

Assessing Opportunities for Agriculture and Agritourism at Montpelier

PREPARED BY: THE VIRGINIA TECH OFFICE OF ECONOMIC
DEVELOPMENT

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Executive Summary



Orange County, with a planning grant from the Governor’s Agriculture and Forestry Industries Development Fund (AFID), administered by the Virginia Department of Agriculture and Consumer Services (VDACS), engaged the Virginia Tech Office of Economic Development (VTOED) to explore sustainable agriculture and agritourism opportunities for land parcels owned by the Montpelier Foundation. As partners, Orange County and the Montpelier Foundation wished to assess opportunities for utilizing certain parcels

of Montpelier’s 2,650 acres of land to support and add value to the county’s agriculture industry.

The project inventoried and assessed development opportunities that would be a fit for Montpelier’s mission and the rural character of its Orange County surroundings, while offering potential to generate jobs, spur enterprise development, increase visitation, and enhance income in Orange County and the surrounding region. VTOED established a project working group, interviewed dozens of key informants and collected and analyzed agriculture and tourism data. Hundreds of opportunities were generated and pre-assessed.

Based on the interests of key principals (including the County and the Montpelier Foundation), parcel suitability, and the assessment of the opportunities against identified criteria, the project identified three compelling short-term opportunities:

1. Developing a Farm Brewery, and related brew-pub, with smaller-scale events space and associated hops production.
2. Explore lodging, particularly boutique hotel development, and consider short-term, small-scale guest accommodations and possibly camping facilities, and associated outdoor recreation opportunity development.
3. Formalize processes for ongoing opportunity assessment and intentional tourism development.

Introduction

With a planning grant from the Governor’s Agriculture and Forestry Industries Development Fund (AFID), administered by the Virginia Department of Agriculture and Consumer Services (VDACS), Orange County commissioned the Virginia Tech Office of Economic Development (VTOED) to explore sustainable agriculture and agritourism opportunities. As partners, Orange County and the Montpelier Foundation wished to assess opportunities for utilizing certain parcels of Montpelier’s 2,650 acres of land to support and add value to the county’s agriculture industry.

The project sought to inventory and assess development opportunities for land parcels owned by the Montpelier Foundation. In particular, Orange County and the Montpelier Foundation were most interested in possibilities that would be a fit for Montpelier’s mission and the rural character of its Orange County surroundings, while offering potential to generate jobs, spur enterprise development, increase visitation, and enhance income in Orange County and the surrounding region.

Orange County

These aims align well with the Vision Statement for the Orange County Comprehensive Plan, initially adopted by the Board of Supervisors on October 19, 2010, and reaffirmed on December 17th, 2013, to, “Sustain the rural character of Orange County while enhancing and improving the quality of life for all its citizens.”¹

The County’s Comprehensive Plan also sets forth these highly relevant agriculture-related aspirations:

- The rural areas of the County should remain agricultural and forestal in character and density. Development of rural areas should preserve agricultural areas for agricultural use, as well as other accessory and residential uses in conjunction with agriculture activities.
- Permit and encourage agricultural and forested uses, outdoor recreational uses, uses based on cultural, natural or historic resources or open spaces, and accessory uses in direct support of these uses.

Orange County has a number of unique assets, a rich cultural heritage, and a strong tradition of agriculture and natural resources. The County was first settled in 1714, when the Lieutenant Governor of Virginia, Alexander Spotswood established the community of Germanna as an English frontier settlement for indentured German metalworkers and their families. The County was formally established in 1734 in honor of William, Prince of Orange, and the husband of Anne, Princess Royal of England. At that time, the County’s boundaries covered a vast frontier territory that would later become the states of Ohio, Illinois, Indiana, Kentucky, and West Virginia.

¹ Accessible at <http://orangecountyva.gov/index.aspx?NID=328>

The County was home to a number of esteemed colonial-era leaders and statesmen including our nation's fourth president, James Madison, and his wife Dolley Madison. The twelfth president, Zachary Taylor, was born in Orange County. The towns of Orange and Gordonsville were incorporated in 1870 and 1872, respectively. The land was rich in natural resources including iron ore, gold, and timber. Today, Orange County is a fast growing community in the foothills of the Blue Ridge Mountains, in Virginia's north-central Piedmont region. It is a community of small towns, and modern industry, with entrepreneurs and businesses in agriculture, the arts, tourism, manufacturing, and more.

The County of Orange is a part of a number of growing agriculture-related development trends in the Commonwealth of Virginia—including wine, beer, agritourism, and the farm-to-table initiative—all of which support local agriculture from grapes and barley to vegetable crops and livestock industries. In less than thirty years, the number of wineries in Virginia has grown from 29 to 250. Orange County has six well-established wineries and ranks third in the state for grape production. Experts in the wine industry say that the key factors keeping the industry from becoming the leading wine industry on the East Coast is the quantity and quality of grapes produced in-state. Compared to wineries, craft breweries have just begun to grow in the state, requiring hops, barley and other agriculture ingredients to develop and mature as a Virginia industry. Orange County is in close proximity to Charlottesville and Fredericksburg, as well as Nelson County, three hubs for regional craft breweries. Finally, the local foods economy and the farm-to-table movement, in particular, is an effort to support and grow local food sources for households and restaurants, leading to a more sustainable, regional way of life. This industry has also expanded rapidly, mostly among a somewhat wealthier demographic of consumers. This demographic, however, fits well with the overall visitor demographics of the region and offers opportunities for entrepreneurship and related support for producers, restaurateurs, and food system intermediary organizations.

The Montpelier Foundation

The Montpelier estate in Orange County, Virginia commemorates the life and legacy of President James Madison through programming that explores the history surrounding Madison and offers space to reflect on the principles and current status of the US Constitution. As the estate administrator, the Montpelier Foundation seeks to contribute to regional and national knowledge and discussions on history, race, and the Constitution's role in democracy.

The Montpelier property was first surveyed and purchased by James Madison's Grandfather Ambrose Madison.² After the passing of his father James Madison Sr. in 1800, Montpelier became the home of President James Madison, Father of the Constitution and Architect of the Bill of Rights, and Dolley Madison, America's first "First Lady." James Madison shaped many of the ideas that would become the U.S. Constitution from his home at Montpelier. Over a six month period, Madison worked meticulously in his estate's upstairs library, to study historic forms of government. He also organized his own thoughts into what he believed were the ideal principles for a

² Bartzan and Ball (2008). Montpelier Master Plan: Fall 2008 Planning Recommendations.

representative democracy. Madison's ideas would become the "Virginia Plan," and later the framework for the Constitution.³

Madison served over forty years in local, state, and federal politics, including serving as President of the United States from 1809 to 1817, all the while sporadically residing and finally retiring to Montpelier. Dolley Madison sold Montpelier in 1844 due to financial hardship after her husband's death.⁴ The estate passed through several owners before being purchased by William DuPont, owner of the Fortune 500 DuPont chemical, in 1901. In 1928, his daughter Marion DuPont Scott took over ownership of the estate and established a thorough-bred training facility. When Marion passed away in 1983, she passed ownership of Montpelier to the National Trust for Historic Preservation, who then formed the Montpelier Foundation in 2000 to act as steward of the estate.⁵

The Montpelier estate includes the family mansion, gardens, historic buildings, a visitor center with exhibits, significant archaeological sites of the colonial, civil war, and reconstruction periods, and outdoor recreation and forest trails. Overall, the Montpelier property includes 2,650 acres of historic sites, scenic pastures, forested lands, and splendid Blue Ridge Mountain views.

The primary mission of the Montpelier Foundation is to preserve James and Dolley Madison's home for the enjoyment and education of future generations. Montpelier receives thousands of visitors every year who come to visit the Father of the Constitution's home, and hear about his and Dolley's lives, work, and legacy. The estate provides a plethora of educational and historic opportunities including understanding the foundations of constitutional law in the United States and the world, experiencing the lifestyle and practices of James and Dolley Madison such as horticulture and architecture, as well as delving into the historic presence and issues of slavery from Madison's time through to post-civil war realities. Currently, the Montpelier Foundation conducts tours of the mansion and grounds.⁶ It offers several on-site and online courses on the Constitution through the Robert H. Smith Center for the Constitution, an organization devoted to "the study and teaching of founding principles and constitutional ideals," which has taught teachers, state Supreme Court justices, and elected officials.⁷ Montpelier also hosts several archeological excavations including a Civil War encampment and remnants of the slave quarters that were present on Montpelier during James Madison's era. Finally, the Foundation has restored several places on the site such as the Mansion, the Montpelier Train Depot (the site of a segregated train stop), and the Gilmore Cabin. The Gilmore Farm, the home of former slave George Gilmore and his wife Polly, was restored and is now protected by a conservation easement.⁸

In its Master Plan, the Montpelier Foundation states its goal to preserve the rural character of the estate, as it would have been during Madison's day. Agriculture has been present at Montpelier from Madison to the DuPonts and into the present. Madison primarily grew tobacco and grains. The

³ The Montpelier Foundation (2015). Accessible at: <https://www.montpelier.org/visit>

⁴ The Montpelier Foundation (2015). Accessible at: <http://www.montpelier.org/james-and-dolley-madison>

⁵ Bartzan and Ball (2008).

⁶ The Montpelier Foundation (2015). Accessible at <http://www.montpelier.org/visit>

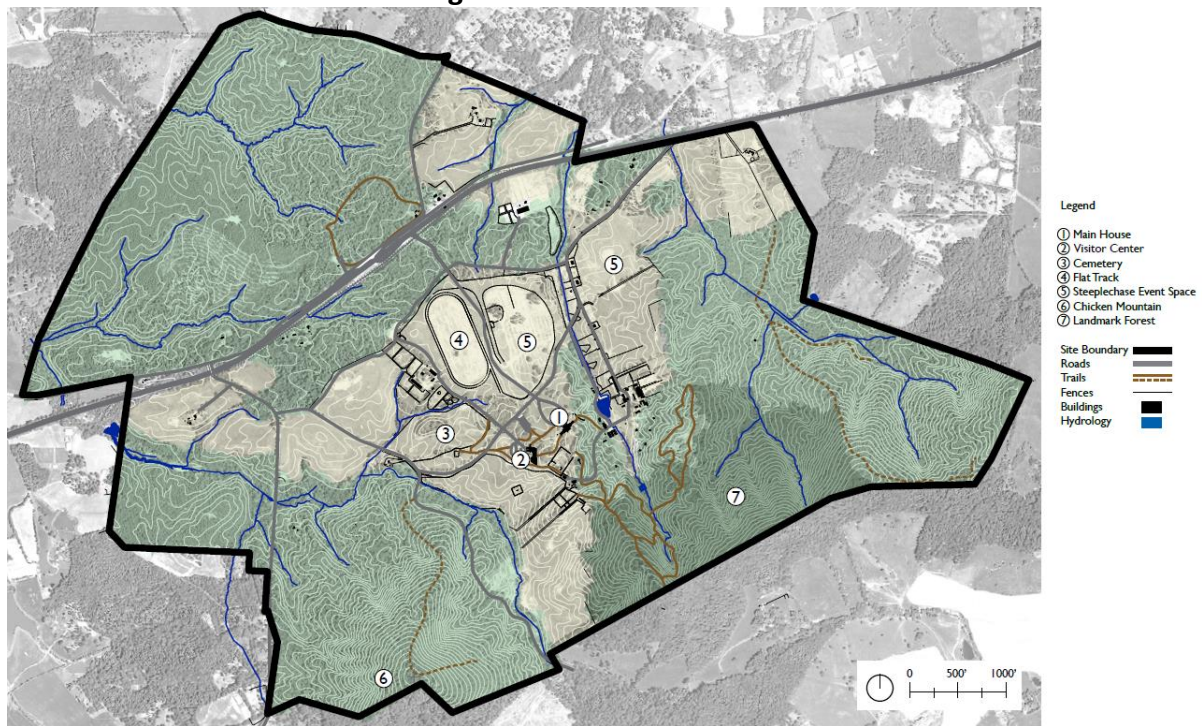
⁷ The Montpelier Foundation (2015). Accessible at <http://www.montpelier.org/center/about>

⁸ The Montpelier Foundation (2015). Accessible at <http://www.montpelier.org>.

Madisons also kept a four-acre garden where they grew a variety of vegetables, fruits, flowers, and shrubs. The Stable Quarters featured another garden maintained by slaves, which fed the Mansion.⁹ Later, William DuPont added several agricultural practices to Montpelier, including a cattle, dairy operations, cropland, and pasture. His wife, Annie DuPont, transformed the Madisons' garden into a 20th Century brick garden with restored terraces and new flower beds, shrubs, and trees. Brewing also was prevalent on the grounds. Madison operated a brewery on the site.¹⁰ Hops, an essential beer brewing element, grew wild in Virginia and was popular during colonial times.¹¹ While much of the estate today is covered by conservation easements or holds historical significance, some parcels are still available for agricultural production. For instance, the Montpelier Foundation leases a small portion of land to a local farmer to grow corn and other crops. Moreover, equestrian activities are still a major part of Montpelier due to Marion DuPont Scott's legacy. Montpelier Farm, a retirement community for thoroughbred racing horses, organizes the Montpelier Hunt Races on the first Saturday in November.¹²

Some of the primary features of the estate and the property boundaries are evident in the following visual:

Figure 1: Master Use Plan¹³



⁹ The Montpelier Foundation (2015). Accessible at: <http://www.montpelier.org>.

¹⁰ <http://www.virginiaoutdoorsfoundation.org/2009/08/more-than-700-acres-of-historic-land-protected-at-james-madisons-montpelier/>; <http://www.monticello.org/site/research-and-collections/beer>

¹¹ <http://www.northamericanbrewers.org/brewingcolonial.htm>

http://www.roanoke.com/business/brewing-up-a-virginia-hops-industry/article_be89ef11-c3db-5b7b-bad7-d83eda888baf.html,

<http://www.montpelier.org/mansion-and-grounds/post-madison-features/gilmore-cabin>

¹² The Montpelier Foundation (2015). Accessible at: <http://www.montpelier.org>

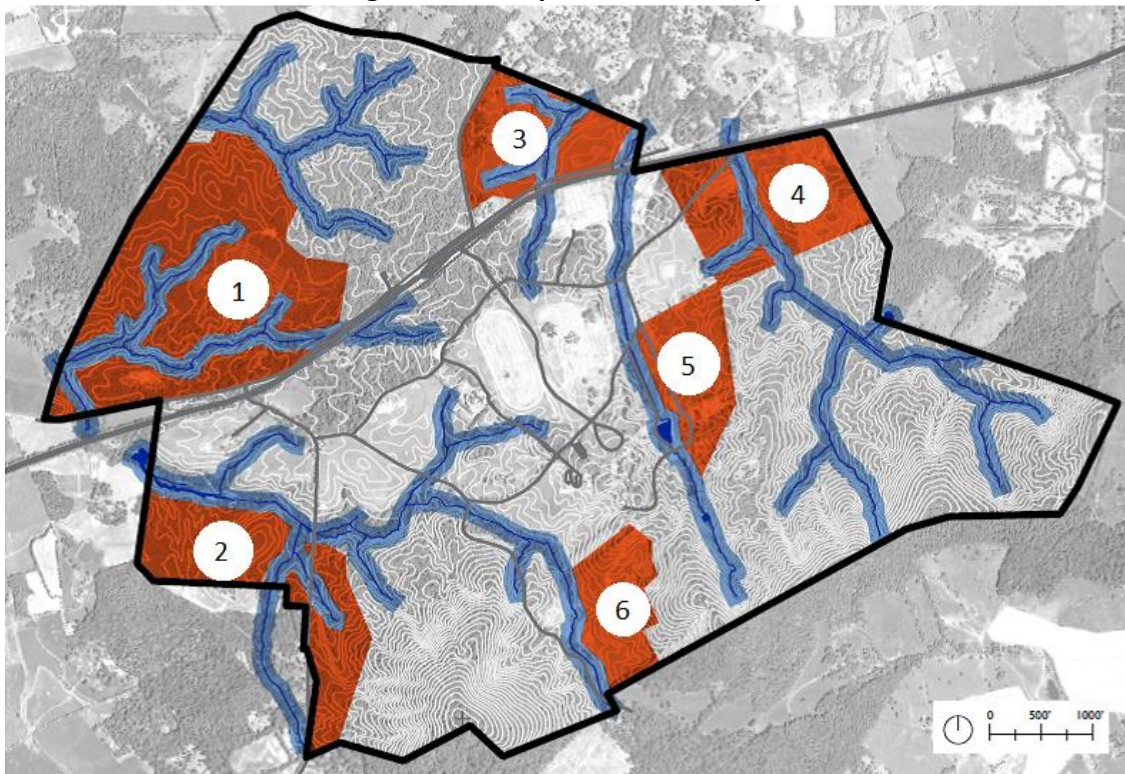
¹³ Bartzen and Ball (2008)

The AFID Project

The Foundation also continues to search for opportunities to play a supportive role in its surrounding community, Orange County. As evident from its history, mission, and setting, Montpelier is a natural partner to agriculture and agritourism opportunities. The Montpelier Foundation has re-evaluated its property and identified six land parcels that could be used to promote and support different kinds of agriculture and related rural enterprise development. These include the areas described below and depicted in the image on the following page:

1. The Northwoods Area – 110 acres, mostly forested. It does include one structure, Building 56: “Dr. Madison House”, which is currently used for staff Housing (archaeology).
2. Chicken Mountain – 52 acres, forested and mountainside. This land does include one structure, Building 62: “House 62”, which is currently used for rental housing.
3. Montpelier Village – 35 acres, across the street, with good visibility, visitor accessibility, and relatively open and flat land. Occasionally used for festivals and event parking. Includes three small structures, two of which are currently used as rental housing and one for agriculture rental.
4. Eastgate – 42 acres, flatter parcel bordering the Constitutional Village, mostly pasture and used for equestrian activities. The great majority of this parcel is used by the Thoroughbred Retirement Foundation. The parcel includes Building 45: “Bassett House”, which is used for Staff Housing for the President of the Montpelier Foundation. The parcel also includes an unused outbuilding and a barn used for agriculture rental.
5. Constitutional Village – 30 acres, within the historic core and near the historic home, which constrains range of desired uses – includes fifteen structures, most of historic significance. Properties include four houses used for housing participants in Montpelier programming, two buildings used for staff offices, and a number of other structures. Notably, there are 2-3 clustered, unused structures which include the “Upper Sears Barn” facility.
6. Yearling Barn – 21 acres, mostly rolling pasture and one structure, the yearling barn. The parcel is near the constitutional village and the main house, but separated by landscape and topography and its location oriented to the rear of the property. There is possible access from a rear gravel road which could be improved.

Figure 2: Montpelier Parcel Map¹⁴



Virginia Tech's Office of Economic Development, in coordination with Orange County and the Montpelier Foundation:

- Established a Working Group, to provide guidance and direction to the planning process;
- Conducted an analysis of county and regional agriculture and tourism industry characteristics using Ag Census, BEA, US Census, EMSI, and related data sources. (Section 1)
- Performed a comparative analysis of similar sites (e.g. historic homes or cultural attractions as well as enterprise-specific comparisons such as boutique hotel operations), to identify common challenges, revenue opportunities, and possible best practices. (Section 2)
- Conducted targeted field research, including key informant and industry leader interviews, in order to complement other data and develop an opportunities inventory and initial pre-assessment of development possibilities. (Section 3)
- Conducted a deeper analysis of the top 2 opportunity areas. (Sections 4 and 5)
- Produced a summary and accompanying recommendations with possible strategies and next steps. (Section 6)

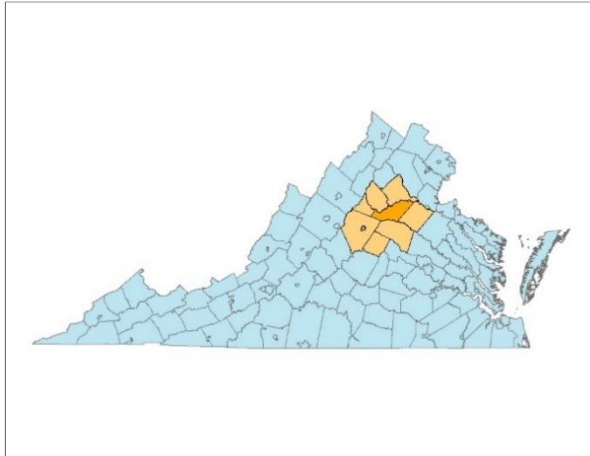
¹⁴ Bartzen and Ball (2008).

The sections that follow provide an overview of regional economic characteristics and trends, discuss the results of a similar sites analysis, and then discusses the range of possibilities in three thematic opportunity areas, and provides a more in-depth analysis of the more promising opportunities.

Section 1: Regional Economic and Agriculture Overview

The total population of Orange County is 35,058 people. Between 2004 and 2014, the population increased by about 6,400 people or 22 percent, a faster rate of change compared to the region¹⁵ and state as illustrated in Table 1. This increase was seen throughout all age groups except ages 40-44 who saw a 4% decline. The population is projected to increase to 37,648 by 2020 and to 44,662

Figure 3: Map of Orange County and Region



by 2040.¹⁶ Compared to the surrounding region, Orange County had the highest rate of unemployment in 2014, 9.6%. Albemarle (4.5%), Charlottesville City (5.7%), and Greene County (6%) stand out in the region as those with the lowest unemployment rates. Likewise, Orange County has one of the lowest median earnings for workers in the region. Only Charlottesville City, with its student population, and Madison County trail in median earnings.

Despite its higher unemployment and lower median earnings, Orange County's per capita income at

\$27,655 is one of the higher per capita incomes in the region except for Albemarle County (\$37,239) and Spotsylvania County (\$31,360). The median poverty rate of Orange County is also similar to those of surrounding counties. It has a poverty rate of 10.5% for 18 years and older, 12% for 18 to 64 year olds, and 5.7% for 65 years and over.

Table 1: Demographic Information for Orange County, Region, and State¹⁷

	Population (2014)	% Population Change 2004-2014	Civilian Unemployment Rate (ACS)	Per Capita Income (ACS)	Median Earnings for workers (ACS)	Percentage of Families Below the Poverty Line (ACS)
Orange County	35,058	22%	9.5%	\$28,856	\$31,955	8.8%
Region (Including Orange)	430,163	17%	6.3%	\$31,497	\$34,255	7.1% (6.7% wo Charlottesville) ¹⁸
Virginia	8,365,888	12%	6.9%	\$33,958	\$34,987	8.2%

¹⁵ Includes the counties of Albemarle, Culpeper, Greene, Louisa, Madison, Orange and Spotsylvania, and the City of Charlottesville.

¹⁶ Virginia Employment Commission (2015). *Virginia Community Survey: Orange County*. <http://virginialmi.com>

¹⁷ EMSI 2015.2; QCEW; United States Census Bureau. (2013). *Selected Economic Characteristics from American Community Survey 2010-2014 (Table DP03)*. Retrieved from factfinder.census.gov (Advanced Search).

¹⁸ With its large student population, Charlottesville's poverty rate is 32.30%. It therefore significantly skews the regional data.

Approximately 4,360 more residents are commuting out of Orange County than the number of workers commuting into the county. Meanwhile, about 3,230 Orange County residents also work in Orange County (See Figure 4). Tables 2 and 3 show where most commuting is occurring: Louisa County, Spotsylvania County, and Albemarle County. The workers commuting into and out of Orange County share similar characteristics except for the fact that a larger percentage of workers commuting into Orange County are within the “Goods Producing” Industry Class (30.7%) as compared to the workers who were commuting out of the county.

Figure 4: Inflow/Outflow Map for Orange County Workers



Source: Census Bureau’s OnTheMap

Table 2: Top 10 Places Residents are Commuting to¹⁹

County	Count	Share
Orange County, VA	3,231	25.3%
Louisa County, VA	950	7.4%
Spotsylvania County, VA	930	7.3%
Albemarle County, VA	875	6.8%
Culpeper County, VA	556	4.3%
Madison County, VA	525	4.1%
Fluvanna County, VA	517	4.0%
Greene County, VA	504	3.9%
Stafford County, VA	416	3.3%
Fairfax County, VA	317	2.5%
All Other Locations	3,972	31.0%
Total	12,793	100.0%

¹⁹ U.S. Census Bureau. (2015). OnTheMap Application. *Longitudinal-Employer Household Dynamics Program*. Retrieved from <http://onthemap.ces.census.gov/>.

Table 3: Top 10 Places Workers Are Commuting From²⁰

County	Count	Share
Orange County, VA	3,231	38.3%
Louisa County, VA	645	7.6%
Spotsylvania County, VA	546	6.5%
Albemarle County, VA	473	5.6%
Culpeper County, VA	433	5.1%
Madison County, VA	419	5.0%
Fluvanna County, VA	213	2.5%
Greene County, VA	203	2.4%
Stafford County, VA	134	1.6%
Fairfax County, VA	106	1.3%
All Other Locations	2,043	24.2%
Total	8,446	100.0%

Table 4 illustrates the top industries by employment for Orange County and the surrounding region. Orange County employs a slightly lower percentage of workers (9.59%) in the Arts, Entertainment, and Recreation and Accommodation and Food Services than the region (11.58%). However, 4.91% of its employees work in Crop and Animal Production compared to only 0.91% of the region. These industries are of particular interest to this study and make up 14.5% of employment within Orange County, which is higher than the regional rate of 12.49%.

Table 4: Industries within Orange County and Surrounding Region²¹

NAICS Code	Description	Orange County 2014 Jobs	Percentage of Employment	Regional 2014 Jobs	Percentage of Employment
90	Government	2,150	23.70%	42,852	26.56%
44	Retail Trade	1,243	13.70%	21,882	13.56%
31	Manufacturing	1,022	11.26%	7,837	4.86%
72	Accommodation and Food Services	729	8.03%	15,548	9.64%
62	Health Care and Social Assistance	588	6.49%	16,200	10.04%
42	Wholesale Trade	538	5.93%	3,686	2.29%
11	Crop and Animal Production	445	4.91%	1,473	0.91%
23	Construction	414	4.56%	8,241	5.11%
81	Other Services (except Public Administration)	406	4.48%	6,522	4.04%
56	Administrative and Support and Waste Management and Remediation Services	382	4.21%	6,633	4.11%

²⁰ U.S. Census Bureau. (2015). OnTheMap Application. *Longitudinal-Employer Household Dynamics Program*. Retrieved from <http://onthemap.ces.census.gov/>.

²¹ United States Census Bureau. (2013). *Selected Economic Characteristics from American Community Survey 2009-2013*. Retrieved from factfinder.census.gov

NAICS Code	Description	Orange County 2014 Jobs	Percentage of Employment	Regional 2014 Jobs	Percentage of Employment
53	Real Estate and Rental and Leasing	288	3.17%	2,332	1.45%
54	Professional, Scientific, and Technical Services	243	2.68%	8,972	5.56%
48	Transportation and Warehousing	199	2.19%	3,418	2.12%
52	Finance and Insurance	171	1.89%	3,394	2.10%
71	Arts, Entertainment, and Recreation	142	1.56%	3,125	1.94%
61	Educational Services	61	0.67%	2,515	1.56%
51	Information	33	0.37%	2,771	1.72%
22	Utilities	14	0.16%	1,361	0.84%
55	Management of Companies and Enterprises	<10	--	2,315	1.44%
21	Mining, Quarrying, and Oil and Gas Extraction	<10	--	239	0.15%

Agriculture-economy in Orange County and the Region

Montpelier, and the Orange County region, possess a number of assets that might support enhanced agriculture production and/or processing activities. Historically and today, agriculture is the largest industry in Virginia, providing 311,000 jobs and an annual economic impact of \$52 billion.²² Nearly 46,000 farms occupy 33% of Virginia’s total land area, a total of 8.3 million acres.²³ Since the 1970’s the number of Virginia farms and total acres of farmland have declined. Data showing Virginia farm trends from 1975 to 2005 indicates the number of farms has decreased from 52,699 to 46,030. Meanwhile, the average farm size increased from 1975-2000 from 184 acres to 200 acres before experiencing a decline throughout the late 1990’s and 2000’s to an average size of 180 acres in 2012.²⁴

Orange County also has an abundant amount of assets that may contribute to agritourism activities in the region. Data from the most recent 2012 Census of Agriculture shows Orange County has a total of 547 farms comprising more than 104,000 acres of farmland, with the median size being 82 acres. Compared to other counties in the region, Orange County ranks third in the number of farms and total acreage dedicated as farmland in the region, surpassed only by Albemarle and Culpepper

²² Virginia Department of Agriculture and Consumer Services. *Virginia Agricultural Facts and Figures*. Available at <http://www.vdacs.virginia.gov/agfacts/>.

²³ Virginia Department of Agriculture and Consumer Services. *Virginia Agricultural Facts and Figures*. Available at <http://www.vdacs.virginia.gov/agfacts/>.

²⁴ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>; United State Department of Agriculture. (1981). *1978 Census of Agriculture: Volume 1 State and County Data Part 46: Virginia*. Retrieved from <http://agcensus.mannlib.cornell.edu/AgCensus/censusParts.do?year=1978>; United State Department of Agriculture. (1977). *1974 Census of Agriculture Volume 1 Part 46: Virginia State and County Data*. Retrieved from <http://agcensus.mannlib.cornell.edu/AgCensus/censusParts.do?year=1974>

counties.²⁵ The average market value of the land and buildings is estimated to be worth \$6,746 per acre with machinery and equipment estimated at over \$95,700 per farm.²⁶ As Table 5 shows, the most prevalent agriculture sectors in Orange work with cattle, animal aquaculture, sugarcane, hay, and other crop farming. In sum, the top five farming industries make up a total of 482 farms or 88.1% of the farms in Orange County.

Table 5: Top Five Industries for Farms in Orange County, 2012²⁷

NAICS Codes	Description	Number of Farms	% of Total Farms in Orange County
112111	Beef Cattle Ranching and Farming	216	39.5%
1125, 1129	Animal Aquaculture and other animal production	108	19.7%
11193, 11194, 11199	Sugarcane Farming, Hay Farming, and all Other Crop Farming	104	19.0%
1111	Oilseed and Grain Farming	32	5.9%
1114	Greenhouse, nursery, and floriculture production	22	4.0%
Total	--	482	88.1%

Median farm size in Orange County is between 50 and 179 acres, proportionally similar to its neighboring counties. As shown in Table 6, the value of sales from most Orange County farms is less than \$2,500. There were 101 farms with sales ranging from \$10,000 to \$24,999. Of the 500+ farms in the county, 51 had sales of more than \$100,000. Orange County possesses a large proportion of the wealthiest farms. They possess 18.1% of farms with a market value of agricultural products sold of over \$25,000 and possess 21% of farms with value of \$100,000.

Table 6: Number of Farms by Size, 2012²⁸

Farm Size (in acres)	Orange County	Albemarle County	Culpeper County	Greene County	Louisa County	Madison County	Spotsylvania County
1 to 9 acres	36	68	32	7	21	30	44
10 to 49 acres	158	292	302	68	171	159	166
50 to 179 acres	202	359	238	95	181	193	96
180 to 499 acres	110	151	100	36	72	86	43
500 to 999 acres	19	54	32	9	30	28	14
1000 acres or more	22	22	27	1	10	26	6

²⁵ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>.

²⁶ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>.

²⁷ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>.

²⁸ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>.

Table 7: Farms by Value of Sales in Orange County, 2012²⁹

Value of Sales	Orange County	Albemarle County	Culpeper County	Greene County	Louisa County	Madison County	Spotsylvania County
Less than \$2500	199	392	301	65	182	123	181
\$2500 to \$4999	50	87	71	38	53	59	32
\$5000 to \$9999	65	162	94	38	74	73	55
\$10000 to \$24999	101	26	119	39	100	128	45
\$25000 to \$49999	45	57	54	22	29	59	27
\$50000 to \$99999	36	47	39	5	18	32	17
\$100000 or more	51	42	53	9	29	48	12

Farm income, not size, determines if a farm is included in Virginia farm counts. In order to qualify as a Virginia farm, farm income must be at least \$1,000.³⁰ In Orange County the average net cash farm income per farm was \$8,513 in 2012, and average farm expenses exceeded \$164,000. Net farm production income for the entire county was \$4,657,000. Meanwhile, of the 547 farms in the county, only seven gained income through agritourism and recreational services; a net total of \$161,000.

Over the past decade, employment in crop and animal production including aquaculture have increased by at least 50% in Orange County, similar to the rest of the region. Indeed, crop production has been by far the largest employer throughout this area and has been the only agriculture subsector in the region as a whole to demonstrate increased employment between 2004 and 2014. Meanwhile, forest nurseries and products are still highly competitive in Orange County compared to other counties and regions of Virginia.

Table 8: Top Industries under NAICS 11: Agriculture, Forestry, Fishing, and Hunting for Orange County³¹

NAICS	Description	Employment (2014)	Percentage Change in Employment (2004-2014)	2014 Location Quotient	Current Wages and Salaries (Regional)
111000	Crop Production	332	56%	9.22	\$28,751
112000	Animal Production and Aquaculture	54	50%	3.44	\$30,716
113210	Forest Nurseries and Gathering of Forest Products	40	N/A	309.95	\$30,499
115116	Farm Management Services	<10	N/A	2.43	N/A
115210	Support Activities for Animal Production	<10	N/A	3.36	\$29,184
113310	Logging	<10	N/A	2.74	\$35,216

²⁹ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>.

³⁰ Virginia Department of Conservation & Recreation. Virginia's Agricultural resources. http://www.dcr.virginia.gov/virginia_naturally/erg-virginias-agricultural-resources.shtml

³¹ EMSI 2015.2; QCEW

As defined by the Bureau of Labor Statistics, the NAICS 111 Crop Production industry consists of “establishments, such as farms, orchards, groves, greenhouses, and nurseries, primarily engaged in growing crops, plants, vines, or trees and their seeds.”³² During the 2004-2014 period, the crop production industry in Orange County increased from 213 jobs to 338 jobs. Employment in the industry subsector peaked in 2012, with a total of 381 jobs, and has declined since then. Job figures in the industry subsector reached their lowest in 2005 with 202 jobs. A large portion of this employment is due to one employer in the region, Battlefield Farms, one of Orange County’s largest employers. Battlefield Farms has over 200 employees who grow mums and poinsettias for Lowe’s and Walmart east of the Mississippi.

Of the top five occupations in the crop production industry listed in Table 9, crop, nursery, and greenhouse farmworkers and laborers make up the largest occupation in Orange County with 51.3% of the total jobs in the industry. Employment figures are considerably less in other occupations. Regional employment shows a similar trend.

