

Intervale Center Land Management Plan Autumn 2009





Intervale Center
180 Intervale Road ~ Burlington, Vermont 05401
802.660.0440 ~ www.intervale.org

Property Description:

On June 19, 2007, the Intervale Center conveyed the development rights and conservation easement restrictions to the Vermont Land Trust, the Vermont Agency of Agriculture, Food and Markets, and the Vermont Housing and Conservation Board on the 232 acres highlighted on the Vermont Land Trust map. This parcel is a very fertile stretch of prime river bottom farmland along the Winooski River in Burlington. The property is part of a larger floodplain area that was one of the first places to be farmed in Vermont. In addition to the long history of occupation by native peoples, it was more recently home to the Ethan and Ira Allen families during colonial and post-revolutionary period, and was actively farmed up until the 1980s. The property includes 140 acres of prime agricultural soils, 4370 feet of river frontage on the Winooski River, 58 acres of flood plain forest managed as conservation land and 9 acres of wetlands. Further descriptions can be found in the attached “Baseline Documentation Report” by the Vermont Land Trust (VLT project 130453, June 19, 2007). This document also outlines the nature of the Special Treatment area (significant areas of floodplain forest) and reviews the summary of Grantors’ rights and restrictions.

Management Plan Criteria:

As part of this conveyance agreement, the Intervale Center agreed to develop a management plan for this property which addresses the following criteria:

- a. location, quantity, scale and mass of all structures and associated improvements, including without limitation all agricultural and forestry structures, which shall be consistent with the Purposes of this Grant, by minimizing any adverse impact on agricultural soils;
- b. details of sustainable forest management activities;
- c. provide a plan for road, sign, trail, parking, and sanitary facility use that has minimal impact on agricultural soils, water quality and plant, wildlife and aquatic habitat;
- d. provide for the identification and protection of natural communities, plant, wildlife and aquatic habitats and other ecologically sensitive or important areas;
- e. identifies alternative-energy systems to be employed on the property;
- f. identifies water supplies for farming operations;
- g. identifies and addresses the management needs of the public recreational uses that may need special attention or more intensive management focus; and
- h. identifies and addresses the archeological values, establishes a communication process with the Vermont State Archeologist in advance of any ground disturbance greater than 18 inches in depth for any activity permitted under Section III(7), and may designate a repatriation site;
- i. provides for current and anticipated rural enterprises; and
- j. provides a plan for leasing portions of the Protected Property for community gardening, small farm, and incubator farm activities.

This document is the Intervale Center's answer to these requirements.

City of Burlington Ownership:

The City of Burlington will retain a 1% ownership in the former BED parcel and a permanent easement on the property to allow public access to foot and bike paths on the property and to secure in perpetuity the area occupied by the Tommy Thompson Community Gardens for community garden uses.

Amendment Process:

IC is required to develop an updated management plan every 10 years for review and approval by the easement holders and Burlington City Council. Easement holders and the City of Burlington shall be notified by IC of any proposed substantive amendments to the plan and any such amendments shall be reviewed and approved by easement holders and Burlington City Council.

Dispute Resolution:

Parties in dispute will first attempt to resolve through negotiations. If this fails, parties will engage the services of a mediator, the costs for which will be shared equally between parties. Should the dispute continue, notwithstanding the efforts of the mediation process, the parties agree to submit the dispute to final and binding arbitration.

Contact for the Intervale Center:

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Contact for the Vermont Land Trust (representing the easement holders):

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Attachments:

LMP Maps

- Map 1: Structures and Improvements
- Map 2: Road Management Segments and Parking Areas
- Map 3: Trails
- Map 4: Tillable Fields by Farm
- Map 5: Irrigation System

Vermont Land Trust Map

2010 Intervale Management Plan Approval letter

A. Location, quantity, scale and mass of all structures and associated improvements, including without limitation all agricultural and forestry structures, which shall be consistent with the Purposes of this Grant, by minimizing any adverse impact on agricultural soils;

The location of each structure on Intervale Center land has been recorded using a GPS receiver and has been imported into ArcGIS. Please refer to Map 1.

This list captures all the planned or hoped-for infrastructure development in the Intervale for the next 3-5 years. Undoubtedly, there will be other things that come up. In that case these things will be brought to Vermont Land Trust, on behalf of the easement holders, for approval. The list below is a best case scenario list of desired buildings¹.

All structures and improvements will be managed so as to minimize any adverse impact on agricultural soils. Further, any future structures or improvements will likewise meet this standard as well as the standards set by FEMA. Refer to the Intervale Agriculture and Floodplain Management Plan, developed in January 2009, found in Appendix A.

Below, find a list of structures that are proposed within the next 3-5 years:

- **Field 2:** New building for wash station and cooler within the greenhouse complex. This is proposed to be sited to the north of the northernmost greenhouse on the east side of the greenhouse complex. This building would belong to Arethusa Farm and be for washing and storing produce. This will significantly alleviate their impact on the current communal wash station and free up time and space for other farms use it. This land is currently used for tractor implement storage. These implements would be consolidated to take up less space and moved across the road to the west side of the greenhouse complex.
- **Field 2:** The metal barn structure that was taken down in 2009 may be rebuilt within the timeline of this management plan. We would use the same footprint as the original structure and it would likely be used as shop space for working on tractors.
- **Field 4:** The compost facilities will no longer be leased to CSWD by the summer of 2011. In that case, the use of those buildings will change. However, there are currently no plans to add additional buildings.
- **Field 10:** Within the next five years, ICF would like to expand their hoop house capacity. They would also like to build a structure to get their machinery under cover and for shop space.
- **Field 13:** Pitchfork Farm is interested in getting power to their field in order to build a wash station. This is something that we aren't sure we'd allow, but it is on their wish list.
- **Fields 23 and 24:** Sugarsnap Farm is interested in putting up a hoop house and in eventually building a pole structure for holding classes and workshops.

¹ As of July 2010 the results of the Lower Winooski River Flood Re-Study were still pending. When the new maps are finalized they will be appended to this plan and all new structures will be in compliance with FEMA guidelines and consistent with the state AAPs.

- ***Field 31:** The hoop houses currently located in Adam’s Berry Farm field will need to be moved multiple times in order to allow Adam to rotate his strawberries. This will not increase the number of structures on the landscape, but rather will just move their location. However, ultimately, Adam would like to increase the number of hoop houses on his field. This yields better berry quality and offers him more return for his labor.
- ***Fields 34 and 35:** Open Heart Farm has interest in putting up hoophouses in order to grow tomatoes and late season greens. This would be in compliance with FEMA rules.
- ***Field 41:** There will be an additional structure in field 41. Bella Farm, a new incubator farm, has built a tool shed on wheels. This structure will be on the edge of their field during the growing season and then moved to the greenhouse complex for winter and early spring storage.

*These fields are outside of the land area covered by easement. We include them here to allow for comprehensive management of Intervale lands within a single document.

B. Details of sustainable forest management activities;

The Special Treatment Areas, noted on the Intervale Farm Map created by Vermont Land Trust on the first page of this document, vegetated with the Silver Maple-Ostrich Fern Floodplain Forest will be managed in such a way as to maintain the structure and integrity of this ecosystem. Boundaries between forests and agriculture fields are clear to all leasees and other users and will be maintained without encroachment into floodplain forests.

The Intervale Center intends to pursue Use Value Appraisal program for our forest lands. At that time we will work with a forester to create a forest management plan. We intend to complete this forest management plan by June 2011. In the interim, we refrain from conducting a commercial timber harvest on our land.

In the meantime, we will be working to remove invasive buckthorn, honeysuckle, and multi-flora rose. These species are certainly present, but not yet dominant in the understory. As we have volunteer labor available, we will work to remove these plants. Generally, we manage our lands in the Intervale using organic principles. For this reason, we will be hand pulling or cutting invasives, rather than using herbicides.

C. Provide a plan for road, sign, trail, parking and sanitary facility use that has minimal impact on agricultural soils, water quality and plant, wildlife and aquatic habitat;

ROAD

To properly manage Intervale Road and to reduce the amount of maintenance required, a complete rebuilding of the road is necessary. There is not adequate drainage to keep the road from washing out and at many points, the road is not wide enough to allow two cars or tractors to pass abreast. The hedgerows along either side of the road are several feet higher in elevation than the road bed, making road drainage impossible. While neither the Intervale Center nor the city of Burlington have any intention of rebuilding this road in the short term, this is something the Intervale Center hopes to bring about in the medium to long term future.

Should our plans evolve to include a longer term solution to our challenges with roads, we will update this management plan to include that new scope of work.

The Intervale Center intends to look into pricing to bring the entire road surface up to standards. Once the IC has this information, it will pull together stake holders to work out sources of funding to address the proposal. In the meantime, the following management standards are being followed.

Road management by segment:

Please refer to Map 2 for a break down of road segments. The paved portion of the road, shown in purple on the map and extending from the intersection of Riverside and Intervale Roads to the McNeil Generating Plant, is maintained and owned by the City of Burlington. This section was repaved in late summer 2009. This is a short term fix and deterioration will begin again within a couple of years. Long term solutions are at this point prohibitively expensive.

The gravel portion of the road, shown in yellow on the map and beginning at the turn-off to McNeil Generating Plant and ending at the pent gate along Intervale Road, is owned by the City of Burlington. The City and the Intervale Center are working to cooperatively manage this section of road. The Intervale coordinates the grading and maintenance of the road using independent contractors keeping within a set budget provided by the City's Department of Public Works. The Intervale works with Burlington Parks and Recreation to manage the tree line and understory vegetation growth along this section of road.

The pent portion of the road, shown in red on the map and extending northwest from the pent gate to the entrances of Adams Berry Farm and Arethusa Collective Farm is maintained by the Intervale Center, which utilizes an independent contractor for grading or its own equipment to keep the road usable for farm equipment and public traffic out to the farms.

The portion of the road extending northwest from the entrances of Adams Berry Farm and Arethusa Collective Farm entrances is considered the Burlington bike path and as such is managed by the city of Burlington. They may install a post to block non-farm motorized traffic and therefore reduce bike path deterioration and resulting necessary maintenance.

