

Bitterroot Resort Economic Impact Analysis

Prepared for

Missoula Area Economic
Development Corporation

&

Missoula Area Chamber of
Commerce

November 2007

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Executive Summary

BACKGROUND

The Missoula Area Economic Development Corporation (MAEDC) and the Missoula Area Chamber of Commerce (MACC) asked ECONorthwest (ECO) to prepare an independent analysis of the economic impacts of a proposed four-season destination ski and golf resort near Missoula, Montana: the Bitterroot Resort.

The economic analysis proceeds from the assumption that one of two resort scenarios will be developed in the area: (1) a smaller-scale resort on private land, or (2) a destination Resort that covers the private land as well as entitlements to recreational use on adjacent public land. The destination Resort would have more visitor amenities, including hotel rooms, eating establishments, chairlifts and rental units.

Thus, instead of measuring the difference in local economic impacts between the destination Resort and the status quo, this report estimates the difference between the small-scale resort and the destination Resort. Local economic impacts of the small-scale and destination Resort are measured at two single points in time in the future: 10 and 20 years after operation begins. Local impacts are defined as those economic factors that affect Missoula and Ravalli Counties and are important to local residents, such as job creation, tourism effects, and government revenue and infrastructure impacts.

METHODS

At years 10 and 20, this study breaks the estimated economic impacts into two categories: direct and secondary. Direct impacts are those that happen immediately: for example, how many jobs would be created if a resort were built? Secondary impacts are farther removed in time or location; they are those that might occur throughout the rest of the two-county economy over time: for example, how many jobs would suppliers to the resort add due to increased demand for their goods and services?

Direct effects are those directly generated by the construction project and normal resort operations. They include the jobs and income earned by the workers tasked to construct or run the resort facilities. The direct economic impacts are estimated by completing a market analysis. Local—as well as national—estimates of expenditures by ski-area visitors, and hotel occupancy and rates, are some of the statistics relevant in a market analysis.

ECO also relied upon various planning and financial documents pertaining to the Bitterroot Resort to compute the economic impacts. ECO worked with the Bitterroot Conceptual Master Plan to gain a sense of the scope of the

development. ECO also obtained financial data from the Resort itself, including revenue and visitor projections, and employment and payroll figures.

Secondary effects are those generated by the construction project and resort operations in the long-term. They include the *indirect* impacts on other businesses that, for example, supply goods and services to the Resort or its construction contractors. Secondary effects also include the *induced* impacts on local businesses due to the increase in disposable income for: (1) resort employees; and (2) employees of local businesses that supply goods and services to visitors and the Resort. The secondary economic impacts are measured using an input/output model called IMPLAN (IMpact Analysis for PLANning). IMPLAN is a statistical software package that utilizes inputs estimated for the market analysis to estimate how resort spending will ripple throughout the study-area economy. It uses geographic, economic, and demographic data specifically pertaining to Missoula and Ravalli Counties.

Direct and secondary economic impacts together make up the total economic impacts of the Resort on Missoula and Ravalli Counties. This *net* impact analysis does not consider most spending that would have occurred regardless of the development of a full-scale destination resort.

Note that this report looks at only a subset of the total development impacts: the economic ones. Many of the potential impacts of a resort development are difficult, if not impossible, to quantify. For instance, one cannot measure the gain or loss in local citizens' happiness, or even the precise transportation impacts. The report discusses, in concept, potential impacts to the environment, the local schools, and the local government tax revenue streams, but makes estimates of only the direct and secondary economic impacts of the large-scale Resort development.

FINDINGS

To the extent that economic growth is important in Missoula and Ravalli Counties and to the decision about the Resort, the amount of additional economic activity that the large-scale destination Resort would contribute to the two-county study area is large both relatively and absolutely.

With nearly 1,400 and 2,400 more private residential units than the small-scale resort in year 10 and 20, respectively, the destination Resort would have substantially bigger economic impacts on the study area. The destination Resort would also have more recreation amenities, which would create more non-local and tourist visitor days (roughly 445,000 in year 10 and 712,000 in year 20) in the two-county economy over the small-scale scenario.

ECO estimates that direct spending by Resort visitors would be higher under the destination scenario by \$88.7 and \$145.2 million (in 2007 dollars) in year 10 and 20, respectively. An estimated \$8.2 and \$13.0 million of those expenditures would be spent at businesses other than the Resort within Missoula and Ravalli

Counties. Secondary expenditures, made outside of the Resort, would total \$50.1 and \$82.5 million more under the destination scenario in years 10 and 20.

Both the construction and operation phases of either development scenario would create direct and secondary employment growth in Missoula and Ravalli Counties. In total, the destination Resort would create 3,866 and 4,161 more jobs than the small-scale scenario in years 10 and 20, respectively. However, many construction jobs would be temporary and would vary greatly in duration. Other jobs would be seasonal, lasting only the length of the ski season. Further, many of the jobs created would be located in the retail and service sectors. In general, these types of jobs are lower paying than manufacturing and technology sector employment, which local planning documents identify as important for economic growth in the area.

Nonetheless, as a broad generalization, the economic impacts as measured in this report can be viewed as an approximate measure of the money that construction drops into the local economy to be spent on local goods, services, and wages, which is what people should be concerned about when they talk about the local economic benefits of a project like this one. Overall, the destination Resort would contribute an additional \$244.0 and \$229.5 million in output to the two-county economy over the small-scale scenario in years 10 and 20, respectively.

To put this estimated level of output into perspective, the total year-10 output of the destination Resort is roughly 3.2% of the total 2007 output in the entire two-county economy. This is a significant impact.

The report does not address whether these estimated economic benefits are worth their costs. Those costs include, for example, whatever environmental and natural resource amenity might be sacrificed by converting the higher elevations of Carlton Ridge/Lolo Peak from a natural area to a ski slope, and the transportation system impacts from the additional trips generated at the Resort. The report qualitatively discusses impacts of the development on local government revenues, schools, and development goals and finds the effects relatively neutral: the area population is expected to increase rapidly in the next two decades even without the destination Resort. Demand for retiree and second homes in Missoula and Ravalli Counties, which will surely burden local infrastructure and services, will persist whether the destination Resort is developed or not.

The Resort would not directly achieve the goal of reducing rural sprawl, but it would not necessarily hurt the area's aspirations in these endeavors either. Yes, the resort will be built in what is now a rural area. But it will be a concentrated, quasi-urban development. If the demand for the housing it will provide were met instead by many small, large-lot subdivisions, the "rural sprawl" would be much greater. Under the destination Resort scenario, the housing may be denser than a traditional rural subdivision: current planning pegs the residential housing density at seven dwelling units per acre. Traditional rural subdivisions usually develop at densities near one to two dwelling units per acre.

Acknowledgements

ECO would like to thank the Bitterroot Resort for providing the Bitterroot Conceptual Master Plan as well as employment, payroll and revenue projection data. Further, ECO acknowledges the work of MAEDC in culling relevant data pertaining to Montana tourism and assisting in other research tasks. Lastly, ECO would like to thank the interviewees cited in this report for taking their time to add their expertise to the Resort discourse.

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Introduction

This section introduces the context and key themes presented in this report. It begins to lay the groundwork for the analysis that follows. It has the following parts:

- **Background** explains the purpose of this report and the questions it ultimately addresses.
- **Study-Area** introduces the geographic area that this report is concerned with.
- **Organization of this Report** briefly describes the report sections.

BACKGROUND

This report provides an economic impact analysis (EIA) of a proposed four-season destination ski and golf resort near Missoula, Montana: the Bitterroot Resort. The Missoula Area Economic Development Corporation (MAEDC) and the Missoula Area Chamber of Commerce (MACC) asked ECONorthwest (ECO) to prepare an independent analysis of the economic impacts of the proposed resort. This report is one component of many in the on-going project review process that will ultimately lead to a decision to approve or deny the development. Information provided in this report is meant to help interested parties evaluate the merit of the four-season destination resort: specifically, its impacts on the local economy.

Landowner and developer Tom Maclay has proposed to develop a year-round destination resort located on the flanks of Lolo Peak along Montana's Bitterroot Valley, about 20 miles from Missoula. The proposed resort would consist of residential housing, lodging, commercial development, a convention center, and two golf courses—all of which would be constructed on private land—and a major ski area. The ski area would extend on to public lands on the upper portion of the mountain (from Carlton Ridge up to Lolo Peak) where the best skiing would be accessed, and requires a permit from the Forest Service. Even if the permit for alpine skiing on the public lands is not awarded, development of a smaller resort project solely within the roughly 2,980 acres of private property is very likely. Either way, the resort will have economic impacts on Ravalli and Missoula Counties.

This report assumes that development of a “small-scale” resort on Maclay’s private land is a likely scenario and that it will occur if the “large-scale” development does not. As a landowner, Maclay is not prohibited from developing the land. In fact, some ski runs have already been cut into the low-lying areas of Lolo Peak. The issue at stake is whether entitlement for a large-scale “destination” resort, with access to public land, will be granted by the Forest Service. To estimate the merits of the proposed destination resort, this EIA measures the gap in economic impacts between the small-scale and destination resorts (i.e. what the effects beyond those of the small-scale resort will be). In the

rest of this report we use capitalization on the word “Resort” to mean specifically “the proposed large-scale destination resort on both public and private land on Carlton Ridge/Lolo Peak.” We also use the term, “skier” to mean both skiers and snowboarders.

This report focuses on the local economic impacts of the Resort at two single points in time in the future: 10 and 20 years after operation begins. Local impacts are defined as those economic factors that affect Missoula and Ravalli Counties, such as job creation or business output. It does not consider how the Resort will affect the Montana economy or the national ski industry.

This EIA is not a financial feasibility study; it is, however, meant to aid the local residents, businesses, and government entities in the decisionmaking process. Its purpose is to give approximate but defensible answers to questions about local economic impacts:

- How much job creation will the development spur and how many jobs will it sustain into the future?
- What income creation (in terms of business output and employee wages) and growth will result from the development?
- How will local government revenues and infrastructure be affected by the development?
- Does the development and its impacts conform to specific area economic needs and objectives?

STUDY AREA

Missoula and Ravalli Counties are located on the western edge of Montana. The proposed destination resort, located in an area known as the Bitterroot Valley that straddles these two counties, would be situated roughly 20 miles from the City of Missoula.

Although much of the Bitterroot Valley consists of state and federally-owned undeveloped forest land, the area is expected to urbanize rapidly in the next few decades. Between 2000 and 2020, the populations of Missoula and Ravalli Counties are expected to increase by 28.7% and 53.9%, respectively.¹ Most of this population increase is expected to result from in-migration of retirees to the area. According to the U.S. Census, Ravalli County already has a population over the age of 65 that exceeds the average for the State. Missoula County, on the other hand, has a lower than average percentage of people belonging to the 65 and over cohort.

That kind of population change has implications for the structure of the economy. Other things being equal, disproportionate population growth in the

¹ Processed for the Montana Department of Commerce by NPA Data Services, Inc.

older age cohorts (retirees) suggests disproportionate growth in the retail and service industries.

ORGANIZATION OF THIS REPORT

The remainder of this report is organized as follows:

- **Section 2 Framework for the Analysis** presents a discussion of economic analysis—its methods and assumptions—and paints a broad picture of the local implications for this report.
- **Section 3 Analysis** provides our estimates of how the development of the Resort would ripple out to the rest of the two-county economy. These estimates are broken into direct and secondary effects. The section provides the economic logic behind the estimates, and a qualitative discussion of the broader regional impacts of the Resort development.
- **Section 4 Conclusions** ties together the implications of the results.
- **Appendix A Overview of Input/Output Models** provides a detailed overview of the Input/Output modeling process we used to estimate secondary economic impacts.
- **Appendix B Bibliography** lists the data sources consulted during preparation of this report.

Framework for the Analysis

This section contains a discussion of the issues presented in this report and provides a framework for thinking about them. It broadly examines the theories driving the analysis and describes the data and assumptions employed in this report. It has two parts:

- **Framework** describes the theories behind the analysis, provides an overview of how economic impacts are measured and explains the report perspective.
- **Methods** details the data and assumptions, including a description of the proposed resort facilities, used in the analysis portion of this report.

FRAMEWORK

An economic impact analysis (EIA) in the context of a proposed development usually assesses the degree to which local employment, revenues, and government services will be impacted by a decision to grant the development entitlement. An EIA facilitates public decisionmaking by estimating the magnitude of these impacts at static points in time. This EIA provides a snapshot of Resort impacts at 10 and 20 years after the first year of operation (not construction). While resort impacts are only reported at these points, they actually occur on an on-going basis throughout the lifetime of the development. For instance, a level of output similar to that reported for year 10 will also occur in year 11, and so on.

Examining the resort at years 10 and 20 gives an idea about the magnitude of its economic effects in the near- and long-term. At year 10, much of the major construction, including the ski and golf facilities, will be completed. The Resort will be operating normally. At year 20, much of the Resort's expenditures would consist of maintenance and repair costs. Little construction, except for lodging expansions and real estate development would take place between the two periods. Therefore, job and output creation estimates will not be skewed in this study by abnormal years with high construction outlays.

