Infrastructure Inventory

INTEGRATED WATER RESOURCES MANAGEMENT PROGRAM: TASK 1

TOWN OF COLCHESTER, VERMONT

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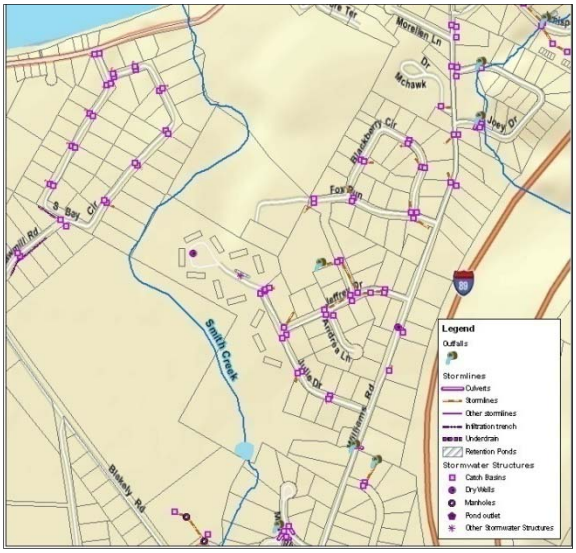

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EXECUTIVE SUMMARY

During 2009, Stone Environmental completed a comprehensive infrastructure inventory and mapping effort to support the development of Colchester's Integrated Water Resources Management Plan (IWRMP). This project was funded as a demonstration project with funding from the U.S. Environmental Protection Agency (EPA), with the goal of improving overall management of non-point source pollution control infrastructure, resulting in a plan that can be supported by the community at large.

The comprehensive infrastructure inventory and mapping effort included stormwater infrastructure (catch basins, culverts, piping, swales, detention basins, and outfalls); onsite wastewater permitting information; and private water supply locations and status. Our work for each type of infrastructure inventory included both desktop and field data collection efforts.

This report describes the inventory; methods and processes used; and descriptions of the databases developed to support the Integrated Water Resources Management Program. This inventory data provides the foundation for conducting the town-wide and detailed onsite wastewater needs assessment (Tasks 3 and 4 of the EPA demonstration grant workplan).

Infrastructure information extracted from town data files and from the field inventory is summarized below.

Stormwater Inventory Summary

A town-wide stormwater GIS database inventory was completed. The stormwater inventory includes the following components:

Outfalls	254
Catch Basins	1,526
Dry Wells	357
Manholes	138
Retention Ponds	44
Other Structures	22

Stormwater permits for parcels or areas in Town were recorded by permitting status, as follows:

State Permitted	96
Expired Permits	17
Unpermitted Sites	34
Stormwater Easements	22

Onsite Wastewater System Permits and Inventory

A parcel-by-parcel inventory that includes the type of wastewater system serving each property (individual onsite system, shared onsite system, or sewered with centralized municipal service) was developed. Permits and associated information from multiple and sometimes overlapping data sources were combined to create an inventory of permits, legal easements, design plans, and other ancillary electronic records where such information was available. The types of wastewater service for each property included:

Individual Onsite	5171
Shared Onsite	89
Sewer Service	219
None	757

Water Supply Inventory

One of the critical elements of assessing onsite wastewater capacity is making sure enough land exists on a parcel to site both a drinking water supply and a wastewater treatment system under current regulations. Although a significant number of properties in Colchester are served by municipal water, about 750 properties have individual or shared private wells, the locations of which were mostly unknown. A field inventory of private water supply sources was conducted on a voluntary basis to fill this data gap. Stone was able to obtain permission to locate 284 private water supplies which support a total of 483 properties. An additional four water supplies included in the database are shared drilled wells which are permitted as "Non-Transient Community Water Supplies;" these wells serve a total of 75 properties. A parcel-by parcel inventory of the type of water supply service was compiled, and included:

Municipal	4,733
Individual Drilled Well	564
Individual Shallow Well/Spring	27
Individual Drilled and Shallow Wells	1
Shared Drilled Well	102
Shared Shallow Well/Spring	1
Shared shallow and drilled wells	1
Lake Water	47
None	760

GIS Databases and Map Application

Another key part of the task was to build a GIS database container for all of the information collected, including the field data collection applications used to build the infrastructure inventories. Complete metadata for each type of infrastructure was developed to document data collection processes and other

relevant details. The GIS infrastructure location information was tied to town and state data records whenever possible, and the GIS inventory databases were delivered to the Town as an interim data deliverable. Town staff members are now able to click on a feature in the GIS and bring up ancillary information about the feature, such as permit information, drawings, and other documents.

TABLE OF CONTENTS

List of Figures

List of Tables

1. INTRODUCTION

The Town of Colchester secured a demonstration grant from the U.S. Environmental Protection Agency (EPA) for development of an Integrated Water Resource Management Plan (IWRMP) with a goal to improve the overall management of non-point source pollution control infrastructure, and that can be supported by the community at large. This plan has a technical component that includes the development of a sufficient knowledge base of the town's distributed infrastructure to support the creation of a comprehensive plan sufficient to address the community's needs and concerns, an educational component to convince the community that the plan is necessary, and finally the forging of a public private partnership, including a funding strategy to make the plan economically feasible. These three components are intricately linked and are therefore dependent of one another, and are all critical to the successful implementation of the Town's overall program.

This report represents a summary of the first sub-components of this goal:

During the spring and summer of 2009, Stone Environmental Inc. (Stone) conducted a comprehensive inventory and mapping of the Town of Colchester's of public and private stormwater infrastructure (catch basins, culverts, piping, swales, detention basins and outfalls); septic system wastewater facilities; and private water supplies. This effort was part of Task 1 of the town's comprehensive Integrated Water Resources Management Program project funded by the U.S. Environmental Protection Agency. This report describes the inventory; methods and processes used; and descriptions of the databases developed to support the development of Colchester's Integrated Water Resources Management Program. The information compiled will be used to conduct a townwide assessment and to support townwide water resources management.

- Stormwater Collection Systems:
  - catch basins
  - culverts
  - piping
  - detention basins, and
  - outfalls
- Onsite Wastewater Systems
- Private Water Supply Systems.

Stone conducted the inventory based on: a protocol developed for the Task; the project goal of "development of a knowledge-base relating to the location, capacity and status of the Town's decentralized wastewater and storm water systems…"; an examination of existing information resources; and a cost-effective approach for building the inventory.

For each component, a description of the process(es) and methods used for data collection is provided. A summary assessment for each inventory component was conducted from existing file and field data. All the inventoried information is now available in easy to access databases with direct links to the original permit file information by physical location using the town's GIS system. This inventory provides the town with the most complete collection of all information for every component and the base for conducting the remaining tasks for the IWRMP. The Appendices contain: Metadata for each of the inventory items; specific inventory procedures used; field inventory form samples; Stormwater User Guide for Field Data Collection; and a listing of all databases developed and used as part of the inventory task.

2. STORMWATER INFRASTRUCTURE INVENTORY

To aid in the integration of water resource management on a town-wide basis, a stormwater data inventory was conducted during the 2009 field season for the Town of Colchester, Vermont. The inventory included a comprehensive field data collection of both municipal and private (where permission was granted) stormwater infrastructure, as well as a review of stormwater discharge permits required by the Vermont Department of Environmental Conservation (DEC) and associated site plans. Additionally, site plans for developed areas within the town that were not associated with stormwater permits were reviewed.

The resulting databases developed include a geographic information system (GIS) inventory of stormwater structures, general locations of site plans with stormwater discharge permits, general locations of site plans without stormwater discharge permits, and locations of stormwater easements. All stormwater discharge permits, site plans, easement documents, and co-applicant maintenance agreements associated with properties within the Town of Colchester have been digitally catalogued and associated with a spatial location, where possible. These datasets can be used to maintain and manage stormwater infrastructure in the Town of Colchester.

The stormwater inventory involved several phases of data collection, compilation, and review in order to construct as complete a dataset as possible. These phases included an initial computer desktop review of existing Chittenden County Regional Planning Commission (CCRPC) data, stormwater discharge permit and site plan review, field data collection, and a final desktop quality control review. The methodology used for each phase is briefly outlined below. The detailed methodology and process description is contained in the metadata contained in Appendix A.

2.1. Initial Computer Desktop Review

Prior to field mapping, we performed a comprehensive review of the CCRPC data to reposition stormwater structures based on features visible in high resolution imagery. Points were moved for approximately 1,000 catch basin and manhole locations that were slightly off to the visible catch basin

grate or manhole cover. This enabled the field crew to confirm structure locations in many instances rather than GPS a new location.

2.2. Permit and Plan Review

Stormwater discharge permits and associated site plans were compiled. The goal of this effort was two-fold. First, these documents were assembled in order to have a near complete set of regulatory documents to aid in the management of non-point source pollution. Second, these documents were used to strengthen the field inventory efforts, especially where stormwater structure design was difficult to interpret on the ground. Electronic copies of stormwater discharge permits and associated site plans were obtained from the DEC and CCRPC. These documents were organized into directories under the permit number, except for plan sheets that could not be located in any electronic files. The town's paper files were inventoried to locate missing plan sheets as well as plan sheets with no associated stormwater discharge permit (unpermitted site plans). Many permitted site plans were rescanned by the Town, where electronic versions of plan sheets were unreadable or missing. Each permit directory also includes the current stormwater permit; any referenced expired permits; and a co-applicant agreement between the Town and private entity, if made.

Following the compilation of electronic permits and site plans, site plans were reviewed and compared with the GIS stormwater inventory, noting any discrepancies and digitizing missing stormwater structures. Unpermitted paper site plans with stormwater structures were also reviewed in the Town offices, using the same methods. This process coincided with the 2009 field collection. Where site plan review preceded the 2009 field mapping, the field crew generally confirmed the accuracy of the digitized features. Where site plan review came after the 2009 field mapping, overall it confirmed the accuracy of the field mapping, but raised a list of discrepancies which were subsequently rechecked in the field.

As part of this process, a GIS layer of permit points was created, symbolized in the Stormwater ArcMap document with a "P" symbol. Clicking on the point brings up an attribute table containing hotlinks to the permit document, associated plans, and the co-applicant agreement, if applicable.

We acquired Colchester's ACS land records database from 2002 to 2009 related to stormwater. All the records in this timeframe have been searched to identify easements for stormwater infrastructure. A layer of "easement" points containing the general location of each easement, parcel number, volume-page-number, street address, and a hotlink to the easement document has been developed as an attribute to each infrastructure feature. Currently, twenty-two (22) easements have been identified in the Town of Colchester through the ACS database. Electronic records from ACS related to stormwater were downloaded for the May 1995-2002 time range in July 2010, these records are not included in the stormwater inventory that was delivered to the Town in April 2010. If the Town desires, this dataset can be revisited and older easements added to the inventory during the development of management program options.

Permit number IDs identified during the permit and plan review processes were recorded in a field of the feature datasets of the stormwater personal geodatabase. The step of assigning permit number ID to all stormwater features was completed to the extent possible. Only stormwater features which were either added or reviewed during the permit and plan review process have the permit number ID field populated. Features added during the post permit and plan reviews do not have a recorded permit number.

2.3. Field Inventory

Stormwater features including stormlines, culverts, catch basins, drywells, outfalls, and retention ponds along with their associated attributes were confirmed in the field, edited, or created using CCRPC data and site plan review information as additional references.

In addition to stormwater features, all culverts that were not originally mapped as part of the stormwater infrastructure inventory were also inventoried. Our inventory verified and updated the existing local inventory feature class in VCGI's "Transtruc" geodatabase which was last updated in 2003 by the CCRPC. Due to the large number of attributes associated with the Transtruc geodatabase, only the required fields, as well as a few fields Stone found pertinent to the inventory, were recorded. Stone updated 175 culvert records and added an additional twelve to the "Transtruc" database. Once the Local Inventory feature class was updated, it was passed off to the CCRPC to update VTrans' Vermont Online Bridge and Culvert Inventory Tool (VOBCIT).

The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. An ArcPad application was created to assist in the inventory process. The application employed a number of features, such as drop-down menus and warning prompts to ensure quality data and expedite the data collection process. Appendix B contains the *Stormwater Field Inventory Application User Manual*, which provides more detail about how stormwater infrastructure was collected with the application. The manual is intended for use by the town to maintain the inventory.

2.4. Desktop Quality Control Check

The desktop quality control check took place after each field day with the purpose of catching any entry errors and clarifying any unclear observations. The first step of the two step process was to verify the spatial relationship between the stormwater structures. The individual infrastructures' GPS locations were checked against high resolution imagery and the locations as an entire system were looked over for integrity. A data overview was done to complete the quality control check. Any obvious entry errors were identified and clarified during this step. Structures were flagged where there were discrepancies between field observations and site plan observations. These discrepancies were re-visited and reconciled in the field. The quality control check was primarily completed by the field personnel who collected the stormwater structure data for that day.

A GIS topology was created for the stormwater features in the stormwater data inventory database for the purpose of a spatial integrity quality control check. The rules established by the topology enforce the

integrity of the stormwater network between all the stormwater features. The topology only applies to "Stormlines," "Stormwater Structures," and "Outfalls" features. The "Retention Ponds" feature class was not incorporated into the topology. The rules enforced by the topology were:

- "Stormlines" are not multipart
- "Stormwater Structures" and "Outfalls" are connected to a "Stormline."

Some exceptions do apply to these rules and are so established in the topology. The topology was created primarily for a quality control check and was deleted once the topological errors were corrected.

2.5. Stormwater Data Inventory Database

The final result of the stormwater data inventory is a geospatial database (geodatabase) of all stormwater structures and associated attributes. The geodatabase is in the ArcGIS 9.3 personal geodatabase format. The geodatabase contains feature classes for stormwater infrastructure including outfalls, stormlines, stormwater structures, and retention ponds. Additionally, the geodatabase has permit and easement feature classes. These include point locations of stormwater permits as permitted by DEC, expired stormwater permits, site plans where no permit exists referred to as Unpermitted Site Plans, and stormwater easements. Table 1 summarizes the geodatabase feature databases and associated feature classes compared with the original CCRPC data. All feature classes are in Vermont State Plane meters projection, NAD83. Table 2 contains a summary of the features inventories and their permit status.

Table 1. Stormwater Geodatabase Feature Datasets and Feature Classes

Feature Dataset	Feature Class	Description	2009 Count	CCRPC Count
Stormwater_Structures (with topology)	Outfalls09	Outfall point locations. Attributes of interest include discharge type, diameter, and condition.	279	130
	Stormline09	Stormline line features. Lines include stormlines, underdrains, infiltration pipes, culverts, and roof drains. Other attributes of interest include material type and diameter.	2,282	888
	Structures09	Stormwater structure point locations. Structures include catch basins, dry wells, manholes, and clean outs. Other attributes of interest include discharge type and condition.	2,095	1,189
Stormwater_Features	RetentionPonds09	Retention pond polygons.	53	3
Permits_Easements	StormwaterPermits	Point locations of permitted stormwater discharge. Permits are managed by DEC under the Vermont Stormwater Program.	108	107
	UnpermittedSitePlans	Point locations of site plans with no stormwater permit under the Vermont Stormwater Program.	34	NA
	StormwaterEasements	Point locations of Town of Colchester stormwater easements.	22	NA

Table 2. Permitted and Non-Permitted Stormwater Structures Summary

Feature Class	Feature Type	Permitted	Percent of Count	Non-Permitted w/ Plan	Percent of Count	Non-Permitted w/o Plan	Percent of Count	Count
Outfalls		99	35%	7	3%	173	62%	279
Stormwater Structures		818	39%	134	6%	1143	55%	2,095
	Catch Basins	663	38%	112	6%	952	55%	1,727
	Dry Wells	36	26%	11	8%	92	66%	139
	Manholes	56	41%	8	6%	72	53%	136
	Other Structures	63	68%	3	3%	27	29%	93
Stormwater Lines		907	40%	130	6%	1245	55%	2,282
	Stormlines	743	37%	101	5%	1154	58%	1,998
	Culverts	78	48%	7	4%	76	47%	161
	Other Lines	86	70%	22	18%	15	12%	123
Retention Ponds		44	83%	0	0%	9	17%	53
Total Features		1853		272		2583		4,708

A geometric network was built using ArcInfo 9.3 for the stormwater infrastructure and is stored in the Stormwater personal geodatabase. The network was built based on outfalls, stormwater structures and stormlines. Retention ponds were not included in the geometric network. Simulating the natural flow of water, outfalls were established as sinks in the network. This designation directs all flow to travel down the system of connected stormlines and other structures to the outfall. The following connectivity rules were established for the network:

- Stormline connects with Outfalls and Stormwater Structures

The stormwater flow network can be used to identify flow direction of a system. The user has the option of displaying an arrow which points in the direction of flow. Various traces can also be run on the network. Some of the traces include finding an upstream or downstream path or finding the upstream accumulation at a specified location in the system.

3. WASTEWATER TREATMENT INFRASTRUCTURE INVENTORY

The wastewater and private water infrastructure inventory consisted of four efforts: collection, assessment, and integration (as feasible) of multiple town and State of Vermont databases and paper records; creation of GIS and field data collection applications; field inventory of private water wells; and a data inventory quality control effort.

3.1. Existing Data Records Collection and Assessment

The Town already maintains several sources of information relevant to the wastewater and water supply inventory and which will be useful in the needs assessment processes. The status of each of these data sources, and their relevance to inventory and needs assessment tasks, is described below.

3.1.1. Assessor's Database

The Assessor database provides a wealth of information that aids both planning-level and detailed needs assessments. This database contains records for commercial parcels (6,694 unique records for 463 accounts) and residential parcels (7,284 unique records for 6,486 accounts); in total, there are 6,949 unique accounts in the Assessor's database. The parcel boundary feature class for the Town (originally from 2007, and then from 2009) was joined to the Assessor's data by account number, and instances where the parcel and/or account numbers did not match were corrected wherever possible. The total unique accounts in the Assessor's database will always be a larger number than the number of unique parcel features with account numbers (for instance, the Assessor's database has 6,949 unique accounts while the parcels feature class only has 6,236 unique records). This is due to the presence of multiple account numbers in the Assessor's database which relate to the same parcel of land, as is the case for condominium developments and mobile homes on leased land. These parcel polygons were further condensed for the Town-wide wastewater needs assessments described in the Task 3 report. For the screening needs assessments, polygons that represent condo or apartment footprints were merged with the surrounding common land (see Section 2.5 of the Task 3 report).

Utilities

The Assessor's database contains information recorded about utilities on the property, including information about water supply and wastewater service. This information was used as a starting point for the water supply and wastewater treatment system inventories, but was modified significantly to reflect current conditions. Table 3 summarizes the number of parcels with type of water or wastewater service as currently listed in the water supply/wastewater treatment system inventory.

Table 3. Summary of Water and Wastewater Services by Parcel

Water Service Type	Wastewater Service Type	Total Accounts
Individual Drilled and Shallow Wells	Onsite	1
Individual Drilled Well	Onsite	564
Individual Shallow Well/Spring	Onsite	27
Shared Drilled Well	Onsite	79
Shared Drilled Well	Shared Onsite	23
Shared shallow and drilled wells	Shared Onsite	1
Shared Shallow Well/Spring	Onsite	1
Lake Water	Onsite	47
Municipal	Onsite	4,449
Municipal	Shared Onsite	65
Municipal	Sewer	219
None	Onsite	3
None	None	583
2009 parcels not in 2007 parcel feature class, not characterized		174
TOTAL PARCELS		**6,236**

Source: Town of Colchester Assessor's data with Stone Environmental modifications, 2009-2010

Parcel/Structure Use and Zoning

All properties listed in the Assessor's database are assigned a "class" code describing how the property is used. All accounts are assigned a property use code in the database (Table 4). However, the linkage between spatial parcel polygons and accounts in the Assessor's database is not perfect; the discrepancies are outlined in the table below.

Table 4. Property Use Summarized by Land Use Category, Account, and Parcel.

Description	Town Property Use Code	Total Accounts	Total Parcels
Commercial Property	C	416	332
Farm Land Over 6 Acres	X	29	29
Farm Land Under 6 Acres	W	3	2
Farm Property	F	17	17
Government Property	G	108	104
Industrial Property	I	21	21
Mobile Home on Leased Land	B	634	246
Mobile Home on Owned Land	D	16	16
Religious, Charitable, Non-Profit	L	57	50
Residential Condominium	J	938	762

Table 4. Property Use Summarized by Land Use Category, Account, and Parcel (continued).

Description	Town Property Use Code	Total Accounts	Total Parcels
Residential Over 6 Acres	A	206	205
Residential Under 6 Acres	R	3,500	3,475
Travel Trailer	T	132	0
Undeveloped Over 6 Acres	P	104	101
Undeveloped Under 6 Acres	M	388	354
Utility (Cable TV)	Y	2	0
Utility (Electric)	H	6	3
Utility (Other)	K	2	0
Vacation (Seasonal) Over 6 Acres	N	6	5
Vacation (Seasonal) Under 6 Acres	V	364	350
Rights of way, water, and other polygons with no parcel number			54
Parcel polygons (apartment buildings) with no corresponding record in Assessor database			37
Common or shared land associated with condominiums or camps, no record in Assessor's database corresponding to parcel polygon			56
Other parcel polygons with no matching account in Assessor database			17
TOTAL		**6,949**	**6,236**

All properties in the Assessor's database are also assigned a zoning code. Currently, all but seven accounts have a zoning designation (Table 5), while the same issues that affect the linkage between the parcel polygons and the Assessor's database in the land use information shown above also affect the zoning designations.

Residential Structure Dimensions

Information about the footprints of residential dwellings and outbuildings associated with residences is available from the Assessor's database. While this information cannot be placed spatially on individual parcels, for a planning-level needs assessment it will be possible to use a database operation to subtract the square footages of dwelling and outbuilding footprints from the total area available for siting an onsite wastewater treatment system (OWTS). While data on the spatial locations of impervious surfaces, including driveways and structures, will be available separately for use in planning level and other analyses, the structure dimensions may provide a useful cross-check on the accuracy of areal calculations. A summary of the total numbers of accounts containing information about dwelling and associated garage or porch dimensions, organized by property use class, is shown in Table 6. Information about the dimensions of mobile homes and travel trailers is notably absent from this table; however, dimensional information about these structures is recorded as for outbuildings.

Table 5. Zoning Designations Summarized by Accounts and Parcels.

Description	Town Zoning Code	Total Accounts	Total Parcels
Residential One	R1	1,298	1,249
Residential Two	R2	1,588	1,530
Residential Three	R3	1,942	1,874
Residential Five	R5	139	136
Residential Ten	R10	43	43
Mobile Home Park	MHP	631	255
General Development One	GD1	302	167
General Development Two	GD2	209	121
General Development Three	GD3	110	100
General Development Four	GD4	89	60
Commercial	COM	290	207
Industrial	IND	67	65
Agricultural	AGR	129	124
Floodplain	FP	104	102
Governmental	GOV	1	1
Utility Accounts with no Zoning code		7	
Parcel polygons with no Zoning code			202
TOTAL		**6,949**	**6,236**

Table 6. Summary of Accounts Containing Structure Dimensions by Property Use Class

			Total Accounts With Square Footage Data				
CLASS	Description	Total Accounts	Ground Floor Living Area	Enclosed Porches	Wood Decks	Attached Garages	Detached Garages
X	Farm Land Over 6 Acres	29	0	0	0	0	1
F	Farm Property	17	16	8	7	3	8
G	Government Property	108	3	0	0	1	2
B	Mobile Home on Leased Land	634	0	0	0	0	2
D	Mobile Home on Owned Land	16	0	0	0	0	5
J	Residential Condominium	938	938	73	535	448	125
A	Residential Over 6 Acres	206	203	46	132	91	56
R	Residential Under 6 Acres	3,500	3,492	769	2,455	2,016	446
P	Undeveloped Over 6 Acres	104	5	0	4	3	1
M	Undeveloped Under 6 Acres	388	5	0	1	2	6
N	Vacation (Seasonal) Over 6 Acres	6	6	2	3	0	0
V	Vacation (Seasonal) Under 6 Acres	364	363	149	181	6	33
TOTAL		**6,310**	**5,031**	**1,047**	**3,318**	**2,570**	**684**

Information about residential outbuilding types and dimensions is recorded in the Assessor's database in a table separate from residential dwelling data. "Outbuildings" may include sheds, additional garages, barns, agricultural structures, swimming pools, and—significantly—mobile homes and travel trailers. Up to seven different types of outbuildings and sets of dimensions may be recorded on a single account. Table 7 summarizes the number of accounts in each residential property use class for which outbuilding dimensions are available.

Table 7. Summary of Accounts Containing Residential Outbuilding Dimensions by Property Use Class

CLASS	Description	Total Accounts	Total Accounts with Outbuilding Square Footage						
			OBY 1	OBY 2	OBY 3	OBY 4	OBY 5	OBY 6	OBY 7
X	Farm Land Over 6 Acres	29	3	1	1	1	1	1	0
F	Farm Property	17	17	17	15	12	10	8	4
G	Government Property	108	3	2	2	1	1	0	0
B	Mobile Home on Leased Land	634	631	583	398	209	82	18	3
D	Mobile Home on Owned Land	16	15	13	11	9	5	4	1
J	Residential Condominium	938	340	114	20	8	10	4	1
A	Residential Over 6 Acres	206	173	108	58	26	8	5	2
R	Residential Under 6 Acres	3,500	2,151	716	182	43	10	2	0
T	Travel Trailer	132	62	21	2	1	0	0	0
P	Undeveloped Over 6 Acres	104	8	3	3	1	1	0	0
M	Undeveloped Under 6 Acres	388	30	12	5	3	0	0	0
N	Vacation (Seasonal) Over 6 Acres	6	5	2	0	0	0	0	0
V	Vacation (Seasonal) Under 6 Acres	364	225	52	14	2	1	0	0
TOTAL		**6,442**	**3,660**	**1,643**	**710**	**315**	**128**	**41**	**11**

Residential Design Flow Basis Data

Almost all residential properties in the Assessor's database have data recorded for number of bedrooms, which will enable estimation of design flows for residences using OWTS for wastewater service (see Table 8). There are a few discrepancies, including the 8 undeveloped properties which nevertheless have bedrooms recorded, and relatively minor disagreements in totals between accounts with bedrooms and total accounts in some land use classes. For the Task 3 town-wide needs assessments, properties classed as "undeveloped" were assumed to have zero bedrooms and no wastewater flows. Developed residential properties with no bedrooms recorded in the Assessor's database were assigned the average number of bedrooms of the respective property use class.

