University of Minnesota Duluth
School of Business and Economics
Bureau of Business and Economic Research
Research Report

Tax Revenue Impacts and Marketing Northern Minnesota's Iron Trail

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May 2003

Regional Sustainable Development Partnerships

Executive Summary

Who pays what tax, and who benefits? Calculations:

Impact data reported in this study are offered to assist planners making informed choices toward accomplishing their economic development objectives—in this case to support tourism in the Iron Trail communities. This report includes tables which display social, economic and environmental impacts and which demonstrate how planners may set out their choices when determining necessary and/or desired taxes and tax revenue allocations.

For example, if planners limit their discussion to spending tax revenue on marketing alone, and if planners determine that something like $250,000 are needed, then the tax rates can be arrayed by calculating revenue source (lodging, food, beverage and/or retail sales tax percentages). This report show two such possible sets of calculations for generating funds for 1) marketing only and 2) funds for marketing and local infrastructure. A number of such tables might be used as part of the challenge of making decisions about proposing taxes.

Social, economic and environmental impact of taxes:

This report begins with details of social impacts of tax changes which show that costs are incurred by local residents and visitors who make purchases in the tax categories. There are virtually no costs to the businesses that provide the services or facilities that would generate the tax revenue.

However, benefits from a plan that would use a portion of the newly generated tax revenue for marketing the target area amenities would be distributed in such a way that local businesses would benefit directly as a result of increased customer activities, producing a larger revenue stream and in all likelihood, increased profit.

Local residents will benefit indirectly from the proposed tax, and also benefit from the possibility of some increased employment resulting from the increase in customer/sales activity.

Visitors, regardless of the purpose of their trip, business and/or recreation/ entertainment, would bear the brunt of the increased cost in lodging, while local residents would provide a larger portion of the increase in the revenue generated by an increase in food/beverage and retail sales tax.

Benefits to the communities can include:

- Local businesses benefit directly as a result of increased customer activities, producing a larger revenue stream and increased profit.
- Local residents benefit from increased employment resulting from the increase in customer/sales activity.
- Additional profits result in an increase in investment in services, facilities and/or product lines.
- Increase in services, etc. provides an increase in the quality of options for local residents.
- Direct benefits to local residents will increase as the proportion of funds spent on infrastructure increases (tax revenue generated and converted for local projects).
- Raising the lodging tax does not tax local residents but places the tax on out of area visitors.
- Employment, Value Added, and Output economic benefits of the additional economic activity flowing to community businesses in the impacted sectors.
- Possible compensation from sharing of environmental costs from businesses who receive most of the economic benefits.

Additional profits may result in an increase in investment in services, facilities and/or product lines, and this may provide an increase in the quality of options for both visitors and local residents alike.

While local residents may provide the largest portion of the increase in revenue, the level of direct benefits they will experience will increase as the proportion of funds spent on local infrastructure increases (tax revenue generated and converted to infrastructure projects). Lodging Tax does not generate much additional revenue; however, raising the lodging tax does not tax local residents but places the tax on out of area visitors.

Visitors spend approximately one third of their total expenditures on lodging. A summary of the economic and environmental impacts, as derived from the IMPLAN and ISF models, is shown below. Readers of the full report will note that environmental (externalized) costs are distributed in a manner similar to the retail sales tax; the benefits of the additional economic activity flow mostly to community businesses in the impacted sectors, whereas the environmental costs are shared by individuals living in and visiting the communities. Planners may need to develop some mechanism by which these costs can be distributed.

Economic and environmental impact numbers provided in this report are projections and estimates. Details of all three impacts are provided and explained in the full report.

Economic development objectives:

It is anticipated that proposed taxes will allow the Iron Trail Convention & Visitors Bureau to better position the region as a tourist destination and allow Iron Trail communities the ability to provide infrastructure. Because these communities have recently suffered changes in their traditional source of economic development funds, they must identify a new revenue source for further developing the infrastructure of their communities.

This study gathered information on the potential fiscal, social, and environmental impacts of generating revenue through taxation to support increased marketing of the region as a tourist destination and for community infrastructure development.

Economic and Environmental Impact Summary

Findings totaled for economic impacts, including Employment, Output and Value Added impacts for three industry groups and three inquiry-to-visitor conversion percentage rates. Findings totaled for environmental impacts, including top 25 impacted sectors which account for over 90% of externalized environmental costs.

Industry Sector	Inquiry- to-visitor rates[1]		Economic Impacts[2]		Externalized Environmental Costs[3]
Eating & Drinking	Low	40%	Employment	66.6	$44,266
			Output	$2,230,856	
			Value Added	$1,356,789	
	Medium	54%	Employment	89.9	$59,759
			Output	$3,011,658	
			Value Added	$1,831,666	
	High	65%	Employment	108.2	$71,932
			Output	$3,625,144	
			Value Added	$2,204,784	
Eating & Drinking + Lodging	Low	40%	Employment	76.9	$51,136
			Output	$2,577,094	
			Value Added	$1,567,368	
	Medium	54%	Employment	103.8	$68,998
			Output	$3,479,075	
			Value Added	$2,115,946	
	High	65%	Employment	125.0	$83,096
			Output	$4,187,777	
			Value Added	$2,546,973	
Retail Tax	Low	40%	Employment	268.5	$178,576
			Output	$8,999,660	
			Value Added	$5,473,525	
	Medium	54%	Employment	362.6	$241,077
			Output	$12,149,541	
			Value Added	$7,389,258	
	High	65%	Employment	436.5	$290,185
			Output	$14,624,447	
			Value Added	$8,894,477	

[1] High and low estimated by BBER, medium provided by Iron Trail Convention and Visitors Bureau

[2] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

[3] Institute for a Sustainable Future; The Economic Input Output-Life Cycle Assessment Model.

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About the project

The UMD Bureau of Business and Economic Research (BBER) was asked to consider a ten community region and for purposes of planning to expand tourism in the region (1) to study and report on the potential fiscal, social, and environmental impacts of users within the region served by the Iron Trail Convention & Visitors Bureau; and (2) examine various revenue generating possibilities for increased marketing of the region as a tourist destination and for community infrastructure development. The ten communities are surrounded by many tourist attractions and the Mesabi Trail which is a multi-use trail that will eventually stretch 132 miles from Ely to Grand Rapids. The Superior National Forest Scenic Byway is a highway that will serve as a tourist and vacation route from the North Shore Silver Bay to Aurora/Hoyt Lakes. The economic model used was IMPLAN. The results are presented in a PowerPoint presentation, a preliminary report, this final report, and on the BBER's web-site at http://www.d.umn.edu/sbe/departments/bber/projects/projects.htm.

The BBER is working closely with the Iron Trail Convention & Visitors Bureau, the Northeast Minnesota Sustainable Development Partnership, and others to determine the key assumptions for development of the IMPLAN model.

Preliminary report date: March 2003. Final report date: April 2003. Presentation date: May 2003. Contract end date: December 31, 2003.

A non-survey IMPLAN input-output model for a region is derived from a national set of structural matrices. The national model represents the "average" condition for a particular industry, without adjustments for regional differences.

Due to the economic downturn on the Iron Range brought about by the closure of LTV Steel and other mining company layoffs, tourism has become an important focus for Minnesota's Iron Range communities. Because these communities have suffered the loss of their traditional source of economic development funds from the Iron Range Resources & Rehabilitation Board, a new funding source for infrastructure and marketing the Iron Trail must now be identified. The ten communities in this study must also identify a new revenue source for further developing the infrastructure of their communities.

Deliverables

As discussed in the project proposal, this assessment project will

- Study and report on the potential fiscal, social, and environmental impacts of users within the region served by the Iron Trail Convention & Visitors Bureau.

- The Iron Trail Assessment Project will include three studies and reports from three impacts focusing on these areas: Economic Assessment, Sociological Assessment, and Environmental Assessment

- Economic impacts will be used to compute tax revenue earnings from one of a possible three sources: (1) a general sales tax, (2) an excise tax on hotels, motels, and eating and drinking places, and (3) an excise tax on eating and drinking places only.

- The economic impact will also serve as the basis for identifying the regional industries most affected (positive or negative) by increased tourism traffic.

- Economic impacts will be linked to a national input-output system developed at Carnegie Mellon University, Green Design Initiative, to estimate environmental impacts from increased economic activity in the ten communities. Values will be assigned on the basis of these impacts to generate environmental costs from tourism activity.

