Master Development Plan for the Irasville Growth Center

A Vision for a New Village

Prepared for:

The Town of Waitsfield, Vermont

and the

Mad River Valley Planning District

September 2002

Prepared by:

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I. INTRODUCTION

This report describes the process that was followed to arrive at the Irasville Growth Center Master Development Plan. The Irasville Growth Center offers many benefits: the creation of a center of community life where residents and businesses can come together in comfortable surroundings, the transformation of the Route 100 highway corridor to a dignified street worthy of economic prosperity and community pride, and a greater sense of place as residents enjoy their community's natural and historic environments on foot and bike paths, and public open spaces.

BACKGROUND

The notion of preserving community values is popular in Vermont. Local initiatives in many Vermont villages, towns and cities have promoted economic development, preservation of special historic and natural sites, and community identity. State and federal government, local residents, private businesses, and non-profit organizations have supported the concepts of sustainable growth, downtown revitalization, affordable housing, and open space planning as ways to thoughtfully manage the state's future, so that our quality of life is preserved and even enhanced. As residents in communities work together to create a vision for the new millennium, new ways to achieve the desire for places for people to live and work in harmony with the scenic landscape of Vermont are becoming more attainable.

Under the leadership of the Waitsfield Planning Commission and Select Board and aided by the Mad River Valley Planning District, planning concepts were developed for new growth and development in Irasville. The desire to create a planned "growth center" was identified by the Town over 10 years ago and has been supported by residents and town officials. The Town, the Mad River Valley Planning District and residents have been involved in the development of this plan.

PURPOSE OF THIS STUDY

The purpose of this project is to complete a critical portion of the overall Master Development Plan for the Irasville Growth Center in the Town of Waitsfield. Careful, thorough planning for Irasville is needed to achieve Waitsfield's planning goals.

The Town of Waitsfield and the Mad River Valley Planning District completed the first phase of the Irasville Growth Center Master Development Planning Project and identified the most significant physical, economic, institutional, financial, social and regulatory problems that are discouraging desirable growth center development. Taken together, these

problems are leading to environmental degradation, and favoring undesirable land use patterns in the Town and Valley:

1. The lack of a comprehensive approach to managing stormwater for the area has resulted in degradation of water quality, caused permitting problems, and discouraged compact growth.
2. There is a significant acreage of low-value wetland areas in the Growth Center that, because of the required permitting, forces scattered, low-density development.
3. Existing zoning regulations provide no incentives for mixed use development, do not address design or other permitting issues (e.g. stormwater, wetlands and wastewater).
4. Irasville lacks municipal water and sewer infrastructure, leading to low density development and degraded surface and groundwater quality.

These combined factors promote development of single use, low density projects on small parcels; thereby avoiding the need for increased septic capacity or innovative treatment, complex wetlands permits, stormwater management review, and Vermont's Act 250 land use permitting. In addition, a Housing and Commuting Study was done by the Mad River Valley Planning District in 1998 that highlighted the vital economic and environmental importance of creating more employment opportunities within Irasville. The results of this study show that while approximately two-thirds of Valley residents work in the Valley, wages earned at jobs in the Valley are consistently lower than wages earned at jobs outside of the Valley. This economic problem leads to more commuting, creating more traffic on rural roadways and effecting air quality and a reduced quality of life. Making more space available for business growth and affordable housing within Irasville will directly address this vital community and environmental issue.

The primary objectives of this project are:

1. Improve the physical and environmental outcomes of growth and development in the Irasville Growth Center.
2. Make more land in the Irasville Growth Center available for compact, mixed use development through master development planning for wetlands and development areas.
3. Improve environmental conditions within the growth center through stormwater management and wetlands planning.

As outlined at length in the Town Plan, Irasville has been designated as the Town's growth center. While it has substantial commercial development on both sides of Route 100, there are also several acres of wetland areas within the largest undeveloped portion of the growth center west of Route 100. Responsible land development in this area is required to enable Irasville to function successfully as a growth center. In order to properly develop this area, the Irasville Growth Center Master Development Plan must incorporate wetland mitigation and stormwater management.

The concept for Irasville is to create a place and define an orderly process that would guide development in such a manner that a new growth center could be developed. On the pragmatic side of the equation, the development of a plan for municipal sewer and water for Waitsfield Village and Irasville are essential to the vision of having a compact mixed use village center for the community. The hope is to create a "heart" of the community that recognizes the physical and environmental constraints of the village and is tailored to the unique qualities of Irasville.

Figure 1: Orthophoto of Irasville Today

Figure 2: Site Location

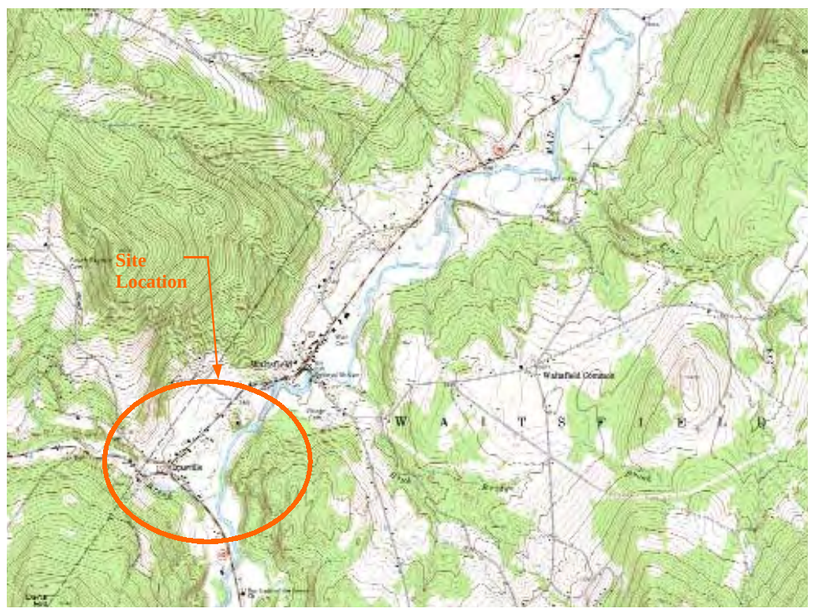

Figure 3: Existing Multiuse Building in Irasville

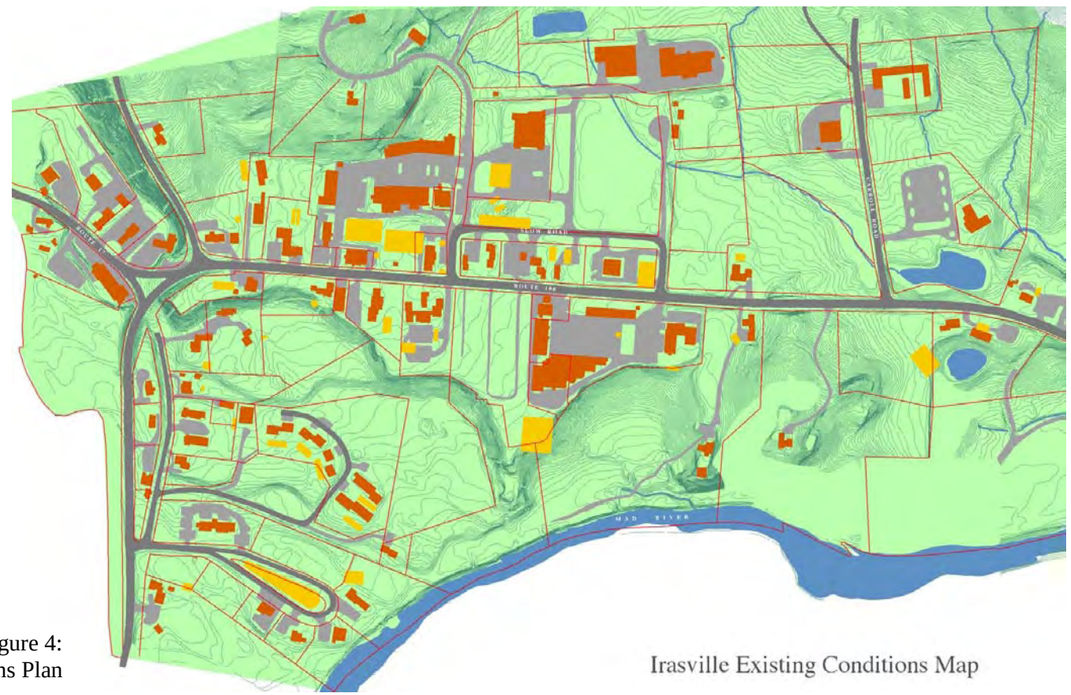

Figure 4:
Existing Conditions Plan

DESCRIPTION OF PROJECT AREA

Irasville is approximately 190 acres of land within the Town of Waitsfield bordering Route 100 on the east and west sides, from the Fiddlers Green Shopping Center to the edge of Waitsfield Village historic district in the Mad River valley. Vermont Route 100 runs through the Growth Center. To the northwest of Route 100, the terrain slopes gently to the east or southeast. The Growth Center is bounded by the Waitsfield-Fayston town line, which runs along the toe of steeper slopes to the northwest. To the southeast of Route 100, the Growth Center is bounded by the Mad River. A steep 20 to 35-foot high terrace escarpment runs through this portion of the Growth Center, but above and below the escarpment, slopes are moderate to gentle.

Currently, there is a variety of existing businesses and residences within the Growth Center boundaries. A majority of these exist on the west side of Route 100. A secondary road referred to as the "Slow Road" was developed a number of years ago, which is parallel to Route 100. A number of businesses are accessed from the Slow Road rather than directly from Route 100.

Surface water from the Growth Center northwest of Route 100 is collected by a small stream that has its headwaters on the steep hillside to the northwest of the Town line. Near the intersection of Carroll Road and Route 100, an artificial pond receives stream flow. The pond overflows into the natural stream channel that then continues northeastward to its confluence with the Mad River at the southwestern edge of Waitsfield village. Southeast of Route 100, numerous groundwater seeps issue from the terrace escarpment and, combined with surface water flow draining down over the face of the escarpment, enters the Mad River through two small streams.

Substantial areas of wetlands occur on both sides of Route 100 in the Growth Center. Wetlands northwest of Route 100 are dominated by wet meadows and riparian wetlands. To the southeast of Route 100, there are marshes, wet meadows, forested, and scrub-shrub wetlands.

Figure 5: Existing Store

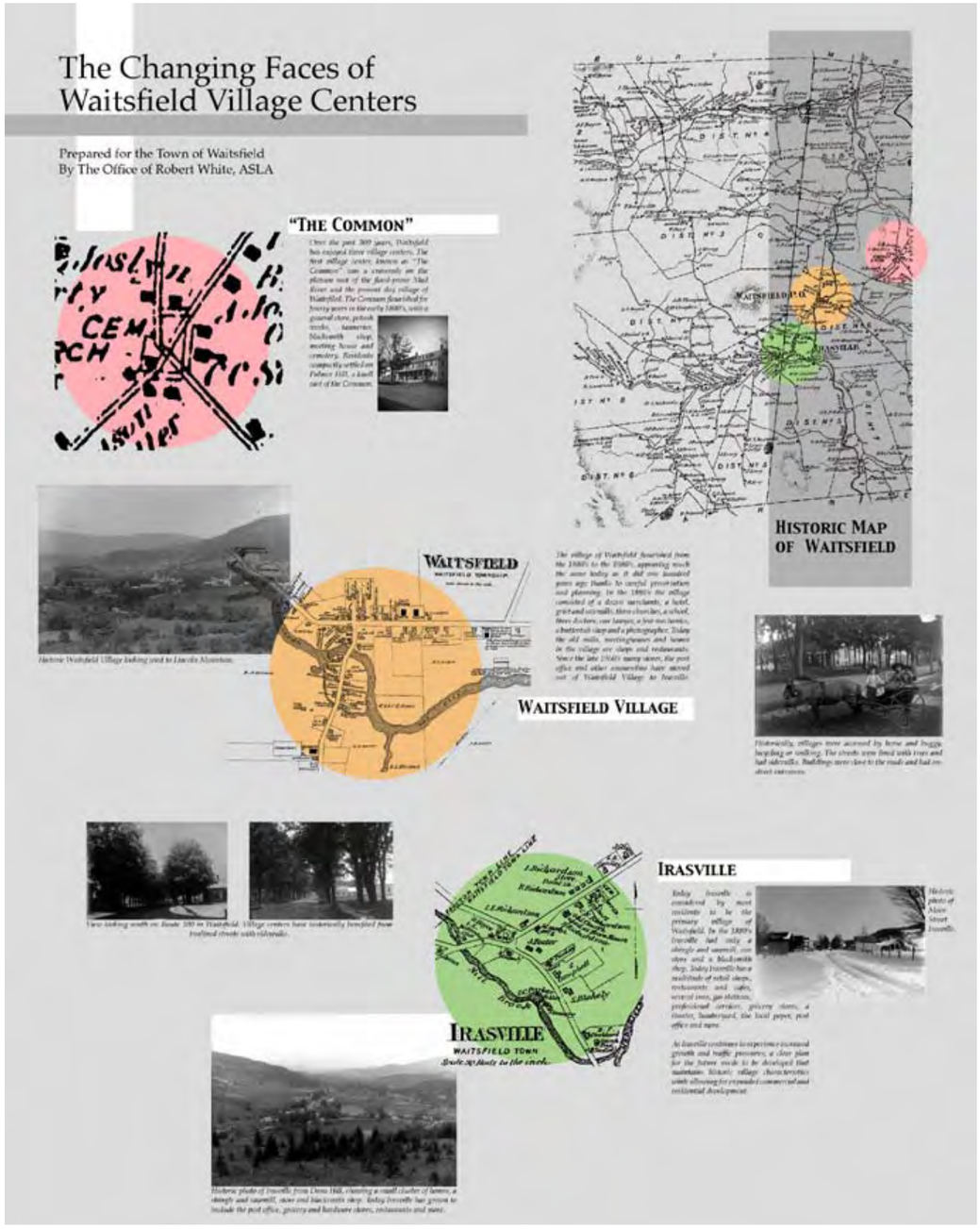

Figure 6: Historic Waitsfield Panel

HISTORIC PERSPECTIVES: IRASVILLE AND WAITSFIELD

Many Vermont communities have grown around historic commercial and industrial centers that have been a focal point of community life and work for many years, decades, even centuries. Irasville originally was a small settlement within the Town of Waitsfield. The area historically had a farm-forest economy bordered by other small towns with a relatively low decentralized population. Waitsfield has had three village centers over the past 300 years. The first, known as the Common, was a crossroads on the plateau east of the flood-prone Mad River and the present day village of Waitsfield. The Common flourished for forty years in the early 1800's with a general store, potash works, tanneries, blacksmith shop, meetinghouse and cemetery. Early residents settled on Palmer Hill, a knoll east of the Common.

