

4. ASSESSMENT FINDINGS

The detailed compilation of findings from our fieldwork in each area can be found in **Appendix D**. The following summarizes those findings that directly relate to the five criteria that we feel are most critical. All findings from the field inspections were taken into account when drawing conclusions and recommendations for each area.

4.1. Inner Mallets Bay

All parcels in inner Mallets Bay within 300' of the shoreline were included in the assessment. They were further subdivided into smaller study areas, as follows:

4.1.1 North Mallets Bay/Niquette Bay



North Mallets Bay/Niquette Bay Study Area

North Mallets Bay/Niquette Bay is an area of land with one hundred nine (109) developed properties located in inner Mallets Bay bordered by US Route 2 to the north, Interstate 89 to the east and Lake Champlain to the west and south. The area consists of a mix of year-round residences and seasonal camps. Detailed wastewater assessments were performed in this area on November 3 and 10, 2010 and September 13, 2011.

ROE Response and Property Classification

Forty-three (43) ROE responses were received, of which thirteen (13) detailed on-site assessments were performed. The thirteen (13) properties assessed had the following property uses:

- Five (5) year-round residences
- Seven (7) seasonal residences
- One (1) year-round multi-family residence

Area Assessment

- Three (3) properties have designated replacement areas
- Three (3) properties have potential room for a replacement area
- Seven (7) properties do not have room for a replacement area
- Three (3) of the above properties may have room for a potential cluster system

The on-site area assessment findings are consistent with the town-wide needs assessment, which concluded that 34% of the properties have area restrictions. Based on these findings, **the area limitation criterion is ranked moderate-severe.**

Distance to Surface Waters

- Nine (9) properties met the 50' isolation distance to bodies of water
- One (1) property did not meet the required 50' isolation distance
- Three (3) disposal systems could not be located

Based on these findings, **the distance to surface water criterion is ranked low-moderate.**

Soil Assessment

- Five (5) properties have soils (sand, loamy sand) well suited for on-site septic systems
- Two (2) properties have soils (clay loam) moderately suitable for on-site septic systems
- One (1) property has soils (silty clay loam) unsuitable for on-site septic systems
- Three (3) properties consisted entirely of bedrock
- Two (2) properties had insufficient access to perform a soil boring

Based on these findings, **the soils criterion is ranked moderate.**

Groundwater Assessment

- Three (3) properties have seasonal high groundwater less than 24”
- Five (5) other properties have seasonal high groundwater greater than 48”
- Soil borings were not performed for five (5) of the properties (either entirely bedrock or no access) so groundwater levels are unknown.

Based on these findings, **the groundwater criterion is ranked low-moderate.**

Bedrock Assessment

- Eight (8) properties have bedrock less than 24”
- Three (3) do not have bedrock to a depth of 48”
- Two (2) properties are unknown (no soil boring taken)

Based on these findings, **the bedrock criterion is ranked severe.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the majority of North Mallets Bay/Niquette Bay requires performance-based systems, with the exception of some properties to the northeast, which are well suited for conventional subsurface systems. The on-site assessment agrees with these findings.

Assessment Summary

Table 4.1 provides a summary of the site criteria including classification and rating value.

Table 4.1
Assessment Summary – North Mallets Bay/Niquette Bay

Criteria	Classification	Rating Value
Area	Moderate-Severe	3
Distance to Surface Water	Low-Moderate	1
Soils	Moderate	2
Groundwater	Low-Moderate	1
Bedrock	Severe	4

The environmental needs assessment rating for this area is **“medium”** with a total weighted score of 15 points.

Capacity at Build-Out

Most existing wastewater systems are in-ground. We also observed a few mound systems. From the town-wide assessment 47,978 gpd (67%) of the estimated 71,528 gpd of existing wastewater flow is classified as conforming.

There appears to be capacity for an additional 24,360 gpd of conforming flows for the build-out condition. A number of the lots in this area are large and have not been subdivided. There is also an expanse of open land that is designated as “conserved land”.

Watershed/Water Quality

North Mallets Bay/Niquette Bay is primarily in the Lake Champlain watershed, but is also within the Stream 8 watershed in the southern third and the Lamoille River watershed in the north. No microbial source tracking sampling was taken in the area.

Wastewater Alternatives

Potential exists for small cluster systems throughout the area, but these were not evaluated in detail. Small cluster systems could be used if individual systems cannot be sited, but would be substantially more expensive to construct due to the long collection system runs to connect parcels together. Large cluster systems were not evaluated for similar reasons of cost affordability. Cluster systems may be a viable solution for future development if the density of development can support the cost of construction.

Conclusions & Recommendations

The environmental needs assessment rating is “medium” primarily due to small lot sizes along the shoreline and shallow depth to bedrock.

It is recommended that the North Mallets Bay/Niquette Bay area maintain and improve existing on-site systems. System replacements may be conventional, advanced treatment, and/or “best-fix” as needed. Currently, some individual on-site replacement systems in the area are being constructed using advanced treatment systems in both a complying and “best fix” scenario to reduce the minimum required depth to both bedrock and groundwater.

Due to the constraints cited above, we recommend periodic inspections of all systems (every five years) to identify failed systems in need of replacement. These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.1.2 Goodsell Point/Sunset View Road



Goodsell Point/Sunset View Road Study Area

Goodsell Point and Sunset View Road is an area with forty-nine (49) developed properties located in inner Mallets Bay bound to the east by Interstate 89, west by Lake Champlain, south by Bay Road and north by Indian Brook inlet. The area consists of a mix of seasonal camps and year-round residential properties. Detailed wastewater assessments were performed in this area on September 21, 23, and 24 and November 3, 2010.

ROE Response and Property Classification

Twenty-two (22) Right of Entry (ROE) responses were received, of which thirteen (13) detailed on-site assessments were performed. The thirteen (13) properties assessed had the following property uses:

- Eight (8) year-round residences
- Five (5) seasonal residences

Area Assessment

- No properties have a designated replacement area
- Only two (2) properties have room for a potential designated replacement area

The town-wide assessment concluded that 68% of the properties have area constraints, especially within Goodsell Point, which was corroborated by our fieldwork. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- Eight (8) properties met the 50' isolation distance to surface waters
- Five (5) properties did not meet the 50' isolation distance to surface waters

Based on these findings, **the distance to surface waters criterion is ranked moderate-severe.**

Soil Assessment

- Five (5) properties have soils (loamy sand and sandy loam) well suited for on-site septic systems. These properties are mostly in the southern part of Goodsell Point.
- One (1) property has soils (clay loam) moderately suitable for on-site septic systems and is located in the northern part of Goodsell Point.
- Two (2) properties have soils (sandy clay and silty clay loam) rated as not suitable for on-site septic systems. These properties are located along Sunset View Road.
- Five (5) of the properties consisted entirely of exposed bedrock and a soil boring was not taken. These properties are rated as not suitable for on-site septic.

Based on these findings, **the soils suitability criterion is ranked severe.**

Groundwater Assessment

- Four (4) properties have a depth to seasonal high groundwater of less than 24"
- Four (4) properties have a depth to seasonal high of groundwater between 24"-48"
- Five (5) properties consisted of entirely exposed bedrock and a soil boring was not taken

Based on these findings, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

- Nine (9) properties have a depth to bedrock of less than 24”, including five (5), which consisted almost entirely of exposed bedrock.
- Four (4) properties have a depth to bedrock greater than 48”

Based on these findings, **the bedrock criterion is ranked severe.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the majority of Goodsell Point and Sunset View Road are suited for performance-based treatment and disposal systems, but not conventional systems. The southern part of Goodsell Point is well suited for filtrate and mound systems with a curtain drain. The on-site assessment corroborated these findings, as soils, groundwater and bedrock were all classified as severely limiting.

Assessment Summary

Table 4.2 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.2
Assessment Summary – Goodsell Point and Sunset View Road

Criteria	Classification	Rating Value
Area Limitation	Severe	4
Distance to Surface Water	Moderate-Severe	3
Soils	Severe	4
Groundwater	Moderate-Severe	3
Bedrock	Severe	4

The environmental needs assessment rating for this area is **“high”** with a weighted score of 23.5 points.

Capacity at Build-Out

Currently, individual on-site replacement systems are being constructed in this area using advanced treatment systems in a “best fix” scenario to both reduce the size of the disposal systems to compensate for the area restrictions and to reduce the minimum required depth to bedrock and groundwater. It is likely that future replacement systems will need to use advanced treatment technologies to provide a “best fix”.

From the town-wide assessment, all 16,100 gpd of the estimated existing wastewater flow is classified as non-conforming. It is estimated that there is no wastewater capacity for future growth.

Watershed/Water Quality

Goodsell Point and Sunset View Road are in the Lake Champlain watershed. The Crooked Creek watershed discharges to the shoreline at the southern tip of Goodsell Point. The Indian Brook watershed discharges to the lake along the north boundary of Sunset View Road.

Microbial Source Tracking sampling (M11-CC) was performed at the southern tip of Goodsell Point. There were elevated *e-coli* readings during both wet and dry weather events. There was no evidence of human isolates in the testing, but substantial numbers of wild animal and wild bird isolates were identified.

Wastewater Alternatives

Though Goodsell Point and Sunset View Road were scored as a single area, they are separated below when considering alternatives and making recommendations. Goodsell Point is a dense cluster of small lots and very limited conditions to support on-site wastewater systems. Sunset View Road has somewhat similar limitations, except that lot sizes tend to be larger and more spread-out, providing better options for individual on-site wastewater systems.

The conditions in Goodsell Point are the poorest of any area investigated in Colchester. If individual on-site systems are to be upgraded to meet the wastewater needs, most system replacements would be advanced treatment systems and still be “best-fix” because of the severe area, bedrock and groundwater constraints. A number of these systems would be quite marginal, even using I/A technologies. The estimated construction cost for upgrading the on-site systems in this area would range from \$800,000 - \$1,000,000, but would still be inadequate at a number of properties.

Goodsell Point has a common green area that could be considered for a cluster system. The estimated flows for a cluster wastewater system serving the Goodsell Point area would be approximately 6,700 gpd. The system might consist of a large community septic tank followed by dual alternating mound or at-grade disposal systems due to site conditions. The estimated construction cost for a cluster community wastewater collection, treatment and disposal system located at the common green area would be approximately \$1,000,000, primarily due to the extent of the collection system required.

Central sewers would only be a viable option if extended to the intersection of East Lakeshore Drive and Bay Road. The estimated cost of central sewers to serve Goodsell Point would be \$1,100,000, with an estimated total project cost of \$1,300,000. This does not include the cost of a trunk sewer to Bay Road, which is estimated to have a construction cost of \$6,900,000 and a total project cost of \$10,200,000.

For Sunset View Road, most system replacements would require advanced treatment systems and still be “best-fix” because of severe bedrock and groundwater constraints. Some lots have area constraints, but the lot sizes tend to be larger than in Goodsell Point, making individual on-site systems more viable. The estimated construction cost for upgrading on-site systems in this area would range from \$750,000 - \$1,500,000.

There is a shared mound leachfield area on Sunset View Road that could potentially be expanded for a cluster system. The estimated flows for a cluster subsurface wastewater system serving the Sunset View Road area would be approximately 10,000 gpd. The system might consist of a large community septic tank followed by dual alternating mound disposal fields. The estimated construction cost for a cluster community wastewater collection, treatment and disposal system located in the area of an existing shared mound system on Sunset View Road would be approximately \$2,500,000, primarily due to the extent of the collection system required.

Constructing central sewers to serve Sunset View Road is not a viable option, because lots are rather spread out. The collection system and trunk sewer to Goodsell Point would be cost prohibitive.

Conclusions & Recommendations

Based on the severe limitations in Goodsell Point, we conclude that something should be done to improve wastewater treatment. Colchester should consider constructing a cluster system in the common green or central sewers if extended to the intersection of East Lakeshore Drive and Bay Road. Individual on-site wastewater treatment and disposal systems cannot adequately protect public health and the environment.

Conditions along Sunset View Road are not as severe, primarily due to larger lots and more open space. Soils suitability and depth to bedrock are still severe constraints however, so upgrading individual systems to the best available technologies and promoting proper inspection and maintenance should be encouraged. We recommend that all systems be inspected and systems that are deemed most marginal (or failed) be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement. These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.1.3 East Lakeshore Drive West (lake side)



East Lake Shore Drive West (lakeside) Study Area

East Lakeshore Drive West (lakeside) is an area with sixty-two (62) developed properties in inner Mallets Bay bound to the west by Lake Champlain, south by Blakely Road & West Lakeshore Drive, north by Bay Road and east by East Lakeshore Drive. The area consists primarily of seasonal camps with a few year-round residences. Detailed wastewater assessments were performed on September 21, 23, 24, and 29, 2010, October 7 and 13, 2010 and September 9, 2011.

ROE Response and Property Classification

Seventeen (17) ROE responses were received, but we were only able to make appointments with five (5) properties, which limited our ability to adequately assess the area. The five (5) properties assessed had the following property uses:

- Two (2) year-round residences
- Two (2) seasonal residences
- One (1) seasonal multi-family residences

Area Assessment

- No properties have a designated replacement area
- One (1) property has potential area for a complying replacement system.
- Four (4) properties have no replacement area
- No properties have potential area for a cluster system

The town-wide assessment concluded that 56% of the properties have area constraints, which was corroborated by our fieldwork. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- Two (2) properties met the 50' isolation distance to surface waters
- Three (3) properties did not meet the 50' isolation distance to surface waters

Based on these findings, **the distance to surface water criterion is ranked severe.**

Soil Assessment

- Three (3) properties have soils with textures consisting of sand or sandy loam, which are well suited for on-site septic systems.
- Two (2) properties did not have soil borings performed, due to limited available area to conduct a soil probe.

Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- Two (2) properties have a depth to seasonal high groundwater between 24" – 48"
- One (1) property has a depth to seasonal high groundwater greater than 48"
- Two (2) properties are unknown (no soil boring taken)

Based on these findings, the groundwater constraints would appear to be low. Because the number of parcels inspected was limited (and not representative of all sites in the area), the groundwater criterion is **ranked moderate-severe** to coincide with the conclusions of the town-wide assessment and groundwater assessments we made in adjacent areas along the lakeshore.

Bedrock

- One (1) property has a depth to bedrock between 24” - 48”
- Two (2) properties showed no evidence of bedrock at 48”
- Two (2) properties are unknown (no soil boring taken)

Based on these findings, **the bedrock criterion is ranked low-moderate**.

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the northern portion of East Lakeshore Drive (Lakeside) is only suited for performance-based systems, while the southern part is also suited for filtrate and mound systems with a curtain drain. The on-site assessment agrees with these findings. Many of the properties have very limited space for on-site septic systems, with moderately high seasonal groundwater where a filtrate or mound system is required.

Assessment Summary

Table 4.3 provides a summary of the assessment by site criteria including the classification and rating value.

Table 4.3
Assessment Summary – East Lakeshore Drive (lake side)

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Severe	4
Soils	Low	0
Groundwater	Moderate-Severe	3
Bedrock	Low-Moderate	1

The environmental needs assessment rating for this area is **“high”** with a weighted score of 16.5 points.

Capacity at Build-Out

From the town-wide assessment, all 16,240 gpd of estimated existing wastewater flow is classified as non-conforming. It is estimated that there is no wastewater capacity for future build-out.

Watershed/Water Quality

East Lake Shore Drive West is in the Lake Champlain watershed. The Crooked Creek watershed drains to the lake at the northern tip. Smith Hollow Creek watershed drains to the lake in the middle.

Microbial Source Tracking sampling was taken at several locations along East Lake Shore Drive West (M11-CC, M9, M8-SH and M8A-SH). There were elevated *e-coli* readings during both wet and dry weather events. There was evidence of human isolates in the testing at sites M9, M8-SH and M8A-SH, along with domestic animals, wild animals and wild birds. These sites are outlets of Smith Hollow Creek and an unnamed stream discharging to the lake. It is suspected that the streams are transporting some of the *e-coli* from upstream to the lakeshore.

Wastewater Alternatives

Wastewater systems consist of dry wells, innovative/alternative systems, small leach fields and a large number of holding tanks. There was one property identified during the on-site inspections that had a potentially failed system. Many of the individual properties do not have suitable area to replace their existing on-site systems. Advanced treatments system technologies will be needed for most replacements in a “best fix” scenario, but even these would prove marginally adequate in a number of locations.

It isn't possible to construct individual complying systems for most properties. Many of the system upgrades would include holding tanks; advanced treatment systems and most would still be “best-fix”, because the severe area constraints and inadequate distance to surface waters simply cannot be overcome with any current treatment technologies. No estimate of system upgrade costs was performed as we deem this option as not viable to reasonably protect public health and the environment.

It is estimated that 16 small clusters with approximately 4 properties per cluster could be sited on the properties along the east side of the road. The estimated construction cost for providing small cluster systems on the east side of the road for the parcels on the west side of the road would range from \$1,000,000 - \$1,500,000. While this may be a viable option, it is unlikely that property owners on the east side of East Lakeshore Drive would allow cluster systems on their property to support properties on the opposite side of the street.

The estimated construction cost for central sewers along East Lakeshore Drive to a municipal trunk sewer at the intersection of East and West Lakeshore Drive is approximately \$2,500,000 with an estimated total project cost of \$3,100,000. This does not include any share of the cost of the trunk sewer, which is estimated to cost \$6,900,000, with an estimated total project cost of \$10,200,000. These costs include sewers to both the west and east sides of East Lakeshore Drive.

While there is no build-out capacity in this area, the properties should be connected to a centralized sewer system if one is ever constructed along East Lake Shore Drive, as good decentralized options are not readily available.

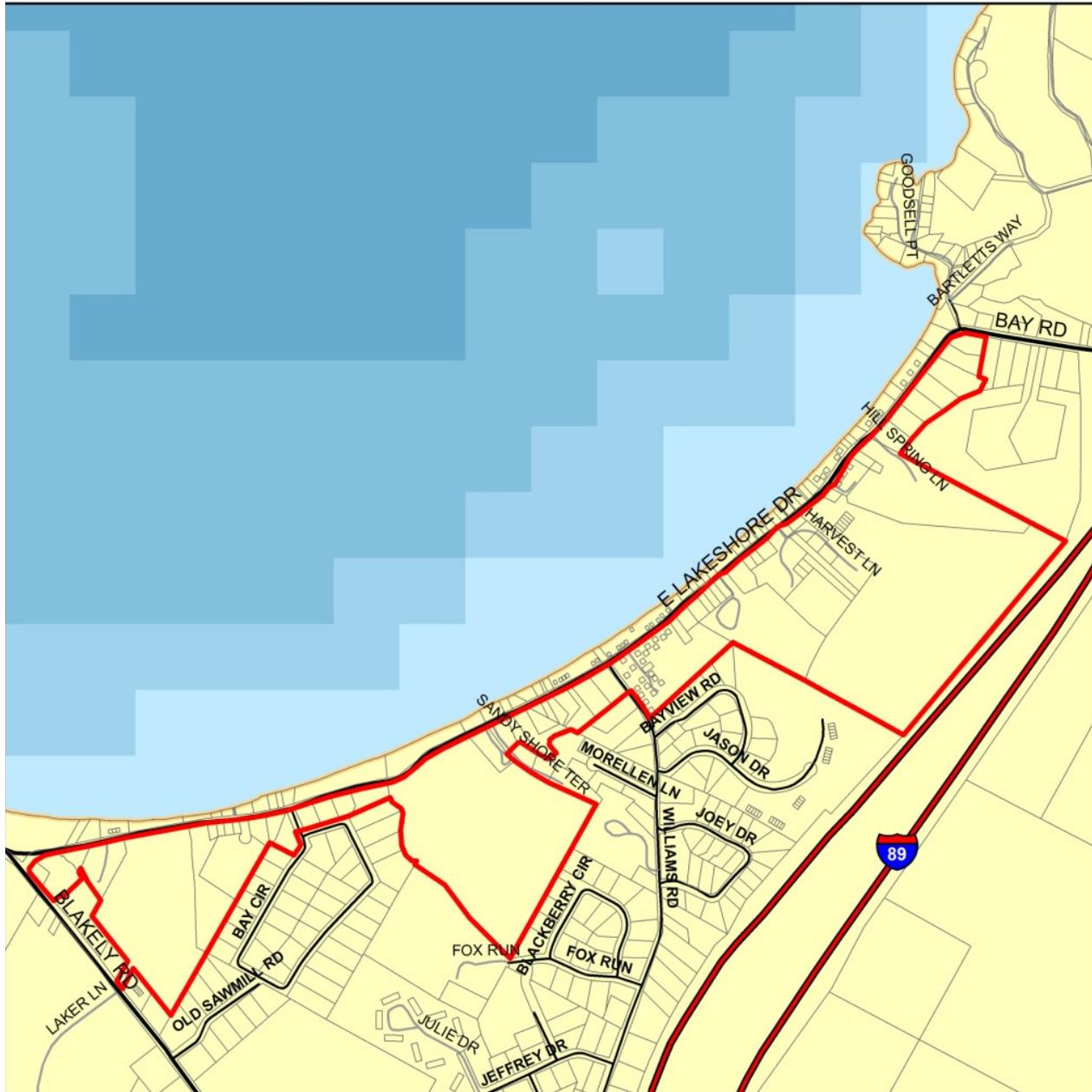
Conclusions & Recommendations

Due to small lot sizes and such close proximity to the shoreline, individual on-site wastewater options are not an appropriate option for the vast majority of the developed lots. We conclude that there is a serious risk to public health and the environment that should be mitigated with improved wastewater management.

While small cluster systems located across the street could technically be a viable option, it isn't likely that it would be supported by those property owners on the east side of East lakeshore Drive that would be affected.

Colchester should actively consider construction of a central sewer system, as it appears to be the only reasonable option for treating and disposing of the wastewater and protecting public health and the environment. If central sewers are constructed, properties on both sides of East Lakeshore Drive should be connected.

4.1.4 East Lakeshore Drive East (road side)



East Lake Shore Drive East (road side) Study Area

East Lakeshore Drive East (roadside) is an area of ninety-four (94) developed properties in inner Mallets Bay bound to the east by Interstate 89, west by East Lakeshore Drive, south by Blakely Road and West Lakeshore Drive, and north by Indian Brook inlet. The area consists primarily of year-round residential properties. Detailed wastewater assessments were performed in this area on September 21, 23, 24, and 29, 2010, October 7 and 13, 2010 and September 9, 2011.

ROE Response and Property Classification

Eighteen (18) ROE responses were received, of which nine (9) detailed on-site assessments were performed. The nine (9) properties assessed had the following property uses:

- Three (3) year-round residences
- One (1) year-round commercial
- Three (3) year-round multi-family residences
- Two (2) seasonal multi-family residences

Area Assessment

- Three (3) properties have a designated replacement area
- Two (2) properties have potential room for a replacement system
- Four (4) properties do not have room for a replacement system
- Three (3) of the above properties have potential room for a cluster system

Results from the town-wide assessment concluded that 51% of the properties having area limitations. Based on a roadside inspection of properties we agree that the majority of properties appear to have area limitations. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

All of the properties meet the required 50' isolation distance to surface water. Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

- Seven (7) properties have soils (sand, sandy loam, loamy sand) well suited for on-site septic systems
- One (1) property has moderate soils (sandy clay loam) moderately suitable for on-site septic systems
- A soil boring was not performed at one (1) property because of limited access

Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- Three (3) properties have depth to seasonal high groundwater less than 24"
- Three (3) other properties have depth to seasonal high groundwater between 24"- 48"
- Two (2) properties have depth to seasonal high groundwater greater than 48"
- A soil boring was not performed at one (1) property because of limited access

Based on these findings, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

- One (1) property encountered bedrock less than 24” below the surface
- Seven (7) properties had a depth to bedrock greater than 48” below the surface
- A soil boring was not performed at one (1) property because of limited access

Based on these findings, **the bedrock criterion is ranked moderate.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the majority of East Lakeshore Drive East (road side) is well suited for conventional subsurface septic systems, despite the area limitations. The on-site assessment corroborated these findings. The town-wide assessment also identified a pocket of land to the north near Bay Road that has soils that require performance-based systems.

Assessment Summary

Table 4.4 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.4
Assessment Summary – East Lakeshore Drive East (road side)

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Low	0
Soils	Low	0
Groundwater	Moderate-Severe	3
Bedrock	Moderate	2

The environmental needs assessment rating for this area is “**medium**” with a weighted score of 12 points.

Capacity at Build-Out

Most individual on-site replacement systems are in-ground. Advanced treatment systems may be required where there are area limitations. From the town-wide assessment 38,723 gpd (77%) of the estimated total flow of 50,133 gpd is classified as conforming. It is estimated that there is no wastewater capacity for future build-out.

Watershed/Water Quality

East Lake Shore Drive East is primarily in the Lake Champlain watershed, with a smaller portion in the Smith Hollow Creek watershed. The Crooked Creek watershed drains to the lake at the northern tip. Smith Hollow Creek watershed drains to the lake in the middle.

Microbial Source Tracking sampling was taken at several locations along East Lake Shore Drive West as described in Section 4.1.3.

Wastewater Alternatives

Soils on the east side of East Lakeshore Drive are well suited to support individual on-site wastewater systems. Area constraints are rated severe with depth to groundwater and depth to bedrock rated moderate-severe. Individual on-site systems are generally appropriate for this side of the road and can protect public health and the environment. There are also areas along East Lake Shore Drive that could be used for small cluster systems, if individual systems fail and there is no viable replacement alternative on the site. Because of the development density in the area, there are no potential nearby large cluster system options.

While central sewers are not necessary to meet the wastewater needs of properties along the east side of East Lakeshore Drive, they should be connected if a central sewer is constructed. The cost to sewer the east side of East Lakeshore Drive is included in the cost reported to sewer the west side of East Lakeshore Drive.

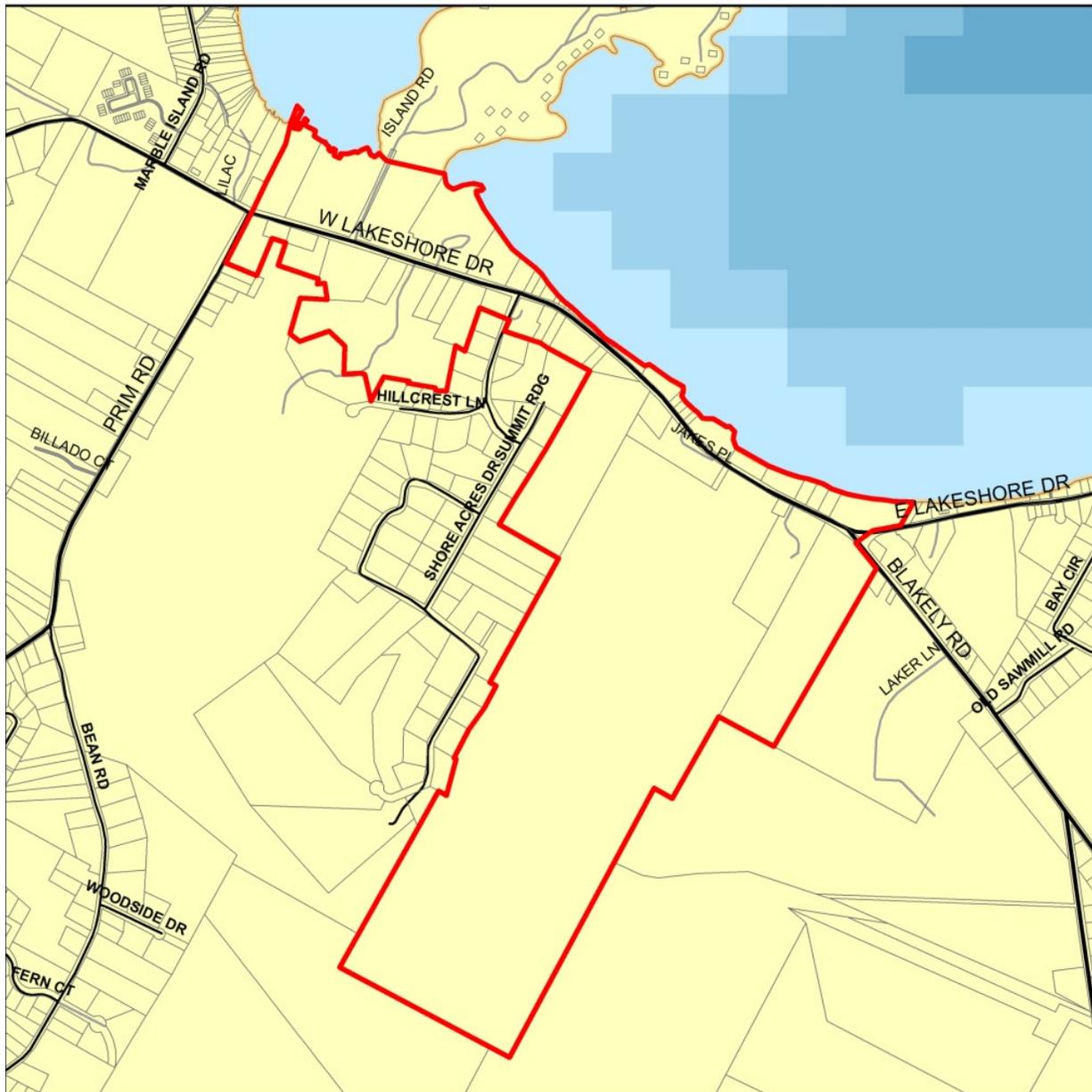
Conclusions & Recommendations

We recommend that all systems be inspected and systems that are deemed most marginal (or failed) be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement. These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

The east side of East Lakeshore Drive could probably be managed properly without significant investment in new wastewater infrastructure, but the west side (lakeside) certainly can't. If it is ultimately determined that central sewers are the best option for the west side of East Lakeshore Drive, the properties on the east side should also be connected to mitigate the public health concerns.