Table 8. Summary of Residential Accounts Containing Design Flow Basis Data by Use Class

CLASS	Description	Accounts With Bedrooms	Total Accounts
F	Farm Property	16	17
G	Government Property	3	108
J	Residential Condominium	937	938
A	Residential Over 6 Acres	203	206
R	Residential Under 6 Acres	3,489	3,500
P	Undeveloped Over 6 Acres	5	104
M	Undeveloped Under 6 Acres	3	388
N	Vacation (Seasonal) Over 6 Acres	6	6
V	Vacation (Seasonal) Under 6 Acres	361	364
TOTAL		**5,023**	**5,139**

Residential Property Age Data

Information is recorded for many residential parcels about the year in which the property was developed. Plotting the year that residential structures were built versus the number of structures built in that year (Figure 1) shows that, prior to about 1965, many of the construction dates recorded in the Assessor's database are likely estimated. Years ending in "5" and "0" show rather uncharacteristic peaks, and it appears that the year 1900 may have been used as a default value if the year of construction was not known. However, even estimated information about structure age will be useful in understanding the type of OWTS that may be present on a parcel, and in estimating the age of an OWTS if no permit or other information is available. It is notable that about 37% of the residential structures for which information is available were constructed before 1970, when the first state-level OWTS rules were implemented.

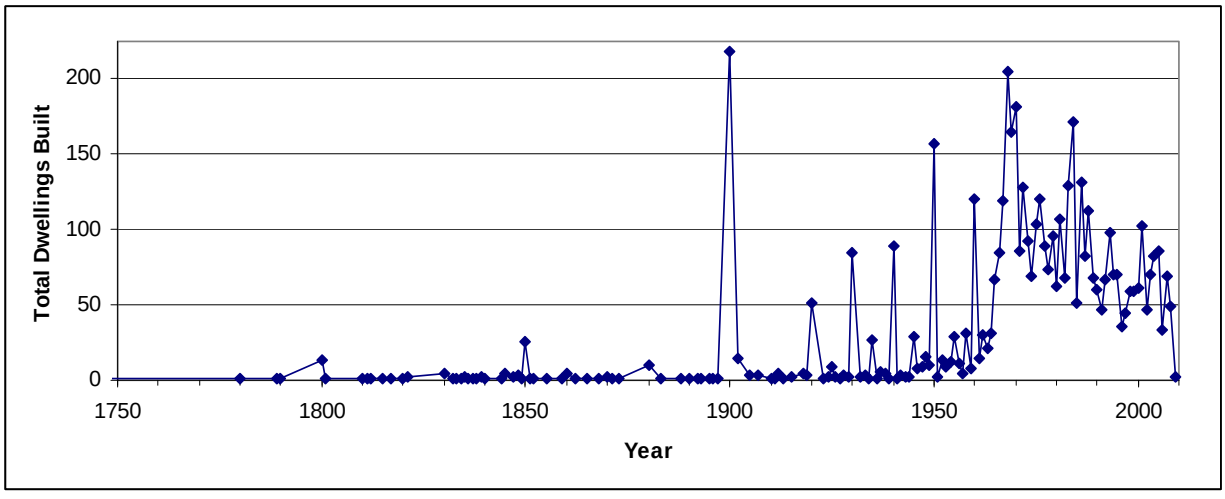


Figure 1. Residential Structure Construction Dates vs. Total Dwellings Built Per Year

Commercial Property Structure and Outbuilding Data

Information about the footprints of commercial structures and associated outbuildings is available from the Assessor's database. Again, this information cannot be placed spatially on individual parcels, but may provide a useful cross-check on the accuracy of areal calculations. A summary of the total numbers of accounts containing information about structure and outbuilding dimensions, organized by property use class, is shown in Table 9.

Table 9. Summary of Accounts Containing Commercial Structure and Outbuilding Dimensions.

			Total Accounts With Square Footage Data	
CLASS	**Description**	**Total Accounts**	**Structures**	**Outbuildings**
C	Commercial	416	339	272
G	Government Property	108	4	2
I	Industrial Property	21	12	10
TOTAL		**545**	**355**	**284**

Commercial Property Design Flow Basis Data

Limited information was available from the Assessor's database that may be useful in estimating design flows for commercial properties that use OWTS for wastewater service. About 100 commercial structures contain one or more residential apartments (Table 10). For these properties, the number of apartment units and the number of bedrooms in each identical unit can be utilized to calculate a wastewater design flow, at least for the proportion of the commercial property that consists of apartment units. Often, however, the commercial development on each property consists of multiple uses—such as offices, retail, or convenience stores—with one or two apartment units.

No other information was available from the Assessor's database that could be used to estimate wastewater design flows for commercial properties. More precise methods for determining design flows for commercial properties, and thus the land area required to site a potential replacement onsite wastewater treatment system, were implemented during the Task 3 needs assessment work (see Section 2.3 of the Task 3 report).

Table 10. Summary of Design Flow Basis Information for Commercial Apartment Structures.

			Total Units of Each Apartment Type			
CLASS	**Description**	**Total Parcels with Apartments**	**Efficiency**	**One-Bedroom**	**Two-Bedroom**	**Three-Bedroom**
C	Commercial Property	103	43	220	537	27
G	Government Property	0				
I	Industrial Property	0				

Commercial Structure Age Data

As with residential properties, information is also recorded for many commercial parcels about the year in which the property was developed. Plotting the year that commercial properties were developed versus the number of properties developed in that year (Figure 2) shows that, again, prior to about 1965, many of the construction dates recorded in the Assessor's database are likely estimated. About 38% of the commercial development for which information is available were constructed before 1970, when the first state-level OWTS rules were implemented.

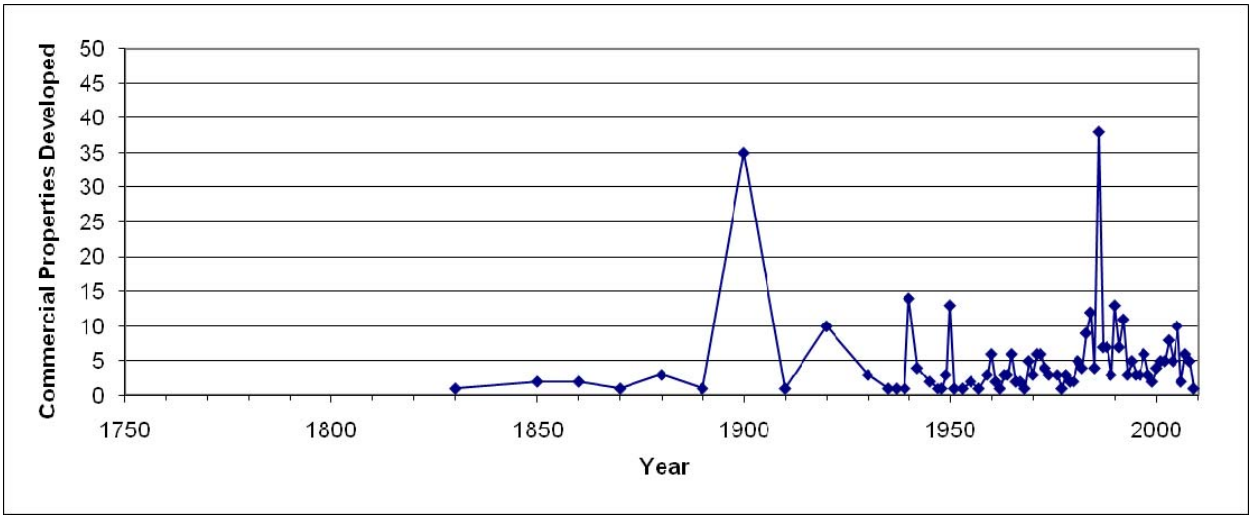


Figure 2. Commercial Property Development Dates vs. Total Commercial Properties Developed Per Year.

3.1.2. Planning and Zoning Permits Database

The Planning and Zoning Department maintains a Microsoft Access database application that contains records for all permits issued through the town, including all building and septic permits. The database contains septic permit records, which are recorded by parcel ID, the date the permit was issued, and in some cases, the type of system or a description of the work performed. This data provides a broad overview of where permitted systems are found, and in some cases, may be useful in highlighting parcels with potentially inadequate systems. Other than the Vermont DEC's online permit database for onsite systems, this is the only database location where detailed information on whether the permit was issued to repair or replace a malfunctioning system is consistently stored. (Scanned images of permit documents are also recorded in the ACS Land Records database and in the Canon imageWARE application, as described below.)

Permits issued by the Town or DEC since December 2005 are also recorded in the planning and zoning permits database, including all permits issued by the Town since taking delegation of the OWTS permitting program from DEC. These permits are classified as "SWP" or "State Water Permit" in the planning and zoning permits database. There is no overlap between the "State Water Permits" recorded in

the Planning and Zoning database and the listing of State permits by DEC "project ID" in DEC's online permit database; however, all related documents are available in the Town's imageWARE and/or ACS document management system datasets.

The parcel ID numbers listed in the original PERMITS table often referred to multiple parcels or were not complete. However, the field "ParcelRecNo" served as an index between the PERMITS and Parcel Data tables in the database, and the parcel ID and account number fields in the ParcelData table were generally accurate. This linkage was utilized to assign account numbers directly to permit records prior to importing the planning and zoning permits data into the wastewater permits geodatabase. Other fields, such as permit type, land use class, structure type, and permitting decision, were also cleaned up and standardized as applicable and feasible to allow for clearer summarization prior to importing the table into the wastewater permits geodatabase.

There is a narrative attribute that describes the reason for permit. In the case of septic systems, descriptions often include "system replacement" or "new system", but there is currently no standard language. For permits issued after November 1995, this narrative field often contains sufficient information to determine whether the permit was issued for a new system, connection to a community system, or for repair or replacement of a component (tank, pump, leachfield, etc.). Prior to December 1995, this field is often blank. We made an early attempt to create a standardized description field that would be easier to summarize, but often the information contained in the existing description was not sufficient to understand and categorize the reason for permit issuance.

Although the reason for permitting is sometimes stated, particularly for permits issued after November 1995, system design flow is almost never stated in the reason for permitting. In some cases, additional information exists in the table about the number of bedrooms/bathrooms in existence at the time of permit approval. Where applicable, it may be reasonable to use this information instead of the information in the Assessor's database to determine design flows at the time the systems were installed or repaired.

The oldest septic system permit record is from May 1971. There is some indication that a number of the older records have been entered over time, as older paper files were pulled for review. The Planning/Zoning department had a policy to this effect from 2005 through approximately 2009; staff still enter older records as resources are available but this is no longer a standard operating procedure when older files are pulled for review. Thus, while this database is likely the most complete electronic record of septic permitting activity in the Town, it should not be considered authoritative.

There are 5,850 records in the database with Septic Permit activity information on a total of 4,092 unique account numbers (3,416 unique parcel IDs). There are an additional 197 records in the database with State Water Permit activity on 166 unique parcels. This leaves a total of about 2,000 parcels (including undeveloped land) with no electronically available Town-level wastewater permit information. Of the residential parcels, about 1,150 appear to be developed according to the Assessor's database, but have no Town-issued wastewater permit recorded in the Planning and Zoning database. The same holds for about

500 properties of all other classifications (though this includes government, religious/charitable/non-profit, and farm property which may not be developed).

Table 11 summarizes the information in the planning and zoning permits database by permit type. Metadata for the planning and zoning permits database are included in Appendix C.

Table 11. Planning and Zoning Permits Summary

Permit Class	Description	Number of Records	Number of Properties
Town (SPT)	Permits issued under the Town's wastewater permitting programs.	5,850	4,092
State-delegated Wastewater (SWP)	Permits issued by the Town under delegation from DEC.	197	166

3.1.3. ACS Land Records Database

This database contains land records and associated documents that are intended to run with the land, including permits and easements. While the Planning and Zoning Permit database contains general information on permits, the ACS database contains scanned copies of the permits themselves. This higher level of detail provided in the actual wastewater permits will be particularly important when evaluating parcels in priority areas of town where a more careful evaluation is required. All wastewater permits issued by the Town under delegation from the DEC since 2006 are available in the ACS system, as are some older permits issued by ANR. Within ACS, land records can be indexed by account number and document type.

The Town is still actively working to include land records in this database. Data was exported from ACS on two separate occasions by Stone staff over the course of the project to capture all possible data as it was being compiled by the Town. Currently, images and associated indexing information are available for records from December 1998-July 2009.

The Town completed preliminary consolidation of document categories within ACS to facilitate retrieval (particularly of wastewater- and stormwater-related records). Stone staff visited the Town offices in July 2009 and exported a subset of records from the ACS system, dating from November 2002 to July 2009. Another export was completed in July 2010 to capture documents dating from May 1995 to November 2002. Essentially, any record was exported whose document category included the words "water", "wastewater", "subdivision", "stormwater", or "easement". A complete listing of the original categories exported is available upon request.

A total of 2,875 unique records were exported from ACS. Of these, 1,045 documents were related to wastewater or water supply, and 262 were already linked to an account number (leaving 783 documents without an associated account number). The document categories initially contained in the index were further standardized as appropriate, and then an attempt was made to assign account numbers to each record in cases where the account number was not included in the ACS system. The account number

included in the index was linked to the GIS parcels shapefile in the wastewater permits geodatabase to check for discrepancies. Images available to Stone that were missing an account number were opened and the account identified. The DEC website (http://www.anr.state.vt.us/dec/ww/wwdocs/cfm/permitgetform.cfm) was used to help identify the property location and account number for some of the more challenging records. Any changes made are recorded in a log which is available upon request.

Stone was able to assign account numbers to many of the records in the ACS database; however, 164 records remain for which no account number could be assigned. Table 12 summarizes permit documents from the ACS document management system by document or permit type. Metadata for the ACS document index is included as Appendix C.

Table 12. ACS Document Index Summary

Document Class	Total Index Entries (May 1995 to Jul. 2009)
Sewer Agreement	15
Subdivision Exemption	1
Subdivision Permit	344
Wastewater Correspondence	8
Wastewater Permit	596
Water Agreement	5
Water Supply Permit	10
Waterline Easement	4
Water-Sewer Agreement	1
Well Shield Easement	61
TOTAL	1045

3.1.4. Canon imageWARE System

The Canon imageWARE system is an additional electronic document repository maintained by the Planning and Zoning Department. This system contains scanned copies of some older wastewater permits (pre-2006) on file in the town offices. Between 2005 and approximately 2009, any time a request was made to pull a permit file for a parcel, the Planning and Zoning department scanned the contents of the file and imported them to the imageWARE system. While the ACS Land Records database generally only contains images of permit or easement documents, images recorded in the imageWARE system often include design drawings, engineering reports, and other associated information.

The town commissioned the development of a software application to facilitate export of documents stored in the imageWARE system. Documents are stored within imageWARE in a combination of file formats (TIF images, Adobe PDF documents, and ‘binders’ containing both file formats). TIF and binder

files can be converted to Adobe PDF format within the imageWARE application—and, in order for the export tool to work, 'binders' were converted to Adobe PDF prior to export. Use of the export tool is straightforward, and the tool allows for the inclusion of multiple index fields in the name of the files being exported. However, the index itself could not be exported from imageWARE as a table or database.

Stone used the export tool to complete the file conversion and export process for building permits, town septic permits, and state wastewater permits. All index fields stored within imageWARE were included in the file names of the exported files, and were used to create preliminary spreadsheet indices for the town and state wastewater permits. These indices and the related documents were checked for any duplication (a permit was considered duplicate if the Permit Number, Parcel ID, and Location were the same). Duplicate permits were visually verified by opening the image files. Duplicate images were removed from the main dataset and corresponding index records were deleted from the spreadsheet. The clean index file was imported to the wastewater permits geodatabase and was used to link PDF files from imageWARE to parcels by parcel ID, or to additional permit information stored in the planning and zoning permits database (by permit or parcel ID).

Table 13 summarizes the imageWARE permit documents and associated information by document type. The imageWARE document management system has not been implemented for the same length of time as the Planning and Zoning Department's permitting database (Section 3.1.2), so the total records stored in the imageWARE system will always be a smaller number than the total permits recorded in that database. Metadata for the imageWARE index and images are included as Appendix C.

Table 13. imageWARE Document Index Summary

Permit Class	Description	Count
Town	PDF files of permits, applications, and other supplemental documents related to the Town's wastewater permitting programs, particularly those issued under the local sewage ordinance.	3,142
State	PDF files of permits, applications, and other supplemental documents related to the Town's wastewater permitting programs as delegated by DEC. Includes many recent large-format design drawings.	129

3.1.5. Paper Files: Plan Sheets and File Cabinets

The town maintains significant file archives containing historic building and wastewater permits, subdivision records, planning and zoning permits, correspondence, and other records. The paper files are located in cabinets on the first floor and in the basement of the Town offices. The paper files are generally organized by tax map and parcel number. Though historic paper files are scanned into the imageWARE document system whenever a file is pulled for review, the majority of these records have not been digitized. There are well over 350 linear feet of historic paper files stored at the Town offices.

The town also maintains archives of large-format documents, including plan files for subdivisions, centralized wastewater systems, decentralized system designs (primarily for cluster and commercial

systems) and water systems (primarily municipal water mains and transmission lines). Some of these files are housed in the Planning and Zoning offices, while most others are located in the basement. The Town also maintains an Excel spreadsheet listing the maps and their locations; many of which have not been scanned into imageWARE or ACS document management systems. No action regarding the scanning of additional design drawings or other paper files was taken during the construction of this initial data inventory.

3.1.6. Vermont Department of Environmental Conservation GIS and Permit Files

Several electronic datasets relevant to water supply and wastewater treatment investigations are available from the DEC. Each dataset and its relevance are briefly described below.

3.1.6.1. Public Water Supplies and Wellhead Protection Areas

A GIS shapefile of public water supply well and wellhead protection area locations throughout the state was obtained from DEC. There are several shared drilled wells located along the northern border of Colchester that are permitted as Public Community Water Systems, each associated with a planned development. The locations of these wells were added to the water supply inventory (see Section 4).

3.1.6.2. Private Water Supply Wells

A GIS shapefile of private well locations throughout the state was obtained from DEC. While this dataset is useful as a screening tool, it is somewhat dated (ca. 2003) and many of the wells are screen-digitized from 1:24,000 topographic maps, so locations are generally not accurate. Only about 20 private wells in this dataset within the Town were located using a GPS, and thus can be considered to be reasonably accurate. The GPS-located points were incorporated into the water supply inventory database (see Section 4).

3.1.6.3. Regional Office Document Search Database

DEC maintains a website through which individuals may access permits, documents, and other information related to Regional Office permitting activities (primarily Act 250 and the Wastewater System and Potable Water Supply Rules) at http://www.anr.state.vt.us/dec/ww/wwdocs/index.cfm. In May 2009, Stone staff created a spreadsheet containing all records within this database that were listed as being within the Town of Colchester. The table includes all the fields within DEC's database, including owner name at the time of permit issuance, project ID (permit number), project location, applicant or purchaser if different from owner name, and project description. No information about the date on which the permits were issued is included in the database. For many older records, the location information provided is insufficient to quickly link the permit with a specific property. Where possible, and particularly for more recent permits, we were able to relate these permits to account numbers; if needed, new corresponding records were added to the planning and zoning permits table to allow a linkage between the permits table and the DEC document index table based on permit number. Hyperlinks by

which DEC's online permit document results for each permit, if any, can be accessed were added to each permit record. The resulting table was imported to the wastewater permits geodatabase.

Table 14 summarizes the information available from DEC's online database by type of permit. Appendix C contains the related metadata for this table in the wastewater permits geodatabase.

Table 14. DEC Regional Office Permits Summary

Permit Class	Description	Count	Count With Account Number Assigned
30 or 4C	Act 250 Land Use Permit	153	82
AM	Limited Amnesty	15	0
D or DE	Deferral of Permit	273	0
EC	Subdivision Permit	473	365
HB	Home Business	1	0
HD	Agency of Transportation Road Improvement	2	0
HE	Homestead Exemption	45	0
MH	Mobile Home Park Permit	1	0
PB	Public Building Permit	224	31
TT	Campground Permit	2	0
WW	Wastewater System and Potable Water Supply Permit	569	470

3.1.7. Champlain Water District Service Area and Use Records

As described in Section 3.1.1, a majority of the properties in Town are served by municipal water, which is supplied by the Champlain Water District to the six fire districts that operate within the Town's boundaries. Water use records for individual properties or accounts are retained by the Fire Districts, not by Champlain Water District. As part of the water supply inventory process, Stone staff confirmed the extent of municipal water service areas with representatives from each fire district (Section 4.1). Water use records for unsewered commercial properties in the Town of Colchester were evaluated as part of the town-wide onsite wastewater needs assessments (see Section 2.3 of the Task 3 report).

3.1.8. Centralized Sewer Service Areas

A GIS layer of areas in the Town served by centralized sewers was obtained from the Chittenden County Regional Planning Commission. Generally, the boundaries of these service areas correspond reasonably well with designations of wastewater service on an account basis within the Assessor's database. The inventory of wastewater permits and documents, coupled with this sewer service area GIS layer, was utilized to update records of wastewater service by parcel that originated in the Colchester Assessor's database.

3.2. Data Reduction Process(es)/Methods

The town has relatively comprehensive, but often overlapping, sources of information about both centralized and decentralized wastewater and water supply infrastructure. We conducted a three-step effort for develop the inventory of parcel-based data regarding this infrastructure:

1. **Inventory and organize existing information**. We used the existing electronic datasets described above to develop an initial inventory of core information.
2. **Limited file review** to fill inventory gaps. When we began the wastewater systems inventory, we set priorities for paper file review in the following order: parcels in the Lakeshore Drive area, then commercial parcels and parcels served by cluster systems for which no electronic documentation is available, then lots of less than 0.5 acres in size served by onsite OWTS and water supply wells. As the inventory effort progressed, it became clear that paper file review, if any, would be best conducted once the initial planning level needs assessment was complete and priority areas were more clearly and completely identified.
3. **Field location** of private water supply wells upon completion of Step 2 above, with particular attention to parcels where no electronic information currently exists regarding wastewater or water supply infrastructure.

The basic data reduction and quality control processes that were undertaken for each dataset are described in Section 2.1 above.

3.3. Wastewater Permits and Infrastructure Inventory Database

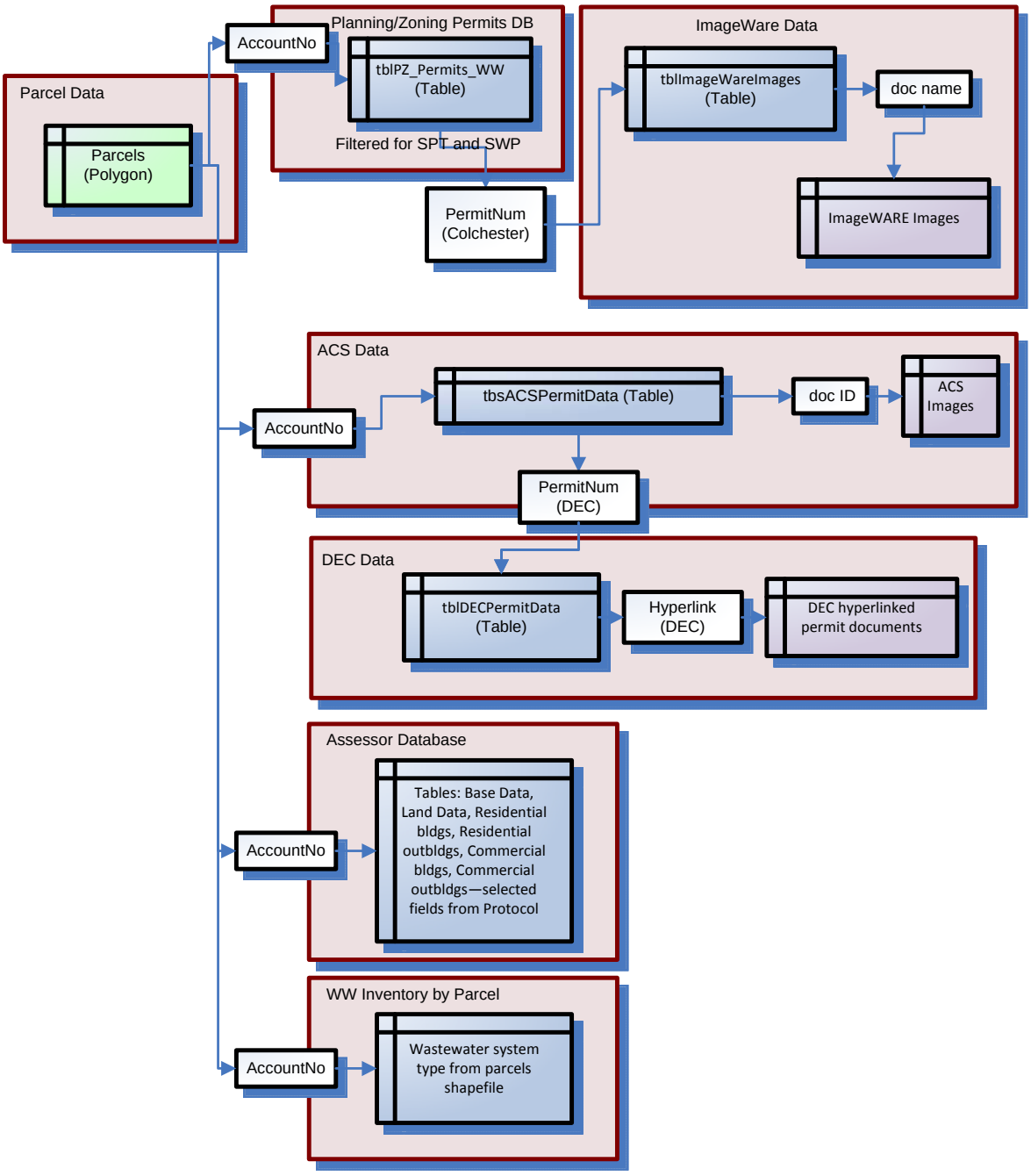
A single onsite inventory geodatabase and ArcMap project was used to collect, store, analyze, and report information regarding distributed wastewater infrastructure in Colchester. Where applicable and whenever possible, this information was linked to individual lots by account number. At a minimum, all accounts contain parcel-specific information sufficient to conduct a town-wide, planning level needs assessment as described in Task 3 of the 2007 Grant Proposal. This inventory includes:

- Basic property information from the Assessor's database (owner, address/location, use, zoning, design flow basis, structure square footages)
- Permit history as available from Planning and Zoning database
- Digitized private water supply locations
- Supplemental electronic permit history and scanned design drawings, perc test results, soils information from VTDEC permits (and from ACS and imageWARE where available) (linked by permit number or account number as appropriate in geodatabase)
- Scanned permits, plans, and as-built drawings from Town paper files (linked by account number in geodatabase)

The last two categories of data listed above are intended to provide additional detailed/best-available information for the lot-by-lot investigations to be completed in Task 4.

