

WELLHEAD AND SOURCE-WATER PROTECTION PLAN

VILLAGE OF WALTON, NEW YORK



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Acknowledgements

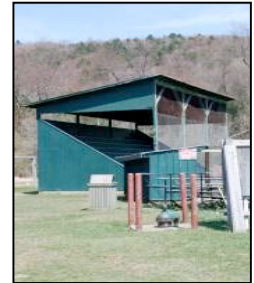
Walton Village Board

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Lillian Brown, Trustee
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Geographic Information Systems Mapping

Geographic Information Systems (GIS) maps for this Wellhead and Source Water Protection Plan were prepared by staff members from the Delaware County Planning Department.

This *Wellhead and Source-Water Protection Plan* is part of a larger project that was funded by the New York State Department of State. A total of \$7,500 in NYSDOS funds were allocated to this Wellhead and Source-Water Protection Plan prepared by Planit Main Street, Inc.



1.0 INTRODUCTION

According to the U.S. Bureau of the Census, the Village of Walton had a Year 2000 population of 3,070 year-round residents. The Village maintains a municipal water supply system comprised of six (6) municipal wells and associated storage tanks with a storage capacity of approximately 400,000 gallons. Since 1990, the Village's population has decreased slightly. The preeminent need of the water district is thus not to produce or store more water, but rather to protect the quality of its existing water resources.

The Village of Walton currently draws its drinking water from two (2) wells at the end of Water Street in the Downtown Business District along with four (4) wells within Austin Lincoln Park. The Water Street Well Field is prone to contamination due to a variety of factors including: 1) the aquifers that feed this well field lie almost entirely within the built environment of the Village, and 2) the wellheads lie within the Delaware River floodplain that is susceptible to contamination from periodic floodwaters.

The Austin Lincoln Park Well Field lies upslope of the built environment within the Village. These wells are, however, also susceptible to potential sources of contamination. The type of aquifer that feeds the Austin Lincoln Park wells is known as a *valley-fill aquifer* that is recharged from upland runoff. Potential sources of contamination include upland runoff from residential and agricultural land uses.

Wellhead and Source-Water Protection Plan

Since most of the upland feeding this aquifer lies within the Town of Walton, it is an area that is not subject to Village land uses laws. Measures to protect these groundwater resources will have to involve cooperation with the Town of Walton.

Due to the potential threat of contamination of the Village's groundwater resources, the Village Board determined that it was in the best interest of its residents to develop a *Wellhead & Source-Water Protection Plan* that would address current threats to the wells and its source-waters, potential future sources of contamination, along with recommendations for mitigating potential threats to its groundwater resources in the future.

The *Wellhead & Source-Water Protection Plan* was started in 2007 when the Village retained the services of Geo-Environmental Management Solutions, LLC to develop the Source-Water Protection Plan that studied the existing drinking water sources, delineated water source/recharge areas for drinking water and recommended techniques that could be employed to develop a source-water protection area.

What follows is a brief summary of Geo-Environmental Management Solutions, LLC's *Source-Water Protection Plan* findings related to the Water Street Wells, Austin Lincoln Park Wells and the Village's Water Tanks. These findings provide the basis for subsequent land use policy recommendations for the overall Wellhead & Source-Water Protection Plan.



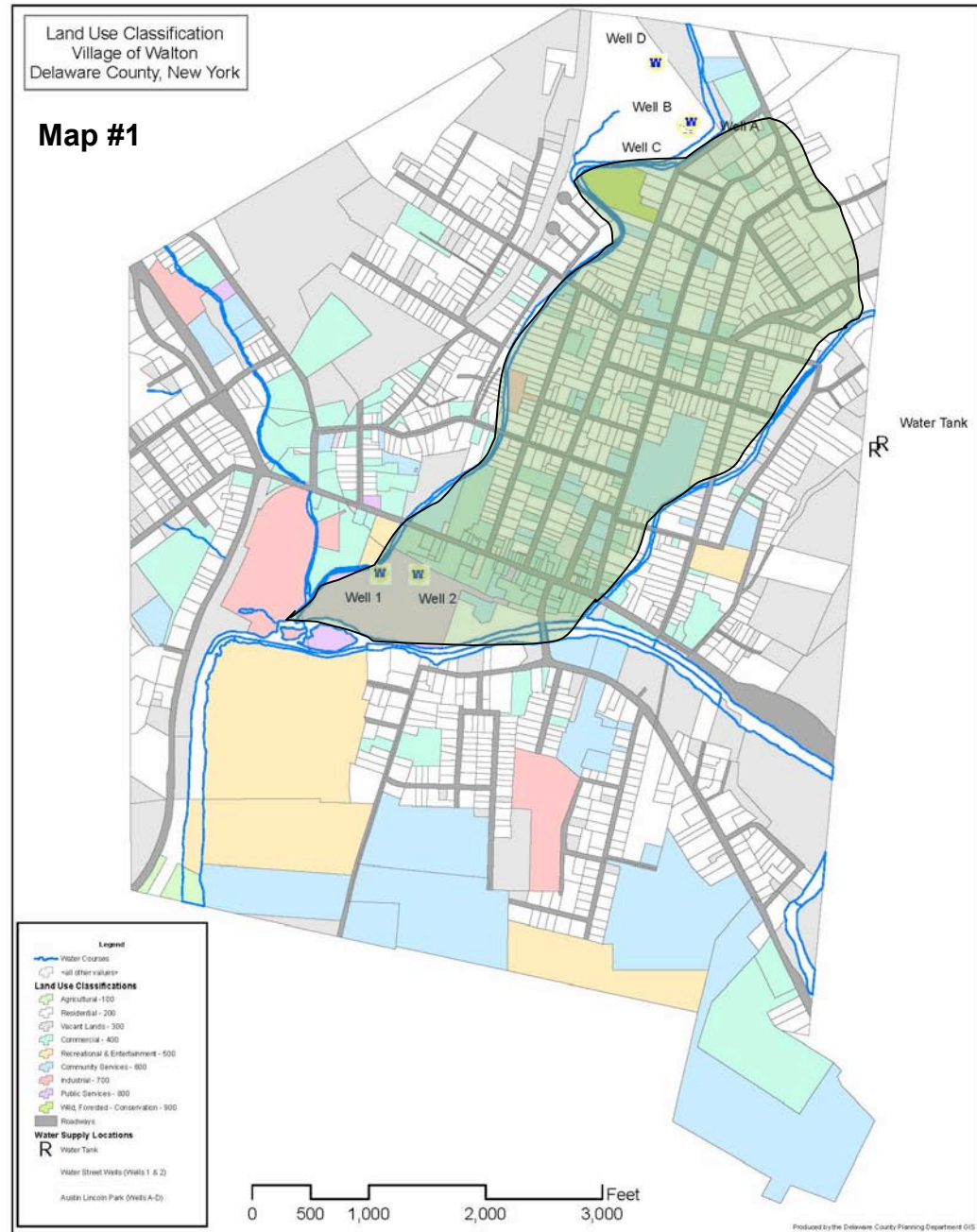
Above (top to bottom): Hess Gas Station on Delaware Street; Offices of the Delaware County Soil & Water Conservation District; the Walton Grange Building that lies to the south of the West Branch of the Delaware River on Stockton Avenue. The Water Street Wells are located in an urbanized area with many potential contaminant sources and large expanses of impervious surfaces.

1.1 Water Street Well Field

The Water Street aquifer consist of deep sand and gravel deposits that are straddled between the West Brook and West Branch of the Delaware River (see Map #1). The sand and gravel deposits have a high permeability that allows for high volumes of water to enter the unconfined aquifer below. While sand and gravel aquifers typically produce high yields of water, they are also more prone to contamination due to the permeability of the overlying soils.

There are two (2) public water supply wells within the Water Street Well Field along with numerous monitoring wells that were installed during a previous investigation into the contamination of one of the wells. At least one of these wells was reported to have had an unacceptable level of chemicals related to gasoline or other petroleum product. As reported in the *Source-Water Protection Plan*, “investigations and agreements have been made to attempt to clean up this contamination, it is the professional opinion of the investigating team that the wells are in serious risk of future contamination. Serious considerations should be made to investigate this situation, alternative water sources may need to be explored.”

There are a variety of factors that make it difficult to protect these wells from future contamination. To begin, there are several large industrial and commercial establishments that are upslope from this well field.



These include several gas stations, large industrial uses and the entire Downtown Business District of the Village of Walton that was completely inundated in the Flood of 2006. According to the Source-Water Protection Plan “the wells are located within a geomorphic setting conducive to accelerated groundwater movement from north to south. In the immediate upslope region there are several commercial and light industrial establishments that present an imminent threat to the quality of the water supply” [*Geo-Environmental*].

During a flood event there is a real danger that the aquifer could become contaminated due to a fuel oil or chemical spill that infiltrates the aquifer and/or enters the multitude wellheads [water wells and/or monitoring wells] that lie within the Water Street Well Field that is also within a floodplain.

There is little that can be done to change the nature of the existing commercial and industrial uses that threatens water quality in the Water Street Well Field but there are measures that can be taken to mitigate risk.

The Source-Water Protection Plan recommends to close the easternmost well and drill a new well within this well field if:

- Contaminants continue to appear in required testing; and
- Remedial efforts cannot remove contaminants.

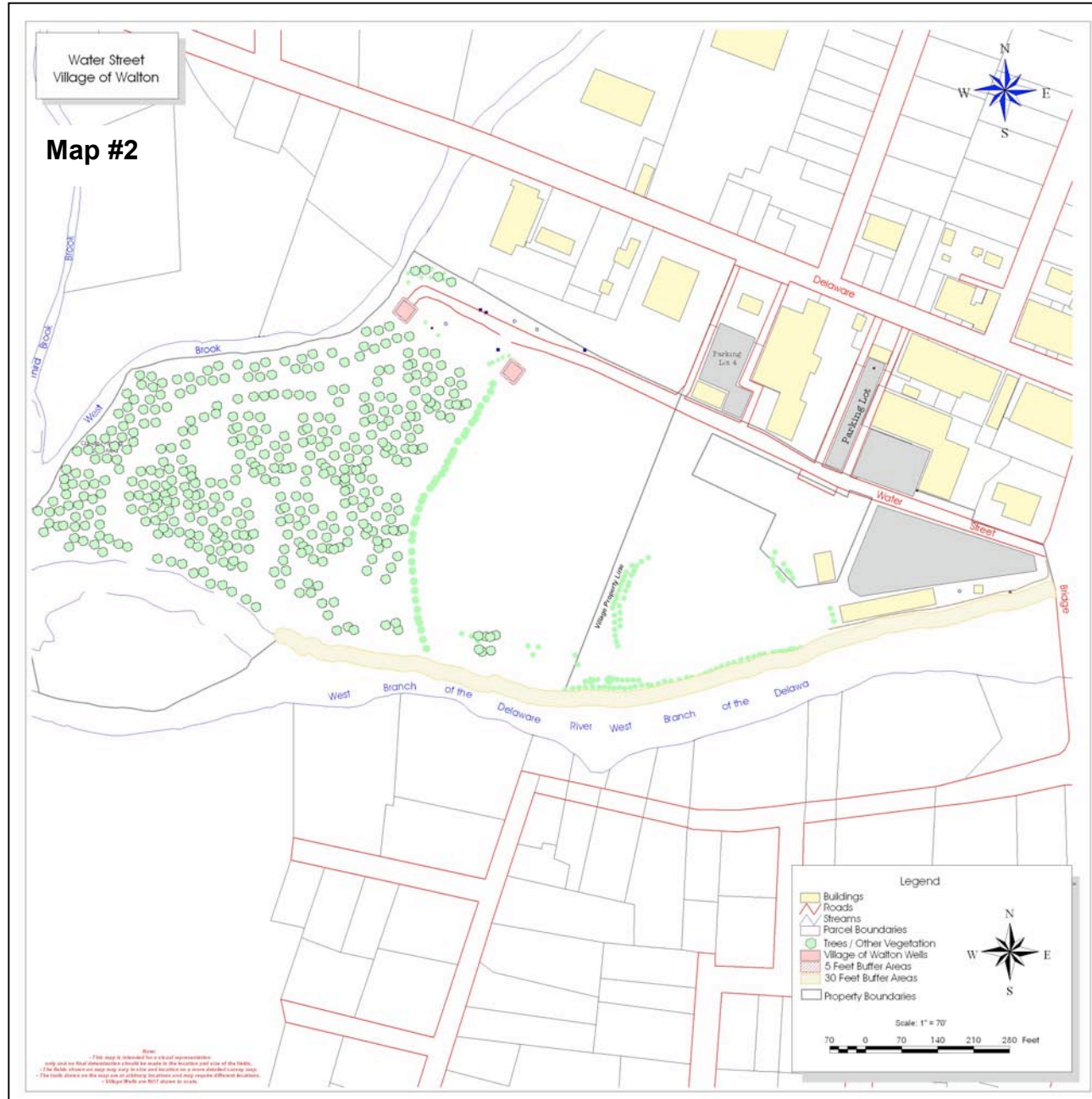
The Source-Water Protection Plan also states that the westernmost well in the well field is dangerously close to surface water bodies including the West Branch of the Delaware River and the West Brook. It states “The subsurface in which this well resides contains groundwater that is moving rapidly and easily influenced by either of these two water bodies. Pump testing should be conducted to determine the level of influence and appropriate measures should be taken. If necessary, this may include well closure.”