4.1.5 West Lakeshore Drive



West Lake Shore Drive Study Area

West Lakeshore Drive is a stretch of land with forty-three (43) developed properties located in inner Mallets Bay bound to the east by East Lakeshore Drive and Blakely Road, west by Holy Cross Road, south by Shore Acres and north by Lake Champlain. The area consists of mixed uses of year-round residential, seasonal residential, municipal recreation facilities, commercial, and industrial properties. Detailed wastewater assessments were performed on October 5, 6, 7, and 13, 2010, and September 9, 2011.

ROE Response and Property Classification

Twenty-three (23) ROE responses were received, of which fourteen (14) detailed on-site assessments were performed. The fourteen (14) properties had the following property uses:

- Eight (8) year-round residences
- Four (4) seasonal residences
- One (1) year-round commercial
- One (1) seasonal commercial

Area Assessment

- Two (2) properties have a designated replacement area
- Four (4) properties have potential room for a replacement system
- Eight (8) properties have no room for a replacement system
- One (1) of the above properties has potential room for a cluster system.

The on-site area assessment work validates the town-wide assessment for this area, which concluded that 37% of the properties have area restrictions. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- Seven (7) properties meet the 50' isolation distance to surface waters
- Seven (7) properties did not meet the 50' isolation distance to surface waters

Based on these findings, **the distance to surface water criterion is ranked severe.**

Soil Assessment

- Nine (9) properties have soils well suited for on-site septic systems
- Two (2) properties have soils moderately suitable for on-site septic systems
- Three (3) properties did not have soil borings performed because of limited land area

Based on these findings, **the soils suitability criterion is ranked low-moderate.**

Groundwater Assessment

- Three (3) properties have depth to seasonal high water less than 24"
- Three (3) properties have depth to seasonal high water between 24" - 48"
- Five (5) properties have depth to seasonal high groundwater greater than 48"
- Three (3) soil borings were not performed, due to limited access

Based on these findings, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

Bedrock is not an issue along West Lakeshore Drive. Each of the assessed properties has depth to bedrock greater than 48” below the surface. Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The area is characterized by sandy soils, and adequate depth to groundwater and bedrock west of the low point near the marinas. The low area at the marinas is characterized by sandy soils, but very shallow depth to groundwater. East of the marinas, the area is characterized by poor soils and shallow depth to groundwater. The town-wide assessment concluded that West Lakeshore Drive has differing capacity for on-site systems throughout. Properties near the intersection of East Lakeshore Drive are well suited for filtrate and mound systems with a curtain drain closest to the lake and conventional subsurface systems on the other side of the road. As you move west toward Shore Acres the conditions change and are well suited for either performance based systems or mound systems. Further west past Shore Acres the soils become suitable for conventional wastewater systems. The on-site assessment agrees with these findings.

Assessment Summary

Table 4.5 provides a summary of the site criteria assessment, including the classification and rating value.

Table 4.5
Assessment Summary – West Lakeshore Drive

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Severe	4
Soils	Low-Moderate	1
Groundwater	Moderate-Severe	3
Bedrock	Low	0

The environmental needs assessment rating for this area is **“high”** with a weighted score of 16 points.

Capacity at Build-Out

From the town-wide assessment, 25,055 gpd (76%) of the estimated 33,096 gpd of existing wastewater flow is classified as conforming. There also appears to 13,033 gpd of wastewater capacity for future build-out. However, based on our fieldwork, we conclude that the area is more severely constrained. Anecdotally, we have been told that future development is stymied by a lack of adequate wastewater capacity where development is sought.

Watershed/Water Quality

West Lake Shore Drive is split between the Lake Champlain watershed and the Moorings Stream watershed.

Microbial Source Tracking sampling was taken at two locations along West Lake Shore Drive (M7-MS and MB2-BAY). There were elevated *e-coli* readings during both wet and dry weather events. There was evidence of human isolates at both sites during dry weather events, but not wet weather events. Wild animal and wild bird isolates were also evident (both dry and wet weather events).

Wastewater Alternatives

To bring all systems into compliance, a range of differing types of systems would be employed depending on site conditions. The estimated construction cost to improve systems in this area would range from \$500,000 - \$1,000,000. There appear to be no good cluster system options based on our fieldwork. Upgrading individual on-site systems doesn't address capacity needs at full build-out.

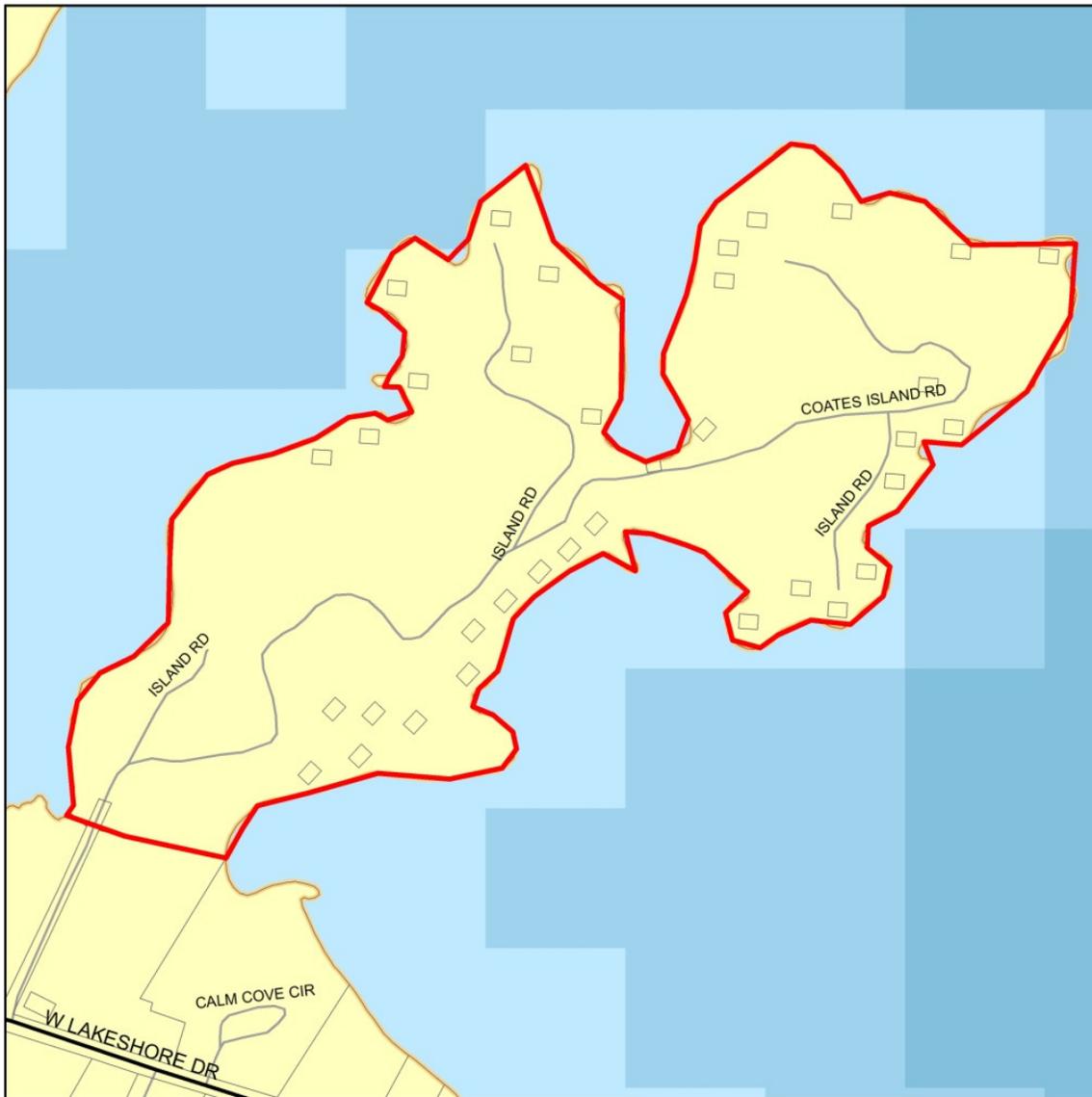
From the recent sewer study conducted for Colchester Fire District #2, the estimated construction cost for a core area sewer serving West Lakeshore Drive is approximately \$6,900,000 with an estimated total project cost of \$10,200,000. Central sewers would help leverage build-out as well as serve the marinas that have a heavy seasonal use generally serviced by holding tanks.

Conclusions & Recommendations

The environmental needs assessment is rated "high" due to area limitations, isolation from surface waters and high groundwater. Individual on-site systems could marginally meet current wastewater needs, but cannot satisfy demands for full build-out of the area. If further build-out is not desired, we recommend that all systems be inspected and systems that are deemed most marginal (or failed) be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement. These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system.

If further development of the area is a priority, central sewers should be pursued. This will also mitigate marginal systems and better serve the marinas in the area that currently operate with holding tanks during the summer boating season.

4.1.6 Coates Island



Coates Island Study Area

Coates Island is a peninsula with twenty-six (26) dwellings located in inner Mallets Bay with access from West Lakeshore Drive. The area consists mostly of seasonal camps; but there are three (3) year-round residences. Detailed wastewater assessments were performed in this area on October 14, 2010.

Coates Island is one large parcel for tax purposes with camps and residences located on leased land. Since there are no property boundaries, an assessment of area limitations was not practical under the town-wide assessment. During the field assessments, lot boundaries could be estimated which were used in assessing area limitations.

ROE Response and Property Classification

Nineteen (19) ROE responses were received, of which seven (7) detailed on-site assessments were performed. The seven (7) properties assessed had the following property uses:

- Two (2) year-round residences
- Five (5) seasonal residences

Area Assessment

- Two (2) properties have a designated replacement area
- One (1) property has potential room for a replacement area
- Four (4) properties do not have room for a replacement area
- Two (2) of the above properties have potential room for a cluster system

Based on these findings, **the area limitation criterion is ranked moderate-severe.**

Distance to Surface Waters

- Six (6) properties met the 50' isolation distance to surface waters
- One (1) property did not meet the 50' isolation distance to surface waters

Based on these findings, **the distance to surface water criterion is ranked moderate.**

Soil Assessment

- Six (6) properties have soils (clays) rated for performance based systems
- One (1) property did not have a soil boring performed

Based on these findings, **the soils suitability criterion is ranked severe.**

Groundwater Assessment

- All seven (7) properties have depth to seasonal high groundwater less than 24" below the surface

Based on these findings, **the groundwater criterion is ranked severe.**

Bedrock Assessment

- All seven (7) properties have a depth to bedrock greater than 48" below the surface.

Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the majority of Coates Island is only suited for performance-based systems, with the exception of the southern tip, which is well suited for conventional subsurface systems. We agree with these findings, except for the southern tip, where we found high groundwater and bedrock, which is not conducive for conventional subsurface systems.

Assessment Summary

Table 4.6 is a summary of the site criteria assessment including the classification and rating value.

Table 4.6
Assessment Summary – Coates Island

Criteria	Classification	Rating Value
Area	Moderate-Severe	3
Distance to Surface Water	Moderate	2
Soils	Severe	4
Groundwater	Severe	4
Bedrock	Low	0

The environmental needs assessment rating for this area is **“high”** with a weighted score of 15.5 points. The area is characterized by shallow depth to groundwater and poor soils.

Capacity at Build-Out

From the town-wide assessment, all 11,970 gpd of estimated current flows are classified as conforming because there was no means to evaluate lot sizes. Current zoning indicates that there is capacity for further build-out of the area; however the “high” assessment rating suggests that there is limited wastewater capacity for further development.

Watershed/Water Quality

Coates Island is in the Lake Champlain watershed. No microbial source tracking sampling was taken in the area.

Wastewater Alternatives

Current systems generally appear to be functioning adequately as no failed systems were observed. Future replacement systems may need to use advanced treatment technologies in order to comply with the Environmental Protection Rules or to provide a “best fix”. The common open pockets of land could also be considered for a cluster wastewater disposal system, if further build-out is desired. This alternative was not evaluated due to the high cost and lack of an apparent need.

The area is rather remote to West Lakeshore Drive, so central sewers are cost prohibitive and not justified when considering the public health risks

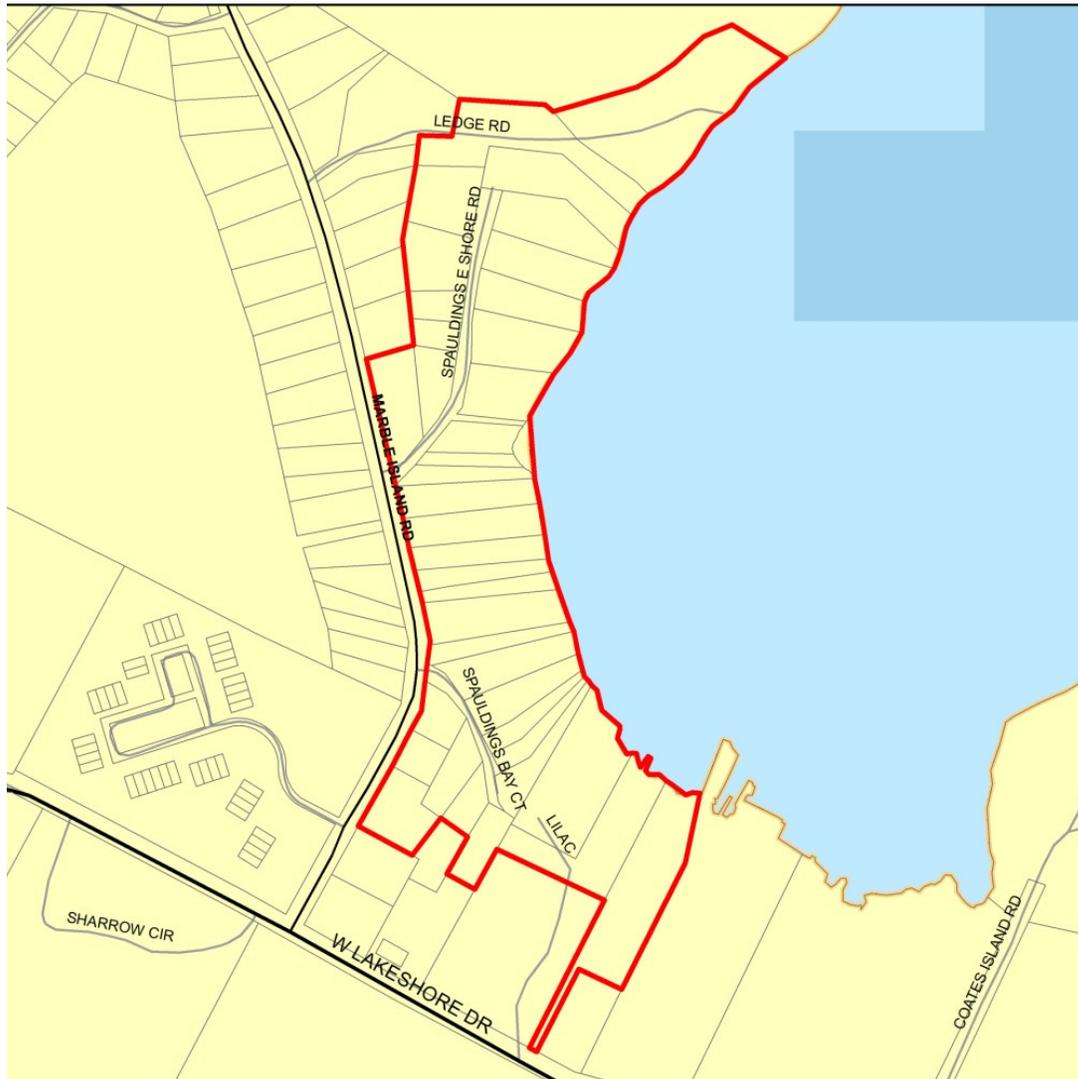
Conclusions & Recommendations

Since there isn't a build-out demand, most of the properties are seasonal occupancies and cluster system options could be considered, maintaining current systems and closely monitoring for failures is recommended. All systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.1.7 Spaulding East Shore



Spaulding East Shore Study Area

Spaulding East Shore is a portion of land with thirty-seven (37) developed properties located in inner Mallets Bay bound to the west and north by Marble Island, south by West Lakeshore Drive and east by Lake Champlain. The area consists of a mix of year-round residences and seasonal camps. Detailed wastewater assessments were performed in this area on October 13, 14, and 20, 2010.

ROE Response and Property Classification

Twenty (20) ROE responses were received, of which six (6) detailed on-site assessments were performed. The six (6) properties assessed had the following property uses:

- Five (5) year-round residences
- One (1) seasonal residence

Area Assessment

- Two (2) properties have a designated replacement area
- Four (4) properties do not have potential for a replacement area.
- One (1) of the above properties has potential room for a cluster system

Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- Five (5) properties meet the 50' isolation distance to surface waters
- At one (1) property, the location of the disposal system could not be determined

Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

- Five (5) properties have soils (sandy soils) that are conducive to on-site septic systems
- One (1) property did not have a soil boring performed, due to limited access

Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

The following is a summary of the estimated seasonal high groundwater observed during the soil borings:

- One (1) property has a depth to seasonal high groundwater of less than 24"
- Two (2) have a depth to seasonal high groundwater of between 24" - 48"
- Two (2) properties have seasonal high groundwater greater than 48"
- One (1) property was unknown (no soil boring taken)

Based on these findings, **the groundwater criterion is ranked moderate.**

Bedrock Assessment

Each of the properties has a depth to bedrock greater than 48" below the surface. Based on these findings, the **bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that Spaulding East Shore is well suited for conventional subsurface systems. The on-site assessment agrees with these conclusions.

Assessment Summary

Table 4.7 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.7
Assessment Summary – Spaulding East Shore

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Low	0
Soils	Low	0
Groundwater	Moderate	2
Bedrock	Low	0

The environmental needs assessment rating for this area is “**low**” with a weighted score of 8 points, due only to area limitations.

Capacity at Build-Out

The area is characterized by good soils and adequate depth to bedrock however most of the lots are very narrow with steep slopes and some depth to groundwater limitations. Replacement treatment systems are being constructed using raised disposal fields to reduce depth to groundwater.

From the town-wide assessment 9,662 gpd (65%) of the 14,912 gpd of estimated existing wastewater flow is classified as conforming. There appears to be no future wastewater capacity to support further build-out.

Watershed/Water Quality

Spaulding East Shore is in the Lake Champlain watershed. No microbial source tracking sampling was taken in the area.

Wastewater Alternatives

Spaulding East Shore is primarily comprised of “spaghetti lots”, which are long and narrow. The ground contours run parallel with the narrow side which makes it difficult to meet the linear loading rates for a conventional wastewater treatment and disposal system difficult.

Conclusions & Recommendations

The environmental needs assessment rating is “low” as the lots are generally well suited for on-site wastewater treatment and disposal. We recommend that status quo be maintained and systems only be replaced when they fail or as required if a change in use dictates higher wastewater flows.

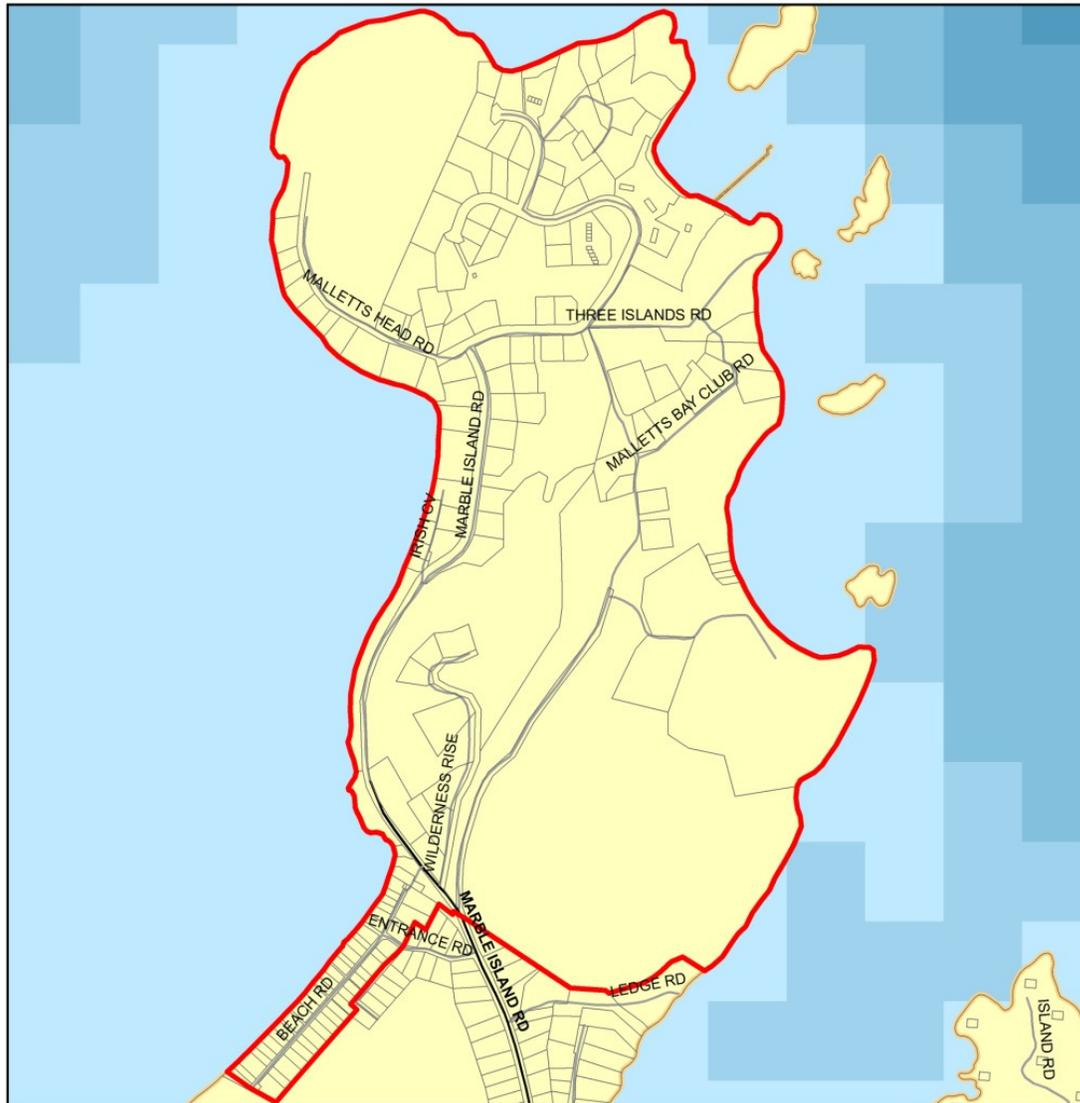
Proper operation and maintenance of these systems is critical to their performance and longevity. Colchester should promote “best management practices” and encourage property owners to invest in proper maintenance to protect public health and the environment as well as their wastewater system investment. Some “best management practices” to promote include:

- Installation of an effluent filter on the septic tank
- Regular scheduled maintenance of the septic tank

4.2. Outer Mallets Bay

All parcels in outer Mallets Bay within 300' of the shoreline were included in the assessment. They were further subdivided into smaller study areas, as follows:

4.2.1 Beach Road/Marble Island



Beach Road/Marble Island Study Area

Beach Road/Marble Island is a stretch of land with one hundred fifty-six (156) developed properties located in outer Mallets Bay bordered by Thayer Beach and Spaulding East Shore to the east and south. Beach Road consists entirely of seasonal camps. Marble Island consists of a mixture of seasonal camps and year-round residences. Detailed wastewater assessments were performed in this area on September 17, 2010 and October 20, 2010.

ROE Response and Property Classification

Thirty-seven (37) ROE responses were received of which five (5) detailed on-site assessments were performed. The five (5) properties had the following property uses:

- One (1) year-round residence
- Four (4) seasonal residences

Area Assessment

- None of the properties have a designated replacement
- Two (2) properties have room for a potential replacement area
- Three (3) properties do not have space for a replacement area
- None of the properties have potential area for a cluster system

Our field work agrees with the town-wide assessment, which concluded that 51% of the properties on Beach Road/Marble Island have area constraints. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- All five (5) properties meet the 50' isolation distance to surface waters

Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

- Three (3) properties have soils that are well suited for on-site septic systems
- One (1) property has soils (silty loam) moderately suited for on-site septic systems
- One (1) property had no soil boring taken because of limited land area.

Based on these findings, **the soils suitability criterion is ranked moderate.**

Groundwater Assessment

- One (1) property has depth to seasonal high groundwater less than 24" below the surface
- Three (3) properties have depth to seasonal high groundwater greater than 48" below the surface
- One (1) property is unknown due to limited access

Based on these findings, **the groundwater criterion is ranked moderate.**

Bedrock Assessment

- All five (5) properties have no bedrock to a depth of 48” below the surface

However, the majority of the assessments were performed in the Beach Road area where bedrock does not appear to be an issue. Based on visual observations, bedrock is an issue on Marble Island. Therefore, **the bedrock criterion is ranked moderate-severe.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that Beach Road is well suited for conventional subsurface systems in the north and mound systems with either filtrates or curtain drains to the south. The majority of Marble Island is only suited for performance based systems. The on-site assessment agrees with these findings.

Assessment Summary

Table 4.8 is a summary of the site criteria assessment including the classification and rating value.

Table 4.8
Assessment Summary – Beach Road/Marble Island

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Low	0
Soils	Moderate	2
Groundwater	Moderate	2
Bedrock	Moderate-Severe	3

The environmental needs assessment rating for this area is **“medium”** with a weighted score of 14.5 points.

Capacity at Build-Out

Very small lots, but sandy soils characterize Beach Road. Wastewater systems are generally in-ground with older drywells. Currently, individual on-site replacement systems are being constructed in this area using conventional subsurface treatment.

Marble Island has a significant amount of bedrock from visual observations. There are new residential subdivisions on Marble Island with approved on-site wastewater systems using innovative/alternative technologies. From the town-wide needs assessment, 27,358 gpd (44%) of the estimated 62,288 gpd of existing wastewater flow is classified as conforming. It is estimated that there is capacity for an additional 5,728 gpd of conforming flows for the build-out condition at Marble Island. Beach Road is completely “built-out”.

Watershed/Water Quality

Beach Road and Marble Island are both in the Lake Champlain watershed. Microbial source tracking sampling was taken at one location (M6-SW). No human isolates were identified during wet or dry weather sampling events, but wild animal and wild bird isolates were identified.

Wastewater Alternatives

All the properties on Beach Road are seasonal uses with small lots and moderate soils. It appears that individual on-site systems can adequately serve the needs of the area. Property owners should be able to utilize I/A technologies (if needed) to replace a failed system and comply with the Environmental Protection Rules.

One open area was considered for a community system for Beach Road, but a community well was found on the property, which precluded further investigation as a community disposal site. Construction of a cluster system isn't warranted unless there are multiple system failures that justify consideration of such an option.

To address depth to bedrock issues, Marble Island is currently utilizing community on-site innovative/alternative treatment and disposal technologies to comply with the Environmental Protection Rules for new development. It is recommended that Marble Island continue with this approach.