- Social impacts will be estimated from data generated and manipulated within the IMPLAN system. A cursory evaluation of income distribution effects will be estimated along with an industry/commodity assessment relating to potential growth centers within the communities.

Background

On Wednesday, May 24, 2000, LTV Mining announced the closing of its mining operations in Hoyt Lakes effective mid-year 2001. This closing affected over 1,400 jobs from the LTV Mining operation, and possibly over 600 more jobs from vendors, contractors and area businesses.

The closing of the mine also results in a loss of revenues from the Iron Range Resources and Rehabilitation Board that have been used for infrastructure needs for Iron Range communities. The loss of these revenues means that many communities will need to find other monetary sources for community infrastructure work.

Although the direct economic impact of losing 2,000 jobs is devastating to the area's economy, it also presents an opportunity to increase support for tourism and its subsequent economic impact. The ten communities are surrounded by 320,000 acres of the Superior National Forest, and it connects people to snowmobile trails, cross country ski trails, mountain biking trails, and many other opportunities. Giants Ridge was voted the number one public golf course in Minnesota by *Golf Digest* and one of the top five ski resorts in the Midwest by Ski Magazine. Minnesota's first designated state recreation area for off-highway vehicles, managed by the Department of Natural Resources, opened

fall 2002 in Gilbert. The Mesabi Trail[1] is a multi-use trail that will eventually stretch 132 miles from Ely to Grand Rapids. The Superior National Forest Scenic Byway was completed, fall 2002, a highway that will serve as a tourist and vacation route from the North Shore Silver Bay to Aurora/Hoyt Lakes, home of LTV Steel.

Project Description

Tourism in the region has grown substantially over the past nine years, based on lodging receipts. However, when compared to the North Shore, Ely, or Grand Rapids, the current tax revenue does not generate sufficient marketing revenue to keep the region competitive, as compared to these other aforementioned cities; the question has been raised about how to market the area in a way that would increase awareness and increase flow of external dollars to the area. As noted above, the mining industry has dominated in this region, and as a consequence of mining's dominance these communities have been less prepared to deal with new infrastructure needs that will be created by an increase in tourism traffic, while preserving the quality of life for residents.

New tax revenue can provide new opportunities for sharing among the communities. The three proposed taxes will support revenue and infrastructure needs simultaneously by allowing the Iron Trail Convention & Visitors Bureau to better position the region as a destination, and by allowing Iron Trail communities the ability to provide infrastructure.

Timing for this project is crucial. While residents, businesses and elected officials are especially open to diversifying the Iron Range economy, the marketing of the region offers an opportunity to bring new revenues into these communities.

To further the discussion of the feasibility of placing a new tax on food, beverage and hotel/motel facilities in the ten communities served by the Iron Trail, an estimation of the impact of these proposed taxes on the communities has been proposed. This study provides findings on three categories of impact analysis: economic, environmental, and social impacts. The findings below discuss these impacts, but first, for planning purposes, we note the position of various stakeholders in the region.

[1] Tourism trends show trail use is on the increase; for instance, Duluth News Tribune, April 6, 2003, "For vacationers, it looks as if this might be a summer of uncertainty. Gas costs are high. Jobs are in jeopardy. The world is mired in strife. It's not a time to celebrate -- and yet summer is on the way, and who wouldn't be happy about that? As a rule, April is a good time to make plans, especially if the plans include camping at popular state parks, renting cabins at lake resorts or visiting big festivals at busy vacation spots . . . ."

Who pays, how much tax, and who benefits?

A few cautions are good to bear in mind when configuring possible social impacts from the proposed tax. The tables below show possible impacts of a new tax on stakeholder groups. Note that 1) a comparison is shown for impacts without the proposed tax, 2) that projecting tax impacts must include planning for impact measures over time, and 3) especially the fact that the plan to achieve a certain revenue level will build toward the objective but not be in place completely from the start date of the new tax. Planners will want to calculate how long it will take them to get to the goal. Another planning challenge might be to calculate how to achieve the necessary revenue and thereby determine the suggested tax percentage(s). The stakeholder discussion below highlights the fact that planners will be making choices about who pays the tax and who benefits from it. Policy makers may be interested to suggest the minimum tax required to generate only the marketing revenue needed. Subsequent to the planning process, recommendations for allocation of resources will depend on an understanding of who pays the tax and what community infrastructure projects may ensue in which communities from use of this revenue. And finally, planners will want to be mindful that projections for planning derived from models are subject to correction if better data or feedback are available.

Among the stakeholders in the planning process to be considered are area residents, area businesses, pleasure visitors, business visitors, and other communities. By presenting a table showing some of the possible impacts on each of these groups by taxes on food, lodging and retail, and by showing impacts in terms of using the revenue raised for both local infrastructure and marketing, we can see the interaction of these outcomes with stakeholders and also present an idea of the choices to be made. Note below impact tables for each of these stakeholder groups, for each of the taxes proposed, and for each of the suggested uses of revenues. Also note the comparison column for checking for impacts unrelated to the proposed tax change.

As noted on the tables, this analysis is based in part on the assumptions that local residents (a) will continue to pay for the majority of the "retail" services, (b) will for the most part not use "lodging" services, (c) are the primary users of "restaurant" services, and (d) use some local recreations facilities more than visitors (e.g. golf courses) and other recreation facilities less than visitors (e.g. Iron World, OHVRA [off road highway vehicle recreation area] site at Gilbert, etc.). In addition, the assumption is made that most of the increased visitor use will result from parties "shifting" the nature of their Minnesota trip and not from parties making the decision to make an additional trip. Another recent consideration in travel plans will be uncertainty in fuel prices which may result in shorter trips and/or fewer airline based trips.

Analysis: Social, Economic, and Environmental Impacts

1) Social Impact

Social Impact: Assumptions

The social impact considers a matrix of variables that includes users and use, seasonal use patterns, levels of consequence, and negative/positive consequences. Research on sociological impacts for this project attempts to identify issues and to present descriptions of the projected social impacts.

Social impacts are estimated from data generated and manipulated within the IMPLAN system itself. A cursory evaluation of income distribution effects are estimated along with an industry/commodity assessment relating to potential growth centers within the communities.

Two levels of social impacts are projected: those that are thought to follow directly from the proposed change (Primary Impacts) and those that follow indirectly (Secondary Impacts). The types of Primary Impacts that are expected to be associated with the changes in the tax on food and beverage, lodging, and/or retail expenditures in the target area are presented in Table 1.

Generally, costs are incurred by local residents and visitors who make purchases in the tax categories. There are virtually no costs to the business that provide the services/facilities that would generate the tax revenue. However, the benefits from a plan that would use a portion of the newly generated tax revenue for "marketing" the target area amenities would be distributed so that local businesses would benefit directly as a result of increased customer activities, producing a larger revenue stream and in all likelihood, increased profit. Local residents will benefit indirectly from the proposed tax, and also benefit from the possibility of some increased employment resulting from the increase in customer/sales activity.

Visitors, regardless of the purpose of their trip, business and/or recreation/entertainment, would bear the brunt of the increased cost in lodging, while local residents would provide a larger portion of the increase in the revenue generated by an increase in food/beverage and retail sales tax.

Additional customers/sales/profits may result in an increase in investment in services, facilities and/or product lines, and thereby provide an increase in the quality of options for both visitors and local residents alike. While local residents may provide the largest portion of the increase in revenue, the level of direct benefits they will experience will increase as the proportion of funds spent on local infrastructure increases (tax revenue generated and converted local projects).

However, it may be expected that the process of determining the nature and levels of expenditures of these local infrastructure projects will generate conflicts associated with perceptions that project goals are incompatible with the interests of some residents who believe that the project(s) does not benefit them.

Social Impact: Findings

TABLE 1: Social Impacts of Tax Change for Stakeholders: AREA RESIDENTS

The following analysis is based in part on the assumptions that local residents (a) will continue to pay for the majority of the "retail" services, (b) will for the most part not use "lodging" services, (c) are the primary users of "restaurant" services, and (d) use some local recreations facilities more than visitors (e.g. golf courses) and other recreation facilities less than visitors (e.g. Iron World, OHVRA site at Gilbert, etc.).