The farm roads branching off from Intervale Road are currently maintained to minimal standards by Intervale Center staff and the occasional contractor. They will be managed in a way that will not have an adverse impact on agricultural soils or archeological sites in the Intervale.

SIGNS

The Intervale Center plans to replace the Rena Calkins trailhead sign in the summer of 2010. The new sign will be updated with appropriate uses, natural history context, and updated language. Attached to the signpost will also be a Lucite box for trail maps.

TRAILS

The Intervale Center trail network includes the Rena Calkins loop trail and the Winooski River Trail, as well as the bike path, which is managed by Burlington Department of Parks and Recreation. There are currently no plans to extend our trail network. Please refer to Map 3 for locations of the Intervale Center trails.

In the spring of 2009, in cooperation with students from UVM, the Intervale Center moved the Calkins trail back from the edge of the river, in order to prevent the trail from eroding the river bank. This type of very low-tech maintenance will continue with volunteer labor. Signs currently identifying the path will be maintained as they are.

In the fall of 2009, VYCC School Crews extended the work started by UVM students and moved a section of the Winooski River Trail back from the edge of the river. With this work, the most damaged and eroding sections of trail have been addressed. The Winooski River Trail is officially signed as *unimproved* and traffic is discouraged. We may re-evaluate this designation with the completion of the VYCC trail maintenance.

The Burlington Department of Parks and Recreation will continue to maintain the bike path.

Local Motion, a Burlington-area non-profit dedicated to forging active transportation and recreation in northeastern Vermont, developed groomed ski trails along Intervale land this winter. Please see Map 3 for the route. This trail will be managed in such a way that limits its impact on agricultural soils and activities.

PARKING

Parking for the Rena Calkins trailhead is located just north of the Intervale Center offices.

Parking for the Agricultural Structure Complex is located to the west of the compost offices, to the south of the farmer barn, and alongside the road between the two rows of greenhouses.

The Tommy Thompson Community Garden has parking access across Intervale Road. This parking also serves the bike path in the summer and ski trails in the winter. This parking is also sometimes used for pick your own customers of the farms.

Pick your own parking for Adam's Berry Farm is located along the hedgerow at the south end of field 31. Please see Map 2 for parking locations. All locations with a large symbol are public parking locations, small symbols are farm parking locations.

The Intervale Center does not intend to develop additional parking areas at this time. If those plans change, we will update this management plan.

SANITARY FACILITIES

The Intervale Center has a two public port-a-lets outside the Intervale Center offices in the summer months to accommodate event attendees. Facilities are also located in the Intervale Center office building and inside the Intervale Compost Products office building. Farmers occasionally rent port-a-lets and locate them along hedgerows closer to their fields. These are cleaned regularly and do not impact agricultural soils, water quality or habitat.

D. Provide for the identification and protection of natural communities, plant, wildlife and aquatic habitats and other ecologically sensitive or important areas;

The Intervale Center lands, due to their close proximity to the University of Vermont and other colleges, have been extensively studied. What follows is a list of the relatively recent studies that identify and catalog the natural communities found on site. All non-agricultural lands owned by the Intervale Center will be managed in such a way as to minimize adverse impact on natural communities, plant, wildlife and aquatic habitats and other ecologically sensitive areas. Agricultural activities will be limited to current fields delineated in Map 4 unless otherwise arranged in consultation with the Vermont Land Trust on behalf of the easement holders.

Lange, K, Devine, A & Kolan, M. *Riparian restoration management plan*. Burlington, Vermont: Landscape Analysis; 2006.

Lawrence, G. *Burlington's Intervale a natural history guide*. Burlington, Vermont: Intervale Center; 1995.

Chapell, Bruce. *Intervale resource inventory assessment and plan and summary*. Berlin, Vermont: Natural Resources Conservation Service; 2000.

These three documents are only a selection of the work that has been completed which documents the natural history of the Intervale lands. In addition to those listed above, there are many which are more specific to particular portions of Intervale Center lands, such as work done by Mary Watzin's Landscape Restoration class from the University of Vermont. This group focused specifically on trail restoration to minimize impact on water quality in the Winooski River. We will continue to make use of our on-going relationship with UVM professors and students to identify and protect significant natural resources on our property.

We plan to continue to work on addressing invasive species as volunteer and staff time becomes available. Further, we will work with UVM students to continue maintenance and restoration on our trail network in order to minimize erosion along the river. Additional work specifically related to forest health and protection will be addressed in the forest management plan.

E. Identifies alternative-energy systems to be employed on the property;

BIOMASS FURNACE

The Intervale Community Farm recently installed a biomass furnace and associated grain bin for fuel storage in their greenhouse in the Agricultural Structure Complex. The furnace uses either wood pellets or shelled corn for fuel. This replaces the propane furnace previously used in that greenhouse.

SOLAR-POWERED FENCING

Several farms utilize solar batteries to power electric fencing for keeping livestock in or for keeping deer and other pests out of their fields.

HUMAN-POWERED SYSTEMS

There has been some effort in recent years to develop pedal-powered cultivating machines. One farm has used this machine with some regularity.

OTHER SYSTEMS

At this point, there are few other alternative energy systems plans in motion for the Intervale Center in the near term. There is interest in exploring photo voltaic panels and wind turbines, but no plans have been made. Should this change, we will notify the Vermont Land Trust on behalf of the easement holders.

F. Identifies water supplies for farming operations;

Please refer to Map 5 for the representation of the irrigation system owned and operated by the Intervale Center. This irrigation system is supplied by a pump house located over a drilled well. There is one set of buried line that feeds fields to the north and two above ground lines supplying fields to the south and west. Generally, fields on the east side of the road irrigate from the Winooski River, though Arethusa Farm has buried their own line to hook into the northeastern-most hydrant on the Intervale Center buried line.

The aboveground lines to the south and west of the pump house are currently owned by David Zuckerman and the Intervale Center is in negotiations with him to purchase that infrastructure. If an agreement can't be reached, the Intervale Center will purchase new line to continue to supply these fields.

Intervale Community Farm's southern field (field 10) is irrigated from the well located on field 10.

Field 6 is irrigated from a pump, owned by the Intervale Center, which pumps out of the Winooski River.

Field 3 is irrigated by a well, located in the Agricultural Structure Complex, which also serves the farmer barn and greenhouses.

Field number 41 currently needs to be attached to the irrigation line. That work will be completed in the spring of 2010. Additionally, when the Intervale Compost facility moves off site, we will likely anticipate connecting those fields to our irrigation system. This may take four or five years while we rehabilitate those fields. Otherwise, there are no planned improvements to the irrigation system.

G. Identifies and addresses the management needs of the public recreational uses that may need special or more intensive management focus; and

SKI TRAILS

The Intervale Center will continue to work with Local Motion to offer groomed ski trails through the Intervale lands. These ski trails will be maintained by Local Motion and will not interfere with agricultural uses of the property nor adversely affect natural communities on the site. Parking for this seasonal use is the lot located across from the Tommy Thompson Community Gardens.

MOTORIZED RECREATION

Motorized recreation is not allowed on Intervale Center lands, including all trails and farm roads without permission from the Intervale Center. Permission will only be granted in exceptional cases. For example, permission has been granted for grooming cross country ski trails.

OTHER

Bicycles and horses are not permitted on our trail network. We, at times, have had trouble with mountain bikers building jumps in the soft soils along the Rena Calkins trail. We removed these jumps and installed signs indicating their prohibition. However, as we replace trailhead signs, we will be more explicit about permitted uses of the trails. We also intent to install a trail brochure box on the trailhead signpost. This will likewise discuss permitted uses of the trail. In summer months, Intervale Center staff regularly walk the trails to provide a staff presence and to ensure appropriate use. There are currently no identified public recreational uses that need special management focus that are not covered in other sections of this plan. See plans for trails.

H. Identifies and addresses the archeological values, establishes a communication process with the Vermont State Archeologist in advance of any ground disturbance greater than 18 inches in depth for any activity permitted by this Grant other than composting activity permitted under Section III(7), and may designate a repatriation site;

- Soil Disturbance and Archaeology at the Intervale Center(IC)
 - Prior to undertaking any activity on the IC property that may cause soil disturbance greater than 18 inches (“soil disturbance activity”), IC shall provide written notice to DHP of the proposed location and nature of the activity and access to the property so that DHP and/or its consultant may undertake and complete an archeological investigation or other archeological work (“archeological work”) regarding the potential archeological impacts of the proposed soil disturbance activity and any other potential alternative location for the proposed activity; any proposed ground disturbance or archeological work that will be conducted shall be submitted to the St. Francis/Sokoki band of the Abenaki Nation at Missisquoi for their comments and recommendations to ensure that sacred sites and traditional cultural properties important to the Abenaki community will not be affected by the proposed action(s);
 - Upon receiving written notice from IC with respect to any soil disturbance activity pertaining to trellises, gates, temporary and permanent informational and directional signage, fence posts (involving installation of fewer than 50), emergency road repairs, or planting of trees and bushes for cultivation (“Category 1 soil disturbance activity”), DHP shall complete any archeological work within 30 calendar days and provide any written report to IC;
 - Upon receiving written notice from IC with respect to any soil disturbance activity other than a Category 1 soil disturbance activity (“Category 2 soil disturbance activity”), DHP shall:
 - notify IC whether it intends to undertake any archeological work within 30 days after receiving notice; and
 - complete any work and provide any written report of the work within 90 days after receiving notice.
 - Notwithstanding the foregoing, in connection with any Category 2 soil disturbance activity, if IC provides notice of such activity to DHP at any time during the winter months prior to February 15 (“winter notice”), DHP shall complete any work and provide any written report of the work no later than May 31;
 - If seasonal conditions prevent or interfere with the performance of archeological work within any of the foregoing time periods, IC and DHP shall confer in good faith and agree on a reasonable extension of time for

performance of the archeological work. If winter notice has been provided by IC, the time period for performance of the work by DHP for purposes of applying this provision shall be April 15 – May 31;

- DHP and IC shall conduct at least one joint meeting on IC's property during the winter months prior to February 15, and may agree to attend other such meetings, in order to promote the exchange of information regarding potential soil disturbance activities for the next growing season and to otherwise facilitate communication among IC, its tenant farmers and DHP;
- In addition, regardless of whether or not DHP decides to undertake any archeological work in response to any notice by IC, IC shall notify DHP of the date or dates on which the soil disturbance activity will occur and permit DHP and/or any DHP consultant access to the property and a reasonable opportunity to monitor the activity and to undertake archeological work throughout the course of the soil disturbance activity, provided that DHP's work does not interfere with the soil disturbance activity.
- In the event that DHP wishes to perform any archeological work at the IC property not in response to a notice of proposed soil disturbance activity, IC shall permit DHP and/or its consultant access to the IC property for such archeological work, provided that DHP shall secure prior written consent of IC and the St. Francis/Sokoki band of the Abenaki Nation at Missisquoi, which shall not be unreasonably withheld or conditioned.