At years 10 and 20, this study breaks the estimated economic impacts into two categories: direct and secondary. Direct impacts are those that happen immediately: how many jobs would be created if a resort were built? Secondary impacts are farther removed in time or location; they are those that might occur throughout the rest of the two-county economy over time: how many jobs would suppliers to the resort add due to increased demand for their goods and services?

The direct economic impacts are estimated by completing a market analysis. A typical market analysis is done for a developer who is usually considering breaking ground in a year or two. Local—as well as national—estimates of expenditures by ski-area visitors, and hotel and rental home occupancy and rental rates, are some of the statistics relevant in a market analysis. It uses tourism and consumer spending figures in the study-area and nationally, and makes

appropriate assumptions about their relevance to a proposed development. The intent of a market analysis in the context of a study of the type in this report is not to get bogged down in short-term economic fluctuations, but rather to focus on long-run fundamentals: historical ski resort rates and growth, expected regional growth, location, supporting and competitive developments, and likely public investments and policy.

The secondary economic impacts are measured using an input/output model called IMPLAN (Impact Analysis for PLANning). IMPLAN is a statistical software package that utilizes inputs estimated for the market analysis to estimate how resort spending will ripple throughout the study-area economy. It considers the Resort and the structure of the local economy (available resources, employers, etc.) in making its projections. See Appendix A for more information regarding the IMPLAN process.

NET VERSUS GROSS IMPACTS

Total economic impacts (the sum of the direct and secondary impacts) can be reported as either *net* or *gross* impacts. Gross impacts measure the total change in the entire area economy due to a particular development or policy decision. Net impact analyses make a distinction between new money entering the study-area and money that would have been spent anyway. For example, revenue that would have been spent on Missoula-area entertainment, but is instead redirected to the Bitterroot Resort, would not be counted as a net impact to the economy of the two-county study-area: different businesses and people might be getting the economic benefits, but at the level of specificity that data allow the analysis would show no net impacts at the two-county level.

The economic logic of this approach is simple: the net impacts are the changes to the local economy that, but for the Resort development, would not have occurred. For the most part, people have fixed recreation budgets and vacation time. Residents of the study-area must choose how to use their budgets. On the one hand, they may decide to substitute their spending away from other Missoula-area entertainment (i.e., bowling or the theater) and towards the Resort. This will cause no economic net benefit to the area. On the other hand, they may decide to stay close to home and visit the Resort instead of driving out of the two-county study-area to Big Mountain or Big Sky to ski. This “import substitution” would result in net economic benefits to the study-area.

Similar logic can be applied to non-local visitors (tourists) to the resort. For the most part, these people would not visit the study-area if not for the Resort. Some may visit regardless of the Resort: in 2006, tourists spent \$20.5 million on recreation activities in the study-area.² Some may visit the area regardless and spend money at the Resort and on other recreational activities. In each case, the net economic impact to the study-area varies.

² University of Montana, Institute for Tourism and Recreation Research. Non-resident visitor expenditure report. Recreation activities include camping, guided fishing/hunting excursions, and gambling.

The primary focus of this EIA is to analyze the *net* economic impact of the proposed Bitterroot Resort on Ravalli and Missoula Counties. This net impact analysis will disregard most spending that would have occurred regardless of the development of a full-scale destination resort.

PERSPECTIVE

This EIA takes on the perspective of the study-area residents, not the resort landowner and developer. ECO understands that there are benefits and costs associated with a ski resort development. Among the many citizens of the two counties, the perceptions of the costs and benefits surely differ. Furthermore, these perceptions will often differ from those of the resort developer. The purpose of this EIA is to measure and qualitatively discuss the economic impacts that are important to local residents—job creation, tourism effects, and government revenue and infrastructure impacts.

Even if ECO could measure accurately every type of impact on all parties over the life of the development (we cannot), we would still not be able to make an unequivocal statement about whether the Resort should be entitled and built. That kind of public-policy decision gets made by elected and appointed officials. Moreover, we cannot measure every impact, and we are looking at only a subset of the total impacts: the economic ones. Many of the potential impacts of a resort development are difficult—if not impossible—to quantify. For instance, we cannot measure the gain or loss in local citizens' happiness, or even the precise transportation impacts. While we can logically discuss potential impacts to the environment, the local schools, and the local government tax revenue streams, we are only estimating the direct and secondary economic impacts of the large-scale Resort development in the context of extra jobs and revenue generated for the Missoula area.

Therefore, this report is only a piece of the decisionmaking process that the Forest Service, local governments and citizens should pay attention to when evaluating the merits of a large-scale destination resort.

METHODS

This part explains the methods employed in the Analysis section of this report. It focuses on data and assumptions.

DATA

ECO relied upon various planning and financial documents pertaining to the Bitterroot Resort to compute the economic impacts. ECO worked with the Bitterroot Conceptual Master Plan to gain a sense of the scope of the development. ECO also obtained financial data from the Resort itself, broken down by function: ski and golf operations, retail services, real estate and accommodations. Additionally, employment and payroll data were made

available. See Appendix B for a list of all data sources consulted during preparation of this report.

ECO made sure to verify the reasonableness of these figures using data from the National Ski Area Association, Vail Resorts, Inc. (comprising five ski resorts in North America), and Montana ski areas, including Big Sky and Big Mountain. Where necessary, ECO filled in missing data from the Resort by analyzing these sources. For instance, ECO computed non-skier visitors to Bitterroot using historical visitation data from other resorts.

Further, the IMPLAN analysis uses geographic, economic and demographic data for Missoula and Ravalli Counties. The economic data includes information pertaining to the counties' industry mix and size, household incomes and investment decisions.

The breadth of these data inputs is necessary to estimate the particular economic impacts of the Resort on the two-county study area.

GENERAL ASSUMPTIONS

The analysis in this report hinges on the assumption that the small-scale resort will be built on private land no matter what. The impacts of that development, not of a no-build situation, are our base case. Instead of measuring the difference in economic impacts between the destination Resort and the status quo, this report estimates the benefit and cost "increment" between a small resort and a larger-scale destination Resort.

Since this analysis calculates the economic impact increment between the small-scale and destination resorts, ECO started by compiling descriptions of the two resort facilities. Although the exact dimensions of the resorts could change in the future, it is unlikely that there will be a substantial modification to the destination Resort; the developer has spent a considerable amount of time developing a destination resort master plan.

ECO used the descriptions, summarized below, as inputs for the IMPLAN model.

SMALL-SCALE RESORT

Although there has been no formal master plan written for the small-scale resort, the developer and planner of Bitterroot Resort does have a basic sense of what it would look like if constructed.

This resort would be private or semi-private and modeled after the Yellowstone Club near Bozeman, and the Stock Farm in Hamilton. It would be a four-season resort with snowcat skiing, up to five chair lifts, two golf courses, equestrian facilities and hiking and fishing opportunities located entirely on private land. The private land, known as the Maclay Ranch, includes roughly 2,000 acres of developable land.

There would be roughly 500 home sites, with lots varying greatly in size: some housing would comprise of high density clustered condominiums and mixed residential and retail uses, other sites would range from one-eighth and one-quarter acre up to 17 acres each. There would be no public accommodations (e.g., hotels or convention space). It is possible a small “boutique” hotel would exist for guests. This resort would have a “village” area—a place with retail uses where visitors can congregate—that would be smaller than that of the destination resort. The village would range in size from 200,000 to 250,000 square feet of gross floor area (GFA), with nearly 40,000 square feet of retail and commercial services. The development would also include a clubhouse facility.

Since all of the available ski terrain will be located at low elevations, the ski season at this resort will be shorter than at the destination resort.

LARGE-SCALE, DESTINATION RESORT

Substantial planning has been completed for a destination resort on scale with Park City in Utah. This will be a four-season public resort with lift-accessible ski terrain reaching Carlton Ridge and Lolo Peak on land now controlled by the Forest Service.

At build-out, this resort would offer hotel and private condos and home rentals, whole ownership units, two golf courses, a clubhouse, a conference facility, a fitness center, an equestrian center, retail and commercial services, restaurants and bars and a grocery store, in addition to the ski facilities. The hotel, retail uses, conference center and food establishments would be concentrated within the village area. Once completed, this village area is expected to contain 1.5 million square feet GFA, with roughly 200,000 square feet for commercial services. Plans call for a conference center that is 90,000 square feet; the rest of the village is made up of residential (hotel or condo) uses.

The village, golf courses, and whole-ownership residential unit development will remain on private land. The total GFA of the destination resort would be between 4 and 5 million square feet. Of the roughly 2,950 dwelling units included in the first 20 years of development, roughly 1,903 (65%) will be set aside for primary or secondary homes. The remaining would be designated as transient accommodations. However, many of the secondary homes will be placed on the rental market and will accommodate many transient visitors.

The Bitterroot Conceptual Master Plan outlines the construction of nine ski lifts, in addition to a couple of beginner tow lifts, in the first phase of the ski facility development. It is possible that these facilities would be expanded in the future, depending upon demand and land access rights.

DIFFERENCES IN ON-SITE IMPACTS

Table 1 summarizes the impacts of the two resort scenarios, and shows their differences. The greatest difference between the small-scale and destination Resort is the lodging facilities. The small-scale resort will not have any public units available (including rentals) whereas the destination Resort will have 1,339

public units by year 20. The destination Resort will also have more whole-ownership units. Access to the Forest Service land as well as the non-exclusivity of the destination Resort will factor into the market for these homes.

Development of the destination Resort is broken into two phases. Phase I covers roughly the first 10 years of operation.³ During this phase, seven of the nine planned chair lifts would be built, in addition to the golf courses, clubhouse, spa, and conference facility. Roughly 230,000 of the 1.5 million village gross floor area would be complete, along with the housing units listed in Table 1. If the small-scale scenario is pursued, it is likely that the village area and housing units in Table 1 would be completed in Phase I.

Table 1. Proposed Resort characteristics for both scenarios, years 10 and 20

| Resort Characteristic | Year 10 | | | Year 20 | | |
|-----------------------------|--------------------|--------------|-----------|--------------------|--------------|-----------|
| | Destination Resort | Small Resort | Increment | Destination Resort | Small Resort | Increment |
| Lodging Facilities | | | | | | |
| Hotel Rooms | 90 | 0 | 90 | 300 | 0 | 300 |
| Private Rental Units | 555 | 0 | 555 | 989 | 0 | 989 |
| Primary and Secondary Homes | 1,050 | 250 | 800 | 1,903 | 500 | 1,403 |
| Time-shares | 50 | 20 | 30 | 50 | 40 | 10 |
| Resort Amenities | | | | | | |
| Chair Lifts | 7 | 3 | 4 | 9 | 5 | 4 |
| Golf Courses | 2 | 2 | 0 | 2 | 2 | 0 |
| Spa and Fitness Center | 1 | 0 | 1 | 1 | 0 | 1 |
| Clubhouse | 1 | 1 | 0 | 1 | 1 | 0 |
| Conference Center | 1 | 0 | 1 | 1 | 0 | 1 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

³ From the Resort's website. See <http://www.skibitterrootresort.com/qanda/>.

Analysis of Impacts

This section discusses the broad market effects of the destination resort development (direct effects) and the secondary effects that those direct effects produce (as estimated by the IMPLAN model). The analysis is broken down by direct and secondary economic impacts.⁴ Direct and secondary resort impacts found in this report are based on our input-output analysis.⁵

- **Direct** effects are those directly generated by the construction project and normal resort operations. They include the jobs and income earned by the workers tasked to construct or run the resort facilities. They also include economic output generated by or associated with visitor spending at the Resort and elsewhere in the community. Construction direct impacts are primarily one-time and occur heavily in the first phase of the project. Impacts due to normal resort operations are continuous and last as long as the Resort remains in operation.
- **Secondary** effects are those generated by the construction project and resort operations in the long-term. They include the *indirect* impacts on other businesses who, for example, supply goods and services to the Resort or its construction contractors. Secondary effects also include the *induced* impacts on local businesses due to the increase in disposable income for: (1) resort employees; and (2) employees of local businesses that supply goods and services to visitors and the Resort. These impacts occur continuously after the initial construction phase and are influenced by resort operations and routine capital expenditures.

The figures reported in this part of the report represent the direct and secondary economic impacts associated with the construction and operation of a small-scale and destination Resort. The impacts are evaluated using five different economic measures:

- **Output.** It is representative of the value of production (or sales) attributed to the Resort or businesses in the two-county economy. Output is the most aggregate measure of economic activity. For some industry sectors, such as retail and wholesale, it represents only the margin of sales; in other words, it roughly equals the difference between the price charged for items and their cost.⁶ As a broad generalization, one can think of *output* as measured in this report as an approximate measure of the money that

⁴ We use the terms *direct* and *secondary* to simplify the standard terminology of input-output analysis: direct, indirect, and induced. We combined IMPLAN's indirect and induced impacts under the heading of secondary impacts. Secondary impacts include IMPLAN's indirect, and induced impacts, as well as other categories of impacts that we evaluate qualitatively in this report.

⁵ ECO used IMPLAN (Impact Analysis for PLANning) software to conduct the input/output analysis for the construction and operations spending associated with the two resort scenarios. IMPLAN was developed by the Forest Service of the US Department of Agriculture in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management of the US Department of the Interior to assist federal agencies in their land and resource management planning. U.S. government agencies, other public agencies, and private firms including ECO have applied the model to a wide variety of public and private sector projects.