	Projected Impacts with Tax					Impacts without Tax
	Taxes:			***Use of revenue:***		
Stakeholders	***Food***	***Lodging***	***Retail***	***Local***	***Marketing***	
Area Residents:						
"Eat Outers"	Opportunities may increase - slight cost increase				May make available more options - result in "crowding" at peak times	
"Non Eat Outers"		No Change	Opportunities may increase - slight cost increase	No determination of changes until the nature of projects is known - the process of allocating funds will produce conflicts among stakeholders over perceived goal incompatibility	No Change	
Facility users					May make available more options - result in "crowding" at peak times	No Change in opportunities or cost
Non users	No Change				No Change	
Employable Residents				May be an increase in employment opportunities	May be an increase in employment opportunities	
Environmental Factors (All Residents)						

Source: UMD Bureau of Business and Economic Research

TABLE 1 (continued): Social Impacts of Tax Change for Stakeholders: AREA BUSINESSES

Stakeholders	Projected Impacts with Tax					Impacts without Tax
	Taxes:			*Use of revenue:*		
	Food	***Lodging***	***Retail***	***Local***	***Marketing***	
Area Businesses:						
Lodging Businesses		Require additional record keeping. May be shift to more use of relatives/friends.		No determination of changes until the nature of projects is known. The process of allocating funds will produce conflicts among stakeholders over perceived goal incompatibility	Expected to increase business and cost effectiveness -	Decline in Business - increase in Marketing costs
Restaurants	Require additional record keeping					
Facilities Operators			Require additional record keeping			

TABLE 1 (continued): Social Impacts of Tax Change for Stakeholders: PLEASURE VISITORS

Stakeholders	Projected Impacts with Tax					Impacts without Tax
	Taxes:			*Use of revenue:*		
	Food	***Lodging***	***Retail***	***Local***	***Marketing***	
Pleasure Visitors:						
Overnight Stayers	Will increase costs	Will increase costs	Will increase costs	No determination of changes until the nature of projects is known.Expenditures could be used to improve or make additions to those features that are considered amenities by visitors	Experience “new” location, increase in cost, possible scheduling problems	No change in opportunities available - may be cost increases due to business decline
Restaurant users						
Facility users						

TABLE 1 (continued): Social Impacts of Tax Change for Stakeholders: BUSINESS VISITORS

Stakeholders	Projected Impacts with Tax					Impacts without Tax
	Taxes:			*Use of revenue:*		
	Food	***Lodging***	***Retail***	***Local***	***Marketing***	
Business Visitors:						
Overnight Stayers	Will increase costs	Will increase costs	Will increase costs	No determination of changes until the nature of projects is known. Expenditures could be used to improve or make additions to those features that are considered amenities by visitors	Increase in cost, possible scheduling problems - may be the recipient of "special rates"for off-season/business reservations	No change in opportunities available - may be cost increases due to business decline
Restaurant users					Increase in cost, possible scheduling problems	
Facility users						

TABLE 1 (continued): Social Impacts of Tax Change for Stakeholders: OTHER COMMUNITIES

Stakeholders	Projected Impacts with Tax					Impacts without Tax
	Taxes:			*Use of revenue:*		
	Food	***Lodging***	***Retail***	***Local***	***Marketing***	
Other Communities:						
Residents	Will pay more if visiting "target area"	Will pay more if visiting "target area"	Will pay more if visiting "target area"	Will increase potential for conflict and/or competition for similar changes	Expected to experience a slight drop in revenue and employment	No Change
Businesses	No Change	No Change	No Change	Will increase potential for conflict and/or competition for similar changes - may produce local "tax related" changes	Expected to experience a slight shift in business from the these areas to the "target area"	

TABLE 2: Example: Revenue Comparison

This table shows comparisons of projections of revenue and amounts available for projects and marketing. For example, if all tax rates = 1%, the following calculations can be made for revenue.

Revenue source	*Location*	*Percent*	*Amount generated*[1]	*Possible Allocation of Tax Resources*	
				percent:	50%
Revenue from tax on **Lodging Tax Rate =1%**	Within area	0%	$0	for infrastructure:	$36,500
	Out of area	100%	$73,000	for marketing:	$36,500
	Total	100%	$73,000		
		Percent[2]		***percent:***	50%
Revenue from tax on **Food and Beverage Tax Rate = 1%**	Within area	77%	$362,179	for infrastructure:	$235,181
	Out of area	23%	$108,183	for marketing:	$235,181
	Total	100%	$470,362		
				percent:	25%
Revenue from tax on **Retail Sales Tax Rate = 1%**	Within area	85%	$3,225,713	for infrastructure:	$2,846,218
	Out of area	15%	$569,244	for marketing:	$948,739
	Total	100%	$3,794,957		$3,794,957
		Percent[2]		***percent:***	50%
Revenue from tax on **Lodging, Food and Beverage Tax Rate = 1%**	Within area	67%	$362,179	for infrastructure:	$271,681
	Out of area	33%	$181,183	for marketing:	$271,681
	Total	100%	$543,362		

[1] Values derived from IMPLAN (see Table 4).

[2] BBER conducted an informal sampling of area firms to determine percentage guidelines for this calculation.

Source: UMD Bureau of Business and Economic Research

The Lodging Tax does not generate much additional revenue. However, raising the lodging tax does not tax local residents but places the tax on out of area visitors. Visitors spend approximately one third of their total expenditures on lodging.[2]

Please see the Conclusions and Recommendations to this report for more discussion of specific possibilities for these kinds of comparisons.

[2] Unverified sources suggest that approximately one third of visitors use campgrounds or stay with friends or relatives. Investing in lodging capacity decreases the rate of return on investment. However, allocating tax revenue for marketing may provide a larger return on investment and increases the tax revenue from outside sources.

2) Economic Impact

Economic Impact: Assumptions

All components of the economic analysis are integrated on the basis of one impact model, known as input-output analysis. The software system used for this analysis is Impact Analysis for Planning, or IMPLAN . This program, in conjunction with a purchased data base for the ten communities, will assess the basic economic impacts from assumed increases in tourist spending as a result of increased marketing efforts for the region.

The economic impacts are used to compute tax revenue earnings from three possible sources: (1) a general sales tax, (2) an excise tax on hotels, motels, and eating and drinking places, and (3) an excise tax on eating and drinking places only. Other cities' methods of raising revenues for similar purposes are investigated, using a range of estimates based on actual determinations of advertising impacts involving surveys or policy. The economic impact also serves as the basis for identifying the regional industries most affected (positive or negative) by increased tourism traffic.

Preliminary to building the IMPLAN model was research to develop an estimation of the possible impacts of an advertising campaign in the region; a compilation of lists and data for Iron Trail events and attractions was created.

Economic Assumptions: Advertising and Marketing

Northern Lights Tourism Alliance (NLTA) conducted a survey of its customers to ascertain the effectiveness of its advertising program. This survey covered inquiries received between October 1997 and September 1998. The overall conversion rate (inquiries into trips) was 28%. Some of the more effective media (with high conversion rates) were Midwest Living, Midwest Vacation Guide, and AAA H&A. The top five states originating inquiries were Minnesota, Illinois, Wisconsin, Iowa, and Michigan. Overall, respondents took an average of 1.9 trips to Northern Minnesota during 1998. They spent an average of $894.30 for all trips in 1998 (for an average of $470.68 per trip). Excluding the money spent in Duluth ($148.25 per trip), the average expenditure per trip comes to $322.43. About 38% visitors to Minnesota were first-time visitors.

According to the Iron Trail 2001 Tourism Travel Survey, conducted on behalf of the Iron Trail Convention and Visitors Bureau, the advertising and marketing efforts of the bureau had a 54% conversion rate. Respondents took an average of 1.73 trips in 2001 (those who indicated that they took 4 or more trips, were classified as "5 trips"). They spent an average of $594 on all trips in 2001 (for an average of $343.35 per trip).

According to a 1998 TIA TravelScope survey conducted on behalf of the Minnesota Department of Trade and Economic Development of Domestic Pleasure Travel in Minnesota, average expenditure per trip in Northeast Minnesota was $260.20.[3]

According to a study conducted by Johnson and Messmer (1991), both print and television advertising are effective in generating telephone inquiries. However, only television has a "separate and independent" effect on generating visits; because of sight sound and motion television has a higher effect than print.

According to Burke and Lindblom (1989), tourism marketing ad campaigns can have multiple objectives. These may include: a) generating telephone inquiries, b) identifying high potential prospects, c) encourage those who already have travel plans to stay longer, visit more/different places, d) encourage repeat purchase among past visitors, and e) convert inquirers into visitors.