I. Provides for current and anticipated rural enterprises; and

Currently there are no special plans for rural enterprises in the Intervale, other than at the farmstead, which is not covered by this management plan or easement. However, as Intervale Compost leaves the Intervale, we will have some significant infrastructure open up. This is projected to happen in the summer of 2011. We are in the process of working out what we will do with this infrastructure and land. Right now, it looks as though the compost building infrastructure would possibly transition to use by farmers for office space, equipment storage, and shop space. However, this is far from settled. The Intervale Center's Land Committee will guide this planning process and as soon as we have more concrete information, we will update this management plan.

Any rural enterprises developed by the Intervale Center in the future will be subordinate to agricultural uses of the land and will be consistent with FEMA regulations. If these plans change, the Intervale Center will work with the Vermont Land Trust, on behalf of the easement holders, to reach a mutually acceptable understanding.

J. Provides a plan for leasing portions of the Protected Property for community gardening, small farm, and incubator farm activities.

LEASING TO TOMMY THOMPSON COMMUNITY GARDENS

The Intervale Center has agreed to grant the City of Burlington a perpetual lease of the property currently occupied for the purpose of community gardening. The city retains ownership to all improvements on the Tommy Thompson Community Garden (field 11 on Map 4) site including gates, fences, buildings and water system. The city may add additional improvements subject to Intervale Center approval, however there are currently no improvements planned.

LEASING TO SMALL FARMS AND INCUBATOR FARMS

The Intervale Center's Farms Program operates its program based on the policies and guidelines set out in the Farms Program Manual. Within this document, the Intervale Center documents its policies for leasing land to incubator farms. Specifically,

"Farm Tenure within the Farms Program

The Intervale Center seeks to provide long-term stability and land tenure for established farms and short-term land leases for the development of the incubator program. The Intervale Center is working toward dedicating approximately one-third of its available farmland to incubator farmers and the remaining two-thirds to enterprise/mentor farms. The Center is committed to developing the incubator program and ensuring that land is available annually for new incubators.

All farms enrolled in the Farms Program prior to January 1, 2005 are welcome to stay in the Intervale, pending compliance with these policies and contracts. These farms are:

- Intervale Community Farm
- Diggers' Mirth Collective Farm
- Stray Cat Flower Farm
- Arethusa Collective Farm
- Sugar Snap Farm
- Adam's Berry Farm
- Half Pint Farm

The tenure of each incubator farm enrolled after January 1, 2005 will not exceed five years. For the first three years, the incubator farm will be charged incubator rates and the remaining two years will be charged rates equivalent to enterprise rates. After five years, incubator farms that enrolled in the Farms Program after January 1, 2005 are required to relocate their farm off the Intervale unless land is available for continued short term (1-2 year) leases.

Mentor farms who comply with program contracts, policies and procedures are eligible to stay in the Intervale indefinitely, pending the Intervale Center's control of the land and lease with the land owners.

Incubators are encouraged to begin planning for transition away from the Intervale upon admission to the program. The Intervale Center is committed to assisting incubators in finding suitable, more permanent homes outside of the Intervale. If you have questions about land tenure and transition planning, please contact Center staff." (Intervale Center, 2009)

The Intervale Center

Intervale Agriculture and Flood Plain Management Plan January 2009 (revised May 2009)

Background

The Intervale Center began operations in 1988 and was formally incorporated in 1990. It has advanced a number of farming enterprises in the Intervale area, now composed of some 350 acres, with some 110 acres under tillage by 13 independent farming enterprises. A conservation nursery occupies some 8 acres, propagating stock for riparian buffer zone restoration. It also leases land to the Chittenden Solid Waste District to operate a composting facility on some ten acres (to be phased out by June 30, 2011); and provides land for Burlington Parks and Recreation to host a Community Gardening Program on another five acres. The land has high value to the community as an agricultural, conservation, historical and recreational resource.

The Intervale Center supports financially viable and environmentally sustainable agriculture. It manages 354 acres of farmland, nursery, trails, wildlife corridors and compost production along the Winooski River in Burlington, Vermont. Approximately 200 acres are subject to a conservation easement with a primary purpose of agriculture uses of the land. The developments rights are held by the Vermont Land Trust, the Vermont Housing and Conservation Board and the Vermont Agency of Agriculture. The City maintains a 1% ownership interest in these lands.

The Intervale Center goals are to grow viable farms, preserve productive agricultural land, increase access to local, organic food, compost and other soil amendments, and protect water quality through organic waste management and stream bank restoration. The Intervale Center itself does not conduct farming activities but leases land to small independent farm enterprises. These enterprises agree to a series of lease terms regulating practices including the commitment to follow organic farming practices as defined by NOFA. The Intervale Center also has the authority to restrict or approve the use of any tools, temporary structures or agricultural practices (e.g., hoop houses).

In a 2006-2007 Master Planning exercise for the Intervale, a consultant reviewed the nature of the Intervale flood area referencing historic documents, reviewing the location of historic structures, and interviewing past and current farmers. Specific Intervale lands were deemed to be above the regularly flooded areas. The area designated the Calkins Farmstead is at a higher elevation than any mapped floodplain areas. Additionally, the farm fields areas of the Intervale Community Farm (Lot 10), and the area around the Compost Center (Lot 4), and the farm barns and greenhouses (Lot1 and 2) are not subject to flooding. These are the areas where homes and farm structures were traditionally located in the 19th and 20th century, and are the areas that the Intervale Center chose to rebuild infrastructure to support farming, usually basing new structures on the footprints

of pre-existing structures. Finally Lot numbers 6, 7, 22, 27 and 35 were also noted as being beyond flood incidents.

In the most recent official Flood Insurance Study for Burlington (1987), the predicted water surface elevation at the Intervale site housing Intervale Compost Products (the most recently studied) at the peak discharge during a 100-year flood event is 113.0 feet above mean sea level. It is acknowledged that this FEMA data is out-of-date and the City of Burlington will be contracting for an updated study and remapping of the Flood Plain in 2009 to re-evaluate FEMA's model to more accurately reflect actual conditions.

There is no recent history of major flooding to the Winooski River. Since the completion of the Waterbury Reservoir dam in 1938, there has been only one instance where the 100-year storm level was reached. Coincidentally, it was also in 1938 after the dam was completed. At the USGS gauging station near Essex Junction, which is the closest stream gage to the Intervale, there has not been a flood in the last 69 years that achieved even the 100-year flood levels currently predicted by the current FEMA model.

Studies undertaken by Stone Environmental on behalf of the Intervale Center predict that the velocity of the floodwaters at the Intervale site housing Intervale Compost Products during a 100-year flood event will be less than 1 foot per second. Such velocities are too slow to either significantly erode compost or sweep away almost anything that does not float.

It is based on these analysis and assumptions that the Intervale Center has designed a management plan for continuing to conduct and support diverse agricultural enterprises in this area.

Uses Prior to 1988

According to the City of Burlington's Municipal Development Plan, passed by City Council in 2006²,

The Intervale is a 700 acre flood plain along the Winooski River just one mile from downtown Burlington. This unique flood plain, formed by the meanderings and seasonal flooding of the Winooski River, is presently used for farming and community gardens, conservation and education, power generation, and limited industrial activity. The Intervale contains Burlington's largest natural areas, best agricultural soil, and largest extent of undeveloped land. Mostly protected by Recreation, Conservation, Open Space (RCO) zoning, the Intervale continues to merit special attention.

For 9,000 years the Winooski River has coursed back and forth through this low-lying area in S-shaped curves and has left annual floodwater deposits of soil from upstream. This has made the Intervale some of the richest river-bottom or floodplain land in Northern Vermont.

² http://www.ci.burlington.vt.us/planning/mdp/2006/mdp_2006_complete_burlington_vermont.pdf

For thousands of years local inhabitants have depended on the abundant resources of the Intervale and the Winooski River. Native Americans were present on the Intervale lands over 5,000 years ago and settled on a seasonal basis in camps that were used for hunting, gathering, fishing and cultivating crops such as corn. Late 18th century farmers grew barley, winter wheat, rye and corn, raised pigs and grazed cows on these lands. Timber from the riverbank pine and oak trees provided lumber and potash that was used in the making of dyes, gunpowder, soap and ceramics. In the early 1800's, as poor farming practices cut into the Chittenden and Washington County uplands, tremendous amounts of eroded soil traveled Intervale-bound along the river. Over a period of just 80 years, the river channel in parts of the Intervale shifted 600-1000 feet. Agriculture in the Intervale changed with the arrival of the railroad in 1849. Dairy farming expanded greatly and became a 'boom' business with faster access to markets in Southern New England. The resulting period of prosperity brought tenant farming to these lands, which necessitated the building of structures for housing and farming.

Early 20th century farmers worked dairy, haying and corn operations through the flood of 1927, which seriously hurt some farms, but could barely survive the challenges and depredations of the Great Depression. Later, to curb the river's destructive power, a 1940's WPA project erected cribs of telephone poles and stones along the river to shield tilled fields from the land-gobbling Winooski. Other Intervale ventures during the middle part of this century included the Pease Grain Co. chicken farm at the present Ethan Allen Homestead, a river-dredging operation that used horses and wagons to haul gravel, and both a commercial florist's gladioli nursery and the McKenzie slaughterhouse with a nearby piggery on Intervale Road.