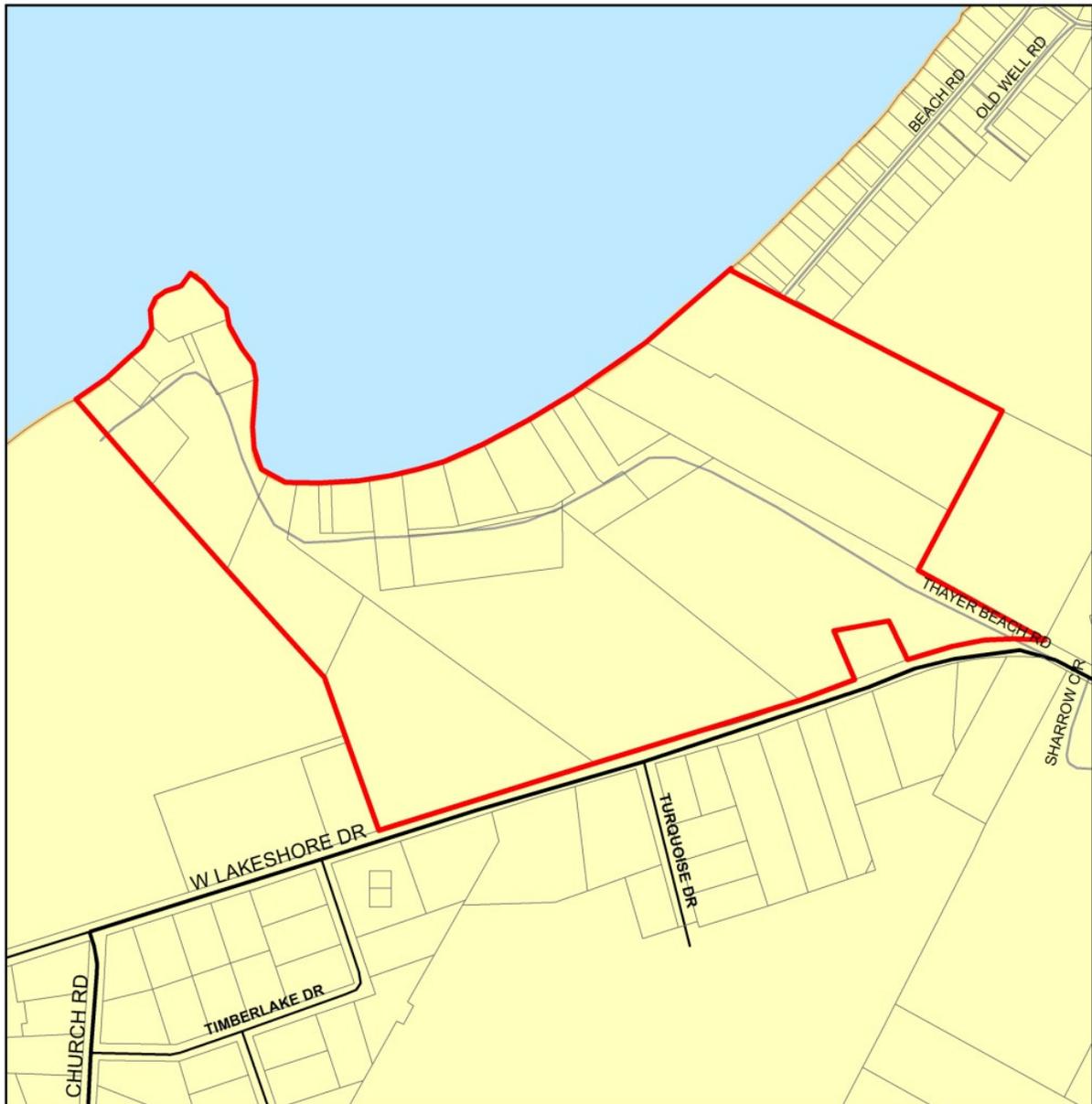
Conclusions & Recommendations

It is recommended that the Beach Road/Marble Island area maintain existing on-site systems and replace with new on-site systems (conventional, advanced treatment, and/or “best-fix”) as needed. Future replacement systems may need to use advanced treatment technologies as a “best fix” to compensate for the area restrictions and to reduce the minimum depth to groundwater and/or bedrock.

All systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement. These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.2.2 Thayer Beach



Thayer Beach Study Area

Thayer Beach is a stretch of land with eighteen (18) properties located in outer Mallets Bay bordered by Marble Island to the east, Holy Cross to the west, West Lakeshore Drive to the south and Lake Champlain to the north. The area consists of a mix of year-round residences and seasonal camps. Detailed wastewater assessments were performed in this area on October 10, 2010.

ROE Response and Property Classification

Eight (8) ROE responses were received, of which four (4) detailed on-site assessments were performed. The four (4) properties have the following property uses:

- Three (3) year-round residences
- One (1) seasonal residence

Area Assessment

- Two (2) properties have designated replacement areas
- Two (2) have no potential room for a replacement area
- None of the properties have the potential to support a cluster system

The properties visited were some of the larger properties in the area. The town-wide assessment concluded that 35% of the properties in Thayer Beach have area constraints, which is consistent with our general observations in the field. Based on these findings, **the area limitation criterion is ranked moderate-severe.**

Distance to Surface Waters

- Two (2) properties meet the 50' isolation distance to surface waters.
- One (1) property did not meet the requirement
- One (1) property was unknown, as the location of the disposal system could not be determined

Based on these findings, **the distance to surface water criterion is ranked moderate.**

Soil Assessment

- One (1) property has moderately suitable soil (silty loam)
- Two (2) properties have unsuitable soil (silty clay)
- One (1) property did not have a soil boring taken due to limited access

Based on these findings, **the soils suitability criterion is ranked severe.**

Groundwater Assessment

- Three (3) properties have depth to seasonal high water less than 24" from the surface
- One (1) property is unknown (no soil boring taken)

Based on these findings, **the groundwater criterion is ranked severe.**

Bedrock Assessment

- None of the properties visited had bedrock to a depth of 48” below the surface

Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the majority of Thayer Beach is well suited for performance-based systems, but not conventional wastewater systems. The on-site assessment agrees with these findings.

Assessment Summary

Table 4.9 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.9
Assessment Summary – Thayer Beach

Criteria	Classification	Rating Value
Area	Moderate-Severe	3
Distance to Surface Water	Moderate	2
Soils	Severe	4
Groundwater	Severe	4
Bedrock	Low	0

The environmental needs assessment rating for this area is **“high”** with a weighted score of 15.5 points.

Build-Out Capacity

From the town-wide needs assessment, 4,650 gpd (62%) of the estimated 7,520 gpd of existing wastewater flow is classified as conforming. There is no wastewater capacity for future build-out. Based on current zoning, there is minimal future development capacity regardless of wastewater capacity.

Watershed/Water Quality

Thayer Beach is in the Lake Champlain watershed. No microbial source tracking sampling was taken.

Wastewater Alternatives

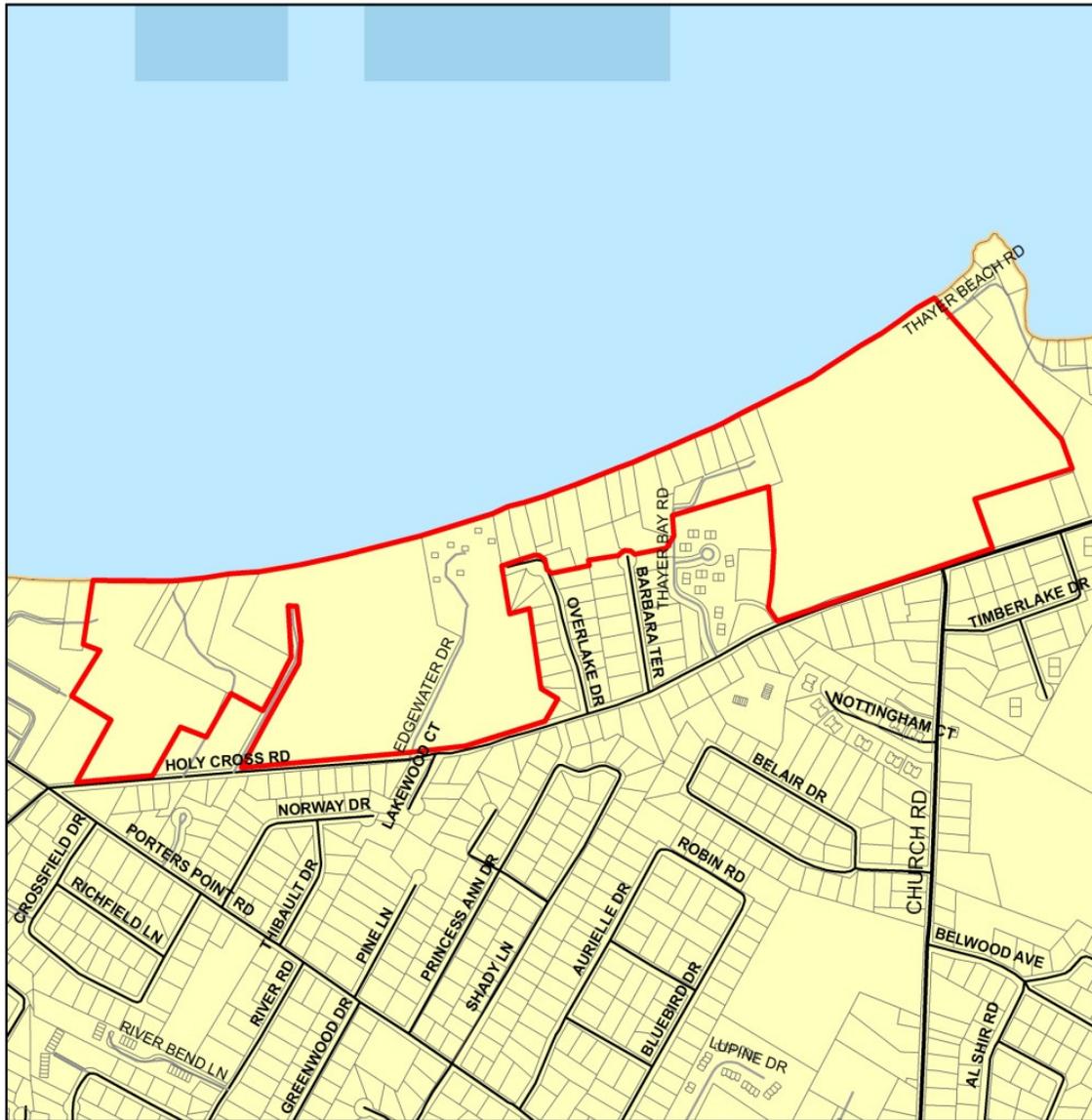
Replacement systems will likely be mound and advanced treatment systems in a “best fix” scenario to both compensate for area restrictions, poor soils and minimum required depth to groundwater. The estimated cost to upgrade systems would range from \$300,000 to \$400,000.

Conclusions & Recommendations

It is recommended that Thayer Beach maintain existing systems. All systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement. These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.2.3 Holy Cross



Holy Cross Study Area

Holy Cross is a stretch of land with twenty-five (25) developed properties on Holy Cross Road located in outer Mallets Bay with access at the intersection of Porters Point Road and Prim Road. The area consists of a mix of year-round residences and seasonal camps. Detailed wastewater assessments were performed in this area on October 21 and 22, 2010.

ROE Response and Property Classification

Thirteen (13) ROE responses were received, of which four (4) detailed on-site assessments were performed. The four (4) properties assessed had the following property uses:

- One (1) year-round residence
- Two (2) seasonal residences
- One (1) seasonal commercial

Area Assessment

- Two (2) properties have a designated replacement area
- Two (2) properties has room for a potential replacement system
- Two (2) of the above properties have potential room for a cluster system

The on-site area assessment findings are generally consistent with the town-wide assessment, which concluded that 26% of the properties have area limitations. Based on these findings, **the area limitation criterion is ranked low-moderate.**

Distance to Surface Waters

- All four (4) properties meet the required 50' isolation distance to surface waters

Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

- All four (4) properties have soils (sands) suitable for conventional on-site septic systems.

Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- All four (4) properties have depth to seasonal high groundwater greater than 48" below the surface

Based on these findings, **the groundwater criterion is ranked low.**

Bedrock Assessment

- None of the properties has bedrock to a depth of 48" below the surface

Based on these findings, **bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that Holy Cross is well suited for conventional subsurface systems. The on-site assessment agrees with these findings.

Assessment Summary

Table 4.10 provides a summary of the site criteria assessment including classification and rating value.

Table 4.10
Assessment Summary – Holy Cross

Criteria	Classification	Rating Value
Area	Low-Moderate	1
Distance to Surface Water	Low	0
Soils	Low	0
Groundwater	Low	0
Bedrock	Low	0

The environmental needs assessment rating for this area is “**low**” with a weighted score of 1.5 points.

Capacity at Build-Out

Deep unsaturated sands characterize the area. The soils, depth to groundwater and depth to bedrock are not limitations for septic systems. Existing wastewater systems are generally conventional in-ground systems.

From the town-wide assessment, 9,520 gpd (74%) of the estimated existing wastewater flow of 12,950 gpd is classified as conforming. There appears to be capacity for an additional 5,880 gpd of conforming flows for the build-out condition. There is also build-out capacity based on current zoning.

Watershed/Water Quality

Holy Cross is in the Lake Champlain watershed. Microbial source tracking sampling was taken at two locations (MR1-Ross and MR2-Ross). Human isolates were identified during a wet weather event at both sites. Wild animal and wild bird isolates were identified during both wet and dry weather events.

Wastewater Alternatives

There are no serious public health risks in this area; therefore no wastewater alternatives were evaluated.

Conclusions & Recommendations

We recommend that status quo be maintained and systems only be replaced when they fail or as required if a change in use dictates higher wastewater flows. Proper operation and maintenance of these systems is critical to their performance and longevity.

Colchester should promote “best management practices” and encourage property owners to invest in proper maintenance to protect public health and the environment as well as their wastewater system investment. Some “best management practices” to promote include:

- Installation of an effluent filter on the septic tank
- Regular scheduled maintenance of the septic tank

4.2.4 Porters Point



Porters Point Study Area

Porters Point is a point of land with ninety-two (92) developed properties located in outer Mallets Bay with access at the intersection of Holy Cross Road and Airport Road. The area consists of a mix of year-round residences and seasonal camps. Most existing wastewater systems are in-ground. Detailed wastewater assessments were performed on October 22, 2010 and September 8, 2011.

ROE Response and Property Classification

Twenty-eight (28) rights of entry responses were received, of which ten (10) detailed on-site assessments were performed. The ten (10) properties have the following property uses:

- Seven (7) year-round residences
- Three (3) seasonal residences

Area Assessment

- Two (2) properties have a designated replacement area
- Four (4) properties have potential room for a replacement area
- Four (4) properties do not have room for a replacement area
- Two (2) of the above properties have potential room for a small cluster system

This confirms the town-wide assessment, which concluded that 48% of the properties have area limitations. Based on these findings, **the area limitation criterion is ranked moderate-severe.**

Distance to Surface Waters

- Seven (7) properties have an isolation distance to surface waters greater than 50'
- One (1) property did not meet the required 50' isolation distance
- At two (2) properties, the disposal system could not be located

Based on these findings, **the distance to surface water criterion is ranked low-moderate.**

Soil Assessment

- Two (2) properties have soils (sandy loam) well suited for on-site septic systems
- Four (4) have soils (sandy clay loam, silty loam) moderately suitable for on-site septic systems
- Four (4) properties have soils (clay) unsuitable for on-site septic systems.

Based on these findings, **the soils suitability criterion is ranked moderate-severe.**

Groundwater Assessment

- Four (4) properties have depth to seasonal high groundwater less than 24" below the surface
- Two (2) properties have depth to seasonal high ground water between 24" - 48" below the surface
- Four (4) properties have depth to seasonal high groundwater greater than 48" below the surface

Based on these findings, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

- Four (4) properties have bedrock less than 24” below the surface
- Two (2) properties have bedrock between 24” - 48” below the surface
- Four (4) properties did not have bedrock to a depth of 48” below the surface

Based on these findings, **the bedrock criterion is ranked moderate-severe.**

Overall Rating for On-Site System Feasibility

The on-site soil assessment work is consistent with the town-wide assessment, which concluded that the majority of Porters Point has soils that are rated, suited for conventional subsurface treatment and disposal, though our field work suggests that some of the soils are marginal. Properties near Chase Lane and Elderberry Lane show poor soils that are rated for performance based treatment and disposal systems.

Assessment Summary

Table 4.11 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.11
Assessment Summary – Porters Point

Criteria	Classification	Rating Value
Area	Moderate-Severe	3
Distance to Surface Water	Low-Moderate	1
Soils	Moderate-Severe	3
Groundwater	Moderate-Severe	3
Bedrock	Moderate-Severe	3

The environmental needs assessment rating for this area is **“high”** with a weighted score of 16.5 points.

Build-Out Capacity

Most existing wastewater systems are in-ground. A number of the existing camps have “best fix” replacement systems utilizing innovative/alternative technologies. From the town-wide assessment, 23,053 gpd (62%) of the estimated 36,983 gpd of existing wastewater flow are classified as conforming. It is estimated that there is minimal wastewater capacity for future build-out (420 gpd).

Porters Point is densely developed. There is minimal build-out capacity based on current zoning, regardless of wastewater capacity.

Watershed/Water Quality

Porters Point is in the Lake Champlain watershed. Microbial source tracking sampling was taken at one location (M4-PP). No excessive levels of e-coli were detected at this sampling point.

Wastewater Alternatives

It is estimated that the majority of existing systems comply to the Environmental Protection Rules, with a number of those systems using I/A technologies. Property owners have generally been able to contend with the limitations on their lot, which should continue in the future.

Two areas were considered for large cluster systems, but both were found to be unsuitable because of shallow depth to groundwater. There are some potential small cluster system options if individual on-site replacements do not work on certain properties.

Conclusions & Recommendations

It is recommended that the Porters Point area maintain existing on-site systems and replace with new on-site systems (conventional, advanced treatment, and/or “best-fix”) as needed. All systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.2.5 Mills Point



Mills Point Study Area

Mills Point is a point of land with one hundred four (104) dwellings located in outer Mallets Bay with access from Airport Road. The area consists of a mix of year-round residences and seasonal camps. Detailed wastewater assessments were performed in this area on October 26, 28, and 29, 2010 and September 8, 2011.

ROE Response and Property Classification

Twenty-eight (28) ROE responses were received, of which fourteen (14) detailed on-site assessments were performed. The fourteen (14) properties have the following property uses:

- Eight (8) year-round residences
- Six (6) seasonal residences

Area Assessment

Mills Point is a large area of land that is leased to landowners. Individual property lines do not exist, but we could discern logical property lines in the field to make an area assessment.

- One (1) property has a designated replacement area
- Six (6) properties have the potential for a replacement area
- Seven (7) properties do not have room for a replacement system
- None of the properties have potential space for a small cluster system

Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

Each of the properties met the 50' isolation distance to surface waters

Based on the findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

- Eight (8) properties have soils (loamy sand, sandy loam) well suited for on-site septic systems
- Two (2) properties have soils (silty loam) moderately suitable for on-site septic systems
- Four (4) properties have soils (clay, silty clay, sandy clay) unsuitable for on-site septic systems

Based on these findings, **the soils suitability criterion is ranked low-moderate.**

Groundwater Assessment

- Ten (10) properties have depth to seasonal high groundwater less than 24" from the surface
- Four (4) properties have depth to seasonal high groundwater greater than 48" below the surface

Based on these findings, **the groundwater criterion is ranked severe.**

Bedrock Assessment

- Four (4) properties have bedrock less than 24” from the surface
- Six (6) property has bedrock between 24” - 48” from the surface
- Four (4) properties did not have bedrock to a depth of 48” from the surface

Based on these findings, **the bedrock criterion is ranked severe.**

Overall Rating for On-Site System Feasibility

The on-site soil assessment contradicts the town-wide needs assessment, which concluded that most of Mills Point has soils rated for conventional subsurface systems, with the exception of the area to the southeast of the intersection of Mills Point Road and Rail Road, which were rated for performance based systems. Our field assessment found high groundwater and high bedrock throughout the area making it difficult to construct a conventional subsurface system.

Assessment Summary

Table 4.12 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.12
Assessment Summary – Mills Point

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Low	0
Soils	Low-Moderate	1
Groundwater	Severe	4
Bedrock	Severe	4

The environmental needs assessment rating for this area is “**high**” with a weighted score of 17 points.

Build-Out Capacity

Most existing wastewater systems are in-ground. A number of the existing camps have “best fix” replacement systems utilizing innovative/alternative technologies. The town-wide assessment classified all 18,130 gpd as conforming, because Mills Point is one large parcel. Dwellings are located on leased land (no property lines). Estimated capacity for future build-out is minimal (420 gpd).

Watershed/Water Quality

Mills Point is in the Lake Champlain watershed. No microbial source tracking sampling was taken.

It is estimated that the majority of existing systems comply to the Environmental Protection Rules, with a number of those systems using I/A technologies. Property owners have generally been able to contend with the limitations on their lot, which should continue in the future.

Two areas were considered for large cluster systems, but both were found to be unsuitable because of shallow depth to groundwater. There are some potential small cluster system options if individual on-site replacements do not work on certain properties.

Wastewater Alternatives

It is estimated that the majority of existing systems comply to the Environmental Protection Rules, with a number of those systems using I/A technologies. Property owners have generally been able to contend with the limitations on their lot, which should continue in the future.

There were no apparent sites for cluster systems to support the needs of the area.

Conclusions & Recommendations

It is recommended that the Mills Point area maintain existing on-site systems and replace with new on-site systems (conventional, advanced treatment, and/or “best-fix”) as needed. All systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs
- Other best management practices specific to the particular system

4.3. Broad Lake Champlain

All parcels in Broad Lake Champlain within 300' of the shoreline were included in the assessment. They were further subdivided into smaller study areas, as follows:

4.3.1 Colchester Point



Colchester Point Study Area

Colchester Point is a stretch of land with eighty-one (81) developed properties located along Lake Champlain with access at the intersection of Airport Road and Mills Point Road. The area consists of a mix of seasonal and year-round residences. Detailed wastewater assessments were performed in this area on October 28, 2010.

ROE Response and Property Classification

Twenty-five (25) ROE responses were received, of which six (6) detailed on-site assessments were performed. The six (6) properties assessed had the following property uses:

- Six (6) seasonal residences

Area Assessment

- One (1) property has a designated replacement area
- Three (3) properties have potential room for a replacement area
- Two (2) properties do not have potential room for a replacement system
- None of the properties have potential room for a small cluster system

The town-wide assessment concluded that 39% of the properties in Colchester Point have area limitations. This is misleading as the western tip of Colchester Point is viewed as one (1) property, when in reality many small leased properties resided there.

Based on these findings, **the area limitation criterion is ranked moderate-severe.**

Distance to Surface Waters

- Four (4) properties meet the required isolation distance of 50' from water bodies
- Two (2) properties do not meet the 50' isolation distance criteria

Based on these findings, **the distance to surface water criterion is ranked moderate-severe.**

Soil Assessment

All of the properties had soils (sand, loamy sand, and sandy loam) well suited for on-site septic systems

Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- Two (2) properties have depth to seasonal high groundwater less than 24" from the surface
- Three (3) properties have depth to seasonal high groundwater between 24" - 48" below the surface
- One (1) property has depth to seasonal high groundwater greater than 48" below the surface

Based on this information, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

None of the properties assessed have bedrock to a depth of 48” below the surface. Based on these findings, the **bedrock criterion is ranked low**.

Overall Rating for On-Site System Feasibility

The on-site soil assessment work is consistent with the town-wide assessment, which concluded that the western and eastern portions of Colchester Point are suitable for conventional subsurface systems, while the central area is only suitable for performance based systems.

Assessment Summary

Table 4.13 provides a summary of the site criteria assessment including classification and rating value.

Table 4.13
Assessment Summary – Colchester Point

Criteria	Classification	Rating Value
Area	Moderate-Severe	3
Distance to Surface Water	Moderate-Severe	3
Soils	Low	0
Groundwater	Moderate-Severe	3
Bedrock	Low	0

The environmental needs assessment rating for this area is “**medium**” with a weighted score of 12 points.

Build-Out Capacity

Most existing wastewater systems are in-ground. Many of the existing camps have “best fix” replacement systems with innovative/alternative technologies. From the town-wide assessment, 6,930 gpd (30%) of the estimated 22,890 gpd of existing wastewater flow is classified as conforming. It is estimated that there is no available wastewater capacity for future build-out.

Watershed/Water Quality

Colchester Point is in the Lake Champlain watershed. No microbial source tracking sampling was taken.

Wastewater Alternatives

The properties in the northern section are generally seasonal camps. The environmental constraints are moderately severe, but can manage with I/A technologies as “best fix” systems if needed. The properties in the southern end use a common open area for a community wastewater system.

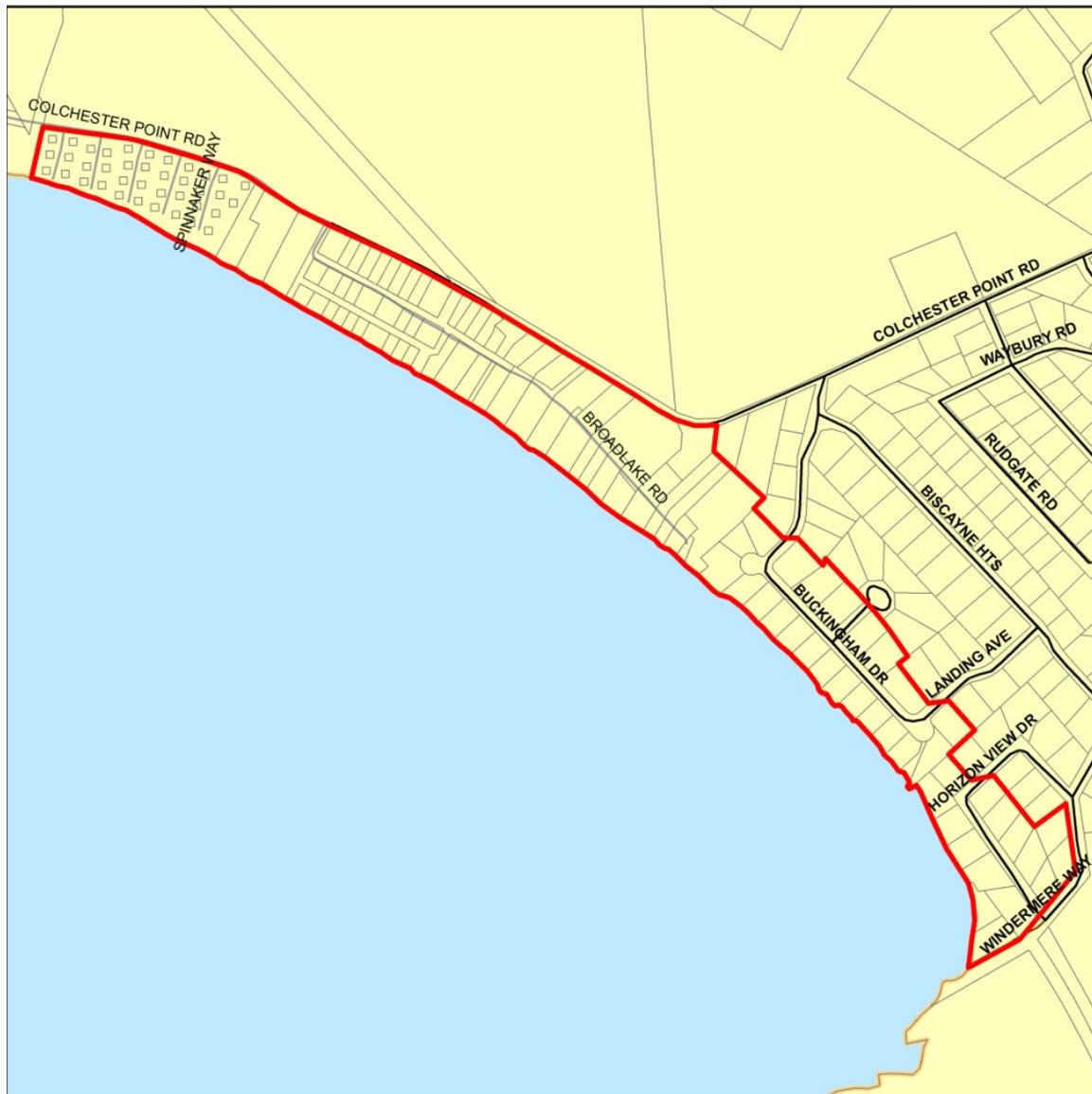
Conclusions & Recommendations

It is recommended that Colchester Point maintain their existing on-site systems. All systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs

4.3.2 Broad Lake Shore



Broad Lake Shore Study Area

Broad Lake Shore is a stretch of land with one hundred twenty-three (123) developed properties located along Lake Champlain adjacent to Colchester Point. The area consists of a mix of seasonal and year-round residences. Detailed wastewater assessments were performed on October 28 and 29, 2010 and September 8 and 20, 2011.

ROE Response and Property Classification

Fifty-nine (59) ROE responses were received, of which eleven (11) detailed on-site assessments were performed. The eleven (11) properties have the following property uses:

- Eight (8) year-round residences
- Three (3) seasonal residences

Area Assessment

- Two (2) properties have designated replacement areas
- Five (5) properties may support a potential replacement area
- Four (4) properties have no room for a replacement system
- One (1) of the above properties has potential room for a small cluster system

The town-wide assessment concluded that 81% of the properties have area limitations. Permission for on-site assessments was granted mostly from owners of larger parcels, which skewed the on-site assessment area data. Our windshield survey of the area agrees with the town-wide needs assessment analysis, that the majority of lots are area limited. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- Seven (7) properties met the 50' isolation distance to surface waters
- Four (4) properties did not meet the 50' isolation distance to surface waters

Based on these findings, **the distance to surface water criterion is ranked moderate-severe.**

Soil Assessment

- Nine (9) properties have soils well suited for on-site septic systems
- One (1) property have moderately suitable soils
- One (1) property is unknown as no soil boring was taken due to limited access

Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- Seven (7) properties have depth to seasonal high groundwater greater than 48" below the surface
- Three (3) properties have depth to seasonal high groundwater between 24" - 48" below the surface
- There was one (1) property where a soil boring was not taken

Based on these findings, **the groundwater criterion is ranked low.**

Bedrock Assessment

- Ten (10) properties showed no evidence of bedrock to a depth of 48” below the surface
- One (1) property has bedrock at a depth less than 24” below the surface

Based on these findings, **the bedrock criterion is ranked low-moderate.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the soils are either unsuitable or rated for performance-based systems only. Based on our field work, we disagree with this assessment, as the soils appear well suited to support soils-based wastewater systems.

Assessment Summary

Table 4.14 provides a summary of the site criteria assessment including classification and rating value.

Table 4.14
Assessment Summary – Broad Lake Shore

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Moderate-Severe	3
Soils	Low	0
Groundwater	Low	0
Bedrock	Low-Moderate	1

The environmental needs assessment rating for this area is **“medium”** with a weighted score of 8 points.

