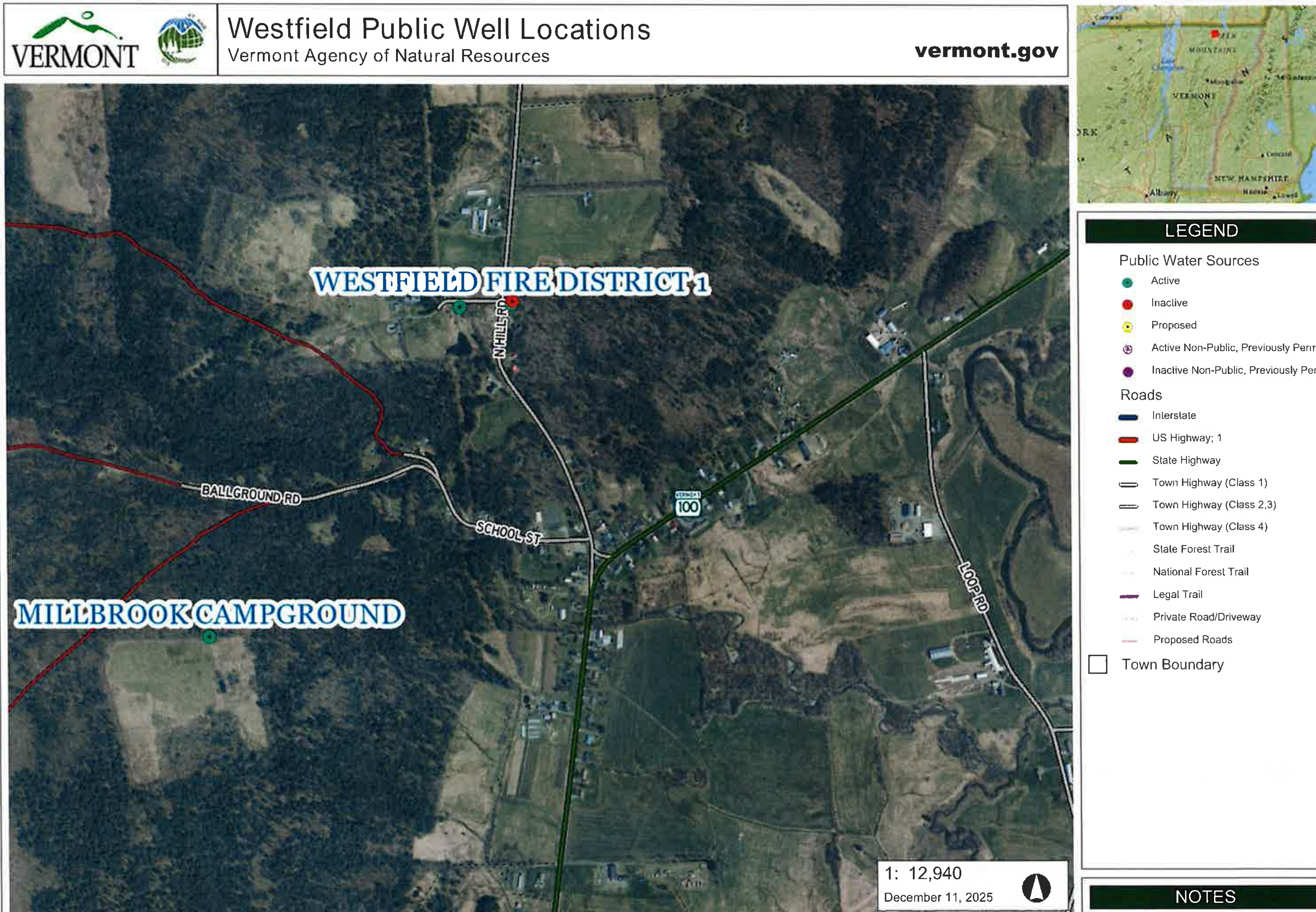
Map created using ANR's Natural Resources Atlas

Figure 1.8

Westfield Public Well Locations

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Public Water Sources

- Active
- Inactive
- Proposed
- Active Non-Public, Previously Perm
- Inactive Non-Public, Previously Per

Roads

- Interstate
- US Highway; 1
- State Highway
- Town Highway (Class 1)
- Town Highway (Class 2,3)
- Town Highway (Class 4)
- State Forest Trail
- National Forest Trail
- Legal Trail
- Private Road/Driveway
- Proposed Roads

Town Boundary

657.0 0 328.00 657.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 1078 Ft. 1cm = 129 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

NOTES

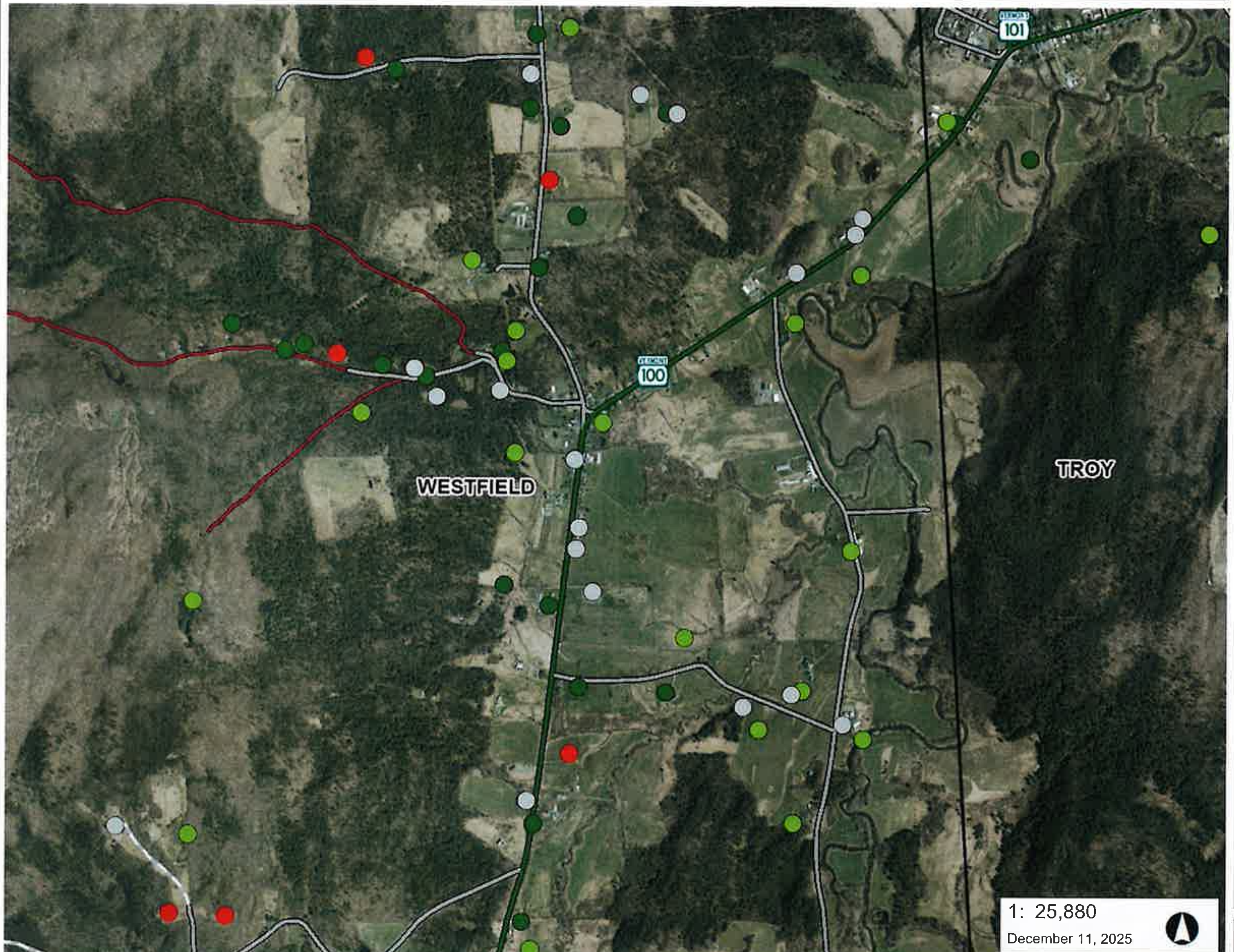
Map created using ANR's Natural Resources Atlas

Figure 2.1

Westfield Private Well Locations

Vermont Agency of Natural Resources

vermont.gov



1: 25,880

December 11, 2025

LEGEND

Private Wells

- GPS Located
- Screen Digilized
- E911 Address Matched
- Welldriller/Clarion
- Unknown Location Method
- Incorrectly Located

Roads

- Interstate
- US Highway; 1
- State Highway
- Town Highway (Class 1)
- Town Highway (Class 2,3)
- Town Highway (Class 4)
- State Forest Trail
- National Forest Trail
- Legal Trail
- Private Road/Driveway
- Proposed Roads

Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

Figure 2.2

1,315.0 0 658.00 1,315.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 2157 Ft. 1cm = 259 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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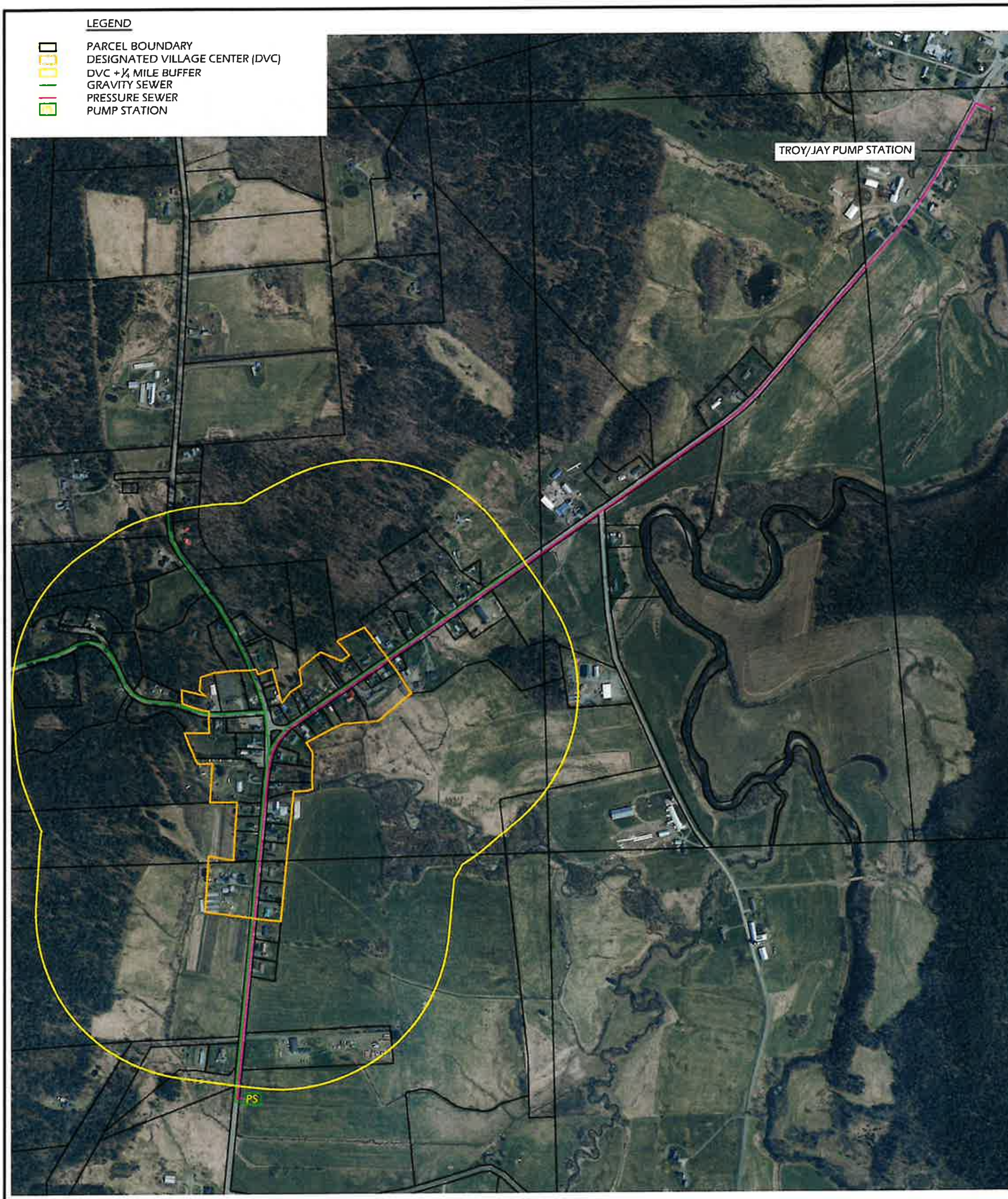