⁶ Output equals the sum of the value of intermediate goods and services, wages, business income, other income, and indirect business taxes.

construction drops into the local economy to be spent on local goods, services, and wages, which is what people should be concerned about when they talk about the local economic benefits of a project like this one.

- **Wages.** The sum of workers' wages and salaries as well as benefits, including health and life insurance, gratuities, bonuses and retirement payments.
- **Business income.** Income received by local businesses and the self-employed; it is also called proprietor's income. Depending upon local economic conditions, between five and 15 percent of the earnings by individuals comes from self-employment.
- **Other income.** These are payments to individuals in the form of rents received on properties, royalties from contracts, dividends paid by corporations, and profits earned by corporations.
- **Jobs.** Number of jobs, including proprietors, partners, part-time workers, the self-employed, and full-time paid employees.

For this analysis, the relevant study consists of Missoula and Ravalli Counties. In addition, all dollars are in 2007 dollars (2007\$).

DIRECT NET ECONOMIC IMPACTS (MARKET ANALYSIS)

Section 2 of this report describes the kinds of buildings, offerings, visitation, and prices that the resort developer expects to have. Since these are precisely the things that drive other direct and secondary impacts, it is important to start the overall evaluation with an assessment of the reasonableness of the developer's projections. This kind of evaluation falls broadly into the category of "market analysis."

ECO was not hired to do a market analysis for this project. Presumably the project developer has done his own market analysis. Thus, we limited our work to assessing the reasonableness of the developer's projections. We do not have a separate market analysis section, but instead incorporate our own analysis and assumptions into the sections on economic impacts during construction and operation of the Resort.

CONSTRUCTION

Based on the developer's construction schedule, approximately 31.5% of total construction spending will occur in the first five years. The anticipated total investment during this phase is roughly \$422.0 million (2007\$), including whole and fractional residential real estate⁷, entitlement and design fees, and off-site infrastructure costs. The total cost of construction and maintenance for these

⁷ Whole ownership units are owned by one individual and may be a primary, second, or third home. Fractional ownership units are those owned by multiple parties, such as a time-share.

amenities over the first 20 years of operation is \$1.756 billion (2007\$). Investment for the small-scale resort scenario would be roughly one-fifth of that amount (\$261.6 million in 2007\$) during the same period.⁸

The construction and outfitting of the Resort will involve large capital outlays, but the economic impacts associated with this spending are a one-time stimulus to the study-area economy. As such, many of the jobs and much of the increased income generated during this phase of the development will end with the construction.

Table 2 displays the net direct output (per the definition above), wage, and job impacts due to construction at years 10 and 20. During these years, much of the construction costs would consist of new detached and multi-family residential structures, and maintenance and repair costs. ECO estimates that year-10 output will be nearly \$101 million for the destination resort, which will generate approximately 1,383 jobs in that year. Output by year 20 will decrease roughly two-thirds due to less new construction. Maintenance costs, however, are expected to increase in year 20.

Net direct construction output measures the value of the buildings and infrastructure built, and maintenance performed, during the specified year in Table 2. Construction costs translate into added Resort value and increased revenues for the construction industry; these revenues equal the direct output since they are caused by direct Resort spending. Therefore, the \$101 million in construction output roughly equals the total construction and maintenance costs for the Resort in year 10.

Net direct construction output of the destination resort will be roughly five times higher than the small-scale resort. Additionally, wages paid to employees of the destination Resort will be \$24.7 and \$6.9 million higher than the small-scale resort in years 10 and 20, respectively. Local business income will also be higher because of greater resort demand for goods and services.

⁸ Construction costs estimated by ECO using data provided by the Resort developer. Further, ECO made the conservative assumption that construction costs would inflate at an average annual rate of 3.1%.

Table 2. Net direct impacts of construction for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Time Frame / Type of Impact | Destination Resort | Small Resort | Increment |
|--------------------------------|-----------------------|-----------------|-----------|
| Year 10 Impacts | | | |
| Output | \$100.9 | \$20.0 | \$80.9 |
| Wages | \$30.9 | \$6.2 | \$24.8 |
| Business Income | \$13.9 | \$2.8 | \$11.1 |
| Other Income | \$5.2 | \$1.0 | \$4.1 |
| Jobs | 1,383 | 275 | 1,108 |
| Year 20 Impacts | | | |
| Output | \$33.4 | \$6.9 | \$26.5 |
| Wages | \$8.7 | \$1.8 | \$6.9 |
| Business Income | \$3.9 | \$0.8 | \$3.1 |
| Other Income | \$1.7 | \$0.4 | \$1.4 |
| Jobs | 387 | 79 | 308 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

The construction output of the destination Resort in year 10 would have a significant impact on the study-area's construction industry. If it were to occur today, the Resort would represent roughly 12% of the total construction output (2007\$) and 16% of the total construction employment in the two-county study area. Moreover, since more of the construction will occur annually before year 10, the estimates in Table 1 underestimate the impacts in earlier years. The impact of the small-scale resort would be far less: 2% of output and 3% of employment.⁹

A portion of the construction employment would be filled by transient or non-local workers, who migrate to the construction project, live temporarily in the area, and then leave when the project (or their position) is finished.¹⁰ Consequently, many construction jobs may go to workers and contractors from outside the study-area. However, the fluctuation in labor demand will not directly affect study-area residents. Overall, the area will realize benefits from this employment: the construction workers, no matter their origin, will make expenditures that will provide temporary secondary impacts on the economy.

A portion of the construction work, supplies, services and equipment purchased by the resorts would originate from sources in other states—notably Washington, Oregon and Nevada. Even with this leakage, the net economic

⁹ Total study-area output and employment estimated by IMPLAN. IMPLAN uses a variety of federal and county data sources, including the U.S. Bureau of Economic Analysis and the U.S. Bureau of Labor Statistics. The percentages include total covered and uncovered employment within the study area.

¹⁰ According to the U.S. Bureau of Labor Statistics, the number of people employed in the construction sector in Missoula County has grown at a slower annual rate than the State between 2001 and 2006 (3.5% versus 7.3%). On the other hand, construction employment in Gallatin County, where Bozeman is located, has grown at an annual rate of 15% over the same period. The Resort would undoubtedly cause growth in Missoula County's construction sector. However, the County's above average population growth and below average construction employment growth imply that the Resort will require labor originating from outside the study area.

impacts from construction will be large because Montana has a skilled workforce and capable construction industry.

OPERATIONS

These are economic impacts that will occur once the construction of essential resort facilities has completed and normal operations are underway. For operations, the main economic drivers are Resort employment and visitor spending.

VISITATION AND CONSUMER SPENDING

The Bitterroot Resort will stimulate trips to Montana by people from out-of-state. Spending by these new visitors will have positive economic impacts for the study-area. Some visitors may substitute trips to other Montana ski resorts with a trip to the Resort. Others may decide to go to the Resort as opposed to Snowbowl or a Missoula restaurant, for example, in which case the economic benefits to the area would be negligible or zero.

This report considers spending by local residents at the Resort. It does not quantify all changes in local spending during the operation of the Resort. It does, however, net out the effect of a potential decline in skier visits to Snowbowl due to development of the Resort. Local residents have a limited recreation budget and some may choose to spend their time and money at the new Resort. This transfer in spending from one location or activity to another (substitution effect) will not result in net economic benefits to the study-area.

Over time, Snowbowl may benefit from the Resort. As a destination resort, Bitterroot would attract visitors for multiple days. It is conceivable that some visitors would ski Snowbowl, which is known for its challenging terrain, once or twice during their stay. While Snowbowl would lose some local customer-days to the new Resort, it may benefit in the long-term via the increase in skiers traveling to the area.¹¹

Losses for other recreation activities within the study-area should be small. Average local income is not very high. Not many local non-skiers are going to become skiers because of the Resort; they already have nearby opportunities to engage in the sport. Thus, we would not expect a shift in recreational expenditures from, say, fishing, hiking, bowling or going to a Grizzly game at the University to skiing at the resort.

¹¹ Big Mountain Ski Resort and Blacktail Mountain Ski Area, located roughly 50 minutes apart, have coexisted in such a manner. According to their respective websites, Blacktail has roughly one-third the skiable area of Big Mountain. Between 1997 and 2007, ski visits at Big Mountain, Montana's largest ski resort, have decreased at an annual average rate of 0.4%. Between 1998 and 2007, visits at Blacktail, which began operation in 1998, have increased at an average annual rate of about 7.8%. Whether Blacktail's popularity is solely a result of its recent entrance in the market remains to be seen. According to the *Spokesman Review*, Blacktail's co-owner believes the ski area can compete with Big Mountain by offering lower ticket prices and a laid-back, family atmosphere. These ski visitor figures are from University of Montana Institute for Tourism and Recreation Research, "Niche News: Montana Ski Area Trends 1996-2007." The source of the interview with Blacktail's co-owner is: Guilfoil, Michael. "Casual Ambience Rules at Blacktail," *Spokesman Review*. February 20, 2000.

The two destination Resort golf courses are expected to capture roughly 30,000 and 55,000 rounds of golf in years 10 and 20, respectively. Just like skiing, it is likely that these courses would impact visitation at nearby courses. However, the Resort would likely attract golfers to the area who otherwise would not have visited. It is conceivable that many spring and summer visitors would be attracted to the Resort for reasons other than to specifically play golf.

Again, losses for other recreation activities should be small. It is not likely that locals will shift their expenditures from other recreation activities to golf because of the Resort's presence; there are currently plenty of golf opportunities already available with nine courses within 15 miles of downtown Missoula.¹²

Table 3 displays estimates of visitor days by skiers and non-skiers and local and non-local two-county visitors for both resort scenarios.¹³ ECO estimates that the destination Resort will draw roughly 680,000 visitor-days in year 10 and 1.1 million in year 20.¹⁴ Resorts with ski facilities receive many of their visitors during the 150-day ski season between late November and March. The Resort would be no different; about 61% of these visitor-days will be skiers visiting the Resort. A large portion, but not all, of the non-skiers would be visitors to the Resort during the off-season.

The destination Resort is expected to draw roughly 79,000 and 103,000 visitor-days from Missoula and Ravalli Counties in years 10 and 20, respectively. The Montana Commerce Department estimates that population within these two counties will increase 17.7% between year 2010 and 2020. Much of the gain in visitor-days can be attributed to this increase in population and a greater recognition of the Bitterroot Resort as a recreation opportunity due to marketing and word-of-mouth.

Table 3. Number of Resort visitor days, by skier and non-skier and local and non-local visitors, years 10 and 20

| Number of Visitor Days | Year 10 | | | Year 20 | | |
|------------------------|--------------------|----------------|----------------|--------------------|----------------|----------------|
| | Destination Resort | Small Resort | Increment | Destination Resort | Small Resort | Increment |
| Skiers | | | | | | |
| Local | 67,896 | 10,125 | 57,771 | 88,359 | 20,250 | 68,109 |
| Non-Local | 337,223 | 90,847 | 246,376 | 575,460 | 181,692 | 393,768 |
| Non-Skiers | | | | | | |
| Local | 10,989 | 1,125 | 9,864 | 14,301 | 2,250 | 12,051 |
| Non-Local | 266,020 | 67,103 | 198,917 | 451,933 | 134,208 | 317,725 |
| Total | 682,128 | 169,200 | 512,928 | 1,130,053 | 338,400 | 791,653 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

¹² See www.golflink.com

¹³ Visitor days do not represent the number of individuals the resort will draw; it is the cumulative sum of days all visitors will use the resort facilities. For example, a family of four who stay at the Resort for five days would yield 20 visitor days.

¹⁴ Visitor figures include people who own units at the Resort and are full-time residents. Visitation estimates were calculated using Bitterroot data created by Peterson Economics, and Vail Resorts, Inc. figures and assumptions by ECO.

Just about all of the local visits to the Resort will be day-trips that generate no hotel or rental revenue. On average, about 25% of the total visits in years 10 and 20 will be day-trip visits. About 40% of these trips will originate inside Missoula and Ravalli Counties. Almost all of remaining day-trips will be tourists from other Montana Counties, Idaho, Washington, and Oregon.

Visitor-days at the small-scale resort would be fewer, especially since access would be private or semi-private. ECO estimates roughly 170,000 and 338,000 visitor-days in years 10 and 20, respectively. Few of these visits would originate within the study-area; the likely visitors would be the friends and family of someone who owns a second home on Resort property.

Montana ski area visitation has been increasing at an annual average growth rate of 0.1% since 1996.¹⁵ Although this rate of growth lags average annual increase in non-resident travel in Montana between 2000 and 2004 (0.6%)¹⁶, the slight increase in skier participation across the State should help the Resort grow. In the last decade, national ski visitation has increased an average of 1.8% per year. By 2020, potentially year 10 of Resort operations, between 60 and 70 million total ski visit days are expected each year in the U.S.¹⁷ The destination Resort, at year 10, would account for roughly 1.0% of those visitor days.