Figure 3 provides a graphical description of the datasets and relationships within the wastewater permits and infrastructure inventory geodatabase. Metadata and field attribute descriptions for each of the feature classes are included in the Appendices of this report.

Figure 3. Wastewater Geodatabase Structure



4. WATER SUPPLY INFRASTRUCTURE INVENTORY

The water supply inventory had several elements. We conducted an initial computer desktop review of existing data. Based on that review we developed an approach for conducting the field inventory. During and following the field inventory, quality control checks were completed. The water supply inventory was done to support analyses of onsite wastewater capacity. Vermont's *Wastewater System and Potable Water Supply Rules* have specific requirements for horizontal isolation distances between water supply wells and onsite wastewater treatment systems, so understanding the geographic locations of individual and small shared water supplies is a particularly important piece of the overall water infrastructure picture on an individual property. The water supply sources identified during the inventory included drilled wells, springs, and Lake Champlain (both as the supply for individual camps and as the main supply of municipal water).

4.1. Initial Computer Desktop Review

A desktop review of wastewater treatment related data sources, including the Town Assessor's database, the Planning/Zoning permits database, and the Vermont DEC's GIS databases of public and private water supply well locations (see Section 2), indicated that consistent electronic information about the locations and types of private water supply wells in the Town of Colchester was generally not available. This data gap potentially precluded the accurate assessment of wastewater treatment needs at the town-wide planning level, and so a field mapping effort was undertaken to create a current and accurate water supply inventory.

4.2. Field Inventory of Private Water Supplies

The water supply field inventory effort was conducted during the summer of 2009. Field staff visited each parcel that was outside the three Fire District water service areas (Fire District 1, 2, and 3) and was denoted in the Assessor's database as having a well. Field staff identified and located potable water supplies on private property in accordance with the protocol and the Study Specific Procedure (SSP) developed by Stone staff and approved by the Town (**Error! Reference source not found.**). Care was taken in the field to only collect precise information where permission was granted by the property owner. If a property owner was not present, Stone staff left a flyer explaining the inventory effort and requesting permission to locate infrastructure on the property (Appendix E). The type of water supply and the quality of the location, as well as date of visit and type of permission granted were all recorded by the field staff.

The field inventory was completed using ArcPad 7.1.1 on a Mobile Mapper 6. An ArcPad application was created to assist in the inventory process. Appendix F contains a description of the field forms used for this data collection effort. The application employed a number of features, such as drop-down menus and warning prompts, to ensure quality data and expedite the data collection process.

4.3. Private Water Supply Mapping Desktop Quality Control Check

At the end of each field day, Stone staff uploaded any new data from the ArcPad application to the project geodatabase. Several quality control and completeness checks were completed on a regular basis, including:

- Each mapped water supply was associated with a parcel number, and the corresponding parcel was associated with the correct well ID;
- The field personnel, date of visit, and status of each parcel visited was updated properly
- If a parcel was posted property or was on a gated/private road, that status was noted properly in the Parcels shapefile
- The water supply type in each parcel record matched the type of water supply actually serving the parcel (especially if a property was recorded as having a well in the Assessor's database, but had recently been connected to municipal water).

4.4. Private Water Supply Inventory Database

The final result of the private water supply data inventory is a geospatial database (geodatabase) of all water supply structures and associated attributes. The geodatabase is in the ArcGIS 9.3 file geodatabase format. The geodatabase contains the parcels and water supply points feature classes (Table 15). A one-to-many relationship was established between the wells and parcel feature classes. All feature classes are in the Vermont State Plane, meters projection. Metadata for the water supply inventory are included as Appendix G. Below is a table of all geodatabase feature classes.

Table 15. Water Supply Geodatabase Feature Classes

Feature Class	Description	Count
Parcels	The town parcel layer joined with Colchester Assessor's data, as updated during the water supply mapping exercise. Attributes of interest include owner, type of water and wastewater service by parcel, and well IDs where known.	6,236
Water Supply	Point locations of wells and shallow springs. Attributes of interest include account number and type of water supply.	284

4.5. Private Water Supply Inventory Summary

Of the estimated 750 properties with private water supplies in the town, Stone was able to obtain permission to locate 284 private water supplies. These private water supplies support 483 properties. An additional four water supplies included in the database are shared drilled wells which are permitted as "Non-Transient Community Water Supplies;" these wells serve a total of 75 properties. Table 16 provides a summary of water supplies located during the field inventory by type.

Table 16. Water Supply Sources Inventoried by Type

Water Supply Type	Count
Individual Drilled Well	221
Individual Shallow Well or Spring	37
Lake Water	6
Shared Drilled Well	18
Shared Shallow Well or Spring	2
Total	**284**

Source: Stone Environmental, Inc Field Inventory, Summer 2009

5. BUILDING FOOTPRINTS

Stone contracted with the Spatial Analysis Laboratory (SAL) at the University of Vermont to develop digital building footprints for Colchester, VT. The building footprints were manually digitized based on the Vermont 2007 panchromatic orthophotos, with 0.5 meter resolution supplemented by the 0.16 meter resolution CCMPO true color orthophotos and the "bird's eye imagery" from Bing Maps. Edits were made at a zoom scale of 1:1,700 and included both major and minor buildings (such as sheds and garages). The resulting building footprint information (Figure 4) will be used as part of the available area analysis in town-wide screening assessments of onsite wastewater treatment capacity. According to SAL staff, there is sufficient elevation data available to convert the footprints into three-dimensional buildings if the town so desired for visualization projects. Stone added the parcel account number as an attribute to each building footprint.

6. IMPERVIOUS SURFACES

The SAL also developed a Land Cover GIS data layer for Chittenden County that was used as the source for a detailed impervious surface data layer for the Town of Colchester. Stone clipped this data to the Colchester watershed boundary layer created for this project, and created a new data layer that contains only the impervious land cover classifications. This data set will be a useful input into subsequent assessments of stormwater runoff.

The primary sources used to derive this land cover layer were the 2004 Chittenden County color infrared imagery and LiDAR. Ancillary data sources included the E911 points layer and Chittenden County road polygons. Seven land cover classes were mapped: (1) tree canopy, (2) grass/shrub, (3) bare earth, (4) water, (5) buildings, (6) roads, and (7) other paved surfaces. The minimum mapping unit for the delineation of features was set at 10 square meters. The land cover dataset is considered current as of 2004.

Object-based image analysis techniques (OBIA) were employed to extract land cover information using the best available remotely sensed and vector GIS datasets. OBIA systems work by grouping pixels into meaningful objects based on their spectral and spatial properties, while taking into account boundaries imposed by existing vector datasets. Within the OBIA environment a rule-based expert system was designed to effectively mimic the process of manual image analysis by incorporating the elements of image interpretation (color/tone, texture, pattern, location, size, and shape) into the classification process. A series of morphological procedures were employed to insure that the end product is both accurate and cartographically pleasing.

The dataset was developed as part of the Urban Tree Canopy (UTC) Assessment for Chittenden County, VT. As such, it represents a "top down" mapping perspective in which tree canopy overhanging other features is assigned to the tree canopy class. At the time of its creation, this dataset represents the most detailed and accurate land cover dataset for the area.

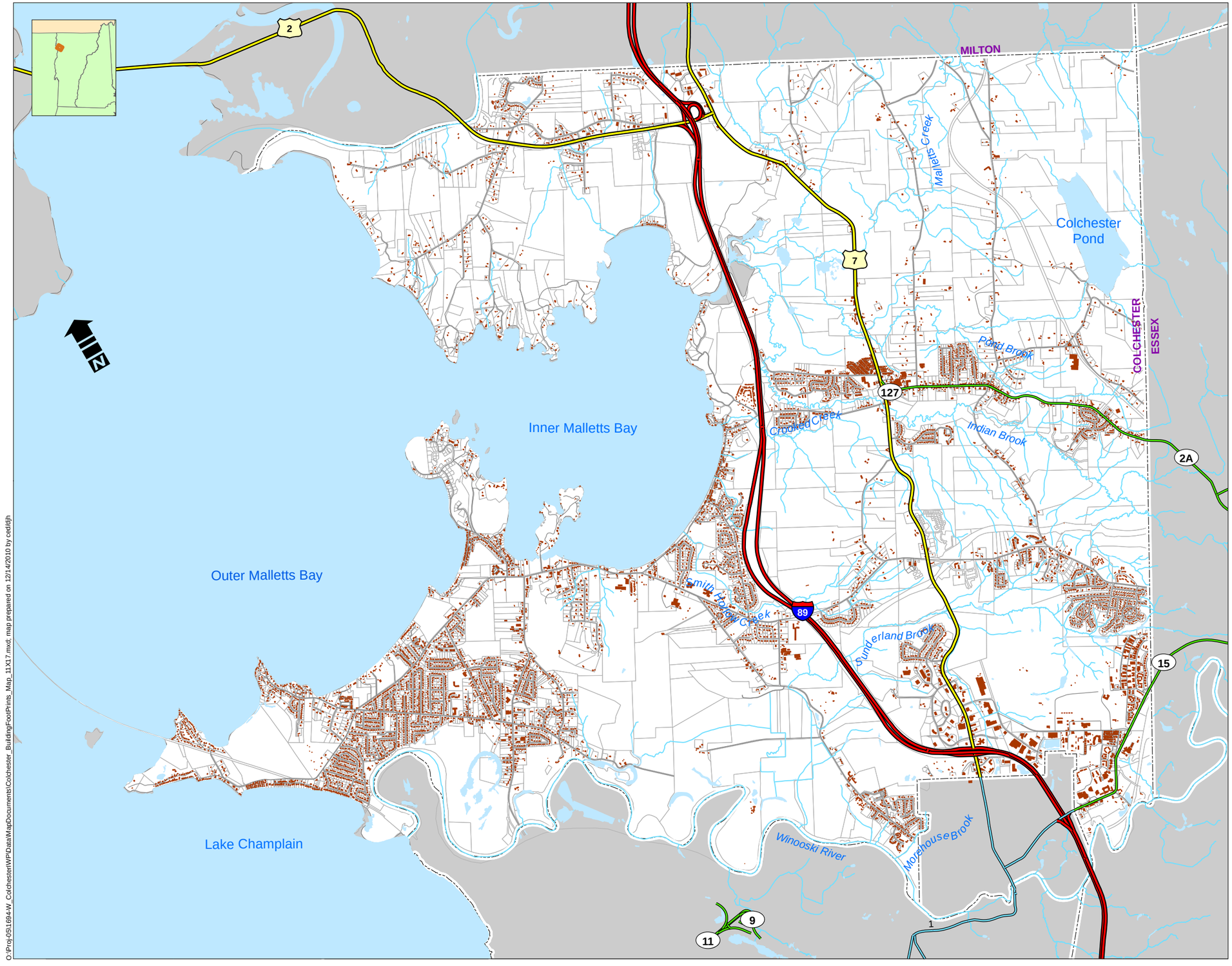
Stone's Impervious Surface Data Layer contains an attribute for impervious surface type. The land cover classifications considered to be impervious were (5) buildings, (6) roads, and (7) other paved surfaces. Figure 5 provides an illustration of the percentage of land surface in each of the town's watersheds that is impervious.

Figure 4. Building Footprints

Figure 4.
Building Footprints

Integrated Water Resources Management Program

Town of Colchester, Vermont



Building Footprints (2007)

Colchester Parcels (2009)

0 0.5 1 Miles

Sources: VCGI: Streams, Roads

Building footprints for Colchester, VT current as of spring 2007. Building footprints were manually digitized based on the Vermont 2007 panchromatic othophotos, with a 0.5 meter resolution supplemented by the 0.16m resolution CCMPO true color orthophotos and the "brids eye imagery" from Bing Maps. Edits were made at a zoom scale of 1:1,700 and included both major and minor buildings, such as sheds and garages.

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Figure 5. Impervious Surface by Subwatershed

Figure 5.
Impervious Surfaces by Subwatershed

Integrated Water Resources Management Program

Town of Colchester, Vermont

Watershed	Impervious Surface Acres	(%)	Subwatershed Count <1%	1%-5%	5%-10%	10%-20%	20%-50%	50%-64%	Total Count
Stream 4	15.1	1.2%	3	2	0	0	0	0	5
Stream 6	3.7	1.7%	0	1	0	0	0	0	1
Malletts Creek	68.0	2.1%	6	8	1	0	0	0	15
Stream 8	8.3	2.6%	0	1	0	0	0	0	1
Stream 7	10.9	2.9%	0	1	0	0	0	0	1
Stream 5	25.0	4.1%	1	0	1	0	0	0	2
Lamoille River	75.8	4.3%	5	3	5	0	0	0	13
Crooked Hollow Creek	68.4	4.9%	3	3	0	1	0	0	7
Pond Brook	133.8	5.0%	5	3	4	2	0	0	14
Moorings Stream	18.0	5.2%	0	0	1	0	0	0	1
Allen Brook	83.9	5.2%	3	3	2	0	1	0	9
Lake Champlain	267.6	6.9%	3	6	3	2	0	0	14
Smith Hollow Creek	107.5	9.1%	0	1	2	3	0	0	6
Indian Brook	320.8	9.7%	1	1	4	3	1	0	10
Winooski River	914.3	17.4%	4	5	2	6	8	0	25
Sunderland Brook	605.8	18.3%	1	3	4	4	5	1	18
Total	2,726.9	8.90%	35	41	29	21	15	1	142

Impervius Surface

Subwatershed Impervious Surface

- <1%
- 1% - 5%
- 5% - 10%
- 10% - 20%
- 20% - 50%
- 50% - 64%
- Watershed Boundaries

0 0.5 1 Miles

Sources: VCGI: Streams, Roads; UVM: Impervious Surface data

The Impervious Surface data is a product of the Land Cover analysis performed by the Spatial Analyst Lab at the University of Vermont. Object based image analysis was used on the 2004 LiDAR imagery to produce a land cover raster. The land cover dataset was reclassified to extract impervious surfaces. The following classes were assigned to the Impervious class: 'Buildings', 'Roads/Railroads', and 'Other Paved Surfaces'.

This project's funding was provided by an US EPA Demonstration Grant # XP-83232201-1

STONE ENVIRONMENTAL INC

535 Stone Cutters Way
Montpelier, Vermont
05602 USA

Phone / 802.229.4541
Fax / 802.229.5417
Web Site / www.stone-env.com

APPENDICES

APPENDIX A: STORMWATER INVENTORY METADATA

A.1. Outfalls

A.2. Retention Ponds

A.3. Stormlines

A.4. Stormwater Easements

A.5. Stormwater Permits

A.6. Stormwater Structures

A.7. Unpermitted Site Plans

A. 1. Outfalls

Outfalls09

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20091229
Title: Outfalls09
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
Stormwater Structures including Outfalls, Retention Ponds, Stormlines, and Stormwater Structures (e.g., Catch Basins, Drywells) datasets were developed as a result of a field inventory conducted in 2009 using Chittenden County Regional Planning Commission data from 2007 and site plan drawings as references.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20091229
Currentness_Reference: publication date
Status:

Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.289391
East_Bounding_Coordinate: -73.129910
North_Bounding_Coordinate: 44.604433
South_Bounding_Coordinate: 44.489816
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: Environment
Theme_Keyword: inlandWaters
Theme_Keyword: structure
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.

Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:
Process_Step:
Process_Description:
Chittenden County Regional Planning Commission data from 2007 was used as a base for determining stormwater structure locations. These data were first reviewed on screen using 1:2500 color orthophotos of Chittenden County from 2004. Many structures, particularly catch basins, drywells, and retention ponds, were visible from the imagery. Where visible, structures were checked for location accuracy and moved where necessary. If the structure was checked the 'position_validated' field was updated: Position_Validated = 0 : structure was checked and not moved Position_Validated = -1 : structure was checked and moved based on imagery Postion_Validated = null : structure was not checked with imagery
Process_Date: 20090801
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
Many developed areas in Colchester have site plans associated with stormwater permits required by the Vermont Department of Environmental Conservation as a part of the Vermont Stormwater Program. Additionally, there are site plans for developed areas that pre-date the Vermont Stormwater Program. All available site plans were reviewed and compared with Chittenden County Regional Planning Commission and 2009 field data where completed. When a stormwater structure was checked against an existing site plan, the 'Plan_QC' field was updated.
Plan_QC field = -1 : structure was checked against site plan Plan_QC field = null : structure was not checked against a site plan (no site plan available for this area) Additionally, the field 'Plan_Note' was updated if there were discrepancies with the CCRPC data or the 2009 field data. Notes may include 'digitized from plan' where additional features were found in the site plan or 'structure not in plan' if structure was not included in the site plan. Other notes may indicate differences in structure type or

material.
Lastly, the 'PermitNum' field was updated for all structures where permits were available. This permit number can be used to reference permits and associated site plans.
Process_Date: 20090815
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
All stormwater structures from Chittenden County Regional Planning Commission (2007) and from site plan checks were validated by the field team in 2009. The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. If necessary, the position of the stromwater structures was updated using the GPS. High resolution imagery and a roads layer were loaded on the Trimble GeoXT to be used as reference as a base map for the field user.
The data collection was completed with an ArcPad application built to assist in the inventory process. The application was designed to manage attributes for the various stromwater structure types. The inspectors initials and date of inspection are recorded for every stromwater structure along with other applicable attributes. Some examples of the recorded attributes are material, diameter, and condition.
On a daily bases, data was checked back into the geodatabase post field collection.
Process_Date: 20090831
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:

The data went through a fine scaled QC process after each field session. The QC process included both a spatial component and an attribute component. The spatial location and connections with surrounding structures was confirmed for every structure. The attribute data was also reviewed for any entry and clarification errors.
A broader QC process was completed once all structures had been field visited. The attributes were reviewed again for any errors glanced over during the finer scaled QC. A topology was created for the stormwater structures to validate the spatial integrityof the dataset. The following rules were used in the topology: -Outfalls Must Be Covered By Endponit of Stormline -Stormwater Structures Must Be Covered By Endpoint of Stormline -Stormlines Must Be Single Part

---

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 279
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: Outfalls09
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: RPC07_ObjectID
Attribute_Definition:
Chittenden County Regional Planning Commission ObjectID. This field will be filled if the feature was originally from CCRPC dataset.
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: LOCATION
Attribute_Definition:
Location description of the feature. This is usually a street name but can also be the name of a development or business.
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: GPS_DATE
Attribute_Definition: Date confirmed by GPS
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: OWNER
Attribute_Definition: Public or Private
Attribute_Definition_Source: CCRPC
Attribute:

Attribute_Label: Picture
Attribute_Definition: Picture number. Pictures were taken during CCRPC inventory.
Attribute_Definition_Source: CCPRC
Attribute:
Attribute_Label: Inspector
Attribute_Definition: Field inspector initials
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: ConditionNote
Attribute_Definition: Note about condition of feature filled in during 2009 inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: PermitNumber
Attribute_Definition:
Vermont Stormwater Program Permit Number. If there is a permit number, the feature is a part of a stormwater system that is permitted through the Vermont Stormwater Program. This permit number can be used to reference documents and plans associated with the permit.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Install_Date
Attribute_Definition:
Date of installation of stormwater structure. Information is rarely available.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Struc_Mat
Attribute_Definition: Structure material
Attribute_Definition_Source: Stone, Field inspector
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: CM
Enumerated_Domain_Value_Definition: Corrugated Metal
Enumerated_Domain:
Enumerated_Domain_Value: ACCM
Enumerated_Domain_Value_Definition: Asphalt Coated Corrugated Metal
Enumerated_Domain:
Enumerated_Domain_Value: CA
Enumerated_Domain_Value_Definition: Corrugated Aluminum
Enumerated_Domain:
Enumerated_Domain_Value: CP
Enumerated_Domain_Value_Definition: Corrugated Plastic
Enumerated_Domain:
Enumerated_Domain_Value: M
Enumerated_Domain_Value_Definition: Metal
Enumerated_Domain:
Enumerated_Domain_Value: RC

Enumerated_Domain_Value_Definition: Reinforced Concrete
Enumerated_Domain:
Enumerated_Domain_Value: SP
Enumerated_Domain_Value_Definition: Smooth Plastic
Enumerated_Domain:
Enumerated_Domain_Value: Unknown
Enumerated_Domain_Value_Definition: Unknown Material Type
Attribute:
Attribute_Label: Diameter_in
Attribute_Definition: Structure diameter (inches)
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: FlowComment
Attribute_Definition: Comment on flow
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: PositionValidated
Attribute_Definition:
Position visually validated against high resolution imagery pre field visit (Yes/No). A value of -1 is yes, a value of 0 is no
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0
Enumerated_Domain_Value_Definition: structure was checked and not moved
Enumerated_Domain:
Enumerated_Domain_Value: -1
Enumerated_Domain_Value_Definition: structure was checked and moved
Enumerated_Domain:
Enumerated_Domain_Value: null
Enumerated_Domain_Value_Definition: structure was not checked with imagery
Attribute:
Attribute_Label: Struc_Condition
Attribute_Definition: Structure Condition
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Plan_Note
Attribute_Definition: Notes pertaining to plan review.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: CreationMethod
Attribute_Definition:
This field provides the method in which the feature was created or validated.
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:

Enumerated_Domain_Value: Field confirmed
Enumerated_Domain_Value_Definition: The feature was verified by an inspector in the field.
Enumerated_Domain:
Enumerated_Domain_Value: Digitized from plan
Enumerated_Domain_Value_Definition:
The feature was digitized from a plan and has not been verified by an inspector in the field.
Attribute:
Attribute_Label: Enabled
Attribute_Definition:
Enabled for network analyst. If a feature has a value of enabled, it is included in the network. All structures were given a value of Enabled.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: AncillaryRole
Attribute_Definition:
Network analyst field to define outfalls structures as 'Sinks'. Other options for this field are 'Source' or 'Neither.'
Attribute_Definition_Source: Stone, ESRI

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time

Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Generated by mp version 2.9.6 on Thu Feb 11 14:04:35 2010

A. 2. Retention Pond

RetentionPonds09

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: RetentionPonds09
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
Stormwater Structures including Outfalls, Retention Ponds, Stormlines, and Stormwater Structures (e.g., Catch Basins, Drywells) datasets were developed as a result of a field inventory conducted in 2009 using Chittenden County Regional Planning Commission data from 2007 and site plan drawings as references.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition
Status:

Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.257297
East_Bounding_Coordinate: -72.573399
North_Bounding_Coordinate: 44.597988
South_Bounding_Coordinate: 44.252745
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: Environment
Theme_Keyword: inlandWaters
Theme_Keyword: utilitiesCommunications
Theme_Keyword: structure
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.

Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:
Process_Step:
Process_Description:
Chittenden County Regional Planning Commission data from 2007 was used as a base for determining stormwater structure locations. These data were first reviewed on screen using 1:2500 color orthophotos of Chittenden County from 2004. Many structures, particularly catch basins, drywells, and retention ponds, were visible from the imagery. Where visible, structures were checked for location accuracy and moved where necessary. If the structure was checked the 'position_validated' field was updated: Position_Validated = 0 : structure was checked and not moved Position_Validated = -1 : structure was checked and moved based on imagery Postion_Validated = null : structure was not checked with imagery
Process_Date: 20090801
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
Many developed areas in Colchester have site plans associated with stormwater permits required by the Vermont Department of Environmental Conservation as a part of the Vermont Stormwater Program. Additionally, there are site plans for developed areas that pre-date the Vermont Stormwater Program. All available site plans were reviewed and compared with Chittenden County Regional Planning Commission and 2009 field data where completed. When a stormwater structure was checked against an existing site plan, the 'Plan_QC' field was updated.
Plan_QC field = -1 : structure was checked against site plan Plan_QC field = null : structure was not checked against a site plan (no site plan available for this area) Additionally, the field 'Plan_Note' was updated if there were discrepancies with the CCRPC data or the 2009 field data. Notes may include 'digitized from plan' where additional features were found in the site plan or 'structure not in plan' if structure was not included in the site plan. Other notes may indicate differences in structure type or

material.
Lastly, the 'PermitNum' field was updated for all structures where permits were available. This permit number can be used to reference permits and associated site plans.
Process_Date: 20090815
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
All stormwater structures from Chittenden County Regional Planning Commission (2007) and from site plan checks were validated by the field team in 2009. The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. If necessary, the position of the stromwater structures was updated using the GPS. High resolution imagery and a roads layer were loaded on the Trimble GeoXT to be used as reference as a base map for the field user.
The data collection was completed with an ArcPad application built to assist in the inventory process. The application was designed to manage attributes for the various stromwater structure types. The inspectors initials and date of inspection are recorded for every stromwater structure along with other applicable attributes. Some examples of the recorded attributes are material, diameter, and condition.
On a daily bases, data was checked back into the geodatabase post field collection.
Process_Date: 20090831
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:

The data went through a fine scaled QC process after each field session. The QC process included both a spatial component and an attribute component. The spatial location and connections with surrounding structures was confirmed for every structure. The attribute data was also reviewed for any entry and clarification errors.
A broader QC process was completed once all structures had been field visited. The attributes were reviewed again for any errors glanced over during the finer scaled QC. A topology was created for the stormwater structures to validate the spatial integrityof the dataset. The following rules were used in the topology: -Outfalls Must Be Covered By Endponit of Stormline -Stormwater Structures Must Be Covered By Endpoint of Stormline -Stormlines Must Be Single Part
Process_Step:
Process_Description: Metadata imported.
Source_Used_Citation_Abbreviation:
C:\DOCUME~1\katie\LOCALS~1\Temp\xmlC.tmp
Process_Date: 20090910
Process_Time: 08494400
Process_Step:
Process_Description: Metadata imported.
Source_Used_Citation_Abbreviation:
C:\DOCUME~1\CHRIST~1\LOCALS~1\Temp\xmlF7.tmp
Process_Date: 20091027
Process_Time: 10560400

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon
Point_and_Vector_Object_Count: 53
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000

Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: RetentionPonds09
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: RPC07_ObjectID
Attribute_Definition:
Chittenden County Regional Planning Commission ObjectID. This field will be filled if the feature was originally from CCRPC dataset.
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: LOCATION
Attribute_Definition:

Location description of the feature. This is usually a street name but can also be the name of a development or business.
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: GPS_DATE
Attribute_Definition: Date confirmed by GPS
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Inspector
Attribute_Definition: Field inspector initials
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: ConditionNote
Attribute_Definition: Note about condition of feature filled in during 2009 inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Shape_Area
Attribute_Definition: Area of feature in internal units squared.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Positive real numbers that are automatically generated.
Attribute:
Attribute_Label: PermitNumber
Attribute_Definition:
Vermont Stormwater Program Permit Number. If there is a permit number, the feature is a part of a stormwater system that is permitted through the Vermont Stormwater Program. This permit number can be used to reference documents and plans associated with the permit.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Flag
Attribute_Definition:
Flags the feature for in-office boundary revision. Needs in-office revision = -1; Does not need in-office revision = 0
Attribute_Definition_Source: Stone, Field Inspector
Attribute:
Attribute_Label: Perimeter_ft
Attribute_Definition: Perimeter of the pond (feet)
Attribute_Definition_Source: CCRPC, updated by Stone
Attribute:
Attribute_Label: Area_acres
Attribute_Definition: Area of the retention area
Attribute_Definition_Source: CCRPC, updated by Stone
Attribute:
Attribute_Label: Plan_Note
Attribute_Definition: Notes pertaining to plan review.

Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: CreationMethod
Attribute_Definition:
This field provides the method in which the feature was created or validated.
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Field confirmed
Enumerated_Domain_Value_Definition: The feature was verified by an inspector in the field.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Digitized from plan
Enumerated_Domain_Value_Definition:
The feature was digitized from a plan and has not been verified by an inspector in the field.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

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Stormline09

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: Stormline09
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
Stormwater Structures including Outfalls, Retention Ponds, Stormlines, and Stormwater Structures (e.g., Catch Basins, Drywells) datasets were developed as a result of a field inventory conducted in 2009 using Chittenden County Regional Planning Commission data from 2007 and site plan drawings as references.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition
Status:

Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.308075
East_Bounding_Coordinate: -73.129828
North_Bounding_Coordinate: 44.604472
South_Bounding_Coordinate: 44.489431
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: Environment
Theme_Keyword: inlandWaters
Theme_Keyword: structure
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.

Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:
Process_Step:
Process_Description:
Chittenden County Regional Planning Commission data from 2007 was used as a base for determining stormwater structure locations. These data were first reviewed on screen using 1:2500 color orthophotos of Chittenden County from 2004. Many structures, particularly catch basins, drywells, and retention ponds, were visible from the imagery. Where visible, structures were checked for location accuracy and moved where necessary. If the structure was checked the 'position_validated' field was updated: Position_Validated = 0 : structure was checked and not moved Position_Validated = -1 : structure was checked and moved based on imagery Postion_Validated = null : structure was not checked with imagery
Process_Date: 20090801
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
Many developed areas in Colchester have site plans associated with stormwater permits required by the Vermont Department of Environmental Conservation as a part of the Vermont Stormwater Program. Additionally, there are site plans for developed areas that pre-date the Vermont Stormwater Program. All available site plans were reviewed and compared with Chittenden County Regional Planning Commission and 2009 field data where completed. When a stormwater structure was checked against an existing site plan, the 'Plan_QC' field was updated.
Plan_QC field = -1 : structure was checked against site plan Plan_QC field = null : structure was not checked against a site plan (no site plan available for this area) Additionally, the field 'Plan_Note' was updated if there were discrepancies with the CCRPC data or the 2009 field data. Notes may include 'digitized from plan' where additional features were found in the site plan or 'structure not in plan' if structure was not included in the site plan. Other notes may indicate differences in structure type or

material.
Lastly, the 'PermitNum' field was updated for all structures where permits were available. This permit number can be used to reference permits and associated site plans.
Process_Date: 20090815
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
All stormwater structures from Chittenden County Regional Planning Commission (2007) and from site plan checks were validated by the field team in 2009. The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. If necessary, the position of the stromwater structures was updated using the GPS. High resolution imagery and a roads layer were loaded on the Trimble GeoXT to be used as reference as a base map for the field user.
The data collection was completed with an ArcPad application built to assist in the inventory process. The application was designed to manage attributes for the various stromwater structure types. The inspectors initials and date of inspection are recorded for every stromwater structure along with other applicable attributes. Some examples of the recorded attributes are material, diameter, and condition.
On a daily bases, data was checked back into the geodatabase post field collection.
Process_Date: 20090831
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:

The data went through a fine scaled QC process after each field session. The QC process included both a spatial component and an attribute component. The spatial location and connections with surrounding structures was confirmed for every structure. The attribute data was also reviewed for any entry and clarification errors.
A broader QC process was completed once all structures had been field visited. The attributes were reviewed again for any errors glanced over during the finer scaled QC. A topology was created for the stormwater structures to validate the spatial integrityof the dataset. The following rules were used in the topology: -Outfalls Must Be Covered By Endponit of Stormline -Stormwater Structures Must Be Covered By Endpoint of Stormline -Stormlines Must Be Single Part

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Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: String
Point_and_Vector_Object_Count: 2282
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: Stormline09
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: RPC07_ObjectID
Attribute_Definition:
Chittenden County Regional Planning Commission ObjectID. This field will be filled if the feature was originally from CCRPC dataset.
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: LOCATION
Attribute_Definition:
Location description of the feature. This is usually a street name but can also be the name of a development or business.
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Str_to_Str
Attribute_Definition:
This field captures the structure IDs of the two structures connected by the stormline
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: GPS_DATE
Attribute_Definition: Date confirmed by GPS
Attribute_Definition_Source: Stone, Field inspector

Attribute:
Attribute_Label: Inspector
Attribute_Definition: Field inspector initials
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: ConditionNote
Attribute_Definition: Note about condition of feature filled in during 2009 inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: PermitNumber
Attribute_Definition:
Vermont Stormwater Program Permit Number. If there is a permit number, the feature is a part of a stormwater system that is permitted through the Vermont Stormwater Program. This permit number can be used to reference documents and plans associated with the permit.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Install_Date
Attribute_Definition:
Date of installation of stormwater structure. Information is rarely available.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: From_Struc
Attribute_Definition:
The Object ID for the structure from which the stormline is departing
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: To_Struc
Attribute_Definition:
The Object ID for the structure to which the stormline is leading. If the stromline is not connected to another structure (aside from an outfall), then this field is not populated
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: To_Out
Attribute_Definition:
The Object ID of the outfall to which the stormline is leading. This field is only used if the stormlines endpoint is not connected to another structure and is considered an outfall
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Struc_Mat
Attribute_Definition: Structure material
Attribute_Definition_Source: Stone, Field inspector
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: CM
Enumerated_Domain_Value_Definition: Corrugated Metal

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: ACCM
Enumerated_Domain_Value_Definition: Asphalt Coated Corrugated Metal
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: CA
Enumerated_Domain_Value_Definition: Corrugated Aluminum
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: CP
Enumerated_Domain_Value_Definition: Corrugated Plastic
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: M
Enumerated_Domain_Value_Definition: Metal
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: RC
Enumerated_Domain_Value_Definition: Reinforced Concrete
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: SP
Enumerated_Domain_Value_Definition: Smooth Plastic
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Unknown
Enumerated_Domain_Value_Definition: Unknown Material Type
Attribute:
Attribute_Label: Length_ft
Attribute_Definition: Length of the stormline between structures (feet)
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Struc_Type
Attribute_Definition: Type of stormline
Attribute_Definition_Source: Stone, Field Inspector
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Stormline
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Culvert
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Infiltration Pipe
Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: Possible Underdrain
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Roof Drain
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Stormdrain
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Trench Inlet
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Underdrain
Attribute:
Attribute_Label: Diameter_in
Attribute_Definition: Structure diameter (inches)
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Plan_Note
Attribute_Definition: Notes pertaining to plan review.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: CreationMethod
Attribute_Definition:
This field provides the method in which the feature was created or validated.
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Field confirmed
Enumerated_Domain_Value_Definition: The feature was verified by an inspector in the field.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Digitized from plan
Enumerated_Domain_Value_Definition:
The feature was digitized from a plan and has not been verified by an inspector in the field.
Attribute:
Attribute_Label: Enabled
Attribute_Definition:
Enabled for network analyst. If a feature has a value of enabled, it is included in the network. All structures were given a value of Enabled.
Attribute_Definition_Source: Stone

Distribution_Information:

Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

A. 4. Stormwater Easements

StormwaterEasements

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: StormwaterEasements
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
This dataset depicts geographic areas with stormwater easements in the Town of Colchester. This dataset includes a link to the easement file from the ACS database.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.267580
East_Bounding_Coordinate: -73.152808
North_Bounding_Coordinate: 44.593957
South_Bounding_Coordinate: 44.499805
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: planningCadastre
Theme_Keyword: environment
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints: This dataset
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Lineage:
Process_Step:
Process_Description:
All the records from 2002 to 2009 from the Town of Colchester's ACS land records database have been searched to identify easements for stormwater infrastructure. A layer of "easement" points containing the general location of each easement, parcel number, volume-page-number, street address, and a hotlink to the easement document has been developed as an attribute to each infrastructure feature. We will need to complete this review and easement data layer after the Town delivers the pre-2002 data. Currently, twenty-two (22) easements have been identified in the Town of Colchester through the ACS database.
Process_Date: 20090815
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 22
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 249
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2002

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400

Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: StormwaterEasements
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: ID
Attribute_Definition: Unique identification number
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: Parcel_Num

Attribute_Definition: Parcel Identification Number
Attribute_Definition_Source: Town of Colchester
Attribute:
Attribute_Label: ACSVolPg
Attribute_Definition: ACS land record database volume-page-number
Attribute_Definition_Source: Colchester ACS land record database
Attribute:
Attribute_Label: ACSImage
Attribute_Definition: ACS land record database image number
Attribute_Definition_Source: Colchester ACS land record database
Attribute:
Attribute_Label: PermitNum
Attribute_Definition: Stormwater Permit Number where applicable
Attribute_Definition_Source:
Vermont Agency of Natural Resources, Department of Environmental Conservation
Attribute:
Attribute_Label: EaseLink
Attribute_Definition: Hyperlink to electronic easement file
Attribute_Definition_Source: Stone Environmental, Inc.

Distribution_Information:
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Generated by mp version 2.9.6 on Thu Feb 11 14:09:45 2010

A. 5. Stormwater Permits

StormwaterPermits

Metadata also available as

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: StormwaterPermits
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
This dataset depicts geographic areas permitted through the Vermont Department of Environmental Conservation's Vermont Stormwater Program. Permits and associated site plans were used to verify stormwater structure information collected via a field data inventory. This dataset includes links to permits, associated site plans, and associated co-applicant maintenance agreements, where applicable.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition

Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.280404
East_Bounding_Coordinate: -73.129722
North_Bounding_Coordinate: 44.604165
South_Bounding_Coordinate: 44.492750
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: utilitiesCommunications
Theme_Keyword: planningCadastre
Theme_Keyword: environment
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints: This dataset
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

Many developed areas in Colchester have site plans associated with stormwater permits required by the Vermont Department of Environmental Conservation as a part of the Vermont Stormwater Program. All available site plans were reviewed and compared with Chittenden County Regional Planning Commission structures and 2009 field data where completed. This dataset was provided by Vermont DEC. Additional attributes were added to the original dataset including PermitLink, PlanLink, and TownCoapplicant.

Process_Date: 20090815

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Country: USA

Contact_Voice_Telephone: 802-229-4541

Contact_Facsimile_Telephone: 802-229-5417

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 108

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 249

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 2002

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: StormwaterPermits
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: ID
Attribute_Definition: Identification number
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: PERMITNUMB
Attribute_Definition:
DEC Permit Number. Can be joined to PermitNum field of stormwater structures within the Town of Colchester.
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: Old_Permit
Attribute_Definition: Old VT DEC Permit Number.
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: Image_qual
Attribute_Definition: Site plan scan quality.

Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: Plans_in_F
Attribute_Definition:
Digital plans in file. Some plans are not scanned and were not located in hard-copy files.
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: PDF_LINK
Attribute_Definition: Online link to permit pdf at VT DEC
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: NAME
Attribute_Definition: Name of permit project
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: PERMITBUS
Attribute_Definition: Permitted person or business
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: PROJNAME
Attribute_Definition: Project name
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: EXPDATE
Attribute_Definition: Permit expiration date
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: PERMITSTAT
Attribute_Definition: Status of stormwater permit application, Issued or Expired
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: RENEWDATE
Attribute_Definition: Renewal Date
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: ANNFEEDUE
Attribute_Definition: Annual Fee Due
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: SEMIANINSP
Attribute_Definition: Semi-Annual inspection date
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: ANNUALINSP
Attribute_Definition: Annual inspection date
Attribute_Definition_Source: VT DEC

Attribute:
Attribute_Label: RESTATECOM
Attribute_Definition: Date
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: LATDEGS
Attribute_Definition: Latitude, degrees, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: LATMINS
Attribute_Definition: Latitude, minutes, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: LATSECS
Attribute_Definition: Latitude, seconds, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: LONGDEGS
Attribute_Definition: Longitude, degrees, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: LONGMINS
Attribute_Definition: Longitude, minutes, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: LONGSECS
Attribute_Definition: Longitude, seconds, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: DDLAT
Attribute_Definition: Latitude, decimal degrees, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: DDLONG
Attribute_Definition: Longitude, decimal degrees, WGS 84
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: Status
Attribute_Definition: Status of stormwater permit files
Attribute_Definition_Source: VT DEC
Attribute:
Attribute_Label: QC
Attribute_Definition:
QC'd. If the permit site plan has been compared to the features on the map, the value is -1.
Attribute_Definition_Source: Stone Environmental, Inc.

Attribute:
Attribute_Label: QCNotes
Attribute_Definition:
Any notes associated with the site plan review process conducted at Stone Environmental, Inc.
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: PermitLink
Attribute_Definition: PermitLink. This can be used to link to a permit
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: PlanLink
Attribute_Definition:
PlanLink. This can be used to link to a folder of site plan scans and co-applicant maintenance agreements where applicable
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: TownPermittee
Attribute_Definition:
This field provides information on whether the Town of Colchester is a permittee or co-permittee for the DEC stormwater permit
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0
Enumerated_Domain_Value_Definition: None
Enumerated_Domain_Value_Definition_Source: Stone Environmental, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: 1
Enumerated_Domain_Value_Definition: Co-Permittee, Town is co-permittee
Enumerated_Domain_Value_Definition_Source: Stone Environmental, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: Permittee, Town is permittee
Enumerated_Domain_Value_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: CoApplicantLink
Attribute_Definition:
Co-Applicant Maintenance Agreement Link. This field can be used to link to a folder of co-applicant maintenance agreements, where applicable. Co-Applicant maintenance agreements are available for most permits where the town is a co-permittee, indicated in the TownPermittee field.
Attribute_Definition_Source: Stone Environmental, Inc.

Distribution_Information:
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

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StormwaterStructures

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: StormwaterStructures
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
Stormwater Structures including Outfalls, Retention Ponds, Stormlines, and Stormwater Structures (e.g., Catch Basins, Drywells) datasets were developed as a result of a field inventory conducted in 2009 using Chittenden County Regional Planning Commission data from 2007 and site plan drawings as references.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition
Status:

Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.306515
East_Bounding_Coordinate: -73.129947
North_Bounding_Coordinate: 44.605212
South_Bounding_Coordinate: 44.489442
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: Environment
Theme_Keyword: inlandWaters
Theme_Keyword: structure
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.

Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:
Process_Step:
Process_Description:
Chittenden County Regional Planning Commission data from 2007 was used as a base for determining stormwater structure locations. These data were first reviewed on screen using 1:2500 color orthophotos of Chittenden County from 2004. Many structures, particularly catch basins, drywells, and retention ponds, were visible from the imagery. Where visible, structures were checked for location accuracy and moved where necessary. If the structure was checked the 'position_validated' field was updated: Position_Validated = 0 : structure was checked and not moved Position_Validated = -1 : structure was checked and moved based on imagery Postion_Validated = null : structure was not checked with imagery
Process_Date: 20090801
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
Many developed areas in Colchester have site plans associated with stormwater permits required by the Vermont Department of Environmental Conservation as a part of the Vermont Stormwater Program. Additionally, there are site plans for developed areas that pre-date the Vermont Stormwater Program. All available site plans were reviewed and compared with Chittenden County Regional Planning Commission and 2009 field data where completed. When a stormwater structure was checked against an existing site plan, the 'Plan_QC' field was updated.
Plan_QC field = -1 : structure was checked against site plan Plan_QC field = null : structure was not checked against a site plan (no site plan available for this area) Additionally, the field 'Plan_Note' was updated if there were discrepancies with the CCRPC data or the 2009 field data. Notes may include 'digitized from plan' where additional features were found in the site plan or 'structure not in plan' if structure was not included in the site plan. Other notes may indicate differences in structure type or

material.
Lastly, the 'PermitNum' field was updated for all structures where permits were available. This permit number can be used to reference permits and associated site plans.
Process_Date: 20090815
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:
All stormwater structures from Chittenden County Regional Planning Commission (2007) and from site plan checks were validated by the field team in 2009. The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. If necessary, the position of the stromwater structures was updated using the GPS. High resolution imagery and a roads layer were loaded on the Trimble GeoXT to be used as reference as a base map for the field user.
The data collection was completed with an ArcPad application built to assist in the inventory process. The application was designed to manage attributes for the various stromwater structure types. The inspectors initials and date of inspection are recorded for every stromwater structure along with other applicable attributes. Some examples of the recorded attributes are material, diameter, and condition.
On a daily bases, data was checked back into the geodatabase post field collection.
Process_Date: 20090831
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417
Process_Step:
Process_Description:

The data went through a fine scaled QC process after each field session. The QC process included both a spatial component and an attribute component. The spatial location and connections with surrounding structures was confirmed for every structure. The attribute data was also reviewed for any entry and clarification errors.
A broader QC process was completed once all structures had been field visited. The attributes were reviewed again for any errors glanced over during the finer scaled QC. A topology was created for the stormwater structures to validate the spatial integrityof the dataset. The following rules were used in the topology: -Outfalls Must Be Covered By Endponit of Stormline -Stormwater Structures Must Be Covered By Endpoint of Stormline -Stormlines Must Be Single Part
Process_Step:
Process_Description: Metadata imported.
Source_Used_Citation_Abbreviation:
C:\DOCUME~1\katie\LOCALS~1\Temp\xmlC.tmp
Process_Date: 20090910
Process_Time: 08494400
Process_Step:
Process_Description: Metadata imported.
Source_Used_Citation_Abbreviation:
C:\DOCUME~1\CHRIST~1\LOCALS~1\Temp\xmlF6.tmp
Process_Date: 20091027
Process_Time: 10253300

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2095
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000

Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: StormwaterStructures
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: RPC07_ObjectID
Attribute_Definition:
Chittenden County Regional Planning Commission ObjectID. This field will be filled if the feature was originally from CCRPC dataset.
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: LOCATION
Attribute_Definition:

Location description of the feature. This is usually a street name but can also be the name of a development or business.
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: DISCHARGE
Attribute_Definition:
Stormwater discharge type. Can be surface water or ground water.
Attribute_Definition_Source: CCRPC; updated by Stone
Attribute:
Attribute_Label: GPS_DATE
Attribute_Definition: Date confirmed by GPS
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Struc_Type
Attribute_Definition: Type of structure
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Catch Basin
Enumerated_Domain:
Enumerated_Domain_Value: Manhole
Enumerated_Domain:
Enumerated_Domain_Value: Dry Well
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Manhole
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Dry Well
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Clean-out
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Connecting Sump
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Drop Down Structure
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Infiltration Basin
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Oil Seperator
Attribute_Domain_Values:
Enumerated_Domain:

Enumerated_Domain_Value: Pond Outlet
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Sedimentation Tank
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Yard Drain
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Scupper
Attribute:
Attribute_Label: OWNER
Attribute_Definition: Public or Private
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: Picture
Attribute_Definition: Picture number. Pictures were taken during CCRPC inventory.
Attribute_Definition_Source: CCPRC
Attribute:
Attribute_Label: Struc_Number
Attribute_Definition: Structure Number
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: StreetSide
Attribute_Definition: Side of street structure is located
Attribute_Definition_Source: CCRPC
Attribute:
Attribute_Label: SWAT_Wtrshd
Attribute_Definition: Subwatershed structure in which structure is located
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Protection
Attribute_Definition: Stencil or placard warning present
Attribute_Definition_Source: CCRPC, updated by Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Placard
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Stencil
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Placard destroyed
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: None

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: NA
Enumerated_Domain_Value_Definition: Used for manholes
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Not recorded
Enumerated_Domain_Value_Definition: Presence of placard or stencil was not recorded
Attribute:
Attribute_Label: Inspector
Attribute_Definition: Field inspector initials
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: ConditionNote
Attribute_Definition: Note about condition of feature filled in during 2009 inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: PermitNumber
Attribute_Definition:
Vermont Stormwater Program Permit Number. If there is a permit number, the feature is a part of a stormwater system that is permitted through the Vermont Stormwater Program. This permit number can be used to reference documents and plans associated with the permit.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: Install_Date
Attribute_Definition:
Date of installation of stormwater structure. Information is rarely available.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: PositionValidated
Attribute_Definition:
Position visually validated against high resolution imagery pre field visit (Yes/No). A value of -1 is yes, a value of 0 is no
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0
Enumerated_Domain_Value_Definition: structure was checked and not moved
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: -1
Enumerated_Domain_Value_Definition: structure was checked and moved
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: null

Enumerated_Domain_Value_Definition: structure was not checked with imagery
Attribute:
Attribute_Label: Struc_Condition
Attribute_Definition: Structure Condition
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Plan_Note
Attribute_Definition: Notes pertaining to plan review.
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: CreationMethod
Attribute_Definition:
This field provides the method in which the feature was created or validated.
Attribute_Definition_Source: Stone
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Field confirmed
Enumerated_Domain_Value_Definition: The feature was verified by an inspector in the field.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Digitized from plan
Enumerated_Domain_Value_Definition:
The feature was digitized from a plan and has not been verified by an inspector in the field.
Attribute:
Attribute_Label: Enabled
Attribute_Definition:
Enabled for network analyst. If a feature has a value of enabled, it is included in the network. All structures were given a value of Enabled.
Attribute_Definition_Source: Stone

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski

Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

A. 7. Unpermitted Site Plans

UnPermittedSitePlans

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: UnPermittedSitePlans
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\Stormwater\GISData\Stormwater_2009.mdb
Description:
Abstract:
This dataset depicts geographic areas where site plans were available, however were not permitted through the Vermont Department of Environmental Conservation's Vermont Stormwater Program. Site plans were located at the Town of Colchester offices and were listed as 'UnPermitted' if no associated DEC permit could be identified. Site plans were used to verify stormwater structure information collected via a field data inventory.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition

Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.278566
East_Bounding_Coordinate: -73.135211
North_Bounding_Coordinate: 44.598612
South_Bounding_Coordinate: 44.500996
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: Environment
Theme_Keyword: planningCadastre
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints: This dataset
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

These points represent areas where no DEC stormwater permit was available, but where town plans were found at the Town of Colchester offices. All available site plans from the Town of Colchester offices were reviewed and compared with Chittenden County Regional Planning Commission structures and 2009 field data where completed.