1.2 Austin Lincoln Park Wells

The Austin Lincoln Park (ALP) Well Field and its four (4) municipal wells are the primary source of drinking water for the Village of Walton. According the Source-Water Protection Plan prepared by Geo-Environmental Management Solutions, LLC, these wells have shown no signs of contamination during the historic water sampling events. “The Valley in which the aquifer is located is in a glacially infilled valley oriented primarily north to south with 60-75% of the recharge from upland runoff. Therefore, up to 75% percent of the water entering the system may be from infiltrating surface water that is controlled by the depth and composition of soils and the characteristics of the bedrock below” [see Map #3]. The existing land uses upslope of the ALP wells are primarily rural residential and agricultural lands. “The soils in this area have a tendency to be sensitive to groundwater pollution due to the increase in permeability with depth” [*Geo-Environmental*].

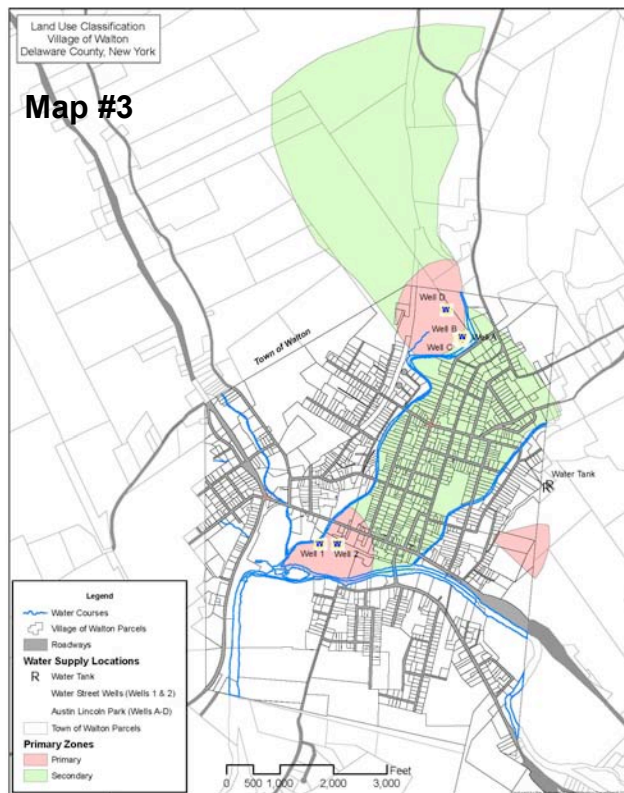


Above (top to bottom): View of Water Street wells from the elevated terrain of the pump house looking east across floodplain; views of monitoring wells placed during investigation of fuel contamination plume. The groundwater flow direction is toward the municipal wells and traces of fuel-related contamination are still present. The redevelopment of this area should redirect water flow away from the Water Street Wells.



Above (top to bottom): Breakstone Plant across the West Brook from the Water Street Wells; view from Water Street Well Field looking east toward Route 206; and view from Water Street Well Field looking northeast toward the back side of Delaware Street (e.g. Downtown Business District). The monitoring wellheads are visible in the latter photo. There are multiple factors threatening these wells.

Presently, the existing land uses within the upslope area of the Austin Lincoln Park (ALP) Well Field do not pose a threat to the aquifer recharge area. However, it is important that the Village/Town work together to adopt land uses policies that will help to ensure that the Village's primary potable water supply is protected for future generations. Of particular importance is the regulation of agricultural activities upslope of the well fields. This is the area that is shown in green on Map #3 north the Village of Walton boundary. The ALP well field is shown in pink straddling the Town/Village boundary.



Geo-Environmental Management Solutions, LLC's Source-Water Protection Plan identified a variety of measures that could be employed by the Village/Town to protect the Austin Lincoln Park Well Field. A summary of these recommendations is provided below:

- Monitor wells for agriculturally related contaminants including pesticides, herbicides, fuels, oil and grease;
- Develop an education plan for all residents and commercial occupants within the primary and secondary protection areas;
- Signage needs to be placed along the margins of protection areas, as well as, within them denoting which type of protection area it is and where to find more information about it;
- Limit motor vehicle traffic beyond designated parking area. In particular, the northern boundary of the park near the baseball field;
- Commentary – “Wells within this well field may be under the influence of surface water. This is not an acceptable practice for public drinking water supplies according to the Environmental Protection Agency and the New York State Department of Health.”

The Village also maintains two (2) water storage tanks for the municipal water supply system. Collectively, these tanks have a storage capacity of approximately 400,000 gallons.



Above (top to bottom): New pedestrian Bridge over the West Brook entering Austin Lincoln Park; view of gravel surface off-street parking area within the park; and view of Austin Lincoln Park Well Building with wellhead to the center right of the photo. The greatest threat of contamination of the well field stems from agricultural operations within the Town.

1.3 Water Storage Tanks

This Column Reserved.

The water storage system consists of a newer steel tank and an older concrete tank. A chain link fence surrounds the new steel tank with barbwire at the top. The older concrete tank is not enclosed within a fence and does not appear to be in use. The water storage tanks are situated in a remote location perched above the Village. There are residential neighborhoods to the west of the water tanks that are at a substantially lower elevation than the water tanks. The surrounding land uses to the north, east and south consist of woodlands.

Recommended improvements for the water tanks center on the need to better restrict access to the water tanks. Specifically, the fencing and gating should be improved to restrict vehicular and ATV access to the water tanks. Presently, it is very easy for an ATV to navigate around the gate that is intended to restrict unauthorized access to the driveway leading up to the water storage tanks. Large stones or bollards should be placed on either side the gate to restrict vehicular access to this driveway. It is further recommended that the fencing around the water tanks be extended to make it more difficult for people to skirt around the fencing.

Overall, it is important to restrict unauthorized access to the Village’s water supply tanks to prevent unauthorized access, vandalism and deliberate contamination of the Village’s Water Supply System.



Above (top to bottom): The Village Water Storage Tanks that are situated on a ridge above the Village so that they also provide sufficient pressure for fire suppression; view of Austin Lincoln Park Well Head near baseball field; view of Water Street Well Field Well Building. Notice that the well building is situated on a raised bed to bring it above the floodplain.

CHAPTER 2 PROJECT OBJECTIVES

The primary objectives of this *Wellhead & Source Water Protection Plan* are to:

- Preserve and improve Walton's drinking water resources;
- Evaluate the needs for protection of the water supply system;
- Determine suitable protection techniques for wells and source waters; and
- Identify specific land use tools that can be used to protect source waters.
- Create a foundation for funding.

As described in Chapter 1 – Introduction, the Water Street Well Field is very susceptible to contamination. This well field is adjacent to the West Branch of the Delaware River and situated on the fringe of the floodplain. As recently as the summer of 2006, this well field was inundated with contaminated floodwaters that posed a direct threat to its water quality.

One objective of this Plan is to identify how best to protect this well field through land use controls. Presently, the area surrounding the well field is zoned GB-General Business – a district without maximum lot coverage provisions. The GB-District allows a variety of commercial land uses that are analyzed from a water quality protection standpoint in Chapter 4.0 – Land Use Law Recommendations.

The Village owns the land surrounding the wells within the Water Street Well Field. There are several large properties abutting the well field that are owned by the Town of Walton and Delaware County that are immediately adjacent to the well field (i.e. due east of the well field and south of Water Street). Presently, the County uses its property as a DPW storage yard for diesel and unleaded fuel. However, it is considering selling this property to move operations out of the Village of Walton.

The site is zoned GB-Business and has direct access to Water Street. The site is also served with water and sewer infrastructure. On the downside, the property is located within the floodplain and in close proximity to the Village's well field. Commercial development on these sites - with large expanses of impervious surfaces - would further threaten the water quality within the Water Street Well Field.

In response to these potential contaminates and development pressures on properties surrounding the Water Street Well Field, the Village has deemed it necessary to provide additional protections for the wells and the source-waters that feed them.

These issues are discussed further in Chapter 3.0 – Land Use Analysis and Chapter 4.0 – Land Use Law Recommendations. The other source of the Village water supply is the well field located within Austin Lincoln Park in northern portion of the Village.