The study area demographics, however, have tended to shift away from a big segment of skiers. Roughly 35-40% of total ski participants are made up of people aged 25 to 40. Historically, Ravalli County has lost a lot of its population in this age cohort. The loss of high-paying railroad and timber jobs and the increase in low-paying service and retail employment has hurt the retention of this portion of the workforce.¹⁸ This factor may hinder the Resort's ability to significantly increase visitation by study area residents over time.

Each patron of the Resort has the option to spend money at the Resort or elsewhere in the two-county region. Spending at the Resort will consist of ski tickets, rentals, lessons, greens fees, food and lodging, other retail goods and services, and real estate.¹⁹ Visitors attracted to the two-county area because of the Resort will also spend money outside of the Resort. Some of this spending would include food, lodging, gas and transportation services.

¹⁵ University of Montana Institute for Tourism and Recreation Research. "Niche News: Montana Ski Area Trends 1996-2007." It should be noted that the year-to-year percent change in ski visits varies widely: increasing by as much as 29.7% in 2005 and decreasing by 17.9% in 2004. These figures imply that external factors, such as snowfall, greatly affect the Montana ski industry each year.

¹⁶ University of Montana Institute for Tourism and Recreation Research. "2005 State of the Travel Industry in Montana." March 2005.

¹⁷ RRC Associates. "Projected Demand and Visitation for U.S. Ski Areas." July 2006.

¹⁸ "Comprehensive Economic Development Strategy and Bitterroot Resource Conservation and Development Area, Inc., (RC&D) Area Plan." Adopted by the RC&D, for the Economic Development District. July 2002.

¹⁹ There are numerous factors that contribute to the level of spending; ECO considered many when creating its consumer spending estimates. For lodging, ECO examined occupancy rates, visitor nights, the average daily rate, and restaurant and bar expenditures. For skiing expenditures, ECO considered average ticket price, rental and lesson revenues, summer lift ride revenue and miscellaneous revenues. For eating and drinking establishments, the factors were the cost of goods sold and spending per visitor. For retail: cost of goods sold and spending per visitor. For golf: average greens fee, cart fee, and ancillary fees.

Table 4 shows estimated net spending by visitors and residents at both versions of the Resort, as well as elsewhere in the community.²⁰ ECO expects total net consumer spending at the destination resort will exceed that at the small-scale resort by \$88.7 and \$146.2 million (2007\$) in years 10 and 20, respectively. Net direct spending by resort visitors outside of the Resort but within the two counties will be \$8.2 and \$13.0 million more in these same years. Consumer spending is on-going, and will continue at this scale for each year of operation past year 20 for as long as the Resort continues to operate.

Table 4 shows about 89.8% of expenditures would be made solely at the destination Resort in years 10 and 20. On average, roughly 85.6% of the total expenditures would occur at the small-scale scenario. Although the share of spending falling within the study-area would be lower under the destination Resort scenario, the share of total net visitor spending would be higher and the economic benefits to the community would be greater.

Of expenditures within the study-area but outside of the Resort, Resort visitors would spend most of their money on general store merchandise (such as groceries) and at eating and drinking establishments. Patrons of the Resort's rental and whole ownership units will probably desire goods not found in Bitterroot's stores. Similarly, many visitors will probably desire a dining or cultural experience in Missoula or the surrounding area not found at the Resort. This is especially true of multi-day visitors and permanent residents.

Table 4. Net direct consumer spending at the resort and elsewhere for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Location / Type of Expenditure | Year 10 | | | Year 20 | | |
|-----------------------------------|-----------------------|-----------------|---------------|-----------------------|-----------------|----------------|
| | Destination Resort | Small Resort | Increment | Destination Resort | Small Resort | Increment |
| Spending at the Resort | \$99.1 | \$18.6 | \$80.5 | \$165.9 | \$33.7 | \$132.3 |
| Amusement | \$31.9 | \$5.4 | \$26.5 | \$52.0 | \$10.9 | \$41.0 |
| Lodging | \$14.9 | \$0.0 | \$14.9 | \$31.1 | \$0.0 | \$31.1 |
| Retail | \$13.2 | \$3.1 | \$10.1 | \$22.8 | \$6.2 | \$16.5 |
| Eating Establishments | \$23.9 | \$5.4 | \$18.5 | \$42.4 | \$10.8 | \$31.6 |
| Personal Services | \$2.9 | \$0.6 | \$2.3 | \$5.3 | \$1.3 | \$4.0 |
| Real Estate | \$12.3 | \$4.1 | \$8.2 | \$12.3 | \$4.4 | \$7.9 |
| Spending Elsewhere | \$11.2 | \$3.0 | \$8.2 | \$18.9 | \$5.9 | \$13.0 |
| Amusement | \$0.5 | \$0.1 | \$0.4 | \$1.0 | \$0.3 | \$0.7 |
| Lodging | \$0.3 | \$0.1 | \$0.2 | \$0.4 | \$0.3 | \$0.2 |
| Grocery and Merchandise Stores | \$5.2 | \$1.4 | \$3.9 | \$8.8 | \$2.7 | \$6.1 |
| Eating Establishments | \$2.0 | \$0.6 | \$1.4 | \$3.2 | \$1.1 | \$2.1 |
| Travel Services | \$0.4 | \$0.1 | \$0.3 | \$0.6 | \$0.2 | \$0.4 |
| Personal Services | \$0.8 | \$0.2 | \$0.6 | \$1.3 | \$0.4 | \$0.9 |
| Gas | \$1.9 | \$0.4 | \$1.5 | \$3.5 | \$0.9 | \$2.6 |
| Total Consumer Spending | \$110.3 | \$21.6 | \$88.7 | \$184.8 | \$39.6 | \$145.2 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

Note: IMPLAN economic output figures were converted to consumer spending by ECO using estimated annual gross margins by type of business found in the 2005 Census Annual Retail Trade Survey.

²⁰ Consumer spending does not necessarily equal output. For retailers and wholesalers, output equals revenues minus the cost of goods sold. Therefore, the figures in Table 2 were adjusted to account for this fact using business specific gross margins (the difference between revenues and the cost of goods sold).

Spending is expected to rise between years 10 and 20 due to increased visitor-days and more available amenities, including lodging, and rental and permanent resident units.

EMPLOYMENT

The Bitterroot Resort will employ workers to operate the ski, food, and lodging facilities, the golf courses, and the fitness and convention centers. A majority of these jobs would be service oriented and relatively low paying. The average wage in the ski industry was \$10.04 per hour in 2006.²¹ Further, the nature of the ski industry means that many of the jobs created would be seasonal.

Direct employment impacts include those jobs located within the Resort, as well as jobs created due to direct spending by resort visitors outside of the Resort. For instance, a car rental company at the Missoula International Airport will likely expand its operations to serve skiers arriving by air and thereby hire more employees. The car rental businesses will, in turn, have to buy more gasoline or mechanical repair services. Their business-related expenditures indirectly benefit businesses and employees in other sectors; these are considered secondary impacts because Resort visitors will not directly pay for the repair services, for instance.

Table 5 displays the employment—by sector and location—generated directly by the Resort in years 10 and 20.²² In both time periods, the destination Resort would employ between six and seven times more people than the small-scale resort. In both scenarios, nearly 90% of the employment would be in the service sector. The number of jobs reported in Table 5 includes full-time, part-time, and seasonal employment.

²¹ U.S. Department of Labor Statistics. Employment, Hours, and Earnings from the Current Employment Statistics Survey (National). The wage rate statistic includes employees of lodging and eating establishments associated with ski facilities. These wage figures consider everything that contribute to gross wages on tax documents, including bonuses, holiday pay, and employer-provided health benefits.

²² ECO's estimates of employment and payroll differ from those provided by the developer. Based upon an analysis of ski industry employment of resorts of similar size, ECO reduced the payroll figures.

Table 5. Direct net operations employment for both resort scenarios, by location, years 10 and 20

| Location / Employment Sector | Year 10 | | | Year 20 | | |
|----------------------------------|-----------------------|-----------------|--------------|-----------------------|-----------------|--------------|
| | Destination Resort | Small Resort | Increment | Destination Resort | Small Resort | Increment |
| Employment at the Resort | 1,923 | 266 | 1,657 | 3,334 | 520 | 2,813 |
| Retail trade | 62 | 15 | 48 | 107 | 29 | 78 |
| Real estate & rental | 48 | 16 | 32 | 48 | 17 | 31 |
| Arts- entertainment & recreation | 910 | 97 | 813 | 1,479 | 196 | 1,283 |
| Accommodation & food services | 842 | 126 | 716 | 1,588 | 252 | 1,335 |
| Other services | 61 | 13 | 48 | 112 | 26 | 86 |
| Employment Elsewhere | 132 | 28 | 104 | 226 | 56 | 169 |
| Retail trade | 25 | 6 | 18 | 42 | 13 | 29 |
| Arts- entertainment & recreation | 16 | 2 | 13 | 27 | 5 | 22 |
| Accommodation & food services | 70 | 13 | 57 | 120 | 27 | 93 |
| Other services | 17 | 4 | 12 | 28 | 9 | 20 |
| Transportation & Warehousing | 5 | 1 | 3 | 7 | 3 | 4 |
| Administrative & waste services | 1 | 0 | 1 | 2 | 1 | 1 |
| Total Employment | 2,055 | 294 | 1,761 | 3,560 | 577 | 2,983 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

To put the Resort employment in context, the direct hires at the destination Resort in years 10 and 20 would make up roughly 2.0% and 3.5% of the total employment in the study-area in 2007, respectively. The destination Resort would make up approximately 5.5% and 9.5% of the total study-area employment for the sectors listed in Table 3 only. The employment impacts of the small-scale resort would be much smaller: 0.3% and 0.6% of total employment.²³ Of course, these ratios overestimate the true proportion of resort-to-study-area employment; study-area employment will grow roughly 1.7% per year between now and year 20 of resort operations.²⁴

These employment figures are significant in the context of the study area; if the Resort were fully constructed today, it would be one of the top five largest employers in Missoula County. Businesses and institutions with similar employment today include the University of Montana, Missoula County Public Schools, and St. Patrick Hospital and Health Sciences Center.²⁵

The average wage of those employed by the Resort would be roughly \$24,000 (2007\$) under both resort scenarios and time periods. This translates into an hourly wage of approximately \$12.20 per hour²⁶, nearly twice Montana's minimum wage of \$6.15 per hour and higher than Missoula's living wage of \$9.37 per hour in 2007.²⁷ Almost all of these jobs would be given to residents of

²³ Percentages calculated using Bureau of Labor Statistics employment data. These percentages include total covered and uncovered employment within the study area.

²⁴ Based upon employment projections, for 2004-2014 by industry, developed by the Montana Department of Labor and Industry. See <http://www.ourfactsyourfuture.org/cgi/dataanalysis/AreaSelection.asp?tableName=Indprj>.

²⁵ Missoula Area Economic Development Corporation. Missoula Community Profile, Winter 2006.

²⁶ The Resort hourly wage was calculated by ECO using the Resort's payroll data. This wage rate does not include benefits.

²⁷ According to the U.S. Department of Labor, Montana's minimum wage is subject to an annual cost of living adjustment. The living wage figure does not include health benefits, which are required by Missoula. Additionally, according to the Montana Department of Labor and Industry, the average hourly private wage in 2006 for all industries in Missoula and Ravalli Counties was \$14.03 and \$11.88, respectively.

Missoula and Ravalli Counties; few people would commute to the Resort from outside this area.

According to the U.S. Bureau of Labor Statistics, the unemployment rate in Missoula and Ravalli Counties was 2.9% and 3.8% in 2006, respectively. The unemployment rate for Montana was 3.3% in 2006. The labor force participation rate of the two counties was relatively high in 2006: 71.1% and 60.5% in Missoula and Ravalli Counties, respectively.²⁸ These figures suggest that there is currently not a lot of potential employees in the two-county economy. This problem may be alleviated by the high future population growth. Some implications: (1) many of the beneficiaries of the economic growth generated by the Resort may not be current residents of the study area; and (2) the Resort may need to pay highly competitive wages to attract workers from other areas.

Further, ECO estimates that 619 and 1,360 of the total jobs would be seasonal at the destination Resort in years 10 and 20, respectively. A majority of the seasonal jobs are service-oriented and contribute to the ski operations. This factor diminishes the total economic impact of the Resort on the area economy in terms of net new wages created by the development. In turn, the indirect impacts are diminished as well.

REAL ESTATE SALES AND PRICES

Real estate will be an integral part of the Resort in either instance; the sale of primary and secondary homes will establish a visitor base throughout the year. Further, residential units would be a major source of new construction at the destination Resort after the fourth year of operation, when most of the recreation facilities will be completed. Construction of these units will commence in the third year of operation and will continue through at least the 14th year. Many of the units will be made available for rental.

The continued real estate expansion would be a major source of new revenues and visitor-days for the Resort, and consequently, would add demand for lodging capacity. In turn, the new residents and renters would spend money at the Resort and in the study-area. Once the infrastructure is built to support a large development, the cost of adding additional residential units would drop.