Again as cited in the City's municipal development plan, during the course of the 20th century, much of the Intervale suffered from neglect and was overlooked by the city and its inhabitants. These lands became home to a junkyard, a public dump, a trash burning plant, a sewage sludge repository and eventually the McNeil Generating Plant, which is a woodchip-fired power plant. Relegated to the role of a "backyard" for the City of Burlington, the relationship to these lands was almost lost until the 1970's when the Gardens for All organization took on the challenge of developing a vision for the future of the Intervale.

The City's municipal development plan documents that transformation:

Nevertheless, farming never completely ceased in the Intervale. The area represents the last prime farm land in the city boundaries. Even as the last dairy farms were waning, Burlington residents lobbied to open the area to residents who wanted to grow their own food. To fulfill this demand, Tommy Thompson of "Gardens for All" set up the first community gardens in 1970.

In 1986, the Intervale entered its current era when Will Raap, president of Gardener's Supply Company, decided to locate the headquarters of his national mail order company on the far end of the flood plain. Mr. Raap's vision of a sustainable farming experiment was solidified in 1988 when he formed the Intervale Foundation, a nonprofit organization committed to growing food using sustainable agriculture methods. The Foundation took

over the task of acquiring additional acreage in the flood plain, administering an incubator program, managing the Green City Farm, and operating the compost project.

The Foundation spearheaded a clean-up effort to restore the lands and reconnect the people of the City of Burlington to their agricultural roots. By the late 1980's there was a heightening in awareness of the Intervale as a valuable open space area and the City of Burlington began taking an active role in preserving the historic uses of this area. This was particularly evidenced by its being rezoned in 1987 to a Resource/Conservation/Open Space area. With a further zoning amendment, only a small piece of land at the top of Intervale Road remains General Commercial. In 1987 the City opened the Intervale Riding Stables-complete with pony ring, trails and a refurbished barn next to the McNeil plant to bring the public into this "rural" open space. That enterprise closed down, however, after one unsuccessful season. The City also took several measures to clean up the Intervale Road area and make it less desirable for vagrancy and the junking of old cars and appliances. By City order, a junkyard with 350 cars on Calkins property was cleaned up. Another sore spot disappeared when the abandoned Burlington Fire Department practice tower-which had become known as Devil's Tower and was a source of troublemaking-was demolished in 1990.

From 1990 to the present new farming activities have resulted in the dismantling of a number of structures, including houses, barns and sheds. In some cases new agricultural structures have been rebuilt on the original footprint. The slow evolution of new farming activities in the Intervale progressively added temporary infrastructure to support these activities. The largest single piece of infrastructure is the Intervale Compost Products operation currently covering approximately 10 acres. In September 2008 as the Intervale Center was negotiating to transfer the operation under a three year lease to the Chittenden Solid Waste District, the District presented the City and FEMA officials with a floodplain management plan and an emergency flood event plan to govern operations until the operation transitioned out of the Intervale in July 2011. Those plans were accepted by both the City and FEMA. The management practices and emergency planning effort were deemed adequate to minimize any impacts in the event of a flood event.

There are currently 11 independent farming enterprises leasing land in the Intervale. In addition the Intervale Center leases the composting operation to the Chittenden Solid Waste District, operates a Conservation Nursery on 8 acres (Lot 6 & 7), and through agreement with the City allows the Parks and Recreation Department to manage Lot 11 for community gardens. Within this area the City also operates a road construction waste holding area in a chain link fenced area directly to the North of the community gardens (Lot 11), west of the road. All of these activity areas are independently managed and must be coordinated through agreements or lease provisions to fully implement new practices.

In the City's municipal management plan the Intervale activity is cited in the vision for the City's economic development with "*food production joined with agricultural entrepreneurship in the Intervale*" as being a key growth area. It is again cited as embodying one of the targeted industries: "*Opportunities include additional agriculture in the Intervale, incubator space for*

small agricultural enterprises, specialty food production and distribution, community gardens, aquaculture and greenhouses.” Development in the Intervale has been in concert with overall community planning for the future.

Plan for Management of Agricultural Activities in Intervale flood plain region

The plan is based on the current inventory of agricultural structures and materials present in the Intervale (see Attachment B). The details relate to all areas except for the Calkins Farmstead, which is located outside of the currently mapped floodplain and the Compost Operation (Lots 4 and 9) which is covered in a separate planning document. This plan will be updated by June 2011 when the compost operation ceases and the Intervale Center takes back responsibility for these lots. The Inventory³ identified 54 structures in an area of approximately 200 acres. A breakdown of the structure types and general dimensions is included in Table 1.

In addition to the actual structures, all constructed and used solely for agricultural purposes there is a variety of other materials and equipment located on the farmsteads, as well as debris that is associated with past farm efforts either of the Intervale Center (1988 to present) or prior to that, as well as debris, trash and materials either deposited in the Intervale by various individuals and entities during the period when the Intervale was not monitored or actively used by the City.

The Intervale Center is voluntarily preparing this plan at the request of the City of Burlington, ANR, the Agency of Agriculture and FEMA to identify the interim actions the Intervale Center and others will take to minimize the risk to property and communities in the event of a 100 year flood.

Actions in the plan focus on one of three approaches to be applied in regard to each structure or aggregation of equipment or materials in the Intervale:

1. The removal of the structure or material
2. The modification of the structure or material so that it can be moved in to the farm area during the growing season and removed at the end, or removed in the event of a flood event during the growing season.
3. The modification of the structure or the storage of materials so that it meets minimum standards of safety in a flood event.⁴

This report will lay out information and action items in four sections:

- (A) A set of standards is set for each category of structure of material aggregation that is identified in Table 2.

³ The Inventory was based on field visits by City enforcement personnel and documented in draft Notice of Violation forms; an inventory by staff in August 2008; a walk through survey with representatives from the City, VT Agency of Natural Resources, VT Agency of Agriculture and FEMA in September 2008, and a final field survey on January 4, 2008. Dimensions were based on a mix of self-reporting by farmers and an earlier inventory from 2007.

⁴ Recommendations are taken from the VT DEC publication: *Vermont Model Inundation and Erosion Hazard Regulations 3.0, 9.2.08* [http://www.vtwaterquality.org/rivers/docs/nfip/rv_VT_Model_Regs_3.0.pdf]

- (B) General action timeline guiding the individual actions that will be specified in the full inventory.
- (C) Specific inventory of structures and issues in the Intervale by Farm Lot # with action steps.
- (D) Outline of steps to be taken if there is a warning of an impending flood event, the Intervale Flood Preparation Plan.

The Intervale Center manages the property in concert with a number of partners to maximize the value and use of the lands in meeting the goals of the community. A management plan requires the education and cooperation of numerous entities who will be informed by this overview.

Table 1. Quick Inventory of agricultural structures and materials in the Intervale

<i>Structure / Material Type</i>	<i>#</i>	<i>Approx. Dimensions</i>
Greenhouses	6	30 x 96
Hoop Houses	1	12 x 18
	4	14 x 96
	2	10 x 100
	2	14 x 144
	2	15 x 100
	1	20 x 160
	1	30 x 360
	1	72 x 303
Pole Barns (structures open on all sides)	1	8 x 16
	1	12 x 12
	1	14 x 14
	1	8 x 24
	1	10 x 30
	1	20 x 20
	1	20 x 30
	1	30 x 36
Storage Shed (3-side)	1	8 x 8
Storage/Tool Shed (enclosed)	1	7 x 35
	1	12 x 14
	1	8 x 16
	1	8 x 24
	1	6 x 8
	1	6 x 12
	6	8 x 8
	3	8 x 12
	2	12 x 12
	1	10 x 15
Pig Shelter	1	6 x 8
Barn	1	30 x 36
	1	23 x 60
	1	30 x 45
	1	40 x 60
Electric Utility Sheds	2	8 x 8

Miscellaneous	
	Wood sided cold frames
	Propane tank (1)*
	Parking areas
	Solid Wood Fence (2)
	Wire Fencing
	Road gates
	Bee hives
	Solar Dehydrators
	Mobile Chicken Coop
	Mobile Shed / stand
	Farm vehicles /equip– motorized
	Vehicles – delivery
	Vehicles – parts
	Farm equipment – non- motorized
	Parking areas
	Ag. Materials – outside storage (e.g., greenhouse tables, wash buckets,)
	Ag. Field Materials – outside storage (e.g., field collection bins, wire cages, hoops for frost protection, picnic tables, planting pots, irrigation pipe – metal and plastic, plant stakes)
	Chicken tractor (mobile wire mesh on frame)

A.General Management Standards & Categorical Guidelines:

- Structures and stored materials will be adequately anchored to prevent flotation, collapse, release, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
- Structures may be elevated to allow for adequate water flow beneath them
- Enclosed structures shall have adequate louvers / vents installed so as to allow for flood waters to past through (wet flood proofing)
- No structure or units for material storage will be placed within 50 feet of an existing river bank (this does not include structures for irrigation, drainage or fencing)
- utilities of any sort must be elevated and / or flood proofed and designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
- floatable materials stored outside of structures are anchored or somehow protected from mobilization when not in use
- the floodway needs to remain unobstructed to ensure flood elevations are not increased
- Existing hoop houses with sheathing will either have loose ground connection to secure sheathing that flood waters will pass through or a management plan will raise all hoop house sides to allow for water flow in the event of a flood emergency
- fences and gates through which flood water may flow may be considered minor projects and allowable subject to review.
- All of these guidelines will be applied in accordance with the city's flood plain management regulations

In order to develop a comprehensive management plan the various operations of the Intervale and the structures, equipment, materials and features have been sorted into general categories with an overall description and then specific requirements for construction, modification and management to be applied. These categories are reviewed in Table 2.