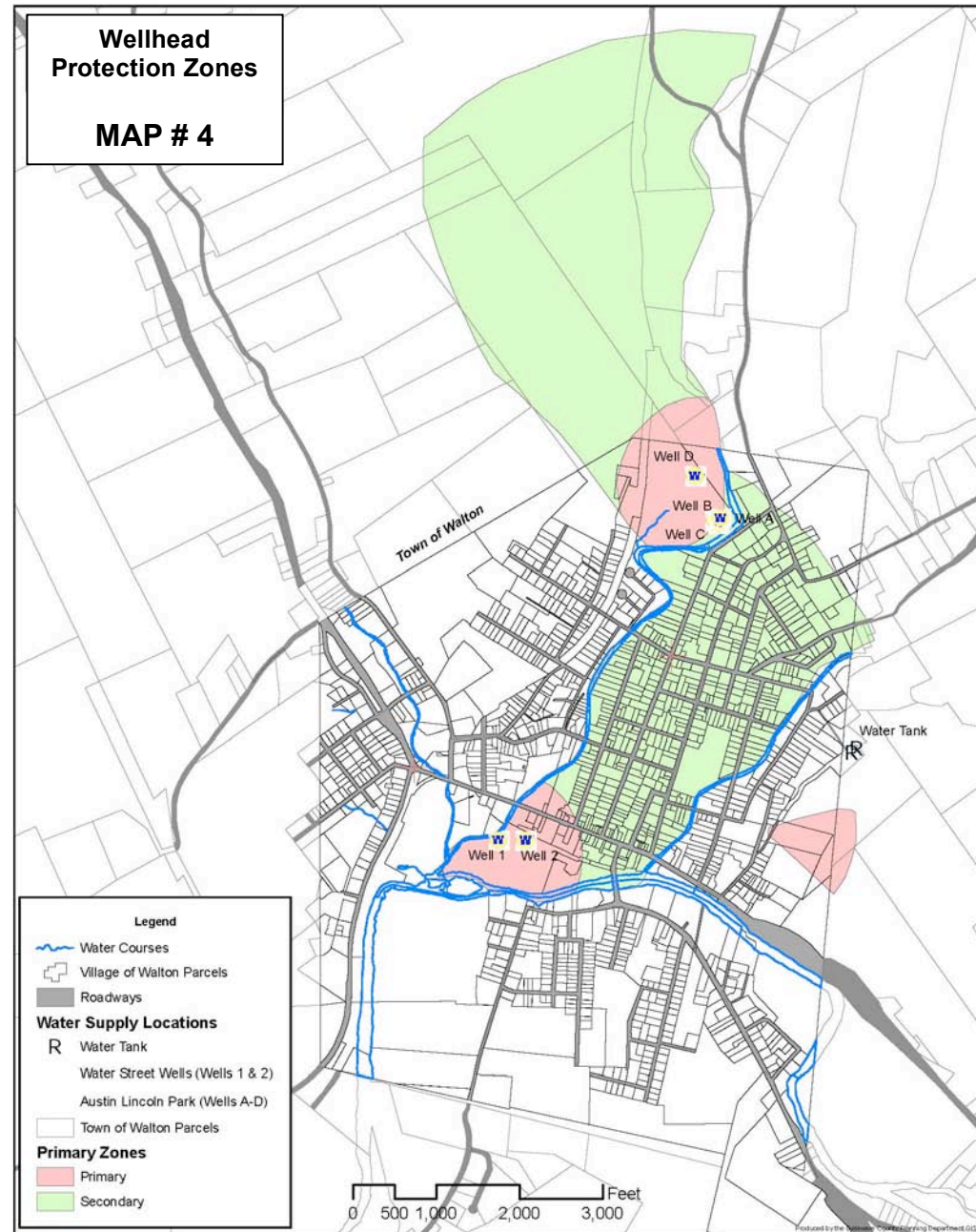


Above (top to bottom): View of the County Department of Public Works storage yard as seen from the edge of the Water Street Well Building berm; view of access driveway into the Water Street Well Field; view of Water Street Well Field Well Building looking south toward the West Branch of the Delaware River showing the raised berm to get above the floodplain.

Presently, this well field is much better protected from potential sources of contamination than the Water Street Well Field. The four (4) public water supply wells within this well field are also the primary source of water for the Village Water Supply System. It is a primary objective of this Plan to identify potential threats to this well field and to recommend wellhead and source-water protection measures for the Austin Lincoln Park Well Field.

As you can see in Map #4 – Wellhead Protection Zones, the area lying upslope from the wells is located outside of the Village within the Town of Walton. Today, this area is comprised of very low-density land uses including agriculture & farmland along with very low-density residential development. The protection of the quality of the source-waters within the Austin Lincoln Park well field will require intermunicipal cooperation between the Town and Village of Walton. Of particular importance is the regulation of agricultural activities upslope of the well fields.

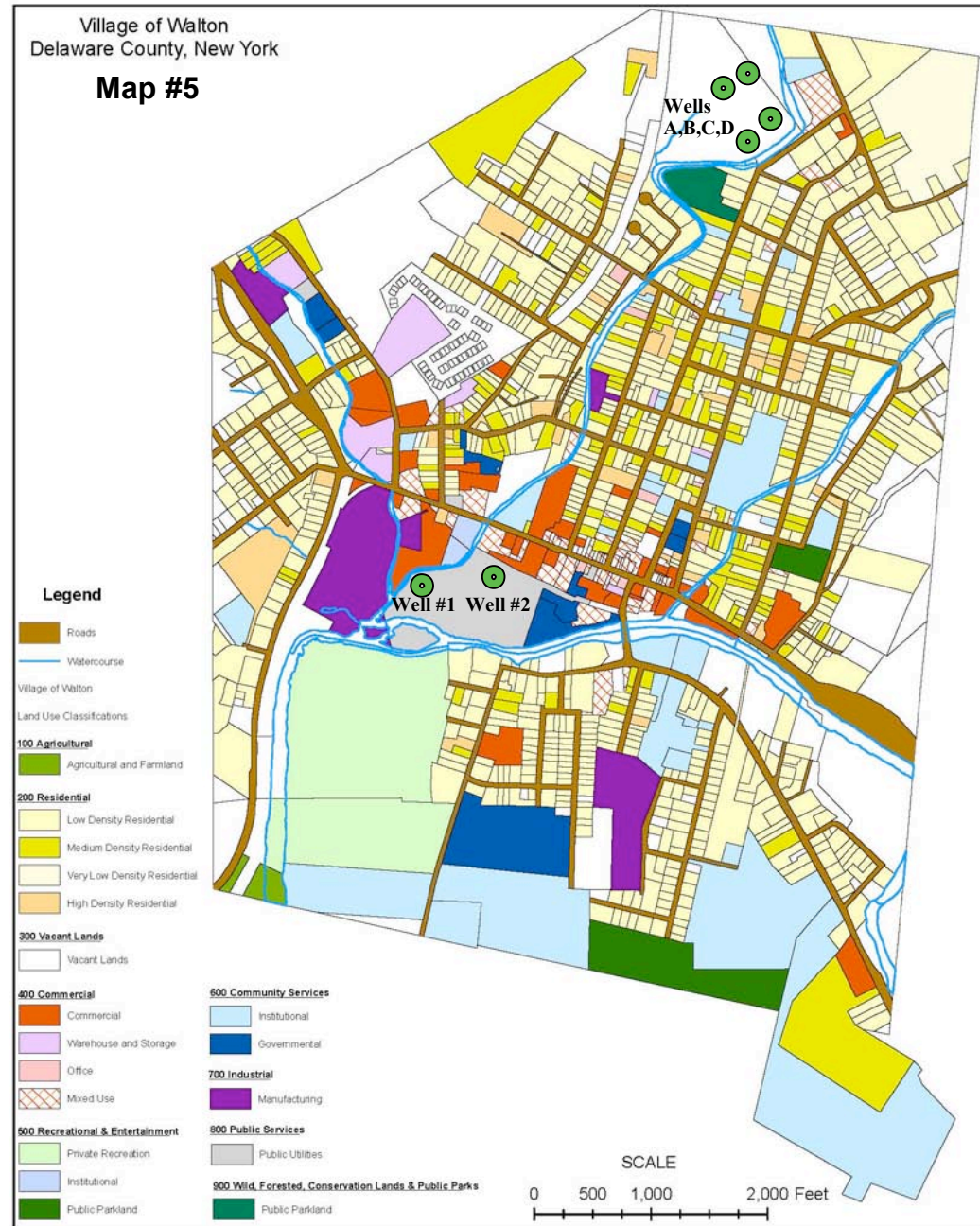
This Wellhead and Source-Water Protection Plan is intended to help the Town/Village identify suitable protection techniques for wells and source-waters and to identify specific land use tools that can be used to protect source waters with the Water Street and Austin Lincoln Park Well Fields. The most thorough protection of these groundwater resources will require intermunicipal cooperation in order to protect the water supply for future generations. It will also require resident education and participation.



CHAPTER 3.0 LAND USE ANALYSIS

The Village of Walton has a land area of 959.3 acres (or 1.5 square miles) and a population density of 1,945 persons per square mile. Although rural lands surround the community, the Village itself is a relatively densely developed community. Land use refers to how people use their land within a community. Land use is usually described in broad categories such as agricultural, commercial, community services, industrial, parks, public utilities, recreation, residential, and vacant land. The density of housing further defines residential land uses. The Village’s existing land uses, by parcel, are shown on Map #5 - Land Use Classification.

Land Use	Acreage	Percentage
Low Density Residential	292.75	31.5
Vacant Land	183.86	19.8
Institutional	123.94	13.3
Public & Private Recreation	85.58	9.1
Medium Density Residential	68.73	7.4
Manufacturing	33.45	3.6
Commercial	28.68	3.1
High Density Residential	22.21	2.4
Public Utilities	21.45	2.3
Very Low Density Residential	18.39	2.0
Governmental	18.20	2.0
Mixed Use (Commercial/Res.)	17.73	1.9
Warehouse & Storage	13.39	1.4
Agricultural	1.79	0.2
Total	959.3	100.0



Village of Walton

Having a clear picture of the Village's existing land-use pattern is very useful when planning for specific land use tools that can be used to help protect the source-waters for the Village of Walton. The pattern of land use within the community is clearly shown on Map # 5.

As described in Table 3.1, the predominant land use within the Village of Walton is "Low-Density Residential" development that accounts for 31.5% of the Village's land area. This is surprisingly followed by "Vacant Land" that still accounts for 19.8% of the Village's land area, "Institutional" with 13.3 %, "Public and Private Recreation" with 9.1% and "Medium Density Residential" with 7.4%. Together, the five (5) most predominant land uses comprise 81.1% of the land area in the Village.

Another way to look at the data is to group all the residential land uses together. Collectively, a total of 43.3% of the Village's land area is devoted to residential purposes. Collectively, "Vacant Land" and "Public & Private Recreation" account for 28.9% of the Village's land area. A total of 12.3% of the Village's land area is devoted to commercial, manufacturing, mixed use, public utilities and warehouses. While a relatively small percentage of the Village's land area is devoted to these land uses, this latter group poses perhaps the greatest threat to the source-waters for the Water Street Well Field. This is due the fact that these land uses are densely developed and situated close to and upslope from the Water Street Well Field.

Wellhead and Source-Water Protection Plan

Generally, speaking those areas with a slope of greater than 15% are generally considered to be too steep for development purposes. Three (3) of the most common difficulties associated with disturbance of steep slopes are:

- 1) Sewage disposal – soils on steep slopes are shallow, making it impractical to install subsurface disposal systems;
- 2) Drainage – the removal of trees, grading, and erection of buildings will destabilize the bank while increasing runoff. These factors contribute to erosion and sediment control problems; and
- 3) Driveway and street layout – as a general rule, the slope of driveways and roadways should not exceed 12%. They also may result in rapid runoff onto adjoining roads causing erosion and icing problems in the winter that can affect water quality.