Waitsfield Village, the second center, flourished from the 1880's to the 1980's, appearing much the same today as it did one hundred years ago thanks to careful planning and preservation. In the 1880's the village consisted of a dozen merchants, a hotel, grist and saw mills, three churches, a school, three doctors, one lawyer, a few mechanics, a butter tub shop and a photography studio. The old mills, meeting houses and homes in the village are shops and restaurants now.

Irasville had only a shingle mill and a sawmill, one store and a blacksmith shop in the 1880's. Today, Irasville is considered by most residents to be the primary village and commercial center of Waitsfield. Since the late 1960's, many businesses have moved out of Waitsfield Village to Irasville. It is home to numerous retail and service oriented businesses, a multitude of shops, restaurants and cafes, several inns, gas stations, professional services, grocery stores, a theater, lumberyard, the local paper, the post office and more.

In the early 1980's, commercial development in Irasville occurred primarily on Route 100. Since then, planning policies have pointed new development away from Route 100, with service drives, commercial blocks and shared parking lots located away from them. While this has worked well from a traffic standpoint, the development pattern is still automobile dominated. The Town has avoided becoming a classic commercial highway strip development. However, there are few residents who can relate to Irasville as a traditional town center. The look and feel of Irasville is also not really a village center because people must still drive to everything. Route 100, which is the "Main Street", has little in the way of pedestrian character or amenities such as sidewalks or street trees. Whereas Irasville is regarded as an important economic engine for the town, the manner in which development took place is decidedly not in the form of a traditional village center by Vermont standards.

Figure 7:
Breakout Groups at public work session.

II. OPPORTUNITIES AND CONSTRAINTS

As a beginning point for creating the Irasville Growth Center Master Development Plan, information was gathered as to what physical constraints exist, what opportunities are possible to incorporate and what the components are of growth centers. In addition, it was important to understand what the current limitations are on the site based upon local regulations. A buildout analysis of how the existing Zoning Regulations influences the development of land was done.

PUBLIC INPUT

One of the important aspects of designating and creating a Growth Center is to include input from existing landowners. The design team interviewed Irasville business owners and residents to include their ideas in the design process. These landowners included Mad River Massage, Brothers Builders (Pat Thompson), Wood and Wood Signs (Sparky Potter), Waitsfield Inn (Mr. And Mrs. Masson), and Brian Shupe. The comments received from this group included the following:

- Speed and volume of traffic on Route 100 is a concern.
- There should be pedestrian links from the village up and down the Mad River to Waitsfield and the swim hole.
- There need to be more apartments and residences in this area to attract the labor needed to make the commercial areas viable.
- Route 100 should have stop signs in Irasville.
- There needs to be a few 20,000+ sf buildings in the growth center.
- Current parking seems to be more than adequate. Future parking should be more general in nature and not associated with a particular building or use.
- Creating one more truck friendly intersection with Route 100 would help the village area.
- Need sidewalks on Route 100.
- Bring buses into village area.
- There should be residential uses north of Irasville, linking it with Waitsfield Village (around the back side of the hill).
- Some parcels are key to the development of Irasville, such as the northwest corner of the Slow Road.
- The Master Development Plan is going in the right direction.

These comments were considered as the design process evolved.

WATER/WASTEWATER LIMITATIONS

Municipal sewer and water are a necessity for the growth center. According to the Irasville Survey conducted in May 2001, 95% of respondents favored developing municipal water and sewer at Irasville to spur development and concentrate growth. The numbers and amount of square footage in this report assume that a sewage treatment facility will be built in the near future. Certain aspects of the existing Irasville area are successful, however, the need for onsite sewage disposal limits expansion and development concentration. A municipal sewer system would allow for higher density. It would also create opportunities for further retail and commercial/entertainment options and housing of all types but especially affordable housing. If Waitsfield is unable to provide municipal sewer, the Irasville Growth Center may develop incrementally over time, but will be unable to reach the level of density that is intended.

Presently, Phelps Engineering is working on a Sewer and Water Study for Waitsfield and Irasville. The sewer and water study has defined several basic parameters for planning purposes:

- Village water is an absolute necessity and should be provided for all businesses and residences in Irasville.
- Providing municipal water will allow for some additional infill development to occur as the isolation distances from private wells will be erased such that some of the onsite septic systems can be enlarged for additional capacity.
- The planned thresholds for sewage treatment at the Munn site allow for untreated waste to be disposed in a leach field with 30,000 gallons per day (gpd) capacity. Of that capacity, between 15,000 and 20,000 gpd will need to be used for connecting failed systems in Irasville. That leaves about 10,000 to 15,000 gpd for additional growth that could arise from the growth center. This would equate to approximately 40 housing units (12,000 gpd for 2 BR), 50,000 SF of commercial space (2,500 gpd), and 50,000 SF of office space (1,500 gpd).
- The planned capacity of the Munn site will accommodate about 25% of the buildout of the upper area of the Irasville growth center. Upgrading the system to secondary or preferably tertiary treatment would allow as much as 70,000 gpd at the Munn site at a significant increase in cost that could be offset by increased density. Financing of such an upgrade would likely require the purchase of sewage allocation credits by developers of commercial and residential projects and the cost (possibly as much as $25,000 per unit, twice the cost of a typical mound system).
- The planned capacity at the Munn site wouldn't likely accommodate any residential development of the lower area by Fiddler's Green, given the density of residential units in that area.
- It appears that additional capacity will be needed in the future, although advances of "innovative" and "alternative" sewage technologies for pre - treatment could meet much of that need. The Towns ambitions for the growth center for long term development will require continued public investment.
- Onsite septic assumes that many existing uses with septic fields will remain in place.
- Municipal sewer allocations will be made primarily to the new growth in Irasville and replacing defective existing systems.

- Assume that municipal water is provided for all uses so that isolation distances between on-site septic fields and wells can be erased.
- Assume that a threshold of 30,000 gpd is the initial limit on the Munn site without pre - treatment. Assume that 15,000 to 20,000 gpd of capacity are reserved to connect failed systems in Irasville, that leaves 10,000 to 15,000 gpd of capacity for new uses for an initial phase of sewer system development.

Irasville Growth Center Wetland Classification

Note:
Wetlands to the north of Route 100 were field delineated and surveyed in the Summer of 1998. Wetlands shown to the south of Route 100 are based on field reconnaissance and may not represent all wetlands in this area or be accurate as to

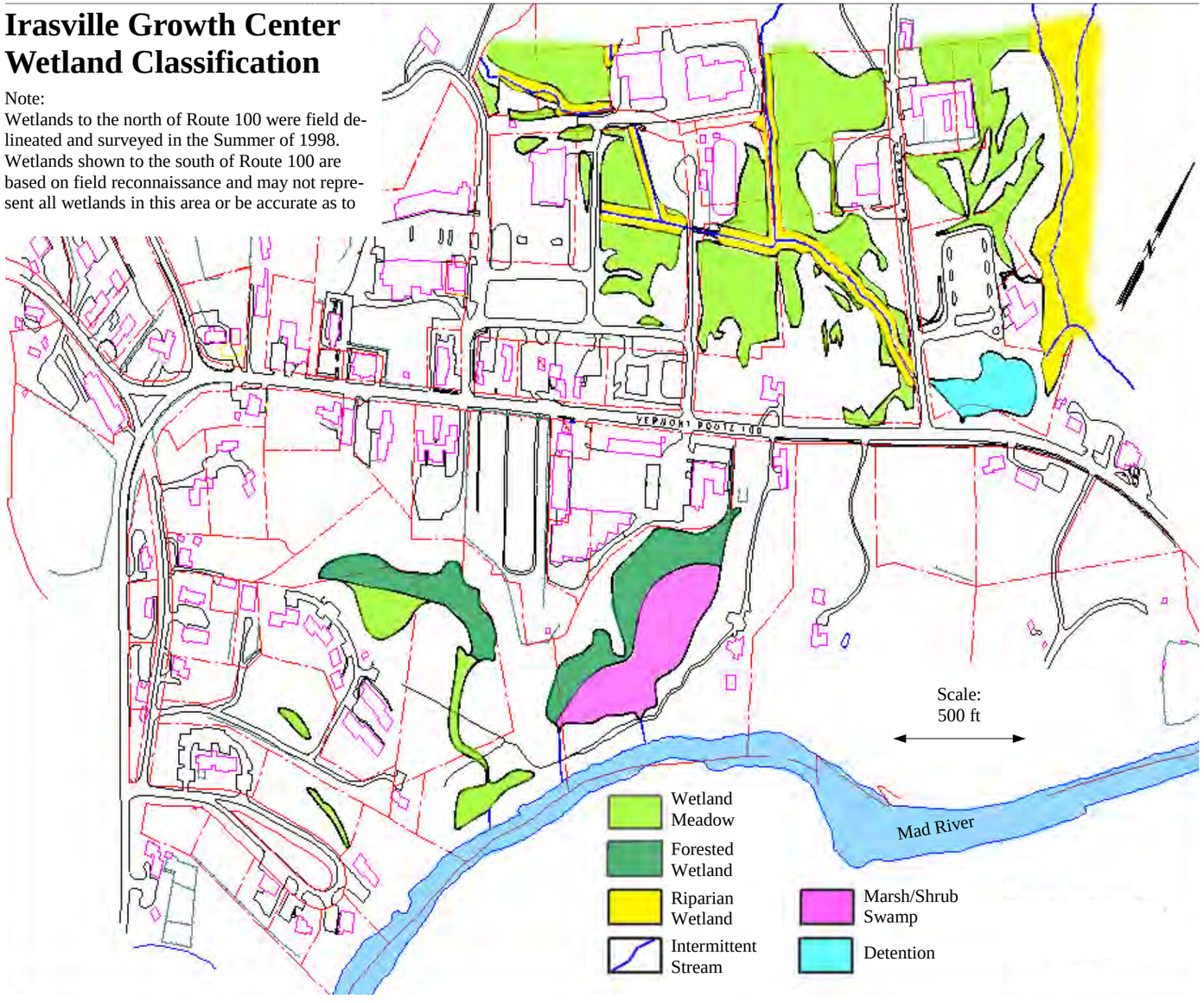

Figure 8: Wetlands Classification Plan

WETLANDS ASSESSMENT

The Irasville Growth Center area contains several types of wetlands determined by landscape position, hydrology, soils, and vegetative cover. These wetlands were divided into different "types" to allow a more accurate and location-specific functional evaluation and were classified according to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, L.M., et al, Dec. 1979).

Several wetland functional evaluation methods applicable to this portion of New England were used:

- *State of Vermont Wetland Rules;*
- *US Army Corps of Engineers Highway Methodology; and*
- *Method for the Comparative Evaluation of Nontidal Wetlands in New Hampshire.*

The wetlands occurring in the Irasville Growth Center area were classified into six functional types based on hydrology, vegetation type, position on the landscape, and relationship to other landscape features. Their ability to provide any of the ten wetland functions recognized by the State of Vermont Wetland Rules was evaluated.

The Detention Pond near Route 100 at the north end of the Growth Center was determined to exhibit the greatest number of functions (7 out of 10) because of its ability to detain and treat stormwater, provide habitat for fish and possibly other species of wildlife, and to provide an aesthetically pleasing landscape feature and occasional recreation resource.

The Riparian Wetland and Intermittent Streams were determined to provide 5 out of 10 and 4 out of 10 functions, respectively. Taken as one system, they provide 7 out of 10 functions. This is due to the presence of significant surface water, the ability to handle and treat surface water on its way downstream, and the aesthetically pleasing nature of flowing water.

The Marsh/Shrub Swamp was determined to provide a fair number of functions (5 out of 10) because of its relatively remote location, lower level of disturbance, and relationship to other wetland types as well as the Mad River.

The Forested Wetlands were determined to provide 3 out of 10 functions because of its dense cover of vegetation, potential to support wildlife habitat, and its ability to aesthetically enhance the landscape.

The Wetland Meadows were determined to provide the fewest functions. This is due in large part to landscape position, hydrology, and land use. The functions provided by this wetland type are similar to those provided by upland meadows.

The *Irasville Growth Center Wetland Functional Evaluation Report* was

prepared in December 2001. It outlines the process taken to identify and classify wetlands and what their specific functions are today. See Appendix A.

WATER QUALITY MONITORING

The Waitsfield Town Plan has designated Irasville and Waitsfield villages as growth centers. The focus of the current planning effort is on Irasville where development pressures are greatest. The intent is to cluster retail, office, and residential uses near existing services to reduce environmental, social, and economic costs. This type of development will also simplify collection, detention, and treatment of stormwater before discharge to the Mad River.

Currently the easiest type of development to get permitted is a single use, low density project on an individual small (one acre) parcel of land. This type of development avoids the need for large septic capacity or innovative treatment, stormwater management review, Vermont's Act 250 land use permit process, and simplifies wetlands permitting.

The goal of the Irasville Growth Center Master Development Plan is to make desirable development the path of least resistance, through a joint Master Development Planning process, master wetlands and stormwater planning, comprehensive stormwater management, improved zoning, and public outreach on these complex issues.

The objectives of the Irasville Growth Center Stormwater Quality Monitoring are to:

- Identify and quantify pollutants carried in stormwater runoff
- Enable informed design of stormwater treatment systems
- Provide guidance for the creation of a Stormwater Management Plan
- Continued monitoring to provide feedback on the effectiveness of the Stormwater Management Plan, the existing stormwater infrastructure, and identify water quality trends
- Assist in the evaluation of existing wetland functions
- Encourage citizen involvement and awareness of watershed issues.

Surface water from the Irasville Growth Center northwest of Route 100 is collected by a small stream that has its headwaters on the steep hillside to the northwest of the town line. Near the intersection of Carroll Road and Route 100, an artificial pond receives stream flow. The pond overflows into the natural stream channel that then continues northeastward to its confluence with the Mad River at the southwestern edge of Waitsfield village.