Table 6 displays the estimated number of whole and fractional ownership dwelling units sold (not built) in years 10 and 20 of both resort scenarios. It also shows the estimated revenues of home sales to the resort in years 10 and 20, using what we believe to be conservative home price estimates of \$600,000 and \$1 million at the destination and small-scale resort, respectively. The sales prices at the small-scale resort are higher because the properties will be larger, on average.

These wage figures consider everything that contribute to gross wages on tax documents, including bonuses, holiday pay, and employer-provided health benefits. See <http://www.dol.gov/esa/minwage/america.htm>.

²⁸ Labor force participation rate calculated by ECO using data from Claritas, 2006.

Table 6 shows the estimated number of units sold under the destination Resort scenario would be much higher. Output (which, in this case, roughly equal revenues) would be higher, as well: \$8.5 and \$9.5 million more in years 10 and 20, respectively.

Note that Table 6 only considers residential units. The Resort will earn additional revenue by leasing commercial space to businesses.

Table 6. Estimated residential real estate sales and prices for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Time Frame / Type of Impact | Destination Resort | Small Resort | Increment |
|----------------------------------------|-----------------------|-----------------|-----------|
| Year 10 Impacts | | | |
| New Whole and Fractional Units | 177 | 35 | 142 |
| Total Built Whole and Fractional Units | 1,655 | 270 | 1,385 |
| Average Sales Price | \$0.6 | \$1.0 | - |
| Total Output | \$28.7 | \$20.2 | \$8.5 |
| Year 20 Impacts | | | |
| New Whole and Fractional Units | 29 | 6 | 23 |
| Total Built Whole and Fractional Units | 2,942 | 540 | 2,402 |
| Average Sales Price | \$0.6 | \$1.0 | - |
| Total Output | \$16.7 | \$7.2 | \$9.5 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

Note: The total revenue calculation assumes a 6% commission rate on new home sales. Revenue estimates also assume revenues of one-eighth of the original sales price on existing units because people move, on average, once every eight years.

Although real estate sales would be lucrative for the Resort, rental units could achieve greater economic benefits both for the Resort and the two-county economy. Rental units draw more visitors to the area who will spend money at the resort and in the community. Incremental spending for renters is higher than primary or secondary home owners; they are more likely to buy a lift ticket or eat dinner at a restaurant for each day spent at the Resort. ECO estimates that the destination Resort would generate \$19.1 (555 rental units) and \$34.0 (989 rental units) million (2007\$) in output from rental units in years 10 and 20, respectively. The small-scale resort would not offer this type of rental unit.

The output accumulated from rental units is counted as net direct consumer spending above. The cost of room rentals makes up about 53% of the total spending by renters. Food, bar, retail and services (including skiing) make up the rest of the expenditures—some of which will occur outside of the Resort and within the study-area.

To put things into perspective, the total number of households (whole and fractional units) that are expected to be built at the destination Resort by year 20 are roughly equal to 4.1% of the total households in Missoula and Ravalli

Counties in 2030.²⁹ This is a significant figure. However, with the rapid growth of the over 65 cohort (many of whom are retirees) in the study-area and nationally, it is likely that a four-season resort could support this many housing units.

TOTAL NET DIRECT IMPACTS

The total net direct impacts equal the sum of the construction and operations impacts described above. Table 7 displays the total net direct impacts. Under the destination scenario, total net output is expected to decrease between years 10 and 20 because of the substantial decrease in construction activities between these years. While the net construction output for the small-scale resort also falls, the gain in operations output offsets this decrease and total net output increases between years 10 and 20 for that scenario.

The total direct output increment (i.e., how much more the large-scale resort generates than the small-scale resort) is estimated at \$157.3 and \$151.7 million (2007\$) in years 10 and 20, respectively. The job increment would be 2,869 and 3,291 in these years. These differences are substantial: the year 10 increment alone represents 1.7% of the two-county study-area's total estimated output in 2007. The year 10 employment increment equals 2.8% of the total number of study-area jobs in 2007.³⁰

Business income falls substantially between years 10 and 20 in both scenarios. Almost all of this decrease can also be attributed to the decrease in construction activities. As construction spending by the Resort decreases, less income will go directly to local contractors and materials suppliers.

Wages, however, remain relatively constant under both scenarios; the drop in construction wages would be offset by the increase in service and retail wages. Other income does not change significantly either. The discrepancy in this type of income between both scenarios is high due to the difference in rental income.

Note that construction impacts are temporary in nature and unfold as construction spending occurs. Moreover, some of these jobs may not be new to the area in that they may employ those already working in the construction industry. The building of the Resort, however, would increase the intensity of their employment.

Therefore, the jobs listed in Table 7 should not be considered full-time equivalents. See Table 2 for the estimate of net direct construction jobs. About 40.2% and 9.8% of the total net direct jobs for the destination Resort in years 10 and 20 would be construction employment.

²⁹ Population estimate processed for the Montana Department of Commerce by NPA Data Services, Inc. Population to household conversion by ECO.

³⁰ Total study-area output and employment estimated by IMPLAN. The percentages include total covered and uncovered employment within the study area.

Table 7. Total net direct impacts for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Time Frame / Type of Impact | Destination Resort | Small Resort | Increment |
|--------------------------------|-----------------------|-----------------|-----------|
| Year 10 Impacts | | | |
| Output | \$195.2 | \$37.9 | \$157.3 |
| Wages | \$58.2 | \$10.4 | \$47.8 |
| Business Income | \$17.4 | \$3.7 | \$13.7 |
| Other Income | \$22.4 | \$4.6 | \$17.7 |
| Jobs | 3,438 | 569 | 2,869 |
| Year 20 Impacts | | | |
| Output | \$190.6 | \$39.0 | \$151.7 |
| Wages | \$56.6 | \$10.3 | \$46.3 |
| Business Income | \$8.7 | \$2.1 | \$6.6 |
| Other Income | \$28.7 | \$6.0 | \$22.6 |
| Jobs | 3,947 | 656 | 3,291 |

Source: Bitterroot Resort estimates created using data from Vail Resorts, Inc., the National Ski Area Association, revenue figures prepared for the Resort by Peterson Economics and assumptions by ECONorthwest.

Note that in Table 7, under both scenarios, wages remain roughly the same in year 10 and 20 yet the number of jobs is significantly higher in year 20. These figures are not implying that the Resort would be compensating employees less for the same work. Again, these figures represent the shift from construction to leisure and service sector employment between the two points in time.

SECONDARY IMPACTS

Secondary impacts are the downstream economic effects caused by resort construction and operations. These effects measure, for instance, the increased employment and output—within the two counties—of suppliers to the Resort.

Similar to the direct impacts, the secondary impacts represent net additions to the local area; the output and jobs would not exist if not for the Resort.

SECONDARY NET ECONOMIC IMACTS (IMPLAN OUTPUTS)

This section describes secondary *economic* impacts, which are estimated using the IMPLAN input/output model. There are also secondary impacts that are not primarily economic in nature, and not estimated by IMPLAN: we describe these in a later section.

CONSTRUCTION

Secondary construction impacts are caused by increased business for materials suppliers to the construction contractors, as well as spending of wages by construction workers within the study-area. For instance, with income from the Resort, a worker may buy food at a local store or visit a bar. In turn, local bars

and restaurants may hire in order to keep pace with extra demand caused by the construction workers. These expenditures help buoy the local economy.

Table 8 displays the net secondary impacts of resort construction under both scenarios for years 10 and 20. The destination Resort is expected to create \$48.9 and \$15.8 million (2007\$) more secondary output in years 10 and 20, respectively. Employment is expected to be higher by 579 and 182 workers. Business and other income, as well as wages will be higher.

Similar to the direct construction impacts, the secondary impacts will fall greatly after year 10 when the Resort is almost fully completed. In year 20, much of the impacts accrue due to the Resort's continued expenditures for maintenance and repair of existing facilities.

The difference in scale and length of construction between the two scenarios explains the secondary impact increment.

Table 8. Net secondary construction impacts for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Time Frame / Type of Impact | Destination Resort | Small Resort | Increment |
|--------------------------------|-----------------------|-----------------|-----------|
| Year 10 Impacts | | | |
| Output | \$61.0 | \$12.1 | \$48.9 |
| Wages | \$16.5 | \$3.3 | \$13.2 |
| Business Income | \$3.4 | \$0.7 | \$2.7 |
| Other Income | \$10.6 | \$2.1 | \$8.5 |
| Jobs | 722 | 143 | 579 |
| Year 20 Impacts | | | |
| Output | \$19.9 | \$4.1 | \$15.8 |
| Wages | \$5.3 | \$1.1 | \$4.2 |
| Business Income | \$1.1 | \$0.2 | \$0.8 |
| Other Income | \$3.4 | \$0.7 | \$2.7 |
| Jobs | 229 | 47 | 182 |

Calculated by ECONorthwest using IMPLAN.

OPERATIONS

Resort operations facilitate secondary economic impacts. The continued existence of the golf course facility, for instance, supplies income to Resort employees. Some of this income finds its way into the study-area economy. Further, secondary impacts are also created when the income supplied to employees of businesses indirectly affected by the Resort changes.

This section divides the net secondary operations impacts into two categories: (1) net consumer spending in the two-county economy caused by changes in the wages of Resort and secondarily impacted business employees; and (2) net employment that exists due to the continued operation of the Resort.

Consumer spending

Visitor spending at the Resort sustains demand for resort employees, a majority of whom will live within the study-area. In turn, these employees will spend their wages at local stores, for instance. These expenditures and the jobs and income they generate are categorized as secondary impacts. Consumer spending, including that by Resort employees will impact a wide range of industry sectors. Consequently, local businesses may increase employment as a result of increased spending.

Table 9 provides the net secondary impacts due to consumer spending at the Resort for both scenarios. ECO estimates that the net secondary consumer spending increment will be \$50.1 and \$82.5 million (2007\$) in the study-area in years 10 and 20, respectively. A majority of the spending—approximately 64% in both resort scenarios—will occur in the retail and wholesale trade and service sectors.

For as long as the Resort remains in operation, local businesses will realize benefits not only from direct visitor spending but from secondary spending. Note that secondary consumer expenditures occur, by definition, outside of the Resort.

Table 9. Net secondary impacts of consumer spending at both resort scenarios by sector, years 10 and 20 (millions of 2007\$)

| Sector | Year 10 | | | Year 20 | | |
|-------------------------------------------|--------------------|---------------|---------------|--------------------|---------------|---------------|
| | Destination Resort | Small Resort | Increment | Destination Resort | Small Resort | Increment |
| Natural resources | \$0.9 | \$0.2 | \$0.7 | \$1.5 | \$0.4 | \$1.2 |
| Utilities, transportation and warehousing | \$3.4 | \$0.6 | \$2.8 | \$5.8 | \$1.1 | \$4.6 |
| Construction | \$1.0 | \$0.2 | \$0.8 | \$1.5 | \$0.3 | \$1.2 |
| Manufacturing | \$3.2 | \$0.7 | \$2.5 | \$5.5 | \$1.3 | \$4.2 |
| Retail and wholesale trade | \$20.7 | \$3.8 | \$16.8 | \$35.1 | \$7.2 | \$27.9 |
| Finance, insurance, and real estate | \$9.5 | \$1.8 | \$7.7 | \$15.5 | \$3.2 | \$12.3 |
| Services | \$19.1 | \$3.4 | \$15.7 | \$32.2 | \$6.3 | \$25.9 |
| Government | \$3.8 | \$0.7 | \$3.1 | \$6.4 | \$1.2 | \$5.2 |
| Total Spending | \$61.4 | \$11.3 | \$50.1 | \$103.4 | \$20.9 | \$82.5 |

Calculated by ECONorthwest using IMPLAN.

Note: IMPLAN economic output figures were converted to consumer spending by ECO using estimated annual gross margins by type of business found in the 2005 Census Annual Retail Trade Survey.

Employment

Secondary employment impacts affect those businesses that would supply goods and services to the Resort. For instance, a supplier of bread to the Resort may hire extra workers to manage a growing demand for its product in the Missoula area. Those workers hired due to the increase in demand for intermediate goods and services by the Resort are considered secondary impacts. Unlike direct employment impacts, these jobs are not created by visitor spending at the Resort or in the community. Instead, they are created indirectly by the Resort, which would purchase bread for its eating establishments. As resort visitation increases, so does bread consumption, thereby indirectly causing suppliers' demand for labor to increase.

In fact, in the context of this example, secondary employment impacts would accrue if grain suppliers (the supplier of the bread supplier) added extra jobs to

meet a growing demand. It is understandable that the more visitation that a resort achieves, the more jobs that will be created within the economy. Table 10 displays the net secondary employment impacts for the study-area under both resort scenarios for years 10 and 20. Secondary employment in Missoula and Ravalli Counties would be higher by 418 jobs in year 10 and 688 jobs in year 20 if the destination Resort were built.

In all categories, service jobs would make up roughly 60% of the total secondary employment. This is understandable; Resort employees will spend their wages at local restaurants and bars. Resort suppliers in the retail and wholesale trade sector would be the second highest gains in employment—about 16% of the total. Note that all of these jobs would be created outside of the Resort.