Process_Date: 20090815

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Country: USA

Contact_Voice_Telephone: 802-229-4541

Contact_Facsimile_Telephone: 802-229-5417

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 38

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 249

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 2002

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: State Plane Coordinate System 1983

State_Plane_Coordinate_System:

SPCS_Zone_Identifier: 4400

Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: UnPermittedSitePlans
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: ID
Attribute_Definition: Unique identification number
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: PlanLoc

Attribute_Definition:
Plan location at Town of Colchester offices during the summer 2009
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: PlanName
Attribute_Definition: Plan name, as written on plan
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: Review
Attribute_Definition:
This field indicated whether the plan was reviewed to identify stormwater structures during the summer of 2009. A value of -1 is yes and a value of 0 is no.
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: Notes
Attribute_Definition:
Review notes. This field provides a description of the review process during the summer of 2009.
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: PlanDate
Attribute_Definition: Plan date, as written on plan
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: CAT3_ID
Attribute_Definition:
Unique identification number. The can be linked to the permit number in the stormwater structure feature classes.
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: Filename
Attribute_Definition:
Filename, where applicable. The Town of Colchester scanned a select number of UnPermitted Site Plans.
Attribute_Definition_Source: Stone Environmental, Inc.
Attribute:
Attribute_Label: FileLink
Attribute_Definition:
This field provides a link to plans scanned by the Town of Colchester.
Attribute_Definition_Source: v

Distribution_Information:
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211

Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

APPENDIX B: STORMWATER USER MANUAL

Town of Colchester's Stormwater Field Inventory Application User Manual

The Stormwater Infrastructure Field Inventory Application was developed to locate new features, and update the 2007 Chittenden County Regional Planning Commission's stormwater data and digitized features from stormwater discharge permit and site plans. This User Manual provides the detailed steps and processes for collecting stormwater infrastructure feature data and their characteristics.

The four feature layers available for editing during the field inventory are Outfalls09, StormwaterStructures09, Stormlines09, and RetentionPonds09. These layers contain a variety of stormwater features including but not limited to catch basins, manholes, drywells, outfalls, stormlines, culverts, and retention ponds.

The field inventory was completed through the use of GPS devices employing a stormwater infrastructure application with ArcPad 7.1.1. The steps to executing the field inventory are described in more detail below.

- Check-out
- Data Collection
- Check-in
- Quality Control

The user should become familiar with ArcPad prior to using this application. Appendix A contains excerpts from the ArcPad 7.1.1 User Manual on basic functions necessary for the data collection process.

1 Check-out Procedure

This process must be completed in the office and before each field session. During data check-out, all four stormwater layers are bundled up and the output is one AXF file.

1.1
Creation of the AXF

An AXF is an ArcPad data file and is a checked out version of the Stormwater Geodatabase. This is the file which will be edited in the field and then checked back into the Stormwater Geodatabase at the end of the day.

1. Launch ArcMap and open the Stormwater Infrastructure map document. The four stormwater layers should be listed on the left side in the table of contents window.
2. Using the *ArcPad Data Manager* toolbar, choose to *Get Data From ArcPad*.
    a. If this is the first time opening the map document, the toolbar may need to be added.
        i. Go to TOOLS\EXTENSIONS.
        ii. Check the box next to 'ArcPad Data Manager'.
        iii. Close the Extensions window.
        iv. Go to VIEW\TOOLBARS
        v. Click 'ArcPad Data Manager'. A check should appear next to the title.
        vi. The *ArcPad Data Manager* toolbar should now be available
3. The *Get Data From ArcPad* window shows a list of the layers available for checkout. The first column with the single arrow checks out data for reference. The second column with the double arrows checks out data for editing. Check the second column for the layers you want incorporated in the AXF.
    a. Check the second column for the four stormwater layers: StormStructures09, Stormlines09, Outfalls09, and RetentionPonds09
    b. The last column of check boxes is to include a form template with the layer. A browser window pops up when this box is checked,. Navigate to the form template folder. Select the correct template for the selected layer. Be sure not to match the wrong form with a layer.
        i. The location of the stormwater templates should be: …\Data\Stormwater\DataCollection_Forms
4. Click Next
5. The criteria for the next window should be as follows:
    a. Spatial extent: 'The full extent of selected layer(s)'
    b. Uncheck 'Only get selected features' if this is an available option.
    c. Uncheck 'Only get features specified in layer's definition query
    d. Uncheck 'Only get fields specified as visible in layer's properties
    e. Folder name: the days date in MMDDYEAR format
    f. Specify the folder where the AXF should be stored
        i. …\Data\Stormwater\GISData\FieldData

g. Uncheck 'Create an ArcPad map'
h. Leave 'Encrypt checked out data' unchecked
i. Uncheck 'validate feature classes before checking out'

6. Click Finish
7. A window should appear saying that your data has been exported successfully.

1.2 Data Transfer

Now you are ready to transfer the data from your computer to your device.

8. Plug in and turn on the GPS unit that will be used for the field session.
9. Double click on the Active Sync icon.
    a. This icon is typically location on the toolbar seen in the bottom right corner of your computer screen.
    b. The ActiveSync window should say that the GPS unit is connected to your computer
10. From the ActiveSync window, open your GPS unit and navigate to the location where the AXF will be stored.
    a. Tools\Explore Device
11. Copy the new AXF (be sure to grab all the associated files) from the computer to the unit.

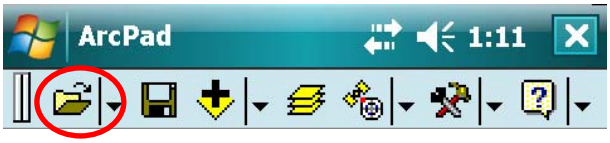
2 Field Data Collection

The steps to field data collection described below are based on the use of a mobile GPS unit running ArcPad 7.1.1 with the custom stormwater inventory application. For more detail on the data collection steps described below, see Appendix A.

2.1 Capturing new features and editing existing features

1. Launch ArcPad and open the Stormwater Inventory ArcPad map.
    a. Open the Stormwater Inventory map by pressing the Open button. This opens a window which will allow you to navigate to the map (see figure 1).

Figure 1. Open button on the ArcPad Toolbar



2. Add the AXF file to the document.

a. If one already exists in the map document, double check that it is the correct one.

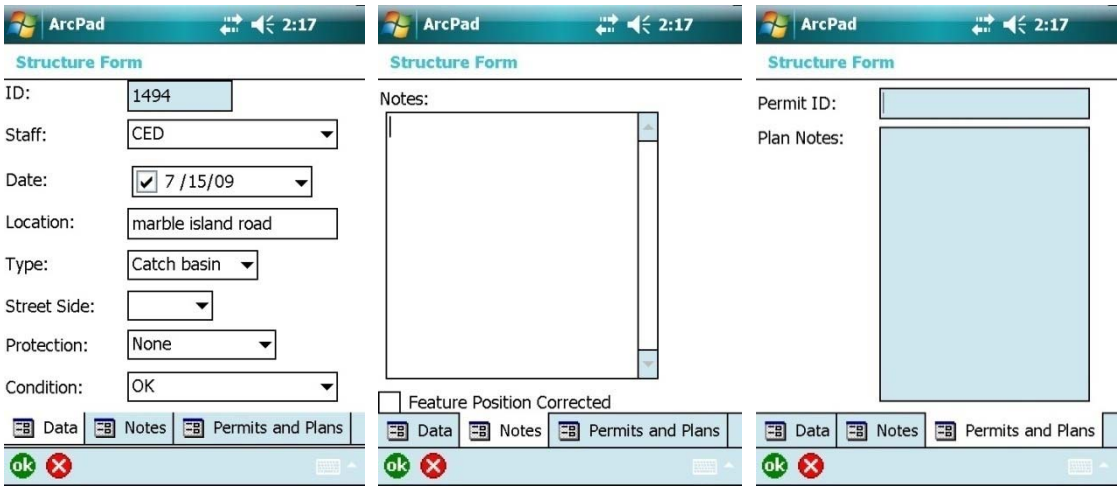
3. Activate your GPS if it is not already.
    a. Open the satellite position window to verify a valid fix.
4. Begin editing your features.
    a. In order to create a new feature either manually or with the GPS, an edit session must be started with the feature class of focus.
    b. An edit session can be begun in two ways:
        i. In the legend menu, check the feature classes you would like to edit.
        ii. Under the edit button on the toolbar, select the feature class you would like to edit. When the feature class is highlighted with a red box it identifies that feature as being editable.
    c. **Note**: Line, point, and/or polygon feature classes can be edited at one time. However, two or more of the same feature class (e.g., 2 line feature classes) cannot be edited at the same time.
5. When you are ready to capture a new feature, select the feature type you would like to collect: point, line, or polygon.
6. Select the method of capture
    a. GPS Point button
    b. GPS Vertex button
    c. GPS Vertices Continuously button
7. When you are ready to edit/review an existing feature, use the arrow tool to select the feature and open the Attribute Table.

2.2 Field Forms

Each of the four stormwater features collected during the inventory has its own unique set of field forms. The forms were designed to aid the user in collecting valuable and accurate data. The same structure of the forms is used for all features. The purpose of the first tab is to record data about the structure, as well as, the date and field staff. The second tab provides a space for the user to record any comments about the structure or surrounding environment. Unlike the first two tabs, the user is unable to record any data on the third and final tab. Instead, the final tab allows the user to identify the permit ID, if one was recorded, and any plan notes associated with the feature. Screen shots of all the forms are shown below in figures 2 through 5.

2.2.1. Stormwater Structures Field Form

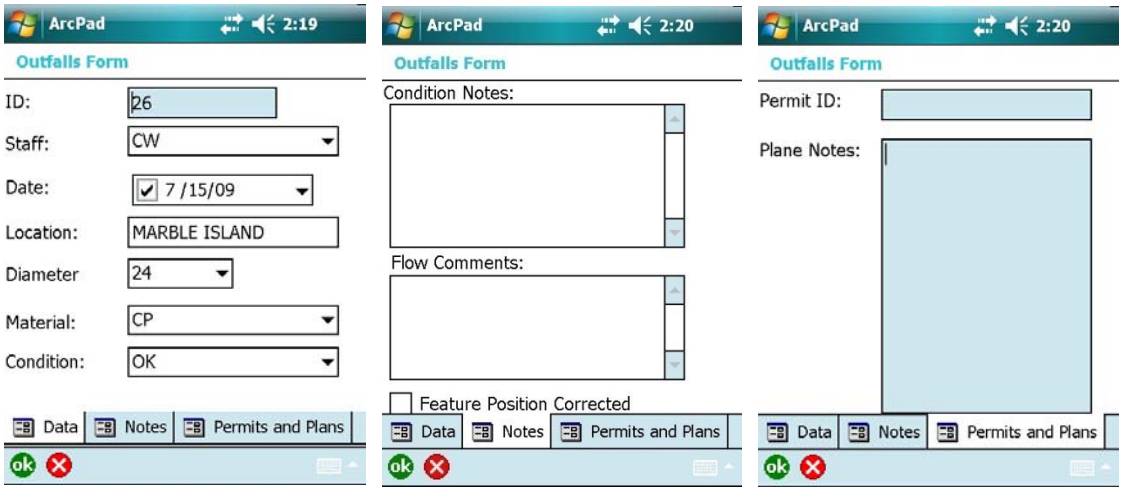
Figure2. Field Forms Used For Collecting Stormwater Structures



a. ID. This field is a unique ID field that is not editable in the field.
b. Staff. The staff member to conduct the most recent inspection
c. Date. The most recent date of inspection. This field is required and should be updated at every inspection.
d. Location. The road or commercial area where the feature is located.
e. Type. This field records the type of stormwater feature (catch basin, man hole, or drywell). The options applicable for this field are available via the drop down menu.
f. Street Side. If the feature falls on a road, the side of the street the feature resides is recorded here. (Optional data entry)
g. Protection. This field is only applicable for catch basins. If a warning stencil or placard is present, it is noted by this field.
h. Condition. The condition of the feature. If it is poor, the reason for the poor condition should be noted in the notes field.
i. Notes. Any field notes worthy of noting are recorded here.
j. Permit ID. The ID of the features associated permit. This attribute is not editable in the field.
k. Plan Notes. Any notes about the feature's presence or absence on the plan are noted here. This attribute field is also not editable.

2.2.2. Outfalls Field Form

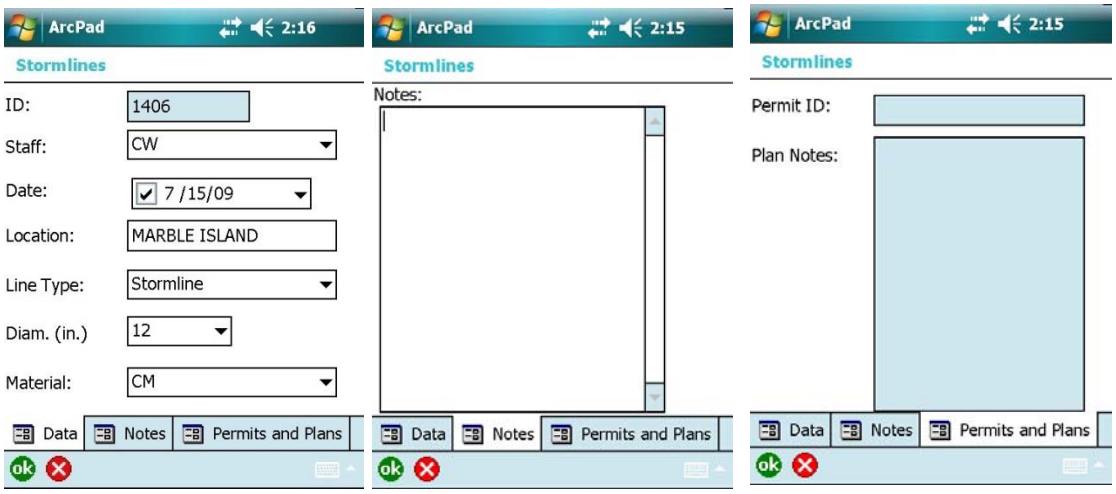
Figure 3. Field Forms Used For Collecting Outfalls



a. ID. This field is a unique ID field that is not editable in the field.
b. Staff. The staff member to conduct the most recent inspection
c. Date. The most recent date of inspection. This field is required and should be updated at every inspection.
d. Location. The road or commercial area where the feature is located.
e. Diameter. Inner diameter of outfall pipe.
f. Material. Outfall pipe material. The options applicable for this field are available via the drop down menu.
g. Condition. The condition of the feature. If it is poor, the reason for the poor condition should be noted in the notes field.
h. Condition Notes. Any field notes worthy of noting are recorded here.
i. Flow Comments. Any field notes related to the discharge flow are recorded here.
j. Permit ID. The ID of the features associated permit. This attribute is not editable in the field.
k. Plan Notes. Any notes about the feature's presence or absence on the plan are noted here. This attribute field is also not editable.

2.2.3. Stormlines Field Form

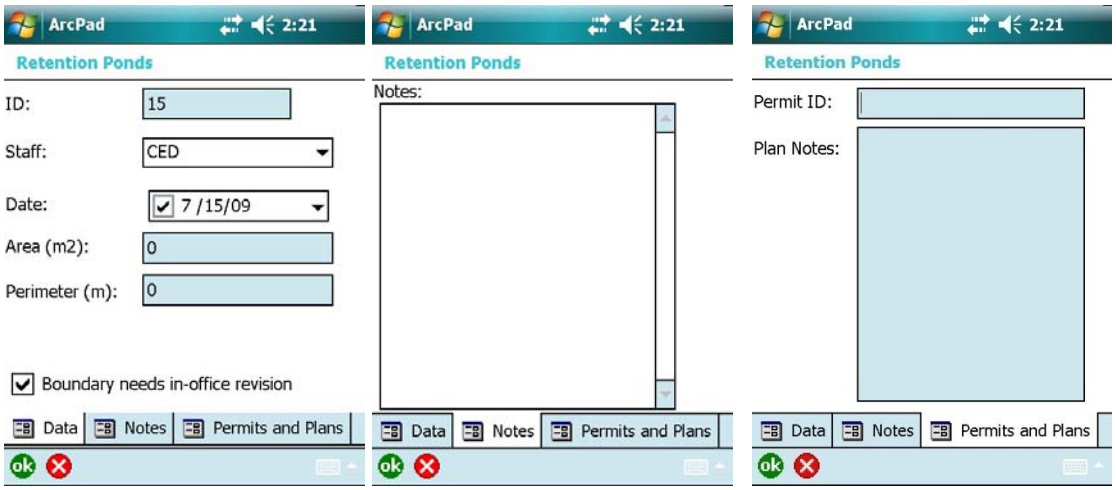
Figure 4. Field Forms Used For Collecting Stormlines



a. ID. This field is a unique ID field that is not editable in the field.
b. Staff. The staff member to conduct the most recent inspection
c. Date. The most recent date of inspection. This field is required and should be updated at every inspection.
d. Location. The road or commercial area where the feature is located.
e. Line Type: This field specifies between a storm line and a culvert. The options applicable for this field are available via the drop down menu.
f. Diameter. Inner diameter of outfall pipe recorded in inches.
g. Material. Outfall pipe material. The options applicable for this field are available via the drop down menu
h. Notes. Any field notes worthy of noting are recorded here.
i. Permit ID. The ID of the features associated permit. This attribute is not editable in the field.
j. Plan Notes. Any notes about the feature's presence or absence on the plan are noted here. This attribute field is also not editable.

2.2.4. Retention Ponds Field Forms

Figure 5. Field Forms Used for Collecting Retention Ponds



a. ID. This field is a unique ID field that is not editable in the field.
b. Staff. The staff member to conduct the most recent inspection
c. Date. The most recent date of inspection. This field is required and should be updated at every inspection.
d. Area. This field is computer generated and for reference only therefore is not editable in the field. The units are meter squared.
e. Perimeter. This field is computer generated and for reference only therefore is not editable in the field. The units are meters.
f. Boundary needs in-office revision. The primary function of this field is to flag the feature if the user feels that the boundary should be adjusted in office.
g. Notes. Any field notes worthy of noting are recorded here.
h. Permit ID. The ID of the features associated permit. This attribute is not editable in the field.
i. Plan Notes. Any notes about the feature's presence or absence on the plan are noted here. This attribute field is also not editable.

3
Check-in Procedure

This process is completed after each field session. During check-in, any features that were modified, added or deleted in the field are adjusted in the geodatabase.

3.1
Data Transfer

On returning from the field, the data is transferred from the mobile device to your computer.

1. Plug in and turn on the GPS unit that will be used for the field session.
2. Double click on the Active Sync icon.
    a. This icon is typically location on the toolbar seen in the bottom right corner of your computer screen.
    b. The ActiveSync window should say that the GPS unit is connected to your computer
3. From the ActiveSync window, open your GPS unit and navigate to the location where the AXF will be stored.
    a. Tools\Explore Device
4. Copy the AXF file from the device to the original folder on the computer. It is okay to overwrite the existing AXF file which is the same file you are copying over without the days edits.

3.2 AXF Check-in

Now that the data which was collected in the field is stored on your computer, you can begin the check-in process. This step updates the Stormwater Geodatabase with the days edits.

5. Launch ArcMap and open the Stormwater Infrastructure map document.
6. Start an edit session with the stormwater inventory database.
7. Using the *ArcPad Data Manager* toolbar, choose to *Get Data From ArcPad*.
    a. If this is your first time opening the map document, you may need to add the toolbar.
        i. Go to TOOLS\EXTENSIONS.
        ii. Check the box next to 'ArcPad Data Manager'.
        iii. Close the Extensions window.
        iv. Go to VIEW\TOOLBARS
        v. Click 'ArcPad Data Manager'. A check should appear next to the title.
        vi. The *ArcPad Data Manager* toolbar should now be available
8. In the *Get Data From ArcPad* window, click the green plus sign button located in the upper right hand corner. Map to the most recent AXF that you want to import into the geodatabase.
    a. The bottom window lists the data layers that will be checked back in and information on the number of features added, modified, and deleted. It is a good idea to quickly check through this to make sure nothing stands out as being incorrect.
9. Check all the layers that you would like to check back into the geodatabase.
10. Click Check In

11. A pop-up window will appear once all the data is checked in giving a summary of what checked in and any errors that occurred. If the AXF was checked in successfully, it will state so.

4
Quality Control

The quality control process is completed after each field session and once the AXF has been checked back into the database. It is best if this step is completed as soon after the field session as possible as well as before the next field session.

4.1
Quality Control

12. Visit each feature (outfalls, storm structures, stormlines, and retention ponds) that you visited during your field session.
    a. A good way to help make sure that you don't miss any features, is to symbolize based on the field session date.
        i. Right click on the feature class in the table of contents.
        ii. Go to PROPERTIES. In the PROPERTIES window, show the SYMBOLOGY tab.
        iii. Categories (unique values) should be selected on the left.
        iv. The value field should equal GPSDate
        v. Click on 'Add Values…'. Select all dates that apply since the last data correction took place. You may need to click the 'Complete List' button. Click OK.
        vi. Select all the dates and right click to group them.
        vii. Change the symbol for the group of dates. And the symbol for <all other values> - this will be all features collected on previous dates (features you are not interested in correcting now).
        viii. When you are done, click OK
13. Select a feature using the edit tool and make your changes if necessary. When you are satisfied, enter "-1" into the QC field.
    a. The QC field allows you to keep track of the features you have already reviewed for correction.
14. When you are finished making your corrections, end the edit session and save your edits.
    a. It is good practice to save your edits throughout the correction process.

Note: This method can be automated with the use of the ArcGIS Extent, "Data Reviewer".

Appendix A: Excerpts from the ArcPad 7.1 User Manual

A.1. Capturing a new point feature with the GPS

A.2. Capturing a new line feature with the GPS

A.3. Capturing a new polygon feature with the GPS

A.4. Editing an existing feature's attributes

A.5. Moving an existing feature's location to the current GPS location

Creating point features with a GPS

Creating a point feature using the incoming GPS coordinates involves the following steps:

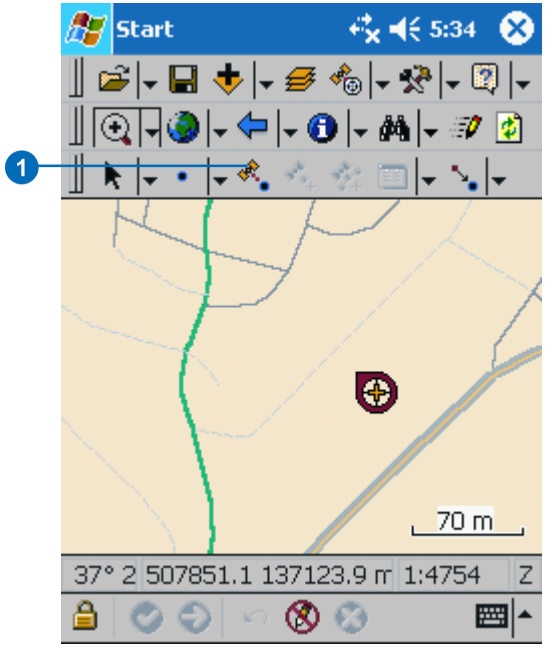
1. Select a point layer for editing via the Start/Stop Editing tool or the Table of Contents.
2. Activate the GPS.
3. Tap the GPS Point button on the Edit toolbar to create a point feature.
4. Type in attributes for the new point feature.

See Also

Refer to Chapter 12, 'Connecting your GPS receiver', for help on activating the GPS.

1. Tap the GPS Point button to capture a new point feature at the current GPS position.

   The Feature Properties dialog box or custom edit form is automatically displayed after the new point feature has been created. ▸



Tip

Enabling GPS position averaging for points

GPS position averaging for points is enabled in the Capture page of the GPS Preferences dialog box. You can also specify the number of GPS positions for ArcPad to average.

Tip

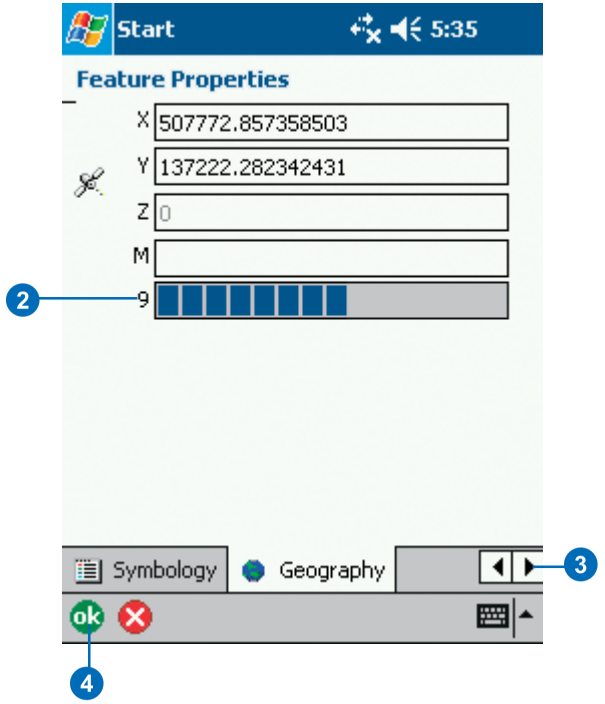
Typing in attributes during position averaging

You can type in attributes (in the Attributes page or a custom edit form) without waiting for the position averaging to be completed. This is particularly useful if you have specified a large number of GPS positions to average. ArcPad will continue averaging even after the required number of GPS positions has been received and averaged. Averaging will stop once you have tapped the ok button.

2. The Geography page shows a progress bar, which counts down from the specified number of GPS positions to average to zero.
3. Scroll and tap Attributes to display the Attributes page. Type the attributes for the new point feature.
4. Tap OK to save the attributes, close the edit form—or the Feature Properties dialog box—and complete the new point feature.

   If you tap OK before the averaging is complete, a dialog box will display asking whether you want to terminate the GPS position averaging.

   You can also tap the X button if you want to cancel the capture of the new point feature. The point feature and any attributes that have been typed in will be deleted.



Creating line features with a GPS

Creating a line feature using the incoming GPS coordinates involves the following steps:

1. Select a line layer for editing via the Start/Stop Editing tool or the Table of Contents.
2. Activate the GPS.
3. Tap the Polyline button to start capturing a line feature.
4. Tap the Add GPS Vertex button to capture a single vertex, or tap the Add GPS Vertices Continuously button to capture streaming vertices.
5. Tap the Proceed button on the Command bar to complete the capture of the line feature.
6. Type in attributes for the new line feature.