Table 9: NAICS 111 Crop Production Staffing Patterns in Orange County for Occupations with Employment >10³³

SOC	Description	Employment (2014)	% Change in Employment (2004-2014)	% of Total Jobs in Industry (2014)	Median Hourly Earnings	Typical Entry Level Education
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	171	60	54%	\$10.62	Less than High School
11-9013	Farmers, Ranchers, and Other Agricultural Managers	21	7	50%	\$36.41	High School Diploma or Equivalent
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	20	7	54%	\$13.50	Less than High School
45-2091	Agricultural Equipment Operators	15	6	67%	\$23.50	Less than High School

Vineyards and Wineries (NAICS 31213)

The Virginia wine industry is growing, ranking fifth nationally in number of wineries and sixth in grape production. Virginia wine production relies heavily on the ability to grow in-state wine grapes.³⁴ Consequently, any expansion in wine production depends on the ability of regional producers to deliver sufficient quantities of high quality grapes. A higher quantity of quality grapes can contribute to building a reputation for quality wines and help Virginia wineries capitalize on the

³² Bureau of Labor Statistics. (2015). Industries at a Glance: Crop Production: NAICS 111. Retrieved From <http://www.bls.gov/iag/tgs/iag111.htm>.

³³ EMSI 2015.2; QCEW

³⁴ Virginia Wine Board (2012)

“buy local” and winery tourism market trends. Total grape production in Virginia has increased from 5,600 tons in 2007 to 8,039 tons in 2014, representing a 44% increase. Likewise, the total number of bearing acres used for grape production experienced an approximate 31% increase over the same time period. Virginia had 3,145 bearing acres in 2014 compared to 2,400 in 2007.³⁵ Finally, grape yield has averaged 2.47 tons per acre and has remained fairly constant over time.³⁶

Orange County has contributed significantly to the growing Virginia wine industry. Orange is the third largest producer of grapes in Virginia and is ranked third in number of bearing acres of grapes. The county produced 1,028 tons of grapes and had 251 bearing acres devoted to grape production in 2014, representing a 66% increase in tonnage and a 96% increase in grape bearing acreage since 2007.³⁷ The number of farms that grow grapes has also increased. Between 2007 and 2012, six more farms started in Orange County, bringing the number of acres devoted to grape production to 282. Meanwhile, the top two Virginian counties for grape production and bearing grapes—Albemarle and Loudoun countries—have twice as many bearing acres each; however, their grape production is only about 300 acres each or 28% more than Orange.

Table 10: Grape Production for Orange County 2007-2012³⁸

	No. of Farms		No. of Acres	
	2007	2012	2007	2012
Total Grape Production	9	15	N/A	282
Bearing Age Acres	9	8	N/A	275
Nonbearing Age Acres	2	9	N/A	6

Orange County hosts five wineries, employing as many as 65 workers. These wineries are Barboursville Vineyard, Chateau MerrillAnne Vineyard, Honah Lee Vineyard, Horton Vineyard, and Reynard Florence Vineyard. Since 2007, Orange’s wine industry has helped to increase employment. Even when the recession was at its peak, Orange experienced a positive, if not slower, increase in jobs. Since 2012, percent growth has been steady. Table 11 shows workforce growth in the wine industry during 2007-2015. The region’s average earnings \$5,000 higher than Orange due to Madison County, which employs 93 workers at an average salary of \$34,785 per job.

Table 11: Regional Winery Employment NAICS 31213³⁹

Location	Employed in Industry Group (2007)	Employed in Industry Group (2015)	Change (2007-2015)	Percent Change 2007-2015	2015 Avg. Earnings per Job	2014 Establishments
Orange County	11	65	54	490.9%	\$22,104	2
Region	235	461	226	96.2%	\$27,539	22
Virginia	766	2,152	1,386	180.9%	\$27,128	98
United States	46,105	67,674	21,569	46.8%	\$53,725	3,468

³⁵ Virginia Wine Board (2015). 2007 and 2014 Commercial Grape Reports. Retrieved from <https://www.virginiawine.org/grape-reports>

³⁶ USDA Non-citrus Fruits and Nuts 2001-2012 Summaries.

³⁷ Virginia Wine Board (2015).

³⁸ United State Department of Agriculture. (2014). *Census of Agriculture 2012 State and County Data*. Retrieved from <http://www.agcensus.usda.gov/Publications/2012>.

³⁹ EMSI 2015.2; QCEW, Self-Employed, Extended Proprietors

Section 2: Similar Sites Analysis

Montpelier is a historic site under the National Trust for Historic Preservation, a privately funded nonprofit organization founded in 1949. The National Trust helps to support historic sites like Montpelier through research, funding opportunities, and telling historic sites' stories to the world. In recent years, the National Trust has encouraged sites to think differently about how they engage visitors and create a sense of living history on their properties. This approach encourages more visitors from a wider, more diverse population, while also helping sites to develop other independent revenue streams.

In its 2014 Annual Report, the National Trust highlights innovative activities such as taking 48 photography enthusiasts on a secret tour through Union Station in Washington DC. These photographers then put their pictures on Instagram for more than 20,000 people to see. Observing historic sites, the National Trust highlighted the work of Glass House in its endeavor to embrace more arts programs and contemporary arts exhibits such as Veil, an environmental installation by world-famous artist Fujiko Nakaya. Another historic site, The Shadows in New Iberia, Louisiana, has developed an artist residency program so these artists can create new work, and the site can engage the public through master classes, concerts, and open studio hours.

To understand more how other historic sites operate and endeavor to reach the goals outlined by the National Trust, VTOED explored a selection of historic sites through their websites, news articles, and interviews with site representatives. These sites included:

- The Biltmore (Asheville, NC)
- Belle Grove (Middletown, VA)
- Castle Hill (Ipswich, MA)
- Filoli (Woodside, CA)
- Oak Alley Plantation (Vacherie, LA)
- Woodlawn (Alexandria, VA)

These sites were chosen based on recommendations from working group members, their similar rural character to Montpelier, and/or recent innovative activities that seem appropriate to Montpelier's character and desire to expand.

The Biltmore

The Biltmore was designed to be an English-style estate for the Vanderbilt family, sustained and supported through agriculture production. Construction of the house began in 1889 and ended in 1895. Located on 8,000 acres of the Blue Ridge Mountains, the estate has always been on the cutting-edge of agritourism opportunities, even years before the concept was even conceived. In 1930, the Vanderbilt-Cecil family opened the house to the public to increase tourism revenue to the Asheville area during the Great Depression. In 1960, the Cecils turned their focus to preserving the estate and making it self-sufficient. This goal included creating a vineyard, planting the first grape vines in 1971, and finally a winery in 1983. At the turn of the millennium, the Biltmore expanded its

visitor offerings even more by building the Inn on Biltmore Estate in 2001, Antlers Village in 2010, and now the Village Hotel on Biltmore Estate. These venues cater to vacationers, with health spas, horseback riding, an outdoor swimming pool, a nearby golf course, skeet shooting, an ATV course, and Segway tours. Meanwhile, the Biltmore has supported a working farm on its property since its beginning in 1895, a tradition that has evolved into a farm and field-to-table program. Today, restaurants on the Biltmore estate source most of their herbs, vegetables, eggs, and meat from the Biltmore working farm, while some ingredients are locally sourced through the estate's "buy local" program. The estate welcomes approximately one million visitors annually, mostly vacationers from across the United States and internationally.

Much of this programming and site offerings have developed organically from the history and character of the Biltmore. The estate was founded on the notions of sustainable farming and self-sufficiency. This was George Vanderbilt's vision when he built the house. Hence, the food production, farm-to-table restaurants, vineyard and winery, and lodging accommodations have evolved from that vision. Each of these programs are situated under the organizational umbrella of the Biltmore Company, creating a sustainable ecosystem-style of management for the estate. For more on Biltmore, please visit: <http://www.biltmore.com/>

Belle Grove

Belle Grove is a 1797 Manor House built by Major Isaac Hite and Nelly Madison Hite, sister of President James Madison. Under the Hite family, the property became a 7,500 acre plantation where the family grew grain and livestock. Also on the estate were a general store, a grist-mill, a saw-mill, and a distillery. Much of the plantation was operated by slave labor, and current research is underway to understand this part of Belle Grove's history and the on-site cemetery where many former slaves rest. During the Civil War, the estate was occupied by both sides and was the main site for the Battle of Cedar Creek.

Today, Belle Grove is part of Cedar Creek and Belle Grove National Historical Park and is a National Trust for Historic Preservation site. Visitors to Belle Grove's plantation grounds may tour the Manor House, 1815 icehouse and smokehouse, teaching garden designed by the Garden Club of Virginia, slave cemetery, and a heritage apple orchard. The estate also offers a series of events throughout the year. Their most popular event is the twenty year old *Of Ale and History Beer Fest* in May, where distributors offer 60 beers on tap. This festival brings a demographic of largely 25-35 year olds. Other events such as the wine festival in September, Battle of Cedar Creek reenactment, antique appraisal events, and the Hite of Excellence dinner series attract those in the 35-65 year demographic, mostly from Frederick and Shenandoah Counties.

Belle Grove attributes 20-25% of its revenue to these events and 20% to endowment funding. Remaining revenue comes from smaller revenue generating projects such as Belle Grove's annual fund drive, its memberships, admissions and museum shop sales, leases of land to agricultural tenants, and one residential rental. The estate receives very few funds from land leases, admissions, and museum sales. Most of the events, however, are funded through other means. For instance,

while the beer festival requires a lot of time from staff, indeed a part-time staff member is needed to help with that event alone, the actual funding comes from donors and sponsors. Beer distributors bring their own equipment. The Hite of Excellence dinner series is largely supported by board members and other friends of Belle Grove, each volunteering for an individual night. These events highlight mission-centric themes of Belle Grove, although all are not held at Belle Grove. Meanwhile, the agricultural land leases for corn, cattle, and hay are low maintenance for the estate.

While Belle Grove's mission is to preserve and share the history of the estate, its staff also see their role in creating a community space and being a partner to others in their region. Envisioning Belle Grove as a community space helps to bring visitors to the estate, where they can fulfill the goal of preservation and education. As such, they sell locally grown food and products in the museum store. They work with schools and libraries to host events on site. They partnered with Copper Fox Distillery to recreate a Virginia whiskey similar to what the Hite distillery made in the early 1800's. As a result, they have a strong support system in their community. Members volunteer to host dinners and raise funds for the house. The national park service has helped with the interpretive education work on site. The major hurdle that Belle Grove sees at this point is analyzing the costs and benefits of the time put into the events it hosts and whether that time aligns well enough with its mission. To read more about Belle Grove, go to: <http://www.bellegrove.org/>.

Castle Hill

Built in 1924, Castle Hill is part of the Crane Estate, which encompasses the historic mansion, a public beach and destination site for tourists, the Crane Wildlife Refuge, and the Inn at Castle Hill. The 2,100 acre property was purchased by Richard T. Crane, Jr. who valued the beautiful landscape and designed the estate to be a summer seaside retreat. The Trustees of Reservations, a membership organization dedicated to preserving the distinct charms of New England historic sites and outdoors, now oversees the estate. The Trustees look to the British National Trust for inspiration on how to "activate" the property and bring their cultural estate alive. The house holds several thematic tours such as putting the visitor in the role of "guest of the Cranes", a Hot and Cold tour where visitors learn about the inner workings of the technologically advanced summer home, a tour viewed through the lens of a preservationist and curator, and an outdoor tour of the estate grounds and outbuildings that supported the estate then and today. Other than historic tours, the Crane Estate offers other year-round recreation opportunities including weddings, corporate and private parties, an annual arts show, summer concerts, lectures, and movie filming. The estate has made itself available to local visitors through its public beach and outdoor activities, offering a summer camp and volunteer opportunities to community members. Over 1,000 people attend the estate's picnic concert series and their full moon bacchanal.

The Estate is also a one-stop shop for weddings and other events, where almost everything is done in-house or with an organizational partner. The Crane Estate, for instance, has partnered with Fireside Catering for all of its events. Like the Crane Estate, Fireside believes in local sourcing and farming. Crane encourages hiring local businesses and artists for events. They work with local artists whose floral creations are eco-friendly and reusable. The Estate employs event planners to organize

the venue and vendors for the day of the wedding, corporate, or private event. Crane accommodates for more than 300 guests and several different event sites or venues on the property such as the Great House, the Casino Complex, Steep Hill Beach, the Barn, the Tavern, and the Inn at Castle Hill. Prices vary depending on the venue, but Crane Estate is characterized as moderately priced for weddings by TheKnot.com.

The Inn at Castle Hill was once a cottage style farm house, renovated by the Cranes so they had a place to live while the Great House (Castle Hill) was being built. Throughout the 20th century many Crane family members lived in the house and used it to entertain guests of the estate. The Trust of Reservations restored the cottage in 2000 and opened it as a ten-bedroom Inn. Like most boutique hotels, each room at the Inn is individually decorated and offers high-end amenities such as original artwork for purchase, private baths with luxurious amenities, beach bags and towels, continental breakfasts, the “tranquility of no telephones, televisions or radios”, and iPads during your stay. The Inn also offers additional amenities such as onsite massages, gourmet cheese and fruit platters, cocktails and wine, as well as bag lunches to take with you to the beach and hiking. Room rates range from \$230-\$515 during peak season and \$195-\$450 during off-season. For more on Castle Hill, please visit: <http://www.thetrustees.org/crane-estate/index.html>

Filoli

Filoli was designed between 1915 and 1917 and is located on a 654 acre property in the northern Santa Cruz mountains of Woodside, California. The 36,000 square foot Georgian home and 16 acre English Renaissance garden is a historic site of the National Trust for Historic Preservation. Filoli was built for prominent San Franciscans, Mr. and Mrs. William Bowers Bourn, who owned Empire Gold Mine and Spring Valley Water Company. The country estate opened to the public in 1976 and includes a 6.8 acre Gentleman’s Heritage Orchard, a trail system that crosses five varying ecosystems, and the Sally MacBride Nature Center.

The Panel Garden, or kitchen garden, grows fruits, vegetables, and cut flowers for use at the estate. Staff and volunteers pick the fruit when it is ready to harvest, where it is then used at the refrigerated fruit store, which is located near the Gentlemen’s Orchard. The harvested fruit is used for a variety of other purposes as well, including cider, fruit tastings, and distribution to homeless shelters. There is also a Filoli Cook Off where the fruit is distributed to and used by contestants. Due to increased plant production needs when Filoli was designated as a historic site of the National Trust, a new propagation house and cold frames were built on a portion of the vegetable garden.

Filoli is a 501 (c) (3) nonprofit, with about 60 staff members, a governing board, and paying members, who make up the Friends of Filoli. Staff members take care of daily activities such as horticulture, botanical arts, nature education, programming, membership, ticketing, maintenance, preservation, event planning, food service, and retail. Filoli has more than 1,200 volunteers who assist in these tasks as well. The governing board currently has 31 members who manage the estate’s operations. The Friends of Filoli receive numerous benefits for their financial support, such as unlimited visits, member benefit events, and discounts on education programs. The Friends’

Native Plant Garden was created by members in 2005 and contains 51 native plants, many of which were propagated in the greenhouses at the estate from seed or cuttings collected from the grounds. To read more about Filoli: go to <http://www.filoli.org/>

Oak Alley Plantation

Oak Alley Plantation is distinguished by its entranceway canopied by 300 year old live oak trees that lead up from the river to the front of the home. The plantation was established as a sugarcane farm in 1830 by Valcour Aime. The property passed through several families. Due to a disease extinguishing the sugarcane industry in the region, the Stewart family turned the old plantation into a cattle ranch in 1925. Sometime later, in the 1960's, the family reintroduced sugarcane production to the plantation. In 1966, Josephine Stewart created a nonprofit foundation to oversee the preservation and public access of the estate, eventually leaving the mansion and 25 acres of the plantation to the Oak Alley Foundation. The family is still closely involved in the workings of Oak Alley as their company owns the food and accommodation services on site. They also own much of the surrounding land.

Today, Oak Alley has become a site for visitors, weddings, theatre events, and movie filmings. Primary Colors, Interview with a Vampire, Days of Our Lives, Nightrider, and Beyonce's "Déjà vu" music video are among some of the popular media filmed on this estate. Ticket admission makes up 99% of Oak Alley's annual revenue. Visitors are able to tour the home, take a guided tour of the plantation, visit the blacksmith's shop with one of the few remaining original forges in Louisiana, see six reconstructed slave quarters and learn about their lives, and experience an interpretive Civil War exhibit. The Oak Alley restaurant, café, and catering service are owned by a private catering service started by the Stewart family. The restaurant utilizes local Louisiana food that is made in the house. It is open for breakfast and lunch, but closes at 3pm. Recipes from the Oak Alley Restaurant have been outsourced to food manufacturers and sold off-site. Open until 5pm, the Plantation Café is open for more quick lunches and snacks.

The on-site cottages are owned by the same company and are usually open all year. These eight cottages offer rooms equipped with central air conditioning and heat, board games, a refrigerator, microwave, basic utensils, wireless internet, luxury waffle monogram robes, prepared dinners from the restaurant that guests can warm up, and a full country breakfast. Guests "find delight in leisurely strolls on the lush grounds or on the levee where they watch the mighty Mississippi River."

Oak Alley weddings are characterized as affordable according to theKnot.com. Oak Alley accommodates 201-250 wedding or party guests and offers several on-site venues for the wedding and reception. Often weddings and events are held under the Oak Alley trees or within two renovated farm sheds, which house the gift shop and are next to an open air theatre venue. All catering and wedding arrangements are handled by the Stewart family's company.

Oak Alley attributes much of its success to marketing help from its community including concierges from hotels in the region, tourism bus companies, tourist magazines and government. Plantation Parade, is a Louisiana marketing group that provides itineraries to Louisiana tourists and marketing

for houses like Oak Alley. The state of Louisiana actually uses the Oak Alley image in its marketing. Finally Oak Alley has developed strong relationships with organizations at travel shows, state tourism guides, and travel television shows and magazines. Oak Alley relies on these partners primarily for their marketing.

Oak Alley also provides three recommendations. First, any historic site should focus on developing an informative, clear and up-to-date website. Second they should focus on the history and mission of the house when developing activities. Finally, Oak Alley advises sites to carefully consider the costs and benefits of organizing and hosting events as they are difficult and often don't raise as many funds as one would think. For more information regarding Oak Alley's offerings, please visit: <http://www.oakalleyplantation.com/>

Woodlawn

Woodlawn was originally part of George Washington's Mount Vernon before he set aside 2,000 acres for his nephew Major Lawrence Lewis and his wife Eleanor Parke Custis, Martha Washington's granddaughter. The couple commissioned George Thorton to build a Georgian/Federal house on the site. Thorton completed the house in 1805. The estate became a historic house museum in 1949 and a National Trust for Historic Preservation site in 1957. Also on the site is the Pope-Leighey House, a house built by the famous architect Frank Lloyd Wright for journalist Lauren Pope in 1940. The home was part of Frank Lloyd's Usonian homes, which was meant to provide affordable homes to the middle class. The home was donated to the National Trust by Marjorie Leighey in 1946, and was moved to the Woodlawn site.

Woodlawn partners with two organizations to provide programs on their grounds. One organization is 550 Events and Provisions, an event planning firm based in Washington D.C. 550 Events and Provisions offers weddings and corporate events on the Woodlawn site and in the Pope-Leighey House. They also receive fresh food from the Arcadia Farm, located on the Woodlawn site, and other co-ops located along the East Coast. Woodlawn itself also stages Picnic Theater, an event where a community theater group puts on a play while guests picnic on the estate's lawn.

In 2010, the National Trust, in partnership with the National Group Restaurant, formed the Arcadia Center for Sustainable Food and Agriculture. This center is devoted to the education and development of healthy and sustainable food sources for the Greater Washington D.C. area. The Arcadia Center established a farm on the site of Woodlawn where they provide educational opportunities for D.C. students and fresh food for underserved communities using sustainable farming techniques. Their educational programs include field trips for students to the Arcadia Farm and a summer camp called "Farm Camp" where students can learn about agriculture. Arcadia also provides school sources such as programs with connections to healthy food providers to improve the quality of school meals. They also provide "Mobile Markets," a bus filled with healthy food to provide underserved communities with access to and education about healthy food. Finally, they operate a Food Hub program to promote better food access, provide sustainable farming practice

training to farmers, and provide support to regional farmers. Revenue for these programs comes from foundation, corporate, and individual donor support and to a smaller extent, food sales.

For more information about Woodlawn, please visit their website at <http://www.woodlawnpopeleighey.org/>. For more information on Arcadia Center for Sustainable Food and Agriculture, please visit <http://arcadiafood.org/>. For more information on 550 Events, please visit <http://550events.com/index.html>.

Synopsis

From these examples, VTOED recommends Montpelier to align any agritourism-related activities with its history and mission. Many of the more successful programs that VTOED reviewed pulled from their history and remained true to the nature and feel of their estates. For instance, Biltmore was actually designed to function similarly to how it does today. Castle Hill was an estate meant to preserve the natural landscape and region while serving as a site for entertaining guests. The grounds of Filoli were intended to function as highly unique and intricate flower gardens and fruit orchards, much like an Italian Villa. Similarly, Montpelier can pull from its Madisonian and DuPont-related history.

These sites also offer experiential activities outside the house tours. Yet their organizational structure and ways of managing their programming differ. Profit-generating programs ranges from completely in-house management to separate businesses or organizations operating on estate grounds. The Biltmore and Filoli to some extent would be good examples of in-house operations. Operating on-site programming in-house, from weddings and events to restaurants and lodging, does allow the estate to control for any possible variables that might harm the estate and create a cohesive set of programs that better display the estate brand. It also provides the opportunity for the estate to reap all the financial benefits. Many historic estates have found this variety of programming difficult to manage all in-house, particularly when they want to maintain a certain historic mission and avoid mission drift. Even at the Biltmore, so many activities exist, such as the restaurants, hotels and the house tours, that they are each fairly insular and practically their own separate businesses. Castle Hill and Woodlawn address the management hurdle by contracting with businesses that seem to align well with their environmental and social missions. Like many historic homes, Belle Grove, Filoli and Oak Alley have created a strong network of regional and state supporters whom they trust and who pursue many of the activities on behalf of the estates. Similarly, Montpelier may pursue each of these levels of operations. In doing so, it should consider the extent to which the Foundation needs to oversee any on-site activities so they protect the estate, its vision, and mission.

As this project encompassed a large swath of agritourism-related activities, the review of similar sites was broad. VTOED encourages Montpelier to research particular programming and contact these sites further once it chooses to pursue a particular programmatic idea.

Section 3: Opportunity Assessment

This study includes multiple sources of qualitative and quantitative data, collected through an iterative process. In other words, data was gathered and shared with working group members, the County and Montpelier representatives at various stages of the project. The recurring communications informed and enriched the data analysis process, helping VTOED faculty to focus their data gathering and analysis on a certain number of revenue generating opportunities. Data collection was extensive and multi-faceted. The data included:

- Four site visits to Montpelier,
- Three working group sessions,
- Regional analysis based on national, state and proprietary data sources,
- 31 key informant interviews,
- Three small-group, in-depth discussions with invited subject-matter experts,
- Similar Site Analysis based on website research and interviews with site representatives,
- Extensive review of Secondary Data,
- Lodging and event operator surveys in Orange County and surrounding region.

Pre-assessment of Agriculture-related Opportunities

For the purposes of this study, we were specifically asked to consider six parcels for development and revenue generation opportunities related to agriculture and related tourism enterprises:

1. *The Northwoods Area* – 110 acres, mostly forested. It does include one structure, Building 56: “Dr. Madison House”, which is currently used for staff Housing (archaeology).
2. *Chicken Mountain* – 52 acres, forested and mountainside. This land does include one structure, Building 62: “House 62”, which is currently used for Rental Housing.
3. *Montpelier Village* – 35 acres, across the street, with good visibility, visitor accessibility, and relatively open and flat land. Occasionally used for festivals and event parking. Includes three small structures, two of which currently used for housing rental and one for agriculture rental.
4. *Eastgate* – 42 acres, flatter parcel bordering the Constitutional Village, mostly pasture and used for equestrian activities. The great majority of this parcel is used by the Thoroughbred Retirement Foundation. The parcel includes Building 45: “Bassett House”, which is used for Staff Housing for the President of the Montpelier Foundation. The parcel also includes an unused outbuilding and a barn used for agriculture rental.

5. *Constitutional Village* – 30 acres, within the historic core and near the historic home, which constrains range of desired uses – includes fifteen structures, most of historic significance. Properties include four houses used for housing participants in Montpelier programming, two buildings used for staff offices, and a number of other structures. Notably, there are 2-3 clustered unused structures which include the “Upper Sears Barn” facility.
6. *Yearling Barn* – 21 acres, mostly rolling pasture and one structure, the yearling barn. The parcel is near the constitutional village and the main house, but separated by landscape and topography and its location oriented to the rear of the property. There is possible access from a rear gravel road which could be improved.

Working Group Meetings and meetings with county and Montpelier officials generated a wide range of possible opportunities for agriculture and tourism related development. All ideas were captured. In addition, the input helped develop a list of criteria for assessing the opportunities. The criteria include:

- Potential likelihood for revenue generation for Montpelier;
- Existence of a ready market/purchaser for goods and services;
- Fit with Montpelier mission and brand;
- Relatively low burden for Montpelier in terms of start-up costs, operating expenses, and programmatic oversight;
- Potential to help increase visitors or length of visitor stay in area;
- Existence of clear partners or lead entities to help drive and operate the enterprise;
- Complement or supports existing county activities and business

This study grouped the ideas into three broad categories:

1. Agriculture production and agriculture-related processing;
2. Lodging and event-related opportunities (agritourism); and
3. Restaurant, retail and other tourism/visitor experiences (agritourism).

For each of these areas, this section of the report includes a criteria grid of ideas and opportunities generated by the working group, secondary research, and key stakeholders. Possibilities were inventoried and then narrowed, using a structured sorting process.

The criteria grid on the following pages, includes each opportunity and a quick assessment of the opportunity based on the pre-identified criteria.

Criteria Grid for Agriculture Production and Processing Opportunities

(Y = meets criteria; N = does not meet criteria; U – uncertain if it meets criteria; NA = not applicable)

Table 12: Agricultural Opportunity Criteria Grid

Opportunity	Ready Market ?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Greenhouse/ Nursery	Y	Y	N	Y	N	Already exists in area; high-start-up
Livestock grazing - cows		N	N	N	N	Interfere with visitor experience? Low revenue generation for the burden on MP
Grazing - Sheep	Na	Y	N	N	Y	Potential to align with Fiber festival, ongoing activities, wool, but may interfere with visitor experience; higher burden
Grazing - goats	Na	U	U	N	Y	Could help with weed control, pasture maintenance, but many unknowns – low revenue return unless connected to cheese/meat
AP – dairy	Y	N	N	Y	U	Seems less of a fit and high costs to enter
AP - Wool	Y	Y	U	Y	U	May want to explore this further, if sheep are considered in future; higher initial burden, parcel fit?
AP – eggs	Y	N	N	N	N	Less of a fit
Apples – for cider	Y	Y	N	U	Y	Long-term – three years before returns are seen; labor intensive and subject to many pests and diseases, but possible demand Could be more than 3 years as there is a waiting list for cider apple trees of approximately 5 years
Vegetables	N	Y	N	Y	Y	Lack of clear partner; labor intensive; may make most sense as a second stage effort to feed into on-site restaurant?
Hops	Y	Y	N	N	Y	Market exists, not major revenue source as standalone but may be so in conjunction with farm brewery operation. Aligns with MP assets and burgeoning regional industry.
Barley	Y	Y	N	N	Y	Market exists, not major revenue source. Difficult to grow in Virginia. May be more feasible in future if farm-brewery operation is developed (as a complement to hops)
Grapes	Y	N	N	Y	Y	Market exists, could fit in combination with hops/barley, and would offer supply to regional wineries; but also barriers to entry and questions of fit/branding.

Assessing Opportunities for Agriculture and Agritourism at Montpelier

Opportunity	Ready Market ?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Tree nursery for wood products	N	Y	N	N	Y	Sustainable, small-scale forestry is possible – but no MP interest in expanding timber operations.
Trees for nuts	N	Y	Y	N	Y	Does not seem a high revenue source.
Mushrooms	U	U	N	N	U	Could be a good complement to vegetable production, hops, wood products but can be time and labor-intensive.
Industrial Hemp	N	U	Y	N	U	Regulatory barriers still there and market is still small. Not a short term option. May be worth exploring more in future.
Honey/bees	N	Y	N	U	U	If vegetables or fruits are produced at Montpelier, having bees would be a complement. Branding the honey could be a small revenue source, but MP burden and not much of an attraction.
Seeds/grasses	Y	U	N	N	N	Bird seed appears to be a growing market and inputs include sunflower, proso millet, canary grass, etc. Grasses may also have multiple purposes and could include switchgrass. Possible burden on county residents if seeds were dispersed.
Hay/feed	Y	Y	Y	N	Y	Low investment – land available, market there. But does not offer much in terms of value added, other benefits.
Wood Products processing/mill	U	U	N	N	U	Feedback suggests activities here may be less preferred due to fit and adverse impacts such as noise, traffic, brand incongruence, and forest conservation concerns
Commercial kitchen/cannery	Y	Y	N	N	N*	Not a fit due to existing services in region outside of county – high burden in terms of operating
Malting facility for barley	Y	Y	N	N	N	Not a fit due to existing need being met by facility in Nelson County; high upfront costs
Drying and/or hops storage	Y	Y	Y	N	Y	Necessary if growing hops. Could be explored as a value to other hops growers in region – stimulate hops growing.
Pelletizer for hops	Y	Y	N	N	Y	Expensive start-up, but demand for pelletization exists given the number of hops producers in the area, demand for local hops, and brewers demand for pelletized hops (and not wet hops). Could be helpful in future if hops production and farm brewery are established

Opportunity	Ready Market ?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Small-scale farm-brew facility	Y	Y	N	Y	Y	In conjunction with hops/barley production or processing and possible pub on-site, may be worth exploring. High start-up. Good incubation possibility for local brewers.
Agricultural research facility in partnership with University	N	N	N	N	Y	The available parcels at MP do not lend themselves to larger-scale research. Low revenue generation potential and no ready partners. However, small-scale research plots at MP in partnership with university are very possible.

While this list is extensive, there are even more possibilities available for alternative crops. See, for instance, the USDA’s list of alternative crops and enterprises for small farm diversification, accessible at:

<http://afsic.nal.usda.gov/list-alternative-crops-enterprises-small-farm-diversification#resources2>

A number of these possibilities could offer revenue generation potential. For instance, given the amount of forested land in Parcel 1 (110 acres) and Parcel 2 (52 acres), opportunities exist to explore forest products and forest products processing a bit more thoroughly. This could include growing high value crops in the forest such as:

- Medicinal herbs: ginseng, goldenseal, bloodroot, pacific yew, mayapple, and saw palmetto
- Nuts: Black walnut, hazelnut, hickory, beechnut
- Other food crops: ramps, syrups, honey, mushrooms, other edible roots

Figure 5. Agroforestry Example



Image Credit: USDA, Chris Evans, Wildlife Action Plan

Other possibilities might include (relatively) low-intensity, low-input, high value niche products such as mushrooms or seeds. Still, none are without risks, and almost all require some level of expertise and hands-on operations management. Agricultural enterprises require substantial knowledge and technical competency. Generally those enterprise options offering the greatest potential financial returns are also the ones with the greatest risk or the most capital investment required.

In gauging possibilities, a key distinction here is that while the Montpelier Foundation has farmland which has been leased for crop production on a small-scale and a history of farming, the property does not currently have a farming-focused enterprise manager. By this, we mean that the range of viable opportunities are at least partially limited by the organization’s management capacity and agriculture-expertise. Small farms seeking to diversify are often well versed in one aspect of agricultural production and the variables and risks associated with farming ventures. In many ways these are learned competencies. At present, Montpelier Foundation lacks a farming enterprise manager with this type of expertise or a readily identified partner to help fill this type of knowledge and experience gap. Leasing land for alternative crops and enterprises can be done without expertise, but that limits revenue possibilities as well.

Leasing land to local growers for increased crop production for hay, corn, or other established crops meets the criteria for Montpelier of low burden and increased revenue, albeit moderate. However, given the six identified parcels for the study, the available land for crop production appears very limited – Parcels 1 & 2 are wooded and not currently in agriculture. Parcel 3 has flatland but much of that has been designated and reserved for event space. Parcel 4, Eastgate, has 42 acres and is a possibility for livestock and some limited crop production but most is currently dedicated to equestrian activity. Parcel 5 is the constitutional village and not preferred for agriculture. Parcel 6, the yearling barn and surroundings, has some rolling topography available for limited production.

Due to the positive feedback from the working group, Orange County and Montpelier representatives, and industry experts, VTOED pursued further data collection and analysis pertaining to craft beer and related agriculture. More detail on hops and farm brewing is included in Section 4 of this report.

Criteria Grid for Lodging and Event (Agritourism) Opportunities

(Y = meets criteria; N = does not meet criteria; U – uncertain if it meets criteria; NA = not applicable)

Table 13: Lodging and Event Facility Opportunity Criteria Grid

Opportunity	Ready Market?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Larger-scale conference center	N	U	N	Y	Y	Initial data suggests market may not exist for larger scale hotel or conference center.
Chain Hotel	U	N	Y	Y	Y	May not fit well with MP brand.
Boutique Hotel/Inn	Y	Y	U	Y	Y	Good avenue to explore.
B&B/Farm stay	U	N	N	Y	N	Not a good fit due to existing operations and lower returns.
RV park	U	N	N	Y	Y	Not a good fit for brand. High initial investment.
Luxury cottages	Y	Y and N	Y	Y	Y	Concerns over concept – sales not feasible.

Opportunity	Ready Market?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Campground	Y, event-based	Y	N	Y	Y	Many concerns including profitability. Responds to a county need.
Luxury camping/glamping	Y	Y	N	Y	Y	Concerns about cost and temperature requirement in this region
Larger-scale venue for weddings, parties	Y	Y	N	Y	Y	Large revenue generation potential. Photos from weddings shared on social media could increase Montpelier’s visibility and help visitation (this has been the case for Grelen)

Many of the large-scale investments such as a conference center, chain hotel and luxury cottages received little positive feedback from stakeholders as they did not seem to be a good fit for Montpelier or feasible for the region at present. More interest was expressed for a boutique hotel, event venue and camping space. More detail on these lodging and event-related opportunities is included in section 5 of this report.

Criteria Grid for Restaurant, Retail, and Other Tourism Opportunities

(Y = meets criteria; N = does not meet criteria; U – uncertain if it meets criteria; NA = not applicable)

Table 14: Restaurant, Retail, and Other Tourism Opportunities

Opportunity	Ready Market?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Farm to Table, or local foods Restaurant	U	Y	N	Y	Y	Restaurant business is notoriously difficult. Farm-to-table of growing consumer interest. Often higher end clientele. May require a big name chef and one who is dedicated to concept for visitor attraction and quality consistency.
Pub-style restaurant	U	Y	N	Y	Y	Would fit well with a brew-facility in the yearling barn concept, maybe as a second-stage effort.
Historic or themed dining	U	Y/N	N	Y	Y/N	Concerns of “fake” authenticity – visitors want unique experiences. Uncertain consumer demand.