Build-Out Capacity

Small lots with severe area constraints characterize the area. The soils, depth to groundwater, and depth to bedrock are not limitations for septic systems. From the town-wide assessment, only 700 gpd (2%) of the estimated 40,390 gpd of existing wastewater flow is classified as conforming, due primarily to an incorrect classification of soils suitability.

It is estimated that there is no wastewater capacity for future build-out. Broad Lake Shore is densely developed with minimal build-out capacity, based on current zoning, regardless of wastewater capacity.

Watershed/Water Quality

Broad Lake Shore is in the Lake Champlain watershed. Microbial source tracking sampling was taken at one location (M1-DP) at the southern tip. No excessive levels of e-coli were detected at this sampling point.

Wastewater Alternatives

Individual on-site replacement systems are generally conventional subsurface treatment systems since the soils are generally suitable and depth to bedrock and groundwater are not serious constraints. Future replacement systems will likely be advanced treatment systems due to area limitations.

A large cluster system with a disposal field located at Airport Park was considered, but deemed not cost-effective, nor justified when comparing the relative need to the cost of construction.

Conclusions & Recommendations

We conclude that the existing systems can generally support the wastewater disposal requirements in the area and should be maintained to protect public health. All systems should be inspected to identify failed or very marginal systems that should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

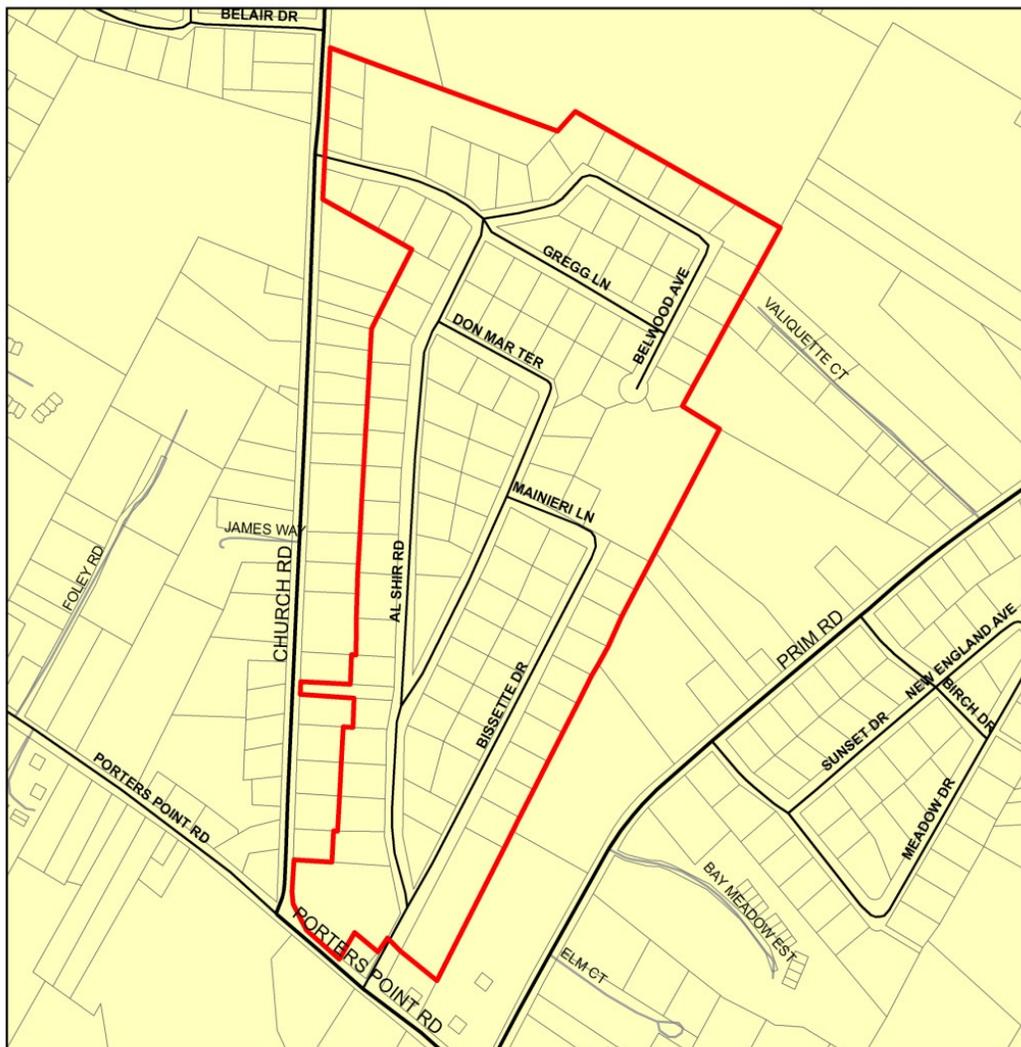
These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs

4.4. Inland Colchester

Several inland parcels were identified in the town-wide needs assessment as having site constraints warranting further investigation. They were further subdivided into smaller study areas, as follows:

4.4.1 Belwood



Belwood Study Area

Belwood is an area of land with one hundred eight (108) developed properties located in the Mallets Bay area with access from Porters Point Road and Church Road. The area consists primarily of year-round residences. Detailed wastewater assessments were performed on June 3, 2011 and September 22, 2011.

ROE Response and Property Classification

Thirty-six (36) ROE responses were received, of which eight (8) detailed on-site assessments were performed. The eight (8) properties have the following property uses:

- Seven (7) year round residences
- One (1) year round multi-family residential

Area Assessment

- Five (5) properties have designated replacement areas
- One (1) property has potential room for a replacement area
- Two (2) properties do not have room for a replacement area
- None of the properties have potential room for a cluster system

Our field assessment contradicts the town-wide needs assessment which concluded that 68% of the properties having area restrictions. We concluded that area restrictions are not an issue on the majority of lots. Based on the on-site assessment, **the area limitation criterion is ranked moderate.**

Distance to Surface Waters

None of the properties are in close proximity to any surface water. Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

All of the properties visited have soils (sand, loamy sand) well suited for on-site septic system. Our field work confirms the conclusions made in the town-wide needs assessment, that the soils are well-suited for conventional treatment systems. Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- Three (3) properties have depth to seasonal high groundwater less than 24” below the surface
- Two (2) properties have depth to seasonal high groundwater between 24” - 48” below the surface
- Three (3) properties have depth to seasonal high groundwater greater than 48” below the surface

Based on these findings, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

None of the properties visited have bedrock to a depth of 48” below the surface. Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that this area is predominantly well-suited for conventional subsurface systems, with the exception of properties adjacent to Don Mar Terrace, where soils are rated for a mound system with either a curtain drain or filtrate. This is consistent with our field assessment.

Assessment Summary

Table 4.15 provides a summary of the site criteria assessment including the classification and rating value.

Table 4.15
Assessment Summary - Belwood

Criteria	Classification	Rating Value
Area	Moderate	2
Distance to Surface Water	Low	0
Soils	Low	0
Groundwater	Moderate-Severe	3
Bedrock	Low	0

The environmental needs assessment rating for this area is “**low**” with a weighted score of 6 points.

Build-Out Capacity

From the town-wide assessment, 22,055 gpd (45%) of the estimated current wastewater flows of 48,776 gpd are classified as conforming. It is estimated that there is no wastewater capacity for future build-out. Belwood is densely developed with minimal build-out capacity based on current zoning.

Watershed/Water Quality

Belwood is in the Winooski River watershed. Microbial source tracking sampling was taken at one location (PP) at the southern tip. No excessive levels of e-coli were detected at this sampling point.

Wastewater Alternatives

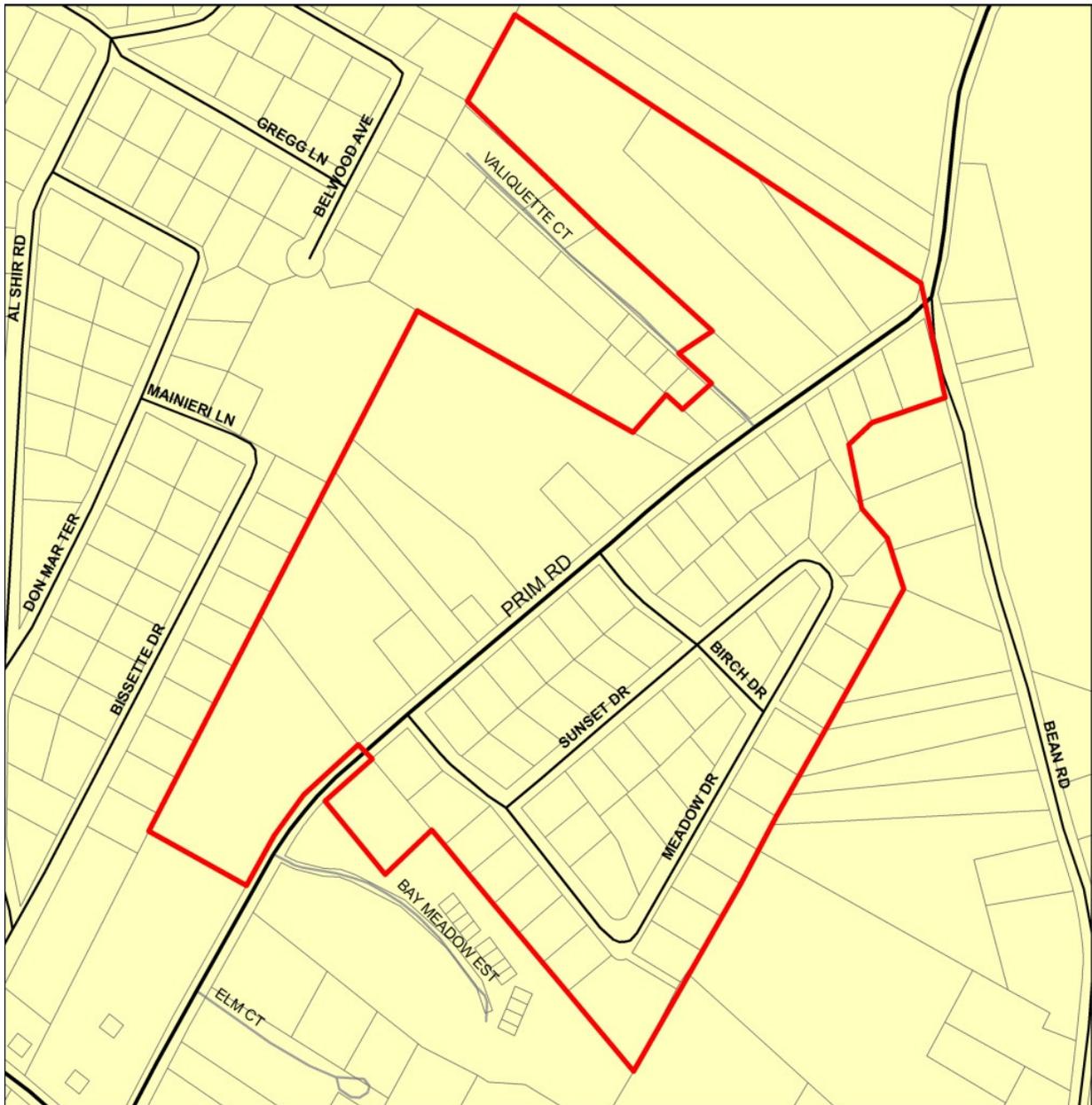
Because of the development density in the area, there are no potential nearby cluster system options. Currently, systems are typically raised systems (i.e. mounds) to reduce the minimum required depth to groundwater.

Conclusions & Recommendations

We recommend that status quo be maintained and systems only be replaced when they fail or as required if a change in use dictates higher wastewater flows. Proper operation and maintenance of these systems is critical to their performance and longevity. Colchester should promote “best management practices” and encourage property owners to invest in proper maintenance to protect public health and the environment as well as their wastewater system investment. Some “best management practices” to promote include:

- Installation of an effluent filter on the septic tank
- Regular scheduled maintenance of the septic tank

4.4.2 Meadow Drive



Meadow Drive Study Area

Meadow Drive is an area of land with seventy-five (75) developed properties located in the Mallets Bay area with access from Prim Road. The area consists primarily of year-round residences. Detailed wastewater assessments were performed in this area on December 1, 2010 and September 22, 2011.

ROE Response and Property Classification

Twenty-six (26) ROE responses were received, of which ten (10) detailed on-site assessments were performed. The ten (10) properties have the following property uses:

- Ten (10) year-round residences

Area Assessment

- Two (2) properties have designated replacement areas
- Two (2) properties have the potential area to have a replacement area
- Six (6) properties do not have potential area for a replacement system
- Two (2) of the above properties have potential room for a small cluster system

We agree with the town-wide needs assessment, which concluded that 69% of the properties have area limitations. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

- Seven (7) properties meet the required 50' isolation distance to surface water
- Three (3) properties in the east end do not meet the 50' isolation distance to surface waters as they have an unnamed brook that meanders through the properties

Based on these findings, **the distance to surface water criterion is ranked moderate-severe.**

Soil Assessment

All soils in this area are (sand, loamy sand, sandy loam) well suited for on-site septic systems, with the exception of one (1) property (silty loam). Based on these findings, **the soils suitability criterion is ranked low-moderate.**

Groundwater Assessment

- Four (4) properties have depth to seasonal high groundwater less than 24" below the surface
- Two (2) properties have depth to seasonal high groundwater between 24" - 48" below the surface
- Four (4) properties have depth to seasonal high groundwater greater than 48" below the surface

Based on these findings, **the groundwater criterion is ranked moderate-severe.**

Bedrock Assessment

None of the assessed properties have bedrock to a depth of 48" below the surface. Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that Meadow Drive is predominantly well-suited for mound systems with either a curtain drain or filtrate. The field work corroborated these findings.

Assessment Summary

Table 4.16 provides a summary of the site criteria assessment including classification and rating value.

Table 4.16
Assessment Summary – Meadow Drive

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Moderate-Severe	3
Soils	Low-Moderate	1
Groundwater	Moderate-Severe	3
Bedrock	Low	0

The environmental needs assessment rating for this area is “**medium**” with a weighted score of 14.5 points.

Build-Out Capacity

Very shallow groundwater, small lot sizes, and a stream that runs along the northern and eastern properties characterize the area. A number of the in-ground systems do not meet the required separation to groundwater. From the town-wide assessment, 22,056 gpd (45%) of the estimated 48,776 gpd of current flows is classified as conforming. It is estimated that there is no wastewater capacity for future build-out.

Watershed/Water Quality

Meadow Drive is in the Winooski River watershed. No microbial source tracking sampling was taken in this area.

Wastewater Alternatives

Because of the development density in the area, there are no potential nearby cluster system options. Due to severe area constraints, replacement systems will likely be mounds or I/A systems in a complying or “best fix” scenario.

Conclusions & Recommendations

We recommend that Meadow Drive maintain existing on-site systems and replace with new on-site systems (conventional, advanced treatment, and/or “best-fix”) as needed. All systems should be inspected to identify any failed or very marginal systems that should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs

4.4.3 Shore Acres



Shore Acres Study Area

Shore Acres is an area with sixty-eight (68) developed properties located in the Mallets Bay area with access from West Lakeshore Drive. The area is primarily year-round residences. Detailed wastewater assessments were performed in this area on November 30, 2010, December 1, 2010 and September 20, 2011.

ROE Response and Property Classification

Thirty-two (32) ROE responses were received, of which ten (10) detailed on-site assessments were performed. The ten (10) properties have the following property uses:

- Ten (10) year-round residences

Area Assessment

- Four (4) properties have a designated replacement area
- Five (5) properties have potential room for a replacement area
- One (1) property doesn't have room for a replacement system

The town-wide assessment concluded that 31% of the properties have an area constraint, which we conclude is slightly overstated. Based on these findings, **the area limitation criterion is ranked moderate.**

Distance to Surface Waters

Each of the properties meets the required isolation distance to surface water. Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

- Four (4) properties have soils (silty loam) moderately suitable for on-site septic systems
- Five (5) properties have soils (clay, silty clay, and clay loam) unsuitable for on-site septic systems.
- One (1) property didn't have a soil boring performed due to limited access

Based on these findings, **the soils suitability criterion is ranked severe.**

Groundwater Assessment

- Seven (7) properties have depth to seasonal high groundwater less than 24" below the surface
- Two (2) properties have depth to seasonal high groundwater between 24" - 48" below the surface
- One (1) property is unknown because a soil boring wasn't taken

Based on these findings, **the groundwater criterion is ranked severe.**

Bedrock Assessment

None of the properties assessed have bedrock to 48". Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

Poor soils and shallow depth to groundwater are prevalent, but relatively large lots allow for mounds and I/A technologies to address wastewater needs at most properties.

Assessment Summary

Table 4.17 provides a summary of the site criteria assessment including classification and value rating.

Table 4.17
Assessment Summary – Shore Acres

Criteria	Classification	Rating Value
Area	Moderate	2
Distance to Surface Water	Low	0
Soils	Severe	4
Groundwater	Severe	4
Bedrock	Low	0

The environmental needs assessment rating for this area is “**medium**” with a weighted score of 11 points.

Build-Out Capacity

The area is characterized by poor soils and shallow groundwater. From the town-wide assessment 8,610 gpd (31%) of the estimated 27,510 gpd of current wastewater flow is classified as conforming. It is estimated that there is no wastewater capacity for future build-out. “Diversity Heights” is a large planned residential development on one of the large lots that hasn’t been constructed due to a lack of adequate wastewater capacity.

Watershed/Water Quality

Shore Acres is in the Moorings Steam watershed. Microbial source tracking sampling was taken at three locations (WQ46, WQ47 and WQ48). No excessive levels of e-coli were detected at WQ46 or WQ47. Isolates for Deer were identified in samples taken at WQ48.

Wastewater Alternatives

The area is generally characterized by poor soils and shallow depth to groundwater, however the relatively large parcels allow for conventional, mound and I/A systems conforming to the Environmental Protection Rules. Based on these findings, wastewater alternatives to replace existing systems were not evaluated.

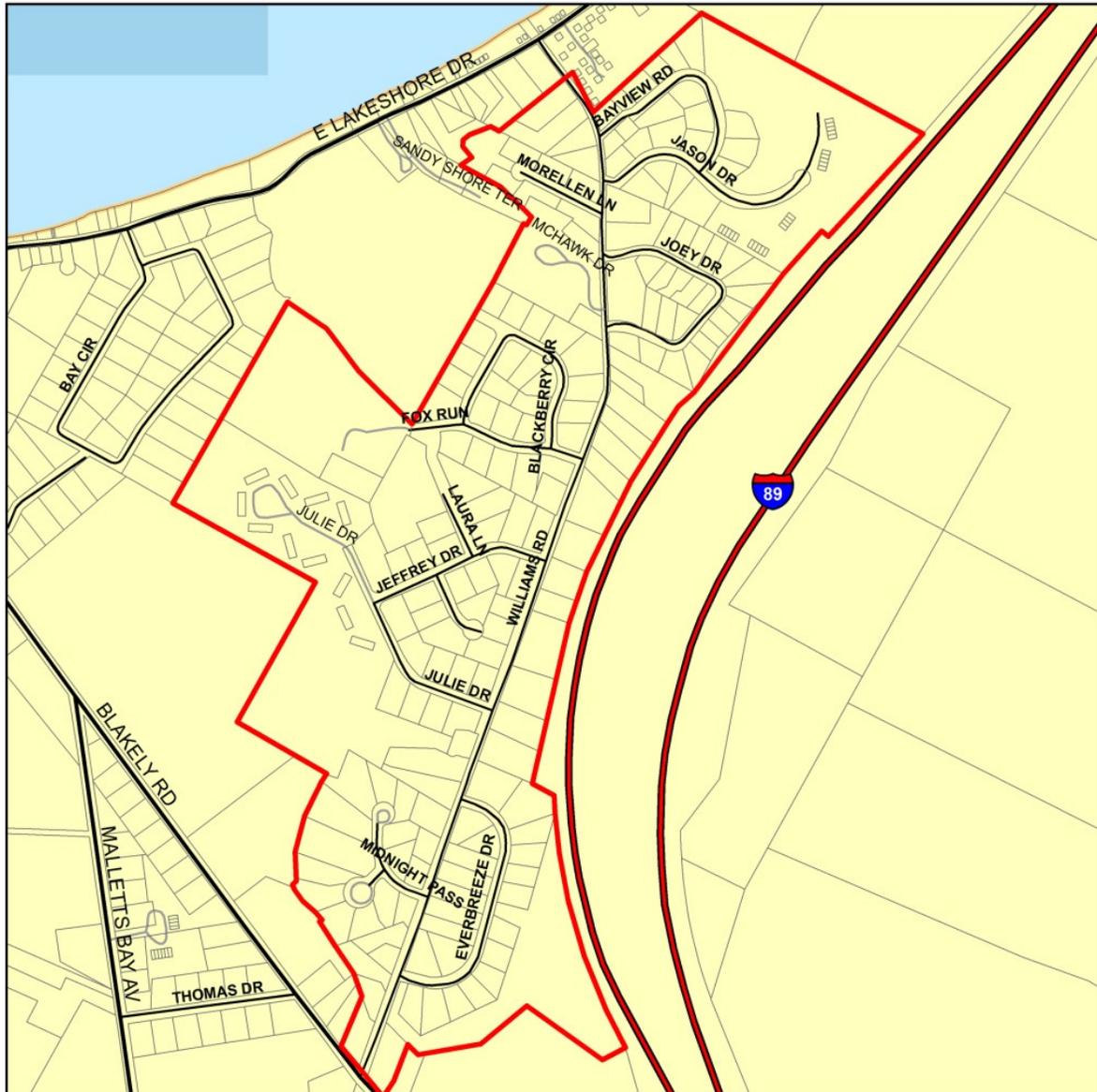
Conclusions & Recommendations

We recommend that Meadow Drive maintain existing on-site systems and replace with new on-site systems (conventional, advanced treatment, and/or “best-fix”) as needed. All systems should be inspected to identify any failed or very marginal systems that should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs

4.4.4 Williams Road



Williams Road Study Area

Williams Road is an area with two hundred ten (210) developed properties located in the Malletts Bay area and is bordered by Interstate 89 to the east, East Lakeshore Drive to the north and west, and Blakely Road to the south. It is primarily year-round residences. Detailed wastewater assessments were performed in this area on June 6, 2011 and September 8, 9, and 22, 2011.

ROE Response and Property Classification

Thirty-five (35) ROE responses were received, of which sixteen (16) detailed on-site assessments were performed. The sixteen (16) properties have the following property uses:

- Seven (7) year-round residences
- Nine (9) year-round multi-family residences

Area Assessment

- Twelve (12) properties have designated replacement areas
- One (1) property has potential room for a replacement area
- Three (3) properties do not have space for a replacement area
- None of the properties have potential room for a cluster system

The town-wide assessment concluded that 28% of properties have area restrictions, which we feel is slightly overstated. Based on these findings, **the area limitation criterion is ranked moderate.**

Distance to Surface Waters

- Fifteen (15) of the properties meet the required 50' distance to surface water
- At one (1) property the disposal system was not located

Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

All sixteen (16) properties have soils (sand, loamy sand, sandy loam) well suited for on-site systems. Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- One (1) property has depth to seasonal high groundwater less than 24" from the surface
- Two (2) properties have depth to seasonal high groundwater between 24" - 48" from the surface
- Thirteen (13) properties have depth to groundwater greater than 48" below the surface

Based on these findings, **the groundwater criterion is ranked low-moderate.**

Bedrock Assessment

- One (1) property has bedrock at a depth less than 24" below the surface
- Fifteen (15) properties did not have bedrock to a depth of 48" below the surface

Based on these findings, **the bedrock criterion is ranked low-moderate.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that the area is well suited for conventional subsurface systems, but determined that a small pocket of land near Julie/Jeffrey Drive has soils that are rated for performance based systems. The on-site assessments confirm these findings.

Assessment Summary

Table 4.18 provides a summary of the site criteria assessment including classification and rating value.

Table 4.18
Assessment Summary – Williams Road

Criteria	Classification	Rating Value
Area	Moderate	2
Distance to Surface Water	Low	0
Soils	Low	0
Groundwater	Low-Moderate	1
Bedrock	Low-Moderate	1

The environmental needs assessment rating for this area is “**low**” with a weighted score of 5.5 points.

Build-Out Capacity

The area is characterized by sandy soils, and adequate depth to groundwater and bedrock. Most existing wastewater systems are in-ground. From the town-wide assessment, 69,634 gpd (80%) of the estimated 87,134 gpd of current wastewater flow is classified as conforming. It is estimated that there is 1,260 gpd of available wastewater capacity for future build-out.

Watershed/Water Quality

Williams Road is in the Smith Hollow Creek watershed. Microbial source tracking sampling was taken at several locations (WQ22, WQ23, WQ24, WQ41 and WQ42). The samples yielded no human isolates. A sanitary survey of Smith Hollow Creek was also conducted as a distinct odor of what smelled like human waste was observed during preliminary field work in the area. No evidence of an illicit discharge of human waste to Smith Hollow Creek was observed.

Wastewater Alternatives

Since there is no strong demonstrated need for wastewater system improvements, wastewater alternatives for this area were not evaluated.

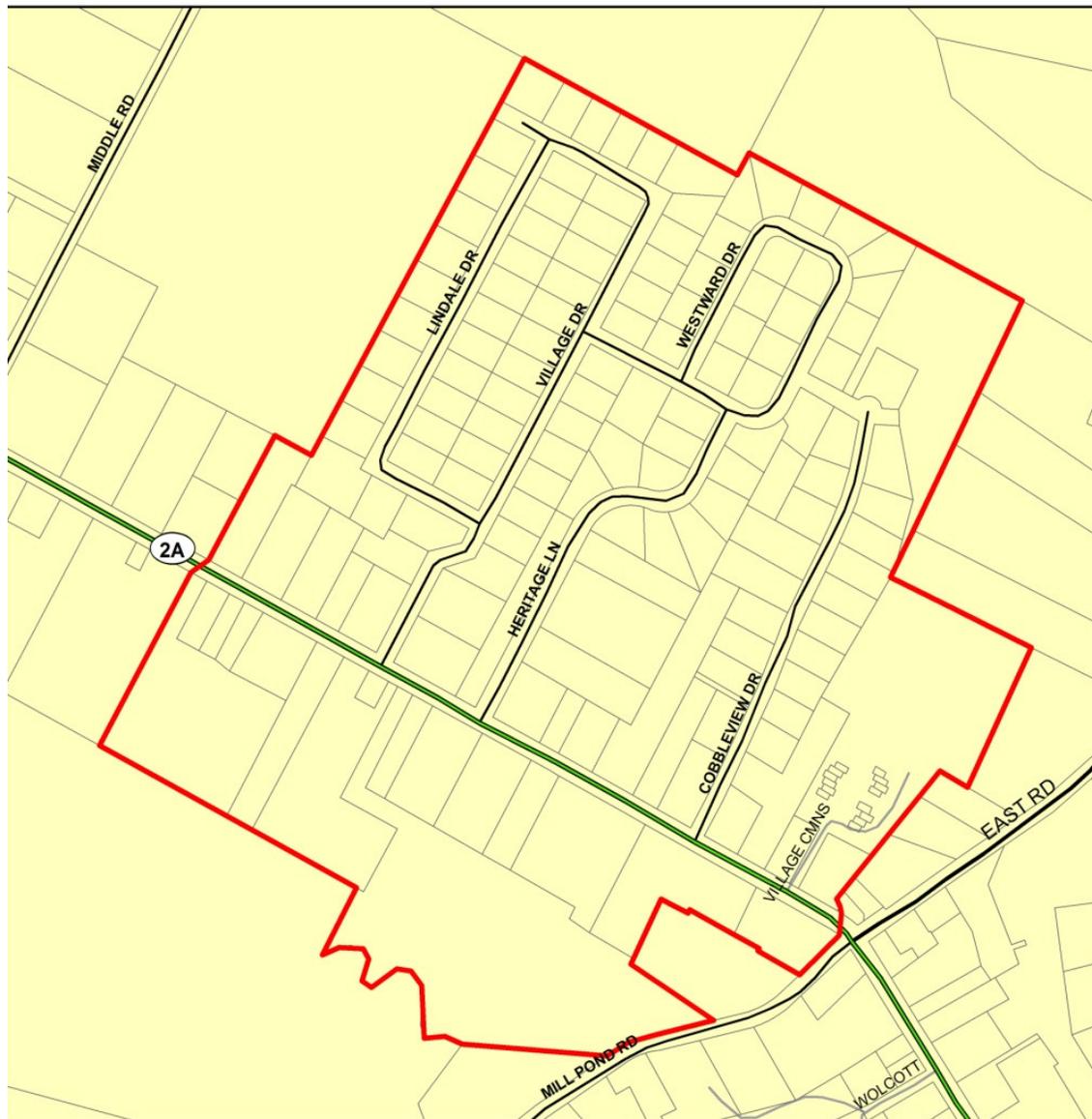
Conclusions & Recommendations

We recommend that status quo be maintained and systems only be replaced when they fail or as required if a change in use dictates higher wastewater flows. Proper operation and maintenance of these systems is critical to their performance and longevity.

Colchester should promote “best management practices” and encourage property owners to invest in proper maintenance to protect public health and the environment as well as their wastewater system investment. Some “best management practices” to promote include:

- Installation of an effluent filter on the septic tank
- Regular scheduled maintenance of the septic tank

4.4.5 Village Drive



Village Drive Study Area

Village Drive is an area of land with one hundred forty-eight (148) developed properties located in Colchester Village, with access from VT Route 2A. Detailed wastewater assessments were performed in this area on June 15, 2011.