SCALE: 1" = 1000'

AES Northeast
Architecture, Engineering, and Land Surveying Northeast, PLLC
www.aesnortheast.com

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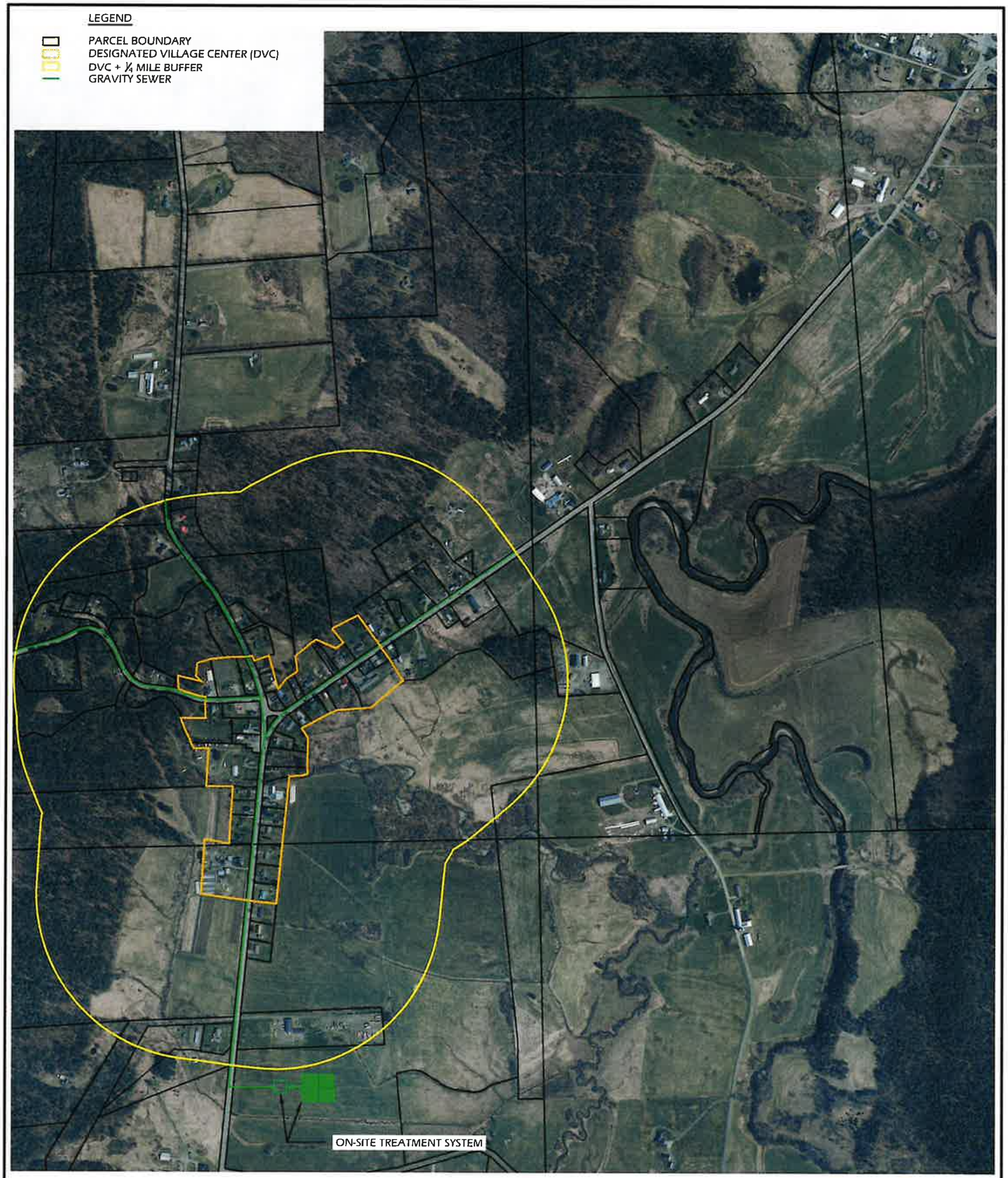
Plattsburgh, NY 12901
P. (518) 561-1598
Vermont Office:
Chace Mill, 1 Mill Street, Suite 370,
Burlington, VT 05401
P. (802) 876-0417

PROJECT TITLE: TOWN OF WESTFIELD VILLAGE WASTEWATER STUDY

DRAWING TITLE: CONNECTION TO TROY/JAY PUMP STATION

DRAWN BY:	CHECKED BY:	DATE:	PROJECT NO.:	FIGURE NO.
DJG	KRF	11/20/2025	5301	4.1

Plot Date: 12/15/2025 Plot Time: 11:07 AM



SCALE: 1" = 1000'

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Vermont Office:
Chace Mill, 1 Mill Street, Suite 370,
Burlington, VT 05401
P. (802) 876-0417

PROJECT TITLE:	TOWN OF WESTFIELD VILLAGE WASTEWATER STUDY			
DRAWING TITLE:	ON-SITE TREATMENT SYSTEM			
DRAWN BY: DJG	CHECKED BY: KRF	DATE: 11/20/2025	PROJECT NO.: 5301	FIGURE NO. 4.2

Plot Date: 12/15/2025 Plot Time: 11:03 AM

APPENDICES

APPENDIX A

Environmental Information Document

VERMONT
ENVIRONMENTAL CONSERVATION

EnvRep-103

Appendix H

Water Investment Division

Environmental Information Document
and Environmental Report

Project Name ____________________

Project Owner ____________________ Address ____________________

Project Location ____________________

Drinking Water System Name ____________________ WSID No.__________

State Assigned Drinking Water Revolving Loan (DWSRF) Number RF3-__________

Wastewater and/or Stormwater System Name____________________

List Existing Permit Numbers: ____________________

State Assigned Clean Water Revolving Loan (CWSRF) Number RF1-___

All Projects: USEPA Grant (STAG) Number____________________

Federal Fiscal Years (s) of USEPA Grant Appropriation ____________________

Applicants are strongly encouraged to consult early and frequently with our staff to ensure that all environmental issues are described, evaluated, and impacts appropriately considered and mitigated, in order to expedite the application process and SRF review and approval of a proposed project

SRF design review staff will independently evaluate and verify accuracy of information supplied in the project environmental report, and issue the CATEX, FONSI or ROD determination.

If an SRF determination is made that an Environmental Assessment or an Environmental Impact Statement is required, for projects with a greater complexity of impacts and mitigation, the SRF staff will be responsible for initiating the preparation of this document internally or by a third party.

The EIS will result in a Record of Decision determination, instead of a CATEX or FONSI.

Through a memorandum of understanding between United States Department of Agriculture-Rural Development and the Vermont Agency of Natural Resources, this environmental report format is acceptable to both funding agencies.

Please note that Environmental Review Determination eligibility, public comment, and public notice requirements may differ among the funding agencies.

Provide the "need of project" statement:	
Provide the "purpose of project" statement:	
Provide a brief description of the project scope and design as detailed in the Preliminary Engineering Report:	
Highlight the project features that will likely have an environmental impact or impact to historical resources or involve environmental justice issues. The level of project detail should be in keeping with the scope and magnitude of the construction project.	

Program Loan	Information Request	YES	NO	WID
Projects requiring **no** Mitigation measures will qualify to proceed with a Categorical Exclusion (CATEX) process. Projects requiring Mitigation may qualify for a Finding of No Significant Impact (FONSI).				
CWSRF and DWSRF	Is the Project likely to have no or very minimal effects?	○	⦿	☐
CWSRF and DWSRF	Does the project require mitigation measures?	○	○	☐
CWSRF and DWSRF	Does the authorized project representative make a written request for a Categorical Exclusion, for Projects likely to have no or very minimal effects (included)?	○	○	☐
Projects of greater complexity and impact will require an Environmental Impact Statement (EIS) and result in a Record of Decision (ROD)				
CWSRF and DWSRF	Does the project involve greater complexity and impact or controversy[1]?	○	○	☐
CWSRF and DWSRF	Attach ***additional information*** such as a qualified consultant assessment or determination letters, permits from regulatory authorities, and mapping	○	○	☐
Projects limited to the existing footprint of a building (e.g., a UV disinfection project)				
CWSRF and DWSRF	No Impact Certification Statement, submitted?	○	○	☐
CWSRF and DWSRF	The project is restricted to the footprint of the existing building:	○	○	☐
Project Scope				
DWSRF	Will the project expand capacity to serve more than 500 additional users or a 30% increase in the existing population, whichever is greater?	○	○	☐
CWSRF	Will the project increase hydraulic (flow) treatment capacity by more than 20%	○	○	☐
CWSRF	Percent increase in hydraulic capacity	0%		
CWSRF	Will the project increase influent 5-day biochemical oxygen demand (BOD5) organic treatment capacity by more than 30% ?	○	○	☐
CWSRF	Percent increase in BOD5 capacity	0%		☐
CWSRF	Existing hydraulic capacities		gal.	☐
CWSRF	Existing organic capacities		mg/l	☐
CWSRF	Proposed hydraulic capacities		gal.	☐
CWSRF	Proposed organic capacities		mg/l	☐
Sole Source Aquifer				
DWSRF and CWSRF	Will the project take place in an area designated by the Environmental Protection Agency as a "Sole Source Aquifer"?	○	○	☐
New Project Features				
DWSRF	Does the project call for a jurisdictionally new withdrawal of groundwater or of surface water (10 V.S.A. § 1042(b))?	○	○	☐
CWSRF	Does the project include a new discharge to surface water or groundwater?	○	○	☐
DWSRF	Will the project result in a 30% increase in groundwater or surface water withdrawal at an existing site?	○	○	☐
DWSRF	Percent increase in groundwater/surface water withdrawal	0.00%		☐
Mitigation				
DWSRF and CWSRF	Do you believe your project qualifies for a Categorical Exclusion in accordance with the Environmental Review Procedures for projects funded through the Vermont/EPA Drinking Water Revolving Loan Program and/or the Vermont/EPA Clean Water Revolving Loan Program, based on the environmental information and documentation, presented in the attached form?	○	○	☐
DWSRF and CWSRF	With your applicant's signature below, do you request a Categorical Exclusion for your project?	○	○	☐
DWSRF and CWSRF	If "No" above (Not a CATEX project), you must fill out all affected environmental and historical considerations below. If you answer "Yes" you will also need to provide the mitigation measures or an alternative action plan			

[1] Environmental controversy. Controversy includes not only scientific disagreement about the mitigation's effectiveness, but also public interest or debate. Controversy is an unresolved group opposition, disagreement or concern to the proposed project within the affected community

1. Environmental Justice Considerations

WID

Considerations	Yes or No	Basis for Determination and Documentation	WID
The WID uses this form to establish compliance with NEPA requirements. The WID determination of NEPA compliance does not extend to other permitting by other agencies. The intention of the WID review/determination is to establish that the project development takes into account all direct and indirect aggregated environmental impacts of the project.			
Sensitive Communities include persons who: may have reduced mobility; persons who reside in hospitals, nursing homes, convalescent homes, intermediate care facilities, board and care facilities, and retirement service centers; communities disenfranchised due to economic condition; communities disenfranchised by minority status, such as ethnic, religious, race, color or sexual identity. Sensitive communities includes children and elderly individuals within each of the definitions above.			
Will the project adversely affect a sensitive population? Present a map produced using the online EJSCREEN tool, showing the project perimeter.	○ ◉		☐
Will the project affect sensitive populations? Project characteristics that may result in effects on sensitive populations include: Measures to avoid loss of life or injury during flood or storm events; construction or operation dust, odor or noise control measures; storage of hazardous chemicals in areas of sensitive communities; limitations on transportation access etc.	○ ○		☐
Is the project known or expected to have a significant negative effect on the quality of the human environment? Consider the cumulative and also the long term effects of the project on the community. Provide a narrative of anticipated effects.	○ ○		☐
Will the project contribute to significant changes to the socioeconomic makeup of the area?	○ ○		☐
Is the project unaffordable? Provide an evaluation of the projected effect on user rates versus the affordability analysis.	◉ ○		☐
Has the project undergone an alternatives analysis evaluating practicable alternatives to address the pollutant or pollutants of concern (Criterion 9 of Chapter 2)?	○ ○		☐
Does the project implement the least cost alternative based upon a Life Cycle Cost Analysis (Criterion 9 of Chapter 2)?	○ ○		☐
Does the project implement the least cost alternative of the Long-Term Cost Effectiveness Analysis per (Criterion 9 of Chapter 2)?	○ ○		☐
Does the project impact an "existing use" contact recreational activity (on or after November 28, 1975) such as a swimming hole listed in a published Tactical Basin Plan?	○ ○		☐