Tip

Enabling GPS position averaging for vertices

GPS position averaging for vertices is enabled in the Capture page of the GPS Preferences dialog box. You can also specify the number of GPS positions for ArcPad to average.

1. Tap the arrow to the right of the Feature tool to display the drop-down list. Tap the Polyline feature tool.

   The Add GPS Vertex and Add GPS Vertices Continuously buttons are enabled if the GPS is activated.

2. Tap the Add GPS Vertex button each time you want to use the current GPS position coordinates to capture a vertex.

   The vertices are drawn with a blue box and joined with a line using the current selection color.

   At any time, tap and hold anywhere on the map to display the Capture menu. Refer to the Creating line features task for more information on the Capture menu. Use the Capture menu to create vertices at specified x,y coordinates or relative to the last vertex or the current GPS position. You can also delete the last vertex.

3. The Point/Vertex dialog box is automatically displayed if GPS position averaging is enabled for vertices.

   The Point/Vertex dialog box shows a progress bar, which counts down from the specified number of GPS positions to average until it reaches zero. ▸

Tip

Changing the streaming vertices position and distance intervals

By default, the Add GPS Vertices Continuously mode captures a vertex each time ArcPad receives a coordinate from the GPS. This may be too frequent and result in the capture of unnecessary vertices. You can increase the streaming vertices position and distance intervals in the Capture page of the GPS Preferences dialog box.

Tip

Creating GPS point features while capturing a polyline feature

The GPS Point button will be enabled—if a point layer is active for editing—even while the Polyline button is active and a line feature is in the process of being captured. While capturing a polyline, you can tap the GPS Point button to capture a point feature without having to first end the capture of the line feature. You will need to pause streaming GPS data capture if it is active.

Tip

Pausing streaming GPS data capture

ArcPad continuously captures vertices in a streaming mode when the Add GPS Vertices Continuously tool is active. Tap the Add GPS Vertices Continuously button to pause or stop capturing vertices. Tap the button again to resume capturing vertices.

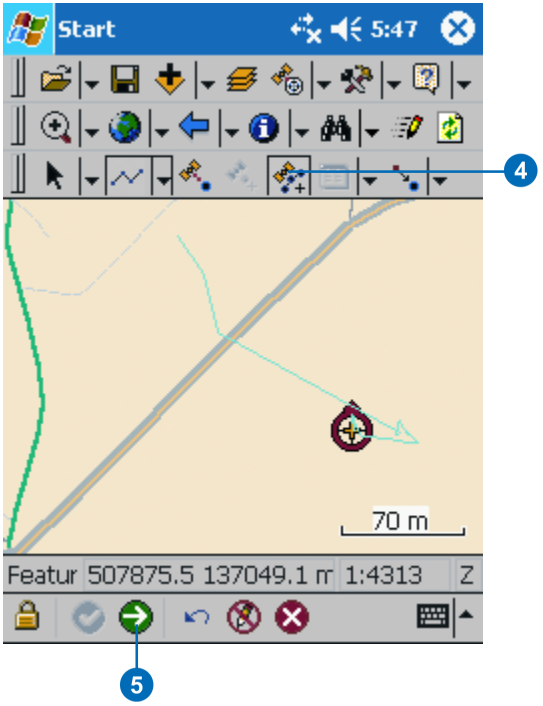
If you tap OK before the averaging is complete, a dialog box will display asking whether you want to terminate the GPS position averaging.

Tap the X button to cancel the capture of the vertex.

4. Tap the Add GPS Vertices Continuously button to use the incoming GPS coordinates for capturing vertices in a streaming mode. A vertex will be captured each time ArcPad receives a coordinate from the GPS. Vertices are captured according to the specified streaming vertices position and distance intervals.
5. Tap the Proceed button to complete the new line feature.

   The Feature Properties dialog box, or custom edit form, is automatically displayed after the new line feature has been created.
6. On the Attributes tab, tap the Value field to open the associated Value text box for typing in attribute data.

   For example, tap on the Value field for STREET_NAM to open the associated Value text box and type the street name value of “New”.
7. Tap OK.



Creating polygon features with a GPS

Creating a polygon feature using the incoming GPS coordinates involves the following steps:

1. Select a polygon layer for editing via the Start/Stop Editing tool or the Table of Contents.
2. Activate the GPS.
3. Tap the Polygon button to start capturing a polygon feature.
4. Tap the Add GPS Vertex button to capture a single vertex or tap the Add GPS Vertices Continuously button to capture streaming vertices.
5. Tap the Proceed button to complete the capture of the polygon feature.
6. Type in attributes for the new polygon feature.

Tip

Enabling GPS position averaging for vertices

GPS position averaging for vertices is enabled in the Capture page of the GPS Preferences dialog box. You can also specify the number of GPS positions for ArcPad to average.

1. Tap the arrow to the right of the feature tool to display the drop-down list. Tap the Polygon feature tool.

   The Add GPS Vertex and Add GPS Vertices Continuously buttons are enabled if the GPS is activated.

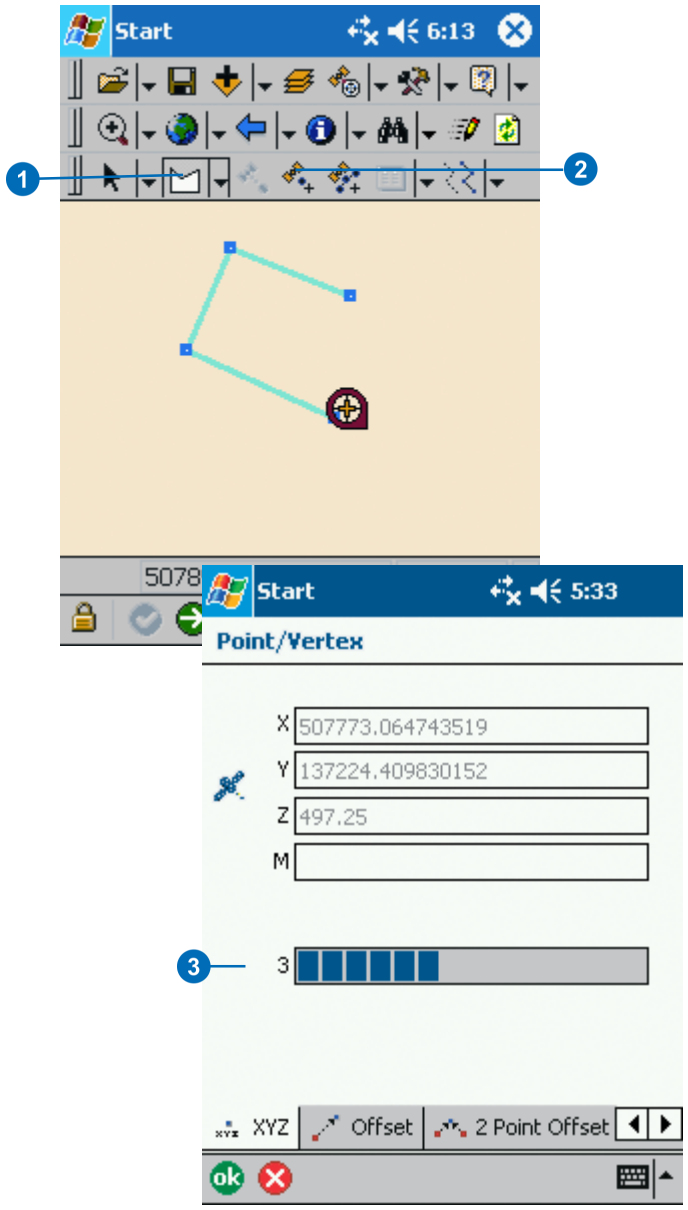
2. Tap the Add GPS Vertex button each time you want to use the current GPS position coordinates to capture a vertex.

   The vertices are drawn with a blue box and joined with a line.

   At any time, you can tap and hold anywhere on the map to display the Capture menu. Refer to the Creating line features task for more information on the Capture menu. Use the Capture menu to create vertices at specified x,y coordinates or relative to the last vertex or the current GPS position. You can also delete the last vertex.

3. The Vertex dialog box is automatically displayed if GPS position averaging is enabled for vertices.

   The Vertex dialog box shows a progress bar, which counts down from the specified number of GPS positions to average until it reaches zero. ▸



Tip

Undoing or canceling your edits

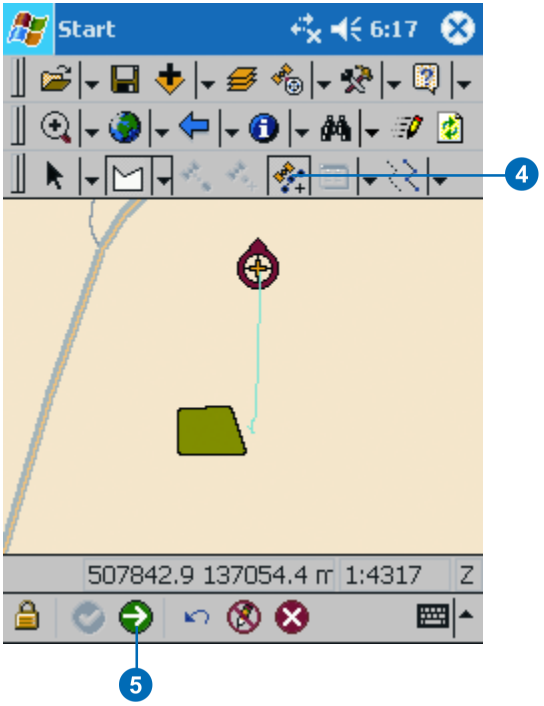
Use the Undo tool to go back a step to the previously captured vertex or use the Cancel Edits tool to erase all edits. These tools are only enabled prior to tapping the Proceed button. Once you tap the Proceed button and tap ok on the Feature Properties dialog box, your edits cannot be undone.

Tapping OK before the averaging is complete will display a dialog box asking whether you want to terminate the GPS position averaging. Tap the X button to cancel the capture of the vertex.

4. Tap the Add GPS Vertices Continuously button to use the incoming GPS coordinates for capturing vertices in a streaming mode. A vertex will be captured each time ArcPad receives a coordinate from the GPS, based on the specified streaming vertices position and streaming intervals.
5. Tap the Proceed button to complete the capture of the new polygon feature.

   ArcPad will automatically close the polygon by adding a final vertex with the same coordinates as the first vertex.

   The Feature Properties dialog box, or custom edit form, is automatically displayed after the new polygon feature has been created.
6. On the Attributes tab, tap the Value field to open the associated Value text box for typing in attribute data.
7. Tap OK.



Tip

Using the Move To GPS tool

Tap the Move To GPS tool in the Move To menu to move the selected point to the current GPS position.

Tip

Using the Move To Menu with line and polygon vertices

The Move To and Move To GPS tools can be used to move line and polygon vertices to a new position. Use the Select & Vertex Editing tool to select a feature. A blue square is displayed around each vertex of the selected feature. Tap and hold (on a desktop PC, use the right mouse button click) within the blue square to display the Move To menu. Use the methods described for moving point features to move your vertices.

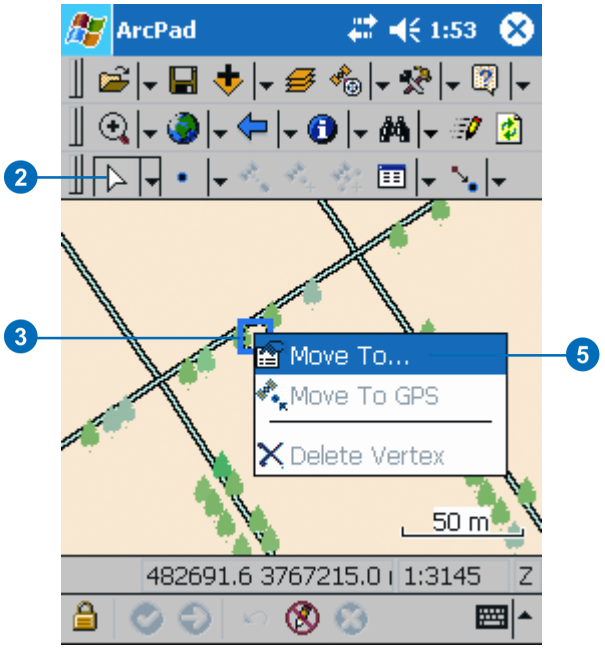
Moving a point feature to an x,y location using Move To

1. Tap the drop-down arrow to the right of the Select button to display the drop-down list.
2. Tap Select & Vertex Editing.

   If you already have a feature selected using one of the methods described earlier in this chapter, tapping the Select and Vertex Editing button will display the point or vertices of your already selected feature using a blue square. Skip to task step 4.
3. Tap the feature you would like to select.

   The point symbol or vertices of your line and polygon feature will be displayed using a blue square.
4. Tap and hold within the blue square to display the Move To menu.
5. Tap Move To.

   If you have a GPS connected and activated, tap Move to GPS, to move the point feature to the current GPS position. ►



Tip

Moving a point to the current GPS position

Tapping the GPS button, , on the Vertex dialog box or the Geography page of the Feature Properties dialog box will move the selected point feature to the current GPS position.

Tip

Using offsets to move a point to a new location

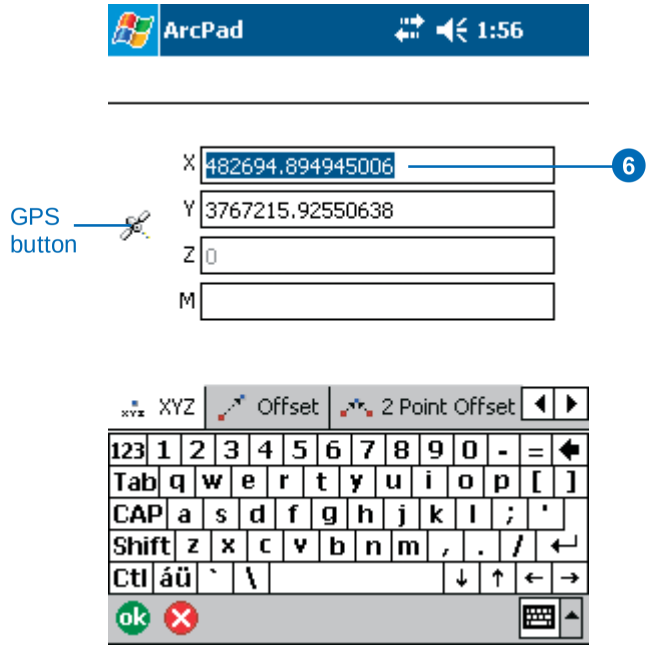
You can use one point and 2 point offsets to move point features to a new location.

See Also

Refer to Chapter 18, 'Creating new features', for more information about using offsets.

6. Type the desired coordinates.
7. Tap OK.
8. Tap the Commit Geometry Changes button on the Command bar.

   The selected point feature is moved to the specified coordinates.



Editing attributes

The Feature Properties dialog box lets you view and edit the attributes of the feature you have selected. The Feature Properties dialog box is automatically displayed once any new feature is created.

By default, the Feature Properties dialog box includes pages for Attributes, Picture, Symbology, and Geography; a custom edit form will also be displayed if it exists. The custom edit form may change the title of the Feature Properties dialog box—for example, "Trees".

Tip

Typing data on devices without keyboards

Devices without keyboards—for example, Windows Mobile devices—use a Soft Input Panel (SIP) for typing in data. On Windows Mobile devices, you open the the Soft Input Panel by tapping the SIP icon on the title bar.

1. Select the point, line, or polygon feature.

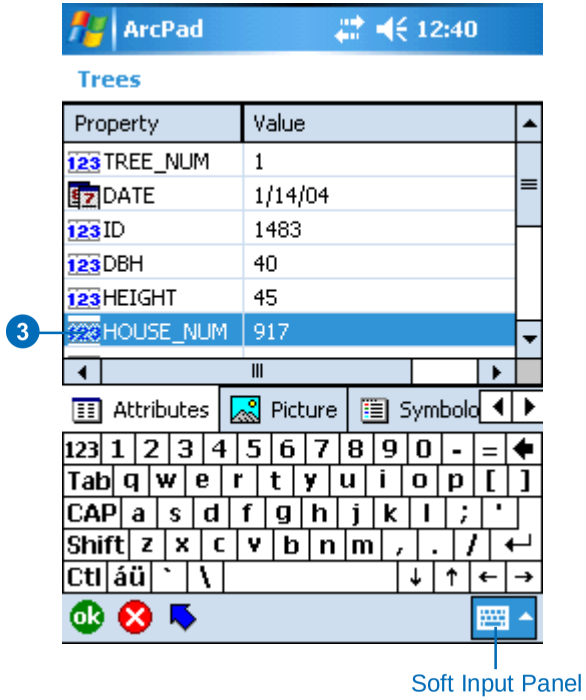
   The Feature Properties button on the Edit toolbar is enabled once a feature is selected.

2. Tap the Feature Properties button—or double-tap the feature—to open the Feature Properties dialog box.

3. On the Attributes page, tap the Value field to open the associated Value text box for typing in attribute data.

   For example, tapping the Value field associated with the HOUSE_NUM Property will open the associated Value text box for typing in the house number value of "917".

   The Soft Input Panel is displayed when a Value text box is opened. If it does not, tap the SIP icon on the title bar. ▸



Tip

Creating custom edit forms

Custom edit forms can be created using ArcPad or ArcPad Application Builder. In ArcPad, custom edit forms can be created with either the QuickForm or QuickProject tools. Custom forms are saved in an ArcPad Layer file, which is associated with a shapefile (.apl) or stored in the ArcPad AXF file..*

Custom edit forms can have multiple tabs, or pages, each with multiple controls. These controls can include text boxes, date controls, and list boxes. Scripts associated with the form perform initialization and validation, enforcing correct data entry before continuing to another page or closing the form. Scripts cannot be added to forms from within ArcPad.

Tip

Using a barcode scanner to input your data

Use a barcode scanner connected to your Windows Mobile device to easily input data into your edit forms.

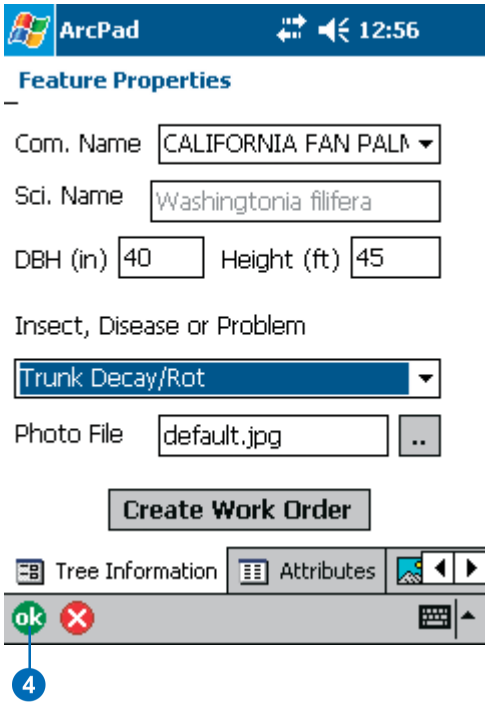
See Also

See Chapter 17, 'Editing basics', to learn how to create Quick Forms in ArcPad to edit your features.

The Feature Properties dialog box displays the custom edit form if it exists.

4. Tap OK to save the attributes and close the edit form.

   You can also tap the X button if you want to cancel any changes made to the attributes.



APPENDIX C: WASTEWATER METADATA

C.1. ACS Permit Data

C.2. DEC Permit Data

C.3. ImageWARE Images

C.4. Planning and Zoning Wastewater Permits

C.1. ACS Permit Data

Table: Town of Colchester Wastewater Permits from the ACS Database

Metadata also available as

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator: Town of Colchester

Publication_Date: 20091218

Title:

Table: Town of Colchester Wastewater Permits from the ACS Database

Geospatial_Data_Presentation_Form: tabular digital data

Online_Linkage:

\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WastewaterPermits\DataDelivery\Colchester_WW_Permits.mdb

Description:

Abstract:

The Town of Colchester uses ACS software to catalog permit and associated documents. Along with permit information, a file link is provided, which can be used to open the documents associated with the permit.

The ACS table relates to the Parcel feature class by Account Number.

Purpose:

These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.

Supplemental_Information:

This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).

Prepared for: Town of Colchester

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 20091218
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.312133
East_Bounding_Coordinate: -73.099691
North_Bounding_Coordinate: 44.605696
South_Bounding_Coordinate: 44.504459
Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Wastewater
Theme_Keyword: septic
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: location
Theme_Keyword: planningCadastre
Theme_Keyword: utilitiesCommunications
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

The wastewater related permits from the ACS database of interest included sewer permits, subdivision permits, wastewater permits, waterline easements, water supply easements and well shield easements. Of the 473 permits related to wastewater, 262 linked to an Account Number leaving 211 permits without an associated Account Number.

The database records were cleaned and populated with Account# where possible. The Account# provided in the database was linked to the GIS Parcel Account # to check for discrepancies. Images available to Stone that were missing an account number were opened and the account was identified. The DEC website was used to help identify the Acct # for some of the more difficult records (<http://www.anr.state.vt.us/dec/ww/wwdocs/cfm/permitgetform.cfm>). Any changes made are recorded.

Process_Date: 20091101

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Person: Christine DeLeo and Katie Budreski

Contact_Position: Staff GIS Specialist

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Country: USA

Contact_Voice_Telephone: 802-229-4541

Contact_Facsimile_Telephone: 802-229-5417

Contact_Electronic_Mail_Address: cdeleo@stone-env.com

Contact_Electronic_Mail_Address: kbudreski@stone-env.com

Process_Step:

Process_Description:

Some wastewater related permits were found in the Miscellaneous ACS folder. Records for these documents were appended to the tblACSPermitData (the table which was imported into the final WW database).

Process_Date: 20091101

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.
Contact_Person: Christine DeLeo
Contact_Position: Staff GIS Specialist
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-4541
Contact_Electronic_Mail_Address: cdeleo@stone-env.com

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 284
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: tblACSPermitData
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: StCntyCode
Attribute_Definition: State County Code
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: ImageNum
Attribute_Definition: Image Number (same as the PDF filename)
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: Grantor
Attribute_Definition: Grantor. Landowner to whom the permit is being issued.
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: Grantee
Attribute_Definition: Grantee. State agency or entity that issued the permit.
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: DocType
Attribute_Definition: Document Type
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: RecordDate2
Attribute_Definition: Record date - Date that document was added to the land records
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: VolPgNum

Attribute_Definition:
Volume Page Number - Book and page # by which document is identified in the land records
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: InstrumentDate
Attribute_Definition:
Instrument Date - Date that permit was issued or transaction was finalized
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: Location
Attribute_Definition: Location description from permit, usually property address
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: ParcelNum
Attribute_Definition: Parcel Number
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: AcctNumb
Attribute_Definition:
Account Number. This field can be used to relate to the parcel feature class. There are many ACS records per Parcel feature.
Attribute_Definition_Source: Town of Colchester (ACS)
Attribute:
Attribute_Label: PermitNum
Attribute_Definition:
VT DEC Permit Number. This field can be used to relate to the tblDECPermitData table.
Attribute_Definition_Source: Town of Colchester (ACS); VT DEC
Attribute:
Attribute_Label: FIleLink
Attribute_Definition:
File Link. This provides the full file path of the Images associated with the permit. Each set of images are within a single pdf. The filename is the ImageNum with a pdf extension. The full file path must be updated for each user (drive and folder path).
Attribute_Definition_Source: Stone Environmental

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:

Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Generated by `mp` version 2.9.6 on Thu Feb 11 14:20:38 2010

Table: DEC Wastewater Permits

Metadata also available as

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20091218
Title: Table: DEC Wastewater Permits
Geospatial_Data_Presentation_Form: tabular digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WastewaterPermits\DataDelivery\Colchester_WW_Permits.mdb
Description:
Abstract:
Vermont Department of Environmental Conservation wastewater permit table was obtained from the DEC website. The DEC relates to the ACS table by permit number for ACS records where DEC permit numbers were identified. The DEC table provides additional permit information and web links to the DEC permit documents.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20091218
Currentness_Reference: ground condition
Status:

Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.312133
East_Bounding_Coordinate: -73.099691
North_Bounding_Coordinate: 44.605696
South_Bounding_Coordinate: 44.504459
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: location
Theme_Keyword: planningCadastre
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Wastewater
Theme_Keyword: regulatory
Theme_Keyword: Department of Environmental Conservation DEC
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 284
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: tblDECPermitData

Attribute:

Attribute_Label: OBJECTID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: TOWN

Attribute_Definition: Town that project is located within

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: LANDOWNER

Attribute_Definition: Landowner name as recorded in DEC permit application

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: PROJECT_ID

Attribute_Definition:

Project ID - Project or permit number assigned to the project by DEC. Can be used to relate to the ACS table.

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: STREET

Attribute_Definition: Street Name or address where the project is located

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: APPLICANT

Attribute_Definition: Applicant name as recored in the permit

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: PURCHASER

Attribute_Definition: Purchaser name as recorded in the permit

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: PROJECTDESC

Attribute_Definition: Narrative project description or reason for the permit

Attribute_Definition_Source: VT DEC

Attribute:

Attribute_Label: FileLink

Attribute_Definition: Hyperlink to DEC's permit information

Attribute_Definition_Source: Stone

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Generated by mp version 2.9.6 on Thu Feb 11 14:20:51 2010

Table: Town of Colchester Wastewater Permit Images from the ImageWARE Document Management System

Metadata also available as

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator: Town of Colchester

Publication_Date: 20091218

Title:

Table: Town of Colchester Wastewater Permit Images from the ImageWARE Document Management System

Geospatial_Data_Presentation_Form: tabular digital data

Online_Linkage:

\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WastewaterPermits\DataDelivery\Colchester_WW_Permits.mdb

Description:

Abstract:

The Town of Colchester, Department of Planning and Zoning uses the Canon ImageWARE software to catalog images of town septic, building, & other planning/zoning related documents. Along with basic indexing information, a file link is provided, which can be used to open the documents associated with the permit.