Opportunity	Ready Market?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Fine dining	U	Y	N	Y	Y	Need to look more closely but risky start-up and local competition – may not be an initial market.
General store or “village center” type retail	U	Y	N	Y	Y	May be a useful “second stage” or complementary development in parcel 3 after campground or inn is developed – more ways to retain visitor revenue
Arts/crafts retail	U	Y	N	Y	Y	Overly compete with other sites?
Arts/studio space	N	Y	N	Y	Y	Low likelihood of revenue
Food-culinary tourism	U	Y	N	Y	Y	Second stage or complementary activity with inn or hotel?
Arts workshops or demonstrations	U	Y	N	Y	Y	Second stage or complementary activity with inn or hotel?
Tourist learning	U	Y	N	Y	Y	Second stage or complementary activity with inn or hotel?
Outdoor recreation experiences	U	Y	N	Y	Y	Good complement to camping activities if that goes forward.

It was beyond the scope of this project to conduct a full feasibility analysis of each of the ideas generated. After the opportunities grid was populated, three small-group discussions were held at Montpelier with subject-matter experts in each of these three areas. The discussions helped assess the opportunities and to consider the ways that some opportunities might function together. Montpelier land parcels and structures were visited to help determine whether a likely match existed between the opportunity and available parcels.

In addition, a second working group meeting helped coalesce interest around a set of core opportunities for each of the three areas above. For instance, the wider list of opportunities was grouped into a smaller subset and working group attendees were asked to vote for their top two picks for each of the following criteria:

- Best fits mission and character of Montpelier
- Most likely to increase visitation to Montpelier
- Most likely to encourage investment/makes the most business sense
- Best complements the region and its assets

The results are included in the table below:

Table 15: Working Group 2 Opportunities Assessment

Opportunity	Fits MP	Better Visitation	Best investment	Best regional complement	TOTAL	Disliked Project	Notes
Luxury cottages						1	
Camping/glamping		8		1	9		
Boutique hotel	7	5	10	4	26		2 notes about using existing rooms; one note about having a wedding/event space with hotel
Farming	10				10		
Pub restaurant	2	5	5	4	16		
Edible landscaping/ Interactive farming	4		1	2	7	1	
Industrial Hemp	2	2		1	5	1	
Native grasses and seeds						2	
Farm brewery/Beer garden	7	10	8	4	29		One note saying they want hops with it
Hops production	4	4	10	1	19		

Figure 6: View from the Yearling Barn, Parcel 6



As the project has unfolded, the greatest levels of interest were generated around opportunities related to the burgeoning craft brew industry in Virginia and the central Virginia Piedmont region in particular. In addition, the Yearling Barn in Parcel 6 has been identified as an appealing site for a farm brewery/brew-pub-type operation and discussions have identified synergies between Montpelier interests and the rising interest in Virginia-based hops and barley production. The Yearling Barn Development area could serve as a craft brew site if renovated. The development area

is about 21 acres which could provide a great view with or without crop fields and could serve as a

back entrance to the property if connected with county roads. The opportunity to develop a farm brewery operation also makes hops production, and future hops processing capabilities, an appealing venture. A full analysis is provided in section 4.

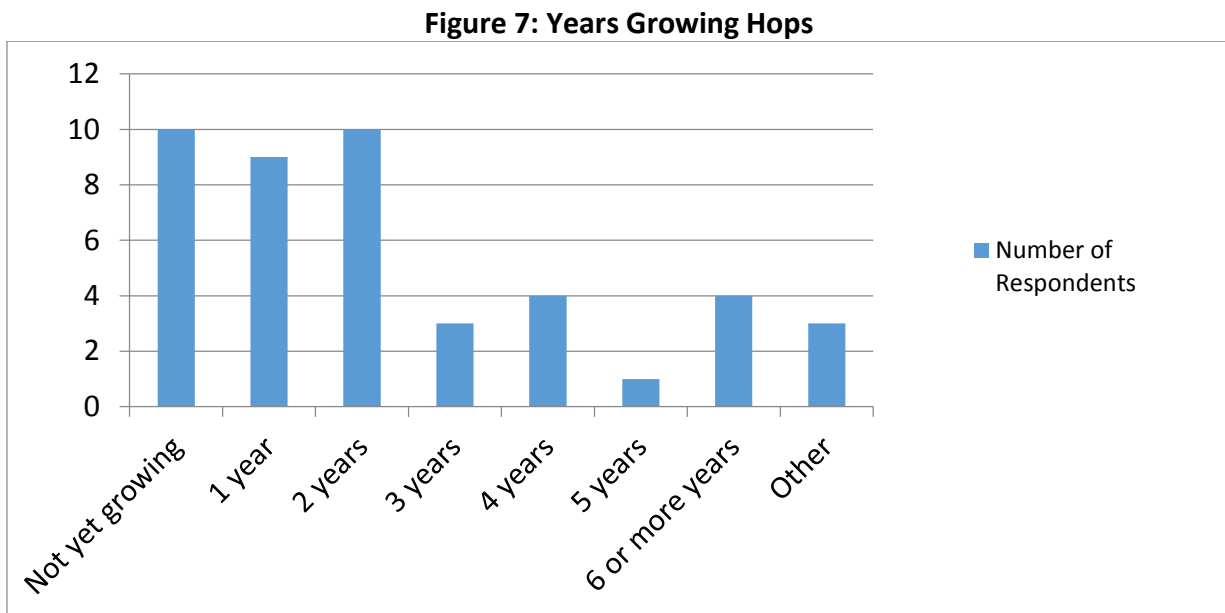
Also, the market for small-scale, higher-end lodging and event space in the region accompanied by the prestige and character of the Montpelier brand and its available bucolic and historically significant spaces suggests the possible feasibility of boutique accommodations and expanded event facilities. Camping and associated outdoor recreation opportunities also continued to be relevant considering the abundant forested land in certain parcels and the increasing outdoor recreation tourism market. These opportunities are discussed in section 5.

Section 4: Opportunities for Hops and Breweries

Hops and Breweries in Orange County and the Surrounding Region

Growing hops and brewing craft beer in Virginia is still a very nascent industry with limited up-to-date data. Hops have been grown in Virginia since the 1700s, but modern production has been insignificant until the last five to ten years. According to the Hop Growers of America's 2014 Statistical Report, there were 25 acres of hops harvested in Virginia.⁴⁰ A fall 2014 study showed approximately 50 growers in the state, although Virginia Cooperative Extension estimates that number has rapidly increased.⁴¹ The Old Dominion Hops Co-Op, for instance, cites having 105 hops farmers as members. These farmers are located within Virginia, Maryland, and North Carolina, but most farm hops in the Shenandoah Valley and Northern Virginia. Seven hops farmers from the Orange County region are members of the Old Dominion Hops Co-Op. They are mostly concentrated in Albemarle County and Charlottesville City.⁴² There are hops growers in Orange County such as the owners of Somerset Seed & Sod, Inc.

A hops grower survey was conducted by Virginia Cooperative Extension in 2014 and 46 growers responded. As seen below, the vast majority of respondents had only been growing hops for three years or less.



The survey found that 48% of respondents were growing for the commercial market and 65% were growing the Cascade variety of hop, although 17 other varieties were being grown in small number. The total Virginia hop plants reported in 2014 were 13,317 and the total yield of wet hops in the

⁴⁰ Hop Growers of America. (2015). *2014 Statistical Report*. Moxee, Washington: Ann George for Hop Growers of America

⁴¹ Siegle, L. (2015). *Hops in Virginia: Need-to-Know Information about the Industry*. Virginia Cooperative Extension.

⁴² Old Dominion Hops. (N.D.) *Member Directory*. Retrieved from <http://www.olddominionhops.com/home/Directory>

state was 8,109 pounds⁴³. There is some interest at the Virginia Tech University level of adapting and developing hops varieties that are better suited for the Virginia climate.

Similarly the Brewers Association estimated 78 breweries in Virginia brewed as many as 195,957 craft beer barrels in 2014.⁴⁴ Craft brewery growth has been extremely rapid; as of October 2015, Virginia was home to 121 craft breweries. Craft breweries are a large contributor to Virginia's economy as they had a \$622.6 million economic impact to the state within 2012. While there are no breweries located within Orange County, there are 9 located in the surrounding counties and cities. Five out of the nine breweries are located within Charlottesville City. Figure 8 shows a map of the breweries in this region, identifying Orange County as a prime location for a brewery as well as a source of hops to support these surrounding breweries.

Figure 8: Breweries Located Around Orange County⁴⁵



These breweries have either started or grown in the past decade, resulting in a drastic increase in employment in the brewery industry as seen in Table 16. This is much faster than the rate seen in Virginia and the U.S.

⁴³ Siegle, L. (2015, April 30). *Growing Hops in Virginia and Industry Status*. Virginia Cooperative Extension Presentation. Available at <http://www.ext.vt.edu/topics/agriculture/commercial-horticulture/hops/index.html>

⁴⁴ Brewers Association. (2015). *Virginia Craft Beer Sales Statistics*. Retrieved from <https://www.brewersassociation.org/statistics/by-state/?state=VA>

⁴⁵ Virginia Tourism Corporation. (2015). *Virginia Craft Beer and Breweries*. Retrieved from www.virginia.org/craftbeer/

Table 16: Breweries Regional Breakdown with NAICS 312120⁴⁶

Location	Employed in Industry Group (2004)	Employed in Industry Group (2014)	Change (2004-2014)	Percent Change 2004-2014	2015 Current Wages & Salaries (QCEW)	2015 Establishments
Orange County, VA	<10	<10	--	--	\$26,384	0
Region	12	66	54	450.0%	\$78,647	4
United States	27,479	42,328	14,849	54%	\$75,936	1,494
Virginia	1,437	1,622	185	13%	\$85,837	45

As shown in the Table below, all but two of the industries in the regional brewery supply chain obtain over 90% of their supplies from outside of the region. Crop production, which encompasses grain, hops, and other products used within the brewing process, is one of the industries where breweries obtain proportionally more of their supplies (15.8%) from businesses in the region. However, the potential for a greater market share and more money staying within the region certainly exists. Breweries in Charlottesville alone, for example, contributed \$1.8 million to the top ten supply chain industries for breweries, most of which left the region.

Table 17: Top Ten Industries in Supply Chain for Orange County and Surrounding Counties Breweries⁴⁷

NAICS	Industry	Amount	In-Region	Out-Region
551114	Corporate, Subsidiary, and Regional Managing Offices	\$5,435,888	10.4%	89.6%
332431	Metal Can Manufacturing	\$4,587,907	0.0%	100.0%
332439	Other Metal Container Manufacturing	\$2,540,601	1.0%	99.0%
111000	Crop Production	\$2,369,083	15.8%	84.2%
327215	Glass Product Manufacturing Made of Purchased Glass	\$2,181,446	1.7%	98.3%
311211	Flour Milling	\$2,132,495	9.5%	90.5%
322211	Corrugated and Solid Fiber Box Manufacturing	\$1,643,712	0.0%	100.0%
311221	Wet Corn Milling	\$1,191,293	0.0%	100.0%
327213	Glass Container Manufacturing	\$1,075,044	0.0%	100.0%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	\$999,166	11.6%	88.4%

⁴⁶ EMSI 2015.2; QCEW, Self-Employed, Extended Proprietors

⁴⁷ EMSI 2015.2; QCEW, Self-Employed, Extended Proprietors

Hops Production and Processing Prospects at Montpelier

The core questions here concern:

- a) Whether hops can be produced at Montpelier and at what scale;
- b) How the produced hops will be stored and processed;
- c) Whether it is practical for storage and processing facilities to be developed at Montpelier;
- d) Whether there is likely to be a market demand and ready purchasers for the hops produced; and
- e) Whether the produced hops might supplement other desired activities at Montpelier and in the region, such as a brewery, brew pub, and the regional craft beer industry more generally.

This section will briefly explore each of these questions individually.

- a.) Whether hops can be produced at Montpelier and at what scale

Figure 9: Hops Bud



Image Credit:
L. Siegle, Virginia Cooperative Extension

The primary ingredients in beer are grain or barley, hops, yeast, and water. Other ingredients may include herbs and spices including fruit, chili peppers, or berries. Hops production in Virginia, as suggested in the overview in the previous section, is a nascent industry. There are many varieties of hops and the varieties may impart differing flavors or characteristics to the beer. Most hops varieties are either aroma hops or bittering hops. Seen in the image to the left, hops are flowers from a perennial vine, *Humulus Lupulus*.

It is very likely that land at Montpelier is suitable for growing hops. Land currently in agriculture production and some of the flat land in the Eastgate area, parcel 2 are likely to be conducive to hops production. According to Virginia Cooperative Extension, hops production requires full sun, well-drained soil, decent air flow, and a soil ph of 6-6.5.

The specific spots will require soil testing which is provided by the Virginia Tech lab. Moreover, models exist which can be adopted to rank the suitability for growing hops on specific land parcels at Montpelier and in Orange County more generally. In Loudon County, the GIS department partnered with Virginia Cooperative Extension to construct an interactive mapping system to assess the suitability for hops, which may be found at www.loudoun.gov/hopsmap. Depending on the features present, soil amendments and irrigation may be required and pest control will be essential. Downy Mildew, Powdery Mildew, Japanese Beetles, and Spider Mites are all present in Virginia and cause damage to hops in the state.

The basic inputs for hops production include⁴⁸:

- Trellis System;
- Irrigation;
- Plants or Rhizomes;
- Fertilizer, Fungicides, Pesticides, Herbicides;
- Special equipment;
- Hops & Soil Testing;
- Labor; and
- Processing service or equipment.

The most significant cost, and possible barrier for some new growers, is for the trellising system such as the one depicted to the right. Virginia Cooperative Extension estimated the trellising costs at \$10,000 per acre, although this amount could potentially be reduced if the grower constructs the trellis themselves with lower-cost materials. However, the structure is essential and such a “do-it-yourself” trellising system would need to be carefully designed and soundly installed.

A typical trellis height is between 12 and 20 feet. As hops vines grow vertically and increase in height from year to year, the yield over time will be somewhat constrained by trellis height. Hops plants may live for 10-25 years.

Figure 10: Hops and Lattice



Image Credit:
L. Siegle, Virginia Cooperative Extension

There are reasons that the hops production industry is still finding its footing in Virginia. Common American hops varieties flourish with long hot summer days and a steady dormant period over the colder months. Virginia, and the mid-Atlantic region, offers less daylight than the Pacific Northwest states, a less reliably cool dormant period, and has pests that are less present in Washington, Oregon, and Idaho. While there are varieties that grow well in wetter climates, such as those resistant to

⁴⁸ Kistler, D. Cost to Grow Hops Presentation. Presentation to NC-VA Hops Conference. Accessible at <http://www.ext.vt.edu/topics/agriculture/commercial-horticulture/hops/index.html>

powdery mildew, produced in Southern Germany, they are not yet available in the United States. With the demand for Virginia grown hops increasing, it is likely that new varieties will be adapted and developed that could increase hop yields. The Virginia Tech and North Carolina State University (NCSU) horticulture departments specifically are interested in exploring this issue, though results of trials are still several years away.

The expertise of Virginia Cooperative Extension agents with hops specialization and the experiences of existing hops producers in Virginia indicate that hops may well be profitably grown in Virginia, though there are cautions.

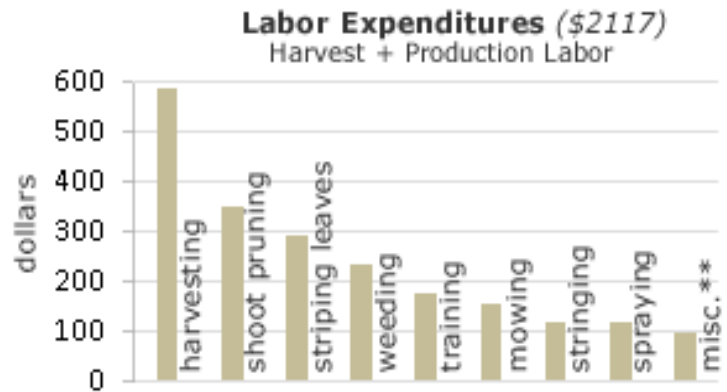
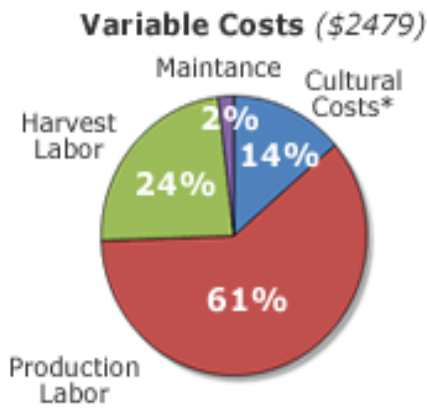
First, it is not a “hands-off” crop. Hops send out shoots annually, which grow into viny structures called “bines.” Bines must be trained to grow clockwise on twine which is attached to an overhead trellis. Labor and careful attention are required throughout the year, and decisions and required maintenance activities include those related to planting, trimming roots and rhizomes, pruning shoots, training the bines, stripping lower leaves for disease control, continuous monitoring for disease, irrigation, and weed control.⁴⁹

In addition, the initial and ongoing costs may not translate into profitability as a standalone crop until 3-5 years into production, as the yields increase. NCSU created a sample enterprise budget for new hops growers and Virginia Cooperative Extension has an interactive Excel budgeting tool for hops producers. The image below is from the NCSU sample budget and reflects the initial investment costs including the capital costs for trellis construction, planting, site preparation, irrigation setup, and equipment costs as well as the associated labor costs. The initial investment costs also include the annual expenses incurred in year one for producing 200 hops plants on .25 acres of land. The total trellis costs for construction for a quarter-acre are \$2,873.14 which loosely corresponds with the \$10,000 per acre costs estimate cited above. Accordingly, the initial investment costs represent the total capital required to produce hops in year one.

⁴⁹ Siegle, L. (2015, April 30). *Growing Hops in Virginia and Industry Status*. Virginia Cooperative Extension Presentation. Available at <http://www.ext.vt.edu/topics/agriculture/commercial-horticulture/hops/index.html>

Figure 11: Annual and Initial Hops Growing Costs

Annual Expenses: \$3347

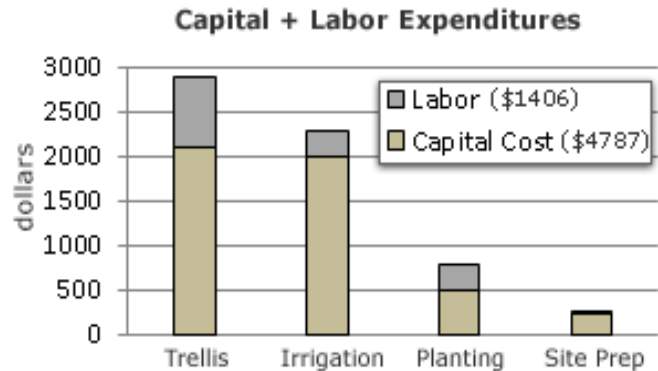
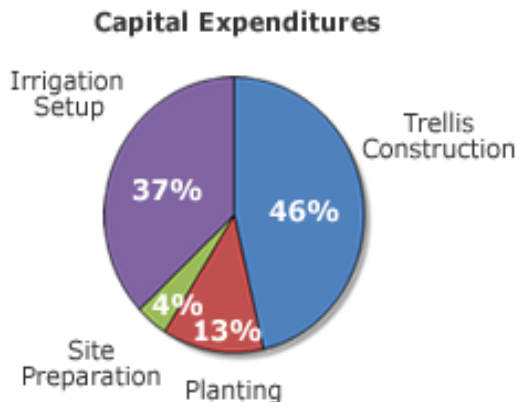


* expenses include the costs associated with cultural practices such as fertilizer, sampling, and chemicals

**misc: includes labor cost for fertilizing, pre-emergent, mulching, and soil testing

Initial Investment Costs: \$6195*

(* excludes 5% interest cost on investment)



For an acre, the start-up and year one costs could be as much as \$24,780. This does not include the land, so it is an instructive comparable for Montpelier as it includes costs that Montpelier, or a willing partner, would need to incur. Beyond year one, the NCSU enterprise budget for hops production estimated total annual costs for producing 200 hops plants on a quarter-acre of land to be \$3,347.59, per quarter-acre, or \$13,390.36 per acre.

These figures are in line with the experiences of Virginia hops growers. The owner of Huguenot Hops estimates the cost of producing hops in Virginia to be between \$8,000 to \$20,000 per acre, without including land lease costs, tractors or heavy machinery, or processing equipment.⁵⁰

b.) How the produced hops will be stored and processed

⁵⁰ Kistler, D. *Cost to Grow Hops Presentation*. Presentation to NC-VA Hops Conference. Accessible at <http://www.ext.vt.edu/topics/agriculture/commercial-horticulture/hops/index.html>

Hops may be sold immediately as wet hops, may be stored and dried for sale without pelletization, or may be pelletized for sale. The ready market appears to be for dried hops and the preferred form for brewers appears to be pellets due to equipment limitations, long term storage, and waste disposal issues. Timing between harvest and palletization is an issue for growers.

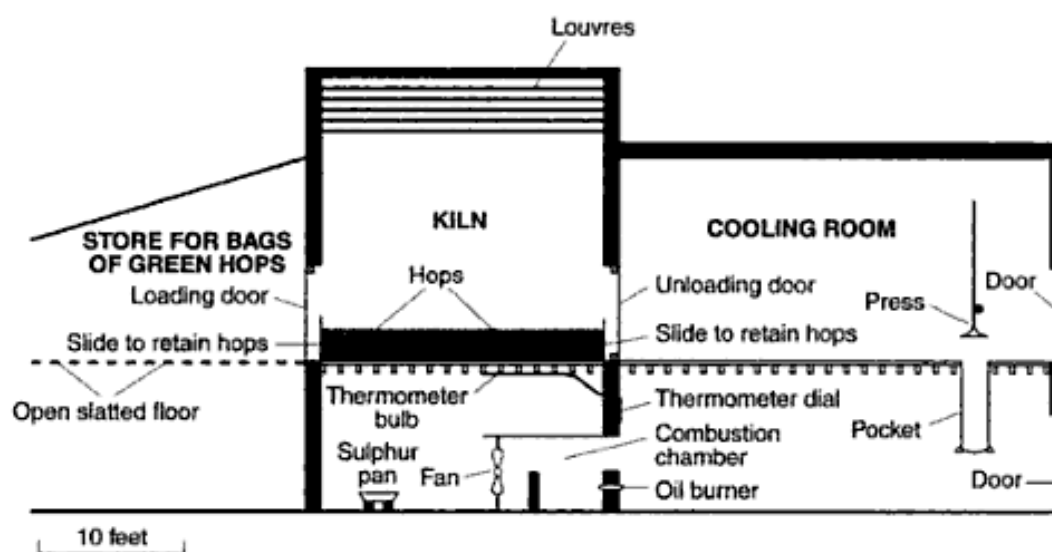
Processing typically includes:

- Drying;
- Compaction;
- Grinding and Pelletizing;
- Analysis;
- Packaging; and
- Post process storage.

Drying is a critical step as an under-dried product has increased risk of spoilage and an over-dried product may be discolored, fractured, or lower in desired lupulin.

The design image below is of a basic floor plan for hops drying and storage⁵¹:

Figure 12: Sample Hops Drying and Storage Facility Layout



In general, about three pounds of wet hops will produce about a pound of dried hops.

In 2011, a hops grower and processor provided the following cost estimates for smaller-scale processing equipment⁵²:

⁵¹ Northeast Hops Alliance (2011). Small Scale Hops Processing. Available at <http://nehopalliance.org/wp-content/uploads/2011/08/Small-Scale-Hops-Processing.pdf>

⁵² Northeast Hops Alliance (2011). Small Scale Hops Processing. Available at <http://nehopalliance.org/wp-content/uploads/2011/08/Small-Scale-Hops-Processing.pdf>

Table 18: Hops Processing Estimates

Item	Our Setup	New
Hops Moisture Meter	\$480	\$600
Precision Scale	\$250	\$250
Compactor	\$500	\$850
40 lb Scale	\$250	\$250
Hammermill	\$900	\$2600
Pelletizer	\$3000	\$3000
Vacuum Sealer	\$2970	\$4260
Total	\$8350	\$10170
Walk - In Freezer (Capital Investment)	Barter	\$9000

c.) Whether it is practical for storage and processing facilities to be developed at Montpelier

For Montpelier, the short-term need for pelletization may be less pressing if a farm brewery is developed as on-site hops may be utilized wet or dried, and hops grown at Montpelier may be combined with pelletized hops purchased from other sources as needed. More details on farm brewery requirements and specifications are included later in this section.

d.) Whether there is likely to be a market demand and ready purchasers for the hops produced

Almost all Virginia brewers purchase hops from the northwest United States – namely, Washington, Oregon, and Idaho. This is due to cost, quality, availability, and supply consistency. A few Virginia hops growers have found success with small-scale sales of a wet hops product. That is seasonal, limited, and usually for a designated specialty small-batch product. Many Virginia hops growers have taken advantage of this niche wet hops market, where the hops are directly taken from harvest to the brewer for a unique brew⁵³. Currently, the demand for wet hops by the larger Virginia brewers is being met by existing producers.⁵⁴

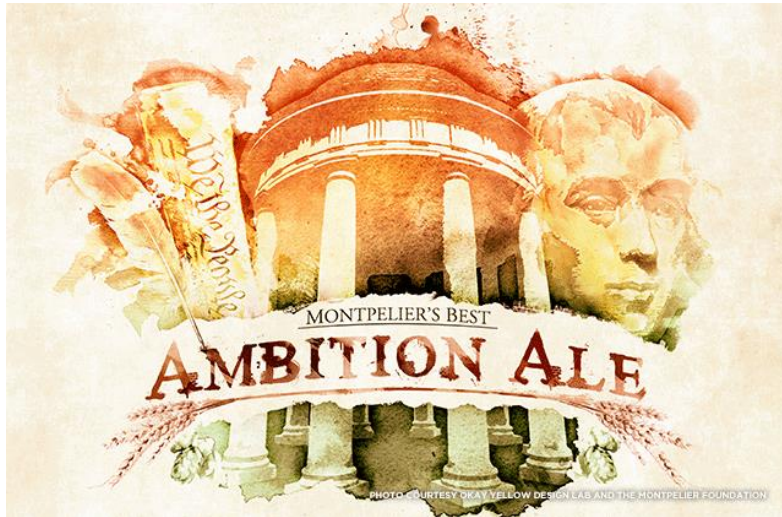
However, anecdotal evidence and the growth of the brewery industry in Virginia suggests strong potential market demand for Virginia grown dried hops. The Old Dominion Hops Co-Op recommends that growers develop strong professional relationships with breweries, and cultivate connections with multiple breweries.⁵⁵

⁵³ Driver, S. qtd in Peters, L. (2014, October 18). The pursuit of hoppyness. *News Leader*. Available at <http://www.newsleader.com/story/news/local/2014/10/18/pursuit-hoppiness/17530205/>

⁵⁴ Interview with Devil's Backbone Chief Operating Office and the Chief Brewer.

⁵⁵ Kistler, D. *Cost to Grow Hops Presentation*. Presentation to NC-VA Hops Conference. Accessible at <http://www.ext.vt.edu/topics/agriculture/commercial-horticulture/hops/index.html>

Figure 13: Product of Partnership with Devil's Backbone



The Montpelier Foundation has already developed positive relationships with regional industry leaders, including Devil’s Backbone, the largest craft brew enterprise in the state of Virginia. The partners worked together to launch *Montpelier's Best Ambition Ale* during the commemoration of James Madison's 264th birthday earlier this year.

This experience provides a solid foundation for continued partnership

and has, in a limited manner, extended the Montpelier brand into the world of craft beer making. In the slightly more crowded Virginia craft beer marketplace, there is industry interest in purchasing more brewing ingredients, including hops, within the state of Virginia.

The Brewers Association has described the craft beer industry as reliant on product differentiation, tradition, innovation, quality, integrity, and community, which are all qualities that would lend themselves to supporting a local commercial hop production effort. As competition increases, a “Virginia-made” beer that includes a significant amount of in-state ingredients may help distinguish a brewer from competitors and may even become a new-normal or a sign of quality – that a craft-brewer can offer at least one major, “Virginia-made” batch⁵⁶.

Since the current sources of dried Virginia hops are few and limited (by the relatively low in-state hops yields as well as by a dearth of processing options), the early arrivals to the marketplace will be at an advantage. In Loudon County, Black Hops Farm, LLC announced plans in late 2014 to convert 15 acres of former pasture land into a hops yard and build a new processing facility, the Mid-Atlantic’s first commercial-scale hops production and processing facility. This is great news for craft beer industry in Virginia, but at least in the foreseeable future there should be a steady demand for dried Virginia hops. It is important to note this is mostly a potential demand – as Virginia dried hops becomes more available, brewers may be expected to source some part of their hops supply within the state for limited production.

- e.) Whether the produced hops might supplement other desired activities at Montpelier and in the region, such as a brewery, brew pub, and the regional craft beer industry more generally.

In addition to producing hops on a large scale for distribution or for year-round on-site brewing, small-scale hops production has tremendous potential to increase visitation to Montpelier.

⁵⁶ Interview with Devil’s Backbone Chief Operating Office and the Chief Brewer.

Currently, breweries throughout the US, and in Virginia, are growing hops on small, trellised areas directly adjacent to their brew-pubs. During the summer months, hops provide the ambiance many are looking for when travelling to a brewery. During the hops harvest season, visitors are invited to pick hops and participate in brewing a specialty wet-hop beer. In addition to a revenue generating opportunity in the form of ticket and beer sales, the experiential learning component of such an activity could supplement Montpelier's other efforts.

Brewery Prospects at Montpelier

Industry overview: In Virginia, a Farm Brewery is a beer-making facility that may be located in any agriculturally-zoned area, and must use a crop that is grown on-site in its brewing production. Farm breweries are restricted to an annual production of up to 15,000 barrels. Crops can include hops, wheat, barley, or fruit. In February 2014, Virginia passed a bill allowing farm brewing operations on agricultural land. Since then, five farm breweries have been registered: Lickinghole Creek Craft Brewery, Blue Mountain Brewery, Dirt Farm Brewery, Swover Creek Farm Brewery, and Quattro Goomba's Brewery. While Quattro Goomba opened its doors in 2015, the others had previously established operations, with some growing hops, prior to the bill's passage. Lickinghole Creek Craft Brewery and Blue Mountain Brewery provide interesting examples of farm brewing potential in Virginia.

Lickinghole Creek Craft Brewery in Goochland County: Hops and barley are cultivated on the farm and used in the production of beer; strawberries and pumpkins and similar crops are also grown on the farm. Water for the

Figure 14: Outdoor Seating at Lickinghole Creek Brewery



Figure 15: Blue Mountain Brewery



brewing operation is drawn from an on-site well and returned to the area's watershed. The brewery includes a tasting room and outside seating area.

Blue Mountain Brewery in Afton: The brewery includes a taproom/patio sitting area; and has formed the commonwealth's first hop cooperative by teaming with Hoot 'n' Holler Hops in Nellysford.

Farm brewing puts a major focus on being "local": locally brewed, locally harvested hops, locally made malt, and all grown

and developed by local farmers/brew masters. This focus is good for local business partnerships between farms and restaurants as well as brewers and malters.⁵⁷ Connections between brewers and suppliers of malt are stronger when the businesses are smaller and in closer proximity to one another which allows for better customization of malt for brewers⁵⁸ and a more specialty product. In addition to capitalizing on being “local”, another advantage of farm breweries is product differentiation when it comes to taste, especially in a time when as many international beers are beginning to have a much more similar taste due to using products from the same international distributors⁵⁹, and beer consumers are increasingly searching for new and bold flavored brews.

Within the tourism market, there has been an increase in demand for authentic and original gastronomic experiences, especially those that allow a visitor to experience the lifecycle of a product that they consume (i.e. “farm to fork”). Farm brewing is therefore an exciting attraction for tourists with a great deal of potential. In states such as New York, “beer tourism” has greatly increased since the passage of their own law that allows farm brewing.⁶⁰ Farm brewing has increased the variety of brews and this has begun to attract people looking for better-tasting, and different-tasting, beers. The Finger Lakes has even started a “Beer Trail” in order to take advantage of this emerging tourism market.⁶¹

In addition to producing beer for taproom sales, the existence of a farm brewery has interesting potential for attracting a wide range of visitors. First, the brewing facility and taproom can be rented out for special events, which could increase revenue in off-peak hours. Second, a working farm brewery with hops growing nearby could be an excellent site for a series of educational and experiential brewing events. For example, visitors could engage in a hops harvesting event, and learn how to brew their own beer (which they then purchase for a premium). Brewers from around the country could be invited to make small batches at Montpelier sold for a high dollar value and promoted as a “Taste of America”, consistent with the spirit of Madison. Other ongoing classes could be held both in craft brew production, and hops growing. Finally, in addition to selling beer in the taproom, many brewery owners recommended that Root Beer also be brewed and sold, as it is very inexpensive to produce, and would draw families.

Methodology: After confirming the interest of Montpelier and Orange County stakeholders, including those in the working group, in a brewery operation at Montpelier, VTOED worked to assess the feasibility and market potential. To do this VTOED engaged in a series of interviews with farm brewers from Virginia and New York, and craft brewery owners in Virginia. Out of the eighteen breweries contacted, seven agreed to be surveyed. Three of the breweries were located in Virginia, and the other four breweries were located in Maryland, New York, North Carolina, and Pennsylvania. The breweries were surveyed by phone, and were asked a series of questions related to operating a farm brewery. This included questions about their consumer base, cost (including

⁵⁷ http://www.craftbeer.com/brewers_banter/farm-breweries-when-local-means-your-own-backyard

⁵⁸ <http://imbibemagazine.com/farmer-brewers-growing-local-beer/>

⁵⁹ http://www.craftbeer.com/brewers_banter/farm-breweries-when-local-means-your-own-backyard

⁶⁰ <http://www.brewcentralny.com/beer-tourism-getting-lift-central-new-york/>

⁶¹ <http://www.lifeinthefingerlakes.com/whats-brewing-finger-lakes/>

starting costs and operating costs), equipment, ingredients, and challenges they faced in opening up their brewery. Additionally, three in-depth interviews were conducted with Old Bust Head in Warrenton, Virginia, Devil's Backbone in Nelson County, Virginia, and The River Brewing Company in Radford, Virginia.