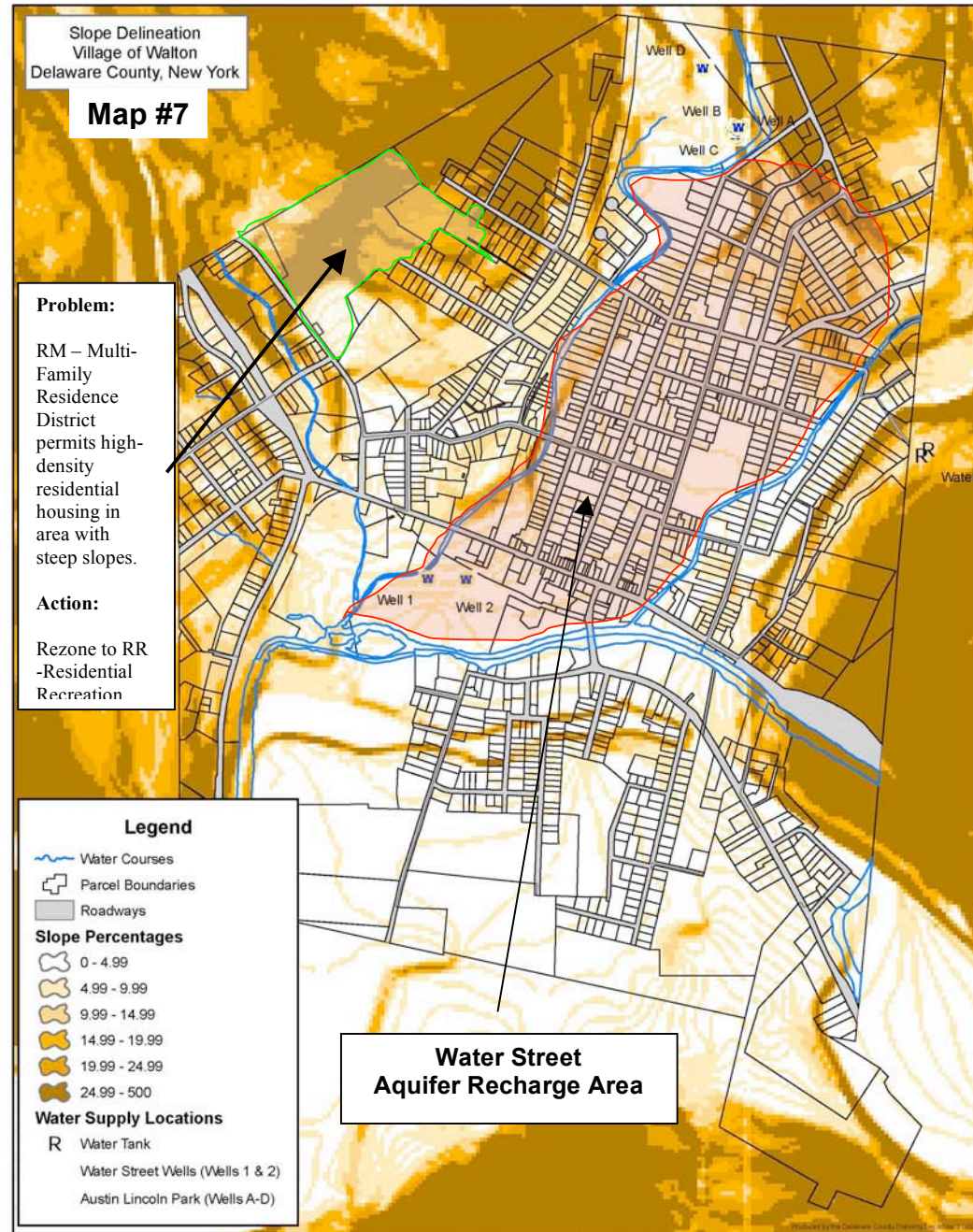
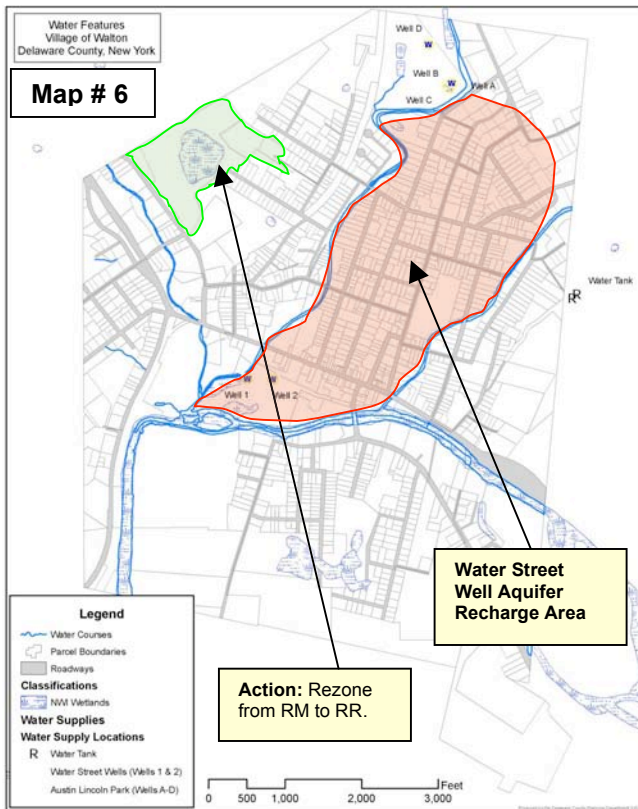
A very high percentage of the "Vacant Land" within the Village has development constraints due to steep slopes. The Slope Analysis Map – Map #7 – shows that the undeveloped lands on the eastern and western edges of the community have slopes in excess of 20%. The restriction of development on a slope that is greater than 20% will help to protect water quality by avoiding the adverse impacts that is described above. Where timbering is proposed, *best management practices* must be carefully applied.

Land Use Analysis



Above (top to bottom): The Water Street Well Building near the West Brook; a "Test Well" within the Water Street Well Field that shows how close the well field is to existing commercial and industrial land uses; and view from Route 206 looking west toward the Water Street Well Field. The density of development, coupled with little to no stormwater management in this area poses a threat to the water quality of the well field.

For example, there is a large undeveloped tract of land toward the west end of Burton Street this zoned RM-Multi-family Residence. This is an area within the community where the slopes exceed 20%. In fact, a large portion of this RM District encompasses lands that have slopes in excess of 24.99%. It is recommended that this area of the Village be rezoned from RM-Multi-family Residence to RR-Residential Recreational due to the environmental constraints associated with steep slopes. This area is also constrained by the presence of a large pond giving even more reason for the rezoning to the RR District.



Problem: Proximity of Water Street Well Building to the West Brook increases risk associated with periodic flooding. Building site is raised to reduce risk.

Problem: The well building is elevated to bring it above the floodplain, however, the entire well field is prone to periodic flooding. Access to the site is unrestricted posing a threat from intentional contamination.



Problem: The Water Street Well Field is situated down slope from the Downtown Business District and heavy industries. There is little stormwater treatment in this area and the runoff is directed toward the well field untreated posing a threat to water quality.

Problem: The entire Downtown Business District was inundated during the Summer 2006 Floods. The contaminated floodwaters were swept across the Water Street Well Fields. Berms to divert water away from the well field could enhance protection.



Action: To better protect the Water Street Well Field from contamination, access to the pump houses and test wells should be restricted. It is also recommended that stormwater from the Downtown Business District be diverted around the well field through the creation of a berm and swale system that would capture and treat stormwater before it travels south of Water Street. Once treated the stormwater could be discharged to the West Brook and West Branch of the Delaware River.

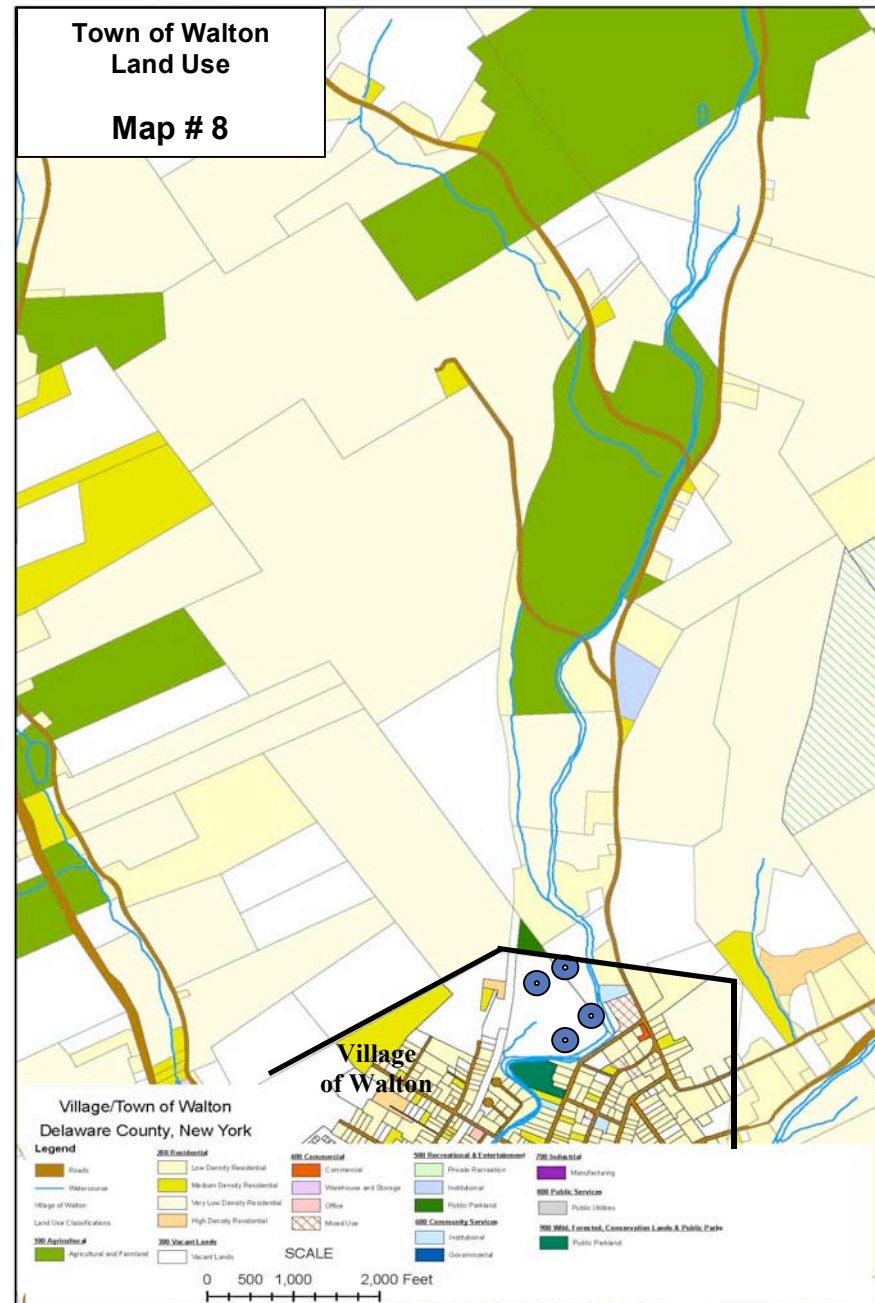


Problem: There are numerous sources of potential contaminants within a few feet of the well field including the outdoor storage of materials and stormwater runoff from nearby properties. Each of the "Test Wells" is itself a potential contamination source.



The Austin-Lincoln Park (ALP) Well Field lies in the northernmost section of the Village of Walton. Map #8 – Land Use clearly shows that the area lying upslope from the wells (within the Town of Walton) is primarily comprised of very low-density land uses such as agriculture & farmland along with very low-density residential development. One threat to the source-waters of the ALP Well Field is the potential inadvertent introduction of contaminants from upslope agricultural practices. Of particular importance is the regulation of agricultural activities upslope of the well fields to prevent contamination of the aquifer. Best Management Practices related to stormwater management should be encouraged with the ALP aquifer recharge area. The ALP well should also be periodically monitored to detect agriculturally related contaminants including pesticides, herbicides, fuels and oil.