2. Cultural, Historic and Archaeological Resources

Considerations	Yes or No	Basis for Determination and Documentation	WID
Projects shall protect cultural, historical and archaeological resources as they are of value to the community. Qualified consultants will assist and coordinate with WID and SHPO staff in making determinations and concurring with project applicant.			
Historic Sites Act: Will the project adversely affect a federal [16 U.S.C. sec. 461-467, (1935)] historic site?	○ ○		☐
Will the project adversely affect a state Vermont historic preservation act historic site? (*Please include copies of the historic resources assessment or archeological reports and subsequent phases as needed. List the qualified consultant, agencies and groups consulted.)*	○ ○		☐
National Historic Preservation Act [16 U.S.C. §470 et. seq. (1966)]: Will the project adversely affect historic buildings, over 50 years old, or listed in the National Register of Historic Places? https://www.nps.gov/subjects/nationalregister/database-research.htm Provide a list of any listed buildings, buildings over 50 years old, in the project area, and photos of each building, or a report by a qualified ACCD listed consultant.	○ ○		☐
Vermont listed historic preservation resource: Will the project adversely affect a Vermont listed historic resource? https://accd.vermont.gov/historic-preservation/identifying-resources Provide a list of any listed buildings, buildings over 50 years old, in the project area, and photos of each building, or a report by a qualified ACCD listed consultant.	○ ○		☐
Archaeological and Historic Preservation Act: Will the project adversely affect cultural resources? [16 U.S.C. §469a-1 (1974)] current 54 U.S.C. chapter 3125	○ ○		☐
Vermont archaeological and historic preservation: Does the project adversely affect a Vermont listed cultural archaeological or historic resource? https://accd.vermont.gov/historic-preservation/resources-rules https://accd.vermont.gov/historic-preservation/identifying-resources Provide documentation that the project perimeter has been evaluated for presence of these resources.	○ ○		☐
Executive Order 11593: **Will the project adversely affect cultural resources** "Protection and Enhancement of the Cultural Environment" https://www.archives.gov/federal-register/codification/executive-order/11593.html	○ ○		☐

3. Land Use

Considerations	Yes or No		Basis for Determination and Documentation	WID
Project applicant should identify related General Land Use features such as: a) Existing zoning ordinances, land use plans, development plans, etc.; b) Total land area required and/or proposed for purchase and the area that will be disturbed by construction for and operation of the proposed project; c) Current land uses in the area affected by the proposal, such as residential, commercial, agricultural, rangeland, forest land, recreational, etc; d) Compatibility of the proposed project with existing, if any: local, regional or state land use plans or controls; e) Any necessary mitigation measures.				
Does the project directly or indirectly adversely affect existing current land use? Provide mapping and information from local, regional, and state planning documents. Provide documentation of consultation with local and regional planning officials.	○	○		☐
Will the project convert federally classified Agricultural Soils to non-agricultural uses?	○	○		☐
Present a map showing the project along with Natural Resources Conservation Service (NRCS) soil classifications. [NRCS soil mapping survey]	○	○		☐
Farmland Protection Policy Act; Present a completed AD-1006 Farmland Conversion Impact Rating form. [7 U.S.C. §4201 et. seq. (1981)]	○	○		☐
Submit a determination by the federal Natural Resources Conservation Service List agencies and groups consulted.	○	○		☐
Does the project involve new impacts to identified primary agricultural soils, that may require mitigation of such impacts, to comply with Vermont Statute Act 250 Criterion 9(B)? State primary agricultural soils are defined: [10 V.S.A. Section 6001(15)]	○	○		☐
Refer to the online NRCS soil mapping survey and submit a map showing the project tract along with NRCS soil classifications [focused on rated Prime, Statewide, or Local soils of agricultural value group 1-7].	○	○		☐
Provide a pre-application review letter from the Vermont Agency of Agriculture, Food & Markets.	○	○		☐
If offsite mitigation is anticipated to be proposed, please review the online "Fee Memo" indicating the current year estimated cost of offsite farmland mitigation acres (subject to annual revision), to present an estimated fee. Please note that all mitigation is subject to approval by the District Commission, and a proposed use of off-site mitigation outside a designated area would be subject to the Commission's findings as to appropriate circumstances. See 10 V.S.A. Section 6093.	○	○	Estimate Mitigation Fee $ 0.00	☐
Is Land Use and Development review and approval under Act 250 necessary? Attach a copy of the ANR Project Review Sheet, or Permit Navigator output, including the District Environmental Commission determination on Act 250 permit requirements. *List agencies and groups consulted.*	○	○	A Project Review Sheet, that reflects the full current project scope, is always required.	☐

			WID
Does the project contribute to sprawl growth outside of Designated Growth Centers? Present a map showing the project in relation to the Designated Growth Center. Attach copies of the Town Plan. Discuss using the Growth Center and Growth Management Document. List agencies and groups consulted.	○ ○ ○ ○ ○ ○		☐ ☐ ☐
Will the project cause other significant environmental impacts, including secondary impacts? List agencies and groups consulted.	○ ○		☐
Does the project alter or affect Formally Classified Lands (properties that are administered by either Federal, State, or local agencies)? Present a project area map, identifying each of the administered lands, from resources below as applicable. Federally Administered: Federal Tribal Lands BIA (download geospatial data) Surface Management Agency DoI (downloadable polygon) U.S. Forest Service (USFS) U.S. National Park Service (NPS) Nationwide Rivers Inventory Nat. Bureau Land Management BLM National Parks Conservation Association US Wildlife Refuges (USFWS) State and local land management and planning agencies: parks, and other state-owned and state administered lands (State Game Refuges, State Conservation Camps, State Fishing Access Areas, State Wildlife Management Areas etc.)	○ ○ ○ ○		☐ ☐

4. Intergovernmental Review of Federal Programs

Considerations	Yes or No	Basis for Determination and Documentation	
Does the project coordinate local government concerns in the review of proposed Federal financial assistance and direct Federal development? Executive Order 12372, Intergovernmental Review of Federal Programs	○ ○	Private projects must present a letter of municipal support. For Municipal projects check Yes.	☐

5. Wetlands, floodplains, coastal zones, wild and scenic rivers

Considerations	Yes or No	Basis for Determination and Documentation	
A qualified wetland professional is responsible for mapping lands meeting the definition of a wetland and its buffer area, to ensure proper continued function. The project applicant must demonstrate viability of the project without deterioration of wetland function.			
Will there be construction in a wetland or wetland buffer? Executive Order 11990, "Protection of Wetlands;" as amended by Executive Order No. 12608 (1997) A wetland buffer perimeter compliant with Vermont Wetland Rules applies A qualified consultant's assessment and/or the regulatory authority's determination must be attached for any construction in wetlands.	○ ○		☐

For any new construction please provide the wetlands classification delineation. List agencies and groups consulted. Indicate if a State permit or US Army Corps of Engineers permit is required. Qualified consultants are listed at: https://dec.vermont.gov/watershed/wetlands/what/id/wetland-consultant-list Present a printout of the map for the project location using: https://anrmaps.vermont.gov/websites/WetlandProjects/default.html The map should show the perimeter of the project, the wetlands in the project area and their corresponding **buffer zone.**	○ ○			☐
Floodplain and Floodway hazard considerations. **A detailed description of floodplain construction and a qualified consultant's assessment and/or the regulatory authority's determination must be attached. Show locations of all utility infrastructure on the Flood Insurance Rate Map (FIRM). Flood map available from Flood Insurance Rate Map. Refer to the SRF Guidance Document 37 on Floodplain management for additional information.** **Caution**: ANR ATLAS (floodready) contains digital DFIRM mapping for 6 of the 14 Vermont counties: (Bennington, Chittenden, Rutland, Washington, Windham and Windsor County) and seven communities: (Bradford Village, Hardwick, Jay, Montgomery, Newbury, Stowe, and Wolcott). "About half of the flood hazard data in Vermont has been officially digitized". **Note:** TR-16 and other standard require that Critical Infrastructure is expected to be protected from a 500-year flood event. List agencies and groups consulted. All projects must comply with EO 11988 as amended by EO 13690 and reinstated by EO 14030.				
Will the project involve construction in a floodway? Publicly funded infrastructure should not be located within the floodway. Linear projects may have to cross a floodway but must be vertically located sufficiently above or below to avoid impacts. Include floodway boundaries on site plans and profiles.	○ ○			☐
Will the project involve construction in a 100-year floodplain? Executive Order 11988, "Floodplain Management," as amended by Executive Order 12148 (1979) Publicly funded infrastructure should not be located within the 100-year floodplain. Linear projects may have to cross a 100-year floodplain, but must be vertically located sufficiently above or below to avoid impacts. All efforts to be made to locate critical infrastructure outside of floodplains to avoid impacts, however where unavoidable infrastructure shall be protected in accordance with the Executive Order and accepted standards. Include 100-year floodplain boundaries on site plans and profiles. Consult state guidance documents: https://floodtraining.vermont.gov/sites/floodtraining/files/documents/Accessory-Structures-Checklist.pdf	○ ○			☐
Will the project involve construction in a 500 year floodplain? Publicly funded infrastructure should not be located within the 500-year floodplain (24 CFR §55.2(3)(i)&(4)). Linear projects may have to cross a 500-year floodplain, but may be vertically located sufficiently above or below to avoid impacts. All efforts to be made to locate critical infrastructure outside of floodplains to avoid impacts, however where unavoidable infrastructure shall be protected in accordance with accepted	○ ○			☐

			WID
standards. Include 500-year floodplain boundaries on site plans and profiles.			
Will the project involve construction in a Vermont River Corridor? Provide a map created using the River Corridor layer of the ANR ATLAS, showing the perimeter of the project. Publicly funded infrastructure should not be located in the river corridor, as defined by the Vermont "Flood Hazard Area and River Corridor Protection Procedure" wherever practicable.			
Is a local zoning permit required for work in the flood hazard zone? Present copies of correspondence with local zoning official.			
Does the project require a hydraulic hydrologic study to comply with Act 250 Criterion 1(D)? Attach the hydraulic study as an appendix to the application.			
Coastal Zone Management Act; [16 U.S.C. § 1451 et. seq. (1972)] Vermont does not participate in the Coastal Zone Management program.	NO		
Coastal Barriers Resources Act; [16 U.S.C. §3501 et. seq. (1982)] Vermont waters are not affected by tidal action, therefore the Coastal Barrier Resource Act of 1982 does not apply.	NO		
Will the project impact a wild, scenic or recreational river area and create conditions inconsistent with the character of the river? Discuss if the project is within a quarter-mile of a river on the National Park Service's Nationwide Rivers Inventory. A listing of rivers on the Nationwide Rivers Inventory is available at: Wild and Scenic Rivers Act; [16 U.S.C. §1271 et. seq. (1968)] *List agencies and groups consulted.*			
Will the project involve construction in a stream? A qualified consultant's assessment and/or the regulatory authority's permit for stream alteration determination must be attached for construction in streams. List agencies and groups consulted.			
Will the project involve: directional drilling under a stream, or an aerial crossing over a stream? Explain how the project was designed to address flood resiliency. List agencies and groups consulted (VTDEC Rivers Program, VTRANS).			
Does the project involve earthen impoundment of more than 500,000 CF (4 MG) of wastewater (Vermont Dam Safety Rule §37-108)? Explain if the impoundment is a Dam under the jurisdiction of the VT-ANR and what additional engineering and design standards apply.			