We also spoke with the Virginia Tech brewmaster, in the department of Food Science and Technology, and took a tour of the brand new state-of-the-art Virginia Tech research brewery, and with a representative of the regulatory agency in Virginia familiar with farm brewery law. While each of the brewers we spoke to relayed enthusiasm and excitement about the state of the industry in Virginia, and were particularly enthusiastic about the prospect of a farm brewery at Montpelier, they did caution us to carefully consider the start-up costs, and encouraged small scale production, mainly for taproom sales. Many agreed that while their taproom sales were profitable, it is difficult to break even in distribution, especially in an increasingly crowded craft beer market. Based on those interviews, as well as third party data collection from internet sources, we have compiled a synopsis of costs and considerations in building and maintaining a brewery.

Overview: Typical costs for establishing the production facility are divided between brewing equipment costs and resources/utilities (electricity, CO₂, plumbing, etc.). Some major ongoing costs include electrical power and wastewater production/control. The average water use ratio for a brewery is around 5-6 bbls (barrel unit) of water to 1 bbl of beer, but some craft brewers have managed a ratio of 3:1 bbl, according to the Brewers Association.⁶² Wastewater challenges can be ameliorated by creating a hookup to a municipal system. Typically, municipalities welcome the introduction of brewery wastewater, as it contains beneficial organisms. Another solution is creating an artificial wetland, which could be feasible at Montpelier, but potentially costly to maintain. For energy costs, there are three common options: electricity, propane, or natural gas. Of those options, natural gas is typically the cheapest option. At 1,500 bbl/year, energy costs are typically \$5,000/month for electricity and \$1,000/month for natural gas. For general setup costs, they can range between \$250,000 to \$1,000,000, depending on the size with up to, and possibly over, \$500,000 going towards brewing equipment and other necessities for a 15,000 bbl/year production facility.⁶³

Throughout our interviews, we explored two brewery scales. The first was a 15,000 barrel (bbl) facility (the maximum size farm brewery allowed in the Commonwealth). This facility would produce beer for major distribution, though taproom sales could be included. The second production facility has a capacity of 1,500 bbl, which would be largely consumed on premises through taproom sales.

15,000 barrel (bbl): For a large facility of this size, economies of scale do play a role, making additional units of beer marginally less expensive to produce. There are two main challenges, however, with having a production facility of this size. First, the initial capital costs are significant, meaning that the benefits of the economies of scale will likely only be realized at least five years

⁶² <http://www.craftbrewingbusiness.com/equipment-systems/growing-challenges-wastewater-control-craft-brewing/>

⁶³ Call with Old Bust Head Brewery.docx

after the initial investment is made. Second, to be successful at this level, this sized farm brewery must be able to maintain a large output and customer base. There is some consensus among regional brewers that, though the market for craft brew distribution is not yet saturated at this point, it may be saturated in the year and a half it will take to create the brewery and start distributing. Anecdotal evidence from a new brewer in Fauquier County, Virginia, and winner of a recent award for top 10 new craft breweries in the United States, is that although his taproom sales reach over a million annually, he still loses money in distribution. Furthermore, distributors who were once clamoring for new craft brews are now hesitant to take on any new beers. For this reason, before creating such a large-scale facility, a careful calculation of the market readiness for a new beer must exist, or the facility must be used to produce beer for a brewer interested in opening up a new location with a well-known name.

Production for Taproom only, Sales up to 1,500 bbl: This would be the producing element for a taproom, generating up to 1,500 barrels annually. There are a few different systems that the production facility could use. A 10-15 barrel system could produce up to 200 batches a year, but would reduce the variety of beers produced. A 5-7 barrel system would be able to keep up with demand and serve the taproom profitably. A 3-barrel system would be able to produce a large variety of beers, about 2-4 per week, which could also serve to attract a beer master. If the beer becomes famous, instead of increasing the production facility, a third party could be used for off-site brewing and distributing. Another way to create profits is to rent out the facility for between \$1,500 and \$4,000 for contract brewing.

Financial Analysis: To further tailor the analysis to the financial viability of a farm brewery at Montpelier, VTOED engaged Dr. Dick Daugherty, Director of Strategic Services at VTKnowledgeWorks. The following is a summary of what we consider to be a viable and suitable farm brewery business case.

Montpelier Farm Brewery Options: It is proposed that the farm brewery at Montpelier would include a taproom – tavern area and outside seating area where visitors to the site could consume beer and purchase snacks, sandwiches, and similar food items prepared off-site by other businesses. Both the food and beer service are considered amenities that visitors to Montpelier would appreciate and enjoy. The tavern would have capabilities to store and heat the food items; as proposed, it avoids the expense of establishing a full-service restaurant. Visitors would also be able to purchase beer produced at the site for consumption elsewhere; and the brewery would offer contract brewing to craft brewery businesses in the region.

The American Brewers Guild has performed studies to determine the appropriate size of a brewpub setting based on population within a 15-mile radius of a craft brewery. These imply a tavern with 40 to 50 seats would be appropriate for the Montpelier site. Because of the attractions at Montpelier and its closeness to Charlottesville, this estimate may be conservative. Including an outside patio seating area would permit seating to be expanded at minimal cost; therefore, both an indoor seating area and a patio seating area should be included in the proposed facility.

The Guild studies also estimate that annual craft beer sales at a site such as Montpelier at about \$0.5 million annually. Therefore, two scenarios are considered:

- Annual on-site beer consumption & sales of about \$0.5 million within five years after establishing the brewery. This would require production to reach about 850 barrels by that time.
- Because the attractions at Montpelier should create a bigger audience for the tavern than would be expected for a farm brewery in a rural area, annual on-site beer consumption and sales of about \$1 million within five years after establishing the brewery. This would require production to reach about 1,700 barrels by that time.

In addition to the production for on-site consumption and sales, the brewery would undertake contract brewing for other craft beer businesses in the region. This would require an additional marketing activity at the brewery, the results of which can only be speculated at this time. It has been assumed that such an activity would produce less than 400 barrels per year within five years. However, there is the possibility that contract brewing activities could reach over 10,000 barrels annually if management aggressively pursued contract brewing agreements.

For the two scenarios considered most likely at Montpelier will have:

- A. Annual production for on-site sales and consumption of about 850 barrels within five years; and contract brewing of about 370 barrels annually within five years.
- B. Annual production for on-site sales and consumption of about 1,700 barrels within five years; and contract brewing of about 370 barrels annually within five years.

Farm brewery revenues within five years are expected to be:

Table 19: Expected Farm Brewery Revenues Within Five Years

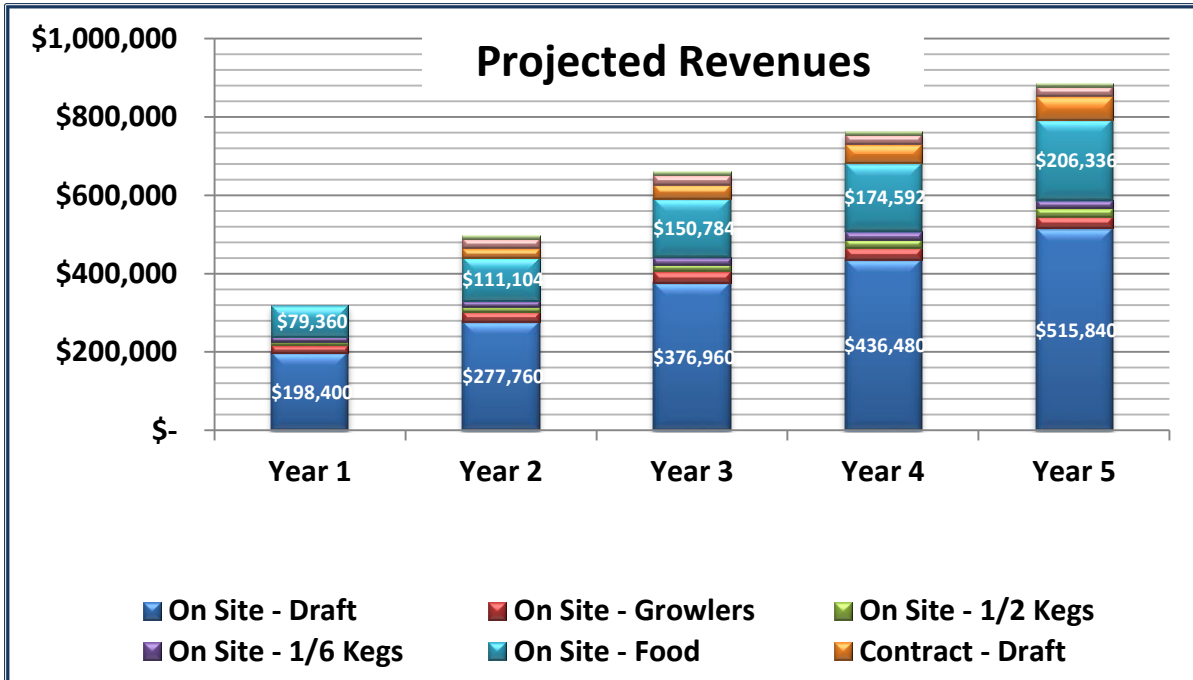
Revenues within Five Years	Scenario A	Scenario B
On-site Beer Sales	\$587,000	\$1,065,000
On-site Food Sales	206,000	349,000
Contract Brewing	92,000	92,000
Total	\$885,000	\$1,506,000

The figures below show the projected revenues over the first five years of operation; and the required capital investment, the resulting operating income and the cumulative cash flow for the operation. As shown, Scenario A would require an investment of about \$645,000 and result in a cumulative cash flow of about \$649,000 within five years while Scenario B would require an

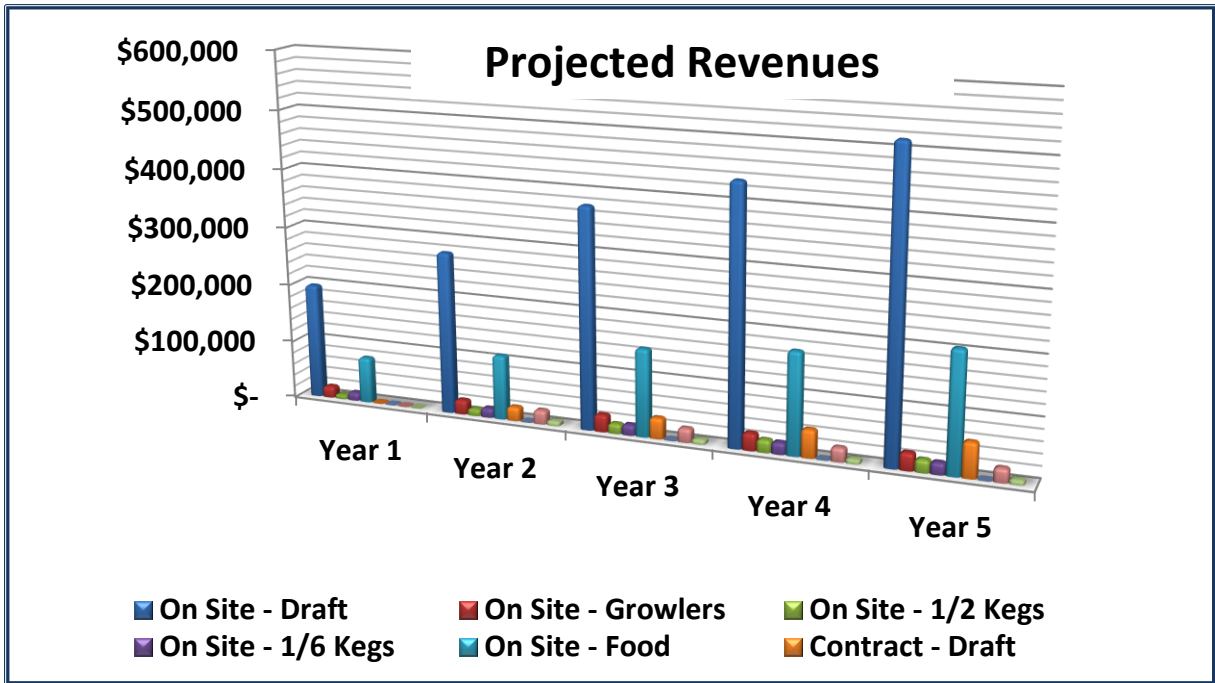
investment of about \$515,000 and result in a cumulative cash flow of about \$1,817,000 within five years.

Other scenarios, built on differing contract production activity, are included in the Appendix. As stated earlier, an aggressive marketing effort focused on contract brewing could significantly increase the cumulative cash flow.

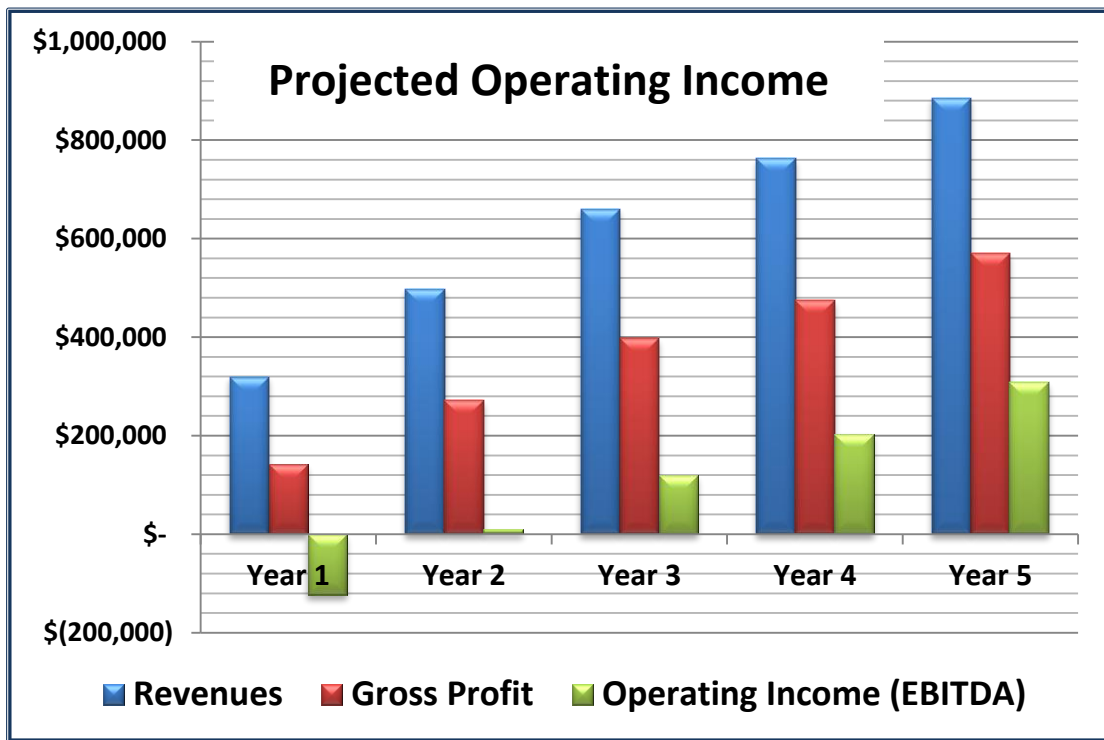
**Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5**



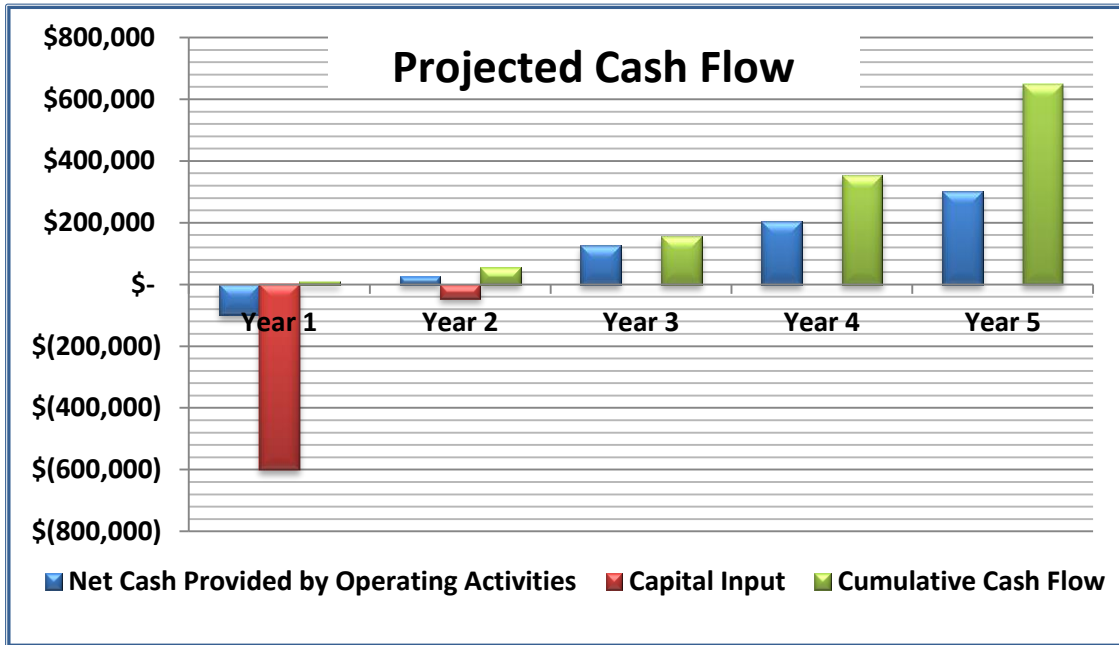
Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales; Contract Brewing Production of 370 Barrels by Year 5



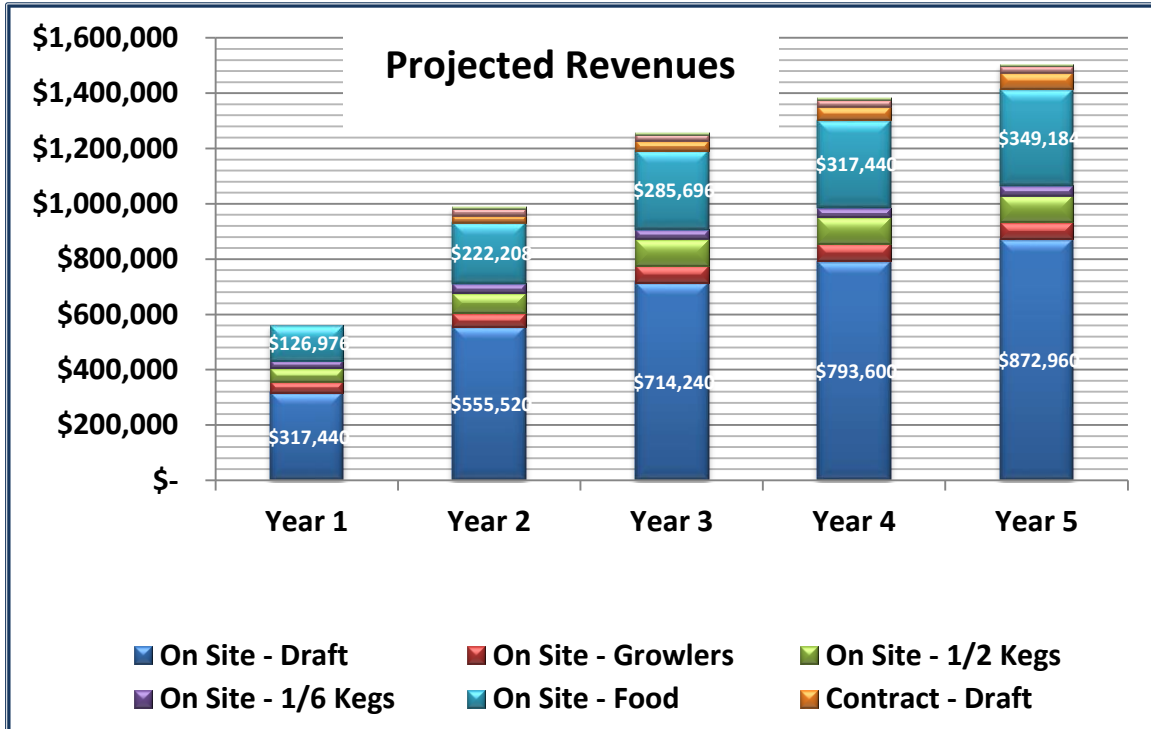
Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales; Contract Brewing Production of 370 Barrels by Year 5



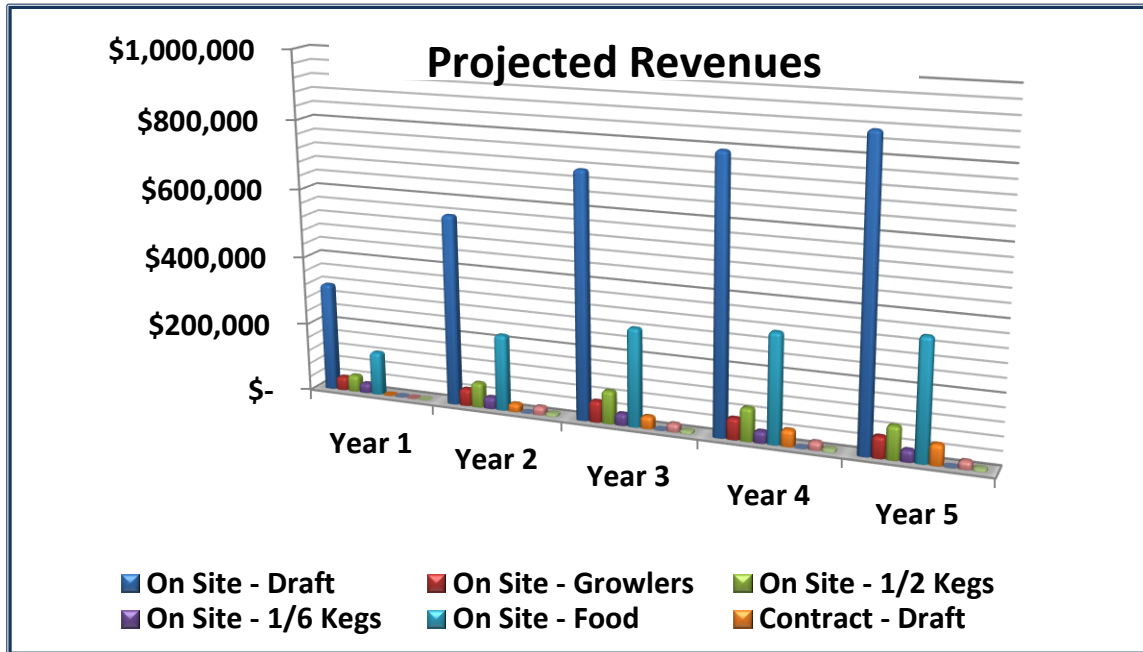
**Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5**



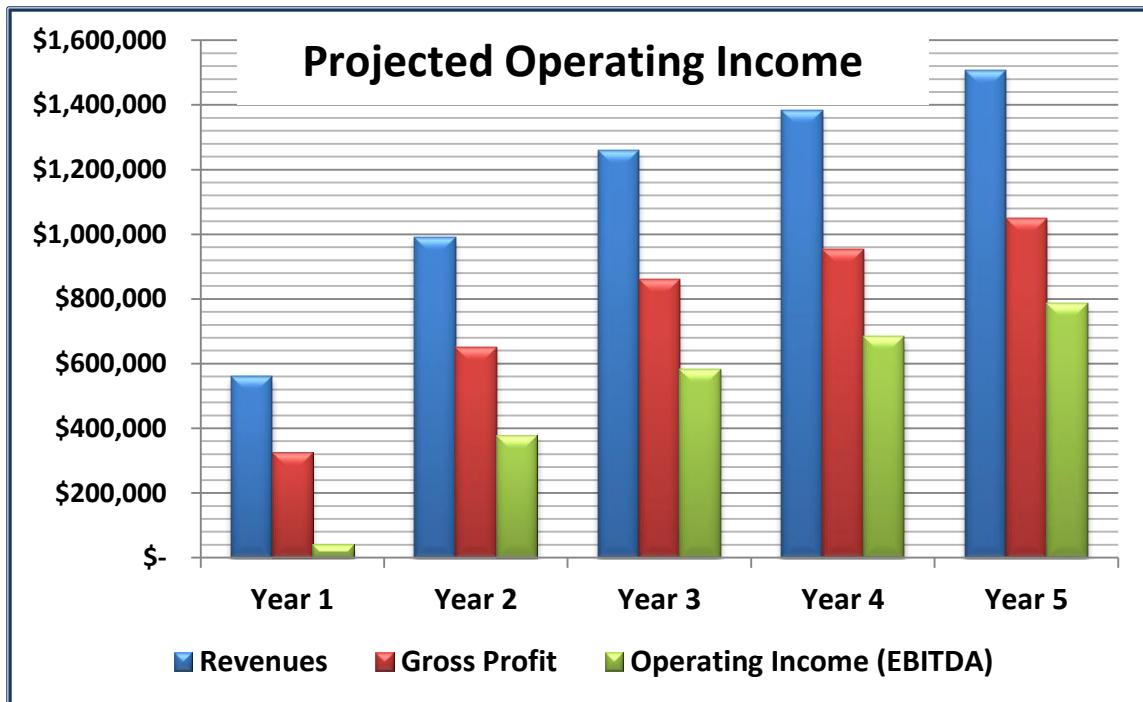
**Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5**



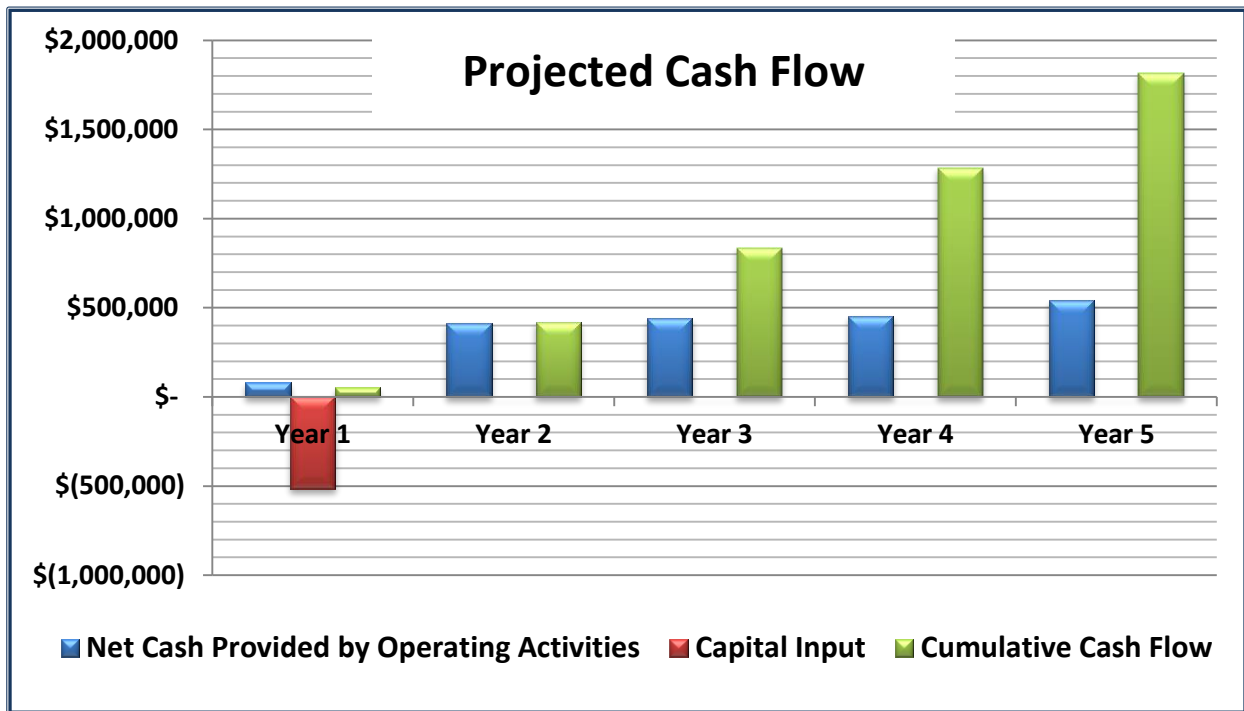
**Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5**



**Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5**



**Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5**



Full-Service Restaurant Option: Establishing a full-service restaurant at Montpelier instead of a tavern and patio seating area is an option that would require additional investment. There would also likely need to be rezoning of some sort, as adding a full service restaurant to the brewery would mean that it can no longer be classified as a true “farm brewery” under Virginia law. It is proposed that this option not be considered until it has been verified that there is a sufficient customer base for such a facility. Nevertheless, the following data for a mid-range full-service restaurant are included for completeness.

Based on data available in the annual Restaurant Industry Operations Report sponsored by the National Restaurant Association, a general 40 to 50 seat mid-range full-service restaurant (neither a quick service restaurant nor a fine dining restaurant) would require about 1,500 sq. ft. and an investment of \$275,000 to \$300,000 for the building and furnishings, including an equipped kitchen.

Revenues for such a restaurant are expected to reach about \$9,600 per seat per year; and expenses are expected to be:

- Food & beverage costs: \$3,000 per seat per year
- Employee costs: \$3,600 per seat per year
- Other operating costs: \$1,900 per seat per year

These result in an estimated operating income of \$1,100 per seat per year.

Thus, for a 45 seat mid-range full-service restaurant, annual revenues would be expected to reach \$432,000 and have projected annual operating profit of about \$50,000.

Section 5: Opportunities Related to Lodging and Event Facilities

Working group members and other Orange County stakeholders highlighted both a need for more lodging, and an opportunity for Montpelier to participate in the rapidly expanding regional wedding industry. Through discussions with the working group, other stakeholders and key informants, VTOED compiled a list of lodging and event space opportunities. As we researched these opportunities further, we answered several basic questions pertaining to fit for Montpelier and general feasibility, narrowing the list of options. The resulting options for further consideration were a boutique hotel, event space for weddings, and campgrounds. The criteria grid below lists each opportunity and corresponding assessment which utilizes the pre-identified criteria.

Table 20: Lodging and Event Facility Opportunity Criteria Grid

Opportunity	Ready Market?	Good Fit – MP	Low Burden – MP	Increase Visitors?	Good Fit – OC	Key Q or Considerations
Larger-scale conference center	N	U	N	Y	Y	Initial data suggests market may not exist for larger scale hotel or conference center.
Chain Hotel	U	N	Y	Y	Y	May not fit well with MP brand.
Boutique Hotel/Inn	Y	Y	U	Y	Y	Good avenue to explore.
B&B/Farm stay	U	N	N	Y	N	Not a good fit due to existing operations and lower returns.
RV park	U	N	N	Y	Y	Not a good fit for brand. High initial investment.
Luxury cottages	Y	Y and N	Y	Y	Y	Concerns over concept – sales not feasible.
Campground	Y, event-based	Y	N	Y	Y	Many concerns including profitability. Responds to a county need.
Luxury camping/glamping	Y	Y	N	Y	Y	Concerns about cost and temperature requirement in this region
Larger-scale venue for weddings, parties	Y	Y	N	Y	Y	Large revenue generation potential. Photos from weddings shared on social media could increase Montpelier’s visibility and help visitation (this has been the case for Grelen)

For any investor to pursue a boutique hotel project, they would first want to ensure a market need in the region. Relatedly, if Montpelier were to have an event space for weddings, it would naturally want a lodging facility to accommodate guests and wedding parties. As such, VTVOED conducted a preliminary market study of hotel, B&B and Inn lodging in the region surrounding Montpelier and asked follow-up questions regarding their event spaces.

Looking broadly at the tourism industry in Orange County, the top employers are restaurants, hotels and historic sites, most likely pertaining to Montpelier. Accommodations have experienced the largest employment growth in the past decade. The only industry which has seen a significant decrease is Golf Courses and Country Clubs. Regional top industries are similar except for the prominence of fitness and recreation centers, tour operators, and golf courses and country clubs. The addition or growth of these industries is due to employment of workers in Charlottesville.

Table 21: Top Industries for Orange County Tourism⁶⁴

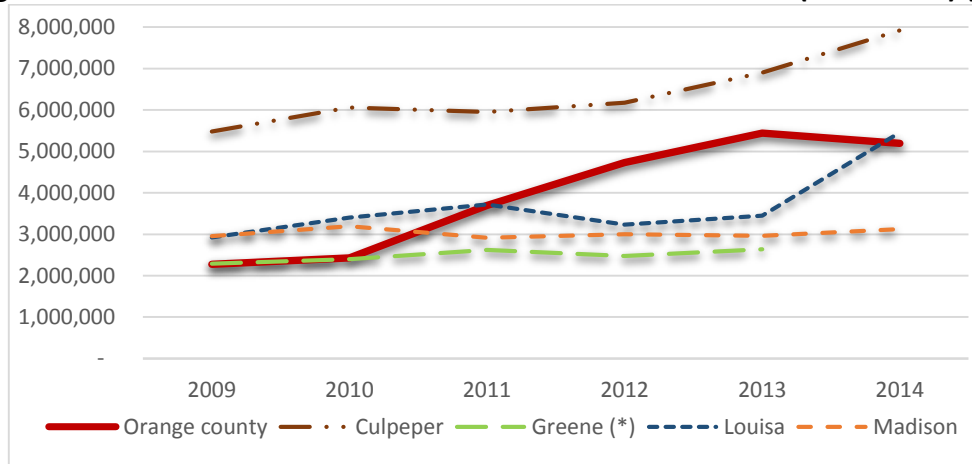
NAICS Code	Description	2014 Employment	Change in Employment 2004-2014	Percentage Change in Employment 2004-2014	Current Wages and Salaries
722513	Limited-Service Restaurants	338	(47)	(12%)	\$12,092
722511	Full-Service Restaurants	235	114	94%	\$15,993
712120	Historical Sites	99	6	6%	\$32,852
721110	Hotels (except Casino Hotels) and Motels	58	41	241%	\$20,308
721191	Bed-and-Breakfast Inns	44	22	100%	\$18,159
722514	Cafeterias, Grill Buffets, and Buffets	36	N/A	N/A	\$12,387
713910	Golf Courses and Country Clubs	23	(49)	(68%)	\$15,734
712110	Museums	<10	N/A	N/A	N/A
722515	Snack and Nonalcoholic Beverage Bars	<10	N/A	N/A	N/A
713940	Fitness and Recreational Sports Centers	<10	N/A	N/A	N/A

To illustrate growth in accommodations in the region, the Weldon Cooper Center has tracked taxable sales for accommodations by county. Figure 16 shows accommodation taxable sales between 2009 and 2014 for counties classified as rural areas surrounding Orange County. Accommodation taxable sales for these groups of counties range varies between \$2 million and \$8 million during the time analyzed. Meanwhile, accommodation taxable sales for the more urban counties of Albemarle, including Charlottesville, and Spotsylvania have ranged between \$14 million and \$61 million during 2009-2014. Tax revenue in Orange County grew 19.5% annually between

⁶⁴ EMSI 2015.2; QCEW

2010 and 2014. In comparison, the remainder of the region—rural and urban—grew only 5.4% during that time.