Table 2. Categories of agricultural structures, materials and features in the Intervale

Structures, materials, features	Explanation	Standard Management practice / Construction requirement
Road (different classifications)	<p>The farming history of the Intervale has created a series of roads for access through the Intervale and into farm field areas. These range from a city maintained main road stretching from the farmstead to the city operated storage area for soils from road repair; to the continuance of this road through the Intervale to the north then west and north as a recreation path to the Ethan Allen Homestead north of the Intervale Center lands; established dirt farm roads brand off of this main artery into all established fields.</p>	<p>No new road will be created.</p> <p>Existing roads will be maintained at current grade.</p> <p>-Machine grading and gravel fill as necessary to correct ruts and potholes.</p>
Parking Areas	<p>Some off road parking areas pre-date Intervale Center operations such as the area at Lot 10 used for the City riding area in the 1980s. Improved parking areas include two established areas for recreational access on the east side of the road, the first being south of Lot 1 and the second at Lot 17. Improved parking at grade also exists at Lot 10 and Lot 4 (Compost, Farmer barn). Unimproved parking exists on Lot 11 for the community gardens, and alongside most side roads to farm fields for use by farmers, and there is an area on Lot 31 as</p>	<p>No new improved parking will be established in the farm areas (north of Lot 1), with the exception of the Abare House Lot adjacent to Lot 11, which has a long standing graded drive and yard and possibly the city operated area for storage of soils from road repairs.</p> <p>Current improved parking will be maintained at current grade.</p> <p>-Machine grading and gravel fill as necessary to correct ruts and potholes.</p> <p>Unimproved parking areas will be annually monitored and rotated as necessary to prevent soil compaction.</p>

Fence	<p>part of a pick-your-own berry operation.</p> <p>Post and wire fences are used to delineate some field areas, and in some cases established as temporary deterrents to deer and other animals.</p> <p>Solid wood fences have been established in two areas (Lot 1 – to diminish road dust; Lot 11 –south, to divide community garden areas from farm fields.</p> <p>Chain link fence surrounds the city operated area for storage of soils from road repairs</p>	<p>All fencing on Intervale Center land will be evaluated to insure that it does not present an impediment to flood water flow. Solid fences will be modified so that water may freely and adequately flow underneath it. Mesh fences (e.g. chain link) will be evaluated for flow and either modified or replaced as needed.</p> <p>Fences through which flood water may flow are not structures that represent an encroachment in a floodway area.</p>
Gate	<p>The Intervale Center maintains a series of gates along road ways. The standard for gates is a set of metal tubular bars supported by a cross support and hinged on one side. Gates are designed to limit unauthorized entrance to the compost or farm operations, and during the farming season have regular hours when they are left open and then shut.</p>	<p>Gates, like fences are open units that do not impede flood water flow. Each gate, as with each fence will be evaluated as an individual unit as well as in composite to ensure that it does not represent an impediment to maintaining a viable floodway/floodplain.</p>
Greenhouse	<p>A greenhouse structure is built on an improved graded surface, has plastic glazing stretched over a metal frame, solid end walls with doors that can be secured, has the capacity to add supplemental heating and ventilation, is utilized to provide a protected environment for starting field plants early in the spring that are propagated in flats and containers and</p>	<p>Intervale Center greenhouses received city permits to be established on Lot 2 only. All other season extending structures are hoop houses (see below) on other farm lots throughout the Intervale.</p> <p>Orientation of greenhouses should be evaluated as part of the encroachment modeling.</p> <p>All greenhouses are capable of having the plastic knee walls opened as well as doors on either end to provide free flow of flood waters in case</p>

	not directly in the soil beneath the structure.	of an emergency event. All electric control and utilization equipment is located on/in buildings above the DFE.
Hoop House	<p>A hoop house is not a greenhouse in the traditional sense of a greenhouse. The hoop house does not sit on footers, and does not have concrete or wooden walls, doors or knee walls. Crops are grown directly in the ground beneath the hoop house structure.</p> <p>A hoop house is used to grow vegetable crops for sale. It helps to extend the growing season and protecting the crops from excess leaf moisture and excess sun. As such a hoop house is a structure for raising horticultural or agronomic plants, and therefore it is a “farm structure,” as defined by 24 V.S.A. 4413(d)(1) and section 2.06 of Vermont’s AAPs.</p> <p>Hoop houses are temporary structures that in most cases are designed, in most cases, to have glazing in place only during the growing season. They are often rotated around a field area every three to four years to let soils rest.</p>	<p>Hoop house construction establishes a structure akin to a fence in terms of placement of posts to support the hoops. Glazing can be rolled up on the sides leaving a foot print akin to a fence line not representing an impediment to the flow of flood waters.</p> <p>Evaluate orientation of existing hoop houses for possible re-orientation; determine if knee walls can be designed reliable to “give” under water pressure, and if emergency response plan is adequate to provide time to raise walls to allow for unimpeded water flow.</p> <p>A standard needs to be set and guidance provided for evaluating the future deployment of hoop houses that is acceptable – this will need to include the rotation of movement of hoop houses in an established pattern over time as this is best ag practice – this may include reorienting hoop houses so that they are better in alignment with flows. The IC is interested in a better understanding of the cumulative impact of hoop houses now and in the future. Such an evaluation will be conducted with the City to determine the best practice approaches to hoop houses in the Intervale.</p> <p>Temporary hoop house structures are also used for season extension or a growing aid. These hoops are set on skids to be pulled easily by tractors over a set of beds during the course of the season and are anchored by stakes or water weights. They can be removed at end of season or set up on blocks with plastic removed to prevent them from becoming an obstruction.</p>
Pole frame structures (open)	Pole frame structures as used as open storage for equipment or materials, or to act as a shade structure for workers and	Adequately constructed and anchored to prevent flotation, collapse, release, or lateral movement of the structure

	customers. Pole supports are anchored into the ground either on a cement slab, metal post, or cement post.	
Pole frame structure (3-sides)	Same as above, but have sheathing on three sides to increase protection from weather	One of the enclosed sides will have a louver or opening adequate to allow possible flood waters to flow through. Adequately constructed and anchored to prevent flotation, collapse, release, or lateral movement of the structure
Barn	The barns in the Intervale are all fully enclosed and secure structures built to house and protect agricultural equipment and storage facilities for harvested crops. They are built on slabs or piers. Outside of the homestead area they are all located on Lots 1, 2 and 10. In most cases they have electric utility and water hook-ups (from onsite wells) and house vegetable coolers.	Wet floodproofing these structures will include modifying the structures to allow floodwaters to enter and exit. This ensures equal hydrostatic pressure on the interior and exterior of the structure and its supports. Equalized pressures will reduce the likelihood of wall failures and structural damage. A minimum of two openings on two walls having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. (Ref: FEMA TB 7-93. Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas) All electric power handling equipment as well as control and utilization equipment is located on/in buildings above the DFE
Accessory structure (enclosed) Tool / storage shed	Structures under 500 square feet have been positioned in various agricultural fields to secure field tools and materials. They are fully enclosed and secure. These	Wet floodproofing these structures will include modifying the structures to allow floodwaters to enter and exit. This ensures equal hydrostatic pressure on the interior and exterior of the structure and its supports. Equalized pressures will reduce the likelihood of wall failures and

<p>(continued) Accessory structure (enclosed) Tool / storage shed</p>	<p>accessory structures are easily removed or moved.</p>	<p>structural damage.</p> <p>A minimum of two openings on two walls having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. (Ref: FEMA TB 7-93. Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas)</p> <p>Structure is adequately constructed and anchored to prevent flotation, collapse, release, or lateral movement of the structure.</p> <p>Tool sheds and other structures of less than 110 square feet will be modified to be easily transportable with existing Intervale Center machinery. Sheds will either be placed on trailers that are maintained adequately so that the shed can be hitched and hauled directly, or positioned so that they can be easily winched onto a flatbed and removed.</p>
<p>Accessory structure (pig/chicken house-enclosed)</p>	<p>Farm operations selecting to raise small livestock do so on a seasonal basis in concert with vegetable growing. Small and mobile fenced areas are constructed to cover parts of fallow fields on a progressive basis. Where necessary small sheds are provided for protection of the animals. These structures are for “in-season” use only, established during the farming season like other field equipment and materials.</p>	<p>Sheds will be modified and positioned so that they can be winched or lifted on to a flatbed and removed.</p>

<p>Truck or trailer body for storage</p>	<p>Truck or trailer bodies provide inexpensive secure storage for farm field materials that needs to be kept both dry and secure. Used bodies that are no longer road worthy can still be mobile in the farm setting and provide ample storage options.</p>	<p>Truck and trailer bodies used for field storage will be maintained in a manner that allows for them to be easily transportable with existing Intervale Center machinery.</p>
<p>Electric Utility shed</p>	<p>Sheds that house specific power handling equipment to service a complex. Enclosed wood construction.</p>	<p>All electric power handling equipment as well as control and utilization equipment is located on/in buildings above the DFE.</p> <p>The sheds should either be dry food proofed to at or above the BFE, or wet flood proofed through the installation of hydrostatic openings. Structure shall be adequately anchored to prevent flotation, collapse, release, or lateral movement of the structure</p>
<p>Pump house shed</p>	<p>Sheds that provide protection for field wells and well pumps. Enclosed wood construction.</p>	<p>Sheds will be adequately anchored to prevent flotation, collapse, release, or lateral movement of the structure</p> <p>The shed should be dry flood proofed in order to adequately protect the wells and pumps from infiltration by floodwaters.</p>
<p>Propane tank</p>	<p>Commercial above ground propane tank.</p>	<p>An above-ground tank is strapped to concrete counterweights on either side of the tank if earth augers are deemed insufficient. A structural engineer and/or manufacturer's literature will be used to verify that the bracket used to hold the tank can withstand expected buoyancy forces. Concrete barrier posts or a protective screen is erected around the tank to protect it from debris impact, high enough to be above the DFE and with drainage at the base to let flood waters flow freely.</p> <p>Or</p> <p>Elevate tank on a concrete platform above the DFE capable of resisting flood forces or velocity flow.</p> <p>(Ref: FEMA publication #348, Protecting Building Utilities From Flood Damage)</p>

Chicken tractor	A metal tubular frame covered by mesh wire of varying dimensions that is utilized to enclose and protect yard birds. The device can be easily lifted and moved by hand.	The mesh and frame structure is designed to be easily movable by hand or lifted on to a flat bed for easy removal.
Temporary field storage areas (on pallets or in temp fencing)	During the field season a variety of materials are needed to support vegetable growing operations in the Intervale. These include field boxes or cartons for collecting produce, plant flats and containers, irrigation hosing or pipes, wheel barrels and garden carts, etc. These are in use on a daily basis and as such are stored for easy retrieval in a central site in each farm enterprise field.	Materials are positioned and the siting is designed so that they can be adequately anchored to prevent flotation, collapse, release, or lateral movement of the structure. At the end of the growing season all field materials will be removed to secure structures or off-site.
Bee Hives	Bees serve an important agricultural service in pollination and are also a specific agricultural enterprise in the Intervale. Hives are maintained in multiple sites. Hives host active year round colonies and must be left in the field on a year round basis.	Hives will be positioned in areas where they are least likely to be affected by flood waters. They are easily moved in the event of a flood emergency.
Cold Frame	Cold frames are simple ground level season extender devices used to start plants in the spring. They consist of a wooden frame (usually 4 x 8) with hoops or a simple wooden frame mounted on top to hold a plastic sheet in place.	Cold frames are a ground level device that does not constitute a hazard. The frames will be adequately anchored in the ground to prevent flotation, release or lateral movement of the structure.