This table supplements information regarding the wastewater permits from the Planning and Zoning and permits database. The Planning and Zoning permits table relates to the parcel feature class by Account Number. The Planning and Zoning table joins to the ImageWARE table by Permit Number, and provides a file location for documents related to that permit.

Purpose:

These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20091218
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.312133
East_Bounding_Coordinate: -73.099691
North_Bounding_Coordinate: 44.605696
South_Bounding_Coordinate: 44.504459
Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Wastewater
Theme_Keyword: septic
Theme_Keyword: document
Theme_Keyword: permit
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: planningCadastre
Theme_Keyword: utilitiesCommunications
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester

State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:
Process_Step:
Process_Description:
The following procedure was taken to clean the permit information downloaded from imageWARE. The data directory [O:\Proj-05\1694-W_ColchesterIWP\Data\imageWARE] contains three subfolders. The 'TownSeptic' folder and the 'StateWastewater' folder are the two working folders for this procedure. The TownSepticIndex spreadsheet and the StateWastewaterIndex, both located in the imageWARE directory, contain the filenames and the filename parts for each permit downloaded from imageWARE.
Both the StateWastewaterIndex and the TownSepticIndex spreadsheet were used to locate all duplicate filenames. A permit is considered duplicate if the Permit Number, Parcel ID, and Location are the same. Duplicate permits were visually verified by opening the pdfs. Conditional formatting was used to identify the duplicate records. Duplicate values in both the PermitNo and ParcelID fields were highlighted. All duplicate permits were moved to the 'NotIndexed_Duplicates' subfolder [O:\Proj-05\1694-W_ColchesterIWP\Data\imageWARE\TownSeptic\PDF; O:\Proj-05\1694-W_ColchesterIWP\Data\imageWARE\StateWastewater\PDF]. The file's record was then deleted from the spreadsheet.
Process_Date: 20091101
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 284
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:

Entity_Type:
Entity_Type_Label: tblImageWareImages
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: FileName
Attribute_Definition:
File Name - Name of the document image, as exported from the ImageWARE application
Attribute_Definition_Source: Town of Colchester (Planning and Zoning, ImageWare database)
Attribute:
Attribute_Label: PermitNo
Attribute_Definition:
Town of Colchester Permit Number. This field can be used to relate to join to the PZPermits table.
Attribute_Definition_Source: Town of Colchester (Planning and Zoning, ImageWare database)
Attribute:
Attribute_Label: Type
Attribute_Definition: Permit Type
Attribute_Definition_Source: Town of Colchester (Planning and Zoning, ImageWare database)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Town
Enumerated_Domain_Value_Definition:
Septic permit issued by Town of Colchester under local sewage ordinance
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Lake Water
Enumerated_Domain_Value_Definition: Property obtains its water supply from Lake Champlain
Attribute:
Attribute_Label: FileLink
Attribute_Definition:
File Link. This provides the full file path of the Images associated with the permit. Each set of images are within a single pdf. The filename is from the FileName. The full file path must be updated for each user (drive and folder path).
Attribute_Definition_Source: Stone

Distribution_Information:

Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Generated by `mp` version 2.9.6 on Thu Feb 11 14:21:02 2010

C.4. Planning and Zoning Wastewater Permtis

Table: Town of Colchester Wastewater Permits from the Planning and Zoning Database

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20091218
Title:
Table: Town of Colchester Wastewater Permits from the Planning and Zoning Database
Geospatial_Data_Presentation_Form: tabular digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WastewaterPermits\DataDelivery\Colchester_WW_Permits.mdb
Description:
Abstract:
The Town of Colchester, Department of Planning and Zoning uses a Microsoft Access database to track and catalog permits issued by the department and associated documents. This table provides information regarding the wastewater permits from the Planning and Zoning and Access database. Other types of permits, including building permits & zoning applications, are also recorded in the database, but are not included in this inventory. The Planning and Zoning table relates to the parcel feature class by Account Number. The Planning and Zoning table joins to the ImageWare table by Permit Number which provides a file location for documents related to that permit.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:

This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20091218
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.312133
East_Bounding_Coordinate: -73.099691
North_Bounding_Coordinate: 44.605696
South_Bounding_Coordinate: 44.504459
Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Wastewater
Theme_Keyword: septic
Theme_Keyword: permit
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: location
Theme_Keyword: planningCadastre
Theme_Keyword: utilitiesCommunications
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA

Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:
Process_Step:
Process_Description:
The following procedure was taken to clean the permit information in the Planning & Zoning permits database.
1) Permit_Type cleaned up & standardized 2) Account_ populated based on linkage between parcels & permits in original P/Z database. 3) Fields class, type, unitNo, No. of Units, Bedrooms_unit, cleaned-up and standardized as applicable. 4) Date fields in the original P/Z permits database are included here, even if information was not populated for some fields in original database.
Process_Date: 20091101
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Country: USA
Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 284
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: tblPZ_PERMITS_WW
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: NewResidence
Attribute_Definition:

New Residence - Yes/No, whether permit was issued for new construction
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: ParcelRecNo
Attribute_Definition:
Percel Record Number - a sequential ID that links to parcels in the original P/Z database
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Tax_Map
Attribute_Definition: Tax Map Identification Number
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Parcel
Attribute_Definition: Parcel Number
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Account__
Attribute_Definition:
Account Number. Can be used to relate to the Parcel feature class and to other datasets in this inventory
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: PIN
Attribute_Definition: PIN - Identifying case # for some state related permits
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Permit_No_
Attribute_Definition:
Permit Number as issued by Town of Colchester or VT DEC. This field can be used to relate or join to the ImageWare table.
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Street_No_
Attribute_Definition: Street Number, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Street
Attribute_Definition: Street Name, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Permit_Type
Attribute_Definition: Permit Type
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: SPT

Enumerated_Domain_Value_Definition:
Wastewater Permit issued by Town of Colchester under local sewage ordinance
Enumerated_Domain:
Enumerated_Domain_Value: SWP
Enumerated_Domain_Value_Definition:
State water supply/wastewater permit, issued by DEC or by Town under delegation
Attribute:
Attribute_Label: Description
Attribute_Definition: Narrative description of reason for permit
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Reason
Attribute_Definition: Reason for Permit
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Class
Attribute_Definition: Land use class at the time of permitting, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: RES
Enumerated_Domain_Value_Definition: Residential
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: COM
Enumerated_Domain_Value_Definition: Commercial
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: AGR
Enumerated_Domain_Value_Definition: Agricultural
Attribute:
Attribute_Label: Type
Attribute_Definition: Type of structure or use
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: SF/ALL
Enumerated_Domain_Value_Definition: Single family residence with accessory apartment(s)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: SF
Enumerated_Domain_Value_Definition: Single family residence
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MLF

Enumerated_Domain_Value_Definition: Multi-family residential (condo or apartment complex)
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: RFA
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MHM
Enumerated_Domain_Value_Definition: Mobile home
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: DU
Enumerated_Domain_Value_Definition: Duplex
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: CNV
Enumerated_Domain_Value_Definition: Convert seasonal to year-round residence
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: ALT
Enumerated_Domain_Value_Definition: Alteration of existing wastewater system
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: ACS
Enumerated_Domain_Value_Definition: Accessory apartment or structure
Attribute:
Attribute_Label: UnitNo
Attribute_Definition: Unit number (for condos or other multi family), where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: No_of_Units
Attribute_Definition: Number of Units, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Bedrooms_Unit
Attribute_Definition: Bedrooms per unit, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Square_Feet
Attribute_Definition: Square feet for structure or addition, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Construct_Cost
Attribute_Definition: Construction Cost, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:

Attribute_Label: Decision
Attribute_Definition: Permitting decision, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Issue_Date
Attribute_Definition: Date that permit was issued, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Inspect_Date
Attribute_Definition: Inspection Date, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Conditions
Attribute_Definition: Conditions of permit, or notes from inspector
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: DateMet
Attribute_Definition:
Date that permit conditions were met, if recorded (field generally not used by Town)
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Land_Disturbance
Attribute_Definition: Land disturbance in square feet or acres, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: Lot_Coverage
Attribute_Definition:
Lot coverage as percentage, where recorded (rarely utilized by town)
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: EntryDate
Attribute_Definition:
Date that information was entered to Planning/Zoning database, where recorded
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: F1
Attribute_Definition: < 1 acre impervious surface
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: _5
Attribute_Definition: 1-5 acres impervious surface
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)
Attribute:
Attribute_Label: F1_1
Attribute_Definition: > 5 acres of impervious surface
Attribute_Definition_Source: Town of Colchester (Planning and Zoning database)

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Generated by mp version 2.9.6 on Thu Feb 11 14:21:12 2010

APPENDIX D: WATER SUPPLY MAPPING STUDY SPECIFIC PROCCEDURE

SITE SPECIFIC PROCEDURE

FIELD LOCATION OF POTABLE WATER SUPPLIES

SSP Number: SSP-051694-01 Date Issued: 6/11/2009

Revision Number: 0 Date of Revision: n/a

1.0 OBJECTIVE

Using a GPS and GIS mapping software, locate drinking water supplies and confirm type of wastewater treatment service on a lot-by-lot basis. .

2.0 POLICIES

It is the policy of Stone Environmental, Inc. (Stone) that all field staff using this instrument read this SSP prior to completing field work and implement all procedures written herein.

3.0 SAFETY ISSUES

All Stone staff are required to read, sign, and follow the Site Safety and Health Plan (SSHP). Don protective clothing as specified in the SSHP.

4.0 PROCEDURES

Generally, Stone staff will attempt to locate water supply well locations on private or public property where permission is granted. When permission is not granted, employees will attempt to visually locate the locations from the road. When no resident is available to grant permission, employees will leave a pamphlet on the owner's door, and will approximately locate the well only if its location is apparent from the road or driveway. At the end of each field day, a backup of the new electronic data collected will be e-mailed to the main office or downloaded and saved on the staff member's computer.

4.1 Equipment

- GPS unit
- Informational pamphlets
- Well inspection forms
- Cell phone
- Protective equipment as listed in SSHP
- Colchester Field Book notebook

4. 2 Getting Started

- Plan the day's route
- Ensure the GPS unit battery is fully charged
- Complete equipment checklist

4. 3 For Each Property

- Record the following:
  -Parcel ID/Account #
  -Owner Name
  -Street Name/Number

- Knock on door. If no answer, knock a second time
  - If someone answers, briefly explain project and ask permission—for example: "Hello, I'm here on behalf of Stone Environmental Inc, along with the Town of Colchester to conduct a water supply investigation on the properties in Colchester. With your permission, I would like to enter your property and record your well's location with my GPS."
  - If nobody is home, and the well location is visible from the road or driveway, record the well's approximate location by placing a point on-screen with the GPS.
  - Do not open any fence or bypass obvious privacy measures such as No Trespassing signs
  - If permission denied, explain that their well location can be kept private
  - If still denied, attempt to locate well visually from road

- If permission is granted, gather information about the water supply system from owner as indicated below.

4. 4 When Well is Located

- Update wastewater service type:
  -Individual on-site
  -Shared on-site
  -Central sewer
- Record water supply type
  -Individual well (drilled)
  -Shared well
  -Municipal water
  -Spring/shallow well

- Record well-ID, comments, date, inspector initials
- Take well GPS reading
- Record well type:
  -Individual drilled
  -Individual shallow/spring

-Shared drilled
-Shared shallow/spring

4.5 Post-Inspection

- Record status of visit:

  a. Not visited (default)
  b. Visited, unable to locate well
  c. Visited, water supply located

- Record any additional comments about site

4.6 End-of-Day Procedures

- Return to Stone in Montpelier
- Download new field data to server
- Charge GPS battery
- Download backup onto personal laptop

5.0 RESPONSIBILITIES

SEI staff are required to take accurate and descriptive notes. Variations from this SSP should be noted on observations and remarks (O&R) forms along with data and personnel.

5.1 Field Staff

Field staff are responsible for following and implementing all procedures outline within this SSP.

Care shall be taken to avoid compromising sample and data integrity.

6.0 DEFINITIONS

1. *GIS: Geographic Information System*
2. *GPS: Global Positioning System*

7.0 REFERENCES

GPS unit instruction manual for the MobileMapper (Attachment 1)

8.0 TABLES, DIAGRAMS, FLOWCHARTS, AND VALIDATION DATA

None

9.0 AUTHORIZATION

Written by: _____ Date: June 11, 2009

Charlie Evans, Stone Environmental, Inc.

Approved by: _____ Date: June 11, 2009

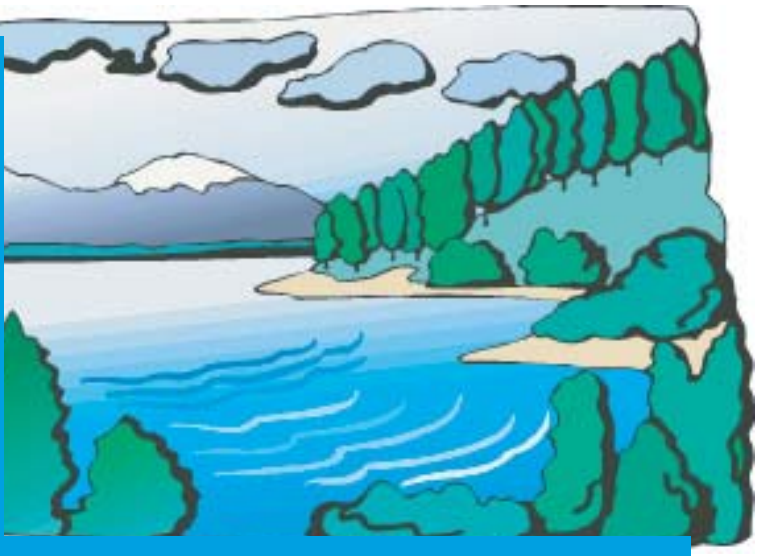
Amy Macrellis, Stone Environmental, Inc.

10.0 REVISION HISTORY

Not Applicable

APPENDIX E: WATER SUPPLY NOTICE TO LANDOWNERS

Town of Colchester Integrated Water Resources Management Plan



We're sorry we missed you.

About the Plan: The Town of Colchester was awarded a three-year EPA grant to develop an Integrated Water Resources Management plan (IWRM). The goal is to protect the Town's water resources through an increased understanding of the relationship between water resources, land use, storm water, and wastewater systems.

As part of the work, Stone Environmental of Montpelier, a consultant hired under the grant, would like to visit your property to obtain a precise location of any drinking water wells or stormwater systems you may have to document their location and condition. This site visit is similar in nature to the person who reads your electric meter. The field work takes no more than a couple of minutes and nothing will be disturbed. We will not enter your site without permission. However, without entering the site, we will need to approximate the location of these systems for our study, which will reduce our ability to provide complete and comprehensive information to the Colchester community regarding the protection and preservation of your natural resources.

We ask you to contact Bryan Osborne, Town of Colchester's Public Works Director ((802) 264-5625 or via email at bosborne@town.colchester.vt.us) within seven days with your permission to enter your property. Please give us your name and your property address along with your permission. We do not need to schedule an appointment when you are home, unless that is your preference.

Your cooperation is greatly appreciated.

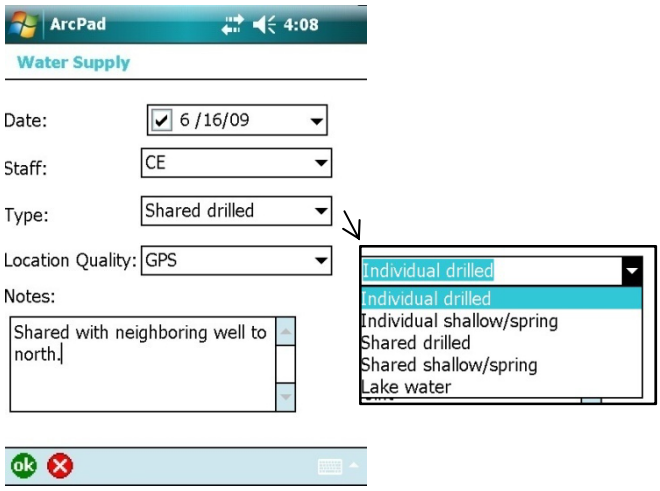
For detailed information concerning the grant and the scope of the study, visit us at **http://colchestervt.gov/pw/IWRMPlan.htm**

APPENDIX F: WATER SUPPLY MAPPING FIELD FORMS

Private Water Supply Field Data Collection Process

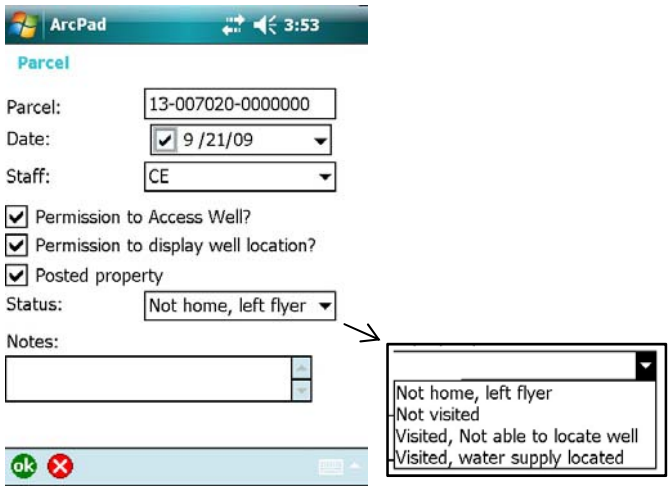
A field application was built to collect the water supply locations and track the data collection progress. Below is a brief description of the data fields that were used for data collection.

Water Supply



a. Date. The date the well or spring location was captured.
b. Staff. This field tracks the field staff that captured the location of the well or spring.
c. Type. This field records the type of water supply (drilled well versus shallow well or spring) and whether or not the water supply is private or shared among neighboring parcels.
d. Location Quality. The options available for this field are GPS or Approximate. If the GPS was not used to collect the water supply location, then 'Approximate' was noted as the location quality.
e. Notes. Any field notes applicable to the water supply.

Parcels



a. Parcel. The Parcel ID is displayed in this field. This is a non-editable field.
b. Date. The date the parcel was last visited.
c. Staff. This field tracks the individual that last visited the parcel.
d. Permission to Access Well. If the field staff was not granted permission to locate the well or spring, it was noted here.
e. Permission to display well location. If a parcel owner held reservations about the location of their water supply being displayed on maps at public meetings or in report documents, then display permission was considered not granted and the box was not checked.
f. Posted property. This field tracked if access to the parcel was not possible due to posted property signs.
g. Status. This field documented the status of field visits to each parcel. The applicable options were available in the drop down control.
h. Notes: Any field notes or details applicable to the parcel visit.

APPENDIX G: WATER SUPPLY INVENTORY METADATA

G.1. Water Supply

G.2. Water Supply Relate Table

G.3. Water and Wastewater Service Status

G.1. Water Supply

WaterSupply

Metadata also available as

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: WaterSupply
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WaterSupply\GISData\WaterSupply.mdb
Description:
Abstract:
This private water supply dataset was developed as a result of a field inventory conducted in 2009 to locate and record types of private water supplies in Colchester, Vermont.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.312133
East_Bounding_Coordinate: -73.099691
North_Bounding_Coordinate: 44.605696
South_Bounding_Coordinate: 44.504459
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: Private Water Supply
Theme_Keyword: well
Theme_Keyword: spring
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Stormwater
Theme_Keyword: Outfall
Theme_Keyword: Stormline
Theme_Keyword: Catch Basin
Theme_Keyword: Drywell
Theme_Keyword: Retention Pond
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. The water supply locations were recorded using the GPS. If the GPS was not used to record the location, then the position was digitized using high resolution imagery.

The data collection was completed with an ArcPad application built to assist in the inventory process. The application was designed to manage the attributes for water supplies and assist in parcel visits. The field staff's initials and date of inspection, along with other applicable attributes, are recorded for both the parcel visited and the water supply collected. Some examples of the recorded attributes are type, method of position collection and access permission.

After each field session, data was checked back into the geodatabase.

Process_Date: 20090815

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Country: USA

Contact_Voice_Telephone: 802-229-4541

Contact_Facsimile_Telephone: 802-229-5417

Process_Step:

Process_Description:

The data went through a fine scaled QC process after each field session. The QC process included both a spatial component and an attribute component. The spatial location was confirmed for every water supply. The attribute data was also reviewed for any entry and clarification errors.

Process_Date: 20090831

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Contact_Voice_Telephone: 802-229-4541
Contact_Facsimile_Telephone: 802-229-5417

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 284
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: WaterSupply
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: Update_
Attribute_Definition: Date of inspection
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Staff
Attribute_Definition: Initials of field staff
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Type
Attribute_Definition: Type of private water supply
Attribute_Definition_Source: Stone, Field inspector
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Individual Drilled
Enumerated_Domain_Value_Definition: Individual drilled well
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Individual Shallow/Spring
Enumerated_Domain_Value_Definition: Individual shallow well or spring
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Shared Driled
Enumerated_Domain_Value_Definition: Shared drilled well between multiple parcels
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Shared Shallow/Spring
Enumerated_Domain_Value_Definition: Shared shallow well or spring between multiple parcels

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Lake Water
Enumerated_Domain_Value_Definition: Lake water
Attribute:
Attribute_Label: LocQuality
Attribute_Definition: Method used to capture location of water supply
Attribute_Definition_Source: Stone, Field inspector
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: GPS
Enumerated_Domain_Value_Definition: GPS was used
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Approximately
Enumerated_Domain_Value_Definition: Location was digitized using high resolution imagery
Attribute:
Attribute_Label: AcctNumber
Attribute_Definition: Account number of parcel well or spring supplies
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Comment
Attribute_Definition: Observations made by inspector while in the field
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: QC
Attribute_Definition: Spatial and attribute QC (Yes/No)
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: WellID
Attribute:
Attribute_Label: Display
Attribute_Definition:
Permission was given by the owner to display the location of the water supply on public maps. Permission given = Y; Permission denied = N
Attribute_Definition_Source: Stone, Field inspector

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:

Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

G.2. Water Supply Relate Table

tblWaterSupplyRelate

Metadata also available as

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: tblWaterSupplyRelate
Geospatial_Data_Presentation_Form: tabular digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WaterSupply\GISData\WaterSupply.mdb
Description:
Abstract:
This table functions as the link between the Water Supply feature dataset and the Parcel feature dataset.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.312133
East_Bounding_Coordinate: -73.099691
North_Bounding_Coordinate: 44.605696
South_Bounding_Coordinate: 44.504459
Keywords:
Theme:
Theme_Keyword_Thesaurus: none
Theme_Keyword: Water Supply
Theme_Keyword: Well
Theme_Keyword: Spring
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: utilitiesCommunications
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Lineage:

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 284
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000100
Ordinate_Resolution: 0.000100
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: tblWaterSupplyRelate

Attribute:
Attribute_Label: WellID
Attribute_Definition: Well ID
Attribute_Definition_Source: Joins to 'WellID' field in feature class WaterSupply
Attribute:
Attribute_Label: ACCOUNT_NO
Attribute_Definition: Account number
Attribute_Definition_Source: Joins to 'ACCOUNT_NO' field in tblWaterWWServiceStatus

---

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

Generated by mp version 2.9.6 on Thu Feb 11 14:13:50 2010

G.3. Water and Wastewater Service Status

tblWaterWWServiceStatus

Metadata also available as

Metadata:

Identification_Information:

Citation:
Citation_Information:
Originator: Town of Colchester
Publication_Date: 20090901
Title: tblWaterWWServiceStatus
Geospatial_Data_Presentation_Form: tabular digital data
Online_Linkage:
\\readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\WaterSupply\GISData\WaterSupply.mdb
Description:
Abstract:
The dataset was developed as part of a field inventory conducted in 2009 to locate private water supplies. This data table was used to track the inventory's progress. The Town of Colchester's Assessor's water supply and wastewater services were used to create the base dataset. The water supply and wastewater service information was updated as needed throughout the inventory.
Purpose:
These datasets were developed for an Integrated Water Resources Management Project for the Town of Colchester.
Supplemental_Information:
This project's funding was provided by an US EPA National Decentralized Wastewater Demonstration Grant (XP-83232201-1).
Prepared for: Town of Colchester
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20090901
Currentness_Reference: ground condition

Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.362801
East_Bounding_Coordinate: -73.097366
North_Bounding_Coordinate: 44.617510
South_Bounding_Coordinate: 44.484808
Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO_Topic_Category
Theme_Keyword: utilitiesCommunications
Theme:
Theme_Keyword_Thesaurus: none
Theme_Keyword: Water Supply
Theme_Keyword: Wastewater Treatment
Theme_Keyword: Drilled Well
Theme_Keyword: Spring
Access_Constraints: None.
Use_Constraints:
REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Contact_Person: Bryan Osborne
Contact_Position: Director, Department of Public Works
Contact_Address:
Address_Type: mailing and physical address
Address: 781 Blakely Road
Address: P.O. Box 55
City: Colchester
State_or_Province: VT
Postal_Code: 05446
Country: USA
Contact_Voice_Telephone: 802.264.5625
Contact_Electronic_Mail_Address: bosborne@colchestervt.gov
Data_Set_Credit:
Town of Colchester, Chittenden County Regional Planning Commission, and Stone Environmental, Inc.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

The Chittenden County Regional Planning Committy's 2007 parcel dataset was joined with the Assessor's 2008 data.

Process_Date: 20090801

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Country: USA

Contact_Voice_Telephone: 802-229-4541

Contact_Facsimile_Telephone: 802-229-5417

Process_Step:

Process_Description:

The field inventory was completed using ArcPad 7.1.1 on a Trimble GeoXT. The water supply locations were recorded using the GPS. If the GPS was not used to record the location, then the position was digitized using high resolution imagery.