ROE Response and Property Classification

Fifty-nine (59) ROE responses were received, of which seven (7) detailed on-site assessments were performed. The seven (7) properties have the following property uses:

- Six (6) year-round residences
- One (1) year-round commercial

Area Assessment

- One (1) property has a designated replacement area
- Six (6) properties have the potential for a replacement system
- One (1) of the above properties has potential room for a small cluster system

The town-wide assessment concluded that 41% of properties have area limitations. The majority of properties assessed during the on-site assessments were larger parcels located adjacent to Main Street. Based on a windshield inspection of the area, we agree with the conclusions of the town-wide assessment that a number of lots are area limited. Based on these findings, **the area limitation criterion is ranked moderate-severe.**

Distance to Surface Waters

All seven (7) properties meet the required 50' isolation distance to surface water. Based on these findings, **the distance to surface water criteria is ranked low.**

Soil Assessment

- Five (5) properties have soils (sand) well-suited for conventional subsurface systems
- One (1) property has soil (clay loam) moderately suited for on-site septic system
- At one (1) property a soil boring was not conducted

Based on these findings, **the soils suitability criterion is ranked low-moderate.**

Groundwater Assessment

- One (1) property has depth to seasonal high groundwater less than 24" below the surface
- Five (5) properties have depth to seasonal high groundwater greater than 48" below the surface
- One (1) property is unknown as no soil boring was taken

Based on these findings, **the groundwater criterion is ranked moderate.**

Bedrock Assessment

None of the properties have bedrock to a depth of 48" below the surface. Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that most of the Village Drive area is well suited for conventional subsurface systems, with unsuitable soils to the north. These findings are corroborated by the on-site assessments.

Assessment Summary

Table 4.19 provides a summary of the site criteria assessment including classification and rating value.

Table 4.19
Assessment Summary – Village Drive

Criteria	Classification	Rating Value
Area	Moderate-Severe	3
Distance to Surface Water	Low	0
Soils	Low-Moderate	1
Groundwater	Moderate	2
Bedrock	Low	0

The environmental needs assessment rating for this area is “**low**” with a weighted score of 7.5 points.

Build-Out Capacity

From the town-wide assessment, 40,918 gpd (68%) of the 60,378 gpd current wastewater flows is classified as conforming. It is estimated that there is 3,360 gpd of available capacity for full build-out.

Watershed/Water Quality

Village Drive is in the Pond Brook watershed. Microbial source tracking sampling was taken at two locations (WQ43 and VI). No human isolates were detected, though wild animal and wild bird isolates were identified.

Wastewater Alternatives

Currently, replacements systems are being constructed using conventional below-grade disposal systems. There was no demonstrated need to consider other wastewater alternatives.

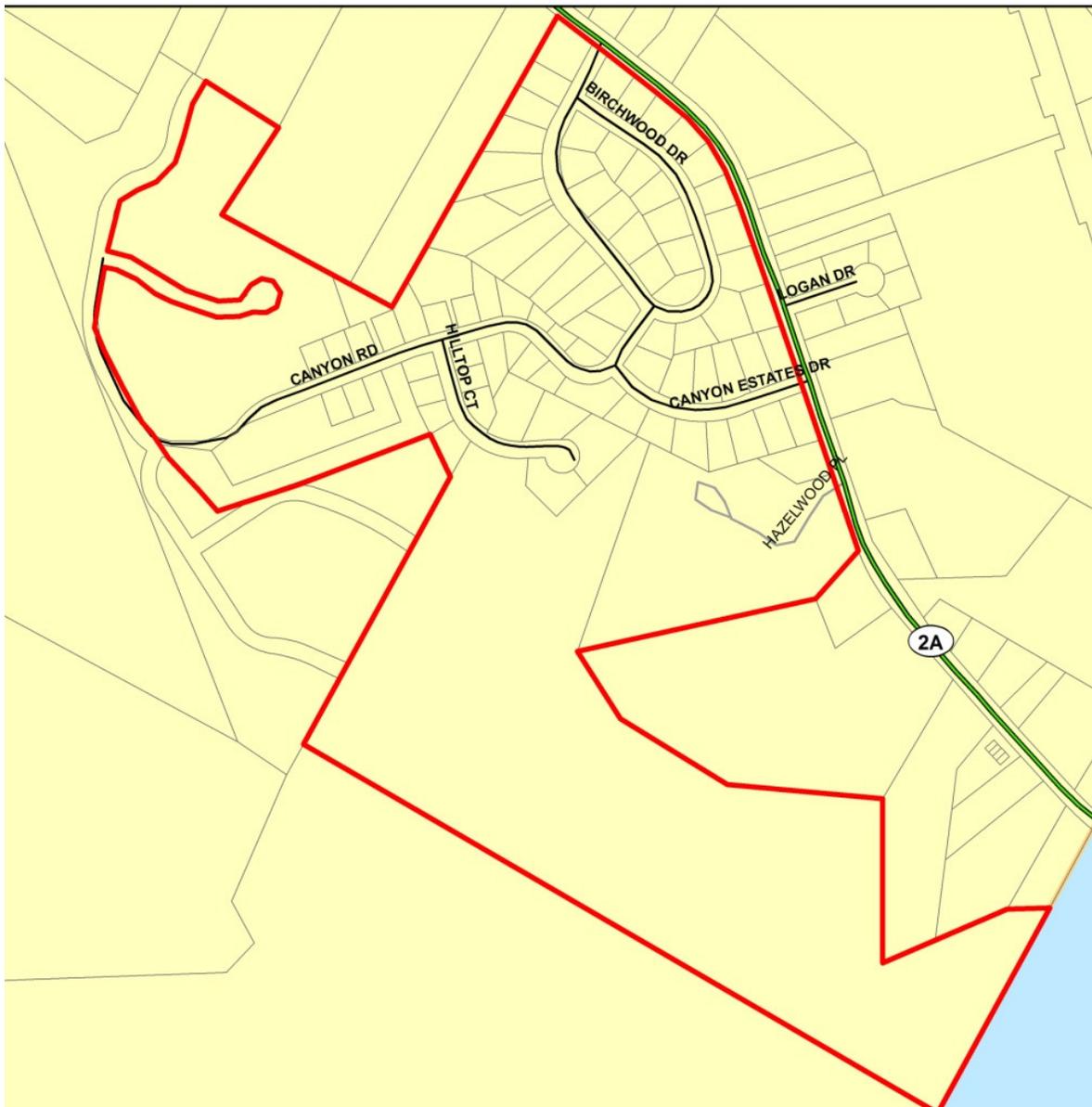
Conclusions & Recommendations

We recommend that status quo be maintained and systems only be replaced when they fail or as required if a change in use dictates higher wastewater flows. Proper operation and maintenance of these systems is critical to their performance and longevity.

Colchester should promote “best management practices” and encourage property owners to invest in proper maintenance to protect public health and the environment as well as their wastewater system investment. Some “best management practices” to promote include:

- Installation of an effluent filter on the septic tank
- Regular scheduled maintenance of the septic tank

4.4.6 Canyon Estates



Canyon Estates Study Area

Canyon Estates is an area of land with eighty-two (82) properties located in Colchester village with access from VT Route 2A. Detailed wastewater assessments were performed in this area on December 3, 2010.

ROE Response and Property Classification

Twenty-seven (27) ROE responses were received, of which four (4) detailed on-site assessments were performed. The properties have the following property uses:

- Four (4) year-round residences

Area Assessment

- None of the properties have a designated replacement area
- Two (2) properties have potential room for a replacement area
- None of the properties have potential room for a cluster system

Our fieldwork concurs with the town-wide assessment, which concluded that 57% of the properties within Canyon Estates had area limitations. Based on these findings, **the area limitation criterion is ranked severe.**

Distance to Surface Waters

All four (4) properties meet the 50' isolation distance to surface water. Based on these findings, **the distance to surface water criterion is ranked low.**

Soil Assessment

From the soil borings, soils within this area are sandy and well-suited for on-site septic systems. Based on these findings, **the soils suitability criterion is ranked low.**

Groundwater Assessment

- Three (3) properties have depth to seasonal high groundwater between 24" - 48" below the surface
- One (1) property has depth to seasonal high groundwater greater than 48" below the surface

Based on these findings, **the groundwater criterion is ranked low.**

Bedrock Assessment

None of the properties have bedrock to a depth of 48" below the surface. Based on these findings, **the bedrock criterion is ranked low.**

Overall Rating for On-Site System Feasibility

The town-wide assessment concluded that Canyon Estates is well suited for conversional subsurface systems, which is corroborated by the on-site assessments.

Assessment Summary

Table 4.20 provides a summary of the site criteria assessment including classification and rating value.

Table 4.20
Assessment Summary – Canyon Estates

Criteria	Classification	Rating Value
Area	Severe	4
Distance to Surface Water	Low	0
Soils	Low	0
Groundwater	Low	0
Bedrock	Low	0

The environmental needs assessment rating for this area is “**low**” with a weighted score of 6 points.

Build-Out Capacity

From the town-wide assessment, 17,147 gpd (48%) of the estimated 35,767 gpd current wastewater flows is classified as conforming. It is estimated that there is 9,240 gpd of available wastewater capacity for full build-out.

Watershed/Water Quality

Canyon Estates is in the Pond Brook watershed. Microbial source tracking sampling was taken at one location (WQ44). No human isolates were identified, though wild animal isolates were.

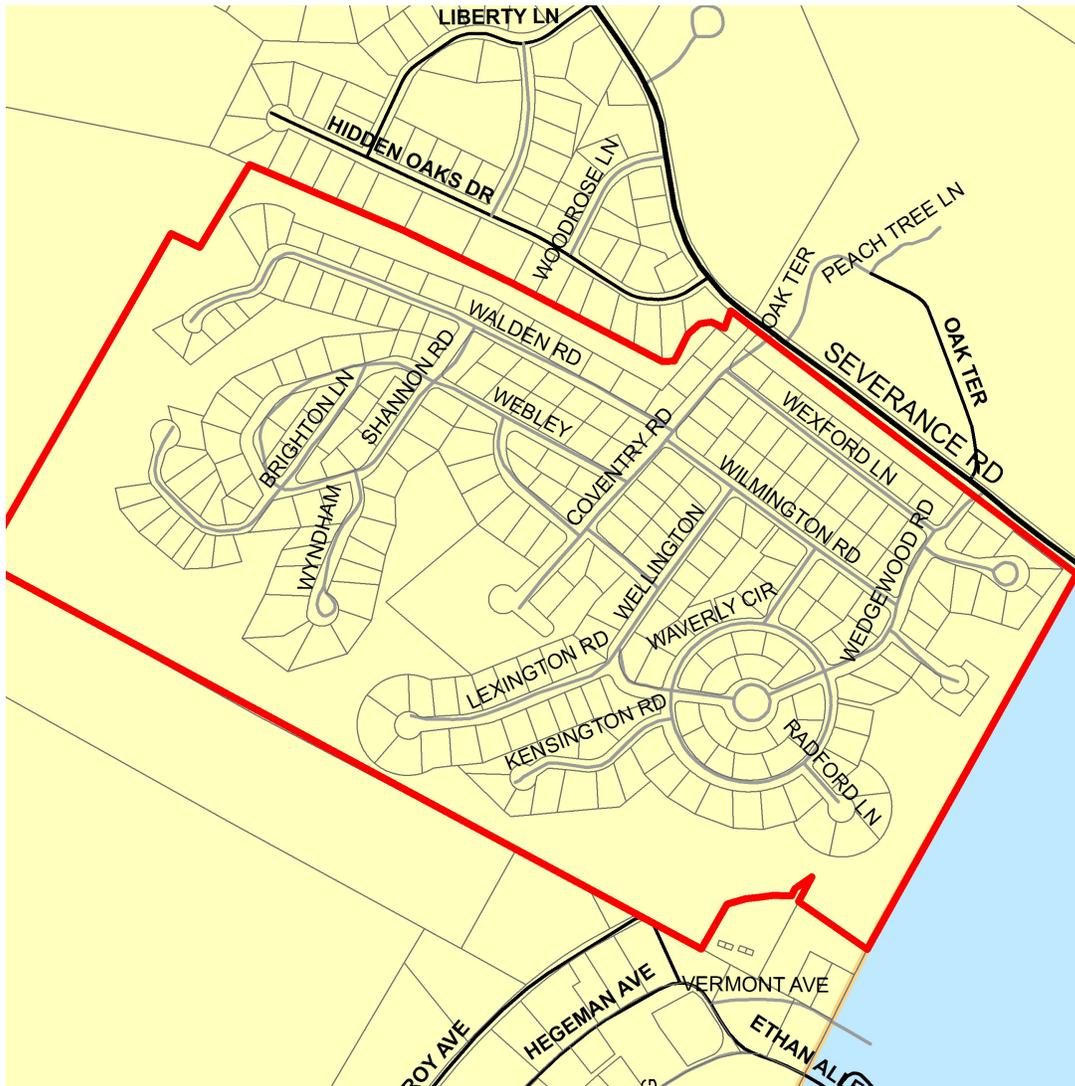
Wastewater Alternatives

Small lots, but good soils characterize the area. Many of the lots do not have space for a designated replacement area in the event of a failure; however it appears that property owners are replacing disposal fields in the same trench area, suggesting that the soils and other site constraints are conducive for traditional on-site below-grade disposal. Since there is no demonstrated need, no wastewater alternatives were evaluated.

Conclusions & Recommendations

We recommend that status quo be maintained and systems only be replaced when they fail or as required if a change in use dictates higher wastewater flows. Proper operation and maintenance of these systems is critical to their performance and longevity. Colchester should promote “best management practices” and encourage property owners to invest in proper maintenance to protect public health and the environment as well as their wastewater system investment.

4.4.7 Westbury Trailer Park



Westbury Trailer Park

Westbury Trailer Park is located off Severance Road and just upstream of Sunderland Brook. The park consists of approximately 175 mobile homes. The town-wide assessment classified the soils mostly as suitable for conventional systems. Small portions are classified as having excessive slopes or poor soils. Due to the density of development, and close proximity to an impaired stream, this area was selected for a more detailed field assessment.

The property owner did not grant permission for us to access the site, but assured us that the water and wastewater permits for the park were up-to-date and in compliance.

Due to the density of development and close proximity to Sunderland Brook, all systems should be inspected and systems that are deemed most marginal should be replaced. The systems in the area should then be inspected periodically (every five years) to identify failed systems in need of replacement.

These inspections can also be an opportunity for Colchester to promote improved operation and maintenance practices to property owners that they may want to implement on their own to extend the life of their system, such as:

- Retrofitting septic tanks with effluent filters
- Scheduling regular septic tank pump-outs

5. NEEDS ASSESSMENT SCORING SUMMARY

Based on the scoring for five key criteria, each of the priority needs areas was given an environmental needs assessment rating and was ranked from highest to lowest need.

Table 5.1 provides a summary of the needs assessment scoring by area (in descending order).

Table 5.1
Priority Area Ranking

Priority Needs Area	Number of Parcels	Area Limitations	Distance to Surface Waters	Soils Suitability	Depth to Groundwater	Depth to Bedrock	Overall Ranking	Overall Score	Weighted Score
Goodsell Point/Sunset View Road	49	S	MS	S	MS	S	H	18	23.5
Mills Point	104	S	L	LM	S	S	H	13	17
East Lakeshore Drive West	62	S	S	L	MS	LM	H	11	16.5
Porters Point	92	MS	LM	MS	MS	MS	H	13	16.5
West Lakeshore Drive	43	S	S	LM	MS	L	H	12	16
Coates Island	26	MS	MS	S	S	L	H	13	15.5
Thayer Beach	18	MS	MS	S	S	L	H	13	15.5
North Malletts Bay/Niquette Bay	109	MS	LM	M	LM	S	M	11	15
Beach Road/Marble Island	156	S	LM	M	MS	MS	M	11	14.5
Meadow Drive	75	S	MS	LM	MS	L	M	11	14.5
East Lakeshore Drive East	94	S	LM	L	MS	M	M	9	12
Colchester Point	81	MS	MS	L	MS	L	M	9	12
Broad Lake Shore	128	S	MS	L	L	LM	M	8	12
Shore Acres	68	M	LM	S	S	L	M	10	11
Spaulding East Shore	37	S	LM	L	MS	L	L	6	8
Village Drive	148	MS	LM	LM	MS	L	L	6	7.5
Belwood	108	MS	LM	L	MS	L	L	5	6
Canyon Estates	82	S	L	L	L	L	L	4	6
Williams Road	210	MS	LM	L	LM	LM	L	4	5.5
Holy Cross	25	LM	L	L	L	L	L	1	1.5

Seven areas ranked “**high**” based on the detailed field investigations and analysis.

- Goodsell Point/Sunset View Road
- Mill Point
- East Lakeshore Drive – West
- Porters Point
- West Lakeshore Drive
- Coates island
- Thayer Beach

These areas are each along the lakeshore and are comprised of both year-round and seasonal dwellings and some commercial uses. Each of these areas ranks severe or moderate-severe for area limitations and severe for at least one other criterion.

Seven areas ranked “**medium**” based on the detailed field investigations and analysis.

- North Malletts Bay/Niquette Bay
- Beach Road/Marble Island
- Meadow Drive
- East Lakeshore Drive - East
- Colchester Point
- Broad Lake Shore
- Shore Acres

These areas are also along the lakeshore (with the exception of Meadow Drive and Shore Acres) and are comprised of both year-round and seasonal dwellings and some commercial uses. Each area is rated high for area limitations because of small lots. Some are ranked high for poor soils, bedrock and seasonal high groundwater. One ranked high for distance to surface waters.

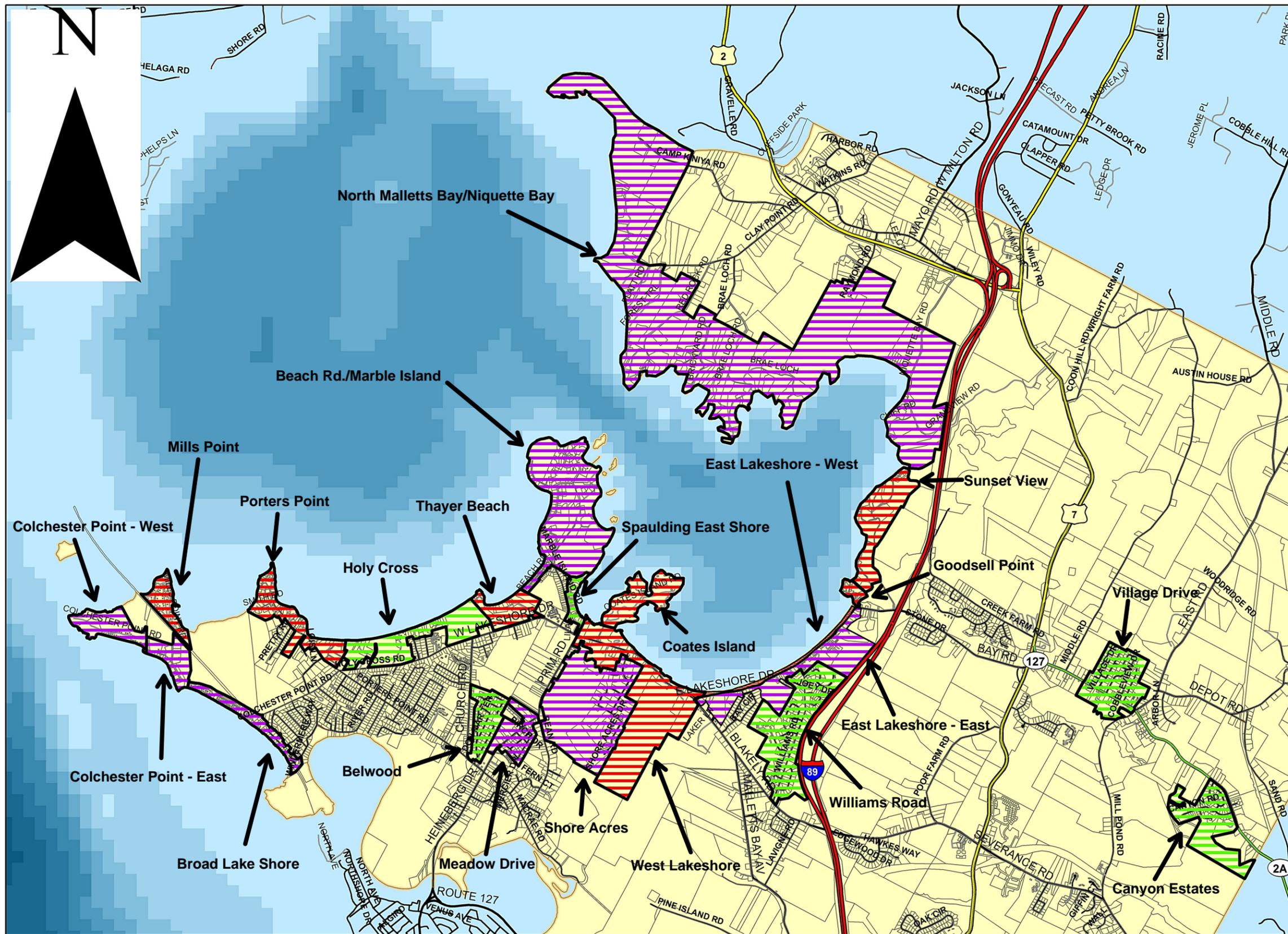
Six areas ranked “**low**” based on the detailed field investigations and analysis.

- Spaulding East Shore
- Village Drive
- Belwood
- Canyon Estates
- Williams Drive
- Holy Cross

Each of these areas is inland (with the exception of Spaulding East Shore and Holy Cross) and is not limited by distance to surface waters. Most of these areas have area limitations; but also have sandy soils and adequate depth to groundwater.

As noted earlier, Westbury Trailer Park is excluded from this ranking, because access to conduct a detailed field analysis was not granted.

Figure 3 geographically shows each study area with their overall assessment rating for comparative purposes.



Category of Needs

-  HIGH
-  MEDIUM
-  LOW

North Malletts Bay/Niquette Bay

Beach Rd./Marble Island

Mills Point

Colchester Point - West

Porters Point

Thayer Beach

Holy Cross

Spaulding East Shore

East Lakeshore - West

Sunset View

Goodsell Point

Village Drive

Coates Island

East Lakeshore - East

Colchester Point - East

Belwood

Shore Acres

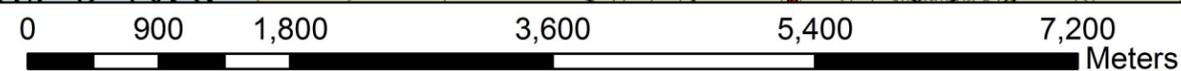
Williams Road

Broad Lake Shore

Meadow Drive

West Lakeshore

Canyon Estates



6. RECOMMENDATIONS

A summary of the conclusions and recommendations for each priority needs area can be found in Table 6.1. The total cost for the recommended actions is \$15,037,000 which includes \$14,600,000 in new proposed central sewers. We recognize that there are many factors that will need to be evaluated before Colchester commits to such a large construction project.

Ultimately, Colchester will need to weigh the recommendations against the risk to public health and the environment (both perceived and real) to determine which actions they will take and in which areas. Specific management strategies to implement these recommendations are being developed as part of the study.

Summary of Findings & Recommendations

Priority Needs Area	Risk Assessment Ranking	Environmental Constraints	Can Existing Systems Support Need?	Action Steps	Individual System Options Viable?	Estimated Replacement Cost	Cluster System Options Viable?	Estimated Cluster System Cost	Central Sewers Viable?	Estimated Central Sewer Cost	Development Capacity?	Growth Limited by Wastewater Capacity?	Recommendations	Estimated Cost of Recommendations
Goodsell Point	High	Area limitations, poor soils and shallow depth to bedrock	No - Constraints too severe	Evaluate upgrade options	No - Limitations are insurmountable	N/A	Yes - At common green area @ \$1.0M	N/A	Yes - If extended to East Lakeshore Drive @ \$13.3M	\$1,300,000 ⁽¹⁾	No	N/A	Further evaluate cluster system alternative. Consider central sewers if extended to East Lakeshore Drive	\$ 1,300,000
Sunset View Road	High	Area limitations, poor soils and shallow depth to bedrock	Yes - But marginal	Inspect systems for O&M permits	Yes - Systems would be replaced using I/A technologies as "best fix" only	By property owner	Yes - but prohibitively expensive @ \$2.5M	N/A	No - Too remote to be cost effective	N/A	No	N/A	Inspect each system. Replace failed systems as "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 19,000
Mills Point	High	Area limitations, shallow depth to groundwater and bedrock	Yes - But marginal	Inspect systems for O&M permits	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	No - Too remote to be cost effective	N/A	No	N/A	Inspect each system. Replace failed systems as "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 42,500
East Lakeshore Drive - West	High	Area limitations, distance to surface water and depth to groundwater	No - Constraints too severe	Evaluate upgrade options	No - Limitations are insurmountable	N/A	Yes - On the east side of road @ \$1.5M, but permission not likely	N/A	Yes - If constructed along West Lakeshore Drive @ \$10.2M	\$3,100,000 ⁽¹⁾	No	N/A	Construct central sewers to service both sides of East Lakeshore Drive. Estimated cost is for trunk sewer and collection system for both sides of the road.	\$ 3,100,000
Porters Point	High	Area limitations, poor soils and shallow depth to groundwater and bedrock	Yes - But marginal	Inspect systems for O&M permits	Yes - Systems would be replaced using I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	No - Too remote to be cost effective	N/A	No	N/A	Inspect each system. Replace failed systems as "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 46,500
West Lakeshore Drive	High	Area limitations, distance to surface water and shallow depth to groundwater	Yes - But marginal	Evaluate upgrade options	Yes - Systems would be replaced using I/A technologies as conforming or "best fix", but could not support full build-out	N/A	No - No available land area	N/A	Yes - If trunk sewer is constructed @ \$10.2M	\$10,200,000 ⁽²⁾	Yes	Yes	Construct central sewers to address both current needs and full build-out. If not affordable, inspect each system. Replace failed systems as "best fix".	\$ 10,200,000
Coates Island	High	Area limitations, distance to surface water, poor soils and shallow depth to groundwater	Yes - But marginal	Inspect systems for O&M permits	Yes - Systems would be replaced using I/A technologies as conforming or "best fix"	By property owner	Yes - But difficult to site @ \$1.2M	N/A	No - Too remote to be cost effective	N/A	Yes	Yes	Inspect each system. Replace failed systems as "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 18,000
Thayer Beach	High	Area limitations, distance to surface water, poor soils and shallow depth to groundwater	Yes - But marginal	Inspect systems for O&M permits	Yes - Systems would be replaced using I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	No - Too remote to be cost effective	N/A	No	N/A	Inspect each system. Replace failed systems as "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 9,500
North Malletts Bay / Niquette Bay	Medium	Area limitations and shallow depth to bedrock	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using I/A technologies as conforming or "best fix"	By property owner	Yes - But cost prohibitive to construct	N/A	No - Too remote to be cost effective	N/A	Yes	No	Inspect systems every five years. Replace failed systems as conforming or "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 62,500
Beach Road / Marble Island	Medium	Area limitations and shallow depth to groundwater and bedrock	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using I/A technologies as conforming or "best fix"	By property owner	Yes - but not the recommended option	N/A	No - Too remote to be cost effective	N/A	Yes	Yes	Inspect systems every five years. Replace failed systems as conforming or "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 50,500
Meadow Drive	Medium	Area limitations, distance to surface waters and shallow depth to groundwater	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	Yes - But not least cost option	N/A	No	No	Inspect systems every five years. Replace failed systems as conforming or "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 41,000
East Lakeshore Drive - East	Medium	Area limitations and shallow depth to groundwater	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	Yes, but not least cost option	N/A	Yes - Should be connected if central sewers are available	N/A ⁽³⁾	No	N/A	Connect to central sewers if constructed to serve East Lakeshore Drive - West as recommended above. Estimated cost is included above.	\$ -
Colchester Point - West	Medium	Area limitations, distance to surface waters and shallow depth to groundwater	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using I/A technologies as "best fix" only	By property owner	No - No available land area	N/A	No - Too remote to be cost effective	N/A	No	No	Inspect systems every five years. Replace failed systems as conforming or "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 30,500
Colchester Point - East	Medium	Area limitations, distance to surface waters and shallow depth to groundwater	Yes	N/A	N/A - Properties are connected to a cluster system	N/A	Yes - Systems already connected to cluster system	N/A	No - Too remote to be cost effective	N/A	No	No	Inspect collection and disposal system every five years. Make any needed repairs. Establish O&M permit to monitor proper maintenance.	\$ 1,500
Broad Lake Shore	Medium	Area limitations and distance to surface waters	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	Yes - At Airport Park, but not least cost option @ \$3.5M	N/A	No - Too remote to be cost effective	N/A	No	No	Inspect systems every five years. Replace failed systems as conforming or "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 78,500
Shore Acres	Medium	Area limitations, poor soils and shallow depth to groundwater	Yes	Inspect systems every 5 years	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	Yes - But not least cost option @ 2.0M	N/A	Yes	Yes	Inspect systems every five years. Replace failed systems as conforming or "best fix". Establish O&M permit for all I/A and/or "best fix" systems.	\$ 37,000
Spaulding East Shore	Low	Area limitations and shallow depth to groundwater	Yes	Maintain status quo	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	Yes - But not least cost option	N/A	No	No	Maintain status quo and promote proper maintenance.	\$ -
Village Drive	Low	Area limitations and shallow depth to groundwater	Yes	Maintain status quo	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	No - Too remote to be cost effective	N/A	No	No	Maintain status quo and promote proper maintenance.	\$ -
Belwood	Low	Area limitations and shallow depth to groundwater	Yes	Maintain status quo	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	Yes - But not least cost option	N/A	No	No	Maintain status quo and promote proper maintenance.	\$ -
Canyon Estates	Low	Area limitations	Yes	Maintain status quo	Yes - Systems would be replaced using conventional technologies as conforming	By property owner	No - No available land area	N/A	No - Too remote to be cost effective	N/A	No	No	Maintain status quo and promote proper maintenance.	\$ -
Williams Road	Low	Area limitations	Yes	Maintain status quo	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	Yes - But not least cost option	N/A	No	No	Maintain status quo and promote proper maintenance.	\$ -
Holy Cross	Low	None	Yes	Maintain status quo	Yes - Systems would be replaced using conventional or I/A technologies as conforming or "best fix"	By property owner	No - No available land area	N/A	Yes - But not least cost option	N/A	No	No	Maintain status quo and promote proper maintenance.	\$ -

Cost of Recommendations: \$ 15,037,000

⁽¹⁾ Total Project Cost, including preliminary engineering, final design, permitting, construction and other related project costs

⁽²⁾ Total Project Cost including trunk sewer along Hineburg Road to Burlington North WWTF and sewers to Blakely Road/Malletts Bay Avenue

⁽³⁾ Cost to sewer the east side of East Lakeshore Drive is included in the \$3.1M cost to sewer the west side of East Lakeshore Drive

Appendix A

Vermont Subsurface Disposal Wastewater Regulations

VERMONT SUBSURFACE DISPOSAL WASTEWATER REGULATIONS

1.0 General

Similar to the town-wide needs assessment, the field data collected as part of the parcel level assessment is compared to the requirements of the State of Vermont's subsurface disposal wastewater regulations. These regulations are in place to protect public health and the environment from potential contamination from soil-based wastewater treatment and disposal systems.