<p>Farm implements – non motorized</p>	<p>A variety of non-motorized implements are used in farming to cultivate the soils. Usually tractor pulled these metal plows, cultivators, harrows, spreaders, hay forks, seeders, etc. are stored in the field when not in use.</p>	<p>Field storage of equipment of this nature does not represent a hazard given the weight and open design of the equipment. Positioning of equipment storage will be evaluated to insure that it is adequately anchored to prevent flotation or movement of the equipment or blockage of the flow of flood waters.</p>
<p>Farm equipment – motorized - hand</p>	<p>A variety of farm equipment is in use that is powered by a gas, diesel or biodiesel engine. These include tillers, pumps, weed whackers, etc. This equipment is stored in tool and storage sheds. Each farm maintains its own equipment as well as the Intervale Farm Equipment Cooperative.</p>	<p>All power equipment is securely stored in tool and storage shed and barns. In the event of a flood emergency all power equipment and all fuels and oils are to be removed from the possible flood affected areas.</p>
<p>Farm equipment – motorized – self propelled</p>	<p>Tractors, trucks, cultivators, and other motorized farm equipment is used and stored on Intervale farms.</p>	<p>All motorized equipment is capable of being moved by farmers to non-flood affected areas and to be used to haul other necessary materials from the Intervale.</p>

B.Farm materials, equipment and mobile structure management plan timeframes

By March 2009

- Removal as noted of specific materials, equipment, vehicles and structures as noted in the detailed inventory in Section C.
- Working sessions with farm managers to establish implementation steps to carry out general Management Plan and build an understanding of how to enact the Emergency response plan with any necessary modifications based on direct farmer experience.
- Follow-up inventory on existing structures and location and type of all equipment in Intervale.
- Review with existing and new farm operations to determine any changes anticipated in the inventory or placement in the 2009 growing season.

NOTE: Farming is dynamic. Materials and structures will be removed or moved; since there is interest in determining if mobile and temporary units can replace some of the more permanent structures, these will be deployed by some farms in 09. Since all materials in the Intervale seem to trigger a violation it appeared best to note that there would be changes and experiments rather than just do it. New farm implements, mobile storage units, the movement of an existing shed to a new location on a field is all part of the annual dynamic of farming.

By May 2009

- Organization of green-up day Intervale cleanup operations to focus on materials and debris that is not in use by Intervale farming operations.

By August 2009

- All existing structures will either be removed or meet guidelines to be properly anchored or constructed to meet standards
- Where possible existing structures will be replaced with mobile structures for storage
- A plan will be in place to remove mobile structures, and all field stored farm materials from flood plain for winter storage
- Extraneous materials will be removed (nonfarm materials that pre-date IC) where possible

(C) Specific inventory of structures and issues in the Intervale by Farm Lot # with action steps.

The Intervale Center will establish, in conjunction with the farmers, and technical recommendations from FEMA, VT Agency of Ag, and other agencies and resources a set of standard protocols for construction, management and anchoring of structures that shall be placed in the Intervale. There will also be an emphasis for all future and any replacement structures to be easily mobile so that they can be removed quickly in the event of a farm emergency as well as stored out of the flood plain over the winter. There will also be standards for the size, orientation and placement of hoop house structures and for the numbers and density that can be part of a future modeling study to determine where and how these can best be used without restricting placement (as they need to be rotated regularly). An active program of looking forward for new solutions is integrated into this effort, which attempts to build toward a new regime of operations while correcting all present deficiencies. Compliance with all local zoning standards is the baseline.

The Intervale has a long history of residential and non-residential farming activities. Over the past 200 years this has involved the erection of numerous structure including homes, barns, sheds, fence lines, and in recent years the dismantling of some of those structures such as the Abare house next to Lot 11. The Intervale is also home to other commercial uses from radio towers, gas and electric utility lines, and a former fire tower that was dismantled leaving a slab foundation in lot 16. Farming in the Intervale is a dynamic, not static process designed to grow multiple small agricultural ventures that serve the food needs of the local community. It involves the use of equipment and materials, the need for storage and security of items and the facilities for gathering and processing produce. Both temporary and permanent structures have been built over the years. This management approach is an attempt to catalogue all structures, determine their current use and propose a specific remedy so that the farming infrastructure can safely be maintained, managed and removed as necessary to support ongoing farming. All structures and improvements identified on the lands controlled by the Intervale Center are listed below. All are used to support agricultural purposes. All should be in compliance with the City’s Special Flood Hazard Area regulations.

In some cases areas used for storage of materials or equipment are also noted even if they are not structures as field storage of material or equipment needs to be managed similar to a structure.

FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
Farmstead	The main buildings of the Intervale farmstead are well out of the floodway. One corner of the restored English Barn remained in the currently mapped floodway and an engineered plan for louvers was established, implemented and approved by state authorities.	The farmstead area provides a reliable above flood staging area for the emergency storage area for equipment and materials that need to come out of the Intervale in case of a 100-year flood event warning.	

FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
	Below the terrace, east of the Farmstead is a stormwater pond, gardens, several home compost units and an 8x12 tool shed. There are also a set of beehives maintained	Tool shed modifications as noted in Table 2. Beehives to be anchored and secured.	August 2009
	North of the dairy barn foundation is a storage container, and stacked storage of roof slate from the dismantling of the barn.	Storage container to be removed on re-construction of dairy barn. Roof slate storage to be removed.	2010 August 2009
	In the undesignated field north of the farmstead there is a chicken tractor, a lightweight frame that is easily picked up and moved to rotate free-range chickens.	Off season storage in farmstead.	March 2009
Lot 1 Stray Cat Farm	-15x100 Hoop House (1995) -15x100 Hoop House (1997) -4x8 Pump house – covers well (2004) -8x8 Pig Shelter (2005) -6x12 Tool Shed (2002) -7x35 Storage Shed (2005) -30 x 36 Barn (2004)-replaced pre-	-See Table 2 for standard Hoop House protocol for construction and management -Enclosed tool sheds will meet enclosed shed protocol for construction, anchors and or mobility as indicated in Table 2 -Wooden fence will be modified to allow flood water to pass through unobstructed.	August 2009 After

	existing barn on same footprint	-Barn will be wet floodproofed as needed.	restudy
FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
<p>Lot 2 Farmer Barn Greenhouse – storage complex</p> <p><i>[Note: Intervale farm operations in the early 20th century up to the 1970s had made a number of improvements on Lot 2 and 4 which is why this area was chosen for improvement to accommodate new farm infrastructure and the compost operation on existing footprints of buildings.]</i></p>	<p>-40x60 Farmer Barn (1997) on existing footprint of previous barn -30 x 45 Metal barn and grain shed (pre-existing) -12 x 14 IFEC Ware house Shed (1997) -14.5 x 14.5 H.C. open wash area (3-side) (2000) -8x8 ICF Potting Shed (1994) -30 x 96 Greenhouse 1 (2002)- permitted -30 x 96 Greenhouse 2 (2002)- permitted -30 x 96 Greenhouse 3 (2002)- permitted -30 x 96 Greenhouse 4 (2002)- permitted -30 x 96 Greenhouse 5 (2002)- permitted -30 x 96 Greenhouse 6 (2002) – permitted -12 x 18 hoop house (2005) -3 x 10 wood-plastic coldframe -3x 10 wood –plastic coldframe -8x8 Electrical Building (2002) – permitted -Propane Tank -Parking storage of farm equipment – tractors, implements, delivery vans, hay wagons, etc. -External storage of greenhouse tables</p>	<p>-Barn will be wet floodproofed as needed. -Metal barn is slated for partial deconstruction – possible replacement by pole barn -Enclosed tool sheds will meet enclosed shed protocol for construction, anchors and or mobility as indicated in Table 2 -Properly anchor and secure propane tank -Outside storage of materials to be properly secured (See Table 2)</p>	<p>After restudy May 2009 -March 2009 August 2009</p>

FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
<p>and materials</p> <p>Lot 10 Intervale Community Farm</p> <p><i>[Note: Open permits will be closed out in 2009]</i></p> <p><i>[Notes: Notice of non-applicability received from City for hoop houses when effort was made to move them. -Shed with electric meter predates IC; -parking area predates IC, established for riding ring in early 80s]</i></p>	<p>-23 x45 Barn (2001) – permitted -15x23 Barn addition (2006) – permitted -30x 36 Pole barn (1996) – permitted -8x10 Shed with electric meter (pre-1988) -pump house – covers well -8x16 Shed (2002) -8x8 Equipment Shed (1994) -Exterior storage by barn -14x96 Hoop House 1(1998) -14x96 Hoop House 2 (1998) -14x96 Hoop House 3 (1998) -14 x 96 Hoop House 4 (1998) -14 x 144 Hoop House 5 (2003) -14x144 Hoop House 6 (2003) -Parking lot –</p>	<p>-Barn will be wet floodproofed as needed.</p> <p>-Enclosed tool sheds will meet enclosed shed protocol for construction, anchors and or mobility as indicated in Table 2</p> <p>-Outside storage of materials to be properly secured (See Table 2)</p> <p>-Parking area to be maintained at grade</p>	<p>After restudy</p> <p>August 2009</p>

FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
	8x16 Exterior storage pole shed (2005)- lumber and farm materials	-Open storage sheds will meet IC protocol for construction and anchors and for securing all materials that are stored. (e.g., lumber and poles stored in pole barn structure at south end of parking area).	
Lot 11 Tommy Thompson Community Gardens <i>[Note: By easement with the City all improvements are the property of the City]</i>	-12 x 12 Tool shed -12 x 12 pole barn -8x8 Tool Shed -12x12 Tool Shed -20x20 Pavilion structure -Solid Wood Fence along south boundary	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (see Table 2) -All field stored materials to be removed or properly secured (see Table 2) -Wooden fence at south end of Lot to be modified to allow flood waters to pass through.	August 2009
Lot 12 Diggers Mirth	-8x12 Shed (2004) -10x30 Pole Barn wash station	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (see Table 2)	August 2009
Lot 18 Lucky Lady eggs (defunct)	Mobile Chicken coop	REMOVE	March 2009

Lot 19 Franklin Heyburns Bees	Bee Hives - 10	-Properly anchor hives.	May 2009
Lot 20 Full Moon Farm (formerly)	8x12 Shed (2002) –retrofit for new farm operations to share Delivery Van (FMF to remove) Field Storage (FMF to remove)	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (see Table 2) REMOVE REMOVE	May 2009 March 2009 March 2009
FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
Lot 22 ICF field	-Solar dehydrators stored -Parts truck stored -8x40 storage box container for field materials -Exterior storage of farm implements near road	REMOVE REMOVE REMOVE -Evaluate to insure that they are properly secured and anchored (See Table 2)	May 2009
Lot 23 Sugar Snap Farm	6x8 Shed (2005)	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2)	August 2009
Lot 24	Irrigation pump and well house	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2)	August 2009
Lot 25			

Full Moon Farm (formerly)	Mobil shed/stand (to be removed by FMF)	REMOVE	March 2009
Lot 25-27 Half Pint Farm	72 x 303 Hoop House (2008)	Reviewed in design, installation and orientation under the AAPs by Agency of Ag and determined to be a minor project under the NFIP guidelines.	
Lot 27 Half Pint Farm	160 x 20 Hoop House (2005) 8x12 Tool Shed (March 2006)	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2)	August 2009
FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
Lot 30 Arethusa Farm	-10 x 100 Hoop House 1 (2002) -10 x 100 Hoop House 2 (2002) -8x12 Shed (2003) -8x8 Open Shed (2003) -Truck Body on wheels used for storage -Field Storage	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (see Table 2) -Insure that Truck body and wheels have integrity and are prepared to be moved in the event of emergency; insure that necessary equipment is available to move truck body -All field stored materials to be removed or properly secured (see Table 2)	August 2009
Lot 31 Adams Berry Farm	-30 x 360 Hoop House1 (2006)-permitted -30 x360 Hoop House2 (2005) -8x8 Tool Shed (2005) -8x24 Storage Shed -8x24 Trellis -External equipment and field storage	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2) -All field stored materials to be removed or properly secured (see Table 2)	August 2009

Lot 33 Bees-Patrick Johnson	Bee hives on pallets	-Insure that all hives and support are properly anchored.	May 2009
Lot 34-35 line Pitchfork	8x8 Tool Shed (blue) (March 2006)	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2)	August 2009
Lot 35 Open Heart	8x8 Tool Shed (? – older)	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2)	August 2009
FARM / LOT	Existing Development (buildings, fences, materials, equipment)	Plan for future management (e.g. - removal, anchoring, retrofit, human intervention ahead of flood)	Timeline to address
Lot 37 Healthy City	10x15 Tool Shed (2000) 20 x 30 Shade Structure (2006) Pole Barn	-Enclosed tool sheds will meet IC enclosed shed protocol for construction, anchors and or mobility (See Table 2)	August 2009
Throughout the Intervale	-There are still areas, largely in hedgerows or wooded areas where debris from previous (pre-1980s) farm and other activities has been left. This includes farm implements, truck bodies, building materials, and general trash.	Annually the Intervale works to identify these materials and arrange for progressive cleanup through volunteer efforts in conjunction with Green up day in May or with special efforts. This is ongoing. Some can be done by hand, other work needs special equipment.	May 2009
	-The Intervale is an occasional residence of members of Burlington’s homeless population. Makeshift and sometimes more permanent camps are identified,	-Only in the case of more permanent structures (such as campers) is action taken, first with a request to the individual, then seeking out a caseworker, and finally if necessary the police for enforcement and removal	Ongoing

	mostly in the summer.		
	-There are still illegal dumping incidents in the Intervale, such as in December 2008 when a truck load of materials cleaned out of an apartment that a person had been evicted from was dumped on the road by lot 17.	Notification to CSWD, Burlington Police and Burlington DPW for clean up and enforcement.	Ongoing
Vermont Gas Line	The Vermont Gas line cuts across the Intervale east west (from lots 30 – 15) and north – south from lots 20 to 10. Excavation, tree cutting and other activities happen along these routes under their jurisdiction along this right of way.		Ongoing

D. Intervale Center Flood Preparation Plan

In the most recent official Flood Insurance Study for Burlington (1987), the predicted water surface elevation at the Intervale site housing Intervale Compost Products (the most recently studied) at the peak discharge during a Major flood event is 113.0 feet above mean sea level. It is acknowledged that this FEMA data is out-of-date and stakeholders are in the process of coordinating a study to more accurately reflect actual conditions.

- The national weather service flood forecasting includes: Action, Flood, Moderate Flood, and Major Flood stages. The lower flow threshold for a Major Flood at the Essex Gage is currently 45,000 cubic feet per second which is reasonably close to the 100 yr. discharge.

There is no recent history of major flooding to the Winooski River. Since the completion of the Waterbury Reservoir dam in 1938, there has been only one instance where the 100-year storm level was reached. Coincidentally, it was also in 1938 after the dam was completed. At the USGS gauging station near Essex Junction, which is the closest stream gage to the Intervale, there has not been a flood in the last 69 years that achieved even the 100-year flood levels currently predicted by the current FEMA model.

Studies undertaken by Stone Environmental on behalf of the Intervale Center specific to the compost operation predict that the velocity of the floodwaters at the Intervale site housing Intervale Compost Products during a 100-year flood event will be less than 1 foot per second. Such velocities are too slow to either significantly erode compost or sweep away almost anything that does not float. We are extrapolating from this study that these conditions generally prevail throughout the Intervale in the event of a flood.

As a result of this analysis The Intervale Center is focusing its preparation planning for a 100-year flood event focuses primarily on:

- Removing or securing items that may float
- Ensuring that items that may become submerged will not leak contaminants that may adversely affect human health or the environment
- Minimizing damage to farm equipment and building structures

-This plan will continue to develop with more specific accounting of who will be responsible for what activities and how it would be managed to insure accountability for the necessary actions.

There are currently four rough activity areas defined in the Intervale.

The first two require no action in this plan:

1. The Farmstead (6 acres): This area contains the Intervale Center offices in an historic farmhouse, and an agricultural complex of three barns and several outbuildings. This area is mostly out of the floodplain as mapped and recently received a state Act 250 land use permit, covering the commercial, agricultural and educational activities conducted here.
2. The Intervale Compost Products Operation (10 acres): This area, currently leased to the Chittenden Solid Waste Management District and a Flood Preparation Plan specific to this area and operation has been separately prepared and reviewed by FEMA and approved by the City of Burlington.

The other two areas are the ones to be addressed in this plan:

3. The Farmer greenhouse/barn complex (6±acres): This generally high area is generally within the currently mapped flood plain. This include Lots 1,2,10 where the main barns and permanent farm infrastructure is located on either side of Intervale Road south and west of the compost operation.
4. Intervale Farming and Conservation Land Areas (200+ acres): This area incorporates all of the farming enterprises where there is more minimal agricultural structures and infrastructure designed to support a diverse multifarm complex.

Intervale Barn and Greenhouse Complex Area and Farming and Conservation Land Action Plan

Items that will be addressed in the **near future** or before an impending flood event:

1. The Intervale Center has been working with CSWD at the Compost site to consolidate all exterior fuel tanks so that there is one management plan for all operations. Tanks will be contained in concrete secondary containment structures with side walls that extend higher than an elevation of 113 feet above mean sea level. The fuel tanks will be secured to the concrete structure. Permits from the City of Burlington Planning & Zoning Department and other necessary permits such as a completed Spill Prevention Control and Countermeasure Plan (SPCC Plan) are pending.
2. The existing propane tank will be appropriately secured to prohibit floating in the event of a flood.
3. The Intervale Center administration will regularly monitor National Weather Service web page for the Winooski River real-time gauge reading and forecasted flood levels and flows at Essex Junction to ensure sufficient lead time to enact the steps outlined in the plan.
<http://newweb.erh.noaa.gov/ahps2/hydrograph.php?wfo=btv&gage=essv1>

Items that will be addressed **during** an impending flood event:

In the event that a 100-year flood is forecasted by the National Weather Service to occur in the Burlington Intervale area, the following actions will be taken by the Intervale Center in concert with all farm enterprises and the City's Parks and Recreation Department to prepare for the event to minimize or prevent the discharge or release of materials that might be hazardous to the environment, and secure all materials to prevent any from accidentally floating away and prepare all structures so that they represent the minimal resistance to flood waters:

1. All heavy farm equipment that is easily moved such as a tractors, trucks and other self propelled farm vehicles shall be moved and parked in the existing parking lot near the Intervale farmstead office, an area located outside of the flood plain to prevent the release of fuels or oils to the environment.