The data collection was completed with an ArcPad application built to assist in the inventory process. The application was designed to manage the attributes for water supplies and assist in parcel visits. The field staff's initials and date of inspection, along with other applicable attributes, are recorded for both the parcel visited and the water supply collected. Some examples of the recorded attributes are type, method of position collection and access permission.

After each field session, data was checked back into the geodatabase.

Process_Date: 20090831

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Stone Environmental, Inc.

Contact_Address:

Address_Type: mailing and physical address

Address: 535 Stone Cutters Way

City: Montpelier

State_or_Province: VT

Postal_Code: 05602

Contact_Voice_Telephone: 802-229-4541

Contact_Facsimile_Telephone: 802-229-5417

Process_Step:

Process_Description:
The data went through a fine scaled QC process after each field session. The QC process included both a spatial component and an attribute component. The spatial location was confirmed for every water supply. The attribute data was also reviewed for any entry and clarification errors.
Process_Step:
Process_Description:
This data table was created post field work by extracting the inventory and service fields from the feature class. This data table can now be linked to the most current Parcel dataset from the Town.

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon
Point_and_Vector_Object_Count: 6250
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 254
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 2045

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000003
Ordinate_Resolution: 0.000003
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: tblWaterWWServiceStatus
Attribute:
Attribute_Label: ACCOUNT_NO
Attribute_Definition: Parcel's account number. This field used for all tabular joins.
Attribute_Definition_Source: Colchester Assessor database
Attribute:
Attribute_Label: Water_Service
Attribute_Definition: Parcel's water service
Attribute_Definition_Source:
Colchester Assessors database, as updated by Stone during Water Supply inventory
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Individual Drilled Well
Enumerated_Domain_Value_Definition: Drilled well for individual parcel
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Individual Shallow Well/Spring
Enumerated_Domain_Value_Definition: Shallow well or spring for individual parcel
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Shared Drilled Well
Enumerated_Domain_Value_Definition: Driled well shared between multiple parcels
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Shared Shallow/Spring
Enumerated_Domain_Value_Definition: Shallow well or spring shared between parcels
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Lake Water
Enumerated_Domain_Value_Definition: Parcel's water source is Lake Champlain
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Municipal
Enumerated_Domain_Value_Definition: Parcel is on municipal water
Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: None
Enumerated_Domain_Value_Definition: No water service or supply
Attribute:
Attribute_Label: WW_Service
Attribute_Definition: Parcel's wastewater service
Attribute_Definition_Source:
Colchester Assessors database, as updated by Stone during inventory
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Sewer
Enumerated_Domain_Value_Definition: sewer
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Onsite
Enumerated_Domain_Value_Definition: Onsite wastewater system
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: None
Enumerated_Domain_Value_Definition: No wastewater service recorded
Attribute:
Attribute_Label: Date_
Attribute_Definition:
Date parcel was visited for private water supply field inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Staff
Attribute_Definition:
Initials of field staff for private water supply field inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: AccessPerm
Attribute_Definition:
Permission was granted to access property. Permission given = -1; Permission denied = 0
Attribute_Definition_Source: Stone
Attribute:
Attribute_Label: DisplayPerm
Attribute_Definition:
Permission was given by the owner to display the location of the water supply on public maps. Permission given = -1; Permission denied = 0
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: Status
Attribute_Definition: Parcel's status on the private water supply field inventory
Attribute_Definition_Source: Stone, Field inspector
Attribute:

Attribute_Label: Comment
Attribute_Definition: Observation made by field staff
Attribute_Definition_Source: Stone, Field inspector
Attribute:
Attribute_Label: PostedProperty
Attribute_Definition: Property is posted = -1, Property is not posted = 0
Attribute_Definition_Source: Stone, Field inspector

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Town of Colchester
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20100211
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Person: Katie Budreski
Contact_Address:
Address_Type: mailing and physical address
Address: 535 Stone Cutters Way
City: Montpelier
State_or_Province: VT
Postal_Code: 05602
Contact_Voice_Telephone: 802-229-1870
Contact_Electronic_Mail_Address: kbudreski@stone-env.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

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Appendix H: BUILDING FOOTPRINT METADATA

Building Footprints for Colchester, Vermont 2007

Metadata also available as

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: University of Vermont Spatial Analysis Laboratory
Publication_Date: 20090111
Title: Building Footprints for Colchester, Vermont 2007
Geospatial_Data_Presentation_Form: vector digital data
Online_Linkage:
\\Readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\DataDelivery\Colchester_Physical.gdb
Description:
Abstract:
Building footprints for Colchester, VT current as of spring 2007. Building footprints were manually digitized based on the Vermont 2007 panchromatic othophotos, with a 0.5 meter resolution supplemented by the 0.16m resolution CCMPO true color orthophotos and the "brids eye imagery" from Bing Maps. Edits were made at a zoom scale of 1:1,700 and included both major and minor buildings, such as sheds and garages.
Purpose: Infrastructure analysis and town planning.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2007
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: None planned
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -73.311063
East_Bounding_Coordinate: -73.099458
North_Bounding_Coordinate: 44.607454
South_Bounding_Coordinate: 44.488956

Keywords:
Theme:
Theme_Keyword: Buildings
Theme_Keyword: Building Footprints
Place:
Place_Keyword: Colchester
Place_Keyword: VT
Temporal:
Temporal_Keyword: 2007
Access_Constraints: None
Use_Constraints: None
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Anna Royar
Contact_Organization: University of Vermont Spatial Analysis Laboratory
Contact_Position: GIS Technician
Contact_Address:
Address_Type: mailing and physical address
Address: 81 Carrigan Drive
Address: Aiken Room 220
City: Burlington
State_or_Province: VT
Postal_Code: 05405
Country: USA
Contact_Voice_Telephone: 802-656-3324
Contact_Electronic_Mail_Address: aroyar@uvm.edu
Data_Set_Credit: University of Vermont Spatial Analysis Laboratory
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: This dataset contains no attributes.
Logical_Consistency_Report: Valid polygons with no dangles.
Completeness_Report:
Complete inventory of major and minor buildings as of spring 2007.
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Based on orthophotos that meet National Map Accuracy Standards at a scale of 1:5000
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Publication_Date: 2007
Title: Vermont Orthophotos, 2007
Other_Citation_Details: 1 square meter resolution
Source_Scale_Denominator: 5000

Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2007
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: Vermont Orthophotos, 2007
Source_Contribution: Imagery
Source_Information:
Source_Citation:
Citation_Information:
Publication_Date: 2004
Title: CCMPO True Color Orthophotos
Other_Citation_Details: .16 square meter resolution
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2004
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: CCMPO True Color Orthophotos, 2004
Source_Contribution: Imagery
Source_Information:
Source_Citation:
Citation_Information:
Title: Bing Maps
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2005
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: Bing Maps Birds Eye
Source_Contribution: Imagery
Process_Step:
Process_Description: Digitized building footprints.
Process_Date: 20100111
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Anna Royar
Contact_Organization: University of Vermont, Spatial Analysis Laboratory
Contact_Position: GIS Technician
Contact_Voice_Telephone: 802-881-2709
Contact_Electronic_Mail_Address: aroyar@uvm.edu
Process_Step:
Process_Description: Dataset copied.
Source_Used_Citation_Abbreviation: \\quadrula\FOS\TestSites\VT\Colchester \Data\Colchester.gdb
Process_Date: 20100115
Process_Time: 15162700

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon
Point_and_Vector_Object_Count: 7961

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000156
Ordinate_Resolution: 0.000156
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000156
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: Building footprints
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:

Attribute_Label: SHAPE
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: BLDG_ID
Attribute:
Attribute_Label: SHAPE_Length
Attribute_Definition: Length of feature in internal units.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Positive real numbers that are automatically generated.
Attribute:
Attribute_Label: SHAPE_Area
Attribute_Definition: Area of feature in internal units squared.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Positive real numbers that are automatically generated.
Attribute:
Attribute_Label: AcctNum
Overview_Description:
Entity_and_Attribute_Overview: Contains only internal attributes.

Distribution_Information:
Resource_Description: Downloadable Data

Metadata_Reference_Information:
Metadata_Date: 20101214
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Anna Royar
Contact_Organization: University of Vermont Spatial Analysis Laboratory
Contact_Position: GIS Technician
Contact_Address:
Address_Type: mailing and physical address
Address: 81 Carrigan Drive
Address: Aiken Center Room 220
City: Burlington
State_or_Province: VT
Postal_Code: 05405
Country: USA
Contact_Voice_Telephone: 802-656-3324
Contact_Electronic_Mail_Address: aroyar@uvm.edu
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

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Appendix I: IMPERVIOUS SURFACE METADATA

cimp2004c

Metadata also available as

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator: University of Vermont Spatial Analysis Laboratory
Publication_Date: 20091015
Title: cimp2004c
Edition: First
Geospatial_Data_Presentation_Form: Fgdb raster digital data
Online_Linkage:
\\Readynas\NetDrv-O\Proj-05\1694-W_ColchesterIWP\Data\DataDelivery\Colchester_Physical.gdb

Description:

Abstract:

THIS IS A DRAFT VERSION OF THE LAND COVER DATASET. KNOWN ERRORS EXIST. PLEASE USE CARE WHEN DRAWING CONCLUSIONS FROM THIS DATASET. DRAFT RELEASE DOES NOT INCLUDE BARE EARTH CLASS. THIS DRAFT RELEASE HAS NOT BE SUBJECTED TO QUALITY ASSURANCE / QUALITY CONTROL. High resolution land cover dataset for the 2004 Chittenden County imagery and LiDAR area of interest (AOI). Seven land cover classes were mapped: (1) tree canopy, (2) grass/shrub, (3) bare earth, (4) water, (5) buildings, (6) roads, and (7) other paved surfaces. The minimum mapping unit for the delineation of features was set at 10 square meters. The primary sources used to derive this land cover layer were the 2004 Chittenden County color infrared imagery and LiDAR. Ancillary data sources included the E911 points layer and Chittenden County road polygons. This land cover dataset is considered current as of 2004. Object-based image analysis techniques (OBIA) were employed to extract land cover information using the best available remotely sensed and vector GIS datasets. OBIA systems work by grouping pixels into meaningful objects based on their spectral and spatial properties, while taking into account boundaries imposed by existing vector datasets. Within the OBIA environment a rule-based expert system was designed to effectively mimic the process of manual image analysis by incorporating the elements of image interpretation (color/tone, texture, pattern, location, size, and shape) into the classification process. A series of morphological procedures were employed to

insure that the end product is both accurate and cartographically pleasing.
This dataset has been clipped to the Town of Colchester and surrounding watersheds.
This dataset was reclassified to extract impervious surfaces. The following classes were assigned to the Impervious class: 5 - Buildings 6 - Roads 7 - Other Paved Surfaces

Purpose:

This dataset was developed as part of the Urban Tree Canopy (UTC) Assessment for Chittenden County, VT. As such, it represents a "top down" mapping perspective in which tree canopy over hanging other features is assigned to the tree canopy class. At the time of its creation this dataset represents the most detailed and accurate land cover dataset for the area.

Supplemental_Information:

This project was funded by the Northern States Research Cooperative. The methods used were developed by the University of Vermont Spatial Analysis Laboratory with funding from the USDA Forest Service.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2004

Currentness_Reference: ground condition

Status:

Progress: In work

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -73.325042
East_Bounding_Coordinate: -73.085135
North_Bounding_Coordinate: 44.624532
South_Bounding_Coordinate: 44.467117

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: Land cover
Theme_Keyword: UTC
Theme_Keyword: Urban
Theme_Keyword: tree canopy
Theme_Keyword: Imagery
Theme_Keyword: LiDAR

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Chittenden
Place_Keyword: Vermont

Temporal:

Temporal_Keyword_Thesaurus: None
Temporal_Keyword: 2004

Access_Constraints: None

Use_Constraints: None

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jarlath O'Neil-Dunne
Contact_Organization: University of Vermont Spatial Analysis Laboratory

Contact_Position: Geospatial Analyst
Contact_Address:
Address_Type: mailing and physical address
Address: 81 Carrigan Drive
Address: Aiken Room 220
City: Burlington
State_or_Province: VT
Postal_Code: 05405
Country: USA
Contact_Voice_Telephone: 802-656-3324
Contact_Facsimile_Telephone: 802-656-8683
Contact_Electronic_Mail_Address: joneildu@uvm.edu
Data_Set_Credit: University of Vermont Spatial Analysis Laboratory
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:
Attribute_Accuracy:
Logical_Consistency_Report: Valid raster dataset.
Completeness_Report:
Complete for the 2004 Chittenden imagery and LiDAR acquisition area.
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: Consistent with source imagery (1:1250).
Lineage:
Process_Step:
Process_Description:
Object based image analysis (OBIA) using a rule-based expert system
Process_Date: 20090930
Process_Step:
Process_Description: Mosaic of land cover tiles
Process_Step:
Process_Description:
This dataset was reclassified to extract impervious surfaces. The following classes were assigned to the Impervious class: 5 - Buildings 6 - Roads 7 - Other Paved Surfaces
Process_Date: 20100201
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.
Contact_Voice_Telephone: 802-229-1870
Process_Step:
Process_Description:
Dataset clipped to the Town of Colchester and surrounding watersheds.
Process_Date: 20100201
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Stone Environmental, Inc.

Contact_Voice_Telephone: 802-229-1870

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Raster
Raster_Object_Information:
Raster_Object_Type: Pixel
Row_Count: 27078
Column_Count: 29556
Vertical_Count: 1

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: State Plane Coordinate System 1983
State_Plane_Coordinate_System:
SPCS_Zone_Identifier: 4400
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999964
Longitude_of_Central_Meridian: -72.500000
Latitude_of_Projection_Origin: 42.500000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: row and column
Coordinate_Representation:
Abscissa_Resolution: 0.640000
Ordinate_Resolution: 0.640000
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: VAT_cimp2004c
Entity_Type_Definition: UTC
Attribute:
Attribute_Label: OBJECTID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:

Attribute_Label: Value
Attribute_Definition: Land cover code
Attribute_Definition_Source: UTC
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 1
Enumerated_Domain_Value_Definition: Tree Canopy
Enumerated_Domain:
Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: Grass/Shrub
Enumerated_Domain:
Enumerated_Domain_Value: 3
Enumerated_Domain_Value_Definition: Bare Soil
Enumerated_Domain:
Enumerated_Domain_Value: 4
Enumerated_Domain_Value_Definition: Water
Enumerated_Domain:
Enumerated_Domain_Value: 5
Enumerated_Domain_Value_Definition: Buildings
Enumerated_Domain:
Enumerated_Domain_Value: 6
Enumerated_Domain_Value_Definition: Roads/Railroads
Enumerated_Domain:
Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Other Paved Surfaces
Attribute:
Attribute_Label: Count
Attribute_Definition: # pixels per land cover class
Attribute_Definition_Source: Internal
Overview_Description:

Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.000

Metadata_Reference_Information:
Metadata_Date: 20101214
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Jarlath O'Neil-Dunne
Contact_Organization: University of Vermont Spatial Analysis Laboratory
Contact_Position: Geospatial Analyst
Contact_Address:
Address_Type: mailing and physical address
Address: 81 Carrigan Drive

Address: Aiken Center Room 220
City: Burlington
State_or_Province: VT
Postal_Code: 05405
Country: USA
Contact_Voice_Telephone: 802-656-3324
Contact_Facsimile_Telephone: 802-656-8683
Contact_Electronic_Mail_Address: joneildu@uvm.edu
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

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APPENDIX J: DATALAYER LIST

Use Codes

★	Project level data
	Stone derived or updated
	Other available data

Town of Colchester Master Datalayer List (12/29/09)

Use	*Dataset*	*Source*	*Extent*	*File Name/Location*
Administrative				
★	Geonames	VCGI	Town	...\Data\GISData\Geonames_Colchester.shp
★	Town boundary	VCGI	State	...\GDB_VCGI.gdb\BoundaryOther_BNDHASH\
	Census block group	VCGI		
	County boundaries	VCGI		
	Populated places	VCGI		
	Regional planning	VCGI		
	School districts	VCGI		
	School supervisory unions	VCGI		
	Senate districts	VCGI		
	Vermont State boundary	VCGI		
	Zip Code Boundaries	VCGI		
Planning				
★	Neighborhoods	Town	Town	...\Data\GISData\neighborhoods.shp
	Colchester buildout 2006	CCRPC		
	Colchester zoning 2009	Town		
Built Environment				
★	Bridge & Culvert - Geomorphic Assessments	VCGI/ANR	State	...\GDB_VCGI.gdb\TransStructures_TRANSTRUC
★	Building footprints	Stone/UVM	Town	Not available yet
★	Land use	Stone/UVM	Town	Not available yet
★	Onsite sewage disposal ratings	VCGI	State	...\GDB_VCGI.gdb\GeologicSoils_ONSITE
★	Outfalls (2009)	Stone	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\Stormwater_Structures
★	Private water supply points	Stone	Town	...\Data\WaterSupply\GISData\WaterSupply.mdb\WaterSupply
★	Retention ponds (2009)	Stone	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\RetentionPonds09
★	Stormlines (2009)	Stone	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\Stormwater_Structures
★	Stormwater easements	Stone	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\StormwaterEasements
★	Stormwater permits	DEC	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\StormwaterPermits
★	Stormwater structures (2009)	Stone	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\Stormwater_Structures
★	Structures (E911 sites)	VCGI	State	...\GDB_VCGI.gdb\EmergencyE911_ESITE
★	Transtruc structures	VCGI/VTRAN	Town	...\Data\Stormwater\GISData\Transtruc_Colchester.mdb\BC_LocalInventoryTable_points
★	Unpermitted site plans	Stone	Town	...\Data\Stormwater\GISData\Stormwater_2009.mdb\UnPermittedSitePlans
	Assessors Data	Colchester	Town	...\Data\Databases\Assessor\Assessor.mdb
	Catch basins 2007	CCRPC	Town	...\VTNAD83\Town\Colchester\CCRPC\Catchbasin07.shp
	Cemetery	VCGI		
	Colleges	VCGI		
	Dams	VCGI		
	Hospitals	VCGI		
	Manholes 2007	CCRPC	Town	...\VTNAD83\Town\Colchester\CCRPC\manhole07.shp
	Outfalls (ESI) 2007	Engineered S	Town	...\Data\GISData\esi locations.shp
	Outfalls 2007	CCRPC	Town	...\VTNAD83\Town\Colchester\CCRPC\outfallpts07.shp
	Parking lot	CCRPC		
	Private wells	ANR	State	...\VTNAD83\state\PrivateWells\Allpvtwells.shp
	Retention ponds	CCRPC	Town	...\VTNAD83\Town\Colchester\CCRPC\RetentionPonds.shp
	Schools	VCGI		
	Stormline 2007	CCRPC	Town	
	Stormwater impaired outfalls	ANR	State	...\GDB_ANR.gdb\WaterOther_SWOUTFALLS
	Stormwater permits 2007	CCRPC		
	Wastewater Permits	Colchester/D	Town	...\Data\WastewaterPermits\DataDelivery\Colchester_WW_Permits.mdb

Town of Colchester Master Datalayer List (12/29/09)				
Use	*Dataset*	*Source*	*Extent*	*File Name/Location*
Conserved Lands				
★	Private conserved lands	VCGI	State	...\GDB_VCGI.gdb\CadastralConserved_PRCONLND
★	Public conserved lands	VCGI	State	...\GDB_VCGI.gdb\CadastralPublands_CONSPUB
Sensitive Areas				
★	Rare/Thrtnd/Endangered species	VCGI/ANR	State	...\GDB_ANR.gdb\EcologicOther_RTENATCOM
	Areas of high biological diversity	VCGI/ANR		
	Deer wintering areas	VCGI/ANR		
	Endangered species type	VCGI/ANR		
	Historic areas hotspots	?		
Hazardous Sites				
	EPA regulated facilities	VCGI/ANR		
	Hazardous facilities sites	VCGI/ANR		
	Hazardous sites	VCGI/ANR		
	Underground storage sites	VCGI/ANR		
Physical				
★	Hydric Soils	VCGI	Town	...\Data\GISData\WetlandInventory\Colchester_Wetlands.mdb\HydricSoils
★	Soils	VCGI/NRCS	State	...\GDB_VCGI.gdb\GeologicSoils_SO
	Bedrock geology	VCGI/ANR		
	Bedrock geology 1961	ANR		
	Ecological Land Type	VCGI/NRCS		
	Nitrate leaching index	VCGI/NRCS		
	Prime agricultural soil	VCGI/NRCS		
	Quarries	VCGI/ANR		
	Representative landscapes	VCGI/ANR		
	Rocklines	VCGI/ANR		
	Surficial geology	VCGI/ANR		
Utility				
★	Sewer service areas	CCRPC	Town	...\VTNAD83\Town\Colchester\CCRPC\SewerServiceArea.shp
★	Water district service area	CCRPC	Town	...\VTNAD83\Town\Colchester\CCRPC\WaterDistrictServiceArea.shp
	Cable modem system 2005	VCGI		
	Cable system 2005	VCGI		
	DSL broadband system 2006	VCGI		
	Electric transmission line corridor	VCGI		
	Fire department district	CCRPC		
	Fire district boundary	CCRPC		
	High voltage transmision system	VCGI		
	NYNEX VT telephone exchange	VCGI		
	Telecommunication facilities	VCGI		
	Union town water service area	Stone		
	Wireless internet service provider	VCGI		
Transportation				
★	Railroad	VCGI	State	...\GDB_VCGI.gdb\TransRail_DLGRR
★	Roads	VCGI	Srdng	...\Data\GISData\Rds_Clip_TownExtent.shp
★	Roads	VCGI	Town	...\Data\GISData\ColchesterRds_Clip.shp
★	Roads - county level	VCGI	State	...\GDB_VCGI.gdb\EmergencyE911_RDS_UPDATE
★	Roads - local level	VCGI	State	...\GDB_VCGI.gdb\EmergencyE911_RDS_UPDATE
★	Roads - state level	VCGI	State	...\GDB_VCGI.gdb\EmergencyE911_RDS_UPDATE
★	Trails	VCGI/ANR	State	...\GDB_ANR.gdb\TourismTrails_TRAILS
	Park & Ride	VCGI		
	Rest areas	VCGI		

Town of Colchester Master Datalayer List (12/29/09)				
Use	*Dataset*	*Source*	*Extent*	*File Name/Location*
Hydrography				
★	Geomorphology Assessment: 1 & 2	ANR		...\Data\GISData\StreamConditionAssessment\StreamGeomorphicCondition.mdb
★	Griffin watershed	Griffen Envir	Town	...\Data\GISData\griffin watershed02\watershed02.shp
★	Impaired Stream Areas	Engineered S	Town	...\Data\GISData\Impaired Stream Areas.shp
★	National Wetland Inventory	VCGI/ANR	Town	...\Data\GISData\Colchester_Water_NWI.shp
★	Potent'l wetland restoration sites	Stone	Town	...\Data\GISData\WetlandInventory\Colchester_Wetlands.mdb\PotentialWetlandRestoration
★	Proposed Significant Wetlands	VCGI/ANR	Town	...\Data\GISData\WetlandInventory\Colchester_Wetlands.mdb\ProposedSignificantWetlands
★	Stormwater impaird watersheds	VCGI/ANR	State	...\GDB_ANR.gdb\WaterOther_SWWATSHED
★	SWAT DEM Derived Watershed	Stone	Town	...\Data\GISData\watershed\SWAT_bnds\SWATwtrshd_AdjustedBnds.shp
★	VHD	VCGI/ANR	State	...\GDB_VCGI.gdb\WaterHydro_VHD
★	VHD Regions	VCGI/ANR	Surrounding Towns	...\Data\GISData\vhd_region_colchester.shp
★	VHD Regions	VCGI/ANR	Town	
★	VHD Routes	VCGI/ANR	Surrounding Towns	...\Data\GISData\VHDRoute_ClippedTownExtent.shp
★	VHD Routes	VCGI/ANR	Town	...\Data\GISData\Colchester_Hydro.shp
	NHD+ catchment	USGS		
	Potent'l wetland restoration sites	Stone	State	...\Data\GISData\PotentialWetlndRestorationSites.shp
	Vermont Significant Wetlands	VCGI/ANR		
	Watersheds (12 digit)	VCGI/ANR		
Parcels				
★	Colchester 2008	CCRPC	Town	...\VTNAD83\Town\parcel\colchester\parcel_poly_2008.shp
	Essex 2008	CCRPC		
	Milton 2006	CCRPC		
	South Hero 2007	CCRPC		
	Westford 2008	CCRPC		
	Winooski 2006	CCRPC		
Elevation				
★	50 Ft.	VCGI		...\GDB_VCGI.gdb\ElevationContours_CN50T
★	Digital Elevation Model (24k)	VCGI	State	...\GDB_VCGI.gdb\ELEVATIONDEM_DEM24
★	Hillshade	VCGI	State	...\GDB_VCGI.gdb\ELEVATIONOTHER_HILSH24
★	LiDAR Bare Earth contours (10 Ft.)	VCGI	County	...\GDB_VCGI.gdb\ElevationContours_CN2T
	Lake Champlain Bathymetry	VCGI		
	LiDAR based hillshade	VCGI	County	...\GDB_VCGI.gdb\CCLIDARHLSHD
	Slope % (based on 20ft contours)	Stone	Town	...\PROJ-01\1240-W-Colc-Exit17\Gisdata\SEI_LAYERS\slope_pct
	Slope (based on 20ft contours)	Stone	Town	...\PROJ-01\1240-W-Colc-Exit17\Gisdata\SEI_LAYERS\slope
Imagery				
★	NAIP (2003)	VCGI	State	...\VTNAD83\NAIP03\naip03data
★	Ortho 2007 black and white	VCGI	State	VCGI Portable Harddrive
★	Orthos 2004 color	VCGI	Town	...\VTNAD83\Color_Orthos\Colchester_Only\MrSIDs
	Landcover 2004	VCGI	State	
	NAIP (2008)	VCGI	State	
	USGS 7.5' Topos	VCGI	State	