The limits set in the regulations are used to determine whether the current and projected build-out development on a specific parcel could meet current regulations. As documented in the town-wide needs assessment and the detailed needs assessment, there are a number of cases where the current on-site wastewater treatment and disposal system does not comply with these standards. That does not necessarily mean the system is likely to fail or is causing environmental harm. How a system performs depends greatly on the rate of wastewater flows, the type of soil and other site factors. It does mean that the current use of these parcels would not be permitted if the parcel was being developed today as a virgin site.

Vermont has "delegated authority" from US EPA to regulate the Clean Water Act (along with other federal environmental standards). Therefore, Vermont's regulations supersede US EPA regulations and are as stringent or more stringent than the federal standards. These state regulations are generally referred to as the "Environmental Protection Rules or (EPRs)" for small scale soil-based wastewater treatment and disposal systems and the "Indirect Discharge Rules or (IDRs)" for large scale soil-based wastewater treatment and disposal systems.

An overview of Vermont's subsurface disposal wastewater regulations are summarized below to provide a basis for the criteria used for evaluating each parcel that received a detailed on-site assessment.

1.1 Environmental Protection Rules

General

Design standards for flows, sewer connections, and wastewater disposal systems with **design flows of less than 6,500 gallons/day (gpd)** are provided in the ***Vermont Environmental Protection Rules, Chapter 1: Wastewater System and Potable Water Supply Rules*** (the "Environmental Protection Rules"). The latest revision to the Environmental Protection Rules became effective on September 29, 2007 and can be found at the following link:

<http://www.anr.state.vt.us/dec/ww/Rules/OS/2007/FinalWSPWSRuleEffective20070929.pdf>.

These rules regulate flows, minimum site conditions, design criteria, technical standards, and use of innovative/alternative technologies. They are rather prescriptive in their approach, dictating design parameters for most conventional gravity-based and pressure-based wastewater treatment and disposal systems.

A summary of the regulations follows:

Design Wastewater Flows

Design wastewater flows are determined using **Tables 1, 2 and 3** under **Section §1-808(f)** (copy attached for reference).

Flows for alternatives involving individual residential on-site systems are calculated based on the following:

- The design flow for each person shall be 70 gallons per day per person.
- The first three bedrooms shall assume to have two persons per bedroom.
- Each additional bedroom may be assumed to have one person per bedroom.
- The design flow for a single family home on its own lot shall be based on a minimum of two bedrooms.

When five or more single family homes are connected to a single soil based system, the design flow can be based on the flow values in **Table 1**, which is based on the number of residential units without regard for the number of bedrooms.

When twenty or more units are connected to a single soil based system, the design flows are based on number of residential units times 245 gallons per day per unit without regard for the number of bedrooms.

Single family home connections to a cluster or community wastewater disposal system with a design capacity of at least 50,000 gallons per day may use a design flow of 210 gallons per unit per day, regardless of the number of bedrooms.

For non-residential flows, design flows based on the type of use of the non-residential user. A 10% reduction in non-residential design flow may be used when the plumbing fixtures include standard water saving designs (toilets @ 3.5 gallons/flush or less and showers and faucets @ 2 gallons/minute or less). A 20% reduction in non-residential design flow can be given for connections to a cluster or community wastewater disposal system with a design capacity of 50,000 gallons or greater. The 10% and 20% reductions cannot be used together.

When a collection or building sewer exceeds 500 feet in total length, the design flow shall include an allowance for infiltration. Infiltration for new collection systems shall be estimated at 300 gallons/inch of diameter/mile of pipe/day. Infiltration is not accounted for in pressure pipes (STEP, grinder or other forcemain pipes).

Minimum Site Conditions

The table in **Section §1-807** of the Environmental Protection Rules provides the minimum horizontal isolation distances from a leach field, septic tank and sewer line to specific environmental and other features (copy attached for reference).

The rules require the following minimum vertical conditions:

- Minimum separation of 36" to seasonal high water table from bottom of infiltrative surface
- Minimum separation of 48" to bedrock from bottom of infiltrative surface
- Maximum slope of 30%

The rules allow a site with lesser depth to bedrock and seasonal high water from the ground surface using the Prescriptive, Enhanced Prescriptive or Performance Based approaches. Springtime groundwater level monitoring may also be performed to prove actual depth to seasonal high groundwater.

Design Criteria and Technical Standards

The Environmental Protection Rules define the design criteria and technical standards for wastewater treatment and disposal systems including the following:

- Septic tanks
- Grease tanks
- Dosing and pressure distribution
- Absorption beds
- Absorption trenches
- Filtrate systems
- Spray disposal systems
- Site modifications
- Mound systems
- Subsurface drip distribution
- At-grade systems
- Sand filter systems
- Constructed wetlands
- Holding tanks
- Store and dose systems
- Two-year time of travel systems
- Composting systems
- Incinerating toilets
- Innovative/Alternative Systems

The area required for a subsurface disposal system is determined by the soils percolation rate and design criteria of the chosen disposal system type. New systems (except mound systems) are required to provide an area reserved for a future replacement system that meets the rules. A replacement system for existing flows is not considered a "new" system and does not require a future replacement area.

Innovative/Alternative Technologies (Filtrate Systems)

The Environmental Protection Rules allow the use of innovative/alternative technologies as described in **Sections §1-1001, §1-1002 and §1-1003** (copy attached for reference). The rules define the use of pre-approved technologies for general use and allow pilot projects, experimental designs and an application process for approving new alternative technologies. There are many different types of innovative/alternative wastewater treatment and disposal systems approved for general use.

Under the filtrate disposal section, the Environmental Protection Rules allow a doubling of the disposal system application rate over conventional septic tank effluent systems for innovative/alternative systems that treat effluent to a standard of 30 mg/l BOD₅ and 30mg/l TSS or better. The doubled application rate reduces the required area of the disposal system in half over a conventional system. Filtrate systems also allow the reduction of the required depth to bedrock from

48" to 36" and depth to seasonal high water table from 36" to 24" from the bottom of the infiltrative surface.

Best Fix Systems

For existing developed properties, the Environmental Protection Rules allow "best fix" replacement systems for failed systems under certain conditions. Best fix replacement systems do not need to meet all of the requirements for site conditions in the rules, but need to come as close to the rules as the site allows. The applicant must first prove that a complying system cannot be sited on the property or off-site on a nearby property. Best fix systems are only permitted for existing flows. New construction, subdivisions, or changes in use (that increase design flows) are not allowed for best fix systems.

1.2 Indirect Discharge Rules

General

Wastewater treatment and disposal systems with **design flows of 6,500 gallons/day (gpd) or greater** are regulated under ***Vermont Environmental Rules, Chapter 14: Indirect Discharge Rules*** (the "Indirect Discharge Rules"). The latest revision to the Indirect Discharge Rules became effective on April 30, 2003 and can be found at the following link:

<http://www.anr.state.vt.us/dec/ww/indirect.htm>

These rules regulate minimum site conditions, effects of aquatic biota of the receiving waters, water quality standards, design criteria, and technical standards for treatment and disposal systems which use soil as the final disposal means.

Design Wastewater Flows

Design flows are determined using ***Section §1-808(f)*** of the Environmental Protection Rules as described above.

Permitting Requirements

As part of the permitting requirements, the applicant must demonstrate that the new discharge:

- Will not significantly alter the aquatic biota of the receiving waters;
- Will not pose more than a negligible risk to public health; will be consistent with existing and potential beneficial uses of the waters; and
- Will not violate Water Quality Standards.

The larger a proposed system is, the more likely it is to trigger additional hydrogeological and biological testing and monitoring requirements. Permits issued under the Indirect Discharge Rules typically include effluent monitoring and down gradient groundwater monitoring requirements.

Table 1.1 provides a summary of the methods for determining compliance with the aquatic permitting criteria.

**Table 1.1
Methods for Determining Compliance with Aquatic Permitting Criteria**

Maximum Design Capacity	Compliance Method	Stream Sampling Required	Renovated Effluent Sampling Required
20,000 gpd	Dilution or Treatment Index	No	No
30,000 gpd	Modified Site Specific	Yes	No
No Limit	Site Specific or Alternative Demonstration	Yes	Yes

Treatment Requirements

The Indirect Discharge Rules have minimum treatment requirements prior to disposal of effluent based on the design flow capacity and disposal method. Table 1.2 provides a summary of minimum treatment requirements.

**Table 1.2
Minimum Treatment Requirements**

Design Capacity	Disposal Method	Minimum Treatment Required
6,500 – 30,000 gpd	Leach Field	Primary (Septic Tank)
30,001 – 50,000 gpd	Leach Field	Secondary+1
50,001 gpd or greater	Leach Field	Tertiary
6,500 gpd or greater	Spray Field	Secondary

Table 1.3 lists the effluent limitations specified in permits for each treatment level.

**Table 1.3
Effluent Limits**

Parameter	Effluent Limitation by Treatment Level			
	Primary (Septic Tank)	Secondary	Secondary+1	Tertiary
Biological Oxygen Demand ⁽¹⁾	---	30 mg/l	15 mg/l	10 mg/l
Total Suspended Solids (TSS)	---	30 mg/l	15 mg/l	10 mg/l
Total Dissolved Phosphorous	---	---	---	0.5 mg/l
Total Kjeldahl Nitrogen	---	---	---	5 mg/l
Ammonia	---	---	---	1 mg/l
Nitrate Nitrogen	---	---	---	5 mg/l
Total Nitrogen	---	---	---	---

⁽¹⁾ 5-Day Biological Demand (BOD₅)

Disposal System Requirements

Conventional absorption trench leachfields and mound systems are the only types of disposal systems permitted.

Unlike the Environmental Protection Rules loading rates and disposal system sizing for systems of 6,500 gpd or greater are not based on percolation tests, but the classified soil type using **Section §14-1101, Table #19: Leachfield Loading Rates** (copy attached for reference). The Indirect Discharge Rules also require dual alternating disposal systems be constructed each at 100% design flow capacity. While one system is in operation, the other system is resting. The systems are alternated annually.

§1-808(f) Design Flow

- (f) A soil-based disposal system constructed to serve a new project, or a project with an increase in design flow may be reduced in size when composting or incinerating toilets are used. Systems for residential units will be granted a 25% reduction. The reduction in size for other systems will be determined on a case by case basis.

- (g) For potable water supplies that are not public water supplies, design flows shall be determined using this section of the Rules. For water supplies that are public water supplies, design flow shall be determined in accord with Section 2.2 and Table A2-1 of the Vermont Water Supply Rules. The design flow for a water supply may be different than wastewater design flows if the water supply is a public water supply. The design flow for the potable water supply may also differ from the wastewater design flow when the design basis of the two systems is different. Examples include:
 - (1) The wastewater flow is based on a connection to a wastewater system with a design capacity of 50,000 gallons per day or more and the water supply is an individual supply.
 - (2) The wastewater flow is based on connection of 5 or more units into a single wastewater system and the water supply is an individual supply for each unit.

Note: In the event of a conflict between these Rules and the Water Supply Rules, these Rules shall govern if the potable water supply is not a public water supply.

Table 1

Design Flow for Residential Units

- (a) The design flow for single family residential units shall be calculated on the following requirements:
 - (1) The design flow for each person shall be 70 gallons per person per day;
 - (2) the first three bedrooms shall be assumed to have two persons per bedroom;
 - (3) each additional bedroom may be assumed to have one person per bedroom. When a building will be subject to rental use or when it is likely there will be extended or frequent high occupancy use, the system should be sized for at least 2 persons per bedroom; and
 - (4) the design flow for a single-family residence on its own individual lot shall be based on a minimum of two bedroom.

- (b) When five or more single family residential units are connected to a single soil-based disposal system, a designer may choose to use the following design flows that are based only on the number of residential units without regard for the number of bedrooms:

§1-808 Design Flow Table 1 – Continued

Number of Single Family Units	Project Design Flow
5 units	1575 gallons per day
6 units	1830 gallons per day
7 units	2065 gallons per day
8 units	2280 gallons per day
9 units	2565 gallons per day
10 units	2800 gallons per day
11 units	3036 gallons per day
12 units	3264 gallons per day
13 units	3484 gallons per day
14 units	3696 gallons per day
15 units	3900 gallons per day
16 units	4112 gallons per day
17 units	4369 gallons per day
18 units	4518 gallons per day
19 units	4712 gallons per day
20 units	4900 gallons per day
20+ units	# of units X 245 gallons per day

Note: Single family residential units with only one bedroom, such as condominiums and apartment buildings will not benefit from the use of the design flows listed above. Single family residential units, with two bedrooms each, will benefit from use of the table when 11 or more units are connected to a single soil-based disposal system.

Note: Wastewater disposal systems with a design capacity of 6500 GPD or more may also require an Indirect Discharge Permit.

- (c) Single family residential units connected to a wastewater disposal system with a design capacity of at least 50,000 gallons per day may use a design flow of 210 gallons per unit per day, regardless of the number of bedrooms.
- (d) There is no reduction allowed in Table 1 design flows based on the use of low flow plumbing fixtures as the design flow assumes their use.
- (e) Multi-unit elderly housing projects may be calculated on 1.5 person per unit

§1-808 Design Flow

Table 2

Campgrounds (also see camps)	Open 7 mo/yr Or Less	Open more than 7 mo/yr
Campgrounds that allow only tents and camping units with no interior plumbing		
Central toilets and showers 4 people per site	75 gpd/site	100 gpd/site
Campgrounds that allow only tents and camping units with no interior plumbing		
Central toilets without showers 4 people per site	60 gpd/site	75 gpd/site
Campground sites that allow camping units with interior plumbing		
Served by central toilet facilities and dumping stations	50 gpd/site for central facilities plus 25 gpd/site for the dumping station	90 gpd/site for central facilities plus 35 gpd/site for the dumping station
Served by an individual sewer hook-up	75 gpd/site	125 gpd/site
Seasonal RV site with individual sewer hook-up		
RV owned by the occupant	75 gpd/site	125 gpd/site
RV not owned by the occupant	125 gpd/site	175 gpd/site
Cabins with RV type plumbing		
4 people per site	125 gpd/site	175 gpd/site
Cabins with conventional plumbing Minimum of 4 people per site		
With or without kitchen	50 gpd/person	50 gpd/person
With or without kitchen but with laundry facilities	70 gpd/person	70 gpd/person

§1-808 Design Flow**Table 2 – Continued**

Campgrounds	Open 7 mo/yr Or Less	Open more than 7 mo/yr
-------------	-------------------------	---------------------------

Park Model RV

For first bedroom	140 gpd/site	140 gpd/site
-------------------	--------------	--------------

For additional bedroom	100 gpd/site	140 gpd/site
------------------------	--------------	--------------

Mobile home used as vacation facilities

For first bedroom	140 gpd/site	140 gpd/site
-------------------	--------------	--------------

For additional bedrooms	100 gpd/site	140 gpd/site
-------------------------	--------------	--------------

Note: There is no reduction allowed in Table 2 design flows based on the use of low flow plumbing fixtures as the design flow assumes their use.

§1-808 Design Flow

Table 3

OTHER ESTABLISHMENTS	GALLONS/PERSON/DAY ^{a,b} (unless otherwise noted)
Assembly Areas, Conference Room	5
Airports (per passenger)	5
Bathhouses and Swimming Pools	5
Bowling Alley (no food service)(per lane)	75
Cafeterias (per seat)	50
Camps: Construction camps (semi permanent)	50
Day camps (no meals served)	15
Resort Camps (Night & Day) with limited plumbing ...	50
Churches: Sanctuary seating x 25%	5
Church suppers	8
Country Clubs (per resident member)	100
Country Clubs (per non resident member present)	25
Day Care Centers:	
Without meals:	15
With one meal:	20
With two meals:	25
Dentists:	
Staff Member	35
Per Chair	200
Doctor's Office:	
Staff Member	35
Patient.....	10
Room Rentals:	
Boarding Houses	50
Addition for non resident boarders	10

§1-808 Design Flow

Table 3- Continued

GALLONS/PERSON/DAY a, b
(unless otherwise noted)

Rooming Houses (per occupant bed space)	40
Factories (gallons per person, per shift, exclusive of industrial waste).....	15
Gyms: Per Participant.....	10
Spectator	3
Hairdressers: Operator	10
Per Chair	150
Hospitals (per bed space)	250
Hotels with Private Baths(per person sleeping space) ^c	50
Institutions other than hospitals (per bed).....	125
Laundries, self service (gallons per machine)	500
Mobile Home Parks:	
For wastewater systems serving 4 or fewer trailers (per space)	450
For wastewater systems serving 5 or more trailers (per space)	250
Motels with bath, toilet (per person sleeping space) ^c	50
Picnic Parks (toilet wastes only/picnicker)	5
Restaurants (toilet and kitchen wastes/seat, including restaurant and bar seats)	30
Additional per seat for restaurant serving 3 meals per day	15
Restaurants (fast food - see cafeterias).....	50
Schools:	
Boarding	100
Day, without gyms, cafeterias, or showers	15
Day, with gyms, cafeterias, and showers	25
Day, with cafeteria, but without gyms or showers ...	20

§1-808 Design Flow

Table 3-Continued

GALLONS/PERSON/DAY ^{a,b}
(unless otherwise noted)

Service Stations (first set of gas pumps)	500
(each set thereafter)	300
Sewer Line Infiltration ^d (where applicable)	300 gal/in pipe/dia/mile/day
Shopping Centers/Stores: ^c	
Large Dry Goods	5 GPD/100 ft ²
Large Supermarkets with meat department without garbage grinder	7.5 GPD/100 ft ²
Large Supermarkets with meat department with garbage grinder	11 GPD/100 ft ²
Small Dry Good Stores (in shopping centers)	100 GPD/store
Theaters:	
Movie (per auditorium seat).....	5
Drive in (per car space)	5
Veterinary Clinic (3 or less doctors):	
without animal boarding	750/clinic
with animal boarding	1,500/clinic
Workers:	
Construction (at semi permanent camps)	50
Day at schools and offices (per shift)	15

Note: These Rules change design flows for certain categories. It may be possible to add more residential or camping units to an existing potable water supply and/or wastewater system when the supply and/or system conform to current design requirements.

^a Use eighty (80) percent of design flows for projects to be connected to a wastewater system with a design capacity of 50,000 gallons per day or greater. Note that this design flow reduction applies only to the wastewater flow and DOES NOT apply to a project's associated potable water supply design flows if the water supply is regulated as a public transient, non-transient, or community water supply.

^b A 10% reduction in the design flow may be used when the plumbing includes standard water saving designs. Toilets must be 3.5 gallons per flush or less and showers and faucets must be 2 gallons per minute or less

^c Does not include laundry or restaurant waste.

^d The infiltration design flow is not reduced when water saving plumbing fixtures are used or when a connection is made to a wastewater system with a design flow of 50,000 gallons per day or greater. Any reduction shall be based the requirements of subsection 1-808(e) of this section.

Note: Elderly housing may be calculated at 1.5 people per bedroom

§1-807 Isolation Distances

(a) All wastewater systems that are permitted under this Subchapter shall be designed so that they meet the following isolation distances:

Minimum Isolation Distances Item	Horizontal Distance (feet)		
	Leachfield	Septic Tank	Sewer
Drilled well	(b)	50	50
Gravel pack well, shallow well or spring	(b)	75	75
Lakes, ponds, and impoundments	50 ¹	25	25
River, streams	50	25	10
Drainage swales, roadway ditches	25	--	--
Main or municipal water lines	50	50	(d)
Atmospheric Water Storage Tanks	50	50	50
Service water lines	25	25	(d)
Roadways, driveways, parking lots	10	5	(c)
Top of embankment, or slope greater than 30%	25	10	--
Property line (a)	25 ²	10	10
Trees	10	10	10
Other disposal field or replacement area	10 ³	--	--
Foundation, footing, or curtain drains	35 ⁴	10	--
Public Community Water Supply (e)	(f)	(f)	(f)
Suction water line	100	50	50

These distances may be reduced when evident that the distance is unnecessary to protect an item or increased if necessary to provide adequate protection.

Note: See footnotes and criteria on the following page.

§1-807 Isolation Distances

Footnotes (General Criteria Regarding Isolation Distances)

- (a) Isolation distances apply regardless of property line location and ownership.
- (b) Separation between potable water supplies and leachfields shall be determined by the methods in the Vermont Water Supply Rule, Appendix A, Part 11, §11.4.
- (c) Sewers under roads, driveways, or parking lots may require protective conduits or sleeves.
- (d) Separation of pressure water lines considered as "service connections" and sewer lines shall adhere to the Vermont Plumbing Rules. Separation of pressure water lines (considered to be part of a public water system as defined by the Vermont Water Supply Rule) and sewer lines shall adhere to the requirements of the Vermont Water Supply Rule.
- (e) This refers to Public Community Water Systems, as defined in the Vermont Water Supply Rule.
- (f) Contact the Department of Environmental Conservation's Water Supply Division, 103 South Main Street, Waterbury, Vermont for isolation distances relative to a public community water supply.

Footnotes (Specific Criteria for Isolation Distances)

- 1. The isolation distance to surface waters shall be measured from the nearest portion of the leachfield, which will be the toe of the system for mound and at-grade systems. The isolation distance must be satisfied on a year-round basis, therefore the edge of the surface water is the annual high water level.
- 2. For mound wastewater disposal systems, the limit of mound fill must be 25 feet from any downhill property line and 10 feet from all property lines on the side or uphill.
- 3. No leachfield or replacement area shall be closer than 10 feet to one another, except as allowed for absorption trench systems in §1-907(m) of these Rules.
- 4. If a curtain or foundation drain is downslope of the leachfield, the leachfield cannot be closer than 75 feet to the drain. If the curtain or foundation drain is upslope of the leachfield, it shall be 35' if possible, and a minimum of 20 feet to the leachfield. The isolation distances for mound systems shall be from the edge of the minimum basal area or the edge of the absorption bed or trench, whichever is closer. These distances may be reduced if the designer provides adequate data and analysis to show that effluent from the soil-based disposal system will not enter the drain. Conversely the distance may be increased if it is determined that effluent will enter the drain at the minimum separation distance.

TABLE #19: LEACHFIELD LOADING RATES - PART I: BASIC SIZING CRITERIA

SOIL CLASS	TYPICAL DEPOSITIONAL ENVIRONMENT	SOIL TEXTURE ^a (CONSISTENCE)	TYPICAL RANGE OF PERCOLATION RATES (min./inch)	MAXIMUM WASTEWATER LOADING RATE (gpd/ft ²)
1.	Glaciofluvial or Alluvial	Coarse Sand	0-3	0.9
2.	Glaciofluvial or Alluvial	Medium Sand or Loamy Sand	1-10	0.9
3a.	Alluvial	Fine Sand or Loamy Fine Sand	5-30	0.7
3b.	Glacial Till	Sandy Loam (Loose; Very Friable)	5-30	0.7
4.	Glacial Till	Sandy Loam, Fine Sandy Loam, Loam, or Silt Loam (Friable)	30-45	0.5
5a.	Glacial Till	Sandy Loam, Fine Sandy Loam, Loam, or Silt Loam (Firm)	45-60	0.35
5b.	Lacustrine or Alluvial	Silt	45-60	0.35
6.	Lacustrine or Marine	Sandy Clay Loam; Silty Clay Loam; or Clay Loam	60-120	0.24 ^b
7.	Lacustrine or Marine	Sandy Clay; Silty Clay; or Clay	120 +	Not Suitable
<p>a Per USDA - Soil Conservation Service Soil Textural Classes (see Figure #2). Consistence is based on moist, <u>in-situ</u> conditions.</p>				
<p>b Requires a mound disposal system.</p>				

TABLE #19: LEACHFIELD LOADING RATES - PART II: SIZING ADJUSTMENT

<p>If any of the soil layers within the zone of interest have any of the following characteristics, then the maximum loading rates for those layers must be adjusted as indicated below. It is possible that a soil layer different than that identified as limiting before the adjustment is made will control the maximum loading rate, or the suitability of the site for sewage disposal.</p>	
<p>1.</p>	<p>(a) If the soil in Classes 1 or 2 has 35 to 50% rock fragments; or</p> <p>(b) If the soil in Classes 3, 4, 5, or 6 has 50 to 75% rock fragments; or</p> <p>(c) If the soil is in either class 5b or class 6 and has a firm consistence, in-place when moist;</p> <p>then the maximum loading rate for that soil layer is reduced by one soil class (increase of one soil class number).</p>
<p>2.</p>	<p>(a) If a soil in any class has very firm, moist consistence; or</p> <p>(b) If a soil in any class has very hard or extremely hard dry consistence; or</p> <p>(c) If in soil classes 4 through 6 the soil has a strong platy structure;</p> <p>then that layer is an impeding layer and there must be three feet of suitable soil between the top of that layer and the bottom of the leachfield.</p>
<p>3.</p>	<p>(a) If a soil layer in soil classes 1 and 2 has greater than 50% rock fragments by weight; or</p> <p>(b) If a soil layer in classes 3, 4, 5 and 6 has greater than 75% rock fragments by weight;</p> <p>then due to insufficient treatment potential, that soil layer shall not normally be included when determining the vertical separations between the bottom of the system and seasonal high water table.</p> <p>However, if all other criteria for a mound or soil replacement system are met, then either 3(a) or 3(b) may be used to provide up to two feet of the required three feet of suitable soil above seasonal high water table, with mound specified sand providing the remaining foot of soil.</p>

Subchapter 10 - Approval of Innovative/Alternative Systems and Products

§ 1-1001 Innovative/Alternative Systems and Products: General Use

- (a) The Secretary shall authorize an innovative/alternative system or product for general use when the Secretary determines that:
 - (1) the innovative/alternative system or product is designed to achieve the purposes and to satisfy the performance criteria of these Rules;
 - (2) the innovative/alternative system or product is of demonstrated reliability and performance based on its use elsewhere in sufficient numbers and ranges of applications to support its use in the manner proposed;
 - (3) all persons using or affected by the alternative system or product will be protected from health hazards and pollution associated with the use of the innovative/alternative system or product; and
 - (4) the innovative/alternative system or product will not place an unreasonable burden on persons using or affected by the innovative/alternative system or product through unreasonable increased costs or unreasonable long-term operation and maintenance obligations.
- (b) In authorizing the general use of an innovative/alternative system or product, the Secretary shall specify the conditions under which such a system or product may be used.

§ 1-1002 Innovative/Alternative Systems and Products: Pilot Projects

- (a) The Secretary shall authorize an innovative/alternative system or product for a limited number of specific applications, either individually or as part of a pilot project, when the Secretary determines that:
 - (1) the innovative/alternative system or product as designed is likely to achieve the purposes and to satisfy the performance criteria of these Rules;
 - (2) all persons using or affected by the innovative system or product are protected from health hazards and pollution in the event the innovative/alternative system or product does not meet the purposes or the performance criteria of these Rules;
 - (3) the innovative/alternative system or product is not likely to place an unreasonable burden on persons using or affected by the innovative/alternative system or product through unreasonable increased costs or unreasonable long-term operation and maintenance obligations; and
 - (4) the proposal is designed to measure and report on criteria related to reliability, performance and cost necessary to determine its suitability for general use under section 1-1001.

§ 1-1002(a)(5) Innovative/Alternative Systems and Products: Pilot Projects

- (5) Up to twenty-five (25) installations or uses of each specific innovative/alternative system or product may be authorized under this subsection.