Southeast of Route 100, numerous groundwater seeps issue from the terrace escarpment and, combined with surface water flow draining down

Figure 9: Watershed Map of the Mad River

over the face of the escarpment, enters the Mad River through two small streams.

Substantial areas of wetlands occur on both sides of Route 100 in the Growth Center. Wetlands northwest of Route 100 are dominated by wet meadows and riparian wetlands. To the southeast of Route 100, there are marshes, wet meadows, forested, and scrub-shrub wetlands.

To characterize stormwater runoff quality, water was sampled at two locations upstream of, and five locations downstream of, the Irasville Growth Center area. Parameters have been selected that are meaningful and will increase understanding of the effects of development on stormwater quality. They include total suspended solids, total phosphorous, and E. coli. Informal measurements of water temperature and stream flow were part of the characterization of ambient conditions during sampling.

As a result of this study, samples should be collected four times per year, during precipitation or thaw events in the Winter, Spring, Summer, and Fall. Carried out over a long period of time, it could also provide information on the effectiveness of stormwater management practices.

The *Quality Assurance Project Plan for Irasville Growth Center Stormwater Quality Monitoring Report*, dated May 4, 2001, was reviewed and approved by the United States Environmental Protection Agency (EPA) and should be used as a guide for evaluating stormwater water quality in Irasville. In addition, one round of stormwater monitoring was performed following the Quality Assurance Project Plan guidelines was performed in May 2002. See Appendices B and C.

WHAT MAKES A TOWN CENTER?

Many towns in Vermont are the product of historical development, often originating hundreds of years ago. In the 18th and 19th centuries, towns built town halls, schools, and designated town commons as parade grounds and grazing lands. Churches, masonic halls, stores, and factories were built by private businesses. Land was subdivided to create large agricultural parcels in the countryside and smaller village size lots for houses, businesses, and public institutions in the town center. Streets were laid out by the town leaders and provided essential access and connections.

The form of a town center was influenced by the landscape: rivers, valleys, hilltops or other physical restrictions, or the lack thereof. In the absence of zoning, there were few legal restrictions on the development of land. There were, however, restrictions on building types due to wood frame construction. In the earlier centuries, there were "pattern books" that many carpenters and master builders followed that prescribed appropriate styles for homes and other structures. The result was an environment with a certain consistency and charm that is now highly regarded in Vermont.

The scale of a town center varied according to the population of the surrounding town and ranged from a small crossroads with a small cluster of houses and a store, to moderate size hamlets or villages, to bustling commercial centers. The size of any given town center grew in proportion to the community's economic prosperity, demand for commercial and professional services, and significance of its public and cultural institutions such as town halls, libraries, churches, and schools. All this occurred in a seemingly well orchestrated cause and effect relationship that was largely market driven with some guidance by town leadership.

The influence of transportation also played a heavy role, as the railroad towns became the centers of manufacturing and commerce. Rural farming towns without railroad infrastructure were smaller and more self-subsistent. Such was the case with Irasville and Waitsfield.

How big is a town or village center? The layout of town centers varies dramatically from place to place and there is no clear rule of thumb. Each center is unto itself a unique place. There are also many scales of traditional town and village centers: crossroads, hamlet, village, town, and city. Most villages or moderate size towns like Waitsfield have a core density of residences, commercial businesses, and public buildings. Actual numbers vary but it is not uncommon to have several hundred residences in a village or town center with between 250,000 and 500,000 square feet of other buildings. Generally most town centers can be traversed by a person on foot in ten to fifteen minutes, or a distance of ¼ to ½ mile across.

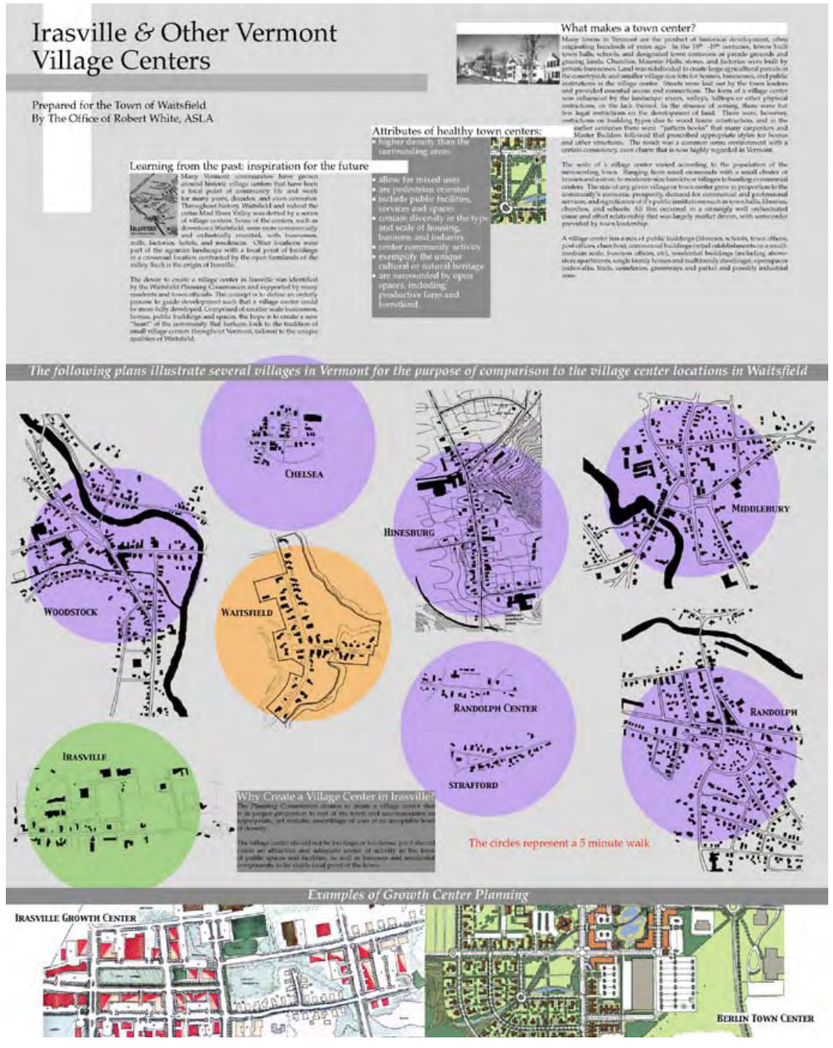

Figure 10: Town Center Panel

As the development of Irasville unfolds, the proximity and relationship of Irasville to the Village of Waitsfield is also a question. Historically speaking, the two should be kept apart as separate unique places, yet there is a sense that the two should or will become one. If that happens, will Waitsfield still be a village center with a pedestrian scale or will one need an automobile for it to function?

What do other town centers in New England look like? A town center has a mix of public buildings: libraries, schools, town offices, post offices, churches, commercial buildings such as retail establishments on a small-medium scale, business offices, etc, residential buildings including above-store apartments, single family homes and multifamily dwellings, open spaces such as sidewalks, trails, cemeteries, greenways and parks, and possibly light industrial uses.

Figure shows examples of other village and town centers in northern New England. Some are relatively small and informal; others are more urban in character.

WHY A GROWTH CENTER IN IRASVILLE

Growth for Irasville should not mean negative change if the pattern of new development is guided by historical precedents and integrates beneficial development that will improve the quality of life in the community. The desire is to create a true village center, where residents live in neighborhoods, where goods and services are efficiently located nearby. Additional benefits will also be created: surrounding productive lands can be kept in agriculture, affordable housing and local job growth can be accommodated, and a multi-generational community will be made possible, so that elder residents can remain in the community and have access to healthcare and other services.

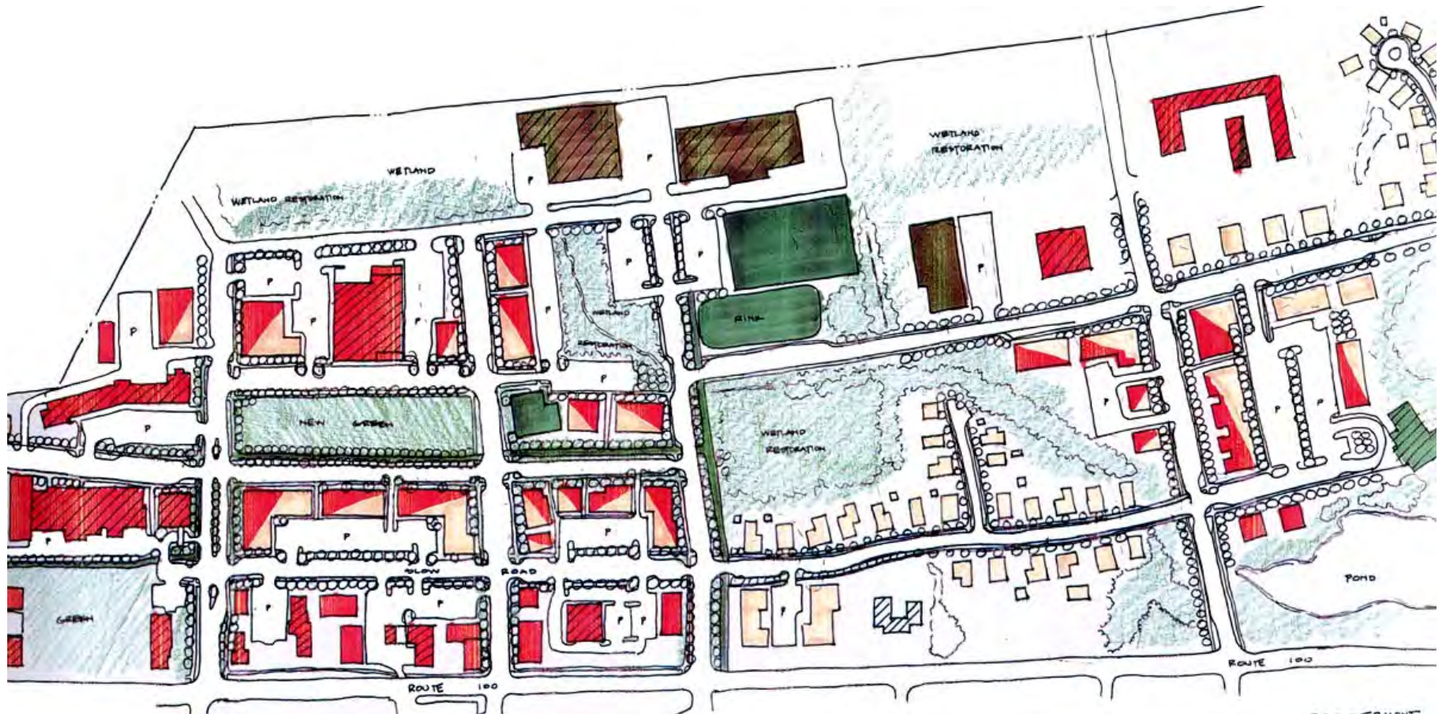

Figure 11: Original Master Plan Prepared by Lamoureux & Dickinson and Julie Campoli in 1998

What is smart growth? According to the VT Forum of Sprawl, traditional Vermont town centers have several attributes:

- Higher density than the surrounding areas,
- Allow for mixed uses,
- Are pedestrian oriented,
- Include public facilities, services and spaces,
- Contain diversity in the type and scale of housing, business and industry,
- Center around community activity,
- Exemplify the unique cultural or natural heritage, and
- Are surrounded by open spaces, including productive farm and forestland.

According to the EPA, the following are desirable principles of Smart Growth:

- Mix of land uses,
- Compact building design,
- Create a range of housing opportunities,
- Create a walkable community,
- Foster a distinctive sense of place,
- Preserve open space, farmland, natural beauty, and critical environmental areas,
- Focus and strengthen development towards existing community centers,
- Provide alternative transportation choices,
- Make development decisions predictable, fair and cost effective, and
- Encourage public involvement in the planning process.

The benefits of creating a town center in Irasville specifically are:

- Irasville has a dire need for improvements to its water supply and sewage disposal systems. Operating solely on onsite systems for both, water quality and sewage treatment are perilously close to unacceptable levels of contamination.
- Creating new neighborhoods for mixed housing will create options for affordable housing as well as middle upper income housing so that residents have housing choices in attractive neighborhood settings that are at walkable distances to service, school, jobs and other basic needs.
- Creating a magnet for commercial development will allow that inevitable growth to be focused efficiently and planned for.
- The town does not really have a central heart either as a public building or outdoor space. While there are a few small parks and the Mad River Path, a large outdoor gathering place doesn't exist.

AN UNPLANNED FUTURE: BUILDOUT ANALYSIS OF EXISTING ZONING

In order to understand the impacts of local regulations on the site, a buildout analysis was prepared. This buildout analysis plan reflects the existing conditions of the site. It doesn't include any provisions for municipal infrastructure for water or wastewater.

The Buildout Analysis plan parameters were determined using the following information:

- Current zoning regulations,
- A standard footprint size with corresponding septic area,
- An assumed use for the new structure,
- Basic Soil Survey information,
- The location of current septic systems and wells,
- Existing building uses and locations,
- Existing road patterns, and
- Existing wetland, tree stand steep slope and other environmental resource locations.

An analysis of the existing soils of the growth center area was done to determine which soils are suitable for on-site sewage disposal. It was determined from this information that there are limited pockets of soils that will support septic systems. See Table 1 and Figure 13.

Using these parameters, the amount of undeveloped upland area was calculated for each lot. Verification was done of the size and use of the existing buildings on each lot was verified against the undeveloped upland area to determine if unused development potential remained. The potential was mapped as buildout potential, either as residential, commercial or mixed use. Upland portions of undeveloped lots were considered totally available as potential buildout areas. For those properties that had buildout potential but did not have enough room for a standard footprint, a smaller building footprint was used to take advantage of the available land.

Figure 12 is the Buildout Analysis plan. The Buildout Analysis Plan shows:

- 26 new 1,250 square foot (sf) residential footprints
- 2 new 1,250 sf commercial footprints totaling 2,500 sf
- 4 new 1,250 sf mixed use footprints totaling 5,000 sf.
- 7 new 2,500 sf mixed use footprints totaling 17,500 sf.