6. Fish and wildlife, and endangered species.

Considerations	Yes or No		Basis for Determination and Documentation	WID
The preservation of Vermont's natural fauna is an objective of all CWSRF funded projects. The EID related efforts should ensure that affected species are **not identified by name**, to protect their habitat.				
Will the project affect coastal fishing? Magnuson-Stevens Act (Rule at Fed. Reg. 85 FR 44220) and Essential Fish Habitat Consultation Process [as amended 16 U.S.C. §1801 et. seq (1996)]	No	◉	Vermont does not have Exclusive Economic Zones.	☐
Will the project: impound, divert, or otherwise control or modify the waters of any stream or body of water of the State? Fish and Wildlife Coordination Act [16 U.S.C. 661-667e (1934); as amended 1936, 1946, 1947, 1948, 1949, 1958, 1965] Identify the affected waters of the state. Provide citation and/or ANR Atlas map. Detail how many gallons will be impounded, what controls will be implemented, and the engineering and design standards applied, as well as any additional permiting, monitoring and reporting.	○	◉		☐
Is the project likely to adversely affect birds covered by the Migratory Bird Treaty Act (MBTA) [(16 U.S.C. 703–712 (1918)]? All Vermont birds are listed and migratory and will affect consideration of proposed project designs. Involuntary "take" of birds should be identified in the project definition.	○	◉		☐
Does the project affect an eagle habitat or nest? Bald and Golden Eagle Protection Act	○	◉		☐
Is the project likely to adversely affect an federally endangered or threatened species? Endangered Species Act [16 U.S.C. §1531 et. seq. (1973)] *A qualified consultant's assessment and/or the regulatory authority's determination must be attached demonstrating compliance with US Fish & Wildlife guidance.* *List agencies and groups consulted. Submit IPaC summary.*	○	◉	Do NOT name endangered species.-	☐
Is the project likely to adversely affect a Vermont state listed rare, threatened or endangered species? https://legislature.vermont.gov/statutes/section/10/123/05406 *A qualified consultant's assessment and/or the regulatory authority's determination must be attached*	○	○	Do NOT name endangered species.-	☐
Is the project likely to adversely affect an ubiquitous statewide bat population? (area of tree removal) *VTrans Ind Bat and Northern Long Eared Tree Cutting Guidance by Region.pdf (vermont.gov)*	○	○	Do NOT name endangered species.-	☐
	○	○		☐

7. Drinking water and Groundwater Protection

Considerations	Yes or No	Basis for Determination and Documentation	WID
Project Objectives shall safeguard the sources of drinking water and be protective of the groundwaters of the state, which are held in public trust. The Safe Drinking Water Act - 42 U.S.C. 300f et. seq. as amended in 1976, 1986, and 1996, and the State of Vermont Groundwater Protection Rules provide a framework for these objectives.			
Are there Sole Source Aquifers in the project area? Present a map showing the project perimeter area using the EPA online map "EPA_Sole_Source_Aquifers": and indicate any "sole source aquifers". https://geopub.epa.gov/DWWidgetApp/	○ ◉	(As of August 2022, Vermont has no identified sole source aquifers).	☐
Will there be negative direct impacts to groundwater quality or quantity? Discuss positive and negatives impacts to nutrients, groundwater, existing drinking water supplies	○ ◉		☐
Subsurface Contamination and Constituents of Concern			
Has the desktop review of reasonably available information identified a need for a workplan submittal for approval by SMS to address recognized environmental conditions (RECs), contamination or suspected contamination? Links to guidance: 1) "**Linear Construction Projects Guidance** Document" for projects that take place within a public or private roadway, railroad, utility line, or rights-of-way (ROW). 2) "**Guidance For Construction of Public** Works Projects in Areas Where Contamination is Suspected or Known" 3) Resources: **ANR ATLAS** layers- Hazardous Sites Hazardous Waste Generators Brownfields Salvage Yard Aboveground Storage Tank Underground Storage Tank Additional ANR ATLAS layers: Dry Cleaners – verify PFAS results – where known Urban Soil Background Areas Land use restrictions status Others as needed	○ ○	Summarize Findings:	☐
4) Does the desktop review identify any potential **Emerging Contaminants**?	○ ○		☐

8. Air Quality, Noise and Emissions

Considerations	Yes or No	Basis for Determination and Documentation	WID
Construction, related to the installation and upgrade of infrastructure, and operation of water and wastewater facilities can potentially have emissions and may be required to meet federal and state air emission thresholds. Air Quality - Clean Air Act, as amended in 1990. [42 U.S.C. §7401 et. seq.]			
Will there be any changes to air quality (VTDEC Air Control Regulations)?	No		☐
Is an Air Pollution Control Permit required? Note: Emergency generators/pumps are only subject to limited requirements provided they are used strictly for emergency purposes (includes limited emergency demand response programs) and do not participate in peak shaving programs.	No		☐
Will there be any changes in emissions?	No		☐
Is your digester unequipped and operated without a flare?	No		☐
Are there any other non-emergency combustion devices at your facility, including but not limited to: stationary internal combustion engines such as diesel generators/ pumps, boilers or space heaters greater than 3 million BTU, or combustion turbines and/or boilers?	No		☐
Will there be any changes in noise levels?	No		☐
Will there be any changes in atmospheric dust levels?			☐
Will there be any explosive dust generation?			☐
Will there be any odor generation?			☐

9. NEPA Related Considerations

Considerations	Yes or No	Basis for Determination and Documentation	WID
Project planning and development should consider both direct and indirect impacts of the project on archaeological, cultural, and environmental site features. These are further defined in the federal NEPA language.			
Is there a controversy[2] with respect to environmental effects of the project based on reasonable and substantial issues?			
Is the project significantly greater (requiring a new Act 250 permit, or permit amendment) in scope than normal projects for the area?			
Does the project have significant unusual characteristics (defined at 23 CFR 771.117 (b))?			
Does the project establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects (cumulative impact based on current information)?			
Does the project have significant adverse direct or indirect effects on federal or state parkland, other public lands, or areas of recognized Scenic or recreational value?			
Cumulative Impacts: Will the project cause other significant environmental impacts, including secondary impacts? *List agencies and groups consulted.*			
Will the project provide new drinking water facilities to serve a population greater than 2,000 persons, using population metrics consistent with the Public Water System regulatory program?		Current DW Population 37 New DW Population 23	

[2] Environmental controversy. Controversy includes not only scientific disagreement about the mitigation's effectiveness, but also public interest or debate. Controversy is an unresolved group opposition, disagreement or concern to the proposed project within the affected community.

10. Mitigation Measures and/or Alternative Plans of Action

Mitigation measures are applicable, to minimize adverse effects. Explain how mitigation measures will be achieved and monitored (Special Grant Condition or review of Plans and Specifications). Remember to consider structural and non-structural methods.	
Affected Environmental or Archeological Resources	**Mitigation Measures or Alternative Plan of Action**
A.)	
B.)	
C.)	
D.)	

Potential Mitigation Measure Decisions, must evaluate consider the following:
The adverse effect must have a **reasonable chance of occurring** in the foreseeable future; mitigation measures are only useful and appropriate when there is a compelling reason to address an identified impact. If an adverse effect has a low expectancy in the foreseeable future, mitigation is not likely necessary.
Mitigation measures must be **reasonable and enforceable**. There must be a reasonable expectation that the measure can be implemented and have the desired outcome.
The WID often relies on other federal state and local permitting entities to **monitor and enforce implementation**; environmental regulatory or natural resource agencies are technically in the best position to accomplish this. As much as possible, the WID will work with applicants to ensure mitigation follow-up. This may require a brief mitigation plan or need to be detailed in loan agreements.
Measures must balance the potential for impact on a resource and the resource's relative environmental value. Potential impacts on unique or scarce resources, for example, may require a strong mitigation measure (e.g. restrictive measure).

10. Mitigation Measures and/or Alternative Plans of Action continued

Mitigation measures are applicable, to minimize adverse effects. Explain how mitigation measures will be achieved and monitored (Special Grant Condition or review of Plans and Specifications). Remember to consider structural and non-structural methods.	
Affected Environmental or Archeological Resources	**Mitigation Measures or Alternative Plan of Action**
E.)	
F.)	
G.)	
H.)	

Potential Mitigation Measure Decisions, must evaluate consider the following:
The adverse effect must have a **reasonable chance of occurring** in the foreseeable future; mitigation measures are only useful and appropriate when there is a compelling reason to address an identified impact. If an adverse effect has a low expectancy in the foreseeable future, mitigation is not likely necessary.
Mitigation measures must be **reasonable and enforceable**. There must be a reasonable expectation that the measure can be implemented and have the desired outcome.
The WID often relies on other federal state and local permitting entities to **monitor and enforce implementation**; environmental regulatory or natural resource agencies are technically in the best position to accomplish this. As much as possible, the WID will work with applicants to ensure mitigation follow-up. This may require a brief mitigation plan or need to be detailed in loan agreements.
Measures must balance the potential for impact on a resource and the resource's relative environmental value. Potential impacts on unique or scarce resources, for example, may require a strong mitigation measure (e.g. restrictive measure).

Prepared By	Date	Title

Reviewed By	Date	Authorized Representative

*Basis for Determination and Documentation

The basis for determination and documentation information must be traceable and establish the factual data to support the response to each question. Any environmental concerns that are raised by federal, state, or local agencies or the public must be addressed as completely as possible and resolved before the environmental report will be considered complete. All supporting documentation (e.g., correspondence and exhibits) should be attached and easily cross-referenced back into the main body of the environmental report. Types of information to be included in this column are outlined below.

1. FIELD OBSERVATION: A site visit that does not usually involve any testing or measurements. FIELD OBSERVATION is an important method for initial screening of the issues, but for some of the categories it may be inadequate for final evaluation. Support documentation should include date of the site visit and by whom.

2. PERSONAL CONTACT: Personal contacts are useful when the individual contacted is an accepted authority on the subject(s) and the interview is documented. Supporting documentation should include the name, organization, and title of the person contacted and the date of the conversation. *Copies of written site inspection reports and determinations by regulatory authorities on applicability of regulations and permit requirements should be attached.*

3. PRINTED MATERIALS: These are useful sources of detailed information, materials such as comprehensive land use plans, maps, statistical surveys, and studies. Information must be current, i.e., not so old that changing conditions make them irrelevant and must represent accepted methodologies. Citations for the material should include enough information so that an outside reviewer can locate the specific reference.

4. SPECIAL STUDY: This is a study conducted for an individual factor or resource, and should be performed by a qualified person using accepted methodologies. Some tests are relatively simple to perform but others may require elaborate equipment or personnel with additional expertise. The preparer is responsible for obtaining assistance from others in order to have the appropriate test or studies conducted. Copy of the study must be appended or referenced as for Printed Materials.

5. CONTRIBUTOR EXPERIENCE: The professional judgment of the persons contributing to this environmental report can be useful provided their expertise is relevant. The contributor may have previous knowledge from familiarity with the area, or may have professional background to make judgments about a specific factor. Provide information of the person's qualification in addition to name, organization and position.

SUBMIT

APPENDIX B

Village Wastewater Survey Form

Village Wastewater Survey

This survey is for the Town of Westfield to better understand the current wastewater needs of the village area and its residents. The information gathered will be used for study purposes only.

Property Owner(s) Name: ______________________________
Property Address: ______________________________
Phone: ______________________
Mailing Address: ______________________________
Size of Lot: ______ square feet or _______ acres (please approximate if not sure)

YOUR EXISTING WASTEWATER TREATMENT AND DISPOSAL SYSTEM

1. When was your septic system built? (Circle one)

Before 1970 1970-1989 1990-2006 2007-Present I Don't know

2. a. Does your system have a state WW permit?
   b. Do you have any design plans?

3. If yours is a residential property:
   a. How many bedrooms does your home have? ____
   b. Do you have an accessory dwelling (apartment, etc.)? __ Yes __ No
   c. Is the property vacant? __ Yes __ No

4. If yours is a commercial or non-residential property:
   a. Describe the building use: ______________________________
   ____
   ____
   b. How many employees do you have? _____
   c. Provide information on the capacity and size of the building, campground, facility, etc:
   ____
   ____
   ____
   ____
   ____
   d. Is the property vacant? __ Yes __ No

5. Indicate the components of your septic system by circling 1 or more below:

Cesspool/ Dry Well/Seepage Pit
Leach Field
Absorption Trench
At Grade System
Mound System
Pump Station

Siphon
Distribution Box
Septic Tank
Effluent Filter
VW Bug
Pipe to a Ditch

a. Does your system use an Advanced or Innovative/Alternative Treatment System? What kind? (i.e. Manufacturer, type) ____

____

6. Do you have any additional information about the property, sewer system or connections?

____

____

____

____

____

7. How often is the septic tank pumped?

Never Every Two Years Every 4 Years Every Decade Other__________

Year that septic tank was last pumped, if known: ____________

8. Has your wastewater disposal system experienced any of the following conditions? When?

Sewage on Ground Surface Ongoing Wetness Basement Backups Sewage Smells Sink Holes

Other: ____

9. Have you made any upgrades or repairs to your septic system within the last 10 years? __ Yes __ No
Describe: ____

____

____

YOUR WATER SUPPLY SYSTEM

Municipal Connection Drilled Well Shallow Well or Spring

If a well, what is the distance from the well to the nearest septic system? ____________

COMMENTS

1. Do you have any comments about the wastewater needs for the Town of Westfield?

____

____

____

2. If you had no limits on your property, what might you change? (examples: accessory apartment, more restaurant seats, etc.)

____

____

SKETCH OF PROPERTY

Please provide a sketch of your parcel with the location of buildings, driveways, nearest road, septic tank, leach field, property line, well/spring, brook or ponds.