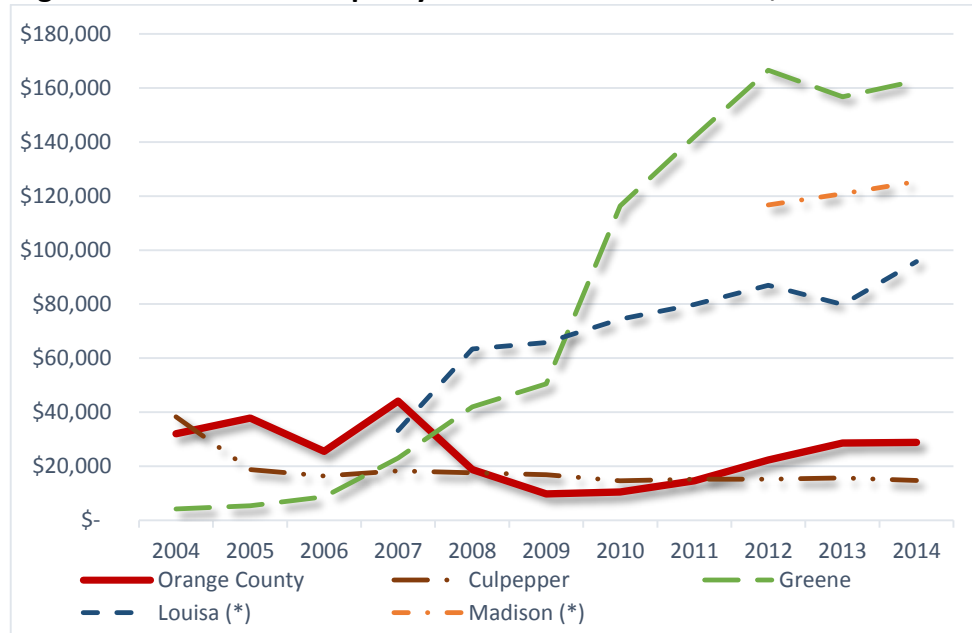
Figure 16: Accommodation Taxable Sales selected Rural Areas (2009-2014) (\$)⁶⁵



(*) There is not datum for 2014.

In contrast, the transient accommodation occupancy tax for Orange County (Figure 17) tells a slightly different story.

Figure 17: Transient Occupancy Tax Revenue from Hotels, Inns and B&Bs



(*) There is not datum for earlier years.

Bed and Breakfast Inns in the counties surrounding Orange have experienced a decline in employment, while Charlottesville and Orange have experienced increased employment during 2004-2014. Indeed, Orange County employment doubled in the past decade and now has a

⁶⁵ VA Department of Taxation. Retrieved from the Weldon Cooper Center for Public Service, University of Virginia. <http://www.coopercenter.org/econ/taxablesales>

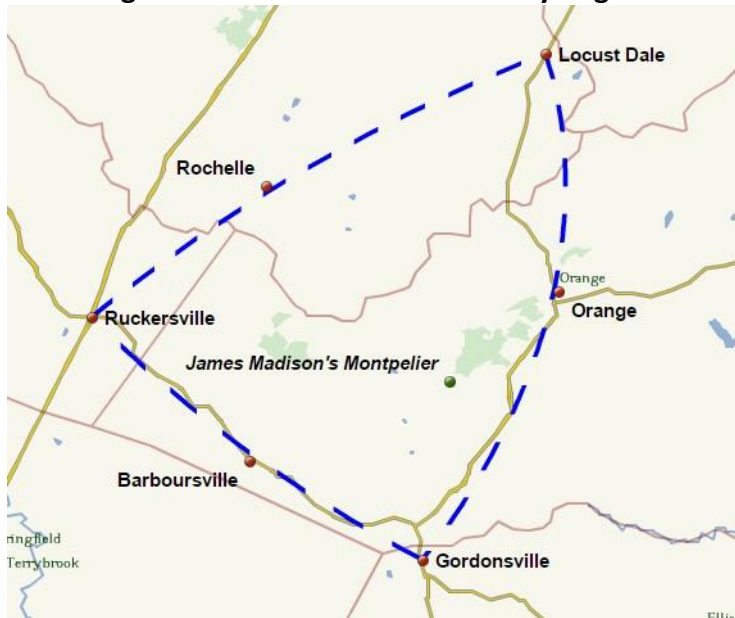
concentration of employees in the region. Orange County employs 44 workers or 56.4% of the regional employment in Bed and Breakfast Inns (Table 22).

Table 22: Bed and Breakfast Inns in Region – based on NAICS code 721191⁶⁶

Location	Employed in Industry Group (2004)	Employed in Industry Group (2014)	Percent Change (2004-2014)	2014 Average Earnings
Region without Charlottesville	74	62	-16.2%	\$21,308
Region with Charlottesville	75	78	4.0%	\$19,550
Virginia	572	584	2.1%	\$21,143

Additional data to understand the current regional lodging and event space market was gathered from travel websites such as TripAdvisor and Airbnb, wedding websites such as theKnot.com and each business’s own website. Additionally a phone survey was administered to the bed & breakfasts, inns, and hotels in a triangular region defined within Ruckersville, Gordonsville, and Locust Dale (Figure 18).

Figure 18: Accommodation Survey Region



This region was selected because accommodation businesses located here serve the target population: those vacationing, touring and visiting the area. Each lodging establishment is within 15 miles of James Madison’s Montpelier and Montpelier Station. As our survey expanded further south and west towards Charlottesville, guests were primarily business travelers to Charlottesville or visitors to events for the University of Virginia such as football games, graduation, family visits, and Thomas Jefferson’s Monticello. Further north, guests were generally business travelers and visitors to Culpepper. Traveling east

from Orange, there were not any hotels or lodging options for visitors until those around Lake Anna State Park.

Twenty-four vacation and lodging spaces were located in this area and 16 of those participated in the phone survey. The establishments self-identified as twelve B&B, five Hotel/Motels, three houses, and three inns.

⁶⁶ EMSI 2015.2; QCEW

Hotels

The hotels whose data we received had 65, 70 and 122 rooms. The two within the City of Orange indicated that they were at max or near max occupancy during their peak seasons in late spring and early fall while dropping to 40-60% occupancy in the winter and summer months.

The prices of a room per night were both between \$89 and \$135 a night; however, one raised their prices on weekends during peak seasons to between \$155 and \$195. Their guests tended to be business travelers during the week and wedding guests on weekends mostly from northern Virginia, Washington DC, and Maryland. One referenced Woodberry Forest School, a private boarding school that draws parents from North Carolina as guests.

The Holiday Inn Express Orange and Holiday Inn Ruckersville both have event spaces for 70 persons. Holiday Inn Express Orange reported holding about 50 events in the past year, including weddings, with an average of 25 guests at each and that the number of events held over the past five years has increased.

When asked if they saw a need for more lodging in the area, all said no. One suggested there may be a need later but not now. The three hotels all served breakfast and were the only lodging facilities we surveyed that had pools and fitness centers.

Bed and Breakfast Inns

The remaining businesses that responded to the survey are made up of Bed & Breakfasts, Inns, Farmhouses, and Cabins (some on the same property as other houses and inns). Respondents included the 1804 Inn (only their B&B), Barboursville Cottage at Sugarplum Farm, Bluegreen Vacations – Shenandoah Crossing, Chestnut Hill B&B, Ebenezer House, Holliday House, Inn at Westwood Farm, Inn at Willow Grove, Inn on Poplar Hill, Lafayette Inn, Mayhurst Inn, Pavilion on Lakeland Farm, Spotswood Lodge, Uphill House B&B, and Wolftrap Farm.

They averaged 6.6 guest rooms with a range of 3 to 13 rooms. While peak and low season coincided with hotels, occupancy rates varied far more among establishment. Fifty percent of respondents indicated that their occupancy rates were above 90% during their peak seasons and below 33% during their off-season. While most establishments cited a significant gap in occupancy between peak and off-season, two others said that their occupancy rates remained unchanged throughout the year at 40% and 66%.

Average prices per room for the Bed & Breakfasts and Inns in this region ranged from \$140 to \$475 nightly. Five places offered rooms below \$150, eight above 150 and below 200, eight between 200 and 300, and two with prices above 300.

When asked to describe a majority of their guests, survey respondents' answers were couples (58%), wedding guests (33%), and no majority (8%). When asked for the locations where a majority of their guests are from, answers included:

- Northern Virginia/Washington DC (79%),

- Tidewater (36%),
- Maryland (29%),
- Richmond (21%),
- Everywhere/all over (14%),
- Out of state (14%).

Of the 24 lodging establishments in the region, 12 were identified as having space for weddings. Four others offered elopement packages. Nine have dedicated indoor or outdoor spaces for large events and three had multiple venues. Indoor spaces ranged from farms and greenhouses to lodges and pavilions, while half offered tents for their outdoor venues. Six of these venues allow for 200-300 guests. Five hold 150 guests or less, often only up to 50 guests. One venue cited having a capacity of more than 300 guests.

Five wedding venues have hosted 50 or more events in the past year. The remaining four venue respondents to this question said they host 20 to 30 events annually. Of those who felt confident to give an estimate for average attendance, five respondents said there was an average of 100 guests, one said 125, and another 150. Six indicated that the number of events over the past five years has increased while three said the number has remained the same or has fluctuated year to year.

Event spaces are a more recent phenomenon, with only a couple lodging facilities hosting events before 2000. The large majority of establishments started hosting weddings after 2003. When asked if there was a demand for more lodging in the area, six respondents indicated there is a need for more lodging, four indicated no need (of which, three do not host events), and three said they were “unsure” or “it depends.”

Two Inns have their own restaurants and cater for onsite events but others use local caterers that are selected by the event organizer.

In free response for early success participants listed area reputation, recommendations from previous guests, and online booking as drivers of their early success. Several B&Bs and Inns have joined Inns at Montpelier, a group that co-markets and cooperates with one another so all prosper.

Further out from Orange County

VTVTOED also surveyed locations further South in Louisa, Zion Crossroads, and Keswick as well as North in Culpepper and Reva to see how far away guests stayed from the area. Best Western Plus Crossroads Inn & Suites and Keswick Hall are both locations for weddings, retreats, and other events of up to 200 guests with lodging options on-site.

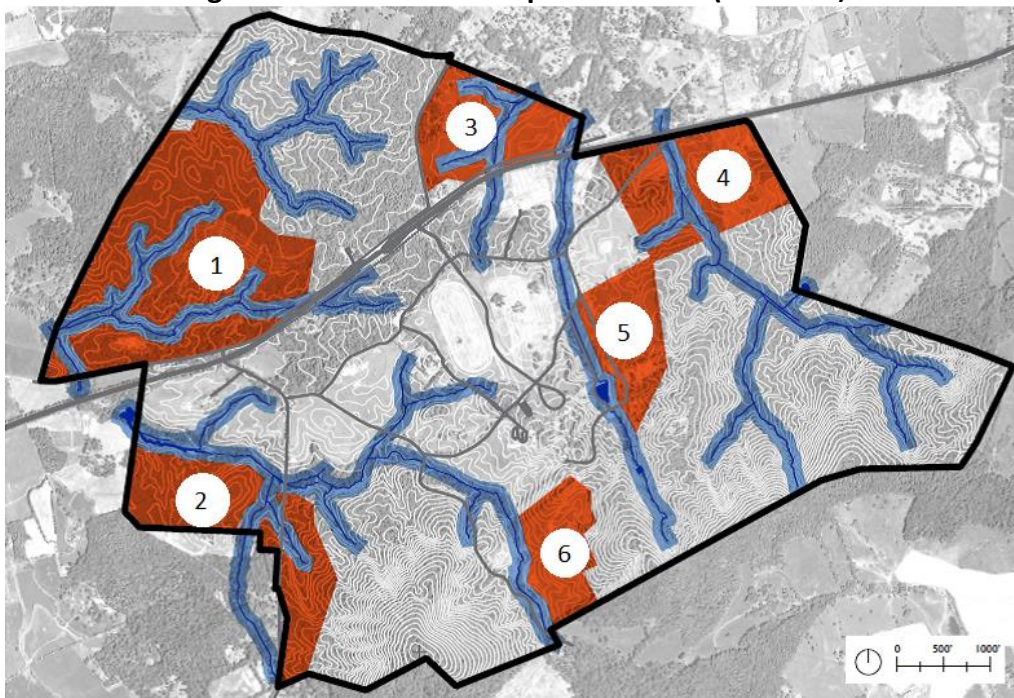
With a larger selection of hotels and motels (6) in Culpepper compared to Bed & Breakfasts (1), many identified their guests as business travelers and vacationers to the area and prices were often below \$80. Four do not have an event space there was a unanimous no response to a need for more lodging options.

To determine an average regional occupancy rate, VTVTOED accounted for hotels, motels, Inns and B&Bs both in the accommodation survey region (Figure #) and those in Louisa, Zion Crossroads, Keswick, Culpepper and Reva. The larger region with counties surrounding Orange County but not including Albemarle and Charlottesville has at least thirty-five separate accommodations.⁶⁷ These accommodations provide at least 1,057 rooms during any one day and 385,805 rooms annually. Considering peak season in the region is between April and October, and the off-season is between November and March, VTVTOED calculated average annual occupancy for the region to be approximately 68 percent.

Interviews with Lodging Industry representatives

VTVTOED talked with working group members and others to understand possible opportunities for a boutique hotel on Montpelier land. Because Montpelier wants to keep its historic core secure, most appropriate spaces for lodging would be the three parcels outside the gate: parcels 1,2 and 3.

Figure 19: Available Montpelier Parcels (revisited)



In several discussions about lodging opportunities for Montpelier, discussants recommended a vertical integration of activities. For lodging to work, doing activities on the estate that would attract tourists to the area during the week and over an extended period of time would more likely fill existing rooms and create demand for more. Montpelier and other stakeholders in the area could do and cross-promote more substantive programming such as equestrian activities, fine food and dining events, guest chefs teaching different cuisines, spa treatments, vineyards and a number of themed type of experiences. Mitch Willey mentioned that pet events, particularly tourist

⁶⁷ These accommodations do not include the dozens of houses and apartments for rent on sites like AirBnB, Homeaway and VRBO. As part of the sharing economy these vacation rentals have not yet been fully quantified or understood, which would require a separate analysis.

activities that appeal to people who bring their dogs on vacation, are increasingly popular. Stephanie Meeks, the Chair of the National Trust, espouses making historic sights more like living history. Montpelier could embrace Dolly Madison's ethos of hospitality and align many of its interactive, themed activities accordingly.

Participants also emphasized the need to know the target market—who Montpelier does or wants to attract. At present, Montpelier's challenges are its remote location and small market size. If a hotel were to work in this area, it would need to be themed and provide an experience that is unique to Montpelier, creating a destination sight. A new, larger event space for weddings and conferences fits well into this vision. It is possible Montpelier would need a large marketing campaign with celebrity backing. Cissy Spacek, John Grisham and Blake (the Rock) Johnson are community-minded celebrities who have homes in the region. Moreover, with a hotel in this area, one would also need a restaurant. Boutique hotels often provide their own restaurants. From his experience and relationships with boutique hotel owners, Steve McLean advised the hotels could start slow with breakfast and expand. Other stakeholders and experts VTVTOED interviewed commented on the nice restaurants already in proximity to Montpelier.

VTVTOED contacted the team that has worked to develop boutique hotels in other parts of the state, including the Bolling-Wilson hotel in Wytheville, Virginia and the Craddock-Terry hotel in Lynchburg. The group has pending projects in a number of locations, including Bristol, Virginia and St. Paul, Virginia. The key members are Hal Craddock with Architectural Partners, Inc.; Kim Christener, with Cornerstone Hospitality; and Todd Morgan, with MB Contractors. Mr. Craddock has expertise in concept design, particularly in reuse of existing historic structures. Ms. Christener has experience with market demand and operations considerations. Mr. Morgan has expertise in the actual construction, including cost projections. We spoke with Mr. Craddock and he was familiar with the area. He and others VTVTOED talked with suggested that there are advantages to developing existing historic structures in more densely populated town centers and that the costs burden and market considerations are a bit more substantial with newer builds in purely rural settings. Starting small with the existing housing and infrastructure at Montpelier, for instance, may be advisable for lower up-front costs and to develop the appropriate market of visitors.

Their projects have sought to take advantage of the Virginia Tourism Development Financing Program (<https://www.vatc.org/TDFinancingProgram/>). The program provides a gap financing mechanism for projects in partnership with developers, localities, financial institutions, and the state. This program provides a two-tiered method of financing to compensate for a shortfall in project funding. If a majority of the project can be funded through other sources, this financing program may provide up to 30% of a qualified project's total cost. Their projects with existing structures also take advantage of the historic tax credits program. Mr. Craddock is willing to visit Montpelier to assess any possible structures and he suggested that Ms. Christener would be a great contact to better assess funding and market considerations. In general, he expressed caution as to the prospects for new builds in low-volume visitor locations. Their original profit-models suggested that the boutique hotels would serve the higher income visitor segments and needed 70 rooms as a

base. The Bolling-Wilson project varied from that model, with 30 rooms and they have found that to maintain occupancy they have had to lower the room rates to compete with the middle-range visitor segments.”

Summary of Boutique Hotel Findings

VTVTOED gathered market information from third party online sources, regional lodging managers and owners, and experts in the accommodations industry. Findings did not establish a definitive existing need for more lodging supply. Annual occupancy was estimated to be approximately 68 percent. Demand seems largely seasonal, and would need to be expanded to include off-season months to a greater extent. Demand is also strongly dependent on the growing wedding industry in Orange County, which would need to continue if additional supply were created. This analysis also did not account for the growing sharing market represented by AirBnB, VRBO and Homeaway.

While established need is important, success of boutique hotels is less dependent on demand than a normal hotel. Rather, the unique experience that the boutique hotel provides and its ability to attract visitors to that experience are what is important for success. The name and brand of Montpelier may provide the foundation for such a unique experience. Particularly with its new branding campaign in development, Montpelier could leverage its brand and land, making the lack of lodging demand and remote location less of an issue for potential investors.

VTVTOED recommends starting a smaller lodging project to establish an appropriate sense of demand for lodging around Montpelier. Montpelier may transition two to four existing structures on its land into tourist accommodation spaces. The houses on parcel 5, Constitutional Village, are already used for lodging by Constitution Center visitors. These nice, renovated structures could easily serve as vacation lodging. Moreover, to attract visitors, Montpelier should consider a packaged experience. Montpelier could provide more on-site activities (e.g. even house tour or meal, grounds tours), advertise existing activities more such as the Old Growth Forest and hiking trails, and partner with other regional groups interested in entertaining tourists.

Camping

Discussions with the county, Montpelier and others brought up the need for a campground. As Orange County has no camping facilities within its borders, a few discussion participants noted the possibility of having such a tourist site on the northeast parcel of Montpelier. This 110 acre parcel is on the opposite side of Route 20 from the historic core, which would allow for a completely separate entity to manage and operate the campsite. The parcel is a largely wooded area and has been the site for a handful of archeological digs in search of Civil War remnants. A campsite on these parcel would provide accommodations for those wishing to hike the Montpelier trails, visit vineyards such as Barboursville in the region, and attend any events that might occur in the region.

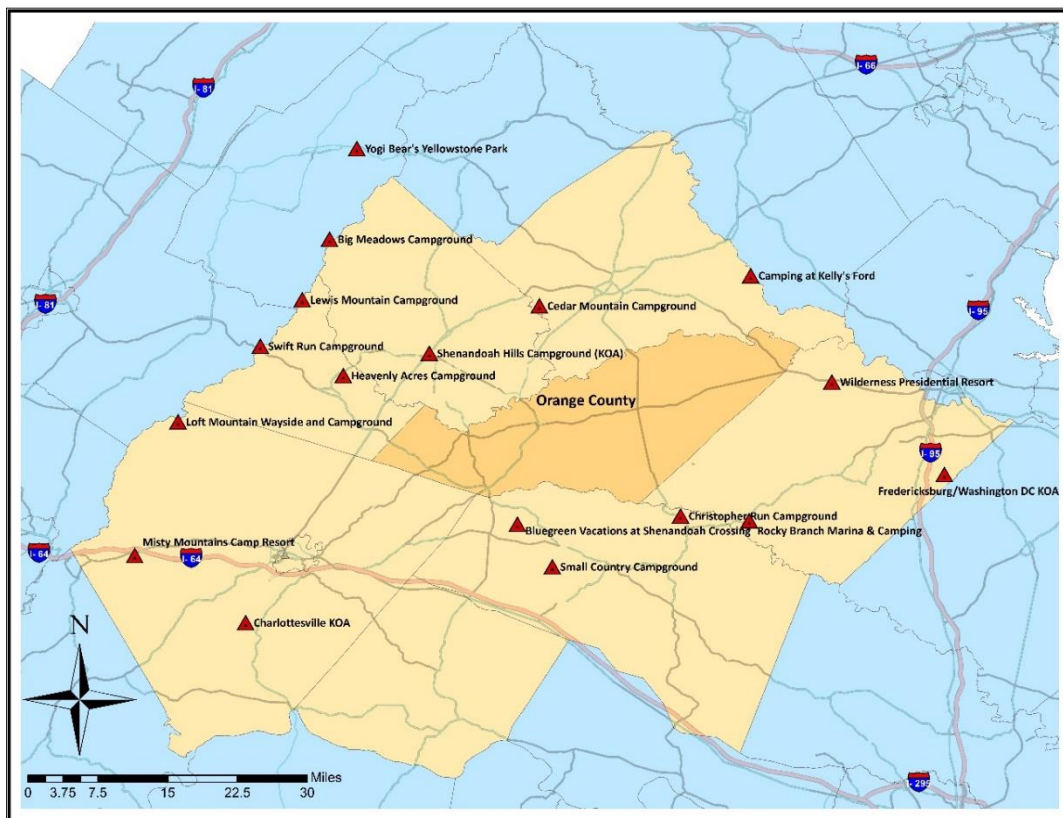
Camping is a popular activity in the United States. As many as 40.1 million Americans or 14 percent of the American population over the age of 6 went camping in 2013. In a survey of campers by the Outdoor Foundation, ninety-nine percent of camping respondents said they were likely are very likely to camp at least three times the following year. Tent camping was the preferred shelter type,

as opposed to cabins, RVs, yurts and other shelter. Campers participated in a variety of activities, but hiking during the day and hanging out by the campfire at night was the favorite activities for 87 percent of camp-goers. Demographically, 63 percent of campers were married (55%) or living with a domestic partner (8%). The 25-44 age group makes up 34 percent of these campers, and the over 45 age group comprises 29 percent. These campers cross all income brackets.⁶⁸

According to the Virginia Association for Parks, Virginia contains 35 state parks, 59 state natural areas, and 22 national parks, monuments and historic sites. These sites do not include the dozens of local and regional private parks and campsites that also prosper in the Commonwealth. These parks range from primitive campsites with fire grills, pit toilets and non-potable water to developed and group sites with picnics tables, grills and access to bathhouses (toilets and showers). For these purposes VTVTOED examined drive-in camping sites, but hike-in sites exist.

VTVTOED identified seventeen campsites in the region surrounding Orange County. These sites contain space for tents, RVs, and cabins. Additional parks around Charlottesville exist, but they cater to group events, youth campers and those wishing to stay in cabins only. Figure 20 shows the location of these campgrounds.

Figure 20: Campgrounds Surrounding Orange County



⁶⁸ 2014 American Camper Report Presented by the Coleman Company, Inc, and the Outdoor Foundation
<http://www.outdoorfoundation.org/pdf/research.camping.2014.pdf>

Many of these campgrounds are situated on large parks such as Shenandoah National Park or are beside water such as Lake Anne. Thus they are in close proximity to hiking, fishing and other outdoor activities. These campsites also offer additional amenities such as pools, playgrounds, picnic shelters, sports fields, basketball or volleyball courts, and canoes or boats if located near water. Some of the more developed campgrounds offer laundry facilities, indoor recreation or banquet halls, and horseback riding.

While many of these campgrounds are housed on larger recreation parks, the size of the campgrounds range from 11 to 195 acres. On average, these campgrounds are approximately 53 acres, although the median campground size is 34 acres. They have as many as 700 campsites to as few as 45. Average number of campsites including cabins is about 232 campsites or a median of 188 campsites. To break even financially, some park planners recommend having a minimum of 125 tent and RV campsites.⁶⁹ The average number of campsites per acre for these regional campgrounds is six sites. Christopher Run Campground has as many as 16 campsites per acres, and the Yogi Bear and KOA campgrounds provide for seven to eight campsites per acre. Not counting those campsites, average campsites per acre decrease to four.

Each campground has a combination of tent, RV and cabin sites. Ratios of these three site types vary, but usually accommodate mostly tents and RVs with a scattering of cabins. Most sites offer water and electricity, although many offer water, electricity and sewage for RVs. Virginia Department of Health requires each campsite to provide a minimum 1600 square feet of space and cannot be less than 25 feet at its narrowest point. For developed campgrounds like these, campgrounds must provide at least 50 gallons of potable water per campsite per day.⁷⁰ The table below shows the minimum number of facilities a campground must provide:

Table 23: Number of Facilities by Number of Campsites

Number of Sites	Toilets		Urinals	Lavatories		Showers*	
	Male	Female	Male	Male	Female	Male	Female
0-15	1	1	0	1	1	1	1
16-30	2	2	0	2	2	1	1
31-45	2	3	1	3	3	1	1
46-60	3	4	1	3	3	1	1
61-75	4	5	1	4	4	2	2
76-90	4	6	2	4	4	2	2
91-105	5	7	2	4	4	2	2
106-120	6	8	2	5	5	3	3
121-135	6	9	3	5	5	3	3
136-150	7	10	3	5	5	4	4

*Showers in service buildings are optional on the part of the campground owner

Source: Virginia Department of Health (2015). Rules and Regulations Governing Campgrounds.

<https://www.vdh.virginia.gov/EnvironmentalHealth/Food/Regulations/CampGrounds/index.htm>

⁶⁹ Hultsman, J., Cottrell, R. L., and Hultsman, W. Z. (1998). Planning Parks for People (2nd ed.) State College, PA: Venture Publishing.

⁷⁰ Virginia Department of Health (2015). Rules and Regulations Governing Campgrounds.

<https://www.vdh.virginia.gov/EnvironmentalHealth/Food/Regulations/CampGrounds/index.htm>

The Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) combines established design guidelines for national parks with rules for increasing accessibility to all populations. The guidelines emphasize a stable surface that is minimally affected by normal occurring weather conditions. Some campsites may require additional packing of soil, crushed stone or other natural materials to obtain and maintain an appropriate firm and stable campsite. Running slopes for campsites should not exceed 1:20 (5%) in any direction. Other regulations include construction tips for picnic table access, tent pads and parking spurs. Not all site must be accessible to handicap individuals, but all campgrounds should provide and clearly mark campsites that accommodate all populations.

Other design consideration for a campground include:

- Have a single entrance/exit with safe ingress and egress,
- The entrance control station has enough distance from the highway to safely accommodate all traffic,
- Entrance control station has at least two entry lanes which extend at least 200 feet before the control station,
- A double sewage dump station should be located near the entrance control station,
- Have a minimum of four loops,
- Have at least two bathroom/shower structures and two toilet structures,
- Maintenance complex is located near the entrance control station and out of sight, and
- Recreation amenities would be located outside of any camp loop and near the day use area.⁷¹

Costs for campgrounds include: preparing the campsite grounds, ensuring appropriate slope and drainage sites; developing access roads; construction of water, electricity and sewage infrastructure; construction of toilet and shower facilities; construction of any other indoor facilities including main office. Also important to note are the activities and on-site amenities provided at most sites. Construction costs vary widely depending on the size and amenities provided at a campground. The base costs for a KOA campground with a main service building, 90 campsites⁷², five cabins, and optional facilities⁷³ ranges from \$1.35 to 2.23 million.⁷⁴ This price includes the \$30,000 franchise fee. Key annual operating expenditure are site staff, on-site vehicles, electricity/gas, septic or vault toilet pumping and maintenance supplies. Depending on the size of that campground and amenities provided, annual operating cost can be as low as \$6,000 and as high as \$95,000.

⁷¹ Hultsman, J., Cottrell, R.L. and Hultsman, W.Z. (1998).

⁷² Includes land clearing/prep work, gravel roads and pads, electrical, water, sewer, minor landscaping, playground and miscellaneous equipment. The approximate site mix is 40 water/electric/sewer sites, 30 water/electric sites, 5-10 primitive tent sites and 5-10 Camping Cabin and/or Deluxe Cabin site pads.

⁷³ Optional facilities include pool, spa, upgraded playground, fencing, pool house, storage building, recreation hall, nature trails. Cost varies greatly depending on the item and/or amenity.

⁷⁴ KOA. Sample KOA Construction Costs. <https://ownakoa.com/buildakoa/constructioncosts.htm>

To be financially viable, campgrounds must know and cater to their key market demographic. Even then, many campgrounds rely on other forms of income aside from their camping fees. The cost of a one night stay at these regional campgrounds also vary considerably. Depending on the campground amenities and the location of the campsite on the grounds, these businesses offer a range of pricing. Table 24 below provides average cost per night by campsite amenity.

Table 24: Campsite Cost per Night

Campsite Type	Average Cost per Night
Primitive: no water, electricity or sewage	\$29
Water and Electricity	\$36
Full RV Hook-up: water, elec., sewage	\$42
50- amp+ RV campsite	\$49
Cabin	\$61
Deluxe Cabin	\$98
Full-service Lodge	\$186

Government funding for campgrounds is currently minimal. Many campgrounds today have turned to community-based fundraising to construct new facilities or improve older ones. Fundraising campaigns for new culture and visitor centers are particularly popular currently. Other, more privately owned campgrounds have turned to websites like kickstarter.com.

Some potentially comparable campgrounds to Montpelier may be:

Heavenly Acres Campground: Standardsville, VA (<http://heavenlyacres.net/>)

Welcome to Heavenly Acres Campground! We are located at the base of the Blue Ridge Mountains, one-half hours drive north of Charlottesville, Virginia, and two hours south-west of Washington D.C. Nestled at the foot of the Blue Ridge Mountains, our family campground offers 80 acres of Virginia woods. The beautiful Skyline Drive is only fifteen minutes away along with the Shenandoah National Park, Jefferson's Monticello, numerous antique stores, vineyards, caverns, historical sites and battlefields. We enjoy eighty acres of Virginia woods and fields abundant with wildlife.

Our tent sites are wooded and generous. We can accommodate RVs easily with pull-through sites. We have two camping (standard) cabins and four premium cabins available for rental. For group camping, we have a large separate field area or extra-large tent sites. For a unique camping experience try one of our renovated train cabooses! Our sites are generous and our hospitality contagious.

Activities: pool, playground, basketball, volleyball, game room, hiking, mountain bike trails, winding creeks, fishing, hayrides, ice cream socials

Amenities: camp store, ice and firewood, restrooms and showers, large field for group camping and activities

Lewis Mountain Campground: Luray, VA

(<http://www.nps.gov/shen/planyourvisit/campgrounds.htm> or <http://www.goshenandoah.com/lodging/lewis-mountain-cabins>)

Lewis Mountain, located within the Shenandoah National Park, is the smallest campground in the park. This site especially appeals to those who want a little more privacy without venturing deep into the back-country, yet it is within seven miles of the popular Big Meadows area of the park.

Amenities: Laundry, Wood, Ice, Store, Showers, Restrooms, Handicap Accessible, Water, Picnic Shelters

Misty Mountain Camp Resort: Greenwood, VA (<http://www.mistymountaincampresort.com/>)

Misty Mountain Camp Resort offers a delightful, relaxing vacation at the foot of the Blue Ridge Mountains near historic Charlottesville, Virginia. Whether you're looking for a private getaway, a group gathering, or fun with the kids, Misty Mountain Camp Resort is sure to meet your needs. Our scenic 50 acre park provides private sites nestled in the trees and a large recreational building with banquet seating to accommodate any large group.

Explore nature trails, splash in our pool, sit by the creek, fish in our pond, play at several playgrounds, climb our hills, shoot hoops and spike the volleyball or pitch horseshoes, take a hayride, enjoy live music and dances, shop at the General Store, shoot pool and play video games, relax in solitude or join with new friends - the choice is yours and it's all at Misty Mountain Camp Resort!

Activities: Misty Mountain Adventures - Misty Mountain contracts with local partners to offer activities such as local hops and vine tours, kayaking, fishing, hiking, cave exploring, and horseback riding.

Amenities: Cornhole and horseshoes, dog park, playground, basketball, pool, community building with camp store and meeting room, game room, fishing pond, back country camping.

Small Country Campground: Louisa, VA (<http://www.smallcountry.com/>)

Located in the heart of Old Virginia, Small Country Campground is your gateway to the rich history of the Commonwealth of Virginia. While camping at this family-oriented RV & tent campground you'll be close to local vineyards and flea markets, fascinating historic attractions and towns, golf courses, and much more while camping in modern, full-service park near Louisa. Small Country Campground is family-owned and operated where family values are important. You'll find events for young and old, spacious campsites and cabins, and friendly hosts. Stay for a weekend, month, or longer.

Activities: aqua toys (giant jumping pillow, lake trampoline), playground, horseshoe pits, hiking trails, wildlife, 18 hole mini golf course, pool

If Montpelier uses its 110-acre parcel for camping, it should partner closely with Orange County. The campgrounds would be managed by an outside company, but could be overseen by the county and to a lesser extent, Montpelier. A campground does not necessarily align with Montpelier's core mission and may only offer minimal benefits in terms of increased visitation to the historic home, but possibly more if Montpelier marketed its grounds and trails more. Considering this, the campground business may be completely separate from the Foundation other than land leasing.

Glamour Camping

Glamour Camping or "Glamping" is another form of camping that may be an option for Montpelier as it aligns well with the estate and reinforces the estate as a destination site. Glamping is a form of comfortable camping. It first became popular in early 2007, according to Google Trends, mostly concentrated in Ireland and the United Kingdom. In the US, most Glamping occurs along the west coast, Colorado, New York, the Great Lakes region, and along the east coast. According to Glamping.com:

Glamping or "glamorous camping" pairs destinations with the intimacy of camping and the world of luxury travel. Glamping is the quickly becoming the ultimate travel experience. Imagine visiting a remote island overlooking a tropical jungle in your 4-star treehouse appointed with the luxuries you would find at any high-end resort. If the mountains are in your destination desires, envision enjoying a summer sunset next to the calming sounds of a river outside your 5-star canvas tent. As you enjoy a glass of fine wine, your on-site staff prepares a private dinner. How about evening tea on the African Serengeti as elephants graze in the distance. With glamping, you don't just visit the destination, you experience the destination.