The 2,500 sf footprints include allowances for 7,750 sf of parking area plus 12,600 sf for septic systems (900 gpd) for a total utilized land area of 22,850 sf. The 1,250 sf footprints include allowances for 2,100 sf of parking area plus 6,000 sf for septic area (450 gpd) for a total utilized land area of 9,350 sf.

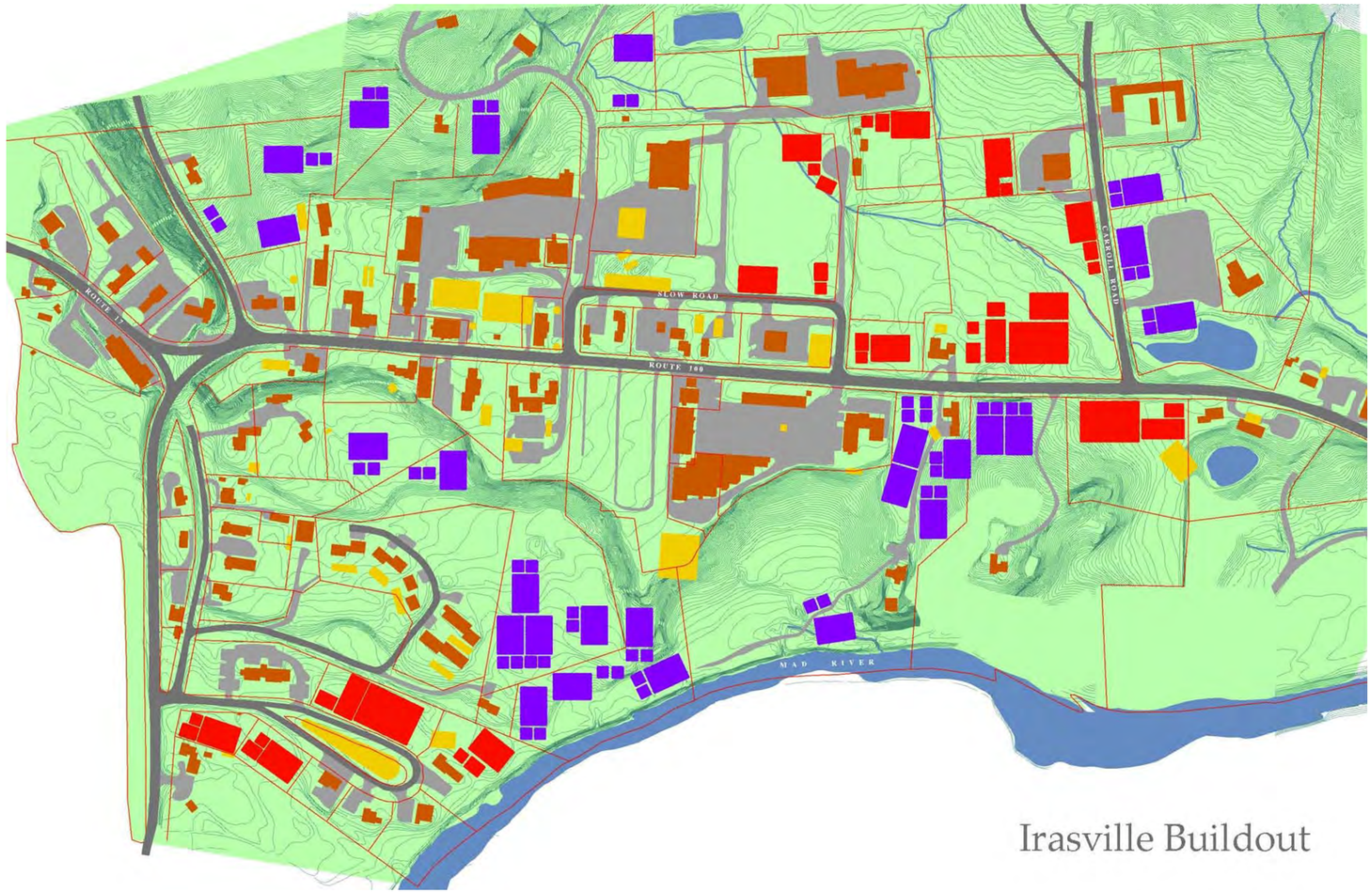

Figure 12: Irasville Buildout Analysis Plan

Table 1

Map Unit Symbol	Map Unit Name	Generally suitable for on-site sewage disposal?
3A	Rumney fine sandy loam, 0 to 3 percent slopes	No
33A	Machais fine sandy loam, 0 to 3 percent slopes	Portions may be suitable*
33B	Machais fine sandy loam, 3 to 8 percent slopes	Portions may be suitable*
39A	Colton gravelly loamy sand, 0 to 3 percent slopes	Yes
39B	Colton gravelly loamy sand, 3 to 8 percent slopes	Yes
39C	Colton gravelly loamy sand, 8 to 15 percent slopes	Yes
39E	Colton gravelly loamy sand, 25 to 60 percent slopes	No
43B	Salmon very fine sandy loam, 3 to 8 percent slopes	Yes
43E	Salmon very fine sandy loam, 25 to 60 percent slopes	No
44B	Lamoine silt loam, 3 to 8 percent slopes	Portions may be suitable*
44C	Lamoine silt loam, 8 to 15 percent slopes	Portions may be suitable*
45A	Scantic silt loam, 0 to 3 percent slopes	No
58A	Grange silt loam, 0 to 3 percent slopes	No
59A	Waitsfield silt loam, 0 to 3 percent slopes	No
60A	Weider very fine sandy loam, 0 to 3 percent slopes	No
72C	Tunbridge-Lyman complex, 8 to 15 percent slopes	No
72D	Tunbridge-Lyman complex, 15 to 35 percent slopes	No
78D	Peru gravelly fine sandy loam, 15 to 35 percent slopes	No

* For mound systems only.

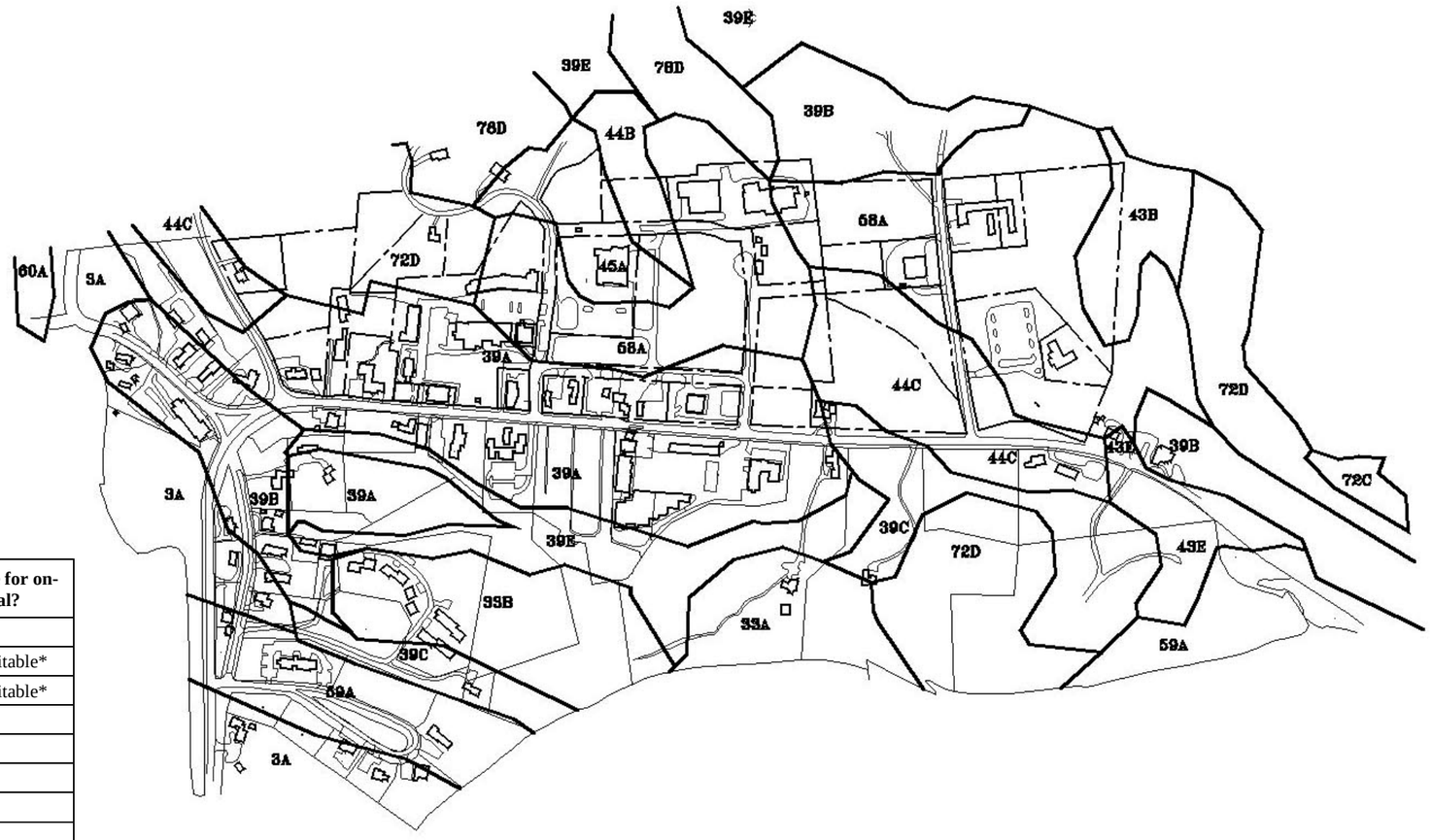

Figure 13: Soils Plan of Irasville

A few conclusions can be made from the Buildout Analysis.

- Very little additional development can be realized without a plan and infrastructure.
- The buildout analysis exacerbates the current public health issues with wastewater capacity and water quality.
- Minimal new housing can be accommodated.
- Minimal new job growth potential exists thereby limiting economic benefits for the town and residents will continue to be forced to drive to work elsewhere.
- Inefficient strip development is perpetuated because existing development cannot expand.

Without further planning, these forces will create their own future influenced only by the desires of an individual property owner.

In order to truly understand what the buildout analysis results are showing, Figures through have the Irasville Buildout Analysis Plan with traditional town centers overlaid at the same scale. This begins to show how dense downtown development can be in relations to what the Zoning Regulations allow.

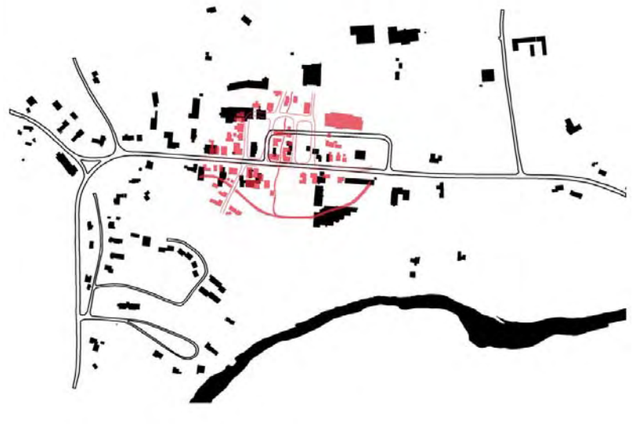

Figure 14:
Plan of Irasville Overlaid on Different Existing Town Centers
to Understand the Relationship of Size and Scale

MARKET ANALYSIS

The town of Waitsfield contracted with Economic and Policy Resources, Inc. of Williston to undertake an economic study of the Irasville growth center. The intention of the study is to lay the groundwork for developing future economic development strategies. Included in the study is a strategic assessment of the Waitsfield and Mad River Valley economy. The report also identifies key growth industries and major employers. Information is provided as to the current economic climate, and makes projections regarding future demographics and potential economic growth. The study developed the twenty-year projections assuming that there will be no infrastructure constraints on economic and population growth during that time. Changes and trends in Waitsfield and Irasville were looked at in relation to regional trends of Washington County and northwest Vermont.

Summary of Projections

- The population of the Valley will increase by 2600 residents.
- Waitsfield will likely experience the slowest rate of growth, adding just 600 new residents.
- The total number of households is expected to increase to just over 1300 by 2020.
- Waitsfield will absorb 260 households or 20% of the total number of projected households.
- The Valley will likely see an increase of over 900 non-farm jobs, most of them in Waitsfield.
- Most of the jobs will be in the Service and Retail sectors, however, Manufacturing, Public Utilities, Finance, Insurance and Real Estate will also experience some growth.
- Construction is the only sector expected to lose jobs over the next twenty years, projecting a loss of twenty jobs by 2020.
- The projections indicate that 136,000 additional square feet of non-residential space will be needed in Waitsfield to accommodate job growth over the next twenty years.

Significant Issues for Community Review

- The natural beauty of the community is a positive regional resource. It is a source of community pride, reported to help generate customers and attract employees.
- Public sewer and water is the greatest limiting factor to developing Irasville. The infrastructure is necessary to develop the density needed for a viable growth center.
- A severe housing shortage is limiting economic development and is exacerbated by the lack of public sewer and water.
- Opportunities to increase the local labor pool lie in retaining the 5-19 year olds. Creating a nightlife, and non-outdoor recreation may be an important economic development strategy.
- Valley businesses producing high end products and niche markets are the most viable.
- The high technology infrastructure provided by Waitsfield Telecom is exceptional for a small rural community. It appears to be an important resource for recruiting and retaining businesses.

Recommendations

- A comprehensive review and analysis of appropriate economic development strategies for Waitsfield should be included in the Master Plan.
- Economic development should at the minimum include the protection of the Valley's natural assets, the fullest utilization of the high technology infrastructure that is practical, and a focus on niche markets.
- The Town should establish a specific target for the number of new jobs and housing units they want to locate in Irasville Growth Center, implement appropriate zoning and development policies, and follow through on required infrastructure development.
- The possibility of establishing a Tax Increment Financing District should be investigated through the Vermont Economic Progress Council incentives program for the Irasville Growth Center as part of the financing mechanism for infrastructure development.
- The study recommends that an Economic Development Leadership Committee be established to: (1) implement the recommendations in this report, (2) complete the formulation of specific economic development strategies to be included in the Master Plan, and (3) establish and monitor benchmarks or measures of success related to the economic development components of the Master Plan.