APPENDIX C

Design Flow Calculations

[illegible]wn of Westfield - Village Wastewater Study - Wastewater Design Flow Estimates

			Residential		Commercial			
			Assumed				Assumed	
SPAN	Acreage	Type	# Bedrooms	Design Flow	Use	# Users		Design Flow
717-228-10539	1.37	Single Family	3 reported from survey	390				
717-228-10338	1.27	Single Family	3	420				
717-228-10[illegible]	1.76				Storage Facility	1	15gpd/employee + 100 gpd for commercial unit	115
717-228-10441	7.87					10	15gpd/employee	150
717-228-10066	164.76							
717-228-10276	3.80	Single Family	3	420				
717-228-10232	3.88	Single Family	3 reported from survey	420				
717-228-10084	2.88	Single Family	3 reported from survey	420				
717-228-10220	3.98	Single Family	3	420				
717-228-10033	2.88	Single Family	3	420				
717-228-10282	3.73	Duplex	3	360				
717-228-10261	1.83	Single Family	3	420				
717-228-10227	3.53	Single Family	3	420				
717-228-10185	1.00	Single Family	3	420				
717-228-10093	137.90	Single Family	3	420	Farm	1	15gpd/employee + 100 gpd for commercial unit	100
717-228-10139	1.20	Single Family	3	420				
717-228-10388	3.10				Contains museum with [illegible] employees per WW survey	30	5gpd/seat + 15gpd/employee	155
717-228-10133	3.50	Single Family	3	420				
717-228-10135	1.00	Single Family	3	420				
717-228-10039	3.30	Single Family	3 reported from survey	420				
717-228-10244	1.20	Single Family	3	420				
717-228-10578	3.30	Single Family	3	420				
717-228-10109	1.30	Single Family	3 reported from survey	420				
717-228-10413	3.50	Single Family	4 reported from survey	490	Store with 3 employees per WW survey	1	15gpd/employee + 100 gpd for commercial unit	145
717-228-10106	3.70	Single Family	4 reported from survey	490				
717-228-10231	1.50	Single Family	4 reported from survey	490				
717-228-10295	15.40	Single Family	3	420	HOME & CAMPGROUND R2	30	75 gpd/site	2250
717-228-10383	0.31				TOWN OFFICE with 3 employees per WW Survey	3	15gpd/employee	45
717-228-10423	2.38	Single Family	3	420				
717-228-10120	3.63	Single Family	3 reported from survey	420				
717-228-10276	2.30	Single Family	3	420				
717-228-10247	1.25	Single Family	2 reported from survey	280				
717-228-10336	2.20	Senior housing facility (11 units) plus one 2 bd unit	2	280	APARTMENT HOUSE 2A	11	120gpd/unit	1440
717-228-10339	3.25	[illegible] 1 bd units one 2 bd unit	2	560	APARTMENT HOUSE 2			
717-228-10334	2.28	Single Family	3	420				
717-228-10081	2.30	Single Family	3 reported from survey	420				
717-228-10031	13.10	Single Family	3	420	PARCEL R2			
717-228-10275	2.74	Single Family	[illegible] reported from survey	[illegible]	MOBILE HOME [illegible]			
717-228-10287	1.90				LAND AND TOWN GARAGE with [illegible] employee per WW survey	1	15gpd/employee	20
717-228-10274	[illegible]	Single Family	[illegible]	[illegible]	MOBILE HOME [illegible]			
	4.00	Single Family	4 reported from survey	490				
	1.40	Single Family	3 reported from survey	420				
	1.00	Single Family	3 reported from survey	420				
					Capacity of about 80 people per WW survey	40	[illegible]gpd/seat	200
717-228-10423	1.30	Single Family	2 reported from survey	280				
717-228-10224	2.18	Single Family	4 reported from survey	490				
717-228-10137	1.20	Single Family	2 reported from survey	280				
717-228-10436	[illegible].87	Single Family	3 reported from survey	420				
717-228-10293	5.10	Single Family	3 reported from survey	420				
717-228-10038	[illegible]	Single Family	3 reported from survey	420				
717-228-10[illegible]	2.76	Single Family	2 reported from survey	280				
717-228-10268	[illegible]	Single Family	3 reported from survey	420				
717-228-10[illegible]	[illegible]	Single Family	3 reported from survey	420				
717-228-10[illegible]	74				[illegible] STORAGE [illegible]	[illegible]	[illegible]gpd/employee	[illegible]
717-228-10402	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-10[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	1.20	Single Family	[illegible]	[illegible]	PARCEL [illegible]			
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]	PARCEL [illegible]			
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]				
717-228-[illegible]	[illegible]				PARCEL [illegible]	[illegible]	[illegible]	[illegible]
717-228-[illegible]	[illegible]	Single Family	[illegible]	[illegible]	MOBILE HOME [illegible]			
			[illegible]	26[illegible]				4875
			[illegible]	31[illegible]				
			[illegible]	[illegible]				
			Total Design Flow	36480 gpd				

APPENDIX D

Detailed Cost Estimates

TOWN OF WESTFIELD - VT ROUTE 100
ALTERNATIVE 1 - GRAVITY SEWER COLLECTION SEWER MAIN TO PUMP STATION AND SANITARY FORCEMAIN TO TROY PUMP STATION
35,000 GPD TOTAL DESIGN FLOW

4/23/2026

PRELIMINARY ENGINEER'S CONSTRUCTION COST ESTIMATE					
ITEM NO.	**DESCRIPTION**	**UNIT**	**QUANTITY**	**COST/UNIT**	**TOTAL AMOUNT**
COLLECTION SYSTEM CONSTRUCTION					
203.2800	EXCAVATION OF SURFACES AND PAVEMENTS	CY	3887.0	$30.00	$116,610.00
203.3100	SAND BORROW	CY	14166	$28.97	$410,389.02
204.2000	TRENCH EXCAVATION OF EARTH	CY	17266	$22.36	$386,067.76
301.1500	SUBBASE OF GRAVEL	CY	2157	$64.49	$139,086.98
406.0230	BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS, QA TIER III (BASE COURSE)	TON	951	$202.41	$192,529.96
406.0330	BITUMINOUS CONCRETE PAVEMENT, TYPE IIS, QA TIER III (WEARING COURSE)	TON	571	$222.65	$127,069.78
604.2200	SANITARY SEWER MANHOLE	EA	21	$7,001.93	$147,040.53
604.5600	CAST IRON COVER WITH FRAME, SEWER	EA	21	$1,250.00	$26,250.00
628.1416	PVC SEWER PIPE, 4 INCH (LATERALS)	LF	7000	$75.05	$525,350.00
628.1432	PVC SEWER PIPE, 8 INCH	LF	9706	$90.06	$874,122.36
641.1100	TRAFFIC CONTROL, ALL INCLUSIVE	LS	1	$10,000.00	$10,000.00
649.1100	GEOTEXTILE FOR ROADBED SEPARATOR	SY	6471	$1.94	$12,536.92
651.1500	TURF ESTABLISHMENT, GENERAL SEED	SY	2330	$9.00	$20,970.00
651.3500	TOPSOIL	CY	257	$39.81	$10,231.17
653.1200	STRAW MULCH	TON	1.27	$1,216.64	$1,545.13
653.4701	SILT FENCE, TYPE I	LF	1000	$4.15	$4,150.00
681.1010	REMOVE AND RELOCATE LANDSCAPE ITEMS	EA	10	$500.00	$5,000.00
	SUBTOTAL				**$3,008,949.61**
CONVEYANCE TO TROY PUMP STATION CONSTRUCTION					
AES004	SANITARY PUMP STATION, BACKBOARD, CONTROLS	EA	1	$250,000.00	$250,000.00
203.2800	EXCAVATION OF SURFACES AND PAVEMENTS	CY	731.5	$30.00	$21,945.83
203.3100	SAND BORROW	CY	9711	$28.97	$281,327.67
204.2000	TRENCH EXCAVATION OF EARTH	CY	11171	$22.36	$249,786.04
301.1500	SUBBASE OF GRAVEL	CY	2234	$64.49	$144,073.82
406.0230	BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS, QA TIER III (BASE COURSE)	TON	985	$202.41	$199,432.95
406.0330	BITUMINOUS CONCRETE PAVEMENT, TYPE IIS, QA TIER III (WEARING COURSE)	TON	591	$222.65	$131,625.75
628.1416	PVC SEWER PIPE, 4 INCH (FORCE MAIN)	LF	10054	$75.05	$754,552.70
AES0010	FORCE MAIN AIR RELEASE VALVE	EA	3	5000	$15,000.00
	SUBTOTAL				**$2,047,744.77**
OVERHEAD, CONTIGENCY, OTHER					
AES005	LAND ACQUISITION	AC	1	$5,000.00	$5,000.00
635.1100	MOBILIZATION/DEMOBILIZATION (4%)	LS	1	$202,267.78	$202,267.78
AES008	ENGINEERING DESIGN (15%)	LS	1	$451,342.44	$451,342.44
AES001	SURVEY OPERATIONS	LS	1	$10,113.39	$10,113.39
AES002	FIELD CHANGE PAYMENT	DC	1	$253,000.00	$253,000.00
AES003	CONTIGENCY (30%)	DC	1	$1,517,008.31	$1,517,008.31
AES007	CONSTRUTION INSPECTION/CONSTRUCTION SUPPORT (18%)	LS	1	$910,204.99	$910,204.99
AES009	CONSTRUCTION COST INDEX ESCALATION - YEAR 2030	LS	1	$805,400.32	$805,400.32
	SUBTOTAL				**$4,154,337.22**
	TOTAL CONSTRUCTION COSTS				**$9,211,031.60**

TOWN OF WESTFIELD - VT ROUTE 100
ALTERNATIVE 2 - GRAVITY SEWER COLLECTION SEWER MAIN AND ON-SITE TREATMENT SYSTEM
35,000 GPD TOTAL DESIGN FLOW

4/23/2026

ENGINEER'S PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	COST/UNIT	TOTAL AMOUNT
COLLECTION SYSTEM CONSTRUCTION					
203.2800	EXCAVATION OF SURFACES AND PAVEMENTS	CY	3887	$30.00	$116,610.00
203.3100	SAND BORROW	CY	14166	$28.97	$410,389.02
204.2000	TRENCH EXCAVATION OF EARTH	CY	17266	$22.36	$386,067.76
301.1500	SUBBASE OF GRAVEL	CY	2157	$64.49	$139,086.98
406.0230	BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS, QA TIER III (BASE COURSE)	TON	951	$202.41	$192,529.96
406.0330	BITUMINOUS CONCRETE PAVEMENT, TYPE IIS, QA TIER III (WEARING COURSE)	TON	571	$222.65	$127,069.78
604.2200	SANITARY SEWER MANHOLE	EA	21	$7,001.93	$147,040.53
604.5600	CAST IRON COVER WITH FRAME, SEWER	EA	21	$1,250.00	$26,250.00
628.1416	PVC SEWER PIPE, 4 INCH (LATERALS)	LF	7000	$75.05	$525,350.00
628.1432	PVC SEWER PIPE, 8 INCH	LF	9706	$90.06	$874,122.36
641.1100	TRAFFIC CONTROL, ALL INCLUSIVE	LS	1	$10,000.00	$10,000.00
649.1100	GEOTEXTILE FOR ROADBED SEPARATOR	SY	6471	$1.94	$12,536.92
651.1500	TURF ESTABLISHMENT, GENERAL SEED	SY	2330	$9.00	$20,970.00
651.3500	TOPSOIL	CY	257	$39.81	$10,231.17
653.1200	STRAW MULCH	TON	1.3	$1,216.64	$1,545.13
653.4701	SILT FENCE, TYPE I	LF	1000	$4.15	$4,150.00
681.1010	REMOVE AND RELOCATE LANDSCAPE ITEMS	EA	10	$500.00	$5,000.00
	SUBTOTAL				**$3,008,949.61**
WASTEWATER TREATMENT SYSTEM CONSTRUCTION					
AES004	GEOTEXTILE SAND FILTER (GSF) ABSORPTION BEDS	LS	1	$1,483,526.00	$1,483,526.00
AES005	SEPTIC TANKS AND RECIRCULATION/DOSING TANK	LS	1	$734,000.00	$734,000.00
AES0010	SANITARY DOSING SYSTEM	LS	1	$200,000.00	$200,000.00
203.1700	UNCLASSIFIED EXCAVATION	CY	6171	$25.34	$156,342.29
	SUBTOTAL				**$2,573,868.29**
DESIGN, PERMITTING, LAND ACQUISITION, LEGAL, BONDING, CONTIGENCY, OTHER					
AES005	LAND ACQUISITION	AC	5	$5,000.00	$25,000.00
AES010	PRE-DESIGN INVESTIGATION / PERMITTING / ENVIRONMENTAL / LAND DEVELOPMENT	LS	1	$320,000.00	$320,000.00
635.1100	MOBILIZATION/DEMOBILIZATION (4%)	LS	1	$223,312.72	$223,312.72
AES008	ENGINEERING DESIGN (15%)	LS	1	$837,422.68	$837,422.68
AES001	SURVEY OPERATIONS	LS	1	$11,165.64	$11,165.64
AES002	FIELD CHANGE PAYMENT	DC	1	$279,000.00	$279,000.00
AES003	CONTIGENCY (30%)	DC	1	$1,674,845.37	$1,674,845.37
AES007	CONSTRUTION INSPECTION/CONSTRUCTION SUPPORT (18%)	LS	1	$1,004,907.22	$1,004,907.22
AES009	CONSTRUCTION COST INDEX ESCALATION - YEAR 2031	LS	1	$889,198.15	$889,198.15
	SUBTOTAL				**$5,264,851.78**
	TOTAL CONSTRUCTION COSTS				**$10,847,670.00**