Table 10. Net secondary employment, by sector, for both resort scenarios, years 10 and 20

| Aggregate Sector | Year 10 | | | Year 20 | | |
|-------------------------------------------|--------------------|--------------|------------|--------------------|--------------|------------|
| | Destination Resort | Small Resort | Increment | Destination Resort | Small Resort | Increment |
| Natural resources | 21 | 4 | 16 | 36 | 9 | 27 |
| Utilities, transportation and warehousing | 24 | 4 | 20 | 40 | 8 | 33 |
| Construction | 11 | 2 | 9 | 18 | 3 | 14 |
| Manufacturing | 13 | 3 | 10 | 22 | 5 | 17 |
| Retail and wholesale trade | 83 | 15 | 67 | 140 | 28 | 112 |
| Finance, insurance, and real estate | 50 | 9 | 41 | 83 | 17 | 66 |
| Services | 308 | 56 | 252 | 518 | 103 | 414 |
| Government | 4 | 1 | 3 | 7 | 1 | 6 |
| Total | 512 | 94 | 418 | 862 | 174 | 688 |

Calculated by ECONorthwest using IMPLAN.

While the secondary employment increment between the two scenarios would amount to hundreds of jobs, many would be low-paying (roughly 76% of the employment increment is located in the retail and service sectors in year 10 and 20). Further, the number of secondary jobs created would be a very small percentage of the total jobs in the study-area: in year 10, the destination Resort would create only 0.5% of the total jobs in the study-area in 2007 through secondary effects. The impact would be insignificant.

OTHER SECONDARY IMPACTS

This part details effects not modeled by IMPLAN that may be imposed on the study-area by the development. These impacts are difficult to measure quantitatively because it is hard to place a monetary value on increased traffic or an increased demand for school enrollment, for instance. However, these impacts are classified as secondary in this report because they occur throughout the two-county economy over time.

In all of the categories listed below, the destination resort will have a greater impact, positive or negative, on the study-area than the small-scale resort.

REVENUE TO STATE AND LOCAL GOVERNMENT

Both resort scenarios will have an impact on state and local government revenues (notably, Missoula County, where the Resort would be located).

Jurisdictions will be able to collect revenues in the form of permitting and construction fees, property taxes, a resort tax, a corporation license tax, and a lodging facility use tax. The following are taxes that the Resort, its employees, and its visitors will pay:³¹

- **Property tax.** As development occurs, the assessed value of the Maclay property will increase. Improvements such as sewer and electric lines, as well as residential and commercial structures will drive up the demand for the land, and consequently, the price. The property tax rate charged to the Resort depends on Missoula County's mill levy and the State's mill levy. The Resort would also be located in a special levy district: the Florence-Carlton Cemetery.³² The Resort will also pay property tax on its capital assets, such as machinery and other equipment. Property tax revenue generated by the Resort would be used for local services, such as public schools, the Missoula County general fund, universities, and various other taxing districts.
- **Individual income tax.** The State government will collect these taxes from the Resort's employees. This tax equals 6.9% for employees who collect an annual taxable income of at least \$14,900 in 2007. Essentially all of the Resort's employees would qualify for this rate. The State would collect roughly \$3.2 and \$5.3 million (2007\$) from destination Resort employees in year 10 and 20, respectively.³³ Employment created by secondary Resort impacts will also create income tax revenue. All of these funds are distributed to the State's general fund.
- **Corporation license tax.** The rate of this tax is 6.75% and is based on the Resort's net income earned in Montana. All of the proceeds are deposited into the State's general fund.
- **Transient tax.** The State charges two taxes to users of lodging facilities, such as the hotel and rental units at the Resort. The Lodging Facility Use Tax is 4% of the total lodging charge and proceeds benefit the Montana Department of Commerce, the Department of Fish, Wildlife and Parks and various nonprofit tourism agencies. The Lodging Facility Sales and Use Tax is a 3% tax on accommodations and campground fees. It benefits the State's general fund.
- **Resort tax.** This tax must be created and administered by the local government for certain communities that meet resort qualifications. It is a local option sales tax on the retail value of goods and services sold by the lodging facilities, recreation facilities, and eating and drinking establishments. The tax cannot exceed 3% and is set by the local government.

³¹ Tax rates and descriptions are from the Montana Department of Revenue.

³² Missoula County Property Information System, accessed September 27, 2007.

³³ Calculated using the Resort developer's payroll data.

- **Impact fees.** Currently, Missoula County does not have development impact fees. Instead, impact fees are levied by the City of Missoula. This arrangement will not help local jurisdictions place some of the burden of infrastructure improvements on developers in rural areas, where much of the area's future growth will occur. Issues of impact fees are currently being discussed by local politicians. The Resort is a proponent of such development impact fees.³⁴
- **Voluntary fees.** The Resort is cognizant that it will impact existing infrastructure in the area and is willing to voluntarily contribute funds for infrastructure improvements, including a signalized intersection and other traffic controls.³⁵

One must be careful not to infer that these revenue impacts are net benefits: most of that revenue may go to paying for public facilities and services that the new Resort (its residents and visitors) will demand (e.g., see Transportation and Infrastructure, next section).

TRANSPORTATION AND INFRASTRUCTURE

The Resort, located just off of Highway 93, will most certainly cause extra traffic as skiers navigate this road from Missoula. Highway 93 is a four lane highway. To accommodate the resort development, infrastructure improvements will be required at the turn off to the Resort, including signaling and other traffic controls. The Resort has already indicated that it may pay for a signal at this intersection.

According to the Montana Department of Transportation, 9,322 cars and trucks used Highway 93 per day in 2001 just outside of Florence.³⁶ The traffic count on Highway 93 has been growing steadily at average annual rate of 3.6% per year since 1980. In the morning, most cars head north, towards Missoula where most commuters from the outlying area work. In the evening, the traffic flow heads the other way. Traffic generated by the Resort, including skiers and employees, will head in the opposite direction: south from Missoula in the morning and back towards the city in the evening. The fact that many resort visitors will stay the night at the Resort reduces daily the traffic impacts.

According to the Census, about 1.6% of Missoula County residents commuted to Ravalli County whereas 24.1% of Ravalli County residents worked in Missoula County in 2004. Of Missoula County workers, 45.3% live in the City of Missoula and 72.1% live in the County. Only 6.1% live in Ravalli County. Of Ravalli County workers, 83.0% live within the County and only 7.4% commute from

³⁴ Based upon a phone conversation with Jim Gill, Chief Operating Officer, and Cynthia Rademacher, Community Relations, Bitterroot Resort. October 31, 2007.

³⁵ Ibid.

³⁶ According to Montana Department of Transportation traffic counter A-47. See <http://www.mdt.mt.gov/publications/docs/datastats/atr/atrbook01.pdf>.

Missoula County. A vast majority of Ravalli County residents and workers live along the Highway 93 corridor. Few workers commute from the City of Missoula to other areas.³⁷

Although Highway 93 serves as a commuter route for many of the residents of Missoula and Ravalli Counties, these data reiterate the point that the normal commuting pattern is opposite of the traffic pattern the Resort would create. In the short-term, the Highway should be able to handle the extra traffic. However, in the long-term, traffic patterns could shift as more people—especially retirees—move into the study area. Further, the Montana Commerce Department reports that the population of Ravalli County will grow at nearly twice the rate of Missoula County (see above). Development of the Resort will amplify the daily traffic on Highway 93, but this fact should not cause problems until the demographics of the study area shift, as they are expected to do.

Suggestion of a commuter rail line that would run between Missoula and Hamilton (a town south of Missoula on Highway 93) has been included in long range goals of the 2004 Missoula Urban Transportation Plan Update.³⁸ This proposed commuter line would be integrated with freight lines and use existing rail infrastructure. The Resort has planned for this possibility in its Master Plan and will accommodate commuter rail if it becomes a reality.³⁹ If planned appropriately, such a transportation system could reduce the Resort's impacts on Highway 93. This would only be possible if visitors could travel between Missoula and Hamilton and stop near the Resort.

The Resort will undoubtedly demand a lot of water, especially since it plans to engage in snowmaking on the low elevation ski runs. According to the Resort, the private lands associated with the potential development have irrigation water rights. These rights would be exercised for snowmaking. Wells will provide water meant for domestic use. The impact of the water use is a contentious issue; opponents of the Resort believe that snowmaking will affect stream flows and vegetation patterns.⁴⁰ The Resort contends that stream flows may be higher after development, but this will feed the aquifer and improve fisheries.

The Resort believes that other important infrastructure, such as sewers and utilities will not be a problem; a treatment facility is planned on Resort property to treat sewage. Electric and gas service do not exist on the Ranch today, but capacity and the ability needed to serve the Resort in the future already exist.⁴¹

³⁷ U.S. Census Bureau Local Employment Dynamics (LED) OnTheMap, Version 2. See <http://lehd.did.census.gov/led/datatools/onthemap.html>.

³⁸ 2004 Missoula Urban Transportation Plan Update. Prepared for the Missoula Office of Planning and Grants by URS Transportation. May 2004. Note that discussion of a commuter rail system has been very preliminary thus far. According to the Missoula Transportation Improvement Program (TIP), funding for such a project has not been identified for the federal fiscal years 2007-2011.

³⁹ Based upon a phone conversation with Jim Gill, Chief Operating Officer, and Cynthia Rademacher, Community Relations, Bitterroot Resort. October 31, 2007.

⁴⁰ Clark, Bob. "Ski Venture Threatens Montana Backcountry." Lowbagger.org, November 11, 2005.

⁴¹ See <http://www.skibitterrootresort.com/>.

Our scope, budget, and area of expertise do not allow us to do much more than flag transportation and infrastructure costs as a potentially important offset against economic benefits. Much depends not only on the magnitude of the required improvements, but on the manner in which they will be paid. It is important to note that an environmental impact analysis, which would be required only for the destination Resort (not the small-scale resort) would analyze these issues in greater depth.

EDUCATION

The number of school-aged children will increase if the Resort is built. Construction workers, Resort homebuyers, and Resort employees who migrate from other areas will bring their children with them. The effect may not be substantial: construction workers are temporary and many will retain residence in other areas, instead of moving their families with them. Many of the resort homebuyers will be retirees and will not have school-aged children. Further, for many, these homes will be second or third residences used for only a portion of the year. The impact of the Resort on the local education system relies greatly upon the number of workers who migrate from other areas. Based upon the current low unemployment rates and high labor participation rates in the two-county economy, it appears that some of the Resort employment will originate from other areas. However, many of the low-paying seasonal service jobs that the Resort will create may be filled by younger people already inhabiting the area, these people would not cause any additional impact on the public school system.

The State's public schools will benefit from the Resort in terms of increased property taxes. The Montana Department of Revenue reports that 56% of all property taxes collected fund public schools (including public universities). Much of this funding is sent to the State and then distributed to school districts via enrollment figures and a county equalization formula. Missoula and Ravalli Counties also raise money with local levies to make up for budgetary gaps from the State's allocation.⁴² An increased property tax base due to Resort development will result in more money for the State and local school districts. Every new student represents added funding: in 2006, revenue per student in Missoula and Ravalli Counties averaged \$8,289 and \$7,125, respectively.⁴³

Lately, Ravalli County has lost a lot of residents aged 25 to 40, which has caused a drop in public school enrollment. In turn, the school districts in this area have lost significant amounts of State funding which has resulted in the closure of some schools and the subsequent overcrowding of others.⁴⁴ The Resort may help with this problem in two ways by: (1) causing an in-migration of families (of

⁴² Based upon phone conversation with Bonnie Maze, District Budgeting Specialist, Montana Office of Public Instruction, September 28, 2007.

⁴³ Montana Office of Public Instruction. School Profile and Revenue and Expenditure per average number belonging (ANB) data. See <http://www.opi.mt.gov/>.

⁴⁴ "Comprehensive Economic Development Strategy and Bitterroot Resource Conservation and Development Area, Inc., (RC&D) Area Plan." Adopted by the RC&D, for the Economic Development District. July 2002.

Resort residents and employees) with children to the area; and (2) convincing more people in the 25 to 40 cohort to continue to live and work in the area. Either of these scenarios would result in more funding for the study area school districts. According to Jim Clark, Superintendent of Missoula County Public Schools, high school classroom capacity will not be a problem; a recent decline of K-8 students in the area has meant fewer students matriculate through the local high schools. Further, Mr. Clark believes that while some school improvements will be needed in the future, large capital expenditures for new or improved schools will not be necessary.⁴⁵

The Maclay Ranch is located in the Florence-Carlton School District 15-6. Elementary- and middle school-aged Resort residents in the public school system would attend schools in this district. John McGee, Superintendent of the District, reports that school capacity in the District is tight; currently, there are classes being held in areas that are not conducive of a successful learning environment (i.e. classes too near the gym or on a stage). The District does have the ability to take in roughly 100 more students, but they would be placed in areas normally not acceptable for classrooms. Currently, the District is putting together a facility planning commission to look at capacity issues. In the past few years, taxpayers have voted down bonds for new schools that would have helped with these problems; the bonding capacity exists, but voter approval is necessary. The commission will look into improving existing facilities. If substantial growth does occur within the District, a new building will be necessary; development impact fees are one method being considered to pay for such a facility.⁴⁶

Mike Magone, Superintendent of the Lolo School District 7, believes that few Resort residents would enroll children in the public school system. If children were enrolled, they would attend schools in the Florence-Carlton School District. Therefore, the Resort would only impact the Lolo District through the schooling decisions of its workers. If enrollment in the District were to increase due to an immigration of workers to the area, there would be little capacity to handle the students. Mr. Magone reports that all of the classrooms are currently being used. A limited number of students could fit into existing classes. The existing school facilities already have a backlog of necessary repairs.⁴⁷

GRADUAL RESHAPING OF THE REGION

If built, the Resort would add to the growth that the area is expected to experience in the future. However, the demand for new homes in the region does not hinge solely on the development of the destination resort. If demand for housing is not partially met on the Maclay Ranch, other landowners will continue

⁴⁵ Phone conversation with Jim Clark, Superintendent of Missoula County Public Schools, October 29, 2007. He estimates that there has been a 20% decline in K-8 enrollment in the area since the early nineties. The Resort, which would feed into the Missoula County high schools, should not be the sole cause of capacity problems within the District during its first 20 years of operation.