Another potential source of contaminants is the introduction of contaminants through the wellheads that are not sufficiently protected to prevent accidents associated with vehicles or heavy equipment hitting these wellheads. Measures need to be taken to provide bollards and/or other barriers around the wellheads to prevent accidental or deliberate damage to the wellheads that would allow contaminants to enter the wellhead – thereby contaminating the ALP aquifer. Motor vehicle traffic should be restricted within 200 feet the existing wellheads (e.g. to the designated gravel off-street parking area southwest of these wells). These issues are graphically described on the next page.



Village of Walton

Land Use Analysis

Action: The Village uses the area behind this barn for the outdoor storage of woodchips and other materials that are used for landscaping purposes (see photo to right). There does not appear to be any form of stormwater management associated with this outdoor storage area. It is recommended, that stormwater management practices be employed to mitigate the potential for contaminants from running off toward the wellheads or entering the aquifer.



Action: Retain and re-establish the riparian buffer zone along the West Brook. This will help to stabilize the bank and reduce further erosion of the stream bank. The branches, stems, roots and leaves of plants within the riparian zone help to increase the amount of water that is absorbed into the ground by slowing runoff. The water that is absorbed may contain nutrients and other pollutants that will eventually be taken up by plants or broken down over time. By slowing runoff, trapping sediments and increasing absorption, these plants act as a living filter to protect water quality within the Austin Lincoln Park Well Field.



Action: Steps need to be taken to provide bollards and/or other barriers around the wellheads to prevent accidental or deliberate damage to the wellheads that would allow contaminants to enter the wellhead – thereby contaminating the Austin Lincoln Park aquifer. Motor vehicle traffic should be restricted within 200 feet of the existing well-heads (e.g. to the designated gravel off-street parking area that is southwest of these wells).



Action: This is the site of the *Primary Well Building* for the Austin Lincoln Park Wells. The well building is slightly down slope from the athletic fields and it is important that the application of fertilizers and other nutrients be avoided so as not to potentially impact the wellhead and Austin Lincoln Park aquifer.

There is also a small paved area around the Well Building and access driveway. Care must be taken during the winter months to ensure that the snow is plowed in a manner that does not impact the wellheads. The application of road salt for deicing purposes should be avoided in the vicinity of the Primary Well Building. Care must also be taken to ensure that potential contaminants are not stored within the Well Building.



Above (top to bottom): New pedestrian bridge crossing over the West Brook; view of recent bank stabilization following 2007 flood along West Brook just south of Austin Lincoln Park; and view of West Brook looking east from the new pedestrian bridge. It is important to maintain and restore the riparian buffer zone along the edge of the West Brook to help maintain water quality.

Proposal:

Restrict vehicular access to the public in order to provide better protection of the wellheads.

Restrict use of fertilizers and other chemicals on the ball fields that could potentially threaten groundwater quality within the ALP well field.



Proposal:

Restrict unauthorized motor vehicle access to the Well Building.

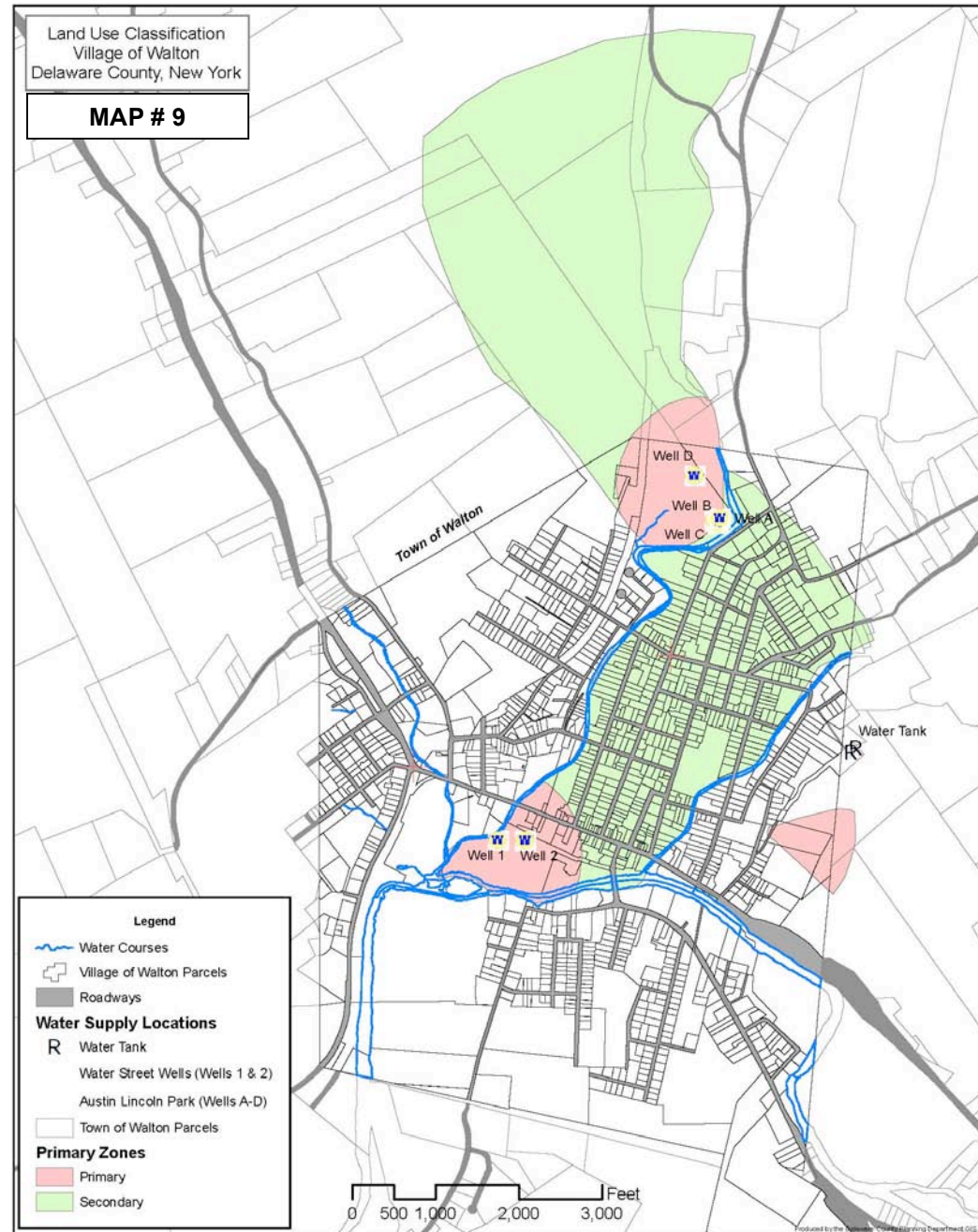
Divert runoff from well building and driveway away from wellheads.



Summary

The Water Street Aquifer will continue to be impacted by the built environment within the Village of Walton. Most of the land area within the aquifer recharge area is already developed so that educational activities and land use regulations aimed at existing property owners will have the most impact in terms of protecting water quality. The Town and County own the largest undeveloped sites within the Primary and Secondary Recharge Areas that have the potential for redevelopment. They are thinking of selling these properties (located east of the Water Street Well Field and south of Water Street) for commercial development. The existing GB-District would allow for high-density commercial development with few limits on the amount of impervious surfaces. Such development could further threaten the Water Street Well Field.

The Austin Lincoln Park (ALP) aquifer recharge area is still primarily undeveloped. However, existing land uses such as agriculture & farmland are potential sources of contaminants that must continue to be carefully monitored. The voluntary incorporation of Agricultural Best Management Practice (BMPs) by area farmers should be encouraged within the entire aquifer recharge areas to protect the source-waters for the ALP Well Field. The Village and County should assist farmers in getting grant to implement BMPs. Wellhead protection within the ALP Well Field should also be enhanced.



CHAPTER 4.0 LAND USE LAW RECOMMENDATIONS

The primary tool that the Village of Walton has enacted to regulate land use is its Zoning Law - Chapter 130 of the Village Code. The Village Zoning Law divides the municipality into five (5) distinct Zoning Districts as follows: 1) R-R Residential Recreational District, 2) R-S Single-Family Residential District, 3) R-M Multi-Family Residential District, 4) BG General Business District and 5) IG General Industry District (see Map 10 on page 18). The Village’s Zoning Law also includes regulations to control signs; off-street parking; mobile homes & mobile home parks; junk, outdoor storage, junkyards and automobile graveyards; floodplain development; and site plan review regulations.

The Zoning Law is the land use control that is best suited to regulate future land uses to ensure that they do not impact the source-waters for the Water Street Aquifer Recharge Area. The Zoning Law can be used to restrict certain land uses within each of the Village’s zoning districts that are more likely to impact water quality or threaten the Village’s aquifer recharge areas. The ability to restrict certain land uses in each of the zoning districts provides an opportunity to not only control new development within the Village, but also the reuse of existing developed properties when there is a proposed “change in use.”

Wellhead and Source-Water Protection Plan

The “Site Plan Review” provisions in the Zoning Law can be used to ensure that the development of green field sites or the redevelopment of infill sites occurs in a manner that protects the Water Street Well Field source-waters from potential contamination associated with stormwater runoff from new land uses.

4.1 Water Street Well Field

The Water Street Well Field has a Primary and Secondary Aquifer Recharge Area that is shown on Map 10. The Primary Recharge Area is shown in red and the Secondary Area in green. The Primary Area for the Water Street Well Field lies entirely within the BG – General Business Zoning District. The Secondary Area is split between the BG – General Business; RM – Multi-Family Residential; and RS – Single-Family Residential Districts. We begin our analysis of the Village’s existing land use regulations by looking at the permitted land uses within each of these zoning districts.