Glamping offers guests direct access to nature, the sounds of being submerged in nature, alone/quiet time with your friends/family, campfires, and fresh air. Glamping, however, removes the necessity to purchase or carry camping equipment. Campers do not have to sleep on the hard ground, in uncontrolled temperatures, in sleeping bags, or in leaking tents. There are even some mobile glamping options where campers go on a trail/tour but without having to carry any of their equipment/luggage.

Traditionally, glamping has been done mostly in large canvas tents or yurts, but it has slowly evolved to include higher-end campers, tepees, tree houses, and log cabins. Inside, they can include some kitchen, real beds, rugs, wood floors, bedding décor, washrooms, electricity, air conditioning, an attractive view, and meals. Figure 21 illustrates typical glamping accommodations.

Figure 21: Glamping Sites across the USA



Source: <http://www.barebonesliving.com/getoutside/history-of-the-glamping-movement/>



Source: <http://eluxemagazine.com/travel/rustic-america-luxury-glamping-in-the-usa/>



Source: <http://writeforwine.com/wineblog/2011/09/21/go-in-glamping-at-destiny-ridge/>



Source: <http://www.trevella.co.uk/glamping-holidays-in-cornwall/>



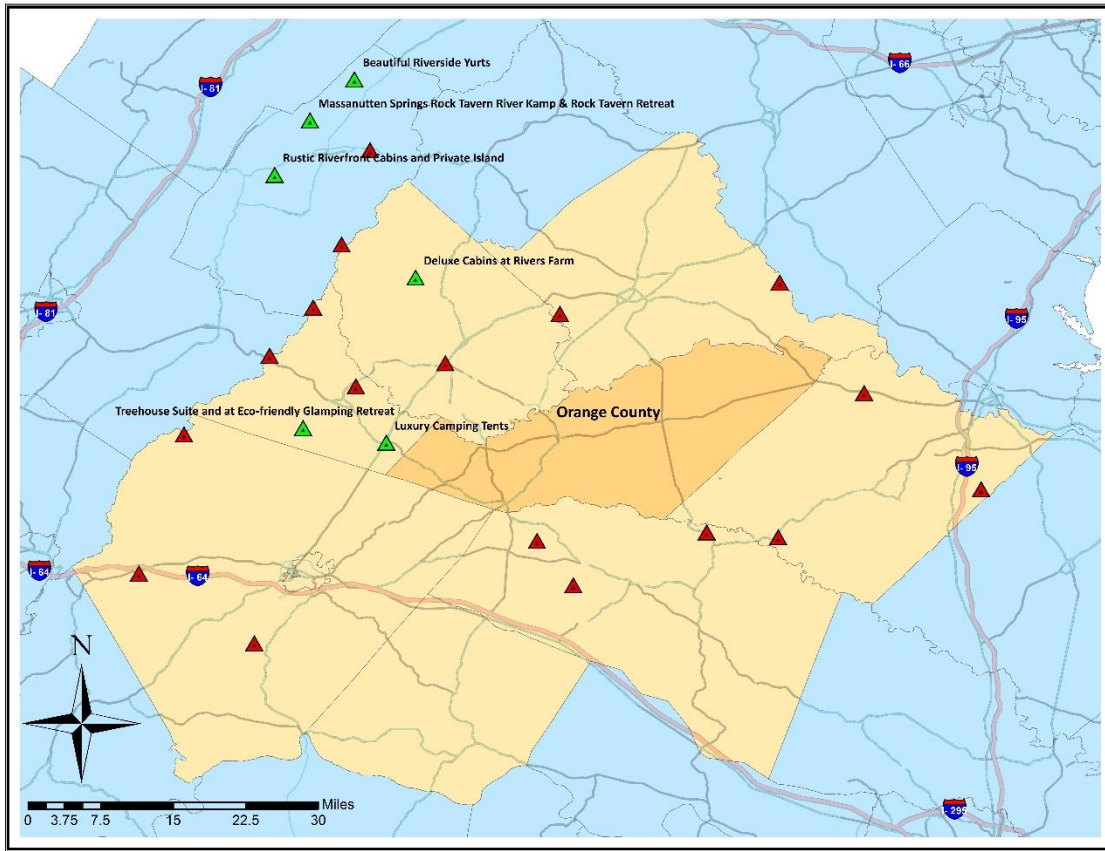
Source: <https://www.1859oregonmagazine.com/glamping>

Glamping sites are often temporary and avoid crowded campgrounds. They can be more ecologically-friendly as they do not have high construction or maintenance costs. Because they are more high-end and thus charge more, they can even utilize more sustainable methods of using resources and provide more ecologically sustainable materials and services.

With the multitude of amenities and price of glamping, the sort of recreation caters mostly to families, higher-income groups, and people over 65. While some people do “glamp” as part of a weekend getaway, their use is also popular with those attending events such as weddings and concerts. Many vineyards, ranches, and other types of large, open spaces that are privately owned are capitalizing on this new trend and starting “glampsites” of their own. Market at Grelen in Orange County is providing this service for certain events on-site and at Montpelier. Prices for these sorts of glamping can range from \$100 - \$3,000+ per night.

VTVOED identified six glamping sites to the northeast of Orange County. Figure 22 shows these glamping sites (green triangles) in the vicinity of Shenandoah National Park and the Shenandoah Valley, where agritourism is a growing industry. These glamping businesses are Luxury Camping Tents (Ruckersville, VA), Massanutten Springs Rock Tavern River Kamp and Rock Tavern Retreat (Luray, VA), Tree House Suite at Eco-Friendly Glamping Retreat (Standardsville, VA), Deluxe Cabins at River Farm (Syria, VA), Rustic Riverfront Cabins and Private Island (Luray, VA), Beautiful Riverside Yurts (Luray, VA).

Figure 22: Glamping and Camping around Orange County



Like boutique hotels, glamping offers a unique stay experience. Glamping creates more of a destination site. Amenities may include on-site prepared meals, spa activities, prepared bonfire, and other items not traditionally provided during camping visits. It may also include packaged experiences like those provided by Misty Mountain Campgrounds: Local Hop & Vine Tours, Kayak tour, Kayak and Cave Trip, and Horseback Riding & Wine Tasting. Such amenities and activities may align well with Montpelier’s history and the surrounding region. As Dolley Madison took special care to be hospitable and accommodating to guests, so too does glamping provide that special, unique quality and elegance. With its regional stakeholders and partners in Orange County, a glamping site could provide a uniquely Orange County or Madisonian experience.

Possible partners/investors may include the local glamping providers below:

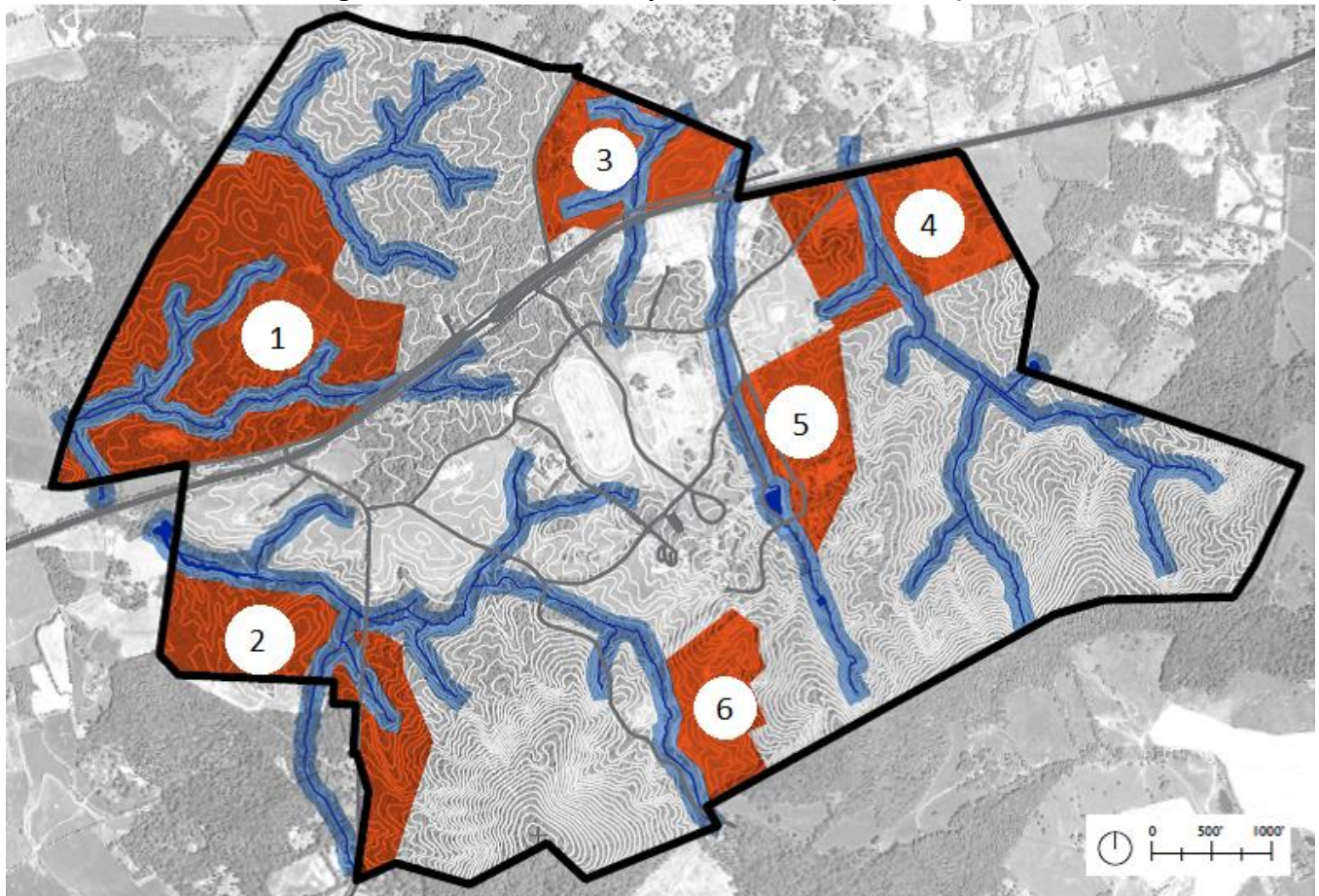
- Dancin’ Dave: <http://dancindave.com/> (usually just for festivals, provides full-service traditional camping too)
- Show Sherpa: <http://www.theshowsherpa.com/>
- Solid Ground Shelters: <http://www.solidgroundshelters.com/>
- Here are some current Virginia Glamping destinations: <http://104.239.182.33/2013/06/five-virginia-glamping-destinations/>

Section 6: Synthesis and Recommendations

The Montpelier Foundation, and its landholdings, offer a number of opportunities for selective agriculture-related development in Orange County. This report has inventoried and pre-assessed a wide range of current opportunities in Section 3 of this report. The handful of opportunities that most clearly aligned with current Montpelier and Orange County interests and most closely fit the review criteria were analyzed more substantively in Sections 4 and 5 of this report. These included farm brewery, hops production, brew-pub type operations, boutique-style lodging accommodations, and camping.

This section provides discussion and possibilities for moving from this analysis to implementation and action and begins by revisiting the designated parcels for study:

Figure 23: Available Montpelier Parcels (Revisited)



Our report can only offers preliminary recommendations for parcel-specific usages based on a point in time. *It is recommended that the Montpelier Foundation designate a 3-5 person permanent advisory committee* made up of Board and staff members with one or more outside stakeholders such as Orange County Tourism and/or Economic Development. Such an advisory committee would

be tasked with ongoing opportunity identification and assessment related to parcel-specific opportunities and could provide guidance as some opportunities begin to be pursued and implemented. The labeled parcels, and our tentative associated recommended focus activities, include:

1. **The Northwoods Area** – 110 acres, mostly forested. It does include one structure, Building 56: “Dr. Madison House”, which is currently used for staff Housing (archaeology).

RECOMMENDATION: Consider for possible camping and outdoor recreation activities. A managing partner would need to be found to cover costs and oversee campground activities. Continue with active forest management. While a possibility, forestry agriculture would need a strong advocate and entrepreneur leading the business.

2. **Chicken Mountain** – 52 acres, forested and mountainside. This land does include one structure, Building 62: “House 62”, which is currently used for Rental Housing.

RECOMMENDATION: Continue with active forest management. While a possibility, forestry agriculture would need a strong advocate and entrepreneur leading the business. Considering the view on the backside of Chicken Mountain, remote vacation cabins may be possible.

3. **Montpelier Village** – 35 acres, across the street, with good visibility, visitor accessibility, and relatively open and flat land. Occasionally used for festivals and event parking. Includes three small structures, two of which currently used for housing rental and one for agriculture rental.

RECOMMENDATION: Continue to explore targeted development opportunities with a longer-term view. May be excellent eventual site for boutique-style hotel with restaurant though may need to demonstrate demand. Consider the old ESSO building for renovation/leasing to entrepreneur for “general-store”, higher end retail, arts and crafts, or outdoor recreation equipment. If campground develops and festivals continue, a “general store” or outdoors-focused retail and rental may be attractive for overnighters. Could be an opportunity for Orange County and Montpelier Foundation to partner in “incubating” a local entrepreneur to operate in this space.

4. **Eastgate** – 42 acres, flatter parcel bordering the Constitutional Village, mostly pasture and used for equestrian activities. The great majority of this parcel is used by the Thoroughbred Retirement Foundation. The parcel includes Building 45: “Bassett House”, which is used for Staff Housing for the President of the Montpelier Foundation. The parcel also includes an unused outbuilding and a barn used for agriculture rental.

RECOMMENDATION: No specific option dominates for this parcel.

5. **Constitutional Village** – 30 acres, within the historic core and near the historic home, which constrains range of desired uses – includes fifteen structures, most of historic significance.

Properties include four houses used for housing participants in Montpelier programming, two buildings used for staff offices, and a number of other structures. Notably, there are 2-3 clustered unused structures which includes the “Upper Sears Barn” facility.

RECOMMENDATION: Maintain and develop nominally. The report suggests developing the demand for overnight tourist accommodations by considering one or more overnight “cottages” or “houses” that could be developed and designated for overnight visitor accommodations. Since this would be on a very small-scale and would target higher-end visitors, such accommodations may be feasible for the constitutional village areas. The “Upper Sears Barn” cluster represents an intriguing future site for development, as a larger scale venue. The development/renovation costs may be prohibitive in the short term. We recommend testing the events market by slightly expanding your events capacity through the yearling barn facility (see below).

6. ***Yearling Barn*** – 21 acres – mostly rolling pasture and one structure, the yearling barn. The parcel is near the constitutional village and the main house, but separated by landscape and topography and its location oriented to the rear of the property. There is possible access from a rear gravel road which could be improved.

RECOMMENDATION: The report recommends considering renovating and utilizing the facility for a small brewpub/tasting room/event space. For a farm brewery, the report recommends the development of an adjacent or nearby new structure that would be the brewing facility. (Depending on site suitability and infrastructure/wastewater considerations, the brewing facility may be on a different parcel which would be workable). While less suitable for large-scale hops production, the land near the yearling barn is workable for small-scale, “charismatic” hops production. See below for additional recommendations.

In moving forward with exploring the implementation of a farm-brewery operation and synergistic development of limited on-site hops production, an associated tasting/pub/events facility, we offer the following next step action items:

- I. **Develop a Farm Brewery Business Plan:** This report provides specific projections for the development of a farm brewery operation at Montpelier but a business plan should be created for the operation.

Utilize UVA Darden graduate student team, in conjunction with a more experienced business advisor or consultant. The UVA Darden team can build on the revenue projections and other information contained in this report to develop a draft business plan. The Montpelier Foundation and Orange County partners will need to work closely with the students to ensure an appropriate and high-quality finished product. Even still, this product should be viewed as a draft plan. An experienced business consultant should be engaged to review the plan and finalize.

- II. Better specify the infrastructure needs of a farm brewery operation, including water and wastewater capacity.
- III. Assess the need for and consider executing a memorandum of agreement between Orange County and the Montpelier Foundation related to the development of an on-site farm brewery. This may become important in clarifying each party's roles and commitments to investing in the project.
- IV. Work with VCE to assess hops soil suitability, and to develop plans for a trial ¼ acre of hops planting in 2016. Montpelier may want to contact a local hops producer to partner.
- V. Identify and pursue funding sources for development of Farm Brewery at the county, state, and federal levels as well as the private sector.

Regarding lodging options for Montpelier, VTVOED provided a very preliminary market study of the region. Findings raised questions concerning adequate need to attract a hotelier. Moving forward, we provide the following suggestions:

- I. Consider creating a business plan that would utilize the renovated houses in the Constitutional Village as well as renovate and reuse other housing units on Montpelier as vacation cabins. Successful renting of these houses would help to establish adequate need for potential boutique hoteliers.
- II. Consult with other historic sites such as Castle Hill and Oak Alley Plantation, who welcome guests on their grounds 24/7. These sites may have insight into how to best manage night guests and preserve the historic house and grounds with increased, unmonitored traffic.
- III. Incorporate any strategies decided upon in the current Montpelier marketing project into lodging plans. Any accommodations on Montpelier land would benefit significantly from embracing the Montpelier brand and aligning its business persona with Montpelier. Need would also be less of an issue if lodging became less about lodging and more about the Madison experience. Likewise, a boutique hotel, camp or glamp-ground, or any Madison lodging would help Montpelier and Orange County to become more of a destination site.
- IV. Orange County and the Montpelier Foundation should clarify size, scale, and location preferences for future lodging and design a coordinated approach with which to engage future investment partners, developers, or hotel operations.

Ongoing Opportunity Assessment and Tourism Development

- I. Continue strategizing Montpelier's marketing. Once Montpelier's branding process is complete, the marketing campaign should include strengthening partnerships with Virginia Tourism Corporation, bus tour companies, travel magazines, etc. Also, consider trips to tourism conferences or travel shows.

- II. Consider reaching out to and making Montpelier open to small scale niche farmers, offering Montpelier land and brand. Brainstorming opportunities with the Working Group and others generated many agritourism farming ideas such as mushrooms, artisanal cheeses, hops, barley, local fruits and vegetables... While these may all be viable ideas, they are not large revenue generators for Montpelier. They also require someone very dedicated to the success of these ventures. As Montpelier has available land that will not all be used anytime soon, opening its doors to regional partners may lead to one or more serendipitous opportunities concerning unused land and agritourist activities.
- III. Consider the ROI for establishing a part-time tourism and event development staff position (possibly a shared position between Montpelier and Orange County). A designated position would have responsibility for tourism development in this part of Orange County, and potentially be housed at Montpelier. The position would enable a greater focus on events, marketing and related initiatives.

Appendix A: Farm Brewery at Montpelier: Projections for different levels of contract brewing

A range of possible scenarios are presented in order to understand the financial potential of a farm brewery & tavern located at Montpelier. The brewery is expected to brew craft beer for consumption and sale at the site as well as perform contract brewing for other craft beer businesses in the region. The tavern is assumed to provide food prepared by other businesses and brought to the site where, at most, it will be re-heated.

Two cases are considered the most probable scenarios:

Case A: Based on American Brewers Association data, a successful craft brewery in a not highly populated region similar to Montpelier should expect on-site beer consumption & sales of about \$500,000. Contract brewing production has been added to this, again realizing that this activity is not expected to be large.

Case B: On-site beer consumption & sales is taken to be about twice that of Case A. Contract brewing production has been added to this, again realizing that this activity is not expected to be large.

The other scenarios presented in this report consider the same two on-site consumption & sales scenarios of Cases A and B; but consider a range of contract brewing activities:

Cases C & D: No contract brewing

Cases E & F: Contract brewing production of 5,000 barrels by Year 5

Cases G & H: Contract brewing production of 13,000 barrels by Year 5

The tables on the next page summarize the projected revenues and financial results [projected initial year of positive Operating Income (EBITDA), equity investment required, and cumulative cash in Year 5]. The graphical presentations for the projected revenues and income statement and cash flow statement parameters for each scenario follow the tables.

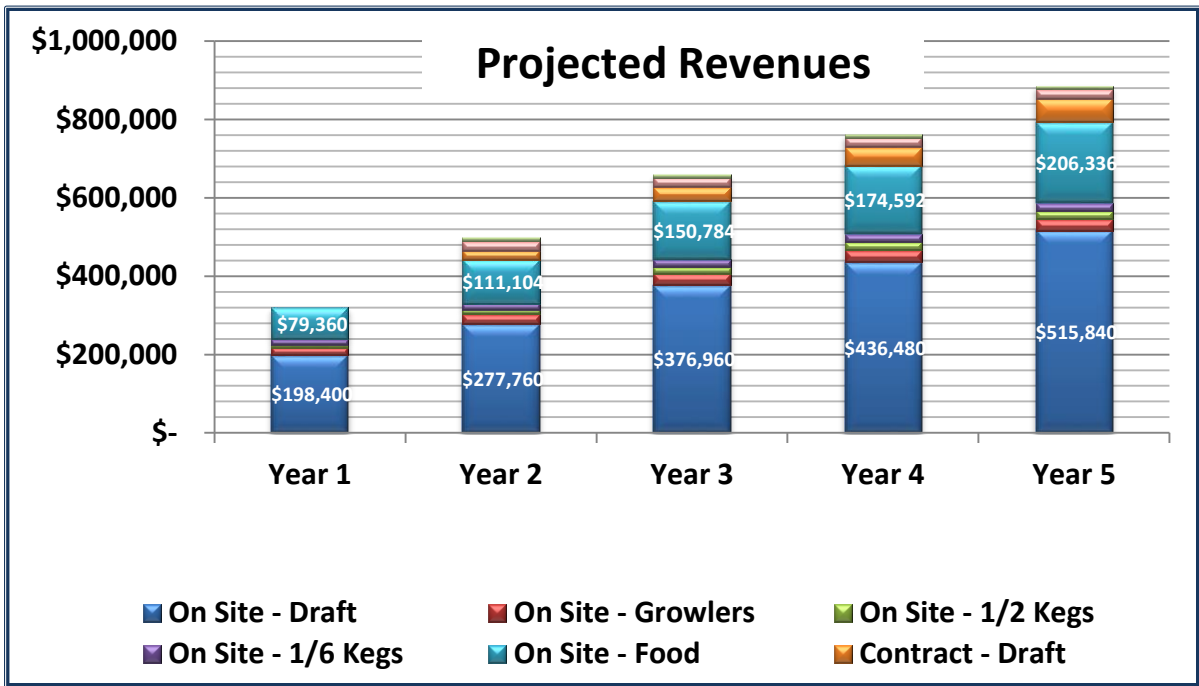
The capital equipment in the scenarios include the brew house and appropriate ancillary equipment, furnishings for the tavern, and leasehold improvements of about \$80,000 to prepare the brew house and tavern spaces. It is assumed that the necessary water and sewer facilities are available for the operations.

Montpelier Farm Brewery & Tavern Scenarios

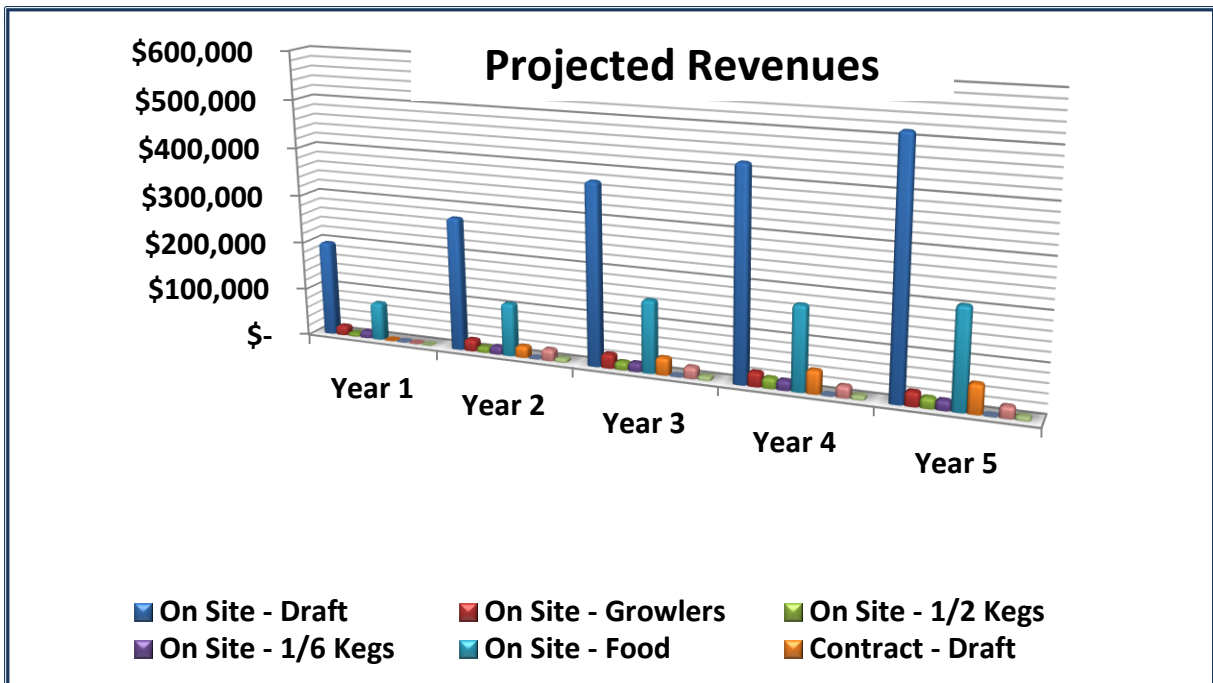
Scenario	On-Site Production Year 5 Barrels	Contract Production Year 5 Barrels	On-Site Beer Revenues Year 5	On-Site Food Revenues Year 5	Contract Brewing Production Year 5	Project Employees Year 5
A	850	370	\$587,000	\$206,000	\$92,000	8
B	1,710	370	\$1,065,000	\$349,000	\$92,000	9
C	850	-	\$587,000	\$206,000	-	8
D	1,710	-	\$1,065,000	\$349,000	-	9
E	850	5,000	\$587,000	\$206,000	\$1,322,000	10
F	1,710	5,000	\$1,065,000	\$349,000	\$1,322,000	11
G	850	13,000	\$587,000	\$206,000	\$3,446,000	10
H	1,710	13,000	\$1,065,000	\$349,000	\$3,446,000	11

Scenario	On-Site Production Year 5 Barrels	Contract Production Year 5 Barrels	Equity Investment Required	Positive Operating Income	Cumulative Cash Year 5
A	850	370	\$645,000	Year 2	\$649,000
B	1,710	370	\$515,000	Year 1	\$1,817,000
C	850	-	\$625,000	Year 3	\$511,000
D	1,710	-	\$505,000	Year 1	\$1,715,000
E	850	5,000	\$670,000	Year 2	\$1,310,000
F	1,710	5,000	\$565,000	Year 1	\$2,437,000
G	850	13,000	\$2,535,000	Year 2	\$2,923,000
H	1,710	13,000	\$2,680,000	Year 1	\$4,092,000

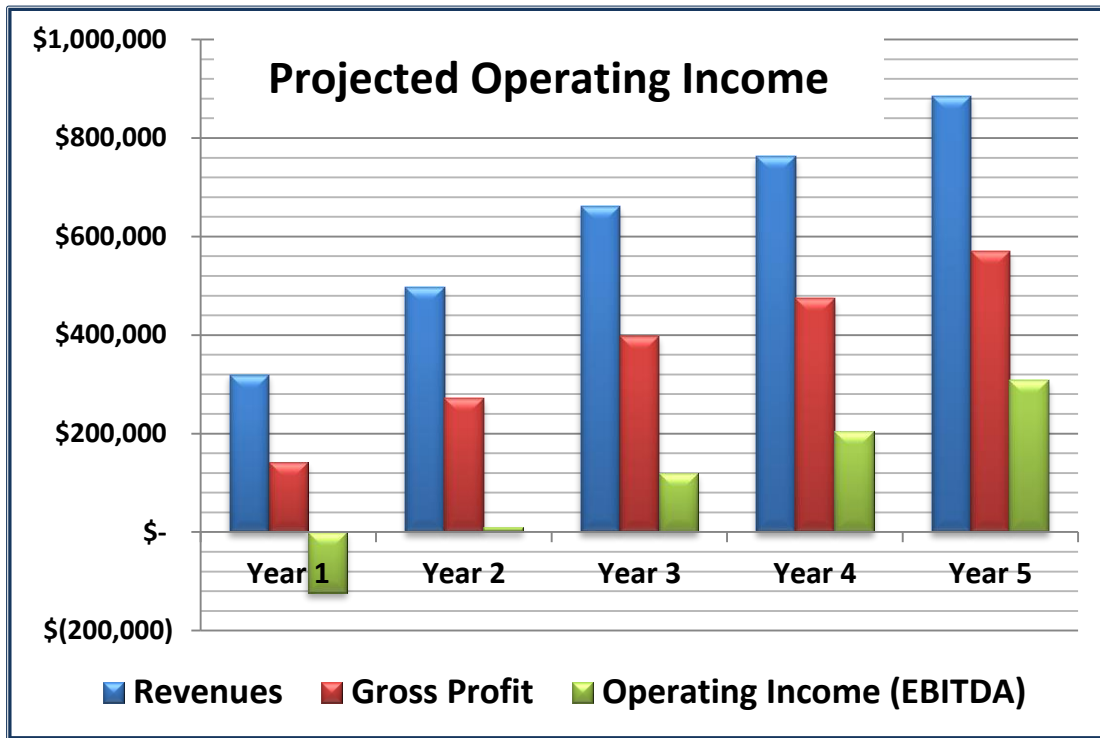
Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



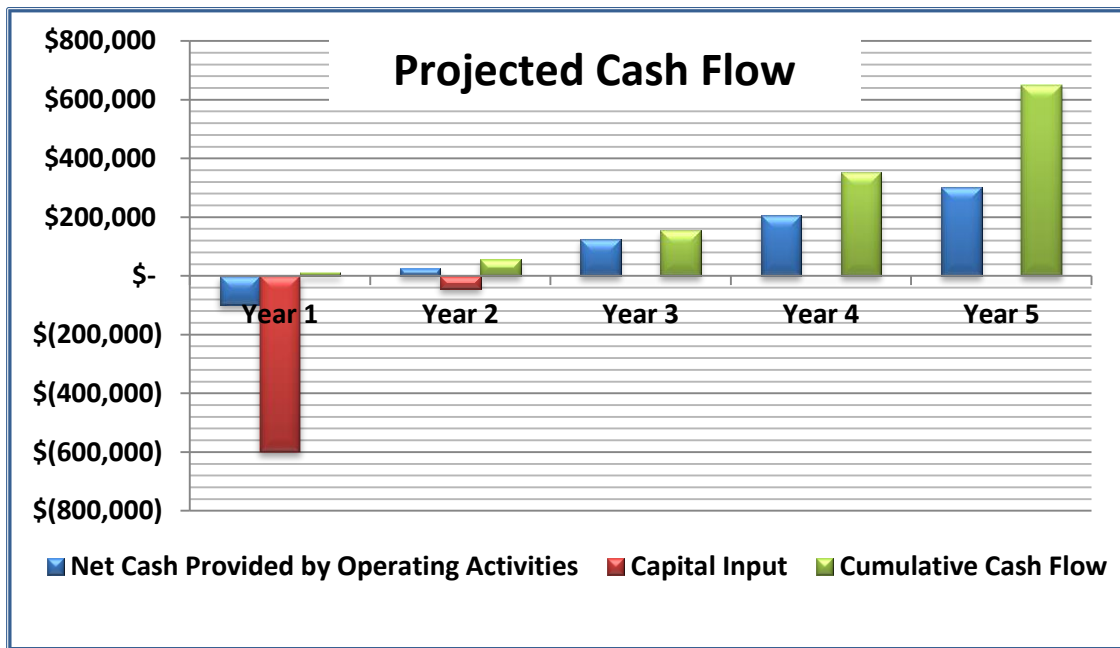
Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



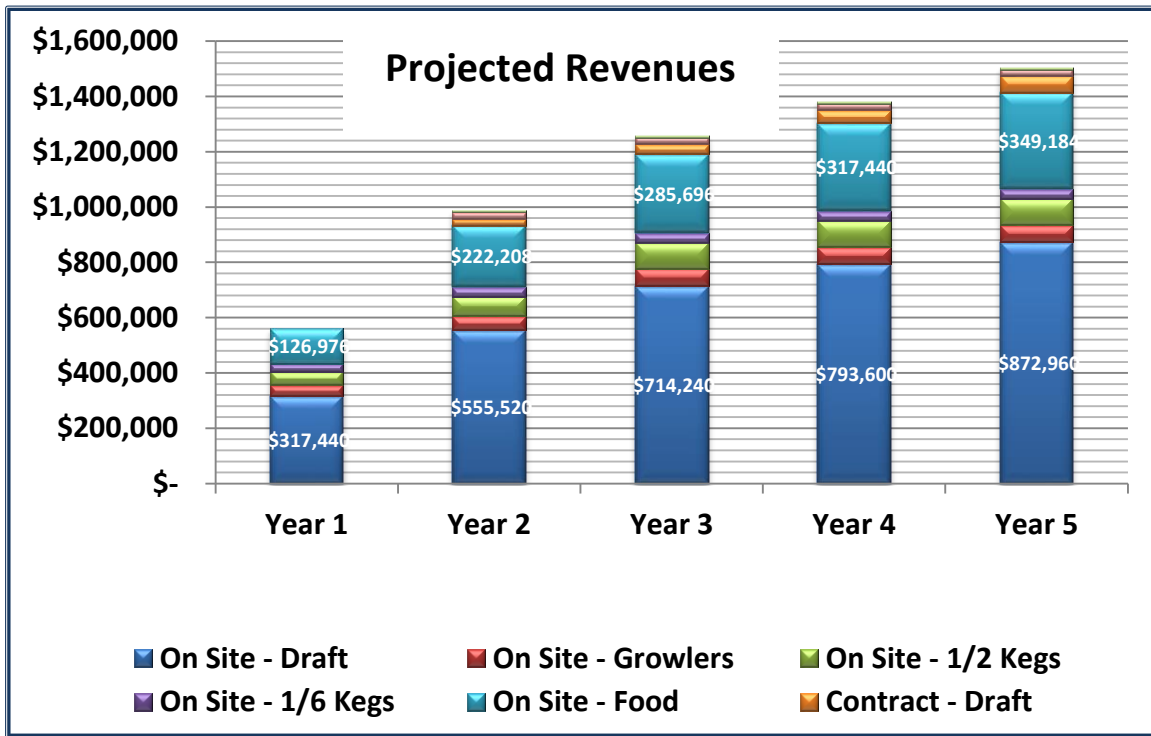
Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