- (c) The Secretary may require demonstration of any innovative/alternative system or product under this subsection before considering an application for general use under § 1-1001. Once the Secretary determines through individual project applications or through a pilot project that the innovative system or product performs as intended under this section, the Secretary may, on his or her own motion or upon application, consider the innovative/alternative system or product for general use in accordance with § 1-1001 of these Rules.

§ 1-1003 Innovative/Alternative Systems and Products: Experimental Designs

- (a) The Secretary may authorize an experimental system or product intended to try a new technology or application, provided such experimental system or product meets the following criteria:
 - (1) the proposal as designed has the potential to achieve the purposes of these Rules and to satisfy all applicable performance criteria;
 - (2) the proposal is based on scientific and engineering principles;
 - (3) all persons using or affected by the proposal are protected from health hazards, pollution and increased costs in the event the experimental system or product does not meet the purposes or the performance criteria of these Rules;
 - (4) in the case of an experimental system, the site(s) at which the experimental system is to be located is capable of accommodating a fully complying system under these Rules, or the Secretary has determined that, as a replacement system, the experimental system is equal to or better than any other option available, considering the cost of the incremental increase in environmental and human health protection;
 - (5) in the case of an experimental product, the criteria in (a)(4) above are met, or the Secretary determines that sufficient safeguards exist in the rest of the system design to satisfy (a)(3) above; and
 - (6) adequate monitoring of the experimental system or product is provided to ensure protection of public health and the environment as well as to assess the performance of the experimental system or product.

- (b) Up to five (5) installations or uses of each specific experimental system or product may be authorized under this subsection.

- (c) The Secretary may require bonding or other surety of an appropriate amount to ensure performance or replacement of an experimental system or product in the event that it fails to meet the purposes of these Rules. Surety or bonding shall be established for a specified time period in each case.

Appendix B

Informational

Letter /

Right-of-Entry

Request Form



Town of Colchester

Public Works Department

P.O. Box 55, 781 Blakely Road
Colchester, Vermont 05446

Visit us: www.ColchesterVT.gov

October 21, 2010

Select Board

L. Richard Paquette
Marc Landry
Roger Derby
Myron Palmer
Nadine Scibek

Director of Public Works

Bryan Osborne
(802) 264-5625

Town Engineer

Floyd Sheesley, P.E.
(802) 264-5621

Operations Manager

Brian Tuttle
(802) 264-5626

Administrative Coordinator

Anja Twite
(802) 264-5620

Fax

(802) 264-5503

Dear Property Owner:

This letter and attachments are to update you on the status of the Town of Colchester's Integrated Water Resources Management (IWRM) Plan, and to request your assistance in helping us perform the next steps. The overall plan is intended to allow the Town to better manage the community's water resources. Through the detailed mapping and assessment of existing water resources, natural features, land use practices, and both public and private wastewater and storm water systems Colchester will be able to develop a comprehensive management plan to improve the coordination of these activities and features, leading to improved management of the community's water resources.

The Town has completed the first three phases of the project including; 1) the mapping of all public and private wastewater, water, and storm water systems, 2) the mapping of existing water resources and natural features, and 3) a preliminary assessment of each parcel of land within the community to determine the potential for these lots to support a well functioning septic system. The next phase of the project will involve a more detailed assessment of those areas that have been identified as a high priority. Generally an area is considered high priority if a system failure would likely cause a public health threat. This more detailed assessment will be used to determine the adequacy of these existing systems to protect public health, and will help us develop alternative community wastewater treatment options for the Town where needed.

Your property has been identified as one of a number of properties located in a priority area. We are requesting your assistance to access your property to complete a site assessment of your on-site wastewater system including; system type, age, soil conditions, and isolation distances from environmental features. A small hand auger boring will be performed to access soil and groundwater conditions. Any disturbances to the ground or vegetation caused by hand auguring shall be promptly restored. A form will be prepared documenting age, type, condition, and include a map showing system and isolation distances. **All information gathered will be used for study purposes only. The information will not be used to pursue any type of enforcement action relating to non-complying or failed systems.** A copy of the information obtained concerning your property will also be provided to you.

... continued on page 2 ...

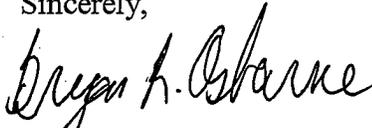
*Letter to Property Owner
October 21, 2010
Page 2 of 2*

Forcier Aldrich & Associates, Inc. (FA&A) is assisting the Town in requesting authorization to enter your property using a Right-of-Entry (ROE) form. This form is enclosed, along with instructions for signing and returning. Site assessments will be performed in November/December 2010 or spring 2011, weather depending.

Please feel free to call Mr. Wayne Elliott, PE from FA&A at (802) 879-7733 or Bryan Osborne, Town of Colchester, Director of Public Works at (802) 264-5625 with any questions or concerns you may have.

Thank you in advance for your consideration of this request. Your prompt response will be greatly appreciated.

Sincerely,



Bryan K. Osborne
Director of Public Works

N:DPW Projects/Study/Water Quality/IWRMP/Public Education & Participation

**TOWN OF COLCHESTER
INTEGRATED WATER RESOURCES MANAGEMENT
TASK 4: DETAILED NEEDS ASSESSMENT OF PRIORITY AREAS**

RIGHT-OF-ENTRY FORM

The undersigned hereby grants permission to the Town of Colchester, its officers, employees and agents to enter upon the premises of the undersigned, and to conduct thereon tests, measurements, surveys, inspections, and investigations relative to sewage disposal capacity. Any disturbance to the ground or vegetation caused by hand auguring shall be promptly restored. **All information gathered will be used for study purposes only. The information will not be used to pursue any type of enforcement action relating to non-complying or failed systems.** A copy of the results of these studies conducted on the premises shall also be given to the undersigned. This agreement shall remain in effect for a period of eight (8) months from the date of execution.

If you want to be kept informed on the project status, public meetings, and other related project communications via email, please include your email address below.

Dated _____

Property Owner

Property Owner

Property Location (911 Address)

Mailing Address

Phone Number

Email Address

Please fill out form and return in the self addressed envelope to:
Forcier Aldrich & Associates, Inc.
6 Market Place, Suite 2
Essex Junction, VT 05452
(802) 879-7733

OR Drop off at the Colchester Town Offices, Attention Bryan Osborne, Public Works Director

Appendix C

On-Site Wastewater Inspection Form

ON-SITE WASTEWATER SYSTEM INSPECTION FORM



Inspector Name:		Date:			
PROPERTY INFORMATION	Property Owner Names:	Parcel No.			
		GPS Location			
		Lat.			
	Physical Address:	Long.			
		No. Bedrooms			
	<input type="checkbox"/> Year Round <input type="checkbox"/> Seasonal	Design Flow (gpd)			
	Mailing Address:	Home Tel.			
	Work Tel.				
	Email.				
WATER SYSTEM	Type:		Yes	No	
	<input type="checkbox"/> Shallow Dug Well or Spring				
	<input type="checkbox"/> Bedrock Well	Shared System	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/> Municipal	Located on-site (If yes, show on map.)	<input type="checkbox"/>	<input type="checkbox"/>	
If Municipal Name:					
WASTEWATER TREATMENT SYSTEM	Type of Treatment System	Material of Construction		Yes	No
	<input type="checkbox"/> Cesspool	<input type="checkbox"/> Concrete	Buried	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Septic Tank	<input type="checkbox"/> Steel	Lids (Accessible)	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Advanced Treatment System	<input type="checkbox"/> Block	Effluent Filter	<input type="checkbox"/>	<input type="checkbox"/>
	If Advanced Treatment Describe:	<input type="checkbox"/> Fiberglass	Liquid Level at inlet Invert	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Plastic	Liquid Level at Outlet Invert	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Other	Pumping Frequency		
	Condition/Comments:	Volume (Gal.)			
		Isolation Distances			
		Bodies of Water:			
		Water Supplies:			
		Water Lines:			
		Property Lines:			
		Separate Gray Water System		Yes	No
		If yes Describe:		<input type="checkbox"/>	<input type="checkbox"/>

Sketch the approximate system location in this space provided:

Appendix D

Detailed Summary of Inspection Results by Area

NORTH MALLETT/NIQUETTE BAY

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	125	
Permits Available	34	27%
Total Number of "Right-of-Entries" Received:	43	34%
Total Number Inspected:	13	10%
Permits Available	1	8%

Properties Inspected:

Residency:		
Year Round:	6	46%
Seasonal:	7	54%
Residential:		
Single:	12	92%
Multi-Family:	1	8%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	1	8%
Lake Intake:	4	31%
Bedrock Well:	6	46%
Municipal:	0	0%
Unknown:	2	15%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	13	100%
Material:		
Concrete:	9	69%
Steel:	1	8%
Block:	0	0%
Fiberglass:	1	8%
Plastic:	0	0%
Unknown:	2	15%
Effluent Filter:	2	15%
Buried:	7	54%
Covers At-Grade (Accessible):	5	38%
Unknown:	1	8%

NORTH MALLETT/NIQUETTE BAY

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	6	46%
4 - 6 Years:	1	8%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	4	31%
Never:	2	15%

Secondary Treatment:

Advanced Treatment System	1	8%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	12	92%
No:	0	0%
Unknown:	1	8%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well, >75' - Gravel Pack Well, Shallow Well):

Yes:	7	
No:	2	
Unknown:	4	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	8	62%
No:	1	8%
Unknown:	4	31%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	11	85%
No:	0	0%
Unknown:	2	15%

NORTH MALLETT/NIQUETTE BAY

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	1	8%
Absorption Bed:	1	8%
Absorption Trench:	4	31%
At-Grade:	1	8%
Mound:	4	31%
Storage:	0	0%
Other:	0	0%
Unknown:	2	15%

Separate Gray Water System: 2 15%

Disposal System Located: 10 77%

Individual On-Site: 9 69%
 Shared: 4 31%
 Community: 0 0%

Gravity System: 6 46%
 Distribution Box: 2 33%
 Dosing Pump Station: 0 0%
 Pressure Disposal System: 6 46%
 Dosing Pump Station: 6 100%
 Alarms: 5 83%
 Unknown: 1 8%

Observations:

Surfacing effluent:	0	0%
Wet or spongy areas:	0	0%
Suspected Failed System:	0	0%
Odors present:	0	0%
"Best Fix" System:	0	0%
Area over system obstructed by large objects:	4	31%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes:	9	69%
No:	1	8%
Unknown:	3	23%

NORTH MALLETT/NIQUETTE BAY

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	6
No:	2
Unknown:	5

Service Water Lines:

Meets EPR Standards (>25 ft):

Yes:	8	62%
No:	0	0%
Unknown:	5	38%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	8	62%
No:	1	8%
Unknown:	4	31%

Designated Replacement Area:

Yes:	3	23%
No:	10	77%

Potential Room for a Replacement Area:

Yes:	3	23%
No:	10	77%

Potential Room for a Cluster:

Yes:	3	23%
No:	10	77%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	8	62%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	3	23%
No soil boring taken:	2	15%

NORTH MALLETT/NIQUETTE BAY

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	2	15%
12" - 24":	1	8%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	5	38%
No soil boring taken:	5	38%

Primary Soil Type:

Sand:	3	23%
Loamy Sand:	2	15%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	2	15%
Sandy Clay:	0	0%
Silty Clay Loam:	1	8%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	5	38%

GOODSELL POINT/SUNSET VIEW

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	64	
Permits Available	7	11%
Total Number of "Right-of-Entries" Received:	22	34%
Total Number Inspected:	13	20%
Permits Available	1	8%

Properties Visited:

Residency:		
Year Round:	8	62%
Seasonal:	5	38%
Residential:		
Single:	13	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	3	23%
Bedrock Well:	1	8%
Municipal:	9	69%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	13	100%
Material:		
Concrete:	8	62%
Steel:	1	8%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	4	31%
Effluent Filter:	2	15%
Buried:	9	69%
Cover At-Grade(Accessible):	4	31%
Unknown:	0	0%

GOODSELL POINT/SUNSET VIEW

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	2	15%
4 - 6 Years:	2	15%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	8	62%
Never:	1	8%

Secondary Treatment:

Advanced Treatment System	5	38%
---------------------------	---	-----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	12	92%
No:	1	8%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well, >75' - Gravel Pack Well, Shallow Well):

Yes:	3	
No:	1	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	9	69%
No:	2	15%
Unknown:	2	15%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	13	100%
No:	0	0%
Unknown:	0	0%

GOODSELL POINT/SUNSET VIEW

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	4	31%
Absorption Bed:	0	0%
Absorption Trench:	1	8%
At-Grade:	0	0%
Mound:	5	38%
Storage:	0	0%
Other:	2	15%
Bottomless Sand Filter	2	100%
Unknown:	1	8%

Separate Gray Water System: 1 8%

Disposal System Located: 13 100%

Individual On-Site: 11 85%

Shared: 2 15%

Community: 0 0%

Gravity System: 5 38%

 Distribution Box: 0 0%

 Dosing Pump Station: 0 0%

Pressure Disposal System: 7 54%

 Dosing Pump Station: 7 100%

 Alarms: 5 71%

Unknown: 1 8%

Observations:

 Surfacing effluent: 0 0%

 Wet or spongy areas: 0 0%

 Suspected Failed System: 0 0%

 Odors present: 0 0%

 "Best Fix" System: 2 15%

 Area over system obstructed by large objects: 4 31%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

 Yes: 8 62%

 No: 5 38%

 Unknown: 0 0%

GOODSELL POINT/SUNSET VIEW

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	4	
No:	0	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	11	85%
No:	1	8%
Unknown:	1	8%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	8	62%
No:	5	38%
Unknown:	0	0%

Designated Replacement Area:

Yes:	0	0%
No:	13	100%

Potential Room for a Replacement Area:

Yes:	2	15%
No:	11	85%

Potential Room for a Cluster:

Yes:	0	0%
No:	13	100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	4	31%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	4	31%
No soil boring taken:	5	38%

GOODSELL POINT/SUNSET VIEW

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	4	31%
12" - 24":	0	0%
24" - 36":	1	8%
36" - 48":	0	0%
> 48":	3	23%
No soil boring taken:	5	38%

Primary Soil Type:

Sand:	0	0%
Loamy Sand:	2	15%
Sandy Loam:	3	23%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	1	8%
Sandy Clay:	1	8%
Silty Clay Loam:	1	8%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	5	38%

EAST LAKESHORE DRIVE WEST (LAKE)

As of January 19, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	74	
Permits Available	4	5%
Total Number of "Right-of-Entries" Received:	17	23%
Total Number Inspected:	5	7%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	2	40%
Seasonal:	3	60%
Residential:		
Single:	4	80%
Multi-Family:	1	20%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	5	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	3	60%
Cesspool:	0	0%
Septic Tank:	2	40%
Material:		
Concrete:	1	50%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	50%
Effluent Filter:	0	0%
Buried:	1	50%
Cover At-Grade (Accessible):	1	50%
Unknown:	0	0%

EAST LAKESHORE DRIVE WEST (LAKE)

As of January 19, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Pumping Frequency:

0 - 4 Years:	1	20%
4 - 6 Years:	1	20%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	3	60%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	2	40%
No:	0	0%
Unknown:	3	60%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well, > 75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	40%
No:	0	0%
Unknown:	3	60%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	1	20%
No:	1	20%
Unknown:	3	60%

EAST LAKESHORE DRIVE WEST (LAKE)

As of January 19, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	1	20%
Absorption Bed:	0	0%
Absorption Trench:	1	20%
At-Grade:	0	0%
Mound:	0	0%
Storage:	3	60%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System: 2 40%

Disposal System Located: 3 60%

Individual On-Site: 5 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 2 40%

Distribution Box: 1 50%

Dosing Pump Station: 0 0%

Pressure Disposal System: 0 0%

Dosing Pump Station: 0 #DIV/0!

Alarms: 0 #DIV/0!

Unknown: 3 60%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 1 20%

Odors present: 0 0%

"Best Fix" System: 1 20%

Area over system obstructed by large objects: 3 60%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 2 40%

No: 3 60%

Unknown: 0 0%

EAST LAKESHORE DRIVE WEST (LAKE)

As of January 19, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (>100' - Drilled Well,
> 150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	3	60%
No:	2	40%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	1	20%
No:	4	80%
Unknown:	0	0%

Designated Replacement Area:

Yes:	0	0%
No:	5	100%

Potential Room for a Replacement Area:

Yes:	1	20%
No:	4	80%

Potential Room for a Cluster:

Yes:	0	0%
No:	5	100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	1	20%
> 48":	2	40%
No soil boring taken:	2	40%

EAST LAKESHORE DRIVE WEST (LAKE)

As of January 19, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	0	0%
24" - 36":	2	40%
36" - 48":	0	0%
> 48":	1	20%
No soil boring taken:	2	40%

Primary Soil Type:

Sand:	1	20%
Loamy Sand:	0	0%
Sandy Loam:	2	40%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	2	40%

EAST LAKESHORE DRIVE EAST (ROAD)

As of January 19, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	90	
Permits Available	13	14%
Total Number of "Right-of-Entries" Received:	18	20%
Total Number Inspected:	9	10%
Permits Available	1	11%

Properties Visited:

Residency:		
Year Round:	7	78%
Seasonal:	2	22%
Residential:		
Single:	3	33%
Multi-Family:	5	56%
Commercial:	1	11%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	9	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	9	100%
Material:		
Concrete:	7	78%
Steel:	1	11%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	11%
Effluent Filter:	1	11%
Buried:	4	44%
Cover At-Grade (Accessible):	3	33%
Unknown:	2	22%

EAST LAKESHORE DRIVE EAST (ROAD)

As of January 19, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Pumping Frequency:

0 - 4 Years:	6	67%
4 - 6 Years:	2	22%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	1	11%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	1	11%
---------------------------	---	-----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	9	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well, > 75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	7	78%
No:	2	22%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	8	89%
No:	1	11%
Unknown:	0	0%

EAST LAKESHORE DRIVE EAST (ROAD)

As of January 19, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	4	44%
Absorption Trench:	4	44%
At-Grade:	0	0%
Mound:	1	11%
Storage:	0	0%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System: 0 0%

Disposal System Located: 8 89%

Individual On-Site: 7 78%

Shared: 1 11%

Community: 1 11%

Gravity System: 6 67%

Distribution Box: 5 83%

Dosing Pump Station: 1 17%

Pressure Disposal System: 2 22%

Dosing Pump Station: 2 100%

Alarms: 1 50%

Unknown: 1 11%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 1 11%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 2 22%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 9 100%

No: 0 0%

Unknown: 0 0%

EAST LAKESHORE DRIVE EAST (ROAD)

As of January 19, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (>100' - Drilled Well,
> 150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	6	67%
No:	3	33%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	6	67%
No:	3	33%
Unknown:	0	0%

Designated Replacement Area:

Yes:	3	33%
No:	6	67%

Potential Room for a Replacement Area:

Yes:	2	22%
No:	7	78%

Potential Room for a Cluster:

Yes:	3	33%
No:	6	67%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	1	11%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	7	78%
No soil boring taken:	1	11%

EAST LAKESHORE DRIVE EAST (ROAD)

As of January 19, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	3	33%
24" - 36":	2	22%
36" - 48":	1	11%
> 48":	2	22%
No soil boring taken:	1	11%

Primary Soil Type:

Sand:	4	44%
Loamy Sand:	2	22%
Sandy Loam:	1	11%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	1	11%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	1	11%

WEST LAKESHORE DRIVE

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	51	
Permits Available	9	18%
Total Number of "Right-of-Entries" Received:	23	45%
Total Number Inspected:	14	27%
Permits Available	2	14%

Properties Visited:

Residency:		
Year Round:	9	64%
Seasonal:	5	36%
Residential:		
Single:	12	86%
Multi-Family:	0	0%
Commercial:	2	14%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	14	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	3	21%
Cesspool:	0	0%
Septic Tank:	11	79%
Material:		
Concrete:	8	73%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	3	27%
Effluent Filter:	0	0%
Buried:	9	82%
Cover At-Grade (Accessible):	1	9%
Unknown:	1	9%

WEST LAKESHORE DRIVE

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	4	29%
4 - 6 Years:	2	14%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	8	57%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	10	71%
No:	0	0%
Unknown:	4	29%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	9	64%
No:	1	7%
Unknown:	4	29%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	10	71%
No:	0	0%
Unknown:	4	29%

WEST LAKESHORE DRIVE

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	5	36%
Absorption Trench:	2	14%
At-Grade:	0	0%
Mound:	1	7%
Storage:	0	0%
Other:	0	0%
Unknown:	6	43%

Separate Gray Water System: 1 7%

Disposal System Located: 9 64%

Individual On-Site: 13 93%

Shared: 1 7%

Community: 0 0%

Gravity System: 7 50%

Distribution Box: 1 14%

Dosing Pump Station: 0 0%

Pressure Disposal System: 3 21%

Dosing Pump Station: 3 100%

Alarms: 1 33%

Unknown: 4 29%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 7 50%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 7 50%

No: 2 14%

Unknown: 5 36%

WEST LAKESHORE DRIVE

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 5 36%

No: 4 29%

Unknown: 5 36%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 4 29%

No: 5 36%

Unknown: 5 36%

Designated Replacement Area:

Yes: 2 14%

No: 12 86%

Potential Room for a Replacement Area:

Yes: 4 29%

No: 10 71%

Potential Room for a Cluster:

Yes: 1 7%

No: 13 93%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 11 79%

No soil boring taken: 3 21%

WEST LAKESHORE DRIVE

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	2	14%
6" - 12":	0	0%
12" - 24":	1	7%
24" - 36":	2	14%
36" - 48":	1	7%
> 48":	5	36%
No soil boring taken:	3	21%

Primary Soil Type:

Sand:	5	36%
Loamy Sand:	3	21%
Sandy Loam:	1	7%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	2	14%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	3	21%

COATES ISLAND

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	36	
Permits Available	0	0%
Total Number of "Right-of-Entries" Received:	19	53%
Total Number Inspected:	7	19%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	2	29%
Seasonal:	5	71%
Residential:		
Single:	7	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	7	100%
Bedrock Well:	0	0%
Municipal:	0	0%

Wastewater Treatment:

Primary Treatment		
Unknown:	1	14%
Cesspool:	0	0%
Septic Tank:	6	86%
Material:		
Concrete:	6	100%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	1	17%
Buried:	5	83%
Cover At-Grade (Accessible):	1	17%
Unknown:	0	0%

COATES ISLAND

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	0	0%
4 - 6 Years:	6	86%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	1	14%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	6	86%
No:	0	0%
Unknown:	1	14%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	N/A
No:	N/A
Unknown:	N/A

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	6	86%
No:	0	0%
Unknown:	1	14%

COATES ISLAND

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	1	14%
Absorption Trench:	3	43%
At-Grade:	0	0%
Mound:	2	29%
Storage:	1	14%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System: 1 14%

Disposal System Located: 7 100%

Individual On-Site: 7 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 4 57%

Distribution Box: 3 75%

Dosing Pump Station: 0 0%

Pressure Disposal System: 2 29%

Dosing Pump Station: 2 100%

Alarms: 2 100%

Unknown: 1 14%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 1 14%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 6 86%

No: 1 14%

Unknown: 0 0%

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>50' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	N/A
No:	N/A
Unknown:	N/A

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	6	86%
No:	1	14%
Unknown:	0	0%

Designated Replacement Area:

Yes:	2	29%
No:	5	71%

Potential Room for a Replacement Area:

Yes:	1	14%
No:	6	86%

Potential Room for a Cluster:

Yes:	2	29%
No:	5	71%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	6	86%
No soil boring taken:	1	14%

COATES ISLAND

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	4	57%
6" - 12":	0	0%
12" - 24":	2	29%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	0	0%
No soil boring taken:	1	14%

Primary Soil Type:

Sand:	0	0%
Loamy Sand:	0	0%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	1	14%
Clay Loam:	2	29%
Sandy Clay:	0	0%
Silty Clay Loam:	1	14%
Silty Clay:	2	29%
Clay:	0	0%
No soil boring taken:	1	14%

SPAULDING EAST SHORE

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	62	
Permits Available	21	34%
Total Number of "Right-of-Entries" Received:	20	32%
Total Number Inspected:	6	10%
Permits Available	2	33%

Properties Visited:

Residency:		
Year Round:	5	83%
Seasonal:	1	17%
Residential:		
Single:	6	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	6	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	6	100%
Material:		
Concrete:	5	83%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	17%
Effluent Filter:	0	0%
Buried:	6	100%
Cover At-Grade (Accessible):	0	0%
Unknown:	0	0%

SPAULDING EAST SHORE

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	3	50%
4 - 6 Years:	0	0%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	2	33%
Never:	1	17%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	5	83%
No:	0	0%
Unknown:	1	17%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well, >75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	33%
No:	3	50%
Unknown:	1	17%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	4	67%
No:	1	17%
Unknown:	1	17%

SPAULDING EAST SHORE

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	2	33%
Absorption Trench:	2	33%
At-Grade:	0	0%
Mound:	0	0%
Storage:	0	0%
Other:	0	0%
Unknown:	2	33%

Separate Gray Water System: 0 0%

Disposal System Located: 5 83%

Individual On-Site: 5 83%

Shared: 1 17%

Community: 0 0%

Gravity System: 4 67%

Distribution Box: 3 75%

Dosing Pump Station: 0 0%

Pressure Disposal System: 1 17%

Dosing Pump Station: 1 100%

Alarms: 0 0%

Unknown: 1 17%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 1 17%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 3 50%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 5 83%

No: 0 0%

Unknown: 1 17%

SPAULDING EAST SHORE

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 0 0%

No: 5 83%

Unknown: 1 17%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 0 0%

No: 5 83%

Unknown: 1 17%

Designated Replacement Area:

Yes: 2 33%

No: 4 67%

Potential Room for a Replacement Area:

Yes: 0 0%

No: 6 100%

Potential Room for a Cluster:

Yes: 1 17%

No: 5 83%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 5 83%

No soil boring taken: 1 17%

SPAULDING EAST SHORE

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	1	17%
24" - 36":	1	17%
36" - 48":	1	17%
> 48":	2	33%
No soil boring taken:	1	17%

Primary Soil Type:

Sand:	4	67%
Loamy Sand:	1	17%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	1	17%

BEACH RD/MARBLE ISLAND

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	101	
Permits Available	17	17%
Total Number of "Right-of-Entries" Received:	37	37%
Total Number Inspected:	5	5%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	1	20%
Seasonal:	4	80%
Residential:		
Single:	5	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	5	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	2	40%
Cesspool:	0	0%
Septic Tank:	3	60%
Material:		
Concrete:	2	67%
Steel:	1	33%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	0	0%
Buried:	2	67%
Cover At-Grade (Accessible):	1	33%
Unknown:	0	0%

BEACH RD/MARBLE ISLAND

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	2	40%
4 - 6 Years:	0	0%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	2	40%
Never:	1	20%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	3	60%
No:	0	0%
Unknown:	2	40%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	1	20%
No:	2	40%
Unknown:	2	40%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	3	60%
No:	0	0%
Unknown:	2	40%

BEACH RD/MARBLE ISLAND

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	1	20%
Absorption Bed:	0	0%
Absorption Trench:	0	0%
At-Grade:	0	0%
Mound:	0	0%
Storage:	2	40%
Other:	0	0%
Unknown:	2	40%

Separate Gray Water System: 2 40%

Disposal System Located: 5 100%

Individual On-Site: 5 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 4 80%

Distribution Box: 0 0%

Dosing Pump Station: 0 0%

Pressure Disposal System: 0 0%

Dosing Pump Station: 0 #DIV/0!

Alarms: 0 #DIV/0!

Unknown: 1 20%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 1 20%

Area over system obstructed by large objects: 0 0%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 5 100%

No: 0 0%

Unknown: 0 0%

BEACH RD/MARBLE ISLAND

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 2 40%

No: 3 60%

Unknown: 0 0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 1 20%

No: 4 80%

Unknown: 0 0%

Designated Replacement Area:

Yes: 0 0%

No: 5 100%

Potential Room for a Replacement Area:

Yes: 2 40%

No: 3 60%

Potential Room for a Cluster:

Yes: 0 0%

No: 5 100%

Soils/Groundwater

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 4 80%

No soil boring taken: 1 20%

BEACH RD/MARBLE ISLAND

As of January 31, 2012

Soils/Groundwater (Cont.)

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	1	20%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	3	60%
No soil boring taken:	1	20%

Primary Soil Type:

Sand:	1	20%
Loamy Sand:	1	20%
Sandy Loam:	1	20%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	1	20%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	1	20%

THAYER BEACH

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	19	
Permits Available	4	21%
Total Number of "Right-of-Entries" Received:	8	42%
Total Number Inspected:	4	21%
Permits Available	1	25%

Properties Visited:

Residency:		
Year Round:	3	75%
Seasonal:	1	25%
Residential:		
Single:	4	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	4	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	4	100%
Material:		
Concrete:	3	75%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	25%
Effluent Filter:	1	25%
Buried:	1	25%
Cover At-Grade (Accessible):	2	50%
Unknown:	1	25%

THAYER BEACH

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	3	75%
4 - 6 Years:	0	0%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	1	25%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	1	25%
---------------------------	---	-----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	2	50%
No:	1	25%
Unknown:	1	25%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	50%
No:	1	25%
Unknown:	1	25%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	3	75%
No:	0	0%
Unknown:	1	25%

THAYER BEACH

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	0	0%
Absorption Trench:	0	0%
At-Grade:	0	0%
Mound:	3	75%
Storage:	0	0%
Other:	0	0%
Unknown:	1	25%

Separate Gray Water System: 0 0%

Disposal System Located: 4 100%

Individual On-Site: 4 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 0 0%

Distribution Box: 0 #DIV/0!