Economic Assumptions: Model Inputs

The findings below are based on the following calculations and modeling techniques:

1) **Capacity Assumptions**
from informed regional sources and phone survey of selected regional tourism sector contacts

2) **Iron Trail Tax Ratios**
created from comparing Duluth and the Iron Trail communities' Food and Beverage Tax compared to Eating and Drinking Dollar Output, and Retail Sales Tax compared to Retail Sales Output. (Ratios derived from Duluth applied to Iron Trail Communities.)

3) **Iron Trail Tourism Assumptions**
from calculating Taxes Generated, Percent to Marketing funds, Cost to Generate Inquiry, New Inquiries, New Visitors Parties, Expenditures per party per trip. The analysis was conducted for three industry groups: 1) Retail Sales Tax, 2) Eating and Drinking and Lodging Tax, 3) Eating and Drinking Only. This analysis includes inquiry-to-visitor conversion rates arrived at in consultation with the Iron Trail Convention and Visitor's Bureau as well as low and high range estimates.

4) **Sector Breakdown of New Visitor Expenditures**
A calculation based on recent MN Department of Trade and Economic Development survey research was used to develop these inputs for IMPLAN model analysis. The new

[3] Also note: According to Ballman, Burke, Blank, and Korte (1984), the "Minnesota Border Country" campaign cost $25 per enquiry generated. Of these, about 20% of those who inquired actually visited. Thus, it cost almost $125 per additional party. Expenditure per party was estimated at $434. Thus, each ad dollar generated less than $3.50 in additional tourism revenue.

visitor expenditures are reported as seven industry sector impacts for three industry groups, for three inquiry-to-visitor conversion rates.

5) **Employment, Output and Value Added impacts**
for three industry groups and three inquiry-to-visitor conversion percentage rates.

Capacity assumptions: The process of building the impact model began with determining the most accurate assumptions on which to model the economy of the ten communities in the study project. Specific capacity assumptions on current tourism industry sectors capacity included estimates for number of rooms, average daily rate (ADR), and percent occupancy.

Given that the model used here and the conversion rates employed are designed to maximize capacity rather than include impacts on new capacity that might be built, the assumptions below are adjusted inputs for the IMPLAN economic model so that lodging revenue does not exceed the maximum revenue possible given that no new capacity is built. The Iron Trail Visitor's Convention and Bureau provided the following assumptions:

TABLE 3: Capacity Assumptions

Iron Trail Communities, 1999[1]

Year 1999 Actual Occupancy	
Number of rooms:	940
Average Daily Rate:	$53.00
Per cent annual occupancy:	40%
Room nights stayed	137,240
total actual lodging revenue	$7.3 million
Year 1999 Potential Occupancy	
Number of rooms:	940
Average Daily Rate:	$53.00
Average Minnesota Per cent occupancy[2]:	58%
Room nights stayed	200,199
total potential lodging revenue	$10.6 million

[1] Iron Trail Convention and Visitor's Bureau

[2]Smith Travel Reseach

Iron Trail Tax Ratios: Without primary survey data collection, which was beyond the scope and budget of this project, it was necessary to arrive at data representing tax rates and resources for preparing inputs to the economic model, including data for the three industry groups in the tourism sector: an Iron Trail 1% Food and Beverage Tax, an Iron Trail 1% Food and Beverage +1% Lodging Tax, and an Iron Trail 1% Retail Sales Tax.

These data were determined by comparing Duluth and the Iron Trail communities' Food and Beverage Tax compared to Eating and Drinking Dollar Output, and Retail Sales Tax compared to Retail Sales Output. (Ratios derived from Duluth applied to Iron Trail Communities.)

Iron Trail Tourism Assumptions: To calculate the model input assumptions for the specific components making up the three industry sector groups, 1) Retail Sales Tax, 2) Eating and Drinking and Lodging Tax, and 3) Eating and Drinking Only, which include such data as assumptions for Taxes Generated, Percent to Marketing funds, Cost to Generate Inquiry, New Inquiries, New Visitors Parties, and Expenditures per party per trip, estimates for three conversion rates (inquiry-to-visitor) were determined: 40% (estimated by the UMD research bureau), 54% provided by the Iron Trail Convention and Visitor's Bureau), and 65% (estimated by the UMD research bureau). Note: This analysis includes inquiry-to-visitor conversion rates arrived at in consultation with the Iron Trail Convention and Visitor's Bureau as well as low and high range estimates.

The following table shows sectors broken down to specific assumptions calculated for these conversion rates.

TABLE 4: Iron Trail Tax Ratios and Calculations

Ratios derived from Duluth applied to Iron Trail Communities. Food and Beverage Tax compared to Eating and Drinking Dollar Output, and Retail Sales Tax compared to Retail Sales Output.

Duluth ratios:

Duluth	1% Food and Beverage Tax Collected	$1,266,268
	Eating & Drinking Dollar Taxable Output[1]	$126,626,800
	Duluth Food & Bev Tax to Output Ratio	**1%**

An Output ratio for Duluth Food and Beverage tax was calculated by comparing the tax to the 1999 IMPLAN dollar output for the industry sector Food and Beverage.

Duluth	1% Retail Sales Tax Collected	$10,066,762
	Retail Trade Output[1]	$1,006,676,200
	Duluth Retil Sales Tax to Output Ratio	**1%**

An Output ratio for Duluth Retail Sales tax was calculated by comparing the tax to the 1999 IMPLAN dollar output for the Retail Sales.

TABLE 4 (continued): Iron Trail Tax Ratios and Calculations

Iron Trail tax

Iron Trail	Eating & Drinking Dollar Taxable Output[1]	$47,035,200
	1% Food and Bev Tax Rate	1%
	Iron Trail 1% Food and Bev Tax	**$470,352**

An Output ratio for Iron Trail Food and Beverage tax was calculated by comparing the tax to the 1999 IMPLAN dollar output for the Retail Sales.

Iron Trail	Lodging Output	$7,300,000
	Lodging Tax Rate	1%
	1% Lodging Tax	$73,000
	Iron Trail 1% Food and Bev +1% Lodging Tax	**$543,352**

Using secondary data about the lodging sector Output, the Iron Trail 1% lodging tax revenue value is calculated using the Iron Trial 1% Lodging tax

Iron Trail	Iron Trail Retail Trade Dollar Taxable Output[1]	$379,495,700
	1% Retail Sales Tax Rate	1%
	Iron Trail 1% Retail Sales Tax	**$3,794,957**

An Output ratio for the Iron Trail community group was calculated by comparing the tax to the IMPLAN dollar output for the industry sector Reatail Sale..

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

TABLE 5: Iron Trail Tourism Assumptions

Taxes Generated, Percent to Marketing funds, Cost to Generate Inquiry, New Inquiries, New Visitors Parties, Expenditures per party per trip, for three industry groups: Retail Sales Tax, Eating and Drinking and Lodging Tax, Eating and Drinking Only, tax rate 1%

		Low estimate by the UMD BBER:	**Middle estimate** provided by the Iron Trail Convention and Visitors's Bureau:	**High estimate** by the UMD research bureau:
Inquiry Conversion Rate (inquiry-to-visitor):		**40%[1]**	**54%[2]**	**65%[3]**
Assumptions				
EATING AND DRINKING TAX ONLY	Taxes Generated	$470,352	$470,352	$470,352
	Community Share	$235,176	$235,176	$235,176
	Percent to New Tourism Marketing[6]	50%	50%	50%
	Marketing funds	$235,176	$235,176	$235,176
	Cost to Generate Inquiry	$12.50	$12.50	$12.50
	Total New Inquiries	18,814	18,814	18,814
	Total New Visitors Parties	7,526	10,160	12,229
	Avg Expenditure per party per trip	$244.50	$244.50	$244.50
	Total New Visitor Party Expenditures	$1,840,016	$2,484,021	$2,990,026
EATING AND DRINKING + LODGING TAX	Taxes Generated	$543,352	$543,352	$543,352
	Community Share	$271,676	$271,676	$271,676
	Percent to New Tourism Marketing[6]	50%	50%	50%
	Marketing funds	$271,676	$271,676	$271,676
	Cost to Generate Inquiry	$12.50	$12.50	$12.50
	Total New Inquiries	21,734	21,734	21,734
	Total New Visitors Parties	8,694	11,736	14,127
	Avg Expenditure per party per trip	$244.50	$244.50	$244.50
	Total New Visitor Party Expenditures	$2,125,592	$2,869,549	$3,454,087
RETAIL SALES TAX ONLY	Taxes Generated	$3,794,957	$3,794,957	$3,794,957
	Community Share	$2,846,218	$2,846,218	$2,846,218
	Percent to New Tourism Marketing[6]	25%	25%	25%
	Marketing funds	$948,739	$948,739	$948,739
	Cost to Generate Inquiry	$12.50	$12.50	$12.50
	Total New Inquiries	75,899	75,899	75,899
	Total New Visitors Parties	30,360	40,986	49,334
	Avg Expenditure per party per trip	$244.50	$244.50	$244.50
	Total New Visitor Party Expenditures	$7,422,937	$10,020,965	$12,062,272

Conversion rate ranges:

[1] Estimated by the UMD Bureau of Business and Economic Research

[2] Provided by the Iron Trail Convention and Visitor's Bureau;
see 2001 Tourism Travel Survey Results, Iron Trail Convention and Visitor's Bureau, January 22, 2202.