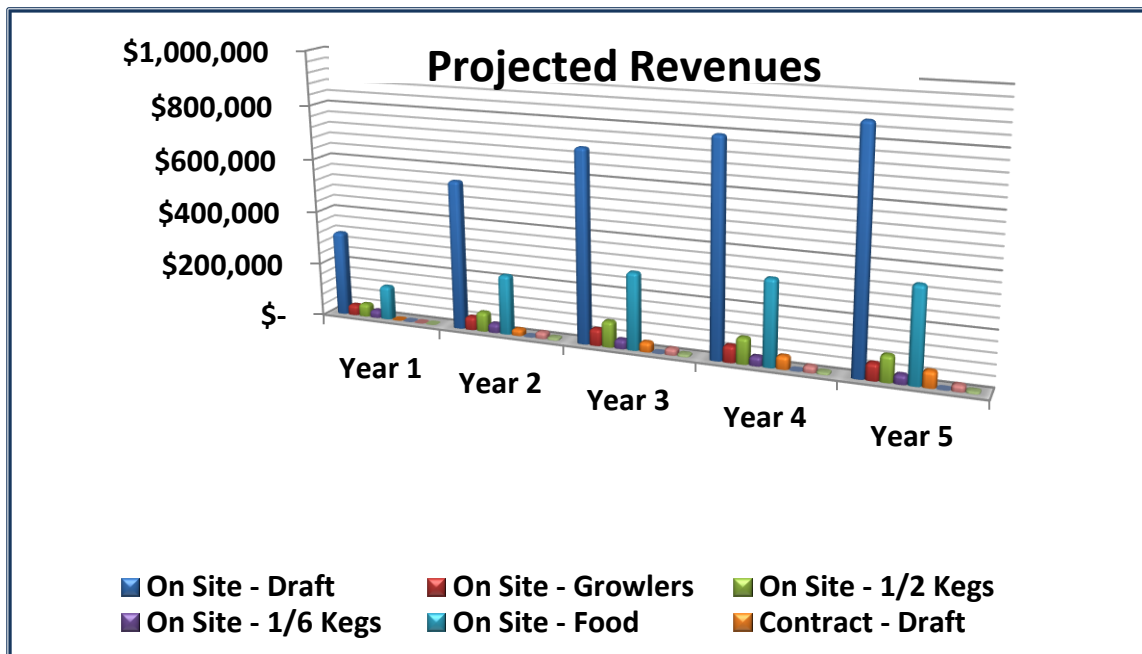
Case A: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



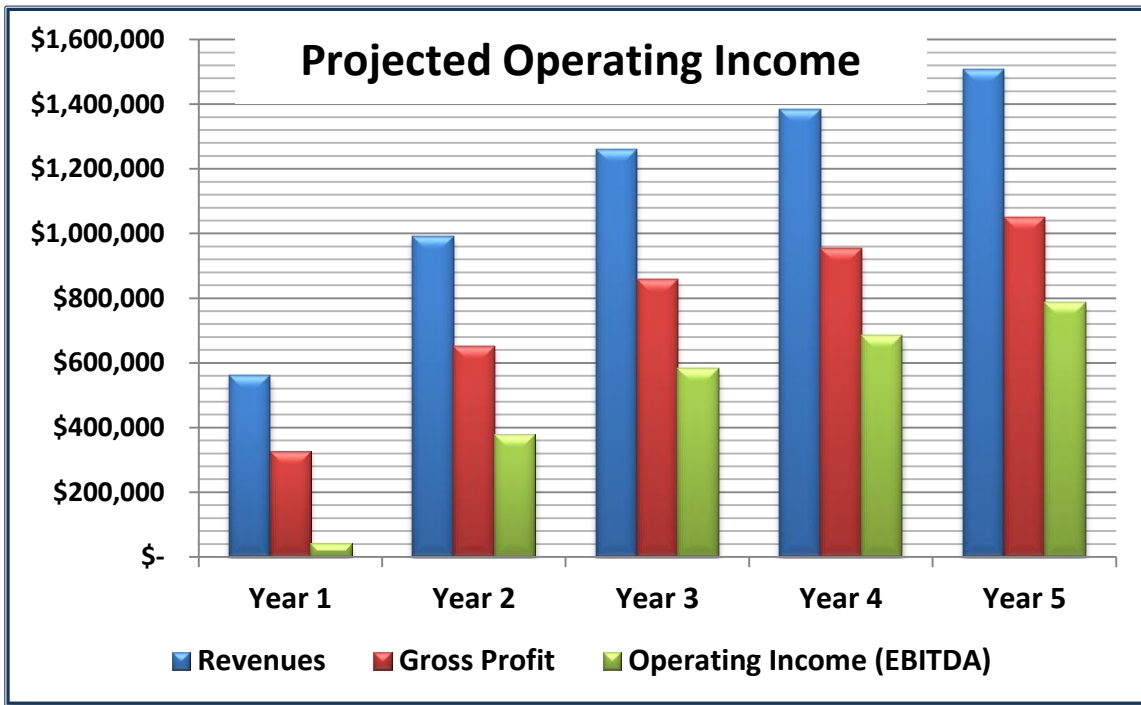
Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



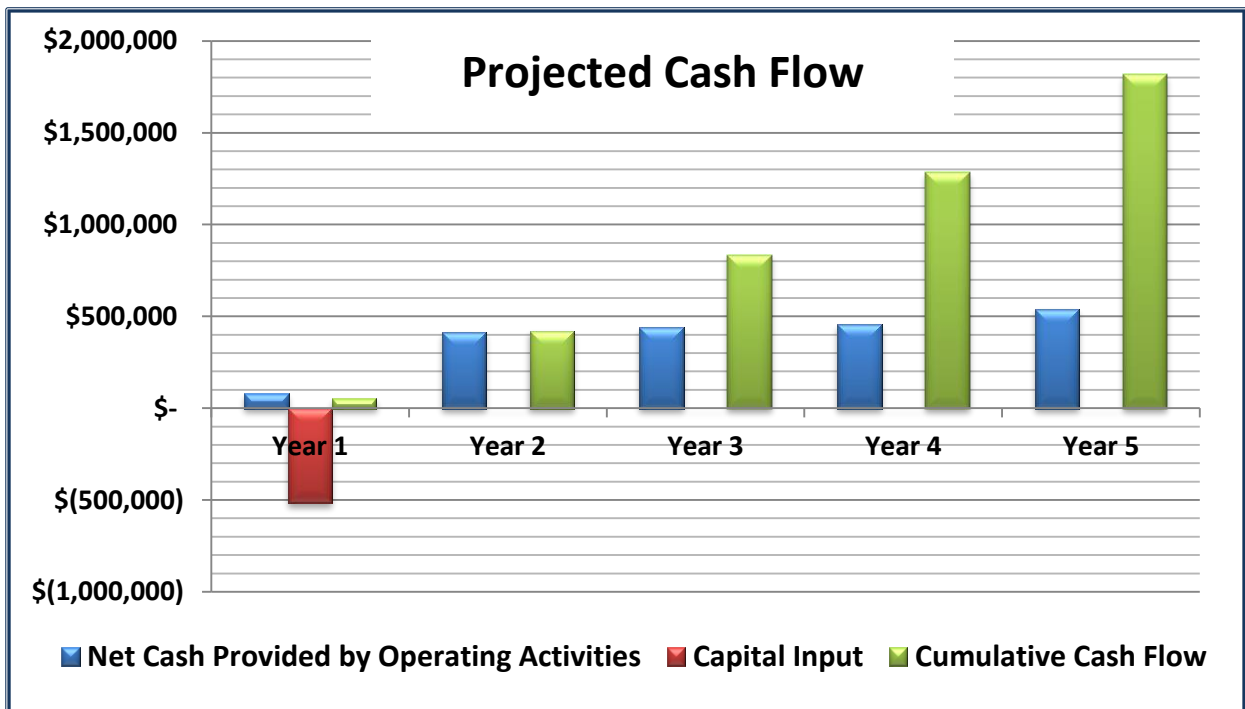
Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



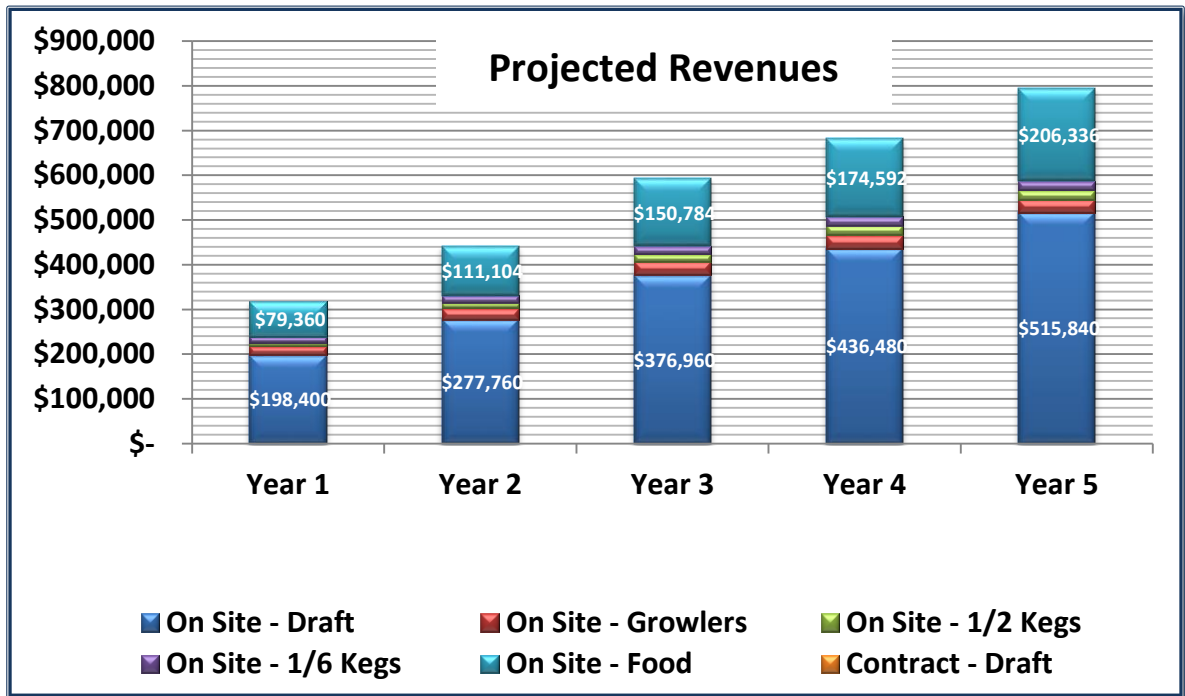
Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



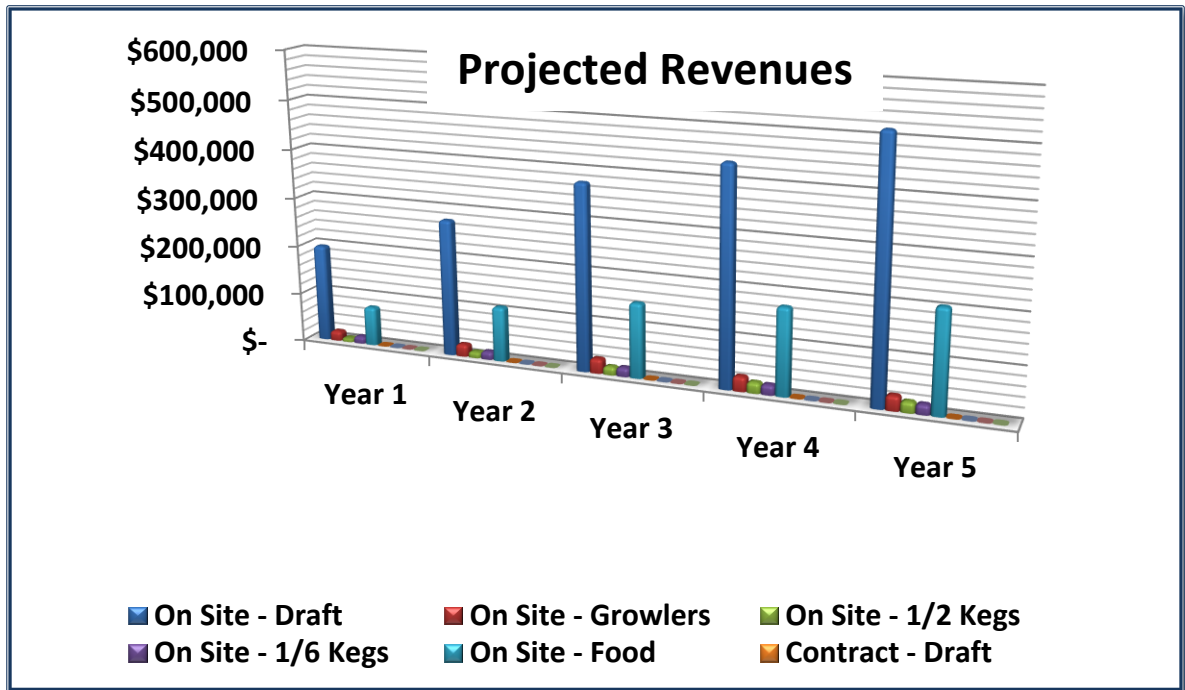
Case B: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 370 Barrels by Year 5



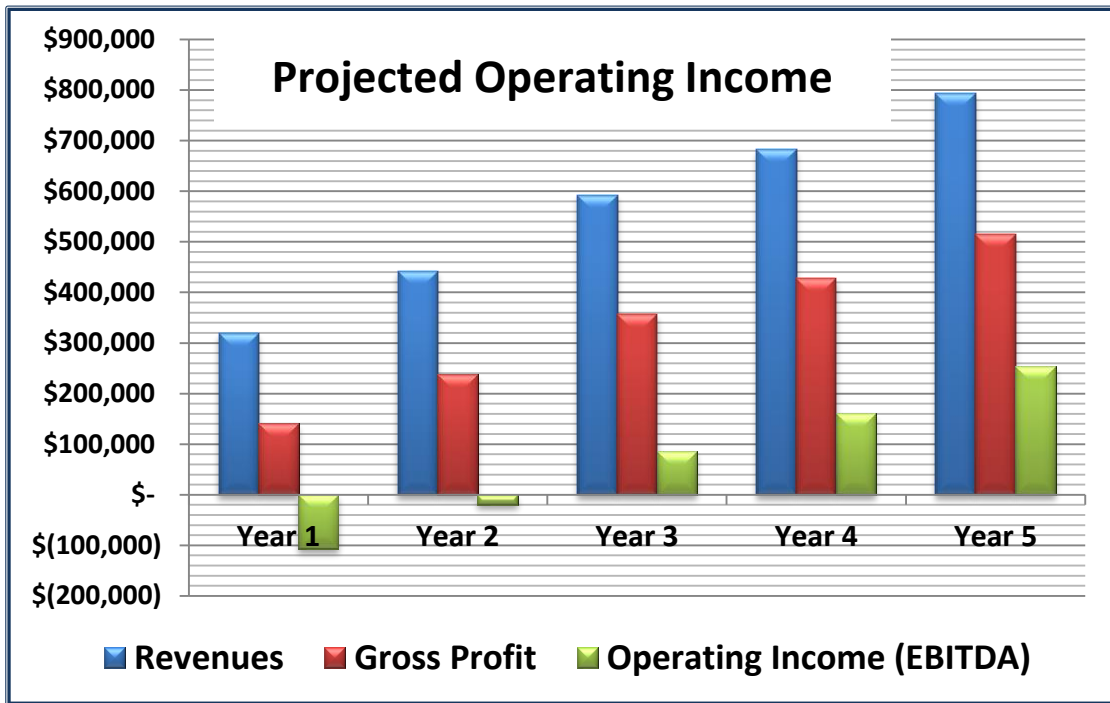
Case C: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



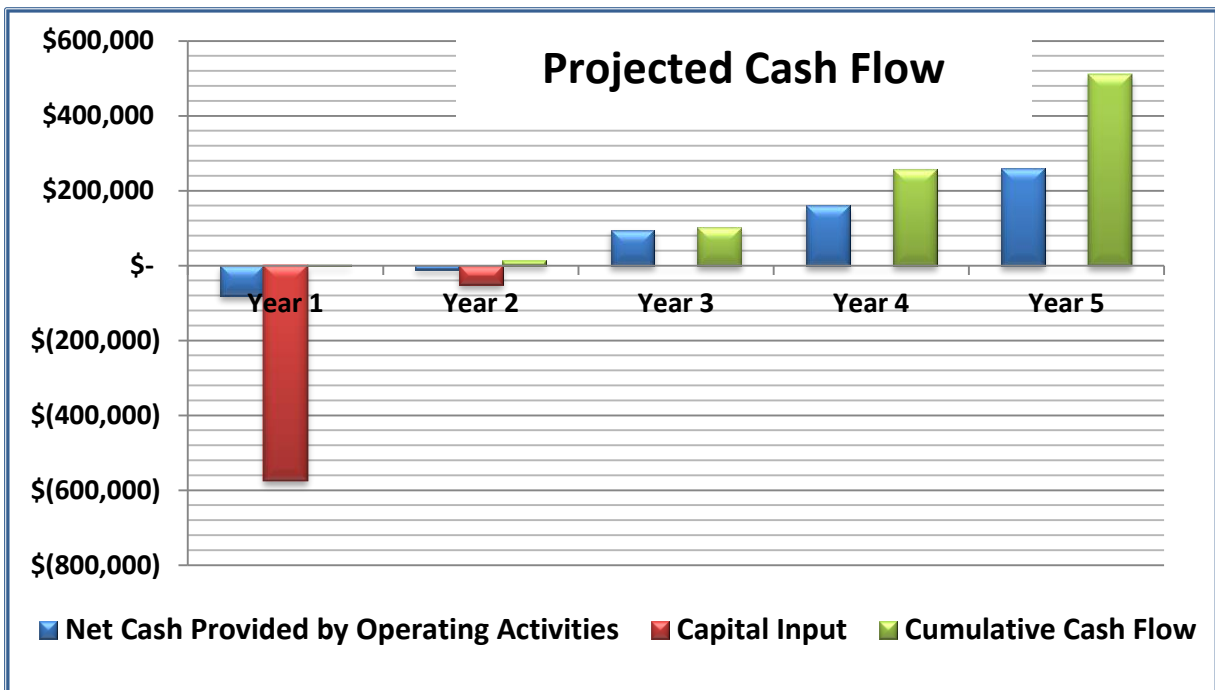
Case C: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



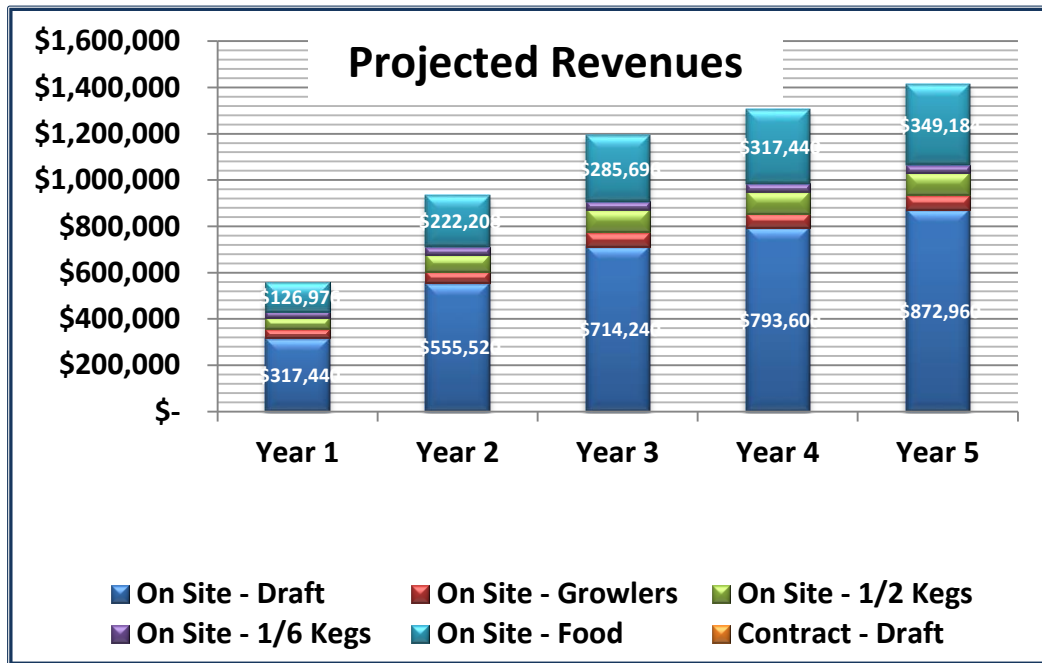
Case C: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



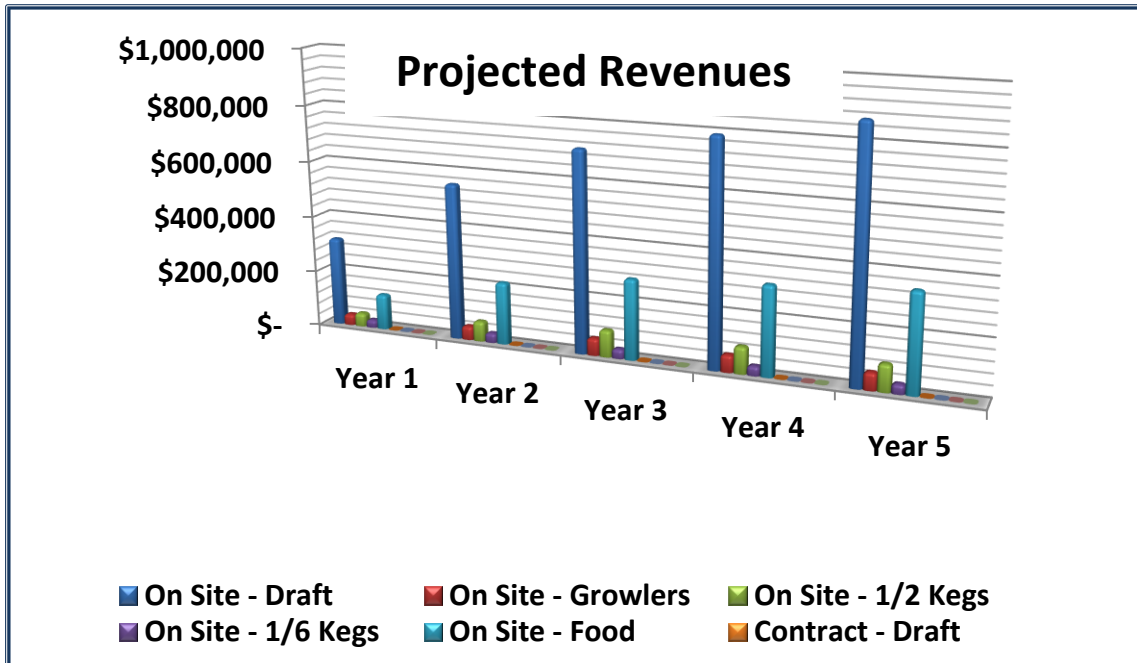
Case C: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



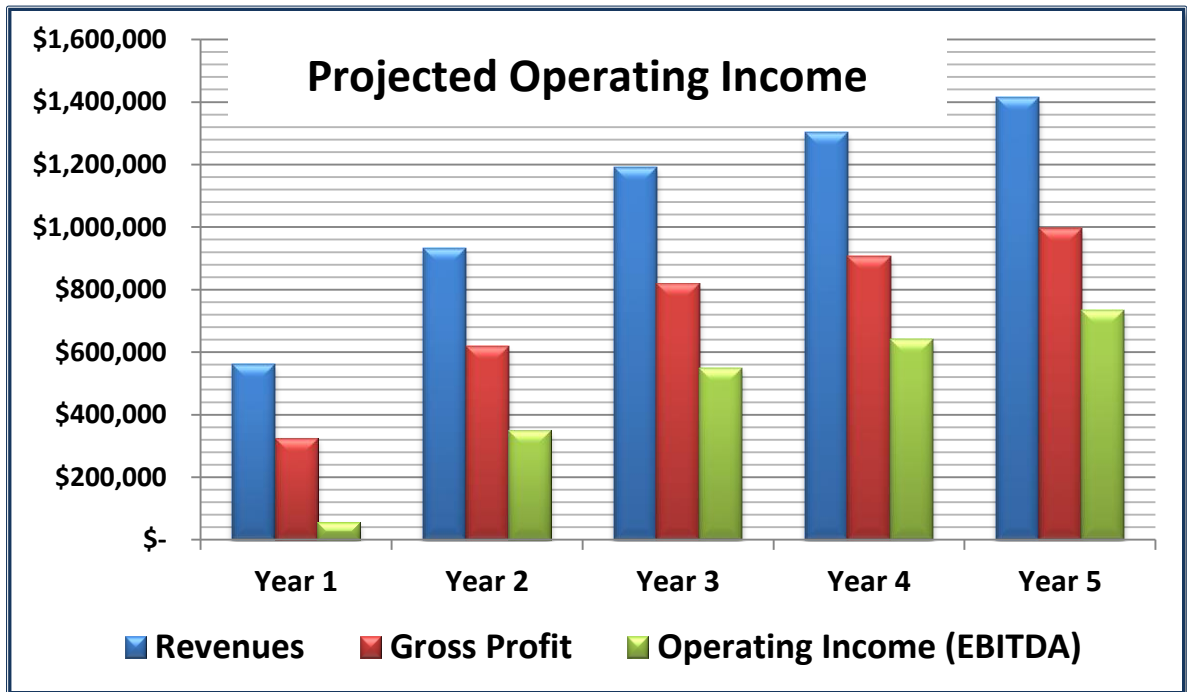
Case D: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



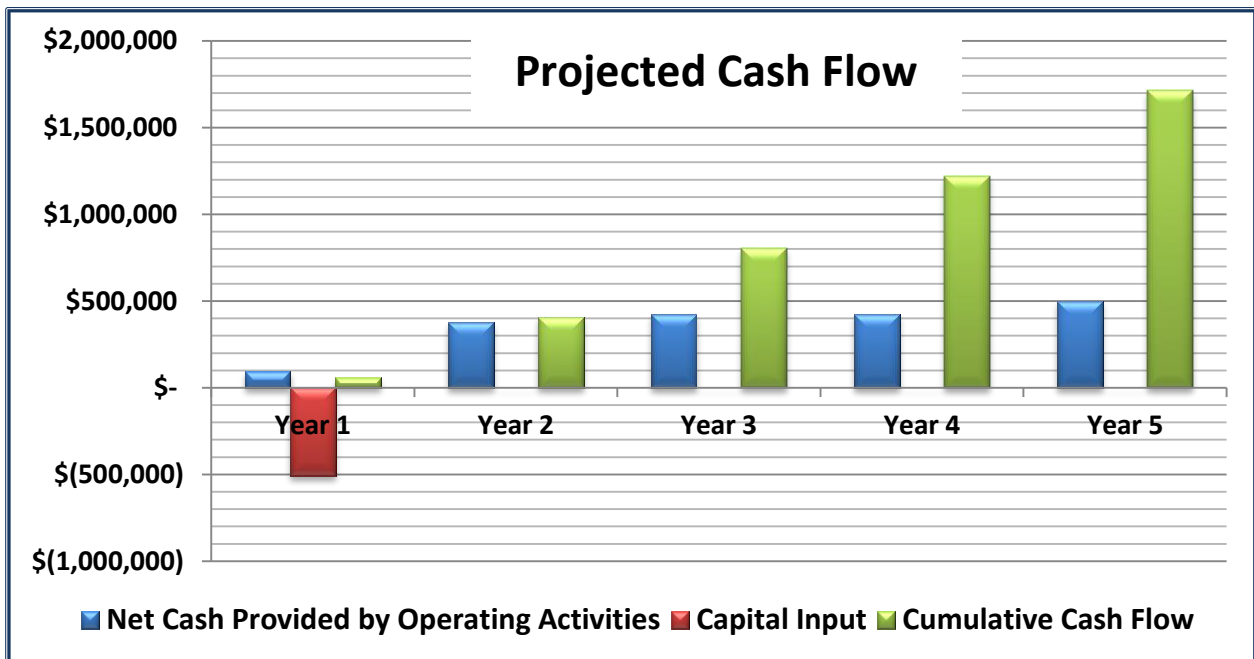
Case D: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



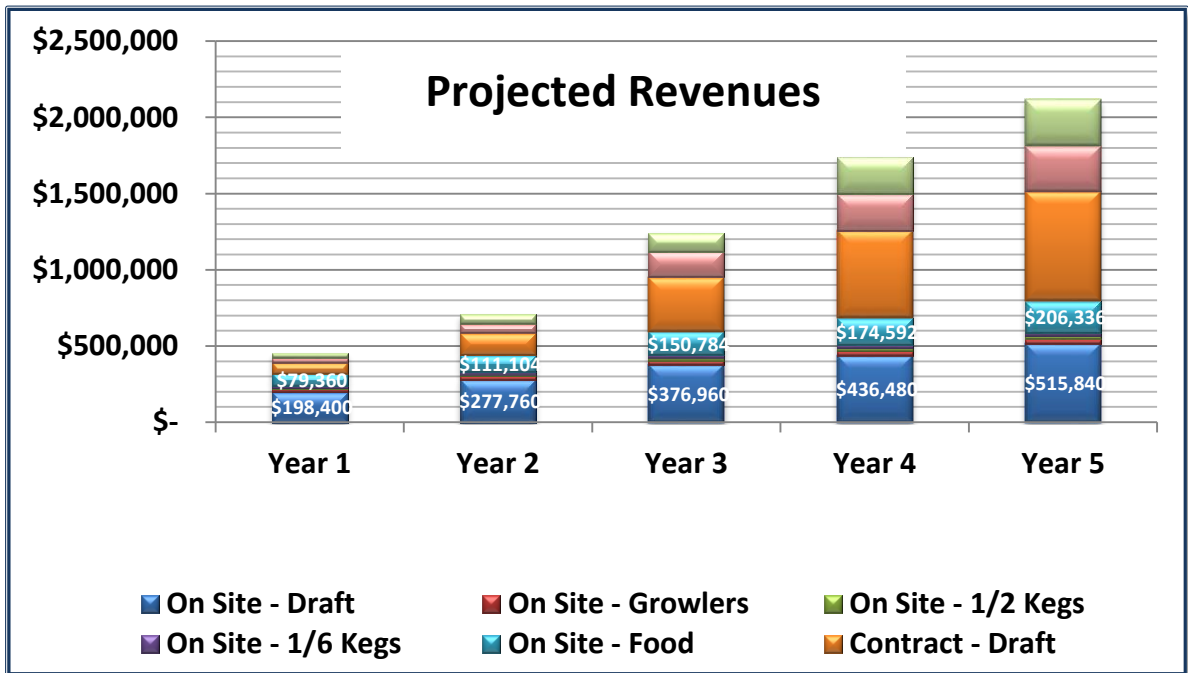
Case D: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



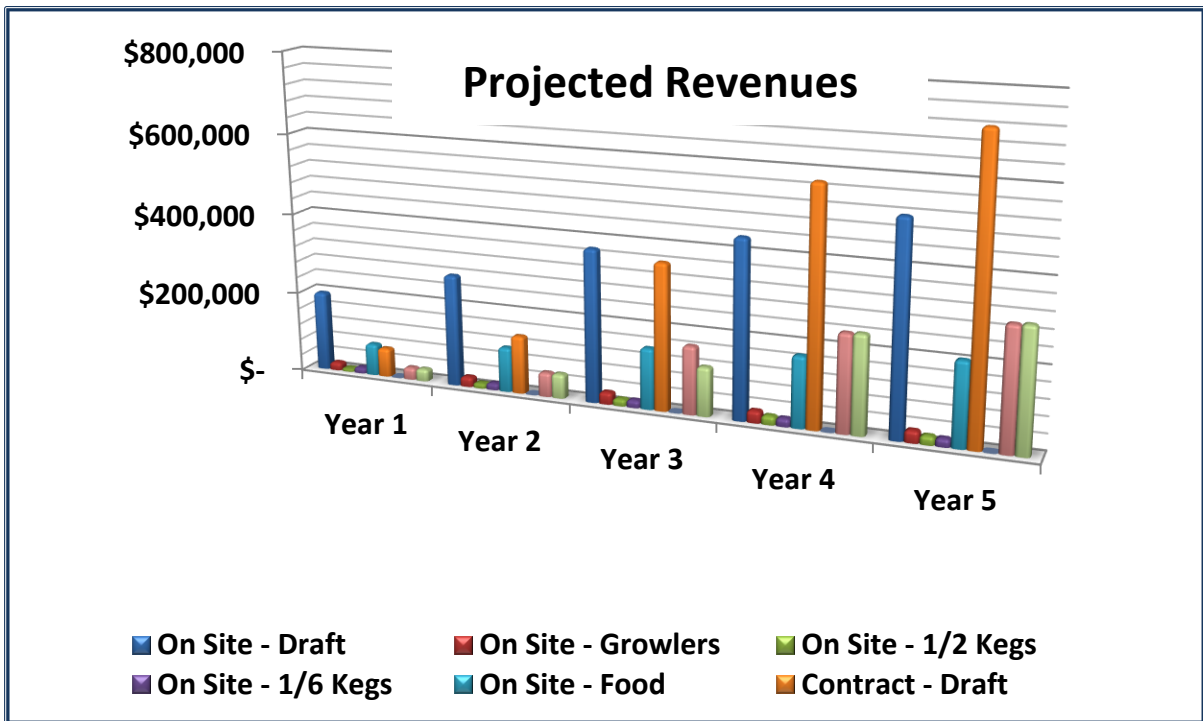
Case D: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
No Contract Brewing