Figure 15: Alternative A Sketch Plan and Diagram

III. IRASVILLE GROWTH CENTER MASTER DEVELOPMENT PLAN

INITIAL CONCEPTUAL OPTIONS FOR A NEW TOWN CENTER

The Irasville Growth Center Master Development Plan is the result of a synthesis of previous plan iterations. Several public work sessions were held by the design team.

During this process, one public work session focused on different alternatives that were roughly defined by the design team. Three breakout groups came up with ideas as to what they wanted to see.

Group #1: Continue the Status Quo A list was prepared on their plan as to the uses they wanted and didn't want. Highlights include:

- No fast food restaurants.
- Want to see lots of recreational facilities.
- Encourage housing for all ages.

Group #2: Reinvestment Future - Traditional Downtown This group developed the concept of a Main Street on Route 100. Major points for this group include:

- On street parking on Route 100 with street trees.
- Encourage more businesses in multi-story that are mixed uses with residential on second and third stories.
- Attract more residential.
- Create more of a village feeling.
- Reduce large parking areas: have more on street parking.
- Wastewater treatment plant facility to be located in the growth center.
- Have more green space in the town - more of a critical mass with connections between them - make a more formal green with trees.
- Use brook or greenway - "fenway" as a piece in the green space network.
- Improve stadium area.

Group #3: The Village of the Future

- Have Route 100 be redesigned with street trees, on street parking, bike lanes, and sidewalks.
- Leave stream/wetland area leading to pond.
- Enhance the pedestrian way from Fiddler's Green to Irasville - also along Mad River.
- Created additional roads/street network.
- Encourage housing for all types/classes of people/starving artists.
- Large building for community activities.
- Move town offices to Irasville.

Figure 16: Alternative B Sketch Plan and Diagram

Figure 17: Alternative C Sketch Plan and Diagram

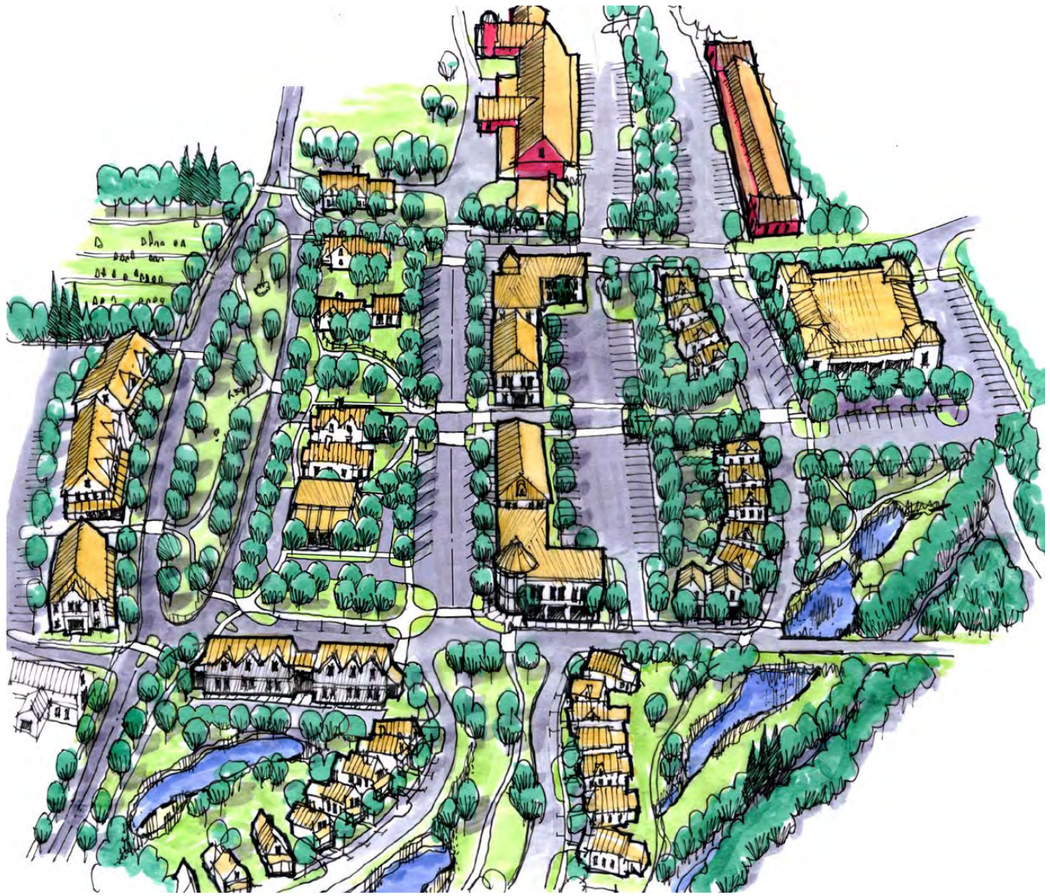

Figure 18: View of New Neighborhood on the south end of the village

As a result of this and other public input and information collected on existing conditions, three alternatives were prepared by the design team. Summary drawings of the alternatives considered town center alternatives are shown in Figures 15 through 18.

During the workshops and efforts of the project design team, other design concepts were developed. Some aspects of those plans have been retained and others have been discarded. Decisions have been made about the amount of development to use: a program of land uses and target densities and unit/sf projections, ways to treat the Route 100 corridor, optimal locations for types of land uses, and how best to integrate the current development in Irasville with future development.

AN OVERALL PLAN FOR A NEW TOWN CENTER

The Irasville Growth Center Master Development Plan represents the most expansive thinking about the wide range of potentials for Irasville. However, the process of a final design and putting together the detailed plans for the specific development projects will cause it to change and evolve more in the future. This is a plan that demonstrates potential and intention that is responsive to the needs and interests of landowners and developers who will ultimately develop the projects that will help create this new town center and is not one that is cast in stone.

The illustrated plan presents the realization of the Town Center goals and program into a design concept for the Town Center. The plan is the result of several public planning workshops, working sessions with the Waitsfield Planning Commission, coordination with the wastewater and water infrastructure planning process, and state and federal regulating agencies with jurisdiction over a wide range of permitting.

The major elements of the Irasville Growth Center Master Development Plan are:

- Defined compact village pattern of mixed - use growth in Irasville.
- Higher density clustered housing in neighborhoods with interconnecting streets and pedestrian ways. A range of lot sizes are shown to provide housing diversity options.
- The higher density clustered housing is surrounded by open spaces, including productive farm and forestland throughout the Mad River Valley.
- Civic buildings: new town offices should be relocated to Irasville and be a central focal point of community design.
- A Town Green, recreation park for the new neighborhoods, and a series of connected open spaces.
- Independent and assisted - care elderly housing.
- Commercial and mixed use buildings in a compatible scale to other uses. Focus on commercial and office/service development that will create a sustainable living – working community instead of only a tourism based commercial economy.
- New roads that are pedestrian and bicycle oriented.
- Trails and nature walks into the wooded ravines and across the open meadows and the cemetery.
- Expands upon the cultural and natural heritage.
- Define a positive relationship between the village center and the Route 100 corridor such that the road/village relationship is enhanced.
- Define the level of growth made possible with the wastewater capacity of the Munn site, and the provision of town water, but do not let the current limitations of that infrastructure limit the potential of the future growth that could occur in Irasville since new technologies and state policies can and will change.

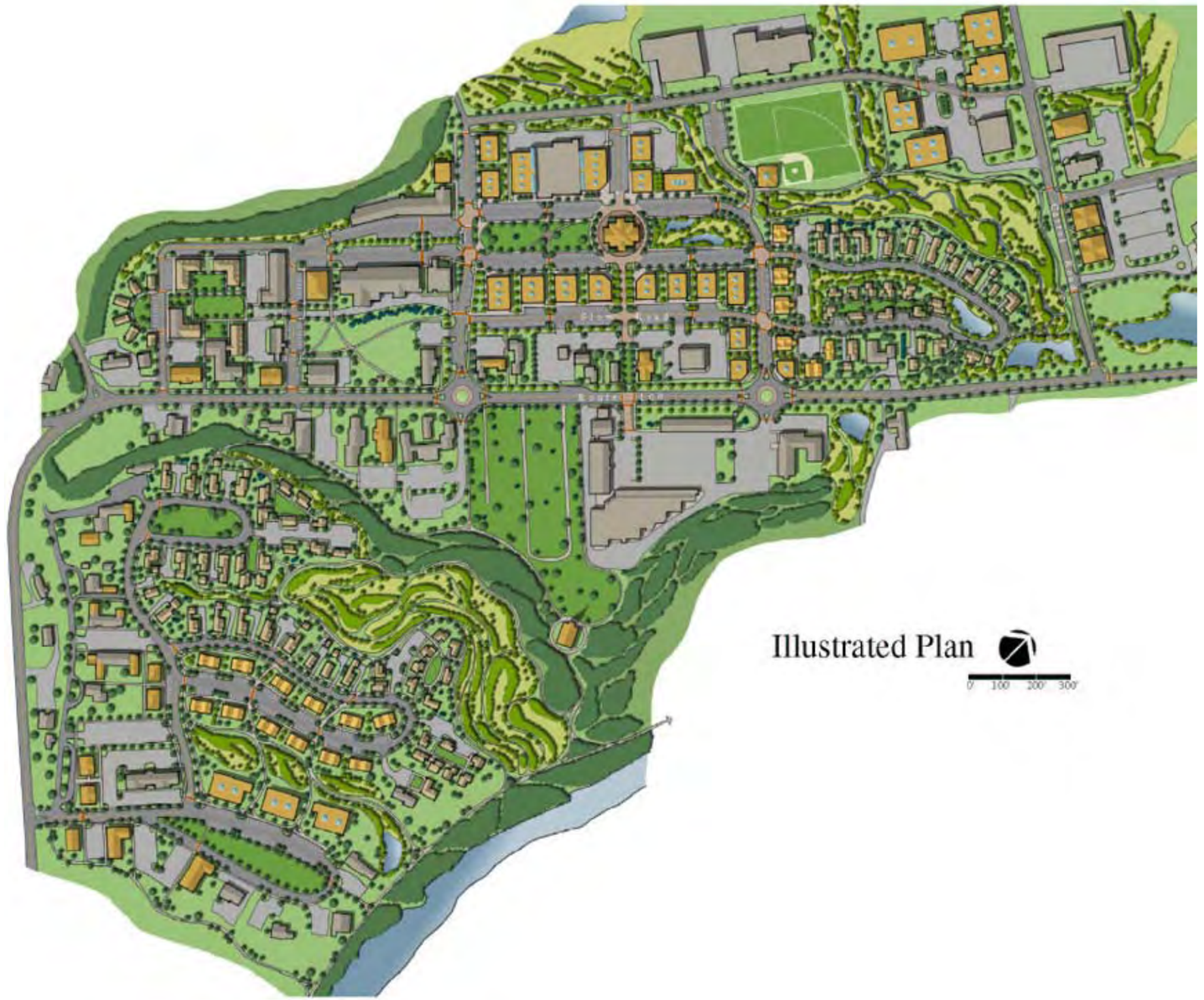

Figure 19: Overall Master Development Plan

The anticipated growth projections are based upon the market analysis and information presented in the *Integrating Economic and Demographic Analysis in the Irasville Growth Center Master Plan* (IDEA) prepared by Economic & Policy Resources, Inc. for the Town of Waitsfield. See Appendix D.

An outline of the various elements of the Irasville Growth Center Master Development Plan are described in further detail.

Housing

Types of housing that are shown in the master development plan:

- Single family on moderate size lots
- Single family on small lots
- Duplex family on moderate to small lots
- Multifamily 4plex in large house
- Multifamily- elderly complex in 12 unit big house
- Cottage clusters
- Upper story apartments
- Live/work units

According to the Economic and Policy Resources report, *Integrating Economic and Demographic Analysis in the Irasville Growth Center (IEDA)* Waitsfield can expect 275 new households by 2020. That means an average of 15 new dwelling units per year. Changes in zoning will be required to create a high-density, mixed use village at Irasville.

The housing program for Irasville should include a variety of housing types in all price ranges to accommodate single adults, couples, small families, retirees and others who might choose to live in a village setting. The range of housing should be a mix of the following: single family, multi -family, housing for the elderly, 2nd and 3rd floor apartments, accessory units and cottage units (homes of approximately 1,000 sf). Affordable units should be integrated into the neighborhoods. The residential areas should also include neighborhood parks/playgrounds and should be linked to the pedestrian path network. The housing density proposed for Irasville could be higher than Waitsfield Village.

The following table defines the ranges and types of residential housing units that have been targeted for the growth center. Approximately 120 to 230 units of housing could be absorbed within the growth center.

At a November 2001 public forum, there was strong agreement among participants that housing should be a priority. New residential areas are to be a key component of the growth center. Undeveloped lots may provide opportunities for the development of several small village neighborhoods. Two areas were identified as possible new neighborhoods: the area north and east of Fiddlers Green, and at the northern end of Irasville between Shaw's Supermarket and the Mad River Flick.

Table 2
Types of Residential Housing for Irasville

Type of Housing	Number of Units
Single Family house	25 to 50
Duplex house	10 to 20
Multifamily housing	15 to 20
Cottage units	15 to 20
Elderly units	15 to 20
Apartments on upper levels of buildings	40 to 100
TOTAL	120 to 230

Housing issues in the Mad River Valley were discussed again at a Housing Summit held in April 2002. An informative panel discussion was followed by participation in small groups. The questions asked of each group, along with some of their responses and suggestions are listed below.

What would a model Mad River Housing Picture look like?

- High Density Villages
- Fill in lots between existing buildings
- Clustered development
- Comprehensive mix of housing types
- Small Scale
- Vernacular massing

What still needs to be addressed to realize this picture?

- Update municipal systems
- Allow alternative systems
- Zoning reform
- Act 250 reform
- Identify lands appropriate/not appropriate for development
- Changes in attitudes
- Encourage accessory apartments
- Promote Village Living
- Adaptive Re-use of existing buildings
- Construct Rental Units
- Build Worker Housing

Housing has been integrated in five ways into the Irasville Growth Center Master Development Plan:

- Higher density detached homes on small lots or clusters, designed in a neighborhood format with quiet tree lined streets, sidewalks and small parks and open spaces with trails.
- Accessory rental units have been included with detached housing as either small "granny flats" or above garage units.
- Cottage clusters of compact houses around courtyards with shared parking.
- Apartment units primarily for employee housing on the second or third floor of mixed use blocks.
- Innovative hybrid buildings designated as "live-work" units. Each building has a workspace for office /retail or other small business use on the ground floor. On the upper floor(s) are one to three dwelling units for owner/employee/rental purposes.