[3] Estimated by the UMD Bureau of Business and Economic Research

[4] Data for capacity assumptions provided by Iron Travel Convention and Visitors Bureau

[5] Data for capacity assumptions provided by Iron Travel Convention and Visitors Bureau

[6] Data for capacity assumptions provided by Iron Travel Convention and Visitors Bureau

Economic Impact: Findings

Sector Breakdown of New Visitor Expenditures: A calculation based on recent MN Department of Trade and Economic Development survey research was used to develop these inputs for IMPLAN model analysis. The new visitor expenditures are reported as seven industry sector impacts for three industry groups, for three inquiry-to-visitor conversion rates.

TABLE 6: Sector Breakdown of New Vistor Expenditures Used as Inputs for Implan Model Analysis[1, 2]

New visitor expenditures reported as seven industry sector impacts for three industry groups, for three inquiry-to-visitor conversion rates.

	Inquiry Conversion Rate		40%[3]	54%[4]	65%[5]
EATING AND DRINKING TAX	**New Visitor Expenditures**	**100%**	**$1,840,016**	**$2,484,021**	**$2,990,026**
	Retail	15%	$276,002	$372,603	$448,504
	Eating & Drinking	21%	$386,403	$521,644	$627,905
	Lodging	34%	$625,605	$844,567	$1,016,609
	Entertainment and Recreation	17%	$312,803	$422,284	$508,304
	Transportation Service Stations	8%	$147,201	$198,722	$239,202
	Transportation Auto Repair	3%	$55,200	$74,521	$89,701
	Transportation Local Transit	2%	$36,800	$49,680	$59,801
EATING AND DRINKING + LODGING TAX	**New Visitor Expenditures**	**100%**	**$2,125,592**	**$2,869,549**	**$3,454,087**
	Retail	15%	$318,839	$430,432	$518,113
	Eating & Drinking	21%	$446,374	$602,605	$725,358
	Lodging	34%	$722,701	$975,647	$1,174,389
	Entertainment and Recreation	17%	$361,351	$487,823	$587,195
	Transportation Service Stations	8%	$170,047	$229,564	$276,327
	Transportation Auto Repair	3%	$63,768	$86,086	$103,623
	Transportation Local Transit	2%	$42,512	$57,391	$69,082
RETAIL SALES TAX	**New Visitor Expenditures**	**100%**	**$7,422,937**	**$10,020,965**	**$12,062,272**
	Retail	15%	$1,113,441	$1,503,145	$1,809,341
	Eating & Drinking	21%	$1,558,817	$2,104,403	$2,533,077
	Lodging	34%	$2,523,798	$3,407,128	$4,101,173
	Entertainment and Recreation	17%	$1,261,899	$1,703,564	$2,050,586
	Transportation Service Stations	8%	$593,835	$801,677	$964,982
	Transportation Auto Repair	3%	$222,688	$300,629	$361,868
	Transportation Local Transit	2%	$148,459	$200,419	$241,245

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

[2] Sector breakdown used here was developed by the Minnesota Department of Trade and Economic Development and reported in the August 2002 publication, *2001 Spring/Summer Minnesota Office of Tourism Customer Survey Results*, p. 15, as follows:

SECTORS	PERCENTAGE
Retail	15%
Eating & Drinking	21%
Lodging	34%
Entertainment and Recreation	17%
Transportation Service Stations	8%
Transportation Auto Repair	3%
Transportation Local Transit	2%

Conversion rate ranges:

[3] Estimated by the UMD Bureau of Business and Economic Research

[4] Provided by the Iron Trail Convention and Visitor's Bureau; see 2001 Tourism

[5] Estimated by the UMD Bureau of Business and Economic Research

Employment, Output and Value Added impacts: For this analysis we use the three impact measures from the IMPLAN model– Employment, Output and Value Added, and report these measures for the three industry groups and three inquiry-to-visitor conversion percentage rates, as defined above.

As noted above, the economic impact estimates utilize a large-scale mathematical model commonly termed input-output as well as a software/data system for input-output table estimations, known as IMPLAN. This model traces through the direct, indirect, and induced impacts of industries in a defined region.

Definitions of Direct, Indirect and Induced Industry Impacts

Direct	The dollar value of output or the employment that can actually be attributed to the home region (the region being analyzed). This output (or employment) is usually associated with the activities of a particular industry.
Indirect	The impact from the primary industry's purchases of intermediate goods and services from other local industries. These secondary industries also purchase from and sell to one another, creating rounds of impact activity.
Induced	The impact on local industries of purchases from the households of the employees of the primary industry and by all secondary industries. Rounds of expenditures take place, much the same as in the indirect effect.

These impacts are the result of a multiplier effect from one regional (county) industry on the rest of the economy. A multiplier represents the number of times spending turns over in the county and is sometimes termed as the ripple effect. The impacts described in the summary table below are derived from the IMPLAN model.

Also note the following definitions of the measures used by the IMPLAN model to report impact values:

Employment	as the name implies, is the number of part and full time employees employed by the industry.
Value Added	represents local earnings from various industry productions. Technically, it is sum of employee compensation and property income. *Property Income* is the returns to property, including rent, interest and profits.
Industry Output	represents the sum of intermediate sales to other regional firms

plus sales to Final Demand. *Final Demand* represents the sales to final users of the product — users that will not use the good or service for further production. Final demand consists of local household consumption, business investment in physical capital, changes in business inventories, federal, state and local government purchases of goods and services, and exports outside of the region (not necessarily to foreign economies). The multiplier process is triggered by initial industry sales to final demand.

Input-output is a production model. *This means that only the production that takes place in the region is counted*. Purchases from other regions do not count. For example, if an automobile is purchased in Grand Rapids for $20,000, how much of that $20,000 is local? The car was produced somewhere else, Detroit, Japan, Germany, or wherever. We have to deduct the production that is imported from our impacts in order to get a true reading on what happened locally. Only the local margin is counted as local. If the margin is 10%, then only $2,000 of the total sale is said to be local. Using a production model also means that output figures are double counted (intermediate plus final goods and services). Value added is closer to the Gross Domestic Product approach to production accounting.

TABLE 7: Summary

Employment, Output and Value Added impacts for three industry groups and three inquiry-to-visitor conversion percentage rates.

		Impacts[1]	Total	Direct	Indirect	Induced
Eating & Drinking	40%	Employment	66.6	56.9	4.8	4.9
		Output	$2,230,856	$1,654,173	$281,992	$294,691
		Value Added	$1,356,789	$1,013,454	$153,503	$189,832
	54%	Employment	89.9	76.8	6.5	6.6
		Output	$3,011,658	$2,233,135	$380,690	$397,833
		Value Added	$1,831,666	$1,368,165	$207,229	$256,273
	65%	Employment	108.2	92.5	7.8	7.9
		Output	$3,625,144	$2,688,033	$458,237	$478,873
		Value Added	$2,204,784	$1,646,865	$249,442	$308,477
Eating & Drinking + Lodging	40%	Employment	76.9	65.8	5.5	5.6
		Output	$2,577,094	$1,910,907	$325,758	$340,428
		Value Added	$1,567,368	$1,170,747	$177,327	$219,294
	54%	Employment	103.8	88.8	7.5	7.6
		Output	$3,479,075	$2,579,724	$439,774	$459,578
		Value Added	$2,115,946	$1,580,508	$239,391	$296,047
	65%	Employment	125.0	106.9	9.0	9.1
		Output	$4,187,777	$3,105,224	$529,357	$553,196
		Value Added	$2,546,973	$1,902,464	$288,156	$356,353
Retail Tax	40%	Employment	268.5	229.6	19.3	19.6
		Output	$8,999,660	$6,673,220	$1,137,606	$1,188,834
		Value Added	$5,473,525	$4,088,452	$619,257	$765,816
	54%	Employment	362.6	310.0	26.1	26.5
		Output	$12,149,541	$9,008,847	$1,535,768	$1,604,926
		Value Added	$7,389,258	$5,519,410	$835,997	$1,033,851
	65%	Employment	436.5	373.2	31.4	31.9
		Output	$14,624,447	$10,843,982	$1,848,610	$1,931,855
		Value Added	$8,894,477	$6,643,734	$1,006,293	$1,244,450

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

3) Environmental Impact

Environmental Impact: Assumptions

The environmental impacts of increased economic activity in the ten communities were analyzed using a national input-output system developed as part of the Green Design Initiative Project at Carnegie Mellon University.