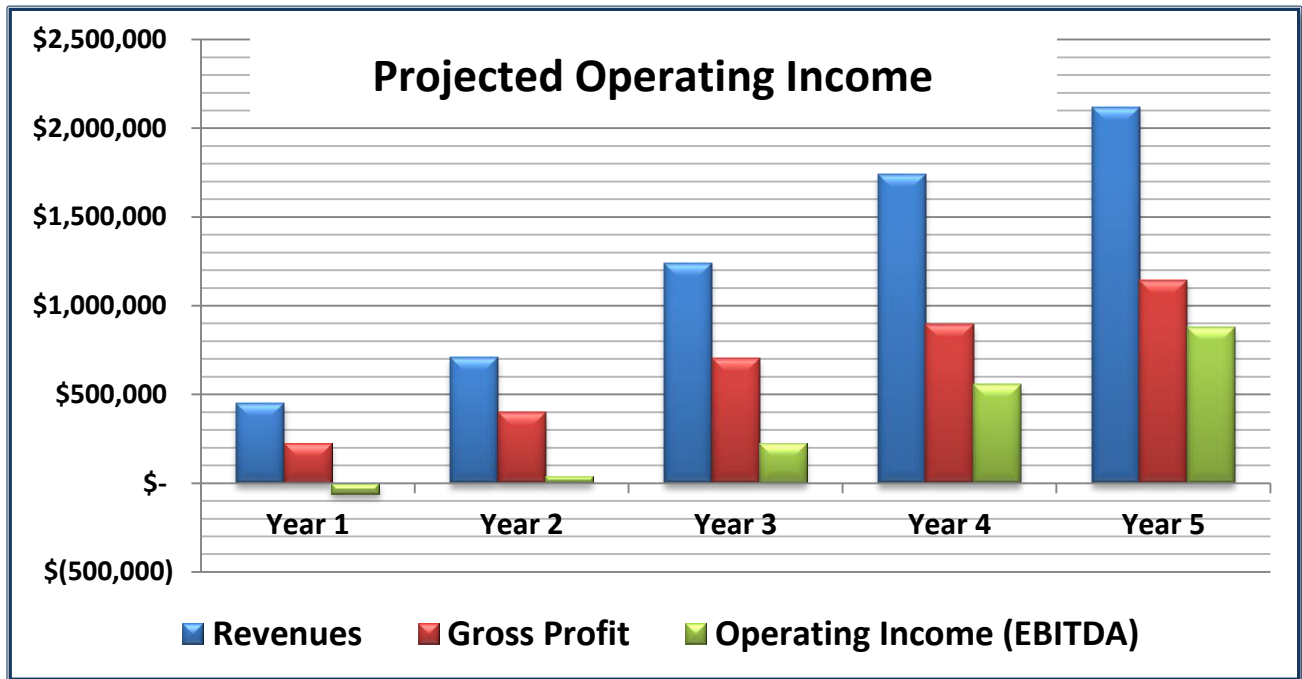
Case E: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 5,000 Barrels by Year 5



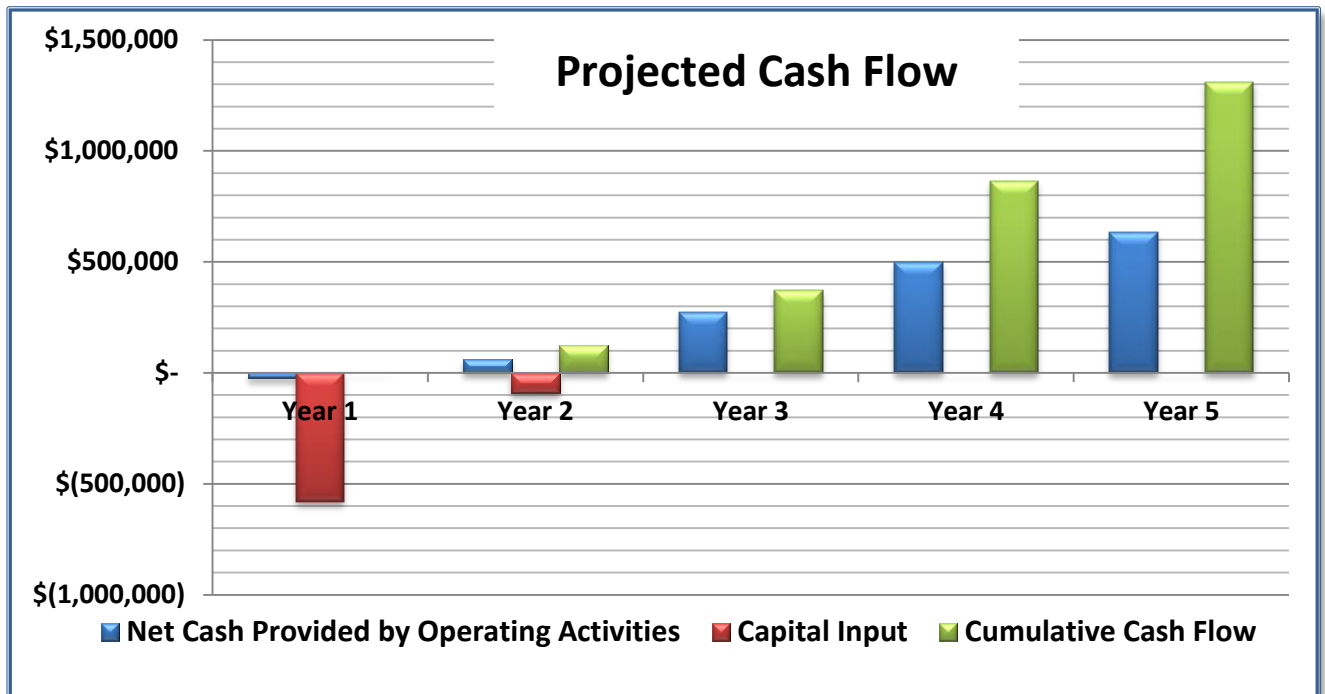
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Contract Brewing Production of 5,000 Barrels by Year 5



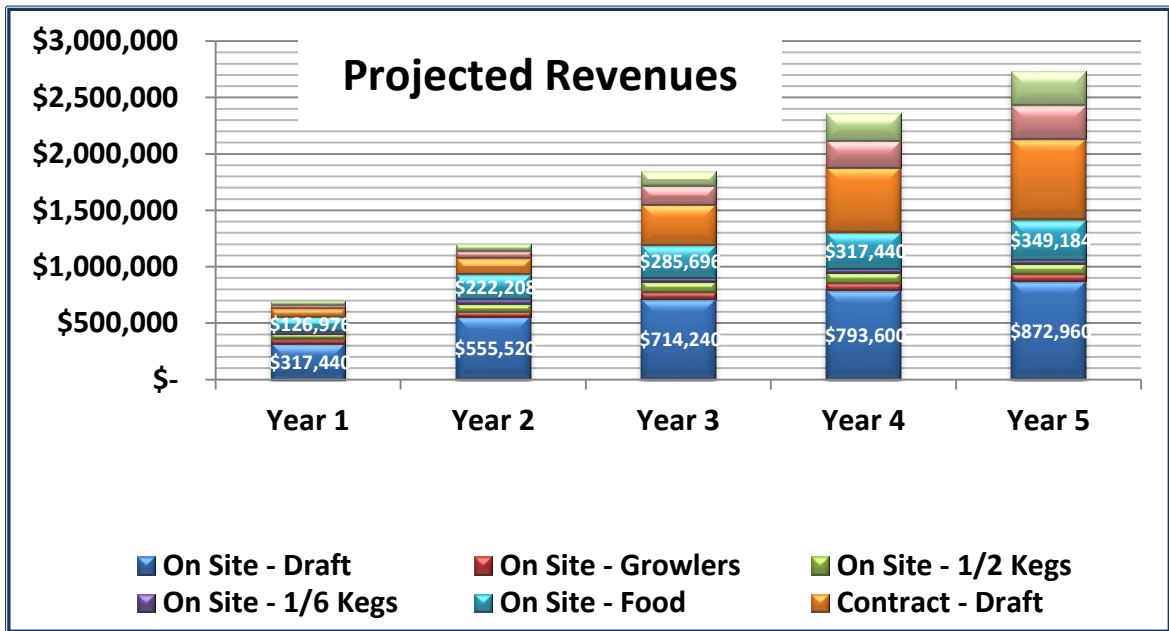
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Contract Brewing Production of 5,000 Barrels by Year 5



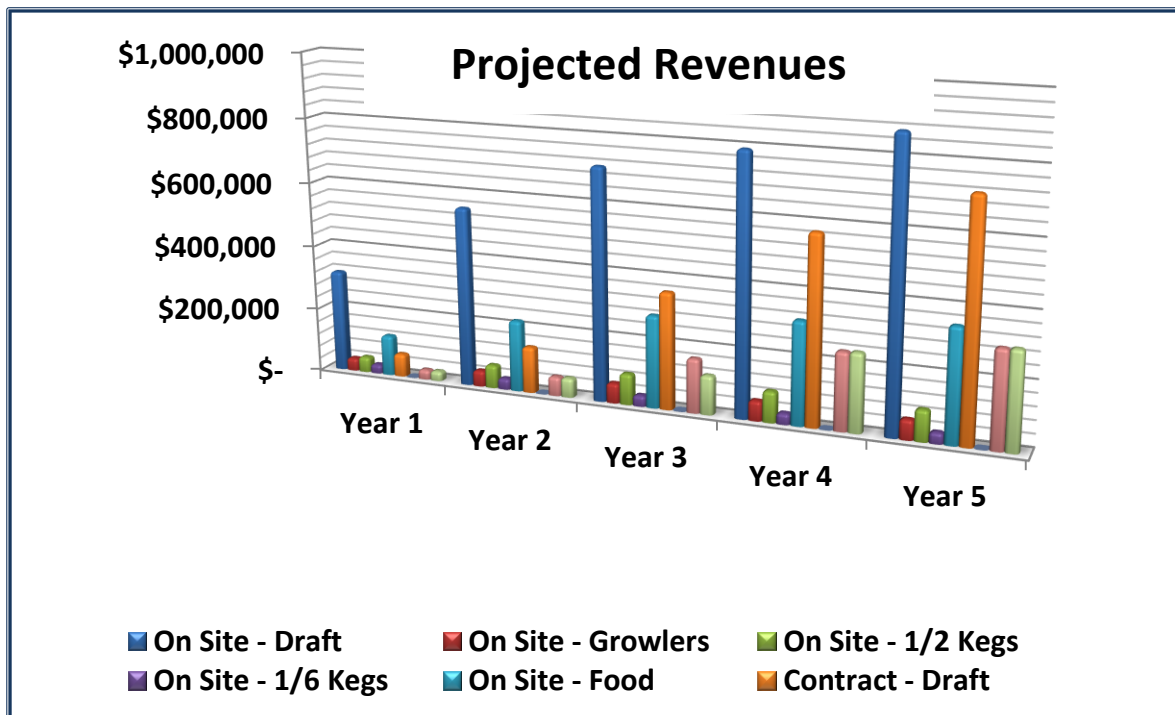
Case E: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 5,000 Barrels by Year 5



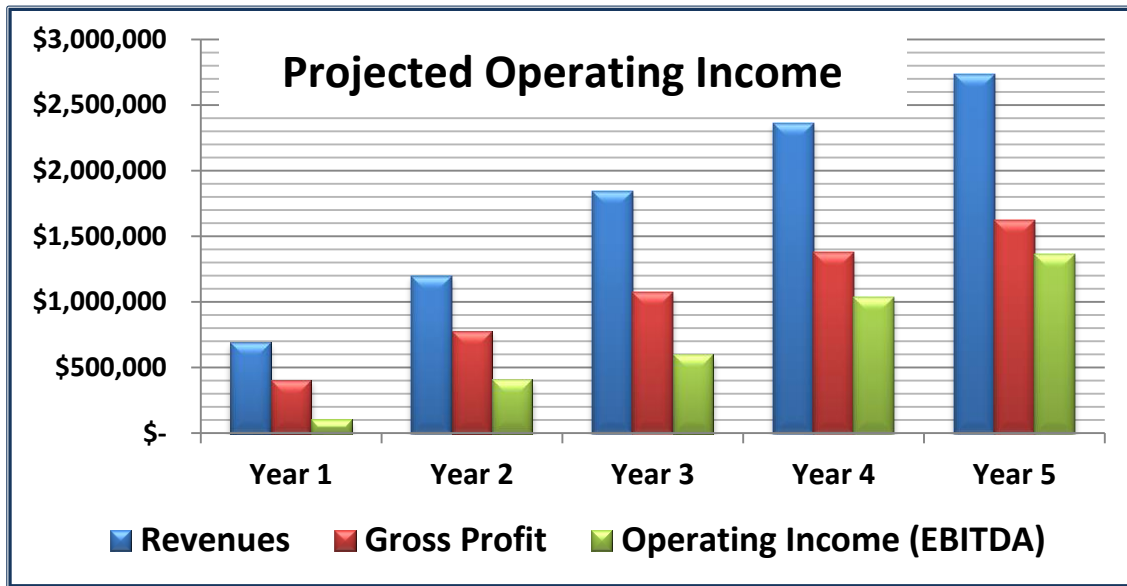
Case F: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 5,000 Barrels by Year 5



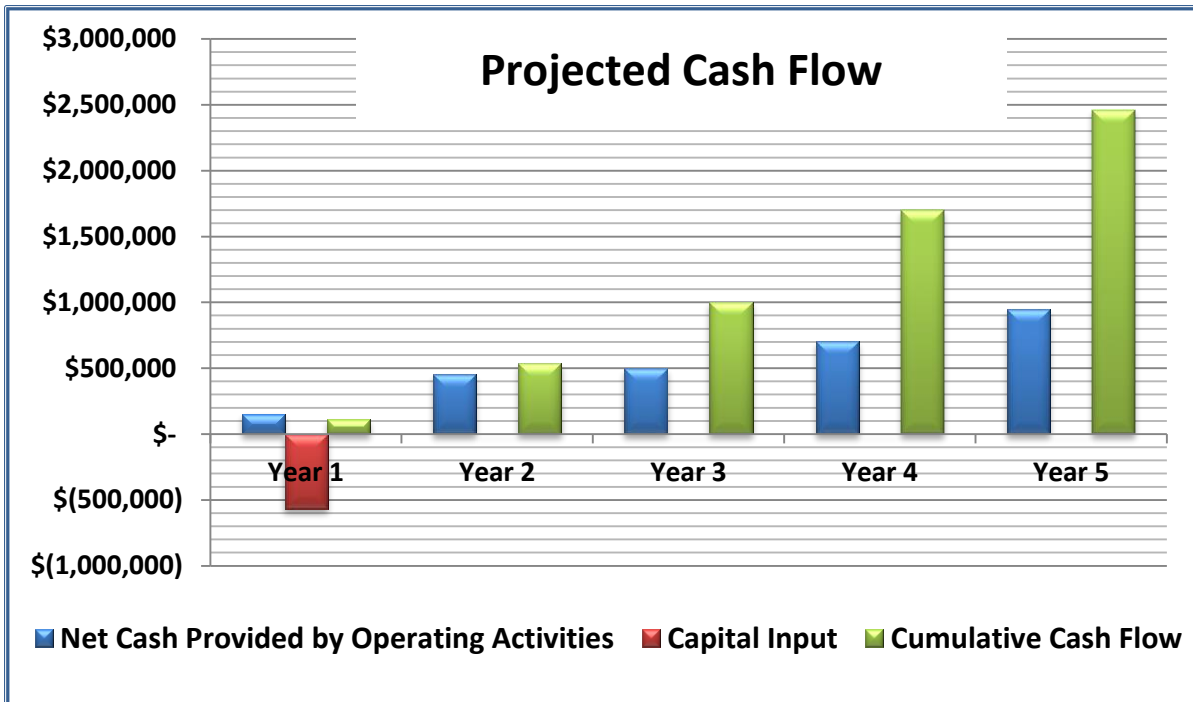
Case F: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 5,000 Barrels by Year 5



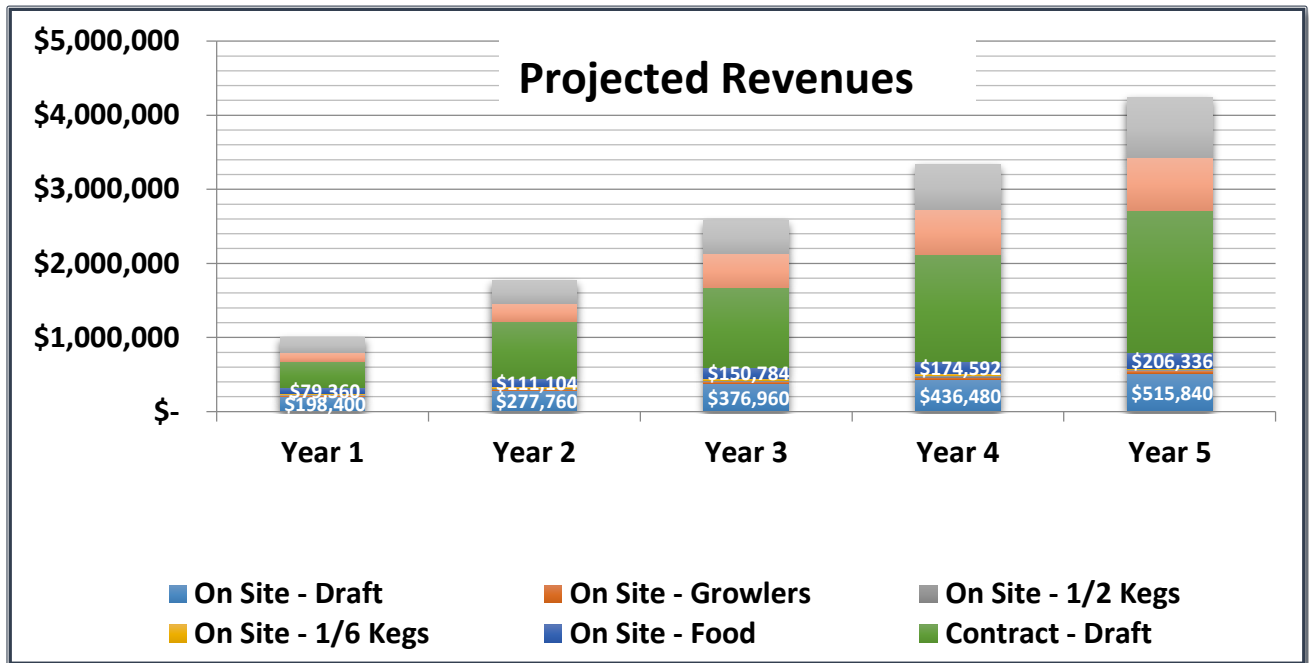
Case F: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 5,000 Barrels by Year 5



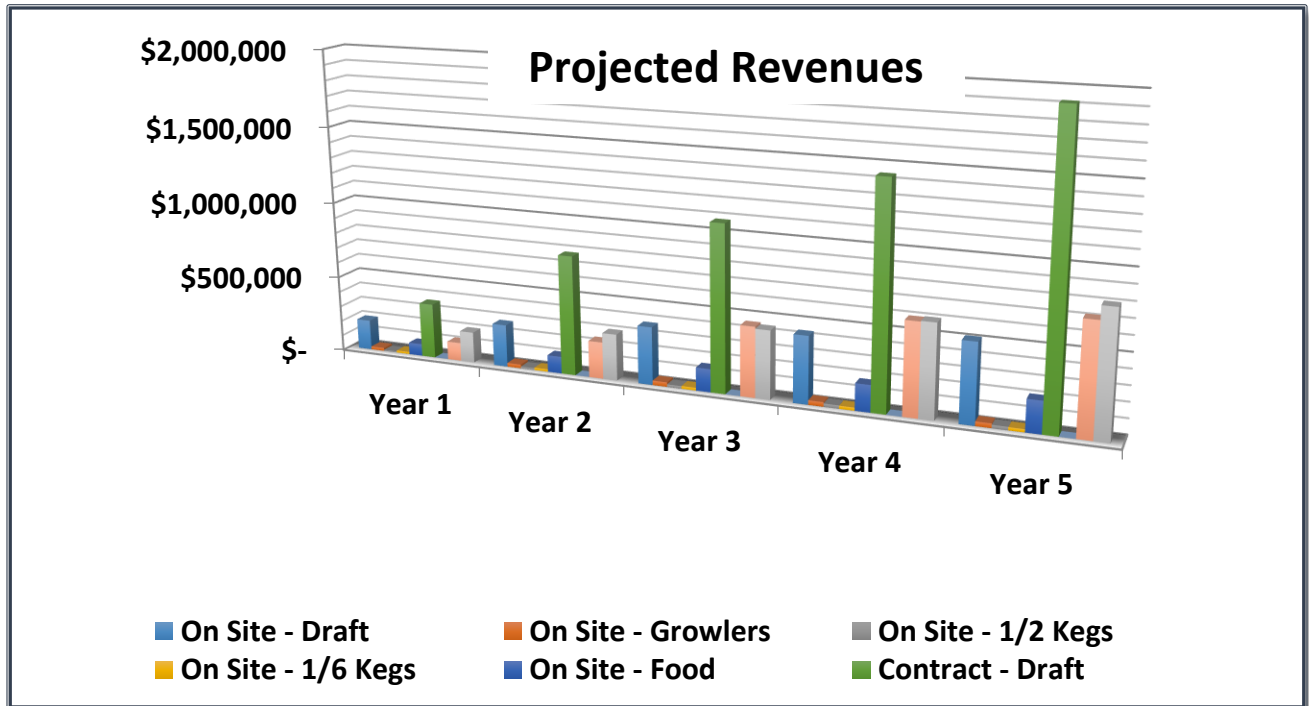
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Contract Brewing Production of 5,000 Barrels by Year 5



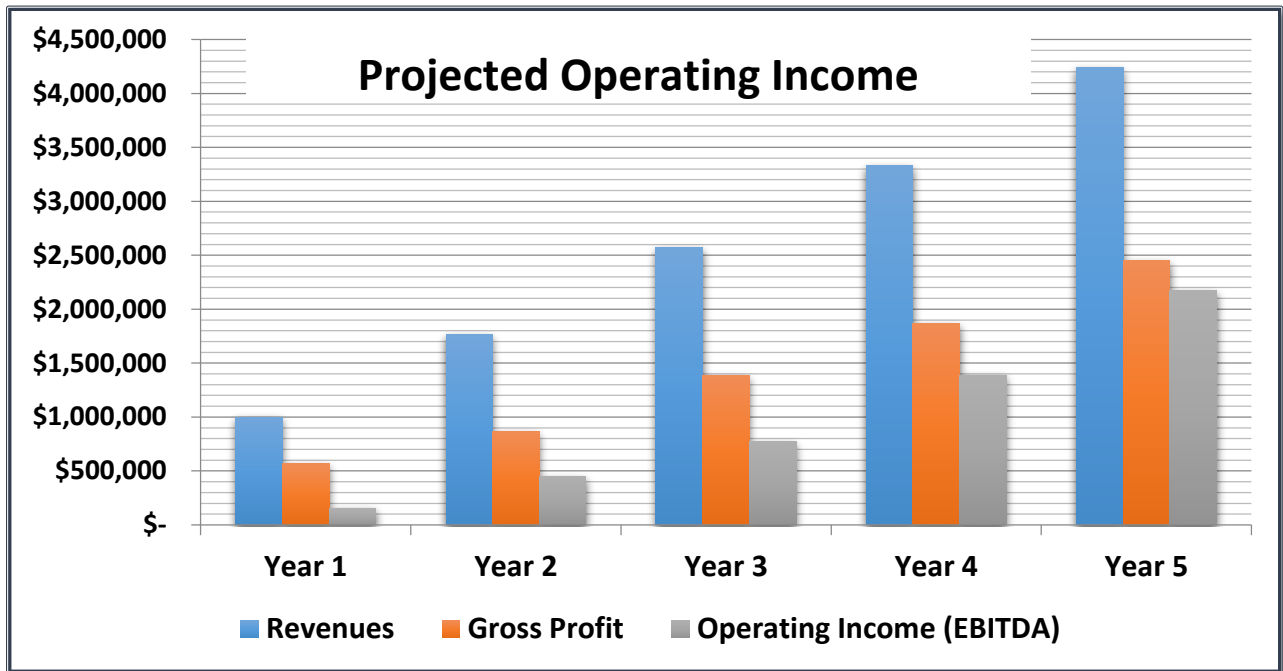
Case G: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 13,000 Barrels by Year 5



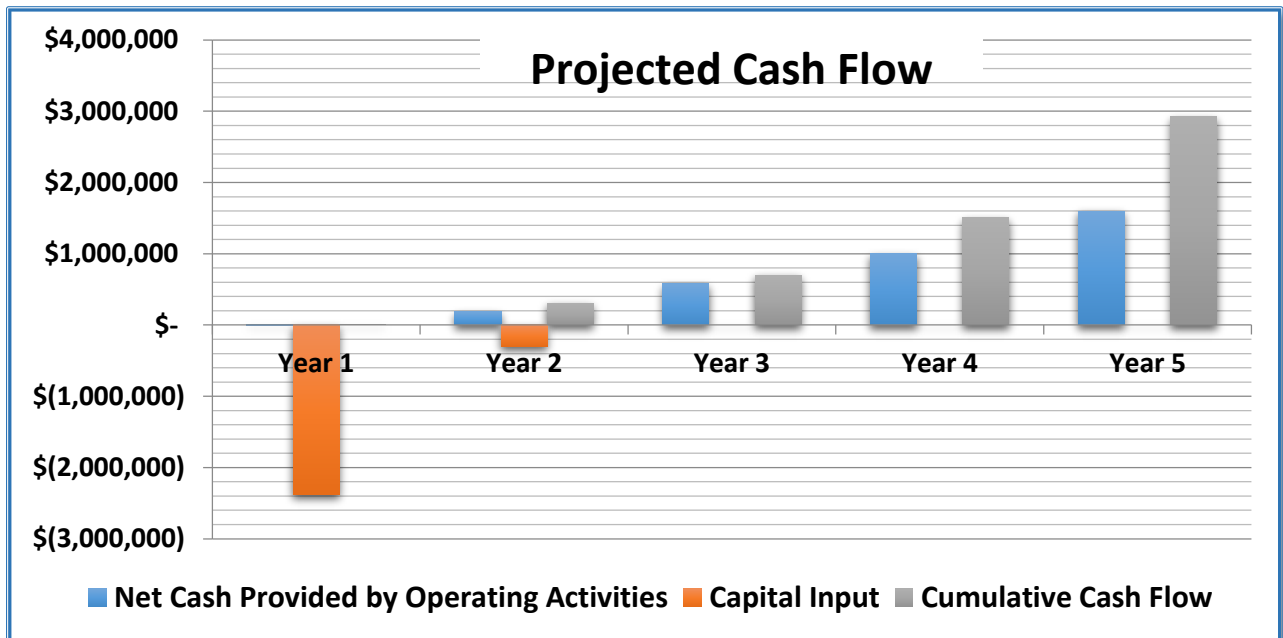
Case G: Production of 850 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 13,000 Barrels by Year 5



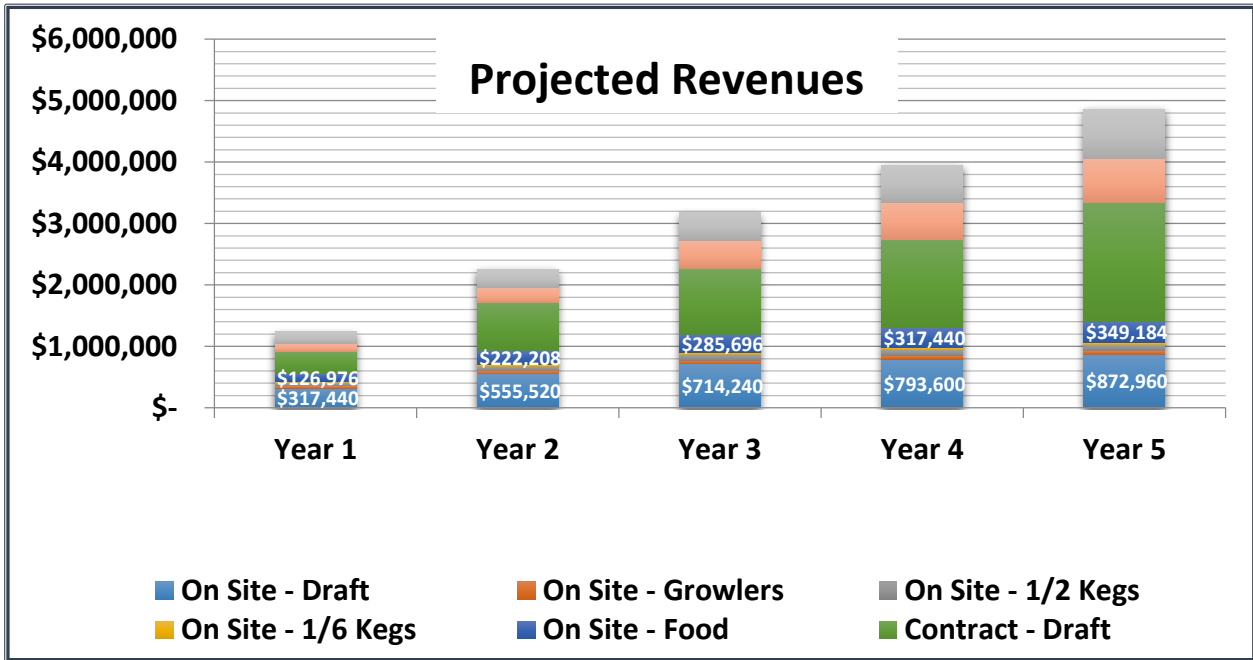
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Contract Brewing Production of 13,000 Barrels by Year 5**



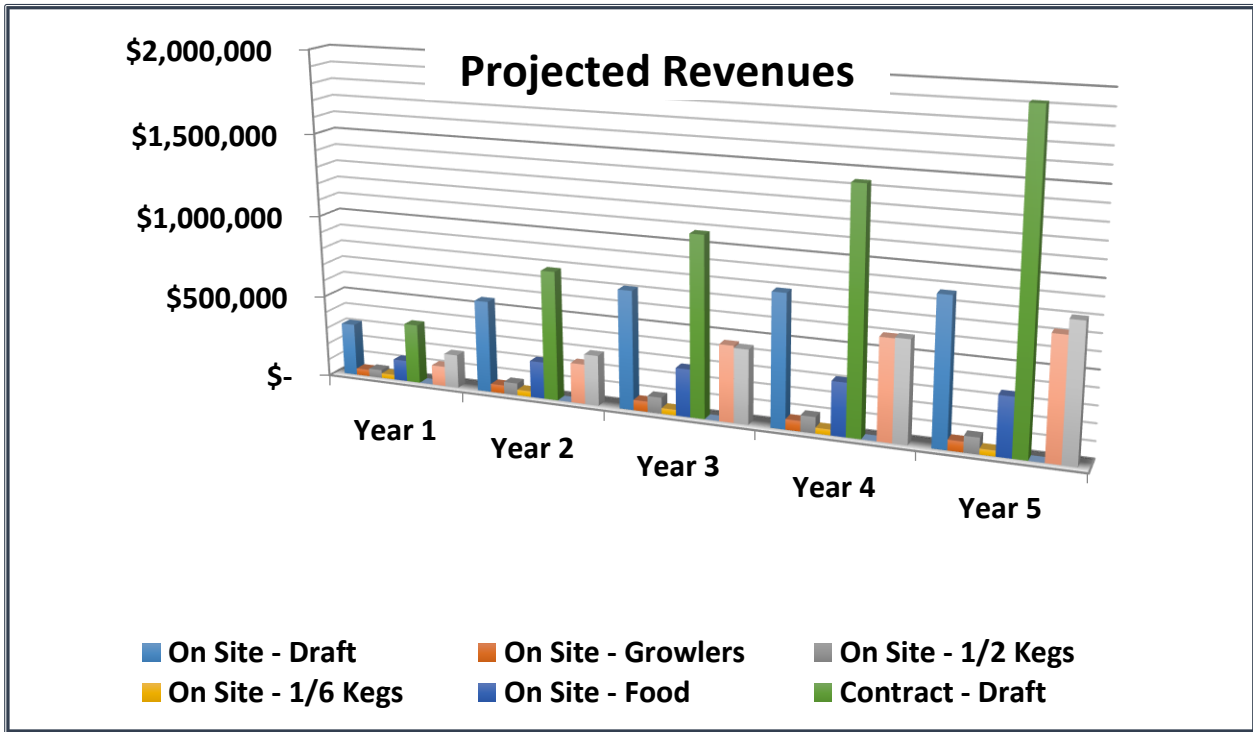
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Contract Brewing Production of 13,000 Barrels by Year 5**



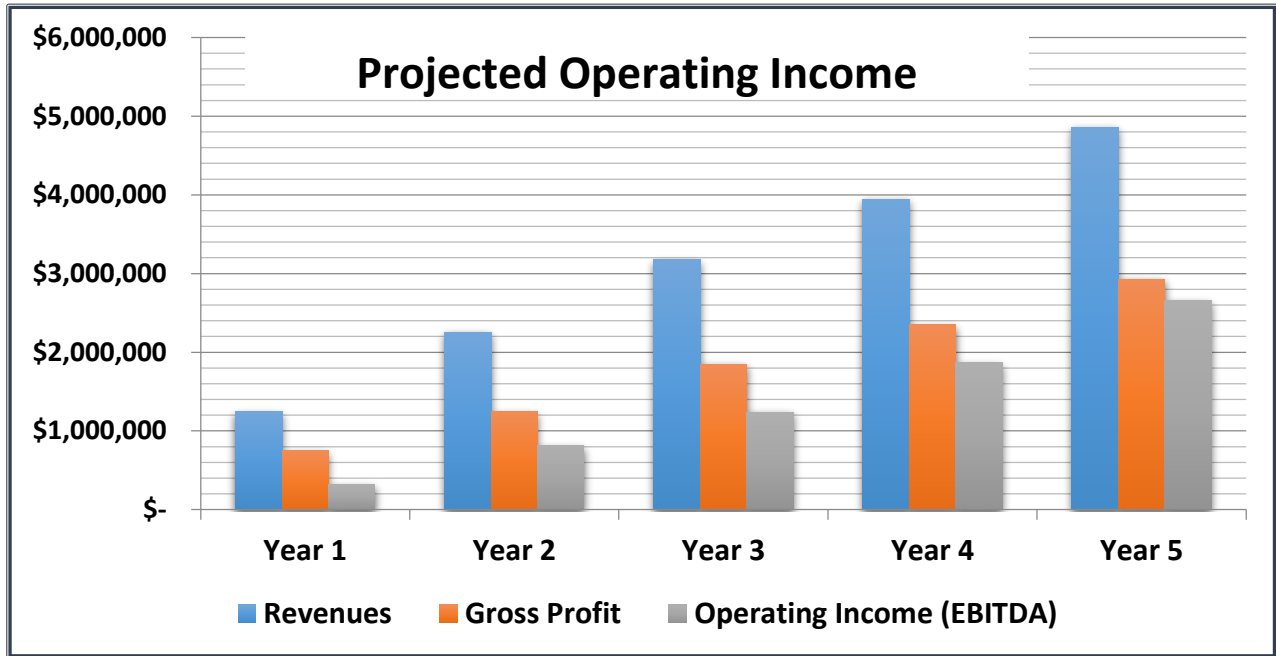
**Case H: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 13,000 Barrels by Year 5**



**Case H: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 13,000 Barrels by Year 5**



**Case H: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 13,000 Barrels by Year 5**



**Case H: Production of 1,710 Barrels by Year 5 for On-Site Consumption & Sales;
Contract Brewing Production of 13,000 Barrels by Year 5**