BG – General Business District

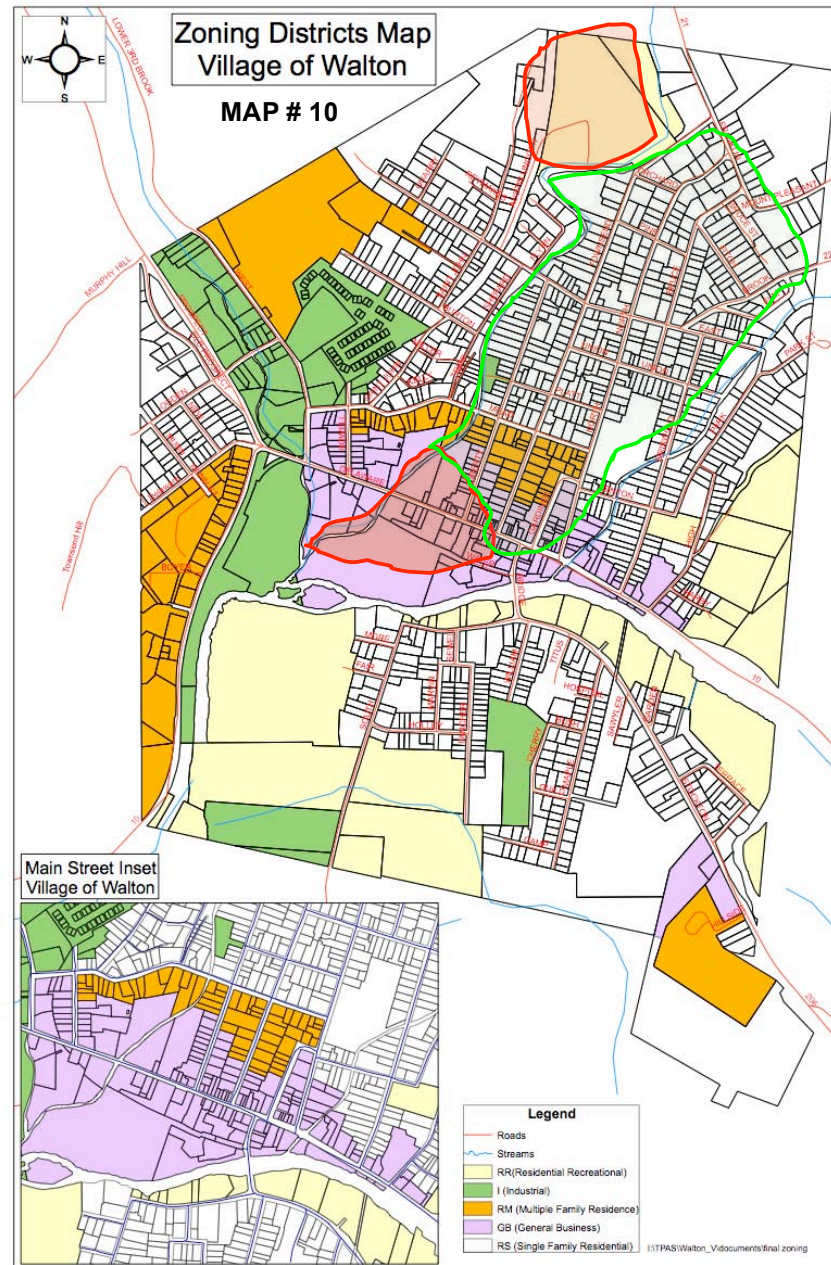
The Village’s BG – General Business Zoning District allows a large variety of land uses. Principal permitted uses include: any use allowed in the RM District; automobile sales, bakeries, banks, dyeing and cleaning works or laundry; painting shop, tin smithing shop, dry cleaning, filling stations, lawnmower sales and service, material storage yards, nurseries, offices, printing, restaurants and other retail.



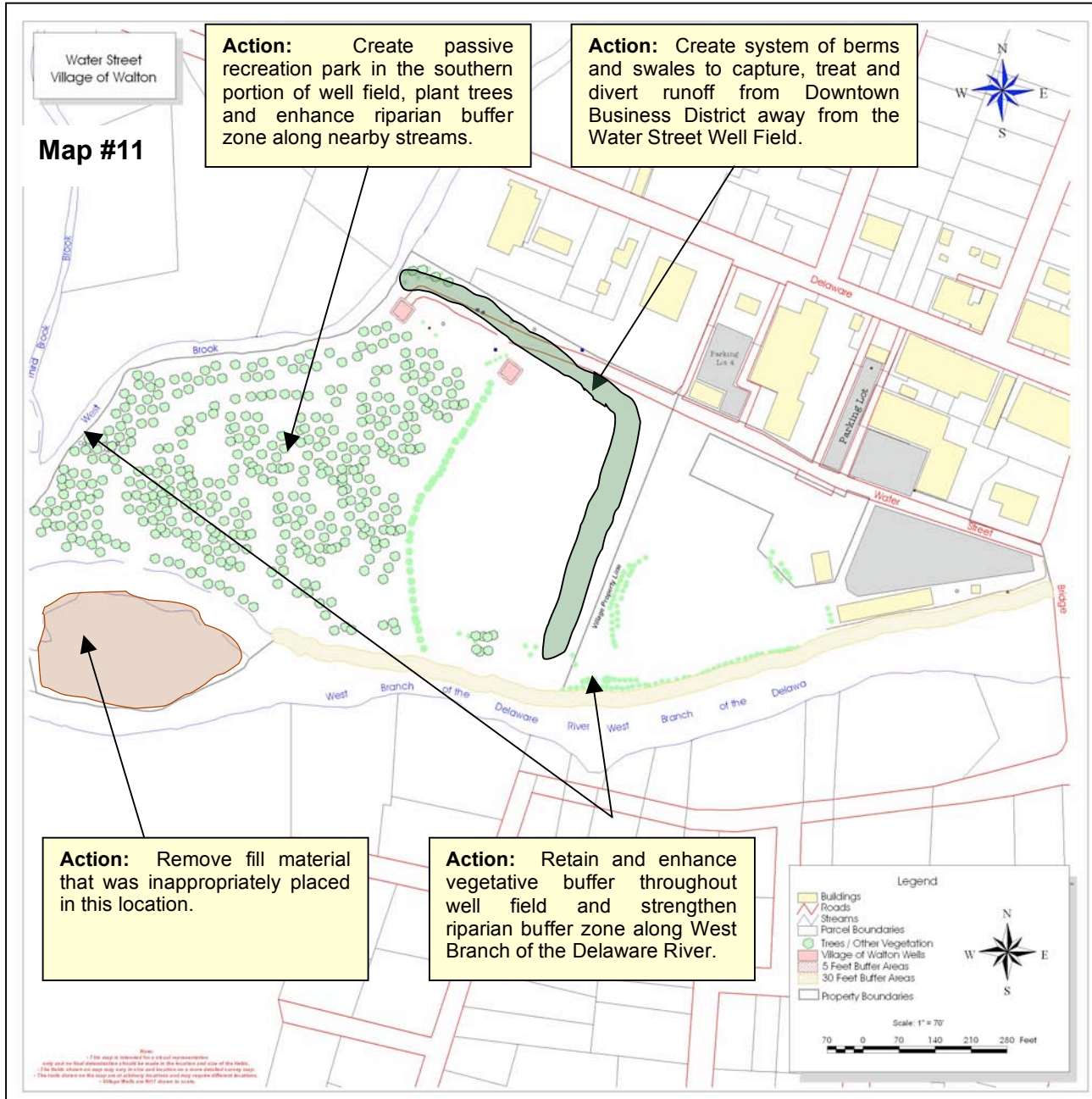
Above (top to bottom): The *Austin Lincoln Park Gateway Sign* on Townsend Street; former O & W Railroad Station on Route 206; and entrance sign to the John ‘Jack’ Kelly Memorial Park. The creation of a passive recreation park on the Village-owned lands to the south of the well houses is recommended to create a permanent green space buffer around the wellheads.

The BG –District also allows a large number of other principle permitted uses. Of the uses listed previously, a number of permitted land uses within the BG- General Business Zoning District are land uses that are often associated with groundwater contamination such as dyeing and cleaning works or laundry; painting shop, tin smithing shop, dry cleaning, filling stations, lawnmower sales and service, material storage yards and printing shops. Within the BG – General Business District the only land use that requires a minimum lot size are houses of worship with a minimum lot size requirement of one (1) acre. For all other land uses there is no minimum lot size requirement. The BG – District requires a front yard of 50 feet, side yard of 25 feet and rear yard of 50 feet. There is no provision with the district that regulates *maximum permitted lot coverage*.

Within the Water Street Aquifer Primary Recharge Area it is strongly recommended that land uses that could be a source of contamination be prohibited – especially within the 200 feet of the wellheads. This could be accomplished through an *Aquifer Protection Overlay Zoning District* coterminous with the Primary Area. The Overlay District would prohibit certain uses that are allowed in the underlying BG-District. It is further recommended that a *maximum permitted lot coverage* provision be included to ensure sufficient green space for proper stormwater management. Fill material added to this area should also be removed. Finally, the Village-owned lands could be used for a *passive park*.



Above: Village Well Tanks; ALP Wellhead; wooded area surrounding the water tanks; and test well at Water Street.



Above (top to bottom): New pedestrian Bridge over the West Brook entering Austin Lincoln Park; view from Water Street Well Field looking east toward Route 206; and view of westernmost well house within the Water Street Well Field. The land surrounding the well houses lends itself to the development of a passive park that would provide a buffer.

Within the Water Street Aquifer Secondary Recharge Area it is recommended that maximum lot coverage provisions be established within the BG – District. This will help to ensure that potential contamination from stormwater runoff from new development is treated on-site and not allowed to drain onto and thus affect the aquifer.

RM – Multi-Family Residential Districts

The Village’s *RM – Multi-Family Residential Zoning District* allows a large variety of housing types including: single-family residential homes; townhouses and garden apartments; multi-family housing; and apartment buildings or complexes. The RM-District also allows a variety of “Conditional Uses” including: business and professional offices; medical offices, hospitals, government buildings and other institutional land uses. The RM-District strictly prohibits any junkyard; industrial uses, any hazardous uses or the keeping of animals or fowl. In terms of the permitted land uses, the RM – District does not allow any land uses that pose an inherent risk to the source-waters of the Water Street Aquifer.

The primary threat to water quality associated with the RM – District is the density of development that is allowed. The RM – District allows for building heights of 3 stories, but not to exceed 40 feet; and does not include a maximum lot coverage provision. While there is little in the way of undeveloped land within the RM – District, a *maximum lot coverage provision* should be considered.

RS – Single-Family Residential Districts

The Village’s *RS – Single-Family Residential Zoning District* allows a variety of land uses. Principal permitted uses include: detached single-family homes; two-family dwellings; houses of worship; public and private parks; and group homes. The conditional permitted uses include: hospitals, animal kennels, commercial greenhouses, nursing homes and other institutional or other governmental land uses. The minimum lot size requirement within the RS – District is 7,000 square feet when the lot is served with public water and sewer; 9,000 square feet when public water only is available; and 10,000 square feet with neither public water or sewer is provided.

The minimum lot size for sites without public sewer may be too small to adequately situate an individual septic system on a residential building lot. This is one facet of the RS – Single-Family Residential Zoning District that deserves closer examination to determine whether a larger minimum lot size should be provided to protect the Water Street Aquifer. While the RS-District covers a large portion of the Secondary Aquifer Recharge Area for the Water Street wells this area of the Village is largely developed with few remaining undeveloped building lots. Within this area of the Village, it is recommended that the Village Board pursue the development of an *education plan* for residents so that they become the first line of defense against groundwater contamination.