Environmental impacts, in the form of externalized costs of production, were estimated using calculations generated by the Economic Input-Output: Life Cycle Assessment (EIO-LCA) method devised by H. Scott Matthews and Lester B. Lave at Carnegie Mellon University, Pittsburgh, PA (Matthews and Lave, 2000). In a series of steps, this method translates the economic impact data generated by IMPLAN into environmental damages expressed in monetary terms. The first step involves the estimation of a damage function, that is, the environmental stress per dollar's worth of economic activity (for example, the environmental effects associated with a unit increase in pollutant emitted per $). In the second step, increases in environmental stress (related to pollutant emissions) are converted to monetary values by multiplying by estimates of the dollar cost per unit of emissions (that is, $ per ton of emissions). This (EIO-LCA) method employs a wide variety of procedures to quantify the magnitude of damages (for example, measures related to increases in pollution emissions per $ of economic activity) and their monetized costs (for example, $ of damage done per unit of emissions) depending on the nature of the economic activity and its associated damage function.

For example, in the case of electric power, the output of IMPLAN (that is, the total supply chain of purchases required to produce a given amount of electricity, say $1 million) is translated into pollutant emissions in the first step. In the second step, the pollutant emissions (tons of pollutant emitted) generated by each economic sector in the supply chain are dollar-weighted using the median damage estimate (for instance, $ per ton of emissions) for each pollutant. In 1992, the total monetary environmental damages, summed across economic sectors involved in the production of electricity, amounted to 34% of the price of electricity or 34 cents per dollar (see tables in Findings section, following).

If most economic impacts occur in the service industry, such as tourism stimulating the hotel and restaurant sectors, then externalized costs will be quite low, one to three cents per dollar. However, if most impacts occur in environmentally sensitive sectors such as mining or electric utilities, then externalized costs can be quite high, 30-40 cents per dollar (see Table 8). As is often the case with environmental externalities, the distribution of these costs is similar to the retail sales tax discussed earlier. A handful of businesses receive most of the economic benefits, and the costs are shared by members of the Iron Trail communities. In these situations some mechanism is often put in place to allow those who benefit to compensate those who pay the costs.

Environmental Impact: Findings

Table 8: Iron Trail Environmental Impact Data

Iron Trail Environmental Impact Data (externalized env costs)

Note: top 25 impacted sectors account for over 90% of externalized environmental costs.

		Food and Beverage Tax					
		40%		54%		65%	
Sector	External cost per $ Impact:	Total Econ Impact:	External Env Costs:	Total Econ Impact:	External Env Costs:	Total Econ Impact:	External Env Costs:
1 hotels and lodging	0.0208	$ 629,085	$ 13,085	$ 849,264	$ 17,665	$ 1,022,263	$ 21,263
2 eating and drinking	0.0206	$ 409,426	$ 8,434	$ 552,725	$ 11,386	$ 665,318	$ 13,706
3 entertainment and rec	0.0162	$ 371,093	$ 6,012	$ 500,976	$ 8,116	$ 603,026	$ 9,769
4 electric services	0.3388	$ 9,556	$ 3,238	$ 12,900	$ 4,371	$ 15,528	$ 5,261
5 passenger transit	0.0796	$ 38,930	$ 3,099	$ 52,555	$ 4,183	$ 63,262	$ 5,036
6 auto dealers and service	0.017	$ 160,755	$ 2,733	$ 217,020	$ 3,689	$ 261,227	$ 4,441
7 retail	0.0167	$ 133,578	$ 2,231	$ 180,330	$ 3,012	$ 217,064	$ 3,625
8 auto repair and services	0.017	$ 61,835	$ 1,051	$ 83,479	$ 1,419	$ 100,483	$ 1,708
9 maintenance and repair other	0.0355	$ 15,302	$ 543	$ 20,658	$ 733	$ 24,866	$ 883
10 state and local gov	0.0458	$ 11,477	$ 526	$ 15,493	$ 710	$ 18,649	$ 854
11 wholesale trade	0.0121	$ 38,136	$ 461	$ 51,484	$ 623	$ 61,972	$ 750
12 owner occupied dwellings	0.0121	$ 29,454	$ 356	$ 39,763	$ 481	$ 47,862	$ 579
13 other business services	0.0125	$ 25,959	$ 324	$ 35,045	$ 438	$ 42,184	$ 527
14 hospitals	0.0118	$ 24,689	$ 291	$ 33,330	$ 393	$ 40,119	$ 473
15 banking	0.0085	$ 33,649	$ 286	$ 45,426	$ 386	$ 54,680	$ 465
16 bread, cake and related	0.0204	$ 11,940	$ 244	$ 16,119	$ 329	$ 19,403	$ 396
17 real estate	0.0107	$ 22,793	$ 244	$ 30,771	$ 329	$ 37,039	$ 396
18 maintenance/repair residential	0.0336	$ 5,668	$ 190	$ 7,652	$ 257	$ 9,210	$ 309
19 doctors and dentists	0.006	$ 29,447	$ 177	$ 39,753	$ 239	$ 47,851	$ 287
20 newspapers	0.0165	$ 9,948	$ 164	$ 13,429	$ 222	$ 16,165	$ 267
21 publishing	0.0113	$ 11,724	$ 132	$ 15,827	$ 179	$ 19,051	$ 215
22 motor vehicle parts	0.0334	$ 3,789	$ 127	$ 5,115	$ 171	$ 6,157	$ 206
23 fluid milk	0.0369	$ 3,386	$ 125	$ 4,572	$ 169	$ 5,503	$ 203
24 radio and TV broadcasting	0.0093	$ 10,639	$ 99	$ 14,363	$ 134	$ 17,289	$ 161
25 social services	0.0191	$ 4,900	$ 94	$ 6,615	$ 126	$ 7,963	$ 152
Totals		$ 2,107,158	**$ 44,266**	$ 2,844,664	**$ 59,759**	$ 3,424,134	**$ 71,932**

Iron Trail Environmental Impact Data (externalized env costs) continued

Note: top 25 impacted sectors account for over 90% of externalized environmental costs.