Dosing Pump Station: 0 #DIV/0!

Pressure Disposal System: 3 75%

Dosing Pump Station: 3 100%

Alarms: 1 33%

Unknown: 1 25%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 1 25%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 2 50%

Area over system obstructed by large objects: 2 50%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 2 50%

No: 1 25%

Unknown: 1 25%

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	50%
No:	1	25%
Unknown:	1	25%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	1	25%
No:	2	50%
Unknown:	1	25%

Designated Replacement Area:

Yes:	2	50%
No:	2	50%

Potential Room for a Replacement Area:

Yes:	0	0%
No:	4	100%

Potential Room for a Cluster:

Yes:	0	0%
No:	4	100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	3	75%
No soil boring taken:	1	25%

THAYER BEACH

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	2	50%
6" - 12":	1	25%
12" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	0	0%
No soil boring taken:	1	25%

Primary Soil Type:

Sand:	0	0%
Loamy Sand:	0	0%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	1	25%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	2	50%
Clay:	0	0%
No soil boring taken:	1	25%

HOLY CROSS

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	31	
Permits Available	6	19%
Total Number of "Right-of-Entries" Received:	13	42%
Total Number Inspected:	4	13%
Permits Available	1	25%

Properties Visited:

Residency:		
Year Round:	1	25%
Seasonal:	3	75%
Residential:		
Single:	3	75%
Multi-Family:	0	0%
Commercial:	1	25%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	4	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	4	100%
Material:		
Concrete:	3	75%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	25%
Effluent Filter:	1	25%
Buried:	3	75%
Cover At-Grade(Accessible):	1	25%
Unknown:	0	0%

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	0	0%
4 - 6 Years:	2	50%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	2	50%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	4	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	50%
No:	1	25%
Unknown:	1	25%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	2	50%
No:	1	25%
Unknown:	1	25%

Separate Gray Water System:

0	0%
---	----

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	2	50%
Absorption Trench:	1	25%
At-Grade:	0	0%
Mound:	0	0%
Storage:	0	0%
Other:	0	0%
Unknown:	1	25%

Separate Gray Water System: 0 0%

Disposal System Located: 4 100%

Individual On-Site: 4 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 4 100%

Distribution Box: 0 0%

Dosing Pump Station: 0 0%

Pressure Disposal System: 0 0%

Dosing Pump Station: 0 #DIV/0!

Alarms: 0 #DIV/0!

Unknown: 0 0%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 1 25%

Area over system obstructed by large objects: 3 75%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 4 100%

No: 0 0%

Unknown: 0 0%

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	3	75%
No:	1	25%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	50%
No:	2	50%
Unknown:	0	0%

Designated Replacement Area:

Yes:	2	50%
No:	2	50%

Potential Room for a Replacement Area:

Yes:	2	50%
No:	2	50%

Potential Room for a Cluster:

Yes:	2	50%
No:	2	50%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	4	100%
No soil boring:	0	0%

HOLY CROSS

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	4	100%
No soil boring taken:	0	0%

Primary Soil Type:

Sand:	4	100%
Loamy Sand:	0	0%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	0	0%

PORTERS POINT

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	93	
Permits Available	14	15%
Total Number of "Right-of-Entries" Received:	28	30%
Total Number Inspected:	10	11%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	7	70%
Seasonal:	3	30%
Residential:		
Single:	10	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	10	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	1	10%
Cesspool:	0	0%
Septic Tank:	9	90%
Material:		
Concrete:	7	78%
Steel:	0	0%
Block:	0	0%
Fiberglass:	1	11%
Plastic:	1	11%
Unknown:	0	0%
Effluent Filter:	2	22%
Buried:	4	44%
Covers At-Grade (Accessible):	4	44%
Unknown:	1	11%

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	6	60%
4 - 6 Years:	0	0%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	4	40%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	9	90%
No:	0	0%
Unknown:	1	10%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	5	50%
No:	4	40%
Unknown:	1	10%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	8	80%
No:	1	10%
Unknown:	1	10%

PORTERS POINT

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	1	10%
Absorption Trench:	4	40%
At-Grade:	0	0%
Mound:	3	30%
Storage:	0	0%
Other:	0	0%
Unknown:	2	20%

Separate Gray Water System: 0 0%

Disposal System Located: 8 80%

Individual On-Site: 8 80%

Shared: 2 20%

Community: 0%

Gravity System: 2 20%

Distribution Box: 0 0%

Dosing Pump Station: 0 0%

Pressure Disposal System: 6 60%

Dosing Pump Station: 6 100%

Alarms: 4 67%

Unknown: 2 20%

Observations:

Surfacing effluent: 2 20%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 4 40%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 7 70%

No: 1 10%

Unknown: 2 20%

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	4	40%
No:	4	40%
Unknown:	2	20%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	4	40%
No:	4	40%
Unknown:	2	20%

Designated Replacement Area:

Yes:	2	20%
No:	8	80%

Potential Room for a Replacement Area:

Yes:	2	20%
No:	8	80%

Potential Room for a Cluster:

Yes:	2	20%
No:	8	80%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	4	40%
24" - 36":	0	0%
36" - 48":	2	20%
> 48":	4	40%
No soil boring taken:	0	0%

PORTERS POINT

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	2	20%
6" - 12":	1	10%
12" - 24":	1	10%
24" - 36":	2	20%
36" - 48":	0	0%
> 48":	4	40%
No soil boring taken:	0	0%

Primary Soil Type:

Sand:	0	0%
Loamy Sand:	0	0%
Sandy Loam:	2	20%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	1	10%
Silty Loam:	3	30%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	1	10%
Silty Clay:	2	20%
Clay:	1	10%
No soil boring taken:	0	0%

MILLS POINT

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	85	
Permits Available	1	1%
Total Number of "Right-of-Entries" Received:	28	33%
Total Number Inspected:	14	16%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	8	57%
Seasonal:	6	43%
Residential:		
Single:	14	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	14	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	14	100%
Material:		
Concrete:	14	100%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	7	50%
Buried:	6	43%
Covers At-Grade (Accessible):	8	57%
Unknown:	0	0%

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	10	71%
4 - 6 Years:	1	7%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	3	21%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	8	57%
---------------------------	---	-----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	14	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	6	43%
No:	8	57%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	14	100%
No:	0	0%
Unknown:	0	0%

MILLS POINT

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	1	7%
Absorption Trench:	2	14%
At-Grade:	1	7%
Mound:	4	29%
Storage:	1	7%
Other:	2	14%
Bottomless Sand Filter	2	100%
Unknown:	3	21%

Separate Gray Water System: 0 0%

Disposal System Located: 14 100%

Individual On-Site: 14 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 6 43%

 Distribution Box: 2 33%

 Dosing Pump Station: 0 0%

Pressure Disposal System: 7 50%

 Dosing Pump Station: 6 86%

 Alarms: 6 100%

Unknown: 1 7%

Observations:

 Surfacing effluent: 0 0%

 Wet or spongy areas: 0 0%

 Suspected Failed System: 0 0%

 Odors present: 0 0%

 "Best Fix" System: 4 29%

 Area over system obstructed by large objects: 3 21%

Isolation Distances:

Bodies of Water:

 Meets EPR Standards (> 50 ft):

 Yes: 14 100%

 No: 0 0%

 Unknown: 0 0%

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	7	50%
No:	7	50%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	5	36%
No:	9	64%
Unknown:	0	0%

Designated Replacement Area:

Yes:	1	7%
No:	13	93%

Potential Room for a Replacement Area:

Yes:	5	36%
No:	9	64%

Potential Room for a Cluster:

Yes:	0	0%
No:	14	100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	4	29%
24" - 36":	5	36%
36" - 48":	1	7%
> 48":	4	29%
No soil boring taken:	0	0%

MILLS POINT

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	4	29%
6" - 12":	4	29%
12" - 24":	2	14%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	4	29%
No soil boring taken:	0	0%

Primary Soil Type:

Sand:	0	0%
Loamy Sand:	3	21%
Sandy Loam:	5	36%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	2	14%
Clay Loam:	0	0%
Sandy Clay:	2	14%
Silty Clay Loam:	0	0%
Silty Clay:	1	7%
Clay:	1	7%
No soil boring taken:	0	0%

COLCHESTER POINT

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	61	
Permits Available	4	7%
Total Number of "Right-of-Entries" Received:	25	41%
Total Number Inspected:	6	10%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	0	0%
Seasonal:	6	100%
Residential:		
Single:	6	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	6	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	6	100%
Material:		
Concrete:	6	100%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	3	50%
Buried:	1	17%
Cover At-Grade (Accessible):	5	83%
Unknown:	0	0%

COLCHESTER POINT

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	4	67%
4 - 6 Years:	0	0%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	2	33%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	1	17%
---------------------------	---	-----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	6	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well, >75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	2	33%
No:	4	67%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	4	67%
No:	2	33%
Unknown:	0	0%

COLCHESTER POINT

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	1	17%
Absorption Bed:	1	17%
Absorption Trench:	1	17%
At-Grade:	0	0%
Mound:	3	50%
Storage:	0	0%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System: 0 0%

Disposal System Located: 6 100%

Individual On-Site: 4 67%

Shared: 2 33%

Community: 0 0%

Gravity System: 3 50%

Distribution Box: 1 33%

Dosing Pump Station: 0 0%

Pressure Disposal System: 3 50%

Dosing Pump Station: 3 100%

Alarms: 2 67%

Unknown: 0 0%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 1 17%

Area over system obstructed by large objects: 2 33%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 4 67%

No: 2 33%

Unknown: 0 0%

COLCHESTER POINT

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	4	67%
No:	2	33%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	3	50%
No:	3	50%
Unknown:	0	0%

Designated Replacement Area:

Yes:	1	17%
No:	5	83%

Potential Room for a Replacement Area:

Yes:	3	50%
No:	3	50%

Potential Room for a Cluster:

Yes:	0	0%
No:	6	100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	6	100%
No soil boring taken:	0	0%

COLCHESTER POINT

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	1	17%
6" - 12":	1	17%
12" - 24":	0	0%
24" - 36":	1	17%
36" - 48":	2	33%
> 48":	1	17%
No soil boring taken:	0	0%

Primary Soil Type:

Sand:	2	33%
Loamy Sand:	2	33%
Sandy Loam:	2	33%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	0	0%

BROADLAKE

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	157	
Permits Available	15	10%
Total Number of "Right-of-Entries" Received:	59	38%
Total Number Inspected:	11	7%
Permits Available	2	18%

Properties Visited:

Residency:		
Year Round:	8	73%
Seasonal:	3	27%
Residential:		
Single:	11	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	11	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	11	100%
Material:		
Concrete:	11	100%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	2	18%
Buried:	7	64%
Cover At-Grade (Accessible):	4	36%
Unknown:	0	0%

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	7	64%
4 - 6 Years:	1	9%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	2	18%
Never:	1	9%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	11	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	9	82%
No:	2	18%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (< 10 ft):

Yes:	10	91%
No:	1	9%
Unknown:	0	0%

BROADLAKE

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	1	9%
Absorption Bed:	1	9%
Absorption Trench:	6	55%
At-Grade:	0	0%
Mound:	1	9%
Storage:	0	0%
Other:	0	0%
Unknown:	2	18%

Separate Gray Water System: 0 0%

Disposal System Located: 11 100%

Individual On-Site: 11 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 8 73%

Distribution Box: 5 63%

Dosing Pump Station: 0 0%

Pressure Disposal System: 3 27%

Dosing Pump Station: 3 100%

Alarms: 1 33%

Unknown: 0 0%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 3 27%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 7 64%

No: 4 36%

Unknown: 0 0%

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 7 64%

No: 4 36%

Unknown: 0 0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 3 27%

No: 8 73%

Unknown: 0 0%

Designated Replacement Area:

Yes: 2 18%

No: 9 82%

Potential Room for a Replacement Area:

Yes: 5 45%

No: 6 55%

Potential Room for a Cluster:

Yes: 1 9%

No: 10 91%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 1 9%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 9 82%

No soil boring taken: 1 9%

BROADLAKE

As of January 31, 2012

Soils/Groundwater (Cont.)

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	0	0%
24" - 36":	1	9%
36" - 48":	2	18%
> 48":	7	64%
No soil boring taken:	1	9%

Primary Soil Type:

Sand:	7	64%
Loamy Sand:	1	9%
Sandy Loam:	1	9%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	1	9%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	1	9%

BELWOOD

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	99	
Permits Available	10	10%
Total Number of "Right-of-Entries" Received:	36	36%
Total Number Inspected:	8	8%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	8	100%
Seasonal:	0	0%
Residential:		
Single:	7	88%
Multi-Family:	1	13%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	8	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	8	100%
Material:		
Concrete:	7	88%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	13%
Effluent Filter:	1	13%
Buried:	6	75%
Cover At-Grade (Accessible):	2	25%
Unknown:	0	0%

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	3	38%
4 - 6 Years:	2	25%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	2	25%
Never:	1	13%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (>25 ft):

Yes:	8	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (>25 ft):

Yes:	6	75%
No:	2	25%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	8	100%
No:	0	0%
Unknown:	0	0%

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	2	25%
Absorption Trench:	4	50%
At-Grade:	0	0%
Mound:	2	25%
Storage:	0	0%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System: 1 13%

Disposal System Located: 7 88%

Individual On-Site: 8 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 7 88%

Distribution Box: 3 43%

Dosing Pump Station: 0 0%

Pressure Disposal System: 0 0%

Dosing Pump Station: 0 #DIV/0!

Alarms: 0 #DIV/0!

Unknown: 1 13%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 1 13%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 8 100%

No: 0 0%

Unknown: 0 0%

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 7 88%

No: 1 13%

Unknown: 0 0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 1 13%

No: 7 88%

Unknown: 0 0%

Designated Replacement Area:

Yes: 5 63%

No: 3 38%

Potential Room for a Replacement Area:

Yes: 1 13%

No: 7 88%

Potential Room for a Cluster:

Yes: 0 0%

No: 8 100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 8 100%

No SB administered: 0 0%

BELWOOD

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	1	13%
6" - 12":	1	13%
12" - 24":	1	13%
24" - 36":	2	25%
36" - 48":	0	0%
> 48":	3	38%
No SB administered:	0	0%

Primary Soil Type:

Sand:	3	38%
Loamy Sand:	5	63%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No SB administered:	0	0%

MEADOW

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	82	
Permits Available	9	11%
Total Number of "Right-of-Entries" Received:	26	32%
Total Number Inspected:	10	12%
Permits Available	2	20%

Properties Visited:

Residency:		
Year Round:	10	100%
Seasonal:	0	0%
Residential:		
Single:	10	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	10	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	10	100%
Material:		
Concrete:	10	100%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	1	10%
Buried:	7	70%
Lids (Accessible):	2	20%
Unknown:	1	10%

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	9	90%
4 - 6 Years:	1	10%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	0	0%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	10	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	8	80%
No:	2	20%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	10	100%
No:	0	0%
Unknown:	0	0%

MEADOW

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	4	40%
Absorption Trench:	5	50%
At-Grade:	0	0%
Mound:	1	10%
Storage:	0	0%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System:	1	10%
-----------------------------	---	-----

Disposal System Located:	10	100%
--------------------------	----	------

Individual On-Site:	10	100%
---------------------	----	------

Shared:	0	0%
---------	---	----

Community:	0	0%
------------	---	----

Gravity System:	9	90%
-----------------	---	-----

Distribution Box:	8	89%
-------------------	---	-----

Dosing Pump Station:	0	0%
----------------------	---	----

Pressure Disposal System:	1	10%
---------------------------	---	-----

Dosing Pump Station:	1	100%
----------------------	---	------

Alarms:	1	100%
---------	---	------

Unknown:	0	0%
----------	---	----

Observations:

Surfacing effluent:	0	0%
---------------------	---	----

Wet or spongy areas:	0	0%
----------------------	---	----

Suspected Failed System:	0	0%
--------------------------	---	----

Odors present:	0	0%
----------------	---	----

"Best Fix" System:	0	0%
--------------------	---	----

Area over system obstructed by large objects:	0	0%
---	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes:	7	70%
------	---	-----

No:	3	30%
-----	---	-----

Unknown:	0	0%
----------	---	----

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 4 40%

No: 6 60%

Unknown: 0 0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 3 30%

No: 7 70%

Unknown: 0 0%

Designated Replacement Area:

Yes: 2 20%

No: 8 80%

Potential Room for a Replacement Area:

Yes: 2 20%

No: 8 80%

Potential Room for a Cluster:

Yes: 2 20%

No: 8 80%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 1 10%

36" - 48": 0 0%

> 48": 9 90%

No SB administered: 0 0%

MEADOW

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	1	10%
6" - 12":	0	0%
12" - 24":	3	30%
24" - 36":	1	10%
36" - 48":	1	10%
> 48":	4	40%
No SB administered:	0	0%

Primary Soil Type:

Sand:	5	50%
Loamy Sand:	2	20%
Sandy Loam:	2	20%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	1	10%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No SB administered:	0	0%

SHORE ACRES

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	74	
Permits Available	5	7%
Total Number of "Right-of-Entries" Received:	32	43%
Total Number Inspected:	10	14%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	10	100%
Seasonal:	0	0%
Residential:		
Single:	10	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	10	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	10	100%
Material:		
Concrete:	10	100%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	2	20%
Buried:	6	60%
Covers At-Grade (Accessible):	1	10%
Unknown:	3	30%

SHORE ACRES

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	5	50%
4 - 6 Years:	1	10%
6 - 10 Years:	1	10%
+10 Years:	0	0%
Unknown:	2	20%
Never:	1	10%

Secondary Treatment:

Advanced Treatment System	1	10%
---------------------------	---	-----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	10	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	9	90%
No:	1	10%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	9	90%
No:	1	10%
Unknown:	0	0%

SHORE ACRES

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	0	0%
Absorption Trench:	5	50%
At-Grade:	0	0%
Mound:	2	20%
Storage:	0	0%
Other:	0	0%
Unknown:	3	30%

Separate Gray Water System: 0 0%

Disposal System Located: 10 100%

Individual On-Site: 10 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 8 80%

Distribution Box: 5 63%

Dosing Pump Station: 0 0%

Pressure Disposal System: 2 20%

Dosing Pump Station: 2 100%

Alarms: 2 100%

Unknown: 0 0%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 3 30%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 10 100%

No: 0 0%

Unknown: 0 0%

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 9 90%

No: 1 10%

Unknown: 0 0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 5 50%

No: 5 50%

Unknown: 0 0%

Designated Replacement Area:

Yes: 4 40%

No: 6 60%

Potential Room for a Replacement Area:

Yes: 5 50%

No: 5 50%

Potential Room for a Cluster:

Yes: 0 0%

No: 10 100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 1 10%

36" - 48": 0 0%

> 48": 8 80%

No soil boring taken: 1 10%

SHORE ACRES

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	3	30%
6" - 12":	2	20%
12" - 24":	2	20%
24" - 36":	2	20%
36" - 48":	0	0%
> 48":	0	0%
No soil boring taken:	1	10%

Primary Soil Type:

Sand:	0	0%
Loamy Sand:	0	0%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	3	30%
Clay Loam:	1	10%
Sandy Clay:	0	0%
Silty Clay Loam:	3	30%
Silty Clay:	1	10%
Clay:	1	10%
No soil boring taken:	1	10%

WILLIAMS ROAD

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	75	
Permits Available	27	36%
Total Number of "Right-of-Entries" Received:	35	47%
Total Number Inspected:	16	21%
Permits Available	1	6%

Properties Visited:

Residency:		
Year Round:	16	100%
Seasonal:	0	0%
Residential:		
Single:	7	44%
Multi-Family:	9	56%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	16	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	1	6%
Cesspool:	0	0%
Septic Tank:	15	94%
Material:		
Concrete:	14	93%
Steel:	0	0%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	1	7%
Effluent Filter:	0	0%
Buried:	14	93%
Cover At-Grade (Accessible):	0	0%
Unknown:	1	7%

WILLIAMS ROAD

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	12	75%
4 - 6 Years:	1	6%
6 - 10 Years:	0	0%
+10 Years:	0	0%
Unknown:	3	19%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	15	94%
No:	0	0%
Unknown:	1	6%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	15	94%
No:	0	0%
Unknown:	1	6%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	15	94%
No:	0	0%
Unknown:	1	6%

WILLIAMS ROAD

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	1	6%
Absorption Trench:	14	88%
At-Grade:	0	0%
Mound:	0	0%
Storage:	0	0%
Other:	0	0%
Unknown:	1	6%

Separate Gray Water System: 0 0%

Disposal System Located: 15 94%

Individual On-Site: 15 94%

Shared: 0 0%

Community: 0 0%

Gravity System: 14 88%

Distribution Box: 12 86%

Dosing Pump Station: 0 0%

Pressure Disposal System: 0 0%

Dosing Pump Station: 0 #DIV/0!

Alarms: 0 #DIV/0!

Unknown: 2 13%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 2 13%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 15 94%

No: 0 0%

Unknown: 1 6%

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 15 94%

No: 0 0%

Unknown: 1 6%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 12 75%

No: 3 19%

Unknown: 1 6%

Designated Replacement Area:

Yes: 12 75%

No: 4 25%

Potential Room for a Replacement Area:

Yes: 1 6%

No: 15 94%

Potential Room for a Cluster:

Yes: 0 0%

No: 16 100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 1 6%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 15 94%

No soil boring taken: 0 0%

WILLIAMS ROAD

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	1	6%
24" - 36":	1	6%
36" - 48":	1	6%
> 48":	13	81%
No soil boring taken:	0	0%

Primary Soil Type:

Sand:	13	81%
Loamy Sand:	1	6%
Sandy Loam:	2	13%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	0	0%

VILLAGE DRIVE

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	144	
Permits Available	13	9%
Total Number of "Right-of-Entries" Received:	59	41%
Total Number Inspected:	7	5%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	7	100%
Seasonal:	0	0%
Residential:		
Single:	6	86%
Multi-Family:	0	0%
Commercial:	1	14%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	7	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	1	14%
Cesspool:	0	0%
Septic Tank:	6	86%
Material:		
Concrete:	5	83%
Steel:	1	17%
Block:	0	0%
Fiberglass:	0	0%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	0	0%
Buried:	3	50%
Cover At-Grade (Accessible):	0	0%
Unknown:	3	50%

VILLAGE DRIVE

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	1	14%
4 - 6 Years:	2	29%
6 - 10 Years:	2	29%
+10 Years:	0	0%
Unknown:	1	14%
Never:	1	14%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	6	86%
No:	0	0%
Unknown:	1	14%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	5	71%
No:	1	14%
Unknown:	1	14%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	6	86%
No:	0	0%
Unknown:	1	14%

VILLAGE DRIVE

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	1	14%
Absorption Bed:	0	0%
Absorption Trench:	4	57%
At-Grade:	0	0%
Mound:	0	0%
Storage:	0	0%
Other:	0	0%
Unknown:	2	29%

Separate Gray Water System:	1	14%
-----------------------------	---	-----

Disposal System Located:	6	86%
--------------------------	---	-----

Individual On-Site:	6	86%
Shared:	0	0%
Community:	0	0%

Gravity System:	5	71%
Distribution Box:	1	20%
Dosing Pump Station:	0	0%
Pressure Disposal System:	0	0%
Dosing Pump Station:	0	#DIV/0!
Alarms:	0	#DIV/0!
Unknown:	2	29%

Observations:

Surfacing effluent:	1	14%
Wet or spongy areas:	1	14%
Suspected Failed System:	1	14%
Odors present:	1	14%
"Best Fix" System:	0	0%
Area over system obstructed by large objects:	0	0%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes:	7	100%
No:	0	0%
Unknown:	0	0%

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes:	N/A	
No:	N/A	

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	4	57%
No:	2	29%
Unknown:	1	14%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes:	3	43%
No:	3	43%
Unknown:	1	14%

Designated Replacement Area:

Yes:	1	14%
No:	6	86%

Potential Room for a Replacement Area:

Yes:	6	86%
No:	1	14%

Potential Room for a Cluster:

Yes:	1	14%
No:	6	86%

Soils/Groundwater:

Depth to Bedrock:

0" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	6	86%
No soil boring taken:	1	14%

VILLAGE DRIVE

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	1	14%
12" - 24":	0	0%
24" - 36":	0	0%
36" - 48":	0	0%
> 48":	5	71%
No soil boring taken:	1	14%

Primary Soil Type:

Sand:	5	71%
Loamy Sand:	0	0%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	1	14%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	1	14%

CANYON ESTATES

As of January 31, 2012

Right of Entry Responses:

Total Number of Right of Entries Distributed:	90	
Permits Available	7	8%
Total Number of "Right-of-Entries" Received:	27	30%
Total Number Inspected:	4	4%
Permits Available	0	0%

Properties Visited:

Residency:		
Year Round:	4	100%
Seasonal:	0	0%
Residential:		
Single:	4	100%
Multi-Family:	0	0%
Commercial:	0	0%

Water System:

Type:		
Shallow Dug Well or Spring:	0	0%
Lake Intake:	0	0%
Bedrock Well:	0	0%
Municipal:	4	100%

Wastewater Treatment:

Primary Treatment		
Unknown:	0	0%
Cesspool:	0	0%
Septic Tank:	4	100%
Material:		
Concrete:	3	75%
Steel:	0	0%
Block:	0	0%
Fiberglass:	1	25%
Plastic:	0	0%
Unknown:	0	0%
Effluent Filter:	0	0%
Buried:	2	50%
Cover At-Grade (Accessible):	2	50%
Unknown:	0	0%

CANYON ESTATES

As of January 31, 2012

Wastewater Treatment (Cont.):

Septic Tank Pumping Frequency:

0 - 4 Years:	1	25%
4 - 6 Years:	1	25%
6 - 10 Years:	1	25%
+10 Years:	0	0%
Unknown:	1	25%
Never:	0	0%

Secondary Treatment:

Advanced Treatment System	0	0%
---------------------------	---	----

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 25 ft):

Yes:	4	100%
No:	0	0%
Unknown:	0	0%

Water Supplies:

Meets EPR Standards (> 50' - Drilled Well,
>75' - Gravel Pack Well, Shallow Well):

Yes:	N/A
No:	N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes:	3	75%
No:	1	25%
Unknown:	0	0%

Property Lines:

Meets EPR Standards (> 10 ft):

Yes:	4	100%
No:	0	0%
Unknown:	0	0%

CANYON ESTATES

As of January 31, 2012

Wastewater Disposal System:

Type of Disposal System:

Seepage Pit/Drywell:	0	0%
Absorption Bed:	0	0%
Absorption Trench:	3	75%
At-Grade:	0	0%
Mound:	1	25%
Storage:	0	0%
Other:	0	0%
Unknown:	0	0%

Separate Gray Water System: 0 0%

Disposal System Located: 4 100%

Individual On-Site: 4 100%

Shared: 0 0%

Community: 0 0%

Gravity System: 4 100%

Distribution Box: 3 75%

Dosing Pump Station: 0 0%

Pressure Disposal System: 0 0%

Dosing Pump Station: 0 #DIV/0!

Alarms: 0 #DIV/0!

Unknown: 0 0%

Observations:

Surfacing effluent: 0 0%

Wet or spongy areas: 0 0%

Suspected Failed System: 0 0%

Odors present: 0 0%

"Best Fix" System: 0 0%

Area over system obstructed by large objects: 0 0%

Isolation Distances:

Bodies of Water:

Meets EPR Standards (> 50 ft):

Yes: 4 100%

No: 0 0%

Unknown: 0 0%

As of January 31, 2012

Wastewater Disposal System (Cont.):

Isolation Distances (Cont.):

Water Supplies:

Meets EPR Standards (> 100' - Drilled Well,
>150' - Gravel Pack Well, Shallow Well):

Yes: N/A

No: N/A

Service Water Lines:

Meets EPR Standards (> 25 ft):

Yes: 3 75%

No: 1 25%

Unknown: 0 0%

Property Lines:

Meets EPR Standards (> 25 ft):

Yes: 1 25%

No: 3 75%

Unknown: 0 0%

Designated Replacement Area:

Yes: 0 0%

No: 4 100%

Potential Room for a Replacement Area:

Yes: 2 50%

No: 2 50%

Potential Room for a Cluster:

Yes: 0 0%

No: 4 100%

Soils/Groundwater:

Depth to Bedrock:

0" - 24": 0 0%

24" - 36": 0 0%

36" - 48": 0 0%

> 48": 4 100%

No soil boring taken: 0 0%

CANYON ESTATES

As of January 31, 2012

Soils/Groundwater (Cont.):

Depth to Estimated Seasonal High Water Table:

0" - 6":	0	0%
6" - 12":	0	0%
12" - 24":	0	0%
24" - 36":	2	50%
36" - 48":	1	25%
> 48":	1	25%
No soil boring taken:	0	0%

Primary Soil Type:

Sand:	4	100%
Loamy Sand:	0	0%
Sandy Loam:	0	0%
Silt:	0	0%
Medium Loam:	0	0%
Sandy Clay Loam:	0	0%
Silty Loam:	0	0%
Clay Loam:	0	0%
Sandy Clay:	0	0%
Silty Clay Loam:	0	0%
Silty Clay:	0	0%
Clay:	0	0%
No soil boring taken:	0	0%