Single Family Houses

Singe family homes have been shown on small lots of approximately 60 feet x 100 feet. These lots could be both subdivided and built upon individually or developed and sold as detached
"condominium" ownership of the building or "zero lot line." These lots generally allow for a compact two story house of 1,200 to 1,600 sf, a garage, accessory rental unit and yard/ driveway space. In some cases each house has its own driveway. For illustration purposes, others are shown with two adjacent lots sharing a common driveway.

Village style housing on small lots is an exercise in "the art of accommodation" where the placement of the house, driveway and disposition of yard/private landscape space must be carefully coordinated. New zoning/design guidelines should be devised to encode these new housing types. The current Waitsfield bylaws do not allow the lot size, setbacks, or densities presented, and parking requirements do not reflect likely changes in automobile use that would accompany a greater number of resident walking to places of work.

The merging of several lots to build single larger houses is a threat to this housing type, as it reduces neighborhood "critical mass". However, single or combined lots should be able to be used for multifamily " house scaled" units. More parking would be needed than provided in the single family units.

Accessory Units

Small accessory rental units have been shown with some of the single-family houses, which could be available as "granny flats" or "in law" apartments. Small units of 750 to 900 sf for a single person or small family could provide modest cost rental housing close to jobs and services, and rental income to aid housing affordability. Small units also could provide detached housing for the elderly.

Eldercare

An area of detached small family and multifamily elder housing has been shown as a neighborhood extension of the house. Located convenient to many existing or planned services (banks, Post Office, hardware, grocery), this development could allow residents to remain in the Waitsfield

community instead of seeking housing elsewhere. The elder program could also be an efficient way to integrate both resident skilled nursing care in a 25 to 50 unit complex, or to optimize access to visiting nurses on a regular basis. Either staffed or a visiting nurse office could be centrally located for access by all elderly residents.

Multifamily Buildings
Where as most multifamily condominiums are reputed to be a repetitive and monotonous building type, a neighborhood of "large house" 4-plex units has been included in the plan. Each unit is approximately 1,000 to 2,000 sf, making each house approximately 4,000 to 5,000 sf in size. The layout shown could accommodate either single level flats or two floor townhouse units with parking and yard area for each. The neighborhood uses a parking/service alley format behind the units. On the street side, a prominent but modest scaled front yard reinforces the traditional character of the neighborhood. Design guidelines should be developed for this housing type so that the larger scale still is compatible with the neighborhood streetscape. The buildings could use a repetitive floor plan, but make the exterior elevations vary.

Cottage Clusters
A familiar but undersized housing type has been included in the neighborhood area. Using compact clusters of cottage style houses similar to the archetypal Oak Bluffs on Martha's Vineyard, lakeside cottages found through Vermont, or smaller housing in city centers. However, these have been conceived with a clear local flavor for Irasville.

Cottage clusters are groups of 6 to 10 cottages 900 to 1,200 sf in size, typically 1½ stories tall. They are grouped around a shared courtyard, with a common driveway and either open or covered parking. Cottage clusters in a village center should require less parking per family. Neighborhood streets with on-street parking allow for visitors. Connecting walkways lead to each cottage and there can be both private garden space as well as a common lawn for the cluster. As many as nine cottages can comfortably fit on less than ¾ acre.

Live/Work Units
Since there are many valley residents who work from home, or small businesses that need flexible space and employee housing, a hybrid building type has been developed for Irasville and used in several areas on the plan. A live/work unit is a two or three story building with a ground floor business/commercial space and upper floor housing units. For the purpose of illustrating this concept in Irasville, a 4,800 sf foot print has been shown with two commercial/business spaces facing the street and the possibility of 2, 3, or 4 housing units on the upper floors between 1,200 to 2,400 sf. Parking for residential use for employees/ residents are in a near lot shared parking/service alley. Parking for businesses is provided on-street and additional spaces out back.

Commercial: Retail/Office/Professional/Service

The types of commercial uses envisioned in the growth center are:
- Free standing two to three story commercial/office buildings.
- Three story buildings with commercial/office on the first floor and residential on upper stories.
- Live/work units for home occupations and small businesses.

Commercial Space
The IEDA Study proposes that by the year 2020, 126,752 sf of additional commercial space will be required at Irasville to accommodate job growth. The number is calculated using a square footage factor reflecting the building space used by various employment sectors. It is expected that 51,500 sf will be used by the manufacturing sector. The services sector will use 25,740 sf, followed by retail, transportation and utilities at lesser amounts.

Of the total development program for Irasville, a number of new commercial uses are to be accommodated. These commercial blocks have been organized into two formats: two and three story commercial and mixed use blocks with retail on the ground floors, office on the second floor and apartments on the third floor. Commercial scaled blocks found in Waitsfield Village, Warren, and parts of downtown Waterbury or Richmond are the precedent that have been used. Depending on the requirements of the American with Disabilities Act (ADA), these buildings may need to be serviced with elevators, which may require them to be linked together with stair/elevator towers. In this case the total building area might be increased from the 10,000 to 15,000 sf size shown on the plan.

Large house-barn complexes are also shown so that a residential streetscape can be promoted while still accommodating commercial uses. These forms could be a particularly effective where these buildings are near residential areas. An additional feature of these building types is that if the barn is recessed on the lot, the mass of the building can be placed set - back across a landscape yard or garden area.

In the past, commercial development in Irasville such as the Mad River Shopping Center have been in larger scale connected buildings with large parking lots. While they have been dressed as barns and vernacular buildings, they still appear as modern commercial buildings with their automobile scale and orientation. New commercial development will have more variety in scale more similar to the historic pattern of houses and barns that originated in the village.

One major reason for moderately scaled buildings is the relationship between building footprint and stormwater runoff and associated parking requirements. In order to sensitively integrate green space for storm water infiltration, the size of the building needs to be moderated, and a permeable area of landscape needs to be defined between buildings instead of impervious asphalt or concrete paving.

Community/Public/Civic Spaces

The types of community oriented, public institutions, civic spaces that have been incorporated into the growth center are:
- Town offices: a free standing building facing a public green
- Church with small chapel
- Day Care Center/ Preschool co-located with eldercare
- Public green
- Recreation and Park spaces
- Trails

Civic
With much of the Irasville discussion focused on residential development and job creation, the importance of civic space has received but little attention. However the opportunity exists to develop a convenient, compact town center offering a variety of services. The 1998 Waitsfield Town Plan describes the mix of commercial public and residential land uses as an important component of traditional village character. The Town plan also suggests that public buildings such as municipal offices, community center and a church would provide a focal point for the district. Also recommended by the plan is the provision of outdoor recreation facilities.

As the plan for Irasville develops the square footage for civic space may be altered to reflect changes in need or priorities. At this point, 25,500 sf has been allocated for civic buildings, which should be adequate for the proposed municipal building, community center and church.

Open Spaces
In the Irasville Survey 2001, bike lanes and pedestrian pathways were strongly supported by over 95% of respondents. An important component of the district will be the village green, an idea supported by 100% of individuals responding to the survey. The green spaces and pathways could be used to link all areas of the growth center, and also provide opportunities for recreation.

With an increase in population of both resident s and employees in Irasville, there will need to be larger areas of accessible open space and parkland for the village center. The plan has defined a number of open spaces that should be wonderful neighborhood amenities and also fit well with the other land uses, protected and enhanced wetlands, and recreational trails.

A central village green has been located at the center of Irasville for relaxation, as a forecourt for the new town offices, and doubling as a large area for stormwater management.

A trail and greenway system has integrated the Mad River Pathway with neighborhood connections with trails to the Mad River corridor. Each neighborhood has the possibility of walking on paths to access places of work or services. These trails should be integral with the residential development and funded by the developed of those projects.

An active recreation center with athletic fields, teen/community center, and other sports and cultural facilities has also been centrally located for soccer, softball, community arts and crafts, and other local activities. Neighborhood pocket parks have been integrated with paths and the wetlands/stormwater/ greenway system. An overall feeling of "green" has been a priority in the design of all aspects of the village center ranging from emphasis on parks, greenways, streetscapes, and neighborhoods.

Stormwater Management

Management of stormwater runoff is necessary to maintain the natural resources and environmental assets of the Growth Center. The tributaries and associated wetlands, as well as the Mad River itself are aesthetic and recreational resources of the Irasville area. The development of the Growth Center will require construction of new streets, paths, and buildings. The creation these impervious surfaces increases runoff, alters drainage patterns and existing vegetative cover, and reduces infiltration. Runoff from developed areas also carries sediment, road salt, petroleum deposits, and other residue from suburban activities. Stormwater management includes providing treatment and detention of runoff. Treatment is provided by allowing for sedimentation and filtering of runoff. Detention is provided by holding back a portion of the runoff and releasing it slowly, mitigating the increase in flow resulting from development. Treatment and detention must be provided before runoff is released to existing streams or wetlands.

Permitting Requirements

Stormwater management is regulated by the State Water Quality Division as new development or redevelopment takes place. In general, creation of one acre or more of impervious area will require a State Discharge Permit under the pending Stormwater Management Rule. A Permit will be required whether development of the Growth Center proceeds on a parcel by parcel basis or through implementation of a Master Plan. However, planned growth and installation of stormwater infrastructure will make more efficient use of available land and more efficient operation and maintenance. Implementation of a stormwater utility could provide stormwater management for several parcels in a central location, allowing higher density development and taking advantage of the economy of scale.

Effective stormwater management includes both water quality and water quantity controls. The Vermont Stormwater Management Manual is the guide for designing and sizing stormwater treatment practices (STP's) to meet the specified standards for water quality, channel protection, groundwater recharge, overbank flood protection and extreme flood control. These five elements comprise the unified sizing criteria that form the basis of design for the STP's. Sizing requirements are a function of the site area, impervious area, soil, and vegetation types. However, the impervious cover is the main component in each of the unified sizing criteria.

Estimating the increase in the rate of stormwater runoff based upon the Master Plan is very difficult given the lack of detail available at this stage. Proposed grading and the methods of collection and conveyance of runoff all have yet to be determined. Implementation of some treatment and detention practices on individual parcels, rather than depending on only a stormwater utility will affect flow patterns. Even providing treatment on individual parcels could reduce the size requirements for a centrally located facility providing only detention. Calculation of peak discharge rates based on conceptual layouts and information will only yield abstract results.

Definition of the stormwater management systems on individual parcels, and the collection and conveyance to a central location must be established to estimate the capacity needed for a stormwater utility. Extensive use of open channels, providing treatment and lengthening flow times, versus a closed pipe system, can reduce peak rates as well as the capacity requirements for a treatment and detention basin.

Conceptual estimates have been performed of peak stormwater discharge rate increases for a 10 year design storm. The following presents conceptual estimated increases based upon existing conditions, building under current zoning, and the proposed Master Plan. These calculations must be re-examined with site design and layout of the stormwater management system. The estimated peak rates are prior to providing

Figure 20: Stormwater Collection Model

Table 3
Conceptual Stormwater Estimate Increases

Estimated increase in peak discharge rate (10 year design storm)		
Area	Zoning-build out	Master Plan
Area 1	3-5 CFS	5-7 CFS
Area 2	3-5 CFS	25-30 CFS
Area 3	10-15 CFS	20-25 CFS
Area 4	3-5 CFS	5-10 CFS
Area 5	1-3 CFS	0 CFS

Table 4
Recharge Requirements for
Soil Map Units in the Irasville Growth Center
Washington County Field Mapping Legend (August 1995, USDA-

Map unit symbol	**Map unit name**	**Hydrologic Soil Group**	**Recharge Factor** (inches)
3A	Rumney fine sandy loam, 0 to 3 percent slopes	C	0.10
33A	Machais fine sandy loam, 0 to 3 percent slopes	B	0.25
33B	Machais fine sandy loam, 3 to 8 percent slopes	B	0.25
39A	Colton gravelly loamy sand, 0 to 3 percent slopes	A	0.40
39B	Colton gravelly loamy sand, 3 to 8 percent slopes	A	0.40
39C	Colton gravelly loamy sand, 8 to 15 percent slopes	A	0.40
39E	Colton gravelly loamy sand, 25 to 60 percent slopes	A	0.40
43B	Salmon very fine sandy loam, 3 to 8 percent slopes	B	0.25
43E	Salmon very fine sandy loam, 25 to 60 percent slopes	B	0.25
44B	Lamoine silt loam, 3 to 8 percent slopes	C[1]	0.10
44C	Lamoine silt loam, 8 to 15 percent slopes	C[1]	0.10
45A	Scantic silt loam, 0 to 3 percent slopes	D	waived
58A	Grange silt loam, 0 to 3 percent slopes	C	0.10
59A	Waitsfield silt loam, 0 to 3 percent slopes	C[1]	0.10
72C	Tunbridge-Lyman complex, 8 to 15 percent slopes	C[1]	0.10
72D	Tunbridge-Lyman complex, 15 to 35 percent slopes	C[1]	0.10
78D	Peru gravelly fine sandy loam, 15 to 35 percent slopes	C	0.10

[1] SCS hydrologic soil group not available for this soil type. Hydrologic soil group assumed based upon similar soil types and limited field soil surveys.