Food, Beverage and Lodging Tax									
		40%		54%		65%	
Sector	External cost per $ Impact:	Total Econ Impact:	External Env Costs:	Total Econ Impact:	External Env Costs:	Total Econ Impact:	External Env Costs:
1 hotels and lodging	0.0208	$ 726,721	$ 15,116	$ 981,073	$ 20,406	$ 1,180,921	$ 24,563
2 eating and drinking	0.0206	$ 472,970	$ 9,743	$ 638,510	$ 13,153	$ 768,577	$ 15,833
3 entertainment and rec	0.0162	$ 428,688	$ 6,945	$ 578,728	$ 9,375	$ 696,618	$ 11,285
4 electric services	0.3388	$ 11,039	$ 3,740	$ 14,902	$ 5,049	$ 17,938	$ 6,077
5 passenger transit	0.0796	$ 44,973	$ 3,580	$ 60,713	$ 4,833	$ 73,080	$ 5,817
6 auto dealers and service	0.017	$ 185,704	$ 3,157	$ 250,701	$ 4,262	$ 301,770	$ 5,130
7 retail	0.0167	$ 154,310	$ 2,577	$ 208,318	$ 3,479	$ 250,753	$ 4,188
8 auto repair and services	0.017	$ 71,433	$ 1,214	$ 96,434	$ 1,639	$ 116,079	$ 1,973
9 maintenance and repair other	0.0355	$ 17,677	$ 628	$ 23,864	$ 847	$ 28,726	$ 1,020
10 state and local gov	0.0458	$ 13,258	$ 607	$ 17,898	$ 820	$ 21,544	$ 987
11 wholesale trade	0.0121	$ 44,055	$ 533	$ 59,475	$ 720	$ 71,590	$ 866
12 owner occupied dwellings	0.0121	$ 34,025	$ 412	$ 45,934	$ 556	$ 55,291	$ 669
13 other business services	0.0125	$ 29,998	$ 375	$ 40,484	$ 506	$ 48,731	$ 609
14 hospitals	0.0118	$ 28,520	$ 337	$ 35,503	$ 419	$ 46,346	$ 547
15 banking	0.0085	$ 38,872	$ 330	$ 52,477	$ 446	$ 63,166	$ 537
16 bread, cake and related	0.0204	$ 13,794	$ 281	$ 18,621	$ 380	$ 22,415	$ 457
17 real estate	0.0107	$ 26,331	$ 282	$ 35,547	$ 380	$ 42,788	$ 458
18 maintenance/repair residential	0.0336	$ 6,548	$ 220	$ 8,839	$ 297	$ 10,640	$ 358
19 doctors and dentists	0.006	$ 34,017	$ 204	$ 45,923	$ 276	$ 55,278	$ 332
20 newspapers	0.0165	$ 11,491	$ 190	$ 15,541	$ 256	$ 18,674	$ 308
21 publishing	0.0113	$ 13,543	$ 153	$ 18,283	$ 207	$ 22,007	$ 249
22 motor vehicle parts	0.0334	$ 4,377	$ 146	$ 5,908	$ 197	$ 7,112	$ 238
23 fluid milk	0.0369	$ 3,912	$ 144	$ 5,281	$ 195	$ 6,357	$ 235
24 radio and TV broadcasting	0.0093	$ 12,291	$ 114	$ 16,593	$ 154	$ 19,973	$ 186
25 social services	0.0191	$ 5,661	$ 108	$ 7,642	$ 146	$ 9,198	$ 176
Totals		$ 2,434,208	**$ 51,136**	$ 3,283,192	**$ 68,998**	$ 3,955,572	**$ 83,096**

Iron Trail Environmental Impact Data (externalized env costs) continued

Note: top 25 impacted sectors account for over 90% of externalized environmental costs.

		Retail Sales Tax					
		40%		54%		65%	
Sector	External cost per $ Impact	Total Econ Impact	External Env Costs	Total Econ Impact	External Env Costs	Total Econ Impact	External Env Costs
1 hotels and lodging	0.0208	$ 2,537,835	$ 52,787	$ 3,426,078	$ 71,262	$ 4,123,983	$ 85,778.85
2 eating and drinking	0.0206	$ 1,651,696	$ 34,025	$ 2,229,790	$ 45,934	$ 2,684,006	$ 55,290.52
3 entertainment and rec	0.0162	$ 1,497,052	$ 24,252	$ 2,021,021	$ 32,741	$ 2,432,710	$ 39,409.90
4 electric services	0.3388	$ 38,550	$ 13,061	$ 52,042	$ 17,632	$ 62,643	$ 21,223.45
5 passenger transit	0.0796	$ 157,052	$ 12,501	$ 212,019	$ 16,877	$ 255,208	$ 20,314.56
6 auto dealers and service	0.017	$ 648,513	$ 11,025	$ 875,492	$ 14,883	$ 1,053,834	$ 17,915.18
7 retail	0.0167	$ 538,876	$ 8,999	$ 727,482	$ 12,149	$ 875,673	$ 14,623.74
8 auto repair and services	0.017	$ 249,456	$ 4,241	$ 336,765	$ 5,725	$ 405,366	$ 6,891.22
9 maintenance and repair other	0.0355	$ 61,732	$ 2,191	$ 83,338	$ 2,958	$ 100,315	$ 3,561.18
10 state and local gov	0.0458	$ 46,298	$ 2,120	$ 62,503	$ 2,863	$ 75,235	$ 3,445.76
11 wholesale trade	0.0121	$ 153,849	$ 1,862	$ 207,696	$ 2,513	$ 250,004	$ 3,025.05
12 owner occupied dwellings	0.0121	$ 118,821	$ 1,438	$ 160,409	$ 1,941	$ 193,085	$ 2,336.33
13 other business services	0.0125	$ 104,725	$ 1,309	$ 141,379	$ 1,767	$ 170,178	$ 2,127.23
14 hospitals	0.0118	$ 99,598	$ 1,175	$ 134,458	$ 1,587	$ 161,847	$ 1,909.79
15 banking	0.0085	$ 135,747	$ 1,154	$ 183,258	$ 1,558	$ 220,589	$ 1,875.01
16 bread, cake and related	0.0204	$ 48,169	$ 983	$ 65,028	$ 1,327	$ 78,275	$ 1,596.81
17 real estate	0.0107	$ 91,952	$ 984	$ 124,135	$ 1,328	$ 149,422	$ 1,598.82
18 maintenance/repair residential	0.0336	$ 22,865	$ 768	$ 30,868	$ 1,037	$ 37,156	$ 1,248.44
19 doctors and dentists	0.006	$ 118,794	$ 713	$ 160,371	$ 962	$ 193,039	$ 1,158.23
20 newspapers	0.0165	$ 40,130	$ 662	$ 54,176	$ 894	$ 65,212	$ 1,076.00
21 publishing	0.0113	$ 47,295	$ 534	$ 63,848	$ 721	$ 76,854	$ 868.45
22 motor vehicle parts	0.0334	$ 15,284	$ 510	$ 20,634	$ 689	$ 24,837	$ 829.56
23 fluid milk	0.0369	$ 13,661	$ 504	$ 18,442	$ 681	$ 22,199	$ 819.14
24 radio and TV broadcasting	0.0093	$ 42,922	$ 399	$ 57,944	$ 539	$ 69,748	$ 648.66
25 social services	0.0191	$ 19,768	$ 378	$ 26,686	$ 510	$ 32,123	$ 613.55
Totals		$ 8,500,640	**$178,576**	$ 11,475,862	**$ 241,077**	$ 13,813,541	**$ 290,185**

Table 9: Summary: Eating and Drinking; Eating and Drinking and Lodging; Retail Environmental Impacts

SUMMARY

Eating and Drinking	***Total Ext Env Costs***	
40% conversion rate; Output	$	44,266
54% conversion rate; Output	$	59,759
65% conversion rate; Output	$	71,932
Eating and Drinking and Lodging		
40% conversion rate; Output	$	51,136
54% conversion rate; Output	$	68,998
65% conversion rate; Output	$	83,096
Retail		
40% conversion rate; Output	$	178,576
54% conversion rate; Output	$	241,077
65% conversion rate; Output	$	290,185

Conclusions and Recommendations

The impact data reported in this study is offered to assist planners to make informed choices toward accomplishing their objectives.

For purposes of discussion we have developed two further tables to demonstrate how planners might set out their choices when determining the necessary and/or desired tax rate and tax revenue allocations. One thing to keep in mind when making these decisions is that the eternalized environmental costs are distributed in a manner similar to the retail sales tax. That is, the benefits of the additional economic activity flow mostly to community businesses in the impacted sectors, whereas the environmental costs are shared by individuals living in and visiting the communities. Planners may need to develop some mechanism for those who benefit to compensate those paying the costs. In addition, the magnitude of the externalized environmental costs depends on the nature of additional economic activity as reported earlier, and reflected in the external cost per dollar impact column of Table 8.

Table 10 limits the discussion to spending tax revenue on marketing alone. This choice eases many of the administrative costs and conflicts inherent in the discussion of how to spend available money if infrastructure projects become involved. Table 10 suggests that if planners determine that something like $250,000 is needed, then the taxes and percentage choices might be arrayed as in this table.

TABLE 10: Example: Revenue Comparison: Funds for Marketing

Comparison of projections of revenue and amount available for marketing as derived from four different tax revenue sources.