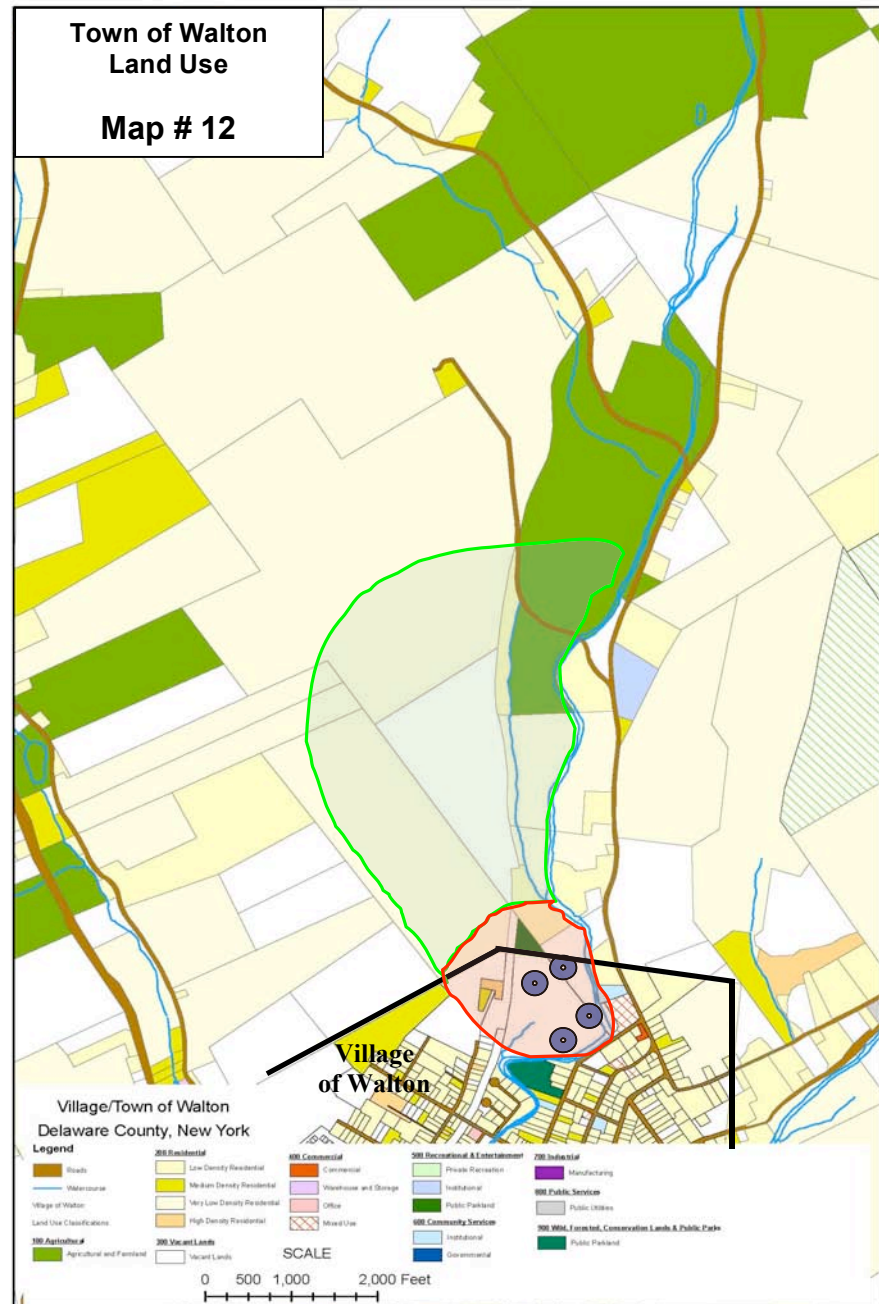
Above: A New Multi-Family Housing development that is being developed with the IG-General Industry Zoning District off of St. John’s Street; Bassett Park Pavilion off of High Street; and new office/retail building off of West Street within the IG – General Industry District. It is important that new development within the Village incorporate stormwater management and erosion & sediment control measures.

4.2 Austin Lincoln Park Well Field

As described in Chapter 3.0 – Land Use Analysis, the Austin Lincoln Park (ALP) well field is primarily impacted by land use activities in the upslope areas within the Town of Walton. According the Source-Water Protection Plan prepared by Geo-Environmental Management Solutions, LLC, these wells have shown no signs of contamination during the historic water sampling events. “The Valley in which the aquifer is located is in a glacially in-filled valley oriented primarily north to south with 60-75% of the recharge from upland runoff. Therefore, up to 75% percent of the water entering the system may be from infiltrating surface water that is controlled by the depth and composition of soils and the characteristics of the bedrock below.”

The characteristics of the ALP Aquifer Recharge Area makes it susceptible from contamination resulting from surface runoff associated with agricultural and farmland practices upslope. The best way to protect the ALP Aquifer from contamination is to ensure that Best Management Practices are used in conjunction with agriculture land uses to ensure appropriate stormwater management and erosion and sediment control.

A closer look at the existing land use activities north of the Water Street Aquifer reveals several threats within the Secondary Aquifer Recharge Area. These include the presence of two (2) large farming operations within the recharge area coupled with an existing mining operation.



The series of aerial photos to the right show the Secondary Aquifer Recharge Area for the Austin Lincoln Park Well Field from north to south. There is an active farm in the northern portion of the aquifer recharge area with prime agricultural soils that are cultivated annually. The use of fertilizers, pesticides and other chemical needed to grow these crops could become a source of groundwater contamination if Best Management Practices are not employed.

It appears from the aerial photos that more needs to be done to protect the riparian buffer zone between the cropland and West Brook. While the riparian zone is in tact near Bob Gould Road, it tends to disappear as you move toward the fields that lie just south of this image. The riparian buffer zone is in tact between the mining operation and West Brook; however, the mining activity within the aquifer recharge area needs to be carefully monitored to ensure that contaminants do not enter the aquifer recharge area through the mining operation. If not already employed, monitoring wells should be installed to look for farming and mining-related contaminants including pesticides, herbicides, fuels, oil and grease is recommended.

Based upon the above, there are a number of specific actions that the Town and Village can take to better protect the Wellheads and Source Waters for the Water Street and Austin Lincoln Park Aquifers. These are summarized in Chapter 5.0 – Implementation Plan.

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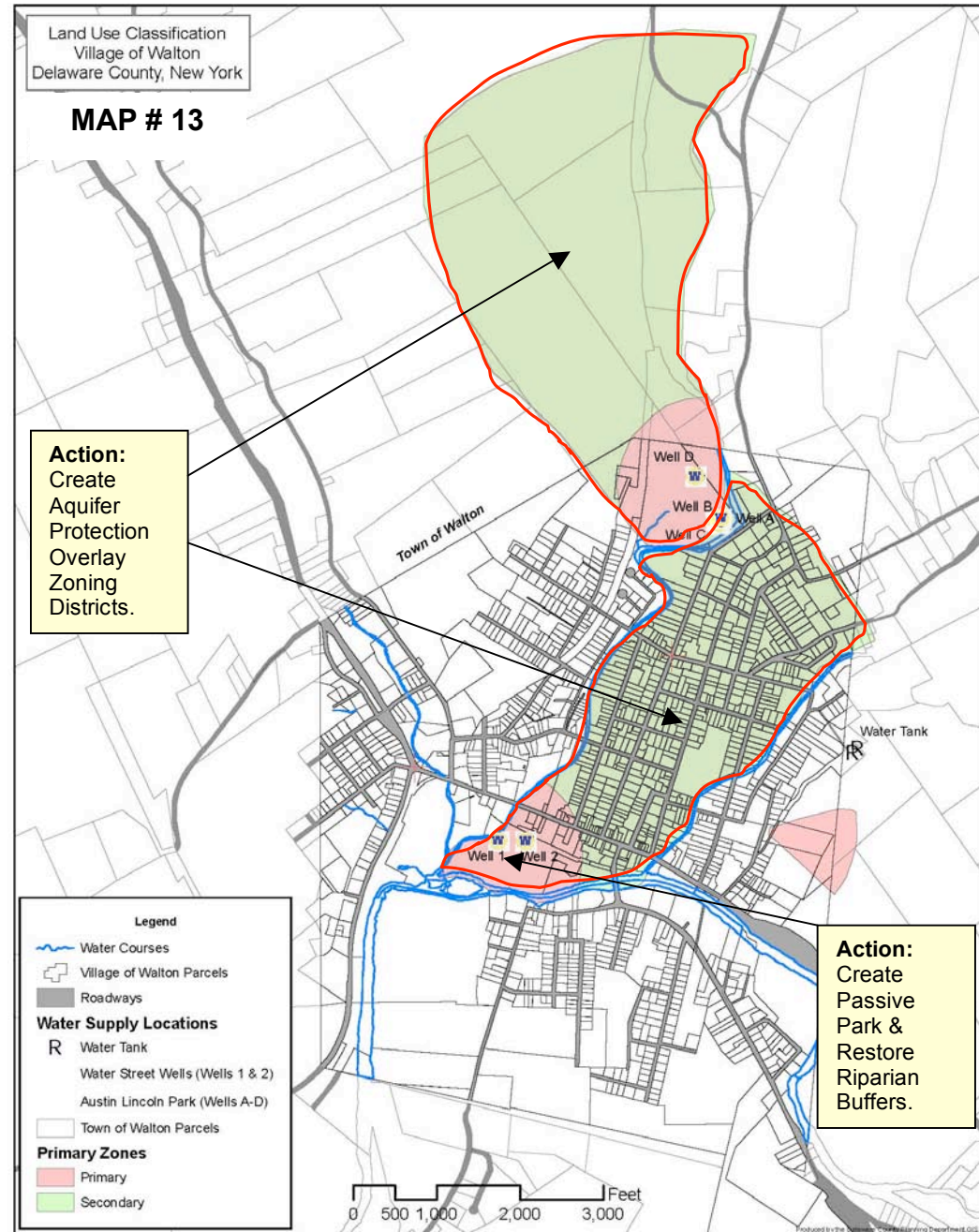
Above (top to bottom): Aerial view Farm on Bob Gould Road that lies within the Secondary ALP Aquifer Recharge Area; existing sand & gravel mine on Franklin-Walton Road also within the Secondary Area; and views of cropland and mining operation that straddles the West Brook. The loss of the riparian zone along the brook poses a threat to water quality.

CHAPTER 5.0 IMPLEMENTATION PLAN

It is recommended that educational activities and voluntary approaches be the first strategies that are employed to protect Walton’s Wellhead and Source-Waters from contamination. This is because the majority of lands that lie over the Water Street Aquifer Recharge Areas are already developed and the land within the Austin Lincoln Park Aquifer Recharge Areas is being actively uses for agricultural and mining purposes. Consequently, educational and voluntary approaches offer the greatest potential for more immediate and successful plan implementation.

This Plan recognizes that voluntary approaches are only one facet of a comprehensive Wellhead and Source-Water Protection. To that end, this Plan also outlines specific regulatory approaches that should be considered by the Village and Town in order to protect the Village's potable water supply and prevent its aquifers from becoming contaminated. Regulatory controls that are outlined in the following pages focus on source control strategies for future potential contamination sources related the reuse of properties, redevelopment of properties, or the development of vacant land.

The first regulatory approach that should be enacted is the creation of an Aquifer Protection Overlay District as described in Chapter 4.0.



Within the Water Street Aquifer, the *Aquifer & Wellhead Protection Overlay Zoning District* would be coterminous with the Primary Recharge Area. It would prohibit certain uses that are allowed in the underlying BG-District such as land uses that are often associated with groundwater contamination such as dyeing and cleaning works or laundry; painting shop, tin smithing shop, dry cleaning, filling stations, lawnmower sales and service, material storage yards, and printing shops. The Overlay District would also establish a *maximum permitted lot coverage* provision to ensure that sufficient green space remains for proper stormwater management and erosion and sediment control.

Since most of the lands within the Secondary Recharge Area for the Water Street Aquifer are already developed, the strategy for protecting groundwater quality should focus on education and voluntary actions of local residents and business owners. Single-family households pose potential pollution risks due to the storage, use and disposal of potentially polluting substances. Possible sources of groundwater contamination include leaking heating oil tanks, leaking automotive fluids and improper use or disposal of hazardous household wastes such as automotive fluids and lawn and garden products. Improperly maintained or poorly constructed septic systems are another potential source of ground-water contaminants including but not limited to coliform bacteria, nitrates and hazardous household waste such as paints or other solvents.

It is recommended that an *Austin Lincoln Park Aquifer and Wellhead Protection Overlay District* be created jointly by the Town/Village to encompass the Primary and Secondary Aquifer Recharge Area for the ALP Aquifer.