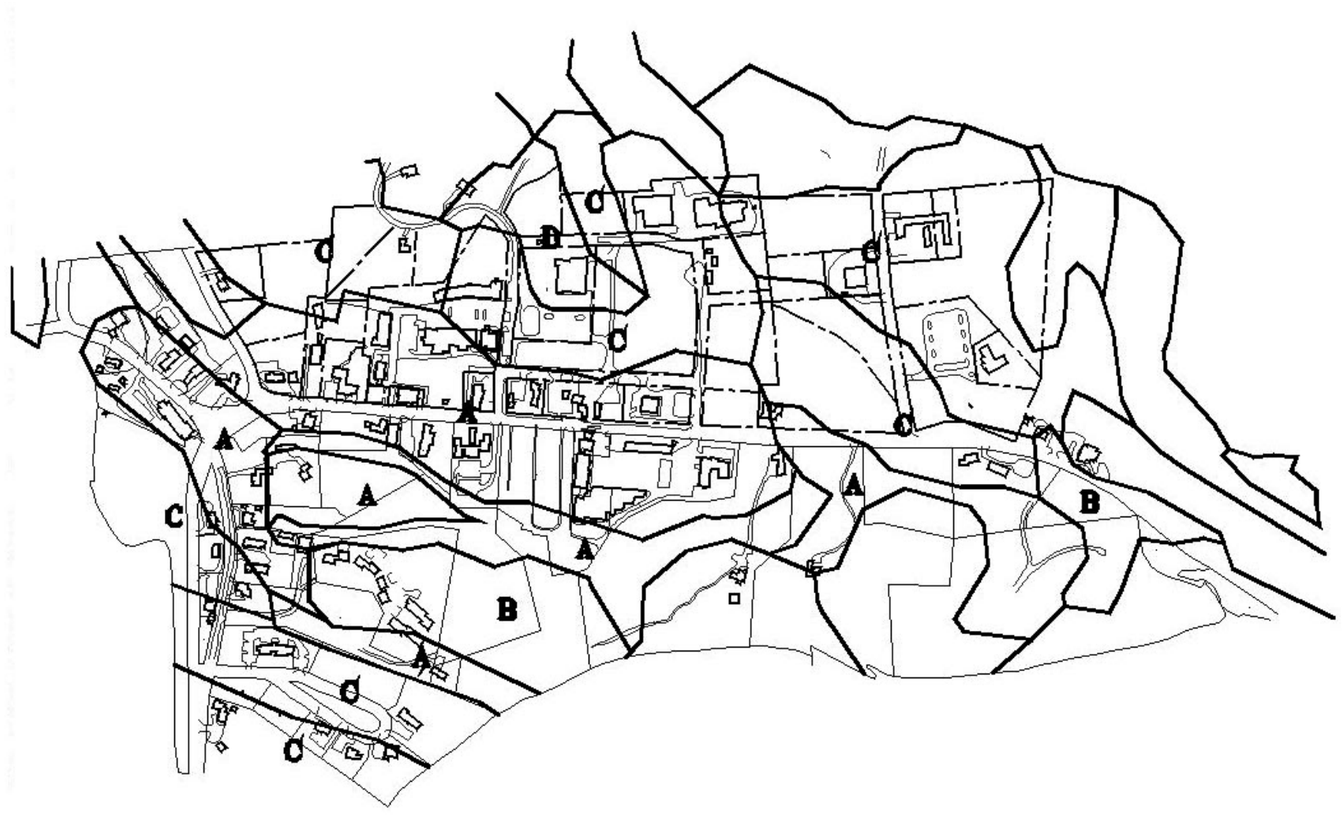

Figure 21: Hydrologic Soils Plan

Acceptable stormwater treatment practices include both structural (ponds, stormwater wetlands, infiltration, filtering systems, and open channels) and non-structural practices (rooftop disconnection, sheetflow, stream buffers and vegetated swales). Certain practices provide only treatment or detention functions, while some practices can provide both. While conventional methods, such as the typical treatment and detention basins, may be needed, the use of non-structural practices can provide stormwater credits. A stormwater credit can reduce the required water quality and recharge storage volumes, thereby reducing the size and cost of structural STP's. Use of stormwater credits is voluntary, but must be considered in the early stages of site design and layout to be effective.

Stormwater management within the Growth Center will need to be managed on both a parcel level and watershed level. Most parcels may be able to implement one or more STP's onsite, achieving the requirements for each of the sizing criteria to varying degrees. However, the density and layout of development desired within the Growth Center may not accommodate the implementation of STP's required for compliance with each standard on each parcel. A stormwater utility, a centralized means of providing stormwater management for several parcels, might be more efficient and more effective in meeting the goals of the Growth Center. Although the stormwater utility could be operated privately by a group of landowners, the municipality would be most effective in assuring the proper maintenance and operation of the stormwater management system.

Structural and non-structural practices, or a combination of both can be used to meet treatment standards. Water quality STP's include stormwater ponds, stormwater wetlands, infiltration basins and trenches, filtering systems, and open channels. Stormwater ponds and wetlands can also provide channel protection as well as overbank and extreme flood attenuation through detention of runoff. Infiltration practices capture and allow the initial runoff to infiltrate, meeting water quality and recharge requirements. Open channels, infiltration and filtering practices cannot typically provide detention to meet the channel protection, overbank, or extreme flood requirements.

Construction of a stormwater pond or wetland could effectively meet the water quality and detention requirements for several parcels. However, a pond or wetland will not meet the groundwater recharge requirement. The groundwater recharge volume required is based upon the average annual rate for the prevailing hydrologic soil groups necessary to preserve existing groundwater table elevations. Portions of the Growth Center with more permeable soils, including the area off lower Route 100, as well as area along the upper portion of the Growth Center along Route 100. Meeting the recharge requirement on the individual parcels should be encouraged, since this is not as easily provided by a stormwater utility.

Stormwater credits can be obtained with the implementation of the following non-structural STP's. These practices should be encouraged at the parcel level of stormwater management.

- Natural area conservation - conservation of natural areas (such as forests, wetlands and buffers, floodplains and undisturbed open spaces) at development sites, thereby retaining their pre-development hydrologic and water quality characteristics. Given the density goals of the Growth Center utilizing this credit may not be feasible in many areas. However, it may be applicable in areas where stream buffers and large wetland areas are being preserved.
- Disconnection of rooftop runoff - Rooftop runoff is disconnected from the closed system, and directed over a pervious area where it can either infiltrate into the soil or flow over it with sufficient time and velocity to allow for filtering. This credit is typically obtained by grading the site to promote overland flow through vegetated channels or by providing bio-retention areas. This practice can be used to meet a portion of the water quality and recharge requirement and should be encouraged for implementation on individual parcels where feasible.
- Disconnection of non-rooftop runoff - Surface runoff from impervious surfaces is directed to pervious areas (rather than a closed collection system) where it is either infiltrated into the soil or filtered by overland flow. Grading on individual parcels to promote overland vegetative filtering should be encouraged where feasible. This practice can be used to meet a portion of the water quality and recharge requirement.
- Stream buffers - This credit is given when a stream buffer effectively treats stormwater runoff. Effective treatment constitutes capturing runoff from pervious and impervious areas adjacent to a stream buffer and treating runoff through overland flow in a natural buffer. Non-concentrated flow through a minimum buffer width of 50 feet is required.

- Grass channels - Credit may be given where open grass channels are used to reduce the volume of runoff and pollutants during smaller storms. Use of a grass channel will automatically meet the minimum recharge requirement, and if designed to certain criteria, can meet the water quality volume for certain types of residential development.

Recommendations

- Provide stormwater quality and quantity controls consistent with the standards established in the Vermont Stormwater Manual.
- Minimize creation of new impervious surfaces as possible by utilizing shared parking facilities, or alternative permeable surfaces for paths or sidewalks.
- Utilize overland flow across natural terrain or grass filter strips as well as open channels for conveyance of stormwater, rather than the typical curbed roadway or parking lot with a closed pipe system.
- Disconnect runoff from roofs and parking areas from piped collection systems, directing runoff overland across natural terrain, grass filter strips or grass swales.
- Implement stormwater management practices on individual parcels where consistent with the density and layout requirements of the Master Plan.
- Develop a stormwater utility for the centralized management of stormwater runoff in conjunction with the goals of the wetland mitigation plan. Goals of the stormwater utility should be not only the construction of the management system but also the continued operation and maintenance of the system.
- Runoff from undeveloped areas adjacent to the Growth Center should be diverted to existing drainageways, not intercepted by the new stormwater collection system, to minimize capacity requirements.

Wetland Compensatory Mitigation

Although the conceptual Irasville Growth Center Master Plan seeks to minimize wetland impacts, it would still result in the loss of approximately 8 acres out of a total of approximately 25 acres of wetland. This represents both a loss of acreage and a loss of wetland functions and values. Compensatory mitigation is used to replace these losses.

Permitting Requirements

Impacts to wetlands must be permitted under State and Federal wetlands programs. In order to obtain permits for these impacts, it must be shown that:

1. Impacts to wetlands could not be entirely avoided. In providing for the future growth of Waitsfield, the location of the selected Growth Center must be the Least Environmentally Damaging Practicable Alternative (LEDPA).
2. Impacts to wetland functions have been minimized. In achieving the project purpose, impacts to wetlands must be minimized and, after considering wetland functions, lower value wetlands should be impacted in preference to higher value wetlands.
3. Any loss of wetland acreage and functions has been fully compensated. Compensation can include restoring degraded or lost wetlands, creating new wetlands, or enhancing existing wetlands. When compensation is required, the Vermont Wetland Rules specify that impacted wetlands be replaced by newly-created wetlands at a 1:1 ratio so that there is no net loss of acreage or functions. The Corps of Engineers is more flexible and may require more or less than 1:1 compensation.

Because of the degree of wetland impact (8 acres out of a total of 25 acres), wetlands replacement will almost certainly be required, and will probably mean that at least 8 acres of wetland must be created.

Compensation Strategy

The wetland functional evaluation prepared in 2001 identified five distinct wetland types in the Irasville Growth Center area. These are 1) Wetland Meadow, 2) Forested Wetland, 3) Riparian Wetland, 4) Intermittent Stream, 5) Marsh/Shrub Swamp, and 6) Detention Pond. The wetland types providing the most functions are the Riparian Wetland/ Intermittent Stream and the Detention Pond. The wetland type providing the fewest functions is the Wetland Meadow.

Except for two road crossings of the Riparian Wetland/Intermittent Stream, the wetland impacts proposed by the Master Plan impact only the Wetland Meadows northwest of Route 100. In a wetland functional evaluation prepared last year, these wetlands were felt to provide water quality improvement where they receive runoff from roads or parking lots. However, this function is limited because of sloping topography and the inability of this wetland type to detain water on its way to the river. It

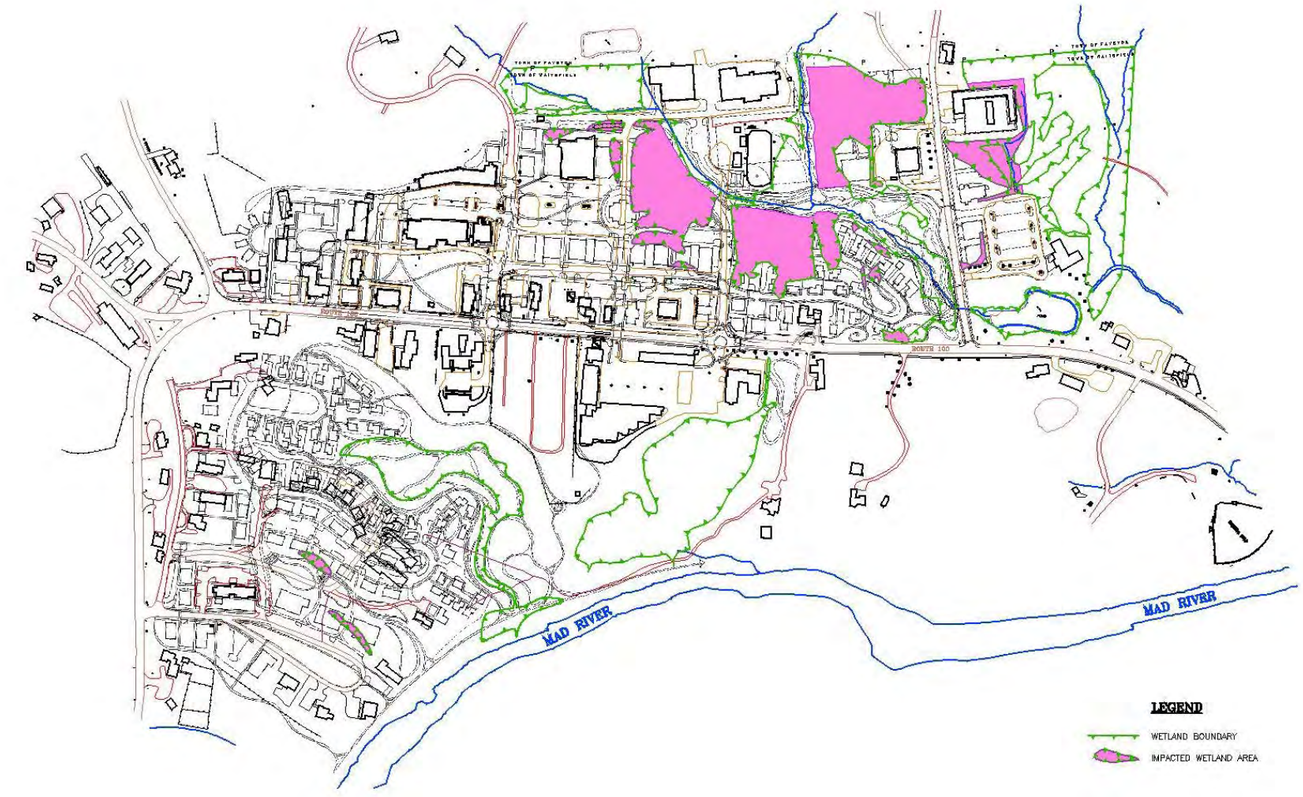

Figure 22: Irasville Growth Center Impacted Wetlands Plan

was felt that these wetlands could also provide wildlife habitat to a small degree if located near other wetland types more conducive to wildlife, but this is restricted to the area adjacent to the river and the forested wetland and marsh/shrub swamp on the southeast side of Route 100.

To mitigate for the impacts to the Wetland Meadows in the Growth Center area, areas for stormwater structures to treat and detain runoff, as well as provide for groundwater recharge, have been indicated on the plan. These areas may accommodate open water features, marshes, and vegetated drainage swales that will slow the flow of water across the Growth Center area, removing sediments, pollutants, and dissolved nutrients, and allowing water to infiltrate into the soil. To meet both wetland and stormwater permitting requirements, detention and treatment of runoff must occur between the Growth Center and the river. This may require that much of the green space within the Growth Center be wetlands or ponds.

Although stormwater detention and treatment may be provided for in less than the area of proposed wetland impact, compensation will at least need to equal the area of impact. Any shortfalls will require that wetlands be created off-site. It appears that approximately 2 to 3 acres of wetland may be able to be created within the Growth Center area itself.