Revenue source	Location	Percent	Amount generated [2]	Possible Allocation of Tax Resources	
				percent:	100%
Revenue from tax on **Lodging Tax Rate =3.3%**	Within area	0%	$0		
	Out of area	100%	$240,900	for marketing:	$240,900
	Total	100%	$240,900		$240,900
		Percent [1]	$235,176	***percent:***	100%
Revenue from tax on **Food and Beverage Tax Rate = 0.5%**	Within area	77%	$181,086		
	Out of area	23%	$54,090	for marketing:	$235,176
	Total	100%	$235,176		$235,176
		Percent	$379,496	***percent:***	100%
Revenue from tax on **Retail Sales Tax Rate = 0.1%**	Within area	85%	$322,571		
	Out of area	15%	$56,924	for marketing:	$379,495
	Total	100%	$379,495		$379,495
		Percent [1]		***percent:***	100%
Revenue from tax on **Lodging, Food and Beverage Lodging tax Rate = 1.5% Food and Beverage Tax Rate =0.025%**	Within area	36%	$90,543		
	Out of area	64%	$163,590	for marketing:	$254,133
	Total	100%	$254,133		$254,133

[1] BBER conducted an informal sampling of area firms to determine percentage guidelines for this calculation.

[2] Values derived from IMPLAN

Table 11 includes a discussion of how to spend tax revenue on marketing and on infrastructure. This choice involves many of the administrative costs and conflicts inherent in the discussion of how to spend available money if the ten communities of the Iron Trail are presented with economic development funds gathered from changes in taxes. Table 11 suggests that if planners determine that something like $500,000 is needed, then the taxes and percentage choices might be arrayed as in this table.

TABLE 11: Example: Revenue Comparison: Funds for Marketing and Projects

Comparison of projections of revenue and amount available for projects and marketing as derived from four different tax revenue sources.

Revenue source	*Location*	*Percent*	*Amount generated*[2]	*Possible Allocation of Tax Resources*	
				percent:	50%
Revenue from tax on **Lodging Tax Rate =6%**	Within area	0%	$0	for infrastructure:	$243,000
	Out of area	100%	$486,000	for marketing:	$243,000
	Total	100%	$486,000		$486,000
		Percent[1]		***percent:***	50%
Revenue from tax on **Food and Beverage Tax Rate = 1%**	Within area	77%	$362,179	for infrastructure:	$235,181
	Out of area	23%	$108,183	for marketing:	$235,181
	Total	100%	$470,362		$470,362
		Percent		***percent:***	25%
Revenue from tax on **Retail Sales Tax Rate = 0.13%**	Within area	85%	$419,343	for infrastructure:	$370,008
	Out of area	15%	$74,001	for marketing:	$123,336
	Total	100%	$493,344		$493,344
		Percent[1]		***percent:***	50%
Revenue from tax on **Lodging, Food and Beverage Lodging tax = 3% Food and Beverage tax = 0.025%**	Within area	38%	$181,086	for infrastructure:	$239,088
	Out of area	62%	$297,090	for marketing:	$239,088
	Total	100%	$478,176		$478,176

[1] BBER conducted an informal sampling of area firms to determine percentage guidelines for this calculation.

[2] Values derived from IMPLAN

Many such tables might be imagined as part of the challenge of decisions about making a change in taxation.

The impact numbers provided in this report are projections and estimates and not measures as might be gathered as primary data for such a study. Planners are encouraged to remember that the budget for this project did not include surveys: therefore we used the IMPLAN model's defaults. These defaults, if inaccurate would skew the results. Also note: A non-survey IMPLAN I-0 (Input-Output) model for a region is derived from a national set of structural matrices. The national model represents the "average" condition for a particular industry. Consequently, without adjustments for regional differences, the national production functions do not, necessarily, represent industries comprising a local or regional economy.

For your convenience this report concludes with a summary table of both economic and environmental impact values.

Table 12: Summary: Economic and Environmental Impacts

SUMMARY: Economic and Environmental Impacts

Employment, Output and Value Added impacts for three industry groups and three inquiry-to-visitor conversion percentage rates.

		Impacts[1]	*Direct*	*Indirect*	*Induced*	***Total Econ Impacts***	***Total Ext Env Costs*** [2]
Eating & Drinking	**40%**	Employment	56.9	4.8	4.9	66.6	
		Output	$1,654,173	$281,992	$294,691	$2,230,856	$ 44,266
		Value Added	$1,013,454	$153,503	$189,832	$1,356,789	
	54%	Employment	76.8	6.5	6.6	89.9	
		Output	$2,233,135	$380,690	$397,833	$3,011,658	$ 59,759
		Value Added	$1,368,165	$207,229	$256,273	$1,831,666	
	65%	Employment	92.5	7.8	7.9	108.2	
		Output	$2,688,033	$458,237	$478,873	$3,625,144	$ 71,932
		Value Added	$1,646,865	$249,442	$308,477	$2,204,784	
Eating & Drinking + Lodging	**40%**	Employment	65.8	5.5	5.6	76.9	
		Output	$1,910,907	$325,758	$340,428	$2,577,094	$ 51,136
		Value Added	$1,170,747	$177,327	$219,294	$1,567,368	
	54%	Employment	88.8	7.5	7.6	103.8	
		Output	$2,579,724	$439,774	$459,578	$3,479,075	$ 68,998
		Value Added	$1,580,508	$239,391	$296,047	$2,115,946	
	65%	Employment	106.9	9.0	9.1	125.0	
		Output	$3,105,224	$529,357	$553,196	$4,187,777	$ 83,096
		Value Added	$1,902,464	$288,156	$356,353	$2,546,973	
Retail Tax	**40%**	Employment	229.6	19.3	19.6	268.5	
		Output	$6,673,220	$1,137,606	$1,188,834	$8,999,660	$ 178,576
		Value Added	$4,088,452	$619,257	$765,816	$5,473,525	
	54%	Employment	310.0	26.1	26.5	362.6	
		Output	$9,008,847	$1,535,768	$1,604,926	$12,149,541	$ 241,077
		Value Added	$5,519,410	$835,997	$1,033,851	$7,389,258	
	65%	Employment	373.2	31.4	31.9	436.5	
		Output	$10,843,982	$1,848,610	$1,931,855	$14,624,447	$ 290,185
		Value Added	$6,643,734	$1,006,293	$1,244,450	$8,894,477	

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

[2] Institute for a Sustainable Future; The Economic Input Output-Life Cycle Assessment Model.

References

2001 Tourism Travel Survey Results, Iron Trail Convention and Visitor's Bureau, January 22, 2202.

Ballman, Gary, Jim Burke, Uel Blank, and Dick Korte (1984), "Toward Higher Quality Conversion Studies: Refining the Numbers Game," Journal of Travel Research, Spring, pp. 28-33.

Burke, James F. and Lisa A. Lindblom (1989), "Strategies for Evaluating Direct Response Tourism Marketing," Journal of Travel Research, Fall, pp. 33- 37.

IMPLAN Data and software: Minnesota IMPLAN Group, Inc., IMPLAN System (1996 data and IMPLAN Professional 2.0), 1940 South Greeley Street, Suite 101, Stillwater, MN 55082, <www.implan.com, 1997, <http://www.implan.com/>.

Iron Trail Convention and Visitor's Bureau, Iron Trail Convention & Visitors Bureau, phone: 800-777-8497, Web-site: http://www.irontrail.org; info@irontrail.org.

Johnson, Robert J. and Donald J. Messmer (1991), "The Effect of Advertising on Hierarchical Stages in Vacation Destination Choice," Journal of Advertising Research, December, pp. 18- 24.

Matthews, H. S., and Lester B. Lave, 2000. Applications of Environmental Valuation for Determining Externality Costs. *Environ. Sci. Technol.* 34:1390-1395.

RESEARCH TEAM

The Iron Trail Assessment Project will include three studies and reports from three focusing on these areas:

Economic Assessment
UMD Department of Management Studies
Praveen Aggarwal, Associate Professor of Marketing
UMD Bureau of Business & Economic Research
Dr. Richard W. Lichty, Director
James Skurla, CED Business Development Specialist, BBER Acting Director
Jean Jacobson, BBER Editor
Malita Barkataki, Undergraduate Research Assistant
Amber Paukner, Undergraduate Research Assistant

Sociological Assessment
UMD Department of Sociology/Anthropology
Dr. William Fleischman, Professor of Sociology/Anthropology

Environmental Assessment
UMD Department of Biology/Institute for a Sustainable Future (ISF)
Dr. Michael Mageau, Director, ISF/Assistant Professor of Environmental Studies
Dr. Andrew Klemer, Professor of Biology

This project was requested by and is guided by the Iron Trail Convention and Visitors Bureau.
Contact: Iron Trail Convention & Visitors Bureau
Director, Dave Riddle
403 N. 1st Street
Virginia, Minnesota 55972
800-777-8497
218-749-8161

Appendix: A Targeted Tax Impact:
Food and Beverage Tax