APPENDIX E

VTDEC 30% PER Comment Responses

Project:	Town of Westfield - Village Wastewater Study
Project Ref:	5301
Title:	PER 30% Review Comments - VT DEC

VTDEC Reviewer:	Lynnette Claudon Achouak Arfaoui

Design Comments Log

Report Section	PDF Page No.	Reference	Commenter	VT DEC Comment	AES Response/Corrective Action	Added/Addressed in Report
Coverpage	1		Lynnette Claudon	It's not necessary to include DEC on the cover. But it is necessary to include our loan number on the cover. The final report will need to be signed and stamped by a qualified, registered Vermont PE.	VT DEC CWSRF Loan No. added to the cover sheet. Noted about final report PE stamp.	☑
1.1	4	*The Town lies within the **Memphremagog** drainage basin.*	Lynnette Claudon	Change this to Lake Champlain drainage basin (highlighted pink)	The sentence has been revised to the following: 'The Town lies within the Lake Champlain drainage basin.'	☑
1.1	4	*future wastewater system*	Lynnette Claudon	The quarter mile statutory buffer is generally considered part of the designated area.		☑
1.1	4	*future **wastewater system***	Lynnette Claudon	suggest: wastewater solution, but is necessary to define limits for this study and areas that may be eligible for future public funding.	The sentence has been revised to the following: "The Sewer Service Area is defined solely to identify the geographic limits of the project evaluation and does not represent the extent of any potential future wastewater solution."	☑
1.2	4	*Additonal information will be provided in the Environmental Information Document (EID), which is included in Appendix A.*	Lynnette Claudon	Please also include a brief discussion of any hazardous waste sites in the study area.	Acknowledged. A section with discussion of hazardous waste sites in proximity of the project has been included under Section 1.2.12.	☑
1.2.3	5	*the majority of the wetlands in and near the project area lie in the fields along the Missisquoi River,*	Achouak Arfaoui	[highlight but no comments/text]	N/A	--
1.2.4	5	*Detailed analyses have not been performed for these areas and therefore there is no known base flood elevation, however it is known that these areas are prone to flooding and should be avoided for a potential wastewater disposal area.*	Achouak Arfaoui	[highlight but no comments/text]	N/A	--
1.2.5	6	*it is **helpful** to confirm the presence of soils*	Lynnette Claudon	suggest: necessary	Acknowledged. The sentence has been revised to replace "helpful" with "necessary" in Section 1.2.5.	☑
		It is helpful to confirm the presence of soils through site evaluation including methods of soil borings, percolation testing, and seasonal high water table identification to determine if the dual classification can be relied upon for design. Dual group designations emphasize the need for long-term performance considerations, especially for systems relying on infiltration in marginal or seasonally saturated conditions.	Lynnette Claudon	and soil excavations	Acknowledged. The sentence has been revised to include soil excavations in the methods of site evaluations. Refer to Section 1.2.5.	☑
1.2.9	7	*The Sewer Service Area is adjacent to the Missiquoi River and its tributaries run through the Village Center.*	Lynnette Claudon	The Missisquoi is part of the Lake Champlain basin, while the location lists this as being in the Mempremagog Basin, please correct as necessary.	Acknowledged. The reference has been revised to reflect the Lake Champlain basin.	☑
1.2.11	7	*The Vermont ANR Atlas indicates there are no endangered species present in the project area or along the Route 100 corridor leading to the Town of Troy.*	Lynnette Claudon	There are state wide bat species that should be mentioned would need evaluation if any proposed solution involves tree cutting, evaluations will be needed for bat impacts.	Acknowledged. This section has been revised to include the state-recognized endangered bat species and requirements to avoid the species and minimize impact for any future project.	☑
1.3	8	*In the last 20 years, the Town population has increased about six percent. Assuming similar trends in the Village Center, the village population is estimated to grow to about 178. Based on recent studies looking at infill development in urban areas, dedicated efforts to expand residential housing in the Village Center indicates population growth could be expected to increase by about 5% in addition to natural population growth.*	Lynnette Claudon	to complete a project priority list application, several other data points are needed. see first page and the affordability page and include enough data here that it will substantiate the application.	Noted.	--
1.4	9	*Discussion of feedback collected during these meetings will be addressed in later sections of this report along with feasibility analysis of the alternatives. Refer to Chapter 5. Selection of an Alternative (when available)*	Lynnette Claudon	If the town wants points towards a built project in the PPL, please note any planning above and beyond the minimum required. This documents 1 direct mailing. The efforts need to be multiple and diverse to get the point.	Noted.	--
General	10	*N/A*	Lynnette Claudon	Thank you for using an ADA compliant font. We are just learning of the ADA requirements for documents that will be posted on line, so I do not have more guidance, but if you could please try to keep this report compliant with this new ADA requirement.	N/A	--
2	10	*The Town of Westfield does not currently have a municipal sewer system. The homes and businesses in the Designated Village Center and surrounding area are served by individual, private septic systems*	Achouak Arfaoui	[highlight but no comments/text]	N/A	--
2.1	10	*Since the Town does not have their own municipal wastewater infrastructure, the Town does not possess a map of existing individual, private septic systems used by residents. The Town plans to perform site visits to each location within the PSSA to flag at-grade where wastewater pipes exit structures and pathways to existing septic systems, if known. The Town intends to perform this work with assistance from property owners within the PSSA. These locations will be integrated into GIS to map the existing wastewater systems and serve as a reference for the design phase when it may be necessary to determine connection points for a potential new collection system.*	Achouak Arfaoui	Please provide also an overview of the water supply systems in the service area, even though the feasibility study is focused on wastewater	Acknowledged. Section 2.1 has been revised to include a discussion on the water supply system in Westfield.	☑
2.2	10	*A more detailed evaluation of septic system status and dates of construction will be completed during design. There have not been any recorded violations of regulatory requirements for any of the privately owned septic systems in Westfield.*	Lynnette Claudon	Please search the WW permit database for any properties in Westfield that are in the service area and list those systems by permit number for the number of systems that were replacements for a failed system. This inventory can help to establish the age of some of the systems and is used to calculate priority points for the PPL. New failed system can also be added, but are unlikely to be reported at this stage of a project.	Noted. A running list of existing WW permits has been included in the draft report; will be updated in the final draft.	☑
			Achouak Arfaoui	Same comment as Lynnette regarding the documentation of eventual existing WW permits. That will allow also to gather information about soils and the depth of seasonal high groundwater table.		--

2.3	10	*It was understood that the existing systems are frequently inundated by flooding and are at the end of their useful life. However, of the 26 property owners that answered the survey, the majority (62%) of respondents indicated that they do not have any issues with their septic system, 23% didn't answer, and 15% indicated they may occasionally experience wetness, sewage on the ground, or basement backups.*	Achouak Arfaoui	Is a site visit anticipated to check the status of the wastewater infrastructure?	Yes; however, please note that a detailed evaluation of existing indiviual on-site septic systems is not included in the current planning/report scope.	--
	10	*majority of the homes are 3-bedroom*	Achouak Arfaoui	[highlight but no comments/text]	N/A	--
	11	*There are approximately 71 parcels within the proposed sewer service area, of which the majority are residential.*	Achouak Arfaoui	[highlight but no comments/text]	N/A	--
		TABLE: *Type of Connection*	Lynnette Claudon	Please take another look at the flow development tables from Chapter 1. There are reduced values based on number of connections. Please include calculations in an appendix.	Design Flow Calculations included in the Appendix.	☑
			Achouak Arfaoui	The flows can be more accurately determined based on the proposed WW alternatives and the number of units served/system (at a more advanced stage of the project)	Noted	--
2.5	11	*AES HIGHLIGHTED NOTE: Add info on existing water utility within DVC. Confirm energy audits have not been conducted.*	Lynnette Claudon	I concur. Without any infrastructure, there is likely no applicable audit.	N/A	--
3.1	12	*Furthermore, raw sewage exposure becomes hazardous in yards or basements from backups or overflows and can result in unpleasant odors. Slow drains or toilet overflows can lead to sanitation concerns inside the home, and standing sewage on lawns can attract pests, insects, and rodents.*	Lynnette Claudon	Please look at the PPL application and document any points that might be wanted in the public health and water quality section here.	Noted.	--
3.2	12	*A detailed search should be incorporated during design to make sure that the properties that need to upgrade their system are included in the project and remove previously improved systems.*	Lynnette Claudon	To get refurbishment points in the PPL there are specific determinations that need to be made. A table relative to those labels and your replacement findings would be a good addition here.	Noted.	--
FIGURE 1.2	15	*Proposed Sewer Service Area*	Lynnette Claudon	Please also show the statutory buffer. You can download it from the State Planning Atlas.	Figures have been revised to show the statutory buffer.	☑
FIGURE 1.3	16	*Wetlands Map*	Lynnette Claudon	For the EID you will need a map that is prescribed from the wetlands group. There are some missing layers here.	Revised Figure 1.3 to show wetlands map.	☑
FIGURE 1.4	17	*FEMA Flood Hazard Areas*	Lynnette Claudon	Please also include any flood hazard areas mapped from the Vermont ANR Atlas. This will show the river corridors. Also be aware that there is an effort statewide to update mapping, so this map is likely to be replaced relatively soon.	Noted. Revised Figure 1.4 to include FEMA layers from VT ANR Atlas.	☑
APPENDIX A	23	*VTDEC Environmental Information Document (blank)*	Lynnette Claudon	We have a draft updated form that is almost ready to be posted. Please check back in with me and/or online before completing this form.	Noted.	--