Recommendations

The stormwater detention and treatment structures for the Growth Center should be designed to maximize the amount and value of wetlands created. While stormwater structures are often designed to be simply functional, there is no reason that they cannot be attractive landscape features as well. This can be accomplished by using natural instead of geometric shapes, providing a variety of water depths that create frequent expanses of permanent open water, keeping concrete control structures out of sight, planting a mix of species that will produce a diversity of foliage and flowers, and accommodating human use by integrating footpaths and park structures.

For additional required wetland compensation that cannot be provided in the Growth Center area, wetlands may be created in hydrologically suitable areas in land along the river. While these can potentially be designed to receive and treat agricultural or urban runoff, they may also be used to create other values such as wildlife habitat.

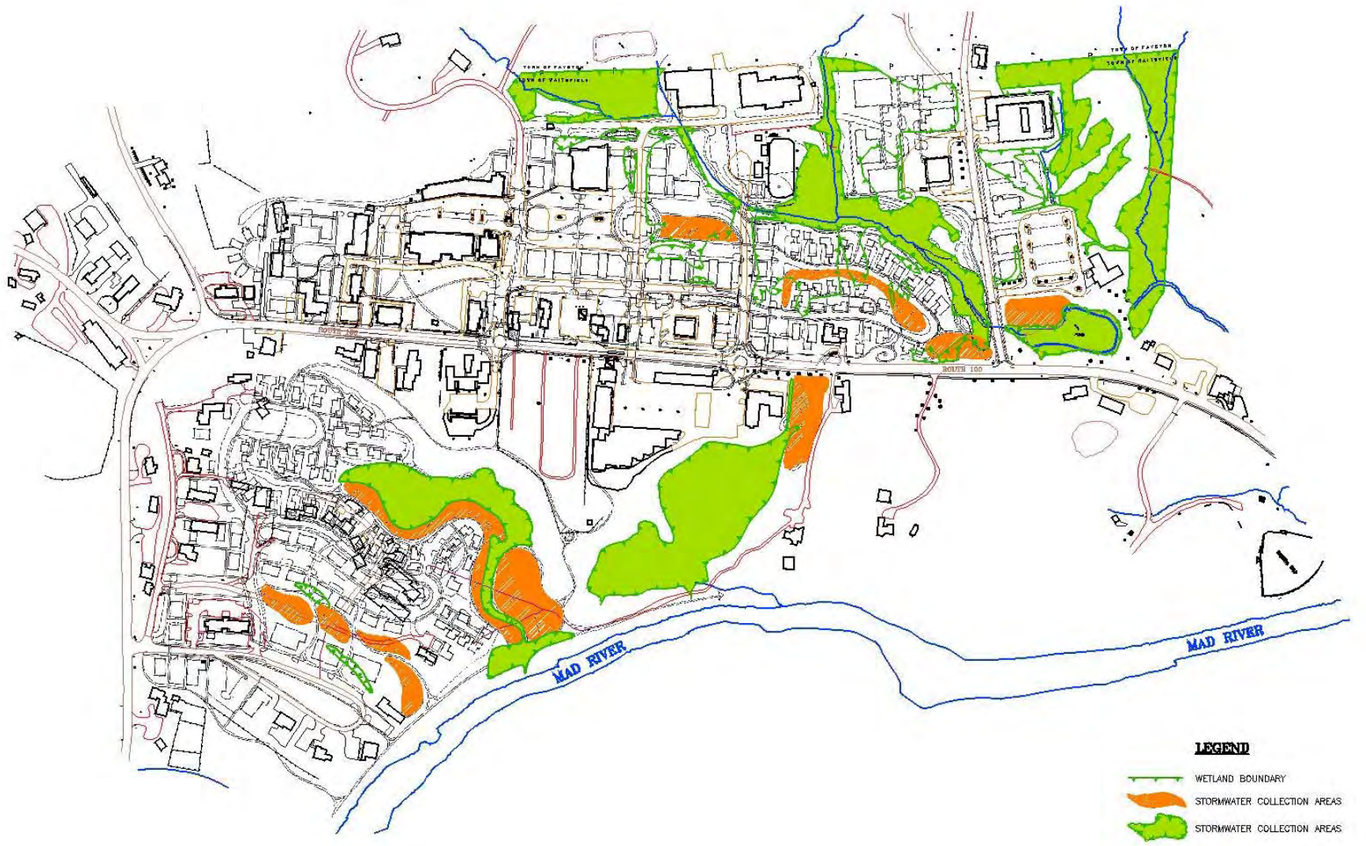

Figure 23: Irasville Growth Center – Preserved/Enhanced Wetlands Plan

Streets/Streetscape Design

The streetscape design promotes a balance of use between vehicles, pedestrians and bicycles. The village center relies on new street design standards for "neo-traditional" town centers as developed through recent research and development by the new VTrans Design Standards that have relaxed the width guidelines for local streets, as well as recent publications of the Institute of Transportation Engineers (ITE).

Route 100 Corridor

The Irasville plan can integrate the long planned Irasville to Waitsfield village sidewalk project as well as other changes to Route 20 that have been contemplated. These include: the improvements to the Route 100/Rt intersection as currently scoped by VTrans, sidewalks extensions along both sides of the road for pedestrian access, improvements to crosswalks on Route 100. Two prominent improvements to Route 100 are the location of modern roundabouts at the intersections of the Slow Road into Irasville. Public participation defined a wide range of conflicts between speeding traffic on Route 100, and a desire to promote a safer pedestrian environment along the road.

Future development of the village center and the amount of development on the west side of Route 100 will likely trigger the warrants for signalization for either or both of these intersections. Whereas a signal could accommodate the traffic volumes, research has indicated that signals do little to slow speeds when they are green, and the necessary turning lanes for signalized intersections would cause a wider and faster Route 100 and multiple lane pedestrian crossings at the intersections. Alternatively, the roundabouts shown would virtually guarantee consistent speeds of 20 to 25 miles per hour through Irasville and the efficiency of the roundabout would allow for a single lane road to be preserved. Slower speeds, a narrower road, and extremely high safety track records are all aspects of roundabouts that make them ideal for Irasville.

New Commercial Streets

New streets for mixed use/commercial buildings have been designed with either parallel or angled on-street parking to promote efficient parking accessibility for customers of stores and service businesses. These streets are designed for slow travel in a village setting and are correspondingly narrow, yet adequate for the use of emergency vehicles and snowplows.

Interior Local Streets

The Slow Road has been integrated into the Irasville village plan as a parking and service drive because its location falls more on a mid-block location in the village plan. In general, parking and service alleys provide locations for truck deliveries off street, safe back lot emergency access, a pool of off-street parking for residences and employees of businesses. They don't take up prime storefront on-street spaces, and allow for a location for the entire "back of house" infrastructure such as overhead utility lines, wastewater and water easements, and recycling/dumpster locations.

The modified grid layout of the streets and continuous loops also offer many options for all vehicular uses including optimal access for emergency needs.

All streets have sidewalks or pathways for pedestrian access alongside without forcing pedestrians to walk in the road.

Residential neighborhood streets wide enough for two vehicles to safety pass at slow speed, and most residential parking is located in the side or rear of the lots. In some cases alternating on-street visitor parking would allow further slowing of neighborhood vehicular speeds.

All streets, sidewalks, and pathways could be designed to readily conform to the guidelines of the American with Disabilities Act (ADA).

In most cases, the slow speed likely to be found on neighborhood streets do not warrant the establishment of bike lanes or formal bike paths. The widening of streets to accommodate bike lanes would also be counterproductive, as wider streets tend to promote higher speeds. Alternatively, the closer distances within the village itself makes biking along neighborhood streets safe for both children and adults alike. Since Route 100 has bike shoulders, that is the only location where a formal bike facility is really needed, and that effort will be completed with the Irasville sidewalk project.

Integrating "Green Design"

National development of Smart Growth, Sustainable Design and Green Design Practices has identified a series of techniques that are regarded as the building blocks of Green Design. The following are a series of techniques that have been included in the Irasville plan already or could be added in future phases of the projects planning and development. Many of these techniques have been borrowed from the Leadership in Environmental Design (LEEDS).

- Innovative storm water management design including bio swales and porous parking lots
- innovative water efficient plumbing and recycling.
- District heating
- Green Parking
- Shared parking
- Integrate transit with compact development.
- Pedestrian walkability

Green parking refers to several techniques applied together to reduce the contribution of parking lots to the total impervious cover in a lot. From a stormwater perspective, application of green parking techniques in the right combination can dramatically reduce impervious cover and consequently, the amount of stormwater runoff. Green parking lot techniques include setting maximums for the number of parking lots created, minimizing the dimensions of parking lot spaces, utilizing alternative pavers in overflow parking areas, using bioretention areas to treat stormwater, encouraging shared parking and providing economic incentives for structured parking.

All of the techniques can be applied in new developments and some can be applied in redevelopment projects, depending on the extent and parameters of the project. In urban areas, application of some of techniques like encouraging shared parking and providing economic incentives for structured parking can be very practical and necessary. Commercial areas can have excessively high parking ratios and application of green parking techniques in various combinations can dramatically reduce impervious cover of a site.

Wastewater Capacity

Initial wastewater capacity numbers for the Irasville Growth Center Master Development Plan were put together working with the above information on anticipated types of uses.

Table 5
Wastewater Calculations for Irasville Growth Center Master Development Plan

Capacity	**Residential units**	**Commercial**	**Office**	**Total GPD**
15,000	*at 2BR average*			
defining limit for initial phase	*at @ 300 gpd*	*at @5gpd/100 SF*	*at @15gpd/employee*	
of growth center development		*assume 200 sf/employee*		
upper area	30	50,000	50,000	
Subtotal	**9,000**	**2,500**	**3,750**	**15,250**
upper area	40	100,000	50,000	
add apartments to upper area	40			
Subtotal	**18,000**	**5,000**	**3,750**	**26,750**
upper area	40	100,000	100,000	
Add apartments to upper area	40			
Add SF housing to lower area	50			
subtotal	**40,500**	**5,000**	**7,500**	**53,000**
upper area	40	100,000	100,000	
add more apartments to upper area	80			
add SF housing to lower area	50			
add MF housing to lower area	100			
add mixed uses to lower area	25,000	25,000		
subtotal	**54,000**	**6,250**	**9,375**	**69,625**

IV. MAKING IT HAPPEN: THE NEXT STEPS TO MAKE THIS PLAN A REALITY

There are choices to be made and a future to be guided. If Waitsfield is to create a new future that keeps local job in town that creates a town center to allow people to live, work, send their children to school, preserves the best that history has to offer, and creates future opportunities, then there are some important next steps that need to be followed.

Irasville's future growth and development will be guided by several major forces:

- Availability of adequate infrastructure to serve a growth center
- Revisions to town regulations and policies
- The willingness of the private sector to build the growth center
- The viability of the growth center to be developed economically and meet market demands for the different land uses

RELATIONSHIPS WITH PRIVATE PROPERTY OWNERS
Realization of a growth center will be the result of a long term working relationship between the town and private landowners. Private residential and commercial development will comprise most of the growth center elements, balanced by strategic public improvements including infrastructure (particularly wastewater treatment), acquired public spaces, and new buildings. Without both parties' cooperation, the effort will fall short and even fail.

ADOPT A VISION PLAN
The concept plan for a growth center will guide the future pattern of residential, commercial, and public facility development. By encouraging private development to build neighborhoods, coordinated streets and pedestrian ways, and open spaces, much of the village growth center can be realized. The next step is to adopt this plan or make refinements to make that possible, so that the community can move ahead with intension and resolve to implement a growth center plan. This plan that reflects the creation of a village environment in Irasville and include the multiple types of uses that the community wants to have happen there. While this plan isn't highly detailed, the basics of a layout for streets and paths, locations for new or renovated buildings, parking, open space such as greenways and parks can be defined.

COMPLETE NEW ZONING AND SUBDIVISION REGULATIONS FOR IRASVILLE
As with most villages in Vermont, current zoning may not be adequate or even compatible with the desire to create a new village. The town will need to make revisions in current zoning and other development regulations to allow higher densities, mixed uses, and street and parking standards to guide the new growth center development. Since most of the growth center will be the result of private development, regulations that support the growth center concept and specific subdivision and zoning standards are essential.

CAPITAL PLAN FOR PUBLIC IMPROVEMENTS AND LEVERAGING PUBLIC - PRIVATE FUNDS:
Making a new village center built out in the way that has been envisioned will require considerable public and private investment - with the intention of recouping a payback to both. Early identification of public processes for financing improvements and coordination with private developers such that costs can be shared will make the creation of a village center more financially feasible.

"UMBRELLA" PERMITTING FOR INFRASTRUCTURE, STORMWATER AND WETLANDS PERMITTING
A concerted effort to unify the milieu of permitting issues in Irasville will be essential to gaining the needed legal permits for development of the growth center to proceed. As a part of the current EPA Smart growth grant, some of those issues will be identified and a general strategy will be defined largely driven by the vision plan. It will far better for the town and various project owners/developers to work together to implement the project. As many individual developers or businesses have learned, trying to "go it alone" to permit wastewater, water supply, deal with stormwater runoff and wetlands on a parcel by parcel basis is a frustrating even impossible task. Far better for the town and development community to work together.

PUBLIC INFRASTRUCTURE
Water and wastewater infrastructure may be the limiting factor in the amount of development in the growth center. Surface and groundwater qualities are primary concerns in this watershed and need to be addressed. Surface water concerns are already present in the wetlands near Mad River Canoe and the movie theater. Town wastewater/water infrastructure will therefore need to be provided to the growth center to support the increased densities and mix of uses. As a model of "Smart Growth", federal and state funds may be available to assist in providing for this service. Alternatively, higher densities may allow a private sector contribution to the cost and the long-term payback for enhanced property values will be an economic/tax base benefit.

ROUTE 100
Given high travel speeds on Route 100, the growth center will need to improve bicycle and pedestrian access across and along the corridor from the village center to the residential areas. New tools for village traffic calming will also be essential aspects of the planning effort so that traveled speeds can be slowed, and the planned sidewalk project should be closely coordinated with the growth Center plan's concepts.

Improvements to Route 100 will need to be advocated by the town to the Central Vermont Regional Planning Commission (CVRPC) and the VT Agency of Transportation (VTrans). Given limited state funds, the town should develop a financing plan for highway improvements included in the report to be paid for as much as possible with private development funds directly or as the local match for transportation funds.