2. Any miscellaneous exterior drums of fuels, oils, etc., that is not managed as part of the CSWD/ICP emergency response plan, whether empty or full, will be loaded into an IC truck with adequate containment and relocated to the farmstead outside of the flood plain.
3. Disconnect power to site (IC greenhouses, Farmer Barn, ICF barn) by throwing the main breakers located within the main electrical panel circuit breaker box into the "off" position. Shut off the propane supply at the propane tank.
4. Any trash dumpsters will be removed from the site.
5. Any remaining exterior equipment or tools that contain liquid fuels or oils will be removed from the site and aggregated at the farmstead to be securely stored in one of the barn structures out of the floodplain.
6. Interior equipment and supplies vulnerable to water damage that are stored in the first floor of any barn will either be relocated to the second floor loft, or absent that option, moved to one of the farmstead barns.
7. All barns will be checked to insure that doors are secure and louvers and vents for allowing flood waters to pass through are open and unobstructed.
8. All greenhouses and hoop houses will have knee-walls opened to allow for water flow through.
9. All mobile structures (carts, wagons, tool sheds on wheels, truck or trailer bodies) will be removed to the parking areas by the Farmstead offices out of the flood plain.
10. All beehives will be loaded on trucks or flatbeds and relocated to the farmstead yard outside of the flood plain.
11. All field materials will be gathered and removed from the fields and secured in farmstead barns or will be adequately secured in place in a manner that prevents flotation or release of the materials.
12. All livestock will be collected and removed to secure areas in the farmstead. Mobile containment tools such as chicken tractors will be removed to the farmstead yard.
13. Materials stored in pole barns such as lumber, poles, posts, etc., will be checked to insure that they are securely lashed to the structure.
14. All enclosed sheds will be checked to insure that louvers and vents for allowing flood waters to pass through are open and that any anchoring of structures is secure.

Transport of equipment and items to be removed to an offsite location will be accomplished using the tractors and trucks owned by the Intervale Center, the Intervale Farm Equipment Cooperative and individual farmers. This currently represents more than a dozen farm vehicles

that can be mobilized at the site. In addition multiple wagons and flatbed transports are available on site on which to load and transport materials. The farmstead area outside of the flood plain has two barns with storage and parking and field areas of several acres outside of the flood plain that is more than adequate to stage all materials needing to be removed in a secure and orderly fashion.

Intervale Center Flood Event Contact Plan

Glenn McRae, Executive Director
 (o)660-0440x103 (m) 363-6700

Andrea Tursini, Director of Consulting and Land Stewardship
 (o)660-0440x105 (c)343-6502

Dan Gossen, ICP Manager
 (o) 660-3138 (m) 373-4001

Travis Marcotte, Director of Programs
 (o)660-0440x107 (m)343-1626

Lisa Coven, Burlington Parks & Rec
 (o)863-0420 (m)316-1393

Andy Jones, ICF, Farmer lead contact
 (h)658-2919

Spencer Welton, Intervale Farm Equipment Coop
 (m)316-6073

Farm Name	Farmer Contact	Contact info
Adam's Berry Farm	Adam Hausmann	578-9093
Arethusa Collective Farm	Thomas Case / Benner Dana	578-6429
City Chicks Farm	Nicole Dehne	434-3821
Digger's Mirth Collective Farm	Dylan Zeitlyn	324-5962
Half Pint Farm	Mara / Spencer Welton	316-6073
Intervale Community Farm	Andy Jones, Becky Maden	658-2919
Open Heart Farm	Josh May / Rachel Daley	881-8125
Pitch Fork Farm	Eric Seitz	233-6445
Stray Cats Farm	Diana Doll (DD)	865-0068
Sugar Snap Farm	Abbey Duke	324-7998

- Each year new farm operations are likely to be updated. An annual winter meeting will be used to update and review the emergency management plan with all farm operators.
- Future farm leases will include reference to the farmer responsibility for action during a flood event, including having a back-up contact.
- The IC will assume secondary responsibility when a farmer is unable to respond.

ATTACHMENTS

A. Intervale inventory of agricultural structures and materials (January 4, 2009)

<i>Intervale Center Inventory of Structures, materials, equipment and features relevant to flood plain management planning (January 2009)</i>	
<i>FARM / LOT</i>	<i>Existing Development (buildings, fences, materials, equipment)</i>
Farmstead	The main buildings of the Intervale farmstead are well out of the floodway. One corner of the restored English Barn remained in the currently mapped floodway and an engineered plan for louvers was established, implemented and approved by state authorities.
	Below the terrace, east of the Farmstead is a stormwater pond, gardens, several home compost units and an 8x12 tool shed. There are also a set of bee hives maintained
	North of the dairy barn foundation is a storage container, and stacked storage of roof slate from the dismantling of the barn.
	In the undesignated field north of the farmstead there is a chicken tractor, a lightweight frame that is easily picked up and moved to rotate free-range chickens.
Lot 1 Stray Cat Farm	-15x100 Hoop House (1995) -15x100 Hoop House (1997) -4x8 Pump house – covers well (2004) -8x8 Pig Shelter (2005) -6x12 Tool Shed (2002) -7x35 Storage Shed (2005) -30 x 36 Barn (2004)-replaced pre-existing barn on same footprint
Lot 2 Farmer Barn Greenhouse – storage complex	-40x60 Farmer Barn (1997) on existing footprint of previous barn -30 x 45 Metal barn and grain shed (pre-existing) -12 x 14 IFEC Ware house Shed (1997) -14.5 x 14.5 H.C. open wash area (3-side) (2000) -8x8 ICF Potting Shed (1994) -30 x 96 Greenhouse 1 (2002)- permitted -30 x 96 Greenhouse 2 (2002)- permitted -30 x 96 Greenhouse 3 (2002)- permitted -30 x 96 Greenhouse 4 (2002)- permitted -30 x 96 Greenhouse 5 (2002)- permitted -30 x 96 Greenhouse 6 (2002) – permitted -12 x 18 hoop house (2005) -3 x 10 wood-plastic coldframe -3x 10 wood –plastic coldframe -8x8 Electrical Building (2002) –permitted -Propane Tank -Parking storage of farm equipment – tractors, implements, delivery vans, hay wagons, etc. -External storage of greenhouse tables and materials

Lot 10 Intervale Community Farm	<p>-23 x45 Barn (2001) – permitted</p> <p>-15x23 Barn addition (2006) – permitted</p> <p>-30x 36 Pole barn (1996) – permitted</p> <p>-8x10 Shed with electric meter (pre-1988) -pump house – covers well</p> <p>-8x16 Shed (2002)</p> <p>-8x8 Equipment Shed (1994)</p> <p>-Exterior storage by barn</p> <p>-14x96 Hoop House 1(1998)</p> <p>-14x96 Hoop House 2 (1998)</p> <p>-14x96 Hoop House 3 (1998)</p> <p>-14 x 96 Hoop House 4 (1998)</p> <p>-14 x 144 Hoop House 5 (2003)</p> <p>-14x144 Hoop House 6 (2003)</p> <p>-Parking lot –</p> <p>8x16 Exterior storage pole shed (2005)- lumber and farm materials</p>
Lot 11 Tommy Thompson Community Gardens	<p>-12 x 12 Tool shed</p> <p>-12 x 12 pole barn</p> <p>-8x8 Tool Shed</p> <p>-12x12 Tool Shed</p> <p>-20x20 Pavilion structure</p> <p>-Solid Wood Fence along south boundary</p>
Lot 12 Diggers Mirth	<p>-8x12 Shed (2004)</p> <p>-10x30 Pole Barn was station</p>
Lot 18 Lucky Lady eggs (defunct)	Mobile Chicken coop

Lot 19 Franklin Heyburns Bees	Bee Hives - 10
Lot 20 Full Moon Farm (formerly)	8x12 Shed (2002) Delivery Van (FMF to remove) Field Storage (FMF to remove)
Lot 22 ICF field	-Solar dehydrators stored -Parts truck stored -8x40 storage box container for field materials -Exterior storage of farm implements near road
Lot 23 Sugar Snap Farm	6x8 Shed (2005)
Lot 24	Irrigation pump and well house
Lot 25 Full Moon Farm (formerly)	Mobil shed/stand (to be removed by FMF)
Lot 25-27 Half Pint Farm	72 x 303 Hoop House (2008)
Lot 27 Half Pint Farm	160 x 20 Hoop House (2005) 8x12 Tool Shed (March 2006)
Lot 30 Arethusa Farm	-10 x 100 Hoop House 1 (2002) -10 x 100 Hoop House 2 (2002) -8x12 Shed (2003) -8x8 Open Shed (2003) -Truck Body on wheels used for storage -Field Storage
Lot 31 Adams Berry Farm	-30 x 360 Hoop House1 (2006)-permitted -30 x360 Hoop House2 (2005) -8x8 Tool Shed (2005)

	-8x24 Storage Shed -8x24 Trellis -External equipment and field storage
Lot 33 Bees-Patrick Johnson	Bee hives on pallets
Lot 34-35 line Pitchfork	8x8 Tool Shed (blue) (March 2006)
Lot 35 Open Heart	8x8 Tool Shed (? – older)
Lot 37 Healthy City	10x15 Tool Shed (2000) 20 x 30 Shade Structure (2006) Pole Barn
Throughout the Intervale	-There are still areas, largely in hedgerows or wooded areas where debris from previous (pre-1980s) farm and other activities has been left. This includes farm implements, truck bodies, building materials, and general trash.
	-The Intervale is an occasional residence of members of Burlington's homeless population. Makeshift and sometimes more permanent camps are identified, mostly in the summer.
	-There are still illegal dumping incidents in the Intervale, such as in December 2008 when a truck load of materials cleaned out of an apartment that a person had been evicted from was dumped on the road by lot 17.
Vermont Gas Line	The Vermont Gas line cuts across the Intervale east west (from lots 30 – 15) and north – south from lots 20 to 10. Excavation, tree cutting and other activities happen along these routes under their jurisdiction along this right of way.