APPENDIX F

Existing Wastewater Permits

Permit No.	Applicant Name	Street Adreess	Permit Issue Date	Project Description
WW-7-3197	Megan Fazio	1036 VT ROUTE 100		Replace a failed wastewater disposal system to a 4-bedroom single family residence served by municipal water supply.
WW-7-3921-1	Chad and Victoria Prue,Roger Audet	1628 VT Route 100, Westfield VT	1/24/2018	This project, consisting of amending permit WW-7-3921 to reconfiguring the boundary lines between existing Lot 1 and Lot 2 and to further subdivide Lot 1: Lot 1A to be 3.78± acres with the existing storage units created with "Notice of Permit Requirements"; Lot 1B to be 1.27± acres with the existing 3-bedroom single family residence; Lot 2 will now be 5.07± acres with an existing primitive camp created with "Notice of Permit Requirements", located at 1628 VT Route 100, in Westfield
WW-7-3921-2	Tyson Properties, Inc	55 Freedom Drive, Westfield, VT	6/28/2023	This project consists of amending permit no. WW-7-3921-1 to upgrade the existing wastewater disposal system on lot 2 at 55 Freedom Drive in the town of Westfield, VT. The lot is currently developed with a 2-bedroom single family dwelling served by an on-site shallow spring and holding tank. The holding tank will be removed, and the existing wastewater disposal system will be upgraded with an on-site performance-based mound.
WW-7-1223-2	Richard & Jan Degre	1571 VT Route 100	9/7/2012	Amendment to convert an existing storage building into a preschool with 4 teachers and 17 students to be served by existing on-site water supply and existing on-site wastewater disposal.
WW-7-1223-3	Richard & Jan Degre	1572 VT Route 100	5/14/2015	Amendment to Lot #1 to divide 30.07 into 2 lots: Lot #1 to be 7.9 acres with an existing auction house & preschool with existing drilled well and existing on-site wastewater disposal system. Lot #2 to be 22.1 acres to be created with Notice of Permit Requirements.
WW-7-4080	Alice Gonyaw	632 North Hill Road	7/2/2014	Wastewater Disposal Design for a proposed 2 bedroom house.
WW-7-3921	Roger Audet	22 FREEDOM DR	10/10/2013	Divide 10.12 acres into 2 lots: Lot #1 to be 5.06 acres with an existing 3-bedroom single family residence served by on-site water supply and on-site wastewater disposal system. Lot #2 to be 5.06 acres to be created with Notice of Permit Requirements.
WW-7-3625	John C. Jacques	220 BUCK HILL RD	6/20/2012	Construction of 3-bedroom single family residence to be served by on-site water supply and on-site wastewater disposal system.
WW-7-5606	Scenic View Ruraledge, LLC	979 VT Route 1000	6/28/2021	Convert an existing 19 bed Community Care Home for use as senior housing. The building was originally a motel which was converted to the bed facility in 1986 when the motel was subdivided from the 2 unit apartment house. see EC-7-1072 and EC-7-1072-1 (1997 boundary adjustment). The previous project documents identify that the Care Home was designed for 2375gpd. The active primary disposal area is identified on the plans for 2500gpd and the replacement area is shown designed for 1530 gpd. The
WW-7-6719	Nancy L. Carter	NORTH HILL RD	8/19/2025	This project consists of constructing a 2-bedroom single family residence (SFR) on 3.9 acres located on North Hill Road in the town of Westfield, VT. The SFR will be served by a municipal water service connected to Westfield Fire District 1 water system and an on-site in-ground wastewater disposal system.
WW-7-6243	Rachel Quintal	2491 VT-100, Westfield, VT	9/12/2023	This project consists of replacing a failed wastewater disposal system serving the residence at 2491 VT Route 100 in the town of Westfield, VT. The residence is currently served by an on-site drilled well and on-site wastewater disposal system which is currently surfacing. The existing system will be replaced by an off-site in-ground wastewater disposal system.
WW-7-3232-1	Charles A. Traniello,Linda D. Traniello	2532 VT ROUTE 100	10/7/2019	This application, consisting of amending permit WW-7-3232 to replace a failed wastewater disposal system for the existing 3-bedroom single family residence served by an on-site water supply, located at 2532 Vermont Route 100, in Westfield

APPENDIX G

30% and 60% Public Meeting Minutes

WESTFIELD SELECTBOARD
VILLAGE WASTEWATER STUDY PUBLIC MEETING
Minutes
July 24th, 2025 – 6 p.m.
Westfield Community Center, North Hill
Meeting Recordings Available to View at https://www.youtube.com/@TownofWestfieldVT

Town Officials Present: Jacques Couture, Selectboard Chair; Dennis Vincent, Selectboard; LaDonna Dunn, Town Clerk; Pat Sagui, Moderator; Lisa Deslandes, Treasurer; Niki Dunn, Selectboard Clerk; Mike Piper, Constable; Michael Jacobs, Constable; Loren Petzoldt, Planning Commission & Development Review Board; Brian Dunn, Planning Commission & Development Review Board; Will Young, Zoning Administrator

Others Present: Audra Pitts, Newport Daily Express; David Wursthorn; Kevin Farrington, AES Northeast; Kalyani Mer, AES Northeast; Jeremy Dunn; Gary Sloan (Partial Attendance); Rick Danforth; Jennifer Elder (Via Zoom); John Hamelin; Thomasz Adach; Samuel Douglass, State Senator (Via Zoom); Lynette Claudon, State of Vermont Department of Environmental Conservation (Via Zoom); Patrick Breault, Charles Collins (Via Zoom); Jennifer Grace

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1. **Call Meeting to Order – Jacques Couture, Chair:** Jacques Couture called the meeting to order at 6:03PM.

2. **Introductions / Opening Statement: Jacques Couture:** Introductions were made by the speakers.

    a. **Pass Around Sign-in Sheet:** This was done prior to the meeting beginning.

    b. **Written Questions:** Pat Sagui explained that questions should be written down and would be collected and answered after the presentations and at the end of the meeting there would be time for comments.

3. **Public Meeting Procedures – Pat Sagui, Moderator:** Pat explained that people would have 2 minutes for questions or comments to keep the meeting flowing.

4. **Background & Context – Selectboard: Jacques Couture; Richard Degre; Dennis Vincent:**

    a. **Need for the Study:** Jacques presented the background reasons that the town began looking into a wastewater system. When the State passed a law allowing accessory dwellings in smaller parcels of land, such as the village this presented a possible increase in the need for septic capacity on these properties. The state had funds available for the town to do a study to see what the town's needs are for wastewater systems and what the options would be for installing a system. The town felt it would be good to take advantage of the funds available to get a study done. There is no requirement to put a system in at the end of the study. To move forward beyond the study the voters would need to approve a continuation of a wastewater project.

    Rick Danforth questioned who would be voting on the system, the whole town or just the people who would be on the system. Jacques explained that at this time there is no answer to that. It may be determined in the study process.

5. **Vermont Department of Environmental Conservation – Clean Water State Revolving Funding Program (CWSRF) – Lynette Whitney Claudon, PE / Senior Water Infrastructure Program Engineer:** Pat introduced Lynette Claudon with a background on what her job entails. She represents small towns in Vermont as their Water Program Engineer. Lynette will be coming

to give a presentation to the town in the coming weeks that will be more in depth. Lynette gave a short presentation on wastewater systems and the differences between the types. She discussed common terms used when discussing wastewater systems. She showed a graphic detailing Community Scale Septic Systems. She then explained that the town is currently in the study phase and explained the next phases that could happen after the study.

a. **Questions:** Rick Danforth questioned if there is a meeting after each step. It was explained that there is. Jennifer Grace questioned what prompted the study, whether there were problems with septic systems in town. Jacques explained that there were no problems that came up that caused them to look into this. Jennifer Grace noted that in meeting minutes that she read she thought it was noted that there were problems with septic systems in town. Jacques noted again that there were no problems, it was mentioned that there could be issues with systems in the future due to things like the high-water table.

6. **Preliminary Engineering Report – Kevin R. Farrington, PE Partner/ Director of Civil Engineering at AES Northeast and Kalyani Mer, Engineering Technician II, AES Northeast:** Kevin Farrington and Kalyani Mer presented on behalf of AES Northeast. Kevin explained the steps of the process and when each report will come out.

   a. **Evaluation of Existing Conditions:** They are currently looking at data gathering regarding things like the types of soil, water table depths, etc. Kevin explained that while there may not be specific system failures that triggered the study you can assume that some of the older systems may not be working the way they should be. Replacing these systems today may be problematic and costly. Jennifer Grace asked what the current regulations are. Kevin explained that listing the current State regulations regarding wastewater systems would be lengthy. He tried to explain some of them and Jennifer asked if he was listing Vermont State regulations. He said he was and that he could send her a link to them. The regulations apply to all residents of Vermont. Kevin explained the area the study is looking at. He noted that surveys were sent out to people in this area and that they would like people to fill the surveys out if they have not already done so. Kalyani Mer explained that public input plays a large role in the study. She noted that 43% of the surveys have been returned so far. The responses help them determine what alternatives could be used. There is an underlying risk as the systems age and as we see more intense rain. AES Northeast is preparing to conduct site visits at the properties within the study area as part of their data gathering. The flags given out at the Town Office and Recycling Center will help with these site visits as they are used to mark each septic tank and the septic outlet pipe from each building. The expected wastewater volume used is estimated to be around 33,000 gallons per day, from approximately 59 residential properties, with the remaining properties being commercial or mixed-use properties. Environmental resources are one of the items looked at as part of the study. There are approximately 444 acres of wetlands in Westfield, mostly concentrated near the Missisquoi River. These areas are not good for leach field locations and wastewater disposal. There are prime agriculture soils in town which are valuable for food production and mitigation requirements may be required when putting systems near these areas. There are also conserved lands in Westfield. These lands are harder to place disposal systems on and may require special permits. These constraints will be evaluated when looking at possible disposal locations.

   b. **Alternative Analyses:** At the 60% report AES Northeast will present 2-3 possible alternatives to look at when considering a wastewater system in Westfield.

7. **Community Engagement:**

   a. **Schedules and Key Milestones:**

i. **30% Report and Public Meeting (July 2025):** This is the current phase of the study. Once Lynette Claudon approves of the 30% report it will be available for public viewing.
ii. **60% Report and Public Meeting (December 2025):** This report will be looking at identifying multiple alternatives.
iii. **90% Report and Public Meeting (April 2026):** There will be a recommendation for a preferred alternative at this time. This will include cost estimates.
iv. **Final Report (August 2026):** This is the final report with a preferred alternative.
v. **Public Vote (TBD):** A public vote can be held at any time after the final report.

8. **Public Comments and Questions:**

Jennifer Grace submitted a list of questions to be asked. She asked again if there were septic system problems that prompted this study. She felt that the Planning Commission has been working on the wastewater system for over a year and she felt that there were problems noted in the meeting minutes from a specific Planning Commission meeting. Jacques explained again why the study was prompted. When the state passed laws about accessory dwellings being allowed on smaller parcels of land and money was available to do the study, they decided to pursue this. There were no known issues with specific systems that prompted the study.

Rick Danforth questioned who is doing the study and are any homeowners involved in the study. He explained that he is on the water system committee and knows about the layout of that system. Pat explained that people can contribute by coming to the meetings. Jacques noted that there will be a wastewater committee formed and people from town can be on the committee. It would be helpful to have someone form the water system on the committee. A few other people with an interest in this project would be helpful on the committee as well. Jacques noted that public involvement is very important. Kevin noted that mapping and infrastructure easements and personal knowledge of the water system would be very helpful.

Kevin explained that the surveys sent to property owners are purely for data gathering, not for regulatory purposes. LaDonna noted that there are flags on the table if people need them and AES Northeast will be coming around in the next few weeks to do their surveying.

John Hamelin questioned the difference between the two areas designated on the map of the proposed wastewater area. Kevin explained that the project work area is targeting the properties in the Designated Village Center and the outer circle can be looked at for potential systems. Pat explained that Westfield has a formal Designated Village Center which is where the internal line comes from. Dennis noted that the outer line is ¼ mile from the designated village center. Jacques questioned if topographical information will be looked at. Kevin noted that they are looking at that. It will be used when determining what alternatives work best.

Jennifer Grace commented that this feels very vague to her, there have been huge tax increases over the last few years, and she is not learning anything new at this meeting. She does not want to go down this road. She questioned why this was not mentioned at the last town meeting. Pat explained that she could help explain to Jennifer why this started again if she does not understand it yet. She wanted to know why people can't opt in or out and Pat noted that we are not at that point yet of determining if people would be able to opt-in or opt-out.

Rick Danforth questioned whether the Planning Commission has ever done a study on this before. Pat explained that when doing the Zoning Bylaw Revision, they saw that there could be concerns with septic systems in the future in the village. She took on the role, as a resident of the town, to inquire with the Selectboard about whether they would like to use the money the state was offering to do a study on this.

9. **Adjourn:** Jacques thanked everyone for coming and noted that some questions may not be able to be answered at this point in the study. He also reiterated that this is just a study at this point. Loren Petzoldt noted that this is forward looking and trying to be proactive instead of reactive when systems start failing. Dennis motioned to adjourn at 7:12PM, Jacques seconded. Motion passed.

Westfield Selectboard Approval Date: 8/18/25 **with** Ø **change(s)**

X Jacques Couture
Jacques Couture
Selectboard Chair

X Richard Degre
Richard Degre
Selectboard

X
Dennis Vincent
Selectboard

PUBLIC MEETING – VILLAGE WASTEWATER STUDY
WESTFIELD SELECTBOARD
Minutes
December 18th, 2025 – 5:00 p.m.
Westfield Community Center, 59 North Hill Road
Meeting Recordings Available to View at https://www.youtube.com/@TownofWestfieldVT

Town Officials Present: Jacques Couture, Selectboard Chair; Richard Degre, Selectboard; Dennis Vincent, Selectboard; LaDonna Dunn, Town Clerk; Niki Dunn, Selectboard Clerk; Mike Piper, Constable; Shelley Martin, Town Health Officer

Others Present: Kevin Farrington, AES Northeast; Kalyani Mer, AES Northeast; Jan Degre, Jennifer Grace, Jeremy Dunn, Rick Danforth, John Hamelin

Present Via Zoom: Gary H.; Lynnette Claudon, Vermont Department of Environmental Conservation

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1. **Call Meeting to Order – Jacques Couture, Chair:** Jacques Couture called the meeting to order at 5:01PM.

2. **Welcome & Introductions:** Jacques welcomed everyone to the meeting.

3. **Overview of the Village Wastewater Study:** Jacques noted that almost everyone in attendance was at the last meeting so it may not be necessary to go over the 30% report again. He reiterated that this is just a study and nobody will be affected monetarily until after a vote for or against a wastewater system is held.