Working together, they should evaluate the existing Zoning Districts that cover the aquifer to determine which land uses should be restricted within the Overlay District. It is recognized that it may take some time for the Village and Town to coordinate in creating the Overlay District. To this end, it is recommended that the communities immediately coordinate to develop an educational and voluntary program for residents, farmers and the existing mining operation that lie within the aquifer recharge area.

It is recommended that strategies for controlling herbicide, pesticide and fertilizer use and associated runoff within the Austin Lincoln Park Aquifer Recharge Area will focus on education and voluntary adherence to agricultural “Best Management Practices.” Best Management Practices (BMPs) are agricultural and production guidelines developed to minimize off-site runoff damage while maintaining the profitability and stability of farming operations.

As was cited in Chapter 4.0 above, there is an existing agricultural operation within the aquifer recharge area that should be encouraged to employ more BMPs in order to help protect the water quality of the ALP Aquifer.

“AMERICA IS A GREAT STORY AND THERE IS A RIVER ON EVERY PAGE.”

Charles Kuralt



“A RIVER IS MORE THAN AN AMENITY. IT IS A TREASURE. IT IS A NECESSITY OF LIFE THAT MUST BE RATIONED AMONG THOSE WHO HAVE POWER OVER IT.”

Oliver Wendell Holmes

Village of Walton Wellhead and Source Water Protection Plan Educational Strategies to Minimize Potential Pollution Sources					
No.	Strategy	Tasks	Action	Priority	Responsibility
1	<i>Public Education:</i> Create a public education program regarding lawn and garden maintenance; including natural lawn care alternatives, integrated pest management and appropriate lawn chemical application rates and frequencies.	Develop educational pamphlets and brochures for distribution to homeowners within the aquifer recharge area.	Form Committee	Immediate	Planning Board Village Board
			Create Brochure	Immediate	Planning Board Village Board
		Distribute pamphlets to residents and place signs on edge of protection areas to reinforce the need for participation.	Distribute Pamphlets	Immediate	Water Department
2	<i>Best Management Practices:</i> Create and distribute <i>Agricultural Best Management Practices</i> brochures to farmers within the Austin Lincoln Park Aquifer Recharge Area. Also work with area farmers to secure State and federal grants to implement BMPs. Also ensure that BMPs are being utilized by the existing mining operation that lies with the ALP Secondary Recharge Area.	Develop educational pamphlet for distribution to farmers within the aquifer recharge area.	Create Brochure	Immediate	Village Board Town Board County Planning CCE
		Coordinate with Delaware County, Cornell Cooperative Extension and Farm Bureau to help implement BMPs.	Public Outreach	Immediate	Village Board Town Board County Planning
		Work with area farmers to secure grants to implement BMPs including nutrient and pesticide management plans, riparian buffer zone restoration, etc.	Procure Grant	Short-term	Village Board Town Board County Planning CCE
3	<i>Inventory and Monitoring:</i> Identify and inventory all residential, commercial and agricultural petroleum storage tanks within Primary Aquifer Recharge Areas for the Water Street and Austin Lincoln Park Well Fields. Continue to Monitor Water Street and ALP wells for the presence of potential contaminants.	Create a inventory survey and field verify the location of all storage tanks within the recharge areas	Inventory	Immediate	Building Inspector Water Department
		Establish an annual inspection schedule to identify integrity of the storage tanks.	Annual Inspection	Short-term	Building Inspector Water Department
		Establish an electronic database containing names and addresses of owners and inspection results.	Create Database	Short-term	Building Inspector Water Department
4	<i>Contingency Planning:</i> Create an emergency action plan to coordinate appropriate agencies in the event of an accidental spill.	Establish a point of contact at the Village/Town.	Create Point of Contact	Immediate	Fire Department County EMS
		Post signs along roadways within the aquifer recharge areas with emergency numbers to call in the event of a spill.	Install Signs	Short-term	Fire Department County EMS
		Develop a list of Agency contacts to notify in the event of a spill.	Create Database	Short-term	Fire Department County EMS
Immediate = 1 Year		Short-Term = 1-2 Years	Long-Term = 2-5 years		

Village of Walton Wellhead and Source Water Protection Plan Voluntary Strategies to Minimize Potential Pollution Sources					
No.	Strategy	Tasks	Action	Priority	Responsibility
5	<u>Restrict Public Access to the Public Water Supply System.</u> Restrict Access to the Village's water storage tanks wellheads and pump houses. Place bollards around all wellheads and restrict unauthorized vehicular access within 200 feet of all wellheads to reduce risk of contamination.	Place bollards or large stones at either side of gate to restrict vehicular access to driveway	Install Bollards	Immediate	Village DPW Water Department
		Secure funding through the NYSDEP, EPA or other funding sources to construct recommended improvements.	Grant Application	Short-Term	Village DPW Water Department
		Enhance security fence around tanks to better restrict unauthorized access.	Install Fence	Short-term	Village DPW Water Department
6	<u>Enhance Wellhead Protection.</u> Install bollards and/or other barriers around the Austin Lincoln Park wellheads to prevent accidental or deliberate damage to the wellheads that would allow contaminants to enter the wells. Divert drainage away from wellheads.	Install bollards around wellheads	Install Bollards	Immediate	Village DPW Water Department
		Restrict motor vehicle traffic within 200 feet the existing wellheads by installing gate to restrict vehicular access past the designated off-street parking area.	Install Gate	Short-term	Village DPW Water Department
		Create swale system to divert runoff from ball fields away from wellheads.	Construction	Long-Term	Village DPW Water Department
7	<u>Re-establish the Riparian Buffer Zone along the West Brook in the vicinity of Austin Lincoln Park.</u> This will help to stabilize the bank and reduce further erosion of the stream bank.	Apply for grants through the EPA Targeted Watershed Grant Funds.	Grant Application	Short-Term	Village Board County Planning
		Encourage private landowners to pursue riparian zone restoration efforts.	Public Outreach	Short-term	Village Board Town Board
		Restore West Brook riparian zone at Austin Lincoln Park.	Plant Trees Secure Grant	Short-term	Village Board Village DPW
8	<u>Create Public Park & Stormwater Management System within Water Street Well Field.</u> Create passive park and enhance riparian buffer area. Capture & treat runoff from the Downtown Business District before it enters the Water Street Well Field. Once treated the stormwater could be discharged to the West Brook and West Branch of the Delaware River. <i>Remove fill added to Well Field.</i>	Work with engineers to develop a system for capturing and treating runoff from the Downtown Business District.	Engineering Study	Immediate	Fire Department County EMS
		Secure funding through the NYSDEP, EPA or other funding sources to construct recommended improvements.	Grant Application	Short-term	Fire Department County EMS
		Construct a Stormwater Management System to capture and treat runoff from Downtown Business District. Remove fill added to Water Street Well Field.	Construction	Long-term	Village DPW Water Department
Immediate = 1 Year		Short-Term = 1-2 Years		Long-Term = 2-5 years	

Village of Walton Wellhead and Source Water Protection Plan Land Use Regulations to Minimize Potential Pollution Sources					
No.	Strategy	Tasks	Action	Priority	Responsibility
9	<i>Adopt Local Law for Stormwater Management and Erosion & Sediment Control:</i> Use the NYSDEC Stormwater Management Guidance Manual Sample Local Law as Starting Point.	Establish Steering Committee to development Local Law.	Form Committee	Immediate	Planning Board Village Board
		Draft Local Law; hold public hearing, and Adopt Local Law.	Adopt Local Law	Immediate	Planning Board Village Board
10	<i>Aquifer & Wellhead Protection Overlay District. Adopt Overlay District for the Primary Aquifer Recharge Areas for the Water Street and Austin Lincoln Park Aquifers. Restrict land uses that threaten aquifers, set maximum lot coverage provisions and require site plan review for all "changes in use."</i>	Create Steering Committee to development Over District Regulations.	Form Committee	Immediate	Village Board Town Board
		Village Board and Town Board to adopt Local Law creating Overlay Districts	Adopt Local Law	Short-term	Village Board Town Board
		Require Site Plan Review for all "changes in use" within Overlay District to ensure uses don't pose threat to the aquifer.	Adopt Local Law	Short-term	Village Board Town Board
11	<i>Ensure that NYSDEC Regulations related to maintaining 100 foot buffer along stream course is enforced during Site Plan Review.</i>	Strictly enforce existing NYSDEC Regulations.	Enforcement	Immediate	Planning Board Village Board
12	<i>Ensure that the Planning Board strictly enforces NYSDEC regulations related to stormwater management and erosion & sediment during Site Plan Review and Subdivision Review.</i>	Require the preparation of Stormwater Pollution Prevention Plan (SWPPP) when required by NYSDEC Guidelines.	Enforcement	Immediate	Planning Board Village Board
		Ensure that stormwater Best Management Practices are followed.	Enforcement	Short-term	Planning Board Village Board
13	<i>Work with Town and County to develop a Master Plan for the use of public lands along Water Street. The Master Plan should carefully consider the need to enhance wellhead and aquifer protection for the Water Street Aquifer.</i>	Establish Steering Committee to development Overlay Zoning District.	Form Committee	Immediate	Village Board Town Board County DPW
		Identify a list of appropriate land uses (e.g. parkland, uses that do not pose contamination threat)	Consensus Building	Short-term	Village Board Town Board County DPW
		Master Plan must strictly adhere to SWPPP requirements and enhance protection the Water Street Well Field.	Consensus Building	Short-term	Village Board Town Board County DPW
Immediate = 1 Year		Short-Term = 1-2 Years		Long-Term = 2-5 years	

APPENDICIES

OTHER NON-REGULATORY MEASURES

The acquisition of certain lands within the Primary and Secondary Aquifer Recharge Areas should be considered to prevent the development of environmentally sensitive parcels of land that, if developed, would impact the aquifer. Conservation easements are another strategy that could be employed by the Village of Walton to ensure that environmentally sensitive lands in the aquifer recharge area are not disturbed by development.

Land Donation:

Landowners are sometimes in a position of being able to donate a piece of their land either to the community or a not for profit organization such as local land trusts. The initial benefit to the person donating the land comes in the elimination of estate or capital gains taxes. In addition, real estate taxes, insurance and maintenance cost are avoided. The entire value of the donation can be deducted, over time, from federal and, in many cases, State income tax obligations.

Conservation Easements:

An easement is a limited right to use or restrict land owned by someone else. Easements are either positive (rights-of-way) or negative (conservation, scenic) and may take a variety of forms. Easements can effectively assist a community in protecting land from development by restricting all or a portion of the property to open space or limited development uses. It is recommended that the Village and Town *support efforts by property owners to participate in the Conservation Tax Credit (CTC) Program*. The New York State legislature passed the CTC in 2006 that gives landowners whose land is restricted by a permanent conservation easement an annual rebate of 25% of the property taxes paid on that land, up to \$5,000 per year. This credit is available to all owners of easement-restricted land regardless of when the easement was created, provided that the easement was wholly or partially donated to a land trust or governmental agency. The CTC does not reduce local property taxes. The landowner pays their normal taxes to the Town and receives a rebate from the State.

Water Quality Monitoring:

Continue to monitor the quality of the water that is drawn from the Austin Lincoln Park and Water Street Well Fields. On-going monitoring can be used to measure the effectiveness of the proposed water quality protection measures or used as an early warning of potential threats to groundwater quality.

Road Salt Management:

The Village of Walton may want to consider establishing *low or no-salt zones* along certain roads within the Water Street Aquifer Protection Zone – especially those roads that drain toward the Water Street Well Fields. It is recognized that there may be practical limitations to this recommendation but it should be explored.