⁴⁶ Phone conversation with John McGee, Superintendent of Florence-Carlton School District 15-6. November 1, 2007. Mr. McGee notes that it is important to find creative solutions to the District's capacity problem in the future. One step is to work with the Resort, if development is approved, to discuss how both sides can cooperatively mitigate any impacts the Resort may have on District schools.

⁴⁷ Phone conversation with Mike Magone, Superintendent of Lolo School District 7, October 30, 2007.

to have economic incentives to develop their properties. Regardless of whether the destination Resort is built, growth in population and employment will occur in the near future. Again, between 2000 and 2020, the populations of Missoula and Ravalli Counties are expected to increase by 28.7% and 53.9%, respectively.⁴⁸ Many of these people, especially the retirees, will likely demand housing outside of urban areas. Therefore, it is not a matter of whether the growth occurs, but rather where it occurs and its rate.⁴⁹ The Resort may induce some people to move to the area who otherwise would not have.

The cost of providing government services and infrastructure to new homes will vary, depending greatly on their location. It is possible that the cost of providing services such as sewer and fire protection to areas outside of the Maclay Ranch may be higher. However, residential development not at the Resort will likely occur on flat, buildable land near Missoula where infrastructure costs are lowest for developers.

The destination resort would reshape the region by making it more attractive to tourists and workers. The region would have to fulfill the demands of these people. This means growth in the retail and service industries and the second home market, for instance. Resort communities in the West have experienced these changes, with varying effects on local economies.

Based upon a cursory review of literature from “resort counties”, the increase in second home ownership within the local market will be significant. According to the 2000 Census, counties with established ski resorts have a much higher proportion of second homes than geographically similar counties and the state.⁵⁰ Vail, as well as a couple smaller resorts, are located near the border of Summit and Eagle Counties in Colorado. Whereas only 4% of the State’s housing is made up of second homes, roughly 55% and 27% of residences in Summit and Eagle County have this characteristic. Nearby counties of Clear Creek and Lake (which contain one small ski area apiece) have a second home housing stock between 15% and 18% of total residential units.⁵¹ The same trend occurs in Utah: Summit County, where Park City Mountain Resort is located, has a second home ownership of 35% of total residences, whereas the State’s overall proportion is 4%.

Generally, second homeowners are middle-aged or older, are college graduates, and have high incomes and assets. Compared to an average homeowner, they spend roughly five times more money on lawn care, security and housecleaning. Further, a survey by the Northwest Colorado Council of

⁴⁸ Population projections processed for the Montana Department of Commerce by NPA Data Services, Inc.

⁴⁹ According to the Missoula Organization of Realtors “2007 Missoula Housing Report,” the sales of newly constructed single family residences in the Missoula and Lolo area increased at an average annual rate of 18.7% between 2001 and 2006. The sales of new condominiums and townhomes increased at an average annual rate of 26.0% during the same period. These data further imply that regardless of the Resort development, there is a growing demand for new housing in the Bitterroot Valley.

⁵⁰ The U.S. Census defines second homes as those units used for “seasonal, recreational, or occasional use.” These data can be accessed via Summary File 1, Table QT-H1 of the 2000 Census.

⁵¹ The location of ski resorts was determined by ECO using www.skiresortguide.com.

Governments of second homeowners near Vail discovered that they were more likely to shop at local stores than year-round residents. While such expenditure patterns benefit local businesses, the impact is not felt for much of the year: second homeowners in Colorado report spending 64 days a year in their vacation home—most frequently during the ski season.⁵² Some second homes are rented throughout the year.

Second homeownership has a significant effect on local economies: second homeowners who are attracted to an area because of a resort—and who otherwise would have purchased property elsewhere—represent net economic impacts. Their direct spending on construction, retail items and services will create direct and secondary job and income impacts throughout the local economy. In the Vail region, it is estimated that nearly 34% of the outside dollars entering the region are attributed to second homes.⁵³

Over time, areas that begin to rely too much on a resort and its second home market for economic stability may realize unintended results. A resort may stimulate more tourism and second home development that could shift an economy. This would create direct and secondary jobs related to tourism. Such a shift could lead to tourism having a “comparative advantage” over other sectors of the economy such as manufacturing or technology. New businesses will focus on tourism rather than manufacturing, for example. Resources will be more likely allocated for tourism uses, since businesses in the tourism industry would face less risk than high-tech firms. Second homeowners will desire retail and service businesses over manufacturing enterprises. As a result, the labor market could place high value on people tied to construction or leisure industries as opposed to agricultural and manufacturing sectors. The consequence is neither necessarily good nor bad; the point is that the complexion of the economy may be changed whether such a shift is desired or not.

As the second home market matures, there will be a greater demand for retail and service jobs. If the supply of developable land is limited by second home construction, many of the retail and service workers may find affordable housing near their place of employment lacking. Such problems may arise when an economy becomes tourism based.⁵⁴ In fact, this problem has already begun to occur in Missoula: there is a lack of residentially zoned land to meet housing demand (see Achievement of Local Economic Development Goals, next section).

If the Resort is developed, it is likely that existing retail and service businesses will be inclined to stay in Missoula. The Resort will bring new tourism to the area. As discussed above, many of the tourists and second homeowners will spend some of their money away from the Resort, providing economic benefits to the area. As businesses increase their employment and inventories to meet the

⁵² Northwest Colorado Council of Governments. “Transitions in Mountain Communities: Resort Economies and their Secondary Effects.” 2006.

⁵³ Northwest Colorado Council of Governments. “The Social and Economic Effects of Second Homes.” June 2004. The rest of the outside dollars are attributed to short-term winter and summer visitors, resident income, and other drivers.

⁵⁴ Ibid.

demand of tourists, they will have to plan for the seasonal nature of the ski industry. Some businesses may not plan adequately and struggle in the off-season. However, this factor alone will not cause many businesses to exit the Missoula market. The four-season nature of the Resort will help mitigate this type of problem.

ACHIEVEMENT OF LOCAL ECONOMIC DEVELOPMENT GOALS

In the past, the two-county economy relied upon high-paying mining, timber and railroad jobs. However, many of these jobs have been lost to environmental factors and increased efficiency. Since this time, the area has responded by trying to lure manufacturing jobs as a way to increase personal incomes. Higher transportation and shipping costs due to the area's remoteness have made this effort challenging. Many of the new businesses arriving to the area are in the service and retail sectors and generally provide low paying jobs.⁵⁵ These businesses respond to the demands of older residents migrating to the area, but do not provide many incentives to young, educated people (including students of the University of Montana) who leave for other areas. Keeping this talent within the area is a major goal identified by the Bitterroot Resource Conservation and Development Area, Inc. (RC&D). Innovative industries, such as bio-technology, would help achieve this goal.

The addition of the Resort will not help advance the goal of creating high-paying manufacturing or technology jobs. In fact, it may hinder the endeavor (e.g., see Gradual Reshaping of the Region, previous section).

Another problem that has been facing the study area is "rural sprawl" and the general movement of large portions of the population out of urban areas. This movement has been enabled by the truth that returns on agricultural activities for landowners in some areas have not been as lucrative as the act of subdividing land and selling it for development. As for the newcomers, some choose to live in rural areas. Others are forced to seek cheap land due to the inability to afford housing in Missoula, which is lacking in affordable housing programs. In either case, the result has been scattered subdivisions on land that does not have many land use controls. Consequently, the cost of serving infrastructure, school, medical, and law enforcement needs to these remote areas has been immense.⁵⁶

The Resort would not directly achieve the goal of reducing rural sprawl, but it would not necessarily hurt the area's aspirations in these endeavors either. Yes, the resort will be built in what is now a rural area. But it will be a concentrated, quasi-urban development. If the demand for the housing it will provide were met instead by many small, large-lot subdivisions, the "rural sprawl" would be much greater. Under the destination Resort scenario, the housing may be denser than a traditional rural subdivision: current planning pegs the residential housing density

⁵⁵ "Comprehensive Economic Development Strategy and Bitterroot Resource Conservation and Development Area, Inc., (RC&D) Area Plan." Adopted by the RC&D, for the Economic Development District. July 2002.

⁵⁶ Ibid.

at seven dwelling units per acre. Traditional rural subdivisions usually develop at densities near one to two dwelling units per acre. The Resort would create a market for rural condos and townhomes in the area that likely would not exist otherwise. It remains to be seen whether these high-density units would serve to satisfy newcomers' demand for housing in the study area.

The lack of affordable housing in the two-county economy is expected to continue in the future. In the City of Missoula, for instance, there is a lack of residentially zoned land needed to meet the future housing demand.⁵⁷ Regardless of the Resort, the City will need to plan for the growth by extending its services into new areas. If the City does not adequately prepare for the demand, housing prices will increase and even Resort employees, who would make more than study area average, may find themselves struggling to find affordable housing.⁵⁸ The problem of retaining educated individuals will be compounded as people decide to move to areas with low housing costs and higher-paying jobs.

It is possible that the Resort may keep the young and the educated in the area longer by providing higher-than-average paying jobs in the retail and service sector. Resort employment could act as a stepping-stone for many people. This would be especially beneficial if high paying, innovative job opportunities began to appear in the area.

⁵⁷ "City of Missoula 2006 analysis of Impediments to Affordable Housing Choice." Western Economic Services, January 17, 2007.

⁵⁸ According to the Missoula Organization of Realtors "2007 Missoula Housing Report," a median income household of between one and four individuals did not have the income required to purchase a median priced home in 2006. This represents a decrease from prior years. Whereas a median income four person household had 93% of the income required to purchase a median priced home in 2006, the same household had 115% of the income needed in 2001. Affordability has similarly decreased for all other household sizes. These data take local interest rates and loan terms into consideration.

TOTAL NET SECONDARY IMPACTS

The total net secondary impacts equal the sum of the net secondary construction and operation impacts. Table 11 displays these impacts. The output increment is estimated at \$86.7 and \$77.8 million (2007\$) in years 10 and 20, respectively. In terms of trends, the total net secondary impacts follow the total net direct impacts: both output and business income would be higher in year 10.

Unlike the direct wages and employment, secondary wages and employment are expected to fall. This is because many direct construction jobs will be replaced by direct retail and service jobs between the two time periods. Retail and service jobs result in fewer secondary impacts than construction jobs because they are low paying, there is a small mark-up on the cost of goods sold, and—in many cases—revenues flow out of the study-area to businesses headquartered elsewhere. For these reasons, retail and service jobs produce relatively low secondary impacts compared to all other employment sectors.

Table 11. Total net secondary impacts for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Time Frame / Type of Impact | Destination Resort | Small Resort | Increment |
|--------------------------------|-----------------------|-----------------|-----------|
| Year 10 Impacts | | | |
| Output | \$107.3 | \$20.6 | \$86.7 |
| Wages | \$27.4 | \$5.3 | \$22.2 |
| Business Income | \$6.2 | \$1.2 | \$5.0 |
| Other Income | \$19.5 | \$3.7 | \$15.8 |
| Jobs | 1,234 | 237 | 997 |
| Year 20 Impacts | | | |
| Output | \$97.6 | \$19.8 | \$77.8 |
| Wages | \$23.8 | \$4.8 | \$19.0 |
| Business Income | \$5.7 | \$1.2 | \$4.5 |
| Other Income | \$18.3 | \$3.7 | \$14.6 |
| Jobs | 1,091 | 221 | 870 |

Calculated by ECONorthwest using IMPLAN.

TOTAL NET ECONOMIC IMPACTS

The total net economic benefits of the Resort equal the sum of the total net direct and secondary economic impacts. Table 12 displays these benefits. Table 12 does not include “other secondary impacts:” it just includes the ones that we have classified and quantified as “economic” impacts. The output increment is estimated at \$244.0 and \$229.5 million (2007\$) in years 10 and 20, respectively. The total employment increment would be 3,866 and 4,161.

To put these estimates into perspective, the total year 10 output of the destination and small-scale resorts are roughly 3.2% and 0.6% of the total 2007

output in the study-area, respectively.⁵⁹ In year 20, the destination Resort's share of the 2007 two-county output would drop to approximately 3.0% due to fewer construction impacts. Year-10 jobs related to the destination and small-scale resorts would make up 4.6% and 0.8% of the total employment in the study-area in 2007, respectively. By year 20, the destination Resort's share of employment would increase to 4.9% of total 2007 study-area employment.⁶⁰

Again, note that not all of the jobs listed in Table 12 are full-time equivalent. Many construction jobs will be temporary and will vary greatly in duration; a welder may be employed for less time than an electrician or carpenter. Further, some of the jobs will be seasonal, lasting only the length of the ski season.

Table 12. Total net economic impacts for both resort scenarios, years 10 and 20 (millions of 2007\$)

| Time Frame / Type of Impact | Destination Resort | Small Resort | Increment |
|----------------------------------------|-------------------------------|-------------------------|------------------|
| Year 10 Impacts | | | |
| Output | \$302.5 | \$58.5 | \$244.0 |
| Wages | \$85.6 | \$15.7 | \$70.0 |
| Business Income | \$23.7 | \$4.9 | \$18.8 |
| Other Income | \$41.9 | \$8.4 | \$33.5 |
| Jobs | 4,672 | 806 | 3,866 |
| Year 20 Impacts | | | |
| Output | \$288.2 | \$58.7 | \$229.5 |
| Wages | \$80.4 | \$15.0 | \$65.4 |
| Business Income | \$14.4 | \$3.2 | \$11.2 |
| Other Income | \$46.9 | \$9.7 | \$37.2 |
| Jobs | 5,038 | 877 | 4,161 |

Calculated by ECONorthwest using IMPLAN.

⁵⁹ To put these estimates into further perspective: the year-10 destination Resort output represents roughly 7.8% of the total non-resident travel industry output of Montana in 2005. In year 20, the share decreases to 7.4%. Of course, Resort output includes components that are not apart of the non-resident travel industry, including construction and resident visitor output. Non-resident travel industry output was reported by the University of Montana Institute for Tourism and Recreation Research. "Economic Review of the Travel Industry in Montana," December 2006.

⁶⁰ U.S. Bureau of Labor Statistics. These employment statistics includes covered and uncovered employment.

Conclusions

This section is more a summary than a conclusion. ECO's task was not to make a policy recommendation but to describe impacts. That description makes one conclusion obvious, if it were not already: the large-scale Resort has substantially bigger economic impacts than the small-scale resort. The contribution of this report is to not make that general conclusion about economic impacts, but to give an approximate idea of the magnitude of their impacts. Table 12 provides that approximation.

In terms of broad impacts to the study-area economy: a reliance on tourism and a second home market may result in unintended results. Due to shifts in demand new businesses may focus on tourism rather than manufacturing, for example. Again, the consequence is neither good nor bad; the complexion of the economy may be changed whether such a shift is desired or not. Population projections and a growing demand for housing in the Bitterroot Valley suggest that such a shift may occur regardless of the development of the Resort.

If developed, the Resort will produce many retail and service jobs within the study area. In terms of secondary impacts, the two-county economy would gain from increases in expenditures by local residents and ancillary businesses via wage and revenue impacts. Local planning documents recognize that higher-paying technology-related jobs are important for the future economic health of the region. However, the Resort would not directly create such jobs. But its development does not come at the expense of these jobs: the Resort will not be developed in lieu of a cutting-edge industrial park.

The question that we have not addressed or opined on is whether these estimated economic benefits are worth their costs. Those costs include whatever environmental and natural resource amenity might be sacrificed by converting the higher elevations of Carlton Ridge/Lolo Peak from a natural area to a ski slope. They include the other fiscal costs and disamenities that occur as any area grows. Identifying and estimating all those costs, and weighing them against the benefits of the development, is beyond the scope of our research and, for that matter, most evaluations of the type we have described.

Thus, we cannot make a recommendation about whether the large-scale Resort should be approved or not. What we can say, however, is that to the extent that economic growth is important in the two counties and to the decision about the Resort, the amount of additional economic activity that the large-scale Resort would contribute to the study area is large both relatively and absolutely.

INPUT-OUTPUT MODELING

One economic modeling framework that captures the direct, indirect, and induced effects of spending on a project is called input-output modeling. Input-output models provide an empirical representation of the economy and its inter-sectoral relationships.

Because input-output models generally are not available for state and regional economies, special data techniques have been developed to estimate the necessary empirical relationships from a combination of national technological relationships and county-level measures of economic activity. This planning framework, called IMPLAN (for IMpact Analysis for PLANning), is the technique that ECONorthwest applied to the estimation of impacts.

THE ORIGINS OF THE IMPLAN MODEL

IMPLAN was developed by the Forest Service of the US Department of Agriculture in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management of the US Department of the Interior to assist federal agencies in their land and resource management planning. U.S. government agencies, other public agencies, and private firms including ECONorthwest have applied the model to a wide variety of public and private sector projects.

The model is distinguished from typical input-output models in that it is not survey based; survey-based input-output models place significant demands on data, and are uneconomical to apply in most situations. Rather, IMPLAN employs secondary source data, available by state and county, to define a model for any region in the United States.

Two sources of data are particularly central to the IMPLAN models: the National Income and Product Accounts published annually by the Bureau of Economic Analysis (BEA) of the U.S. Commerce Department, and the BEA input-output model for the United States. The IMPLAN modeling process utilizes the national input-output model and county-level economic activity data to derive input-output models for units as small as a county.

The process that develops the county-level input-output model generates coefficients that are internally consistent, in that county data sum to state totals and state data sum to national totals. This generally is not the case with survey-based input-output models, which limits their applicability to large-scale projects that affect a number of interrelated regions. (Arguably, however, an input-output model estimated from survey data has more accurate coefficients, because the survey can be customized to the problem at hand. In contrast, IMPLAN *derives* its coefficients using a combination of the national input-output survey model and

local activity data; conceivably, this will produce somewhat different results from a direct, local survey. Given the difficulty and expense of input-output surveys, however, the disadvantages of the IMPLAN approach are slight.)

MODELING

The process of modeling involves three steps:

- Creation of study-area database;
- Customization of IMPLAN coefficients;
- Estimating the impact of an activity on the model of the study-area economy.

The IMPLAN model allows substitution and incorporation of primary data at each stage of the model-building process, greatly increasing the model's accuracy and flexibility. In addition to being able to directly modify the IMPLAN database statistics, the user can alter import and export relationships, utilize modified input-output functions, and change industry groupings. IMPLAN allows the creation of aggregate models consisting of industries grouped together for a specific purpose.

Once a regional input-output model has been specified, impact analysis may be performed on that model. New industries or commodities can be introduced to "shock" the regional economy, industries or commodities may be removed or disaggregated, and reports can be generated to show the consequences (on output, employment, and value-added) of various impacts.

The key to input-output analysis is the construction of the input-output or transactions table, which shows the flow of commodities from each of a number of producing industries to all consuming industries and final demand (ultimate consumers). Given that many industries produce more than one commodity, production information is often tabulated on an industry-by-commodity basis into a "Make" matrix, containing the value of commodities produced by different industries, and a "Use" matrix, containing the value of commodities used by each industry in the production process. These matrices are combined to produce the input-output transactions table showing each industry buying and selling from other industries.

From these industry flows, two other structural tables are developed: (1) a table of technical coefficients or direct requirements and (2) a table of direct and indirect coefficients or total requirements. The entries in the former are interpreted as the dollar value of the minimal requirements from each of the contributing industries in order for each producing industry to produce one dollar's worth of output. The entries in the latter table are to be interpreted as the amount of output from the contributing industries required, both directly and indirectly, to deliver one dollar's worth of the producing industry's output to final demand.

DEFINING THE STUDY-AREAS

The IMPLAN program uses an ordered series of steps to build the model. We describe them here to provide the interested reader with a view of the sequence of steps employed, and the types of data needed to model the impacts.

The first step is the definition of the study-area or study-areas. Study-area Databases are created corresponding to these areas. These databases contain the representation of the behavior of the study-area economies, but do not contain any information about the specific project under study.

CUSTOMIZING THE IMPLAN COEFFICIENTS

The process of customizing the IMPLAN model does not stop with the development of the Study-area Databases. Part of the expertise of input-output practitioners is in the customization of the model coefficients. In this section, we describe the various steps in the customization process.

CONSTRUCTING THE SOCIAL ACCOUNTING MATRIX

From the Study-area Databases, a mathematical concept called the Social Accounting Matrix is constructed, using computer procedures incorporated in the IMPLAN modeling system. The initial study-area data in this transformation can be viewed and edited in a spreadsheet-like program. There are 22 IMPLAN data elements appearing in columns and 528 industry/commodity names forming the rows. The database elements are organized into five main groups: Final Demand, Sales, Value Added, Employment, and Total Industry Output. These elements can be further divided into those that are specific to commodities and those that relate to industries.

The user may edit the Regional Purchase Coefficient and the Directly Allocated Exports Coefficient for each commodity. Both of these coefficients are calculated from the Social Accounting Matrix so they may only be modified after that matrix has been constructed. The IMPLAN program contains internal checks, which enforce data integrity and will not allow values outside the specific, valid range for these coefficients to be accepted by the model.

BUILDING THE INPUT-OUTPUT ACCOUNTS

After creating the social accounting matrix, the input-output accounts for the model are constructed. The input-output accounts are formed by transforming parts of the social accounts from an “industry-by-commodity” format to an “industry-by-industry” format; it combines submatrices into a single “transactions” submatrix, as described in general above. The input-output accounts may be constructed with either aggregated or unaggregated industry data. The former will reduce the size of the industry matrix (and processing time) by creating aggregate industries from individual industries.

ESTIMATING MULTIPLIERS

The last step in building the model is to estimate the multipliers. Five different sets of multipliers are estimated by IMPLAN corresponding to five measures of regional economic activity: Total Industry Output, Personal Income, Total Income, Value Added, and Employment. Multiplier analysis is used to estimate the regional economic impacts resulting from a change in final demand. Impacts can be in terms of direct and indirect effects (commonly known as Type I multipliers), or in terms of direct, indirect, and induced effects (Type II and Type III multipliers). More specifically, direct effects are production changes associated with the immediate effects of final demand changes. Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries. Induced effects are the changes in regional household spending patterns caused by changes in household income--generated from the direct and indirect effects.

IMPLAN calculates two types of multipliers for each of the five impact measures. The first output multiplier represents the value of production, from indirect and direct effects, required from all sectors by a particular sector in order to deliver one dollar's worth of output. The second output multiplier adds in the induced requirements. The size of the multiplier is not a measure of the amount of activity or the importance of a given industry for the economy. It is an estimation of what would happen if that industry's sales to final demand increased or decreased. In other words, output multipliers can be used to gauge the interdependence of sectors; the larger the output multiplier, the greater the interdependence of the sector on the rest of the regional economy.

PERFORMING IMPACT ANALYSIS

Once the model is complete, impact analysis can be performed on the model. Impact analysis involves posing a change in the demand for commodities and using the multiplier model to examine the effects that producing and delivering the commodities may have on a region's employment, income, and population. Several types of economic impact analyses can be carried out simply by varying structural, technological, and/or trade factors within the model. For instance, the user may add or remove sectors from the model, or change the size of an industry, or the user may change production functions, or make changes in commodity imports and exports. To perform a full economic impact analysis with IMPLAN, all of the relevant structural, technological, and trade related adjustments must already be incorporated in the regional model.

In order to keep track of and organize all of the information needed to describe a change in the final demand for commodities, IMPLAN uses the general concept of a "scenario" to capture all of the information about the change(s) in commodity demand for which impacts are being estimated. Scenarios are made up of several building blocks.

At the lowest level is a transaction; this is the actual expenditure that represents the final demand for a commodity. Descriptive information about this

transaction, such as what commodity is involved, when it occurred, and how it was measured, are collectively referred to as an event. A collection of events, which have descriptive information in common, occurring together, are referred to as an activity. For instance, the group of events that make up an activity may be related to each other by who caused them to take place or why they took place.

A scenario is a collection of one or more activities (which includes, in turn, events with transactions), specifying where the activity(s) occurred and at what level(s). A scenario may be viewed as equivalent to a management, planning, or policy alternative. Units of measure are assigned to each activity and can be in physical terms, monetary terms, household consumption, or any other terms appropriate for the problem under study. The unit price represents the transaction rate--the total amount of purchases necessary to participate in one unit of an activity.

In order to run an economic impact analysis, the user must build a datafile of changes in final demand. All activities to be included in the analysis must be defined, providing information about who initiated the demand change, the base year of the activity, the transaction basis (commodity purchase or an industry's output), conversion rate (which gives a scale of the transactions occurring in the activity), and measurement units. There is a finite list of causal agents to choose from when describing the activity, comprised of the following choices: households, federal government, state/local government, enterprises (investment), and industry. Once the activity is defined, the next step is to define events that occur in the activity, in much the same way as for the activity itself.

MODEL OUTPUTS

The IMPLAN model provides estimates of impacts of the expenditures on income, and employment that follow from direct, indirect, and induced expenditures. By writing special fiscal impact modules, the model also can be used to estimate impacts on the tax revenue collected through property taxes, sales taxes, corporate income taxes, and other fiscal devices. In addition, IMPLAN can provide estimates of stimulus to population growth that will result from project expenditures.

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