4. **60 % Preliminary Engineering Report – Presented by AES Northeast:** Kalyani Mer from AES Northeast presented the 60% report. She began by giving a brief overview of what was discussed in the 30% report. She noted that the study is important as the village currently relies on private septic systems, there is no municipal wastewater system, and some of the systems were installed years ago and may not comply with new wastewater system requirements. There is high ground water in many of the areas where these homes are located and this can lead to system failure for private systems. Vermont passed Act 181 which encourages building density in villages and that is something that the current systems in the village would not be able to support. The area being looked at for the study is the Designated Village Center and ¼ mile outside of that designation. There are approximately 71 parcels in this area, with most being residential. The previous report looked at conserved lands, wetlands and prime agricultural lands in this area.

   a. **Design Flow Estimates:** The total estimated design flow needed is 31,080 gallons per day. The future projected flow is 35,000 gallons per day. These numbers were gathered using the number of bedrooms in the projected study area.

   b. **Summary of Wastewater Alternatives Considered:** Kevin Farrington from AES Northeast discussed the alternatives that they have considered for this study. The first is Gravity Sewer Collection and Forcemain to Troy Pump Station. This alternative would allow systems to have gravity collection and then use a central pump station to feed the collected materials to the Troy Pump Station that is located near the Fire Station in Troy. Troy would then pump it the rest of the way to their treatment facility and handle treatment of the material. Shelley Martin questioned what type of waste would be collected with this alternative and Kevin noted it would be all waste. Alternative 2 would be Gravity Sewer Collection and On-Site Treatment. They used a parcel just outside the Designated Village Center as an example and to base numbers on, but that is not necessarily where a system would end up. This would be like having a large leach field. They used a Geotextile Sand Filter System to estimate costs for this alternative. Due to the high ground water in the area, they would be looking at a mound system. This would discharge to groundwater according to VT Department of Environmental Conservation (DEC) standards. The third alternative would be not to install any wastewater system.

c. **Preliminary Construction Cost Estimates:** For the first alternative the estimated construction cost is $8,007,222. The estimated cost for the second alternative is $10,484,487. The annual operating and maintenance cost estimate for alternative 1 is $44,516 and for alternative 2 is $61,905. The yearly cost for alternative 2 is higher due to having an operator just for that system. Shelley Martin questioned if there was a per household calculation for each alternative. Kevin explained that they will have more numbers for that at the meeting for the 90% report along with grant funding availability. Kevin noted that the 60% report with all these figures will be available online once DEC has looked over the report. John Hamelin questioned if the numbers are estimates and Kevin noted that they are. Shelley Martin questioned if the work that Jacques Couture and Kalyani Mer did looking at each property was used in these calculations. Kevin noted that they did use that information to figure out the number of gallons per day that would be discharged. He explained that the system would need to have a connection to each property that would then lead to whichever municipal collection site is determined based on the alternative chosen. These connections would be included in the cost for building the system. Shelley Martin asked if there was any extra cost to avoid the drinking water system that is already in place in the village. Kevin noted that there is no extra cost, but there are regulations they need to follow when placing the wastewater pipes. Jennifer Grace questioned how many homes they looked at and assessed directly. Kevin noted that they assessed the majority of them, over 50. Jennifer Grace questioned what the data decides based on the homes assessed for which alternative is better. Kevin explained that the assessment also looked at record searches for wastewater permits and most of the parcels did not have wastewater permits online. He noted that whether the systems are in good or poor condition it does not affect the alternative type, as a new connection to the system would need to be built for either collection alternative. Jennifer Grace questioned if there are legitimate problems with any systems and how many systems currently meet standards and how many do not. Kevin explained that there are 4 ways to look at systems, starting with just looking at the property all the way to digging into the ground and doing more extensive searches. This study does not look at systems that extensively and they did not identify any problems or failing systems during their on-site visits. Jennifer Grace again questioned what the problems are that would lead to having a wastewater system. Kevin noted that this is about sustainability and property value not about an existing problem. Jacques Couture noted that when they walked around the properties, they were not looking for problems, but they also did not see any problems. Kalyani Mer noted that the walk around was for GIS data collection not an evaluation of the existing systems condition. The data collected was to see where existing systems exited homes and where existing tanks are located. Kevin Farrington noted that he is aware that in Montgomery they were reporting failed systems which led to a wastewater system and this is not the case here. He noted that in the next report they will look at some comparisons with Montgomery's system. He also noted that Montgomery received all the funding for the capital system via state and federal grants. He will be discussing grant funding at the next meeting. Rick Danforth questioned if only the users would be paying for the system. Kevin explained that the yearly costs would be on the system users. Jeremy Dunn noted that in a recent flood his system took a big hit with all the floodwater flowing onto his property and it is only a matter of time before flooding affects systems in the village more drastically.

Jacques Couture reiterated that this is a forward-thinking study that can be used down the road even if a system is not implemented right away. Kevin noted that this helps you look into funding for systems, you cannot look for grants without a study being done first.

Shelley Martin questioned what would happen if the first alternative was chosen and something happened to the Troy pump station; would the Westfield users be on the line for that cost. Kevin noted that if their costs go up then they could always increase user costs, and the pump station that would be located in Westfield would be up to Westfield users to take care of monetarily. Richard Degre noted that the town may have to pay an allocation for a certain number of gallons pumped to Troy each year.

Rick Danforth noted that when the water system was built property owners were given an option to join the system and he questioned if people would be required to connect to the system or given the option to connect. Kevin noted that it would be decided down the road and would be up to any sewer board or ordinance created.

Kevin asked if Lynnette Claudon had anything she would like to add to the discussion. Lynnette would like to save her comments for the 60% report and asked if there were any questions for her. Rick Danforth questioned if there is funding available now or within the next year. Lynnette noted that there are currently not any new grant opportunities available, but there are funding opportunities available right now through the Vermont Village Wastewater Initiative website.

Jennifer Grace questioned if Lynnette is the engineer on the Montgomery system and asked her to compare this study to the Montgomery system and what the cost is for the Montgomery system. Lynnette noted that she has not had a chance to look at the 60% report for Westfield but can speak on the experience in Montgomery. They started with a different process where the town identified that they needed to look at a wastewater system in their two villages. In 2019 they started a wastewater committee. They have their design complete and are almost ready for bids. The goal for the user rate in the community is to stay around 1% of the median household income in the area which is around $400-$500 per year. For a project to be considered viable that user rate needs to be within 2-3% of the median household income for the area. Rick Danforth questioned if they have reached this point of the study where they look at the median household income for the study area and Kevin noted that they have not. It was noted that Montgomery had been 100% funded for capital construction. Lynnette noted that they have what is called a whole funding package, they will need to pay for part of the project through a loan. The loan is supposed to stay around 1 million dollars, and the total project cost is around 16 million dollars.

John Hamelin noted that he thinks it will be around $1,000 per year per user on the system.

Kevin noted that to close out the study they will choose an alternative and the Selectboard will be the ones deciding on that alternative. Jacques noted that the voters would still need to vote on any system, no matter what the alternative chosen to close out the study ends up being.

Shelley Martin questioned if the inflation rate was included in the number estimates. Kevin noted that they did include what costs may be through the year 2030.

5. **Schedule and Key Milestones:** Kevin noted where they are in the study and that the next meeting will be the 90% report which should be held around April of 2026. They will delve deeper into prices, funding strategies, environmental review, permitting, etc. He then noted that if it is decided upon to bring this to a public vote that will happen after the report/ study is finished.

   Jennifer Grace questioned if grant funding is available and if the report should move to the 90% phase. Jacques noted that the fee for the study is covered 100% and the report can be finished all the way and will not cost the taxpayers anything. The $125,000 for the study is fully funded, there would be no need to stop the study at this point. Jennifer Grace questioned funding for the alternatives and grants being available to support those alternatives. Lynnette noted that most villages, after deciding to move into a preliminary design phase, will look for a fully subsidized loan or a grant source. She noted that these systems are a high priority right now for the state. She noted that the town could make a declaration using a non-binding application process to declare intent to build a system so if funds become available the town can take advantage of them.

Rick Danforth noted that the water system was set up with a negative interest rate to build the system. He feels that there will be loans that need to be taken to get this set up.

Jacques questioned if the report from AES Northeast will have a fully designed system. Kevin noted that they are not designing a system, but the designer can pick up from the work they have done on this report and use it as a schematic to design the system.

Rick Danforth questioned if the town would be responsible for the bond, not just the users. Jacques noted that he has never dealt with something like this, so he is not sure. If they can get grants that cover the construction costs, then nobody would be on the hook for them. The yearly costs would be on the users after that. Rick Danforth noted that the Westfield Fire District takes on the responsibility for the water system, he assumes the Selectboard would take responsibility for the wastewater system. Kevin noted that a sewer district would probably be set up, similar to the current Westfield Fire District. If a sewer district is set up, then members of that district would be the ones that vote on the system. It was questioned who votes on a potential system, the whole town or the users of the system. LaDonna Dunn noted that for the sake of the study the Selectboard would pick a final alternative. Kevin confirmed that was correct and the public vote would be on whether to pursue a system and to create a sewer district or not. He also noted that legal counsel should be questioned when moving forward to decide on who votes and what they are voting on. Jacques noted that it may be best to give the voters the option to decide which option they would want to vote on. Jennifer Grace explained that she is concerned about legal costs. Kevin felt that giving opinions on which alternative is preferred while the study is going on may be the best way to have a consensus on which alternative is the one most people would prefer to vote on. Rick Danforth felt the users should meet to determine which way they want to go, and it should not be up to the Selectboard. He feels that the costs should be based on how many people are in each residence. He feels that this is a process that could take years.

Jacques questioned if the water system has meters. Shelley Martin noted that there are meters but they are not used because it would cost more money to pay someone to read the water meters. Kevin noted that sewer systems are not metered, although some rely on the water meters when they are available. Some systems are set up by type of use, residential, business, etc. and they charge based on that. He can get some more information on these things for the 90% meeting.

John Hamelin questioned if Troy is willing to take the output that Westfield would produce. Jacques noted that a while back Troy invited him and Pat Sagui to a board meeting and they were reassured that they would be happy to take the output from Westfield as they have more than enough room.

Jennifer Grace questioned the unknowns beyond the 60% report. Kevin noted that they cannot figure out all the complexities that may come along, but they are trying to look into everything that may come up. He noted that they build a 30% contingency into their estimates. As they get further into the design and they become more confident of the estimates they lower their contingency percentage.

Shelley Martin noted that if the town connected with Troy, they are at the mercy of the rates that Troy sets. Mike Piper noted that you would have a contract with Troy to keep rates steady for a set number of years. Rick Danforth felt that if the costs were covered by grants, then he would rather have the system owned by Westfield and not go to Troy.

Jacques questioned at what point they should establish a committee comprised of people who would be affected by this that could look at what it entails to combine the water and sewer systems within the Fire District. He felt that some of these things may already be going on in other towns. Kevin noted that there would eventually be a sewer district. Lynnette felt it was a great idea to have a local committee involved with these projects. They have a workbook on the village wastewater initiatives page that helps committees. Shelley Martin questioned what Lynnette felt about combining the water and sewer district into one district. Lynnette noted that some communities have done this and it could be explored down the road. She noted that it could have advantages although none of the communities she has worked with have combined districts.

a. **90% Report and Public Meeting April 2026:** Meeting to be held around April 2026.
b. **Final Report August 2026 Public Vote TBD:** This date will be determined when it is closer to the report being finished.

6. **Public Comments and Questions:** Public comments and questions were taken throughout the meeting. Jennifer Grace had sent questions prior to the meeting and Jacques asked if her questions had been answered or if there was anything she did not feel she got an answer to. She noted that she felt they were all covered. She did feel like she would like to pull from experiences of people in Montgomery. Lynnette felt that Burke may be a good community to discuss this with as they are also a small community.

   Rick Danforth felt that he could feel safer knowing the whole town is paying for it. He equated it to paying for a Road Commissioner that he sees no benefit from paying for as he lives on a state highway. Kevin noted that there are regulations around sewer districts that may limit this. Dennis Vincent thanked Rick Danforth for his insight into the water district and Jennifer Grace for her questions.

   Lynnette noted that it will take some time to get a project completed, the fastest she has seen one completed is five years.

7. **Adjourn:** The meeting was adjourned at 6:30PM.

Westfield Selectboard Approval Date: 1/12/26 **with** 0 **change(s).**

X	X	X
Jacques Couture	Richard Degre	Dennis Vincent
Selectboard Chair	Selectboard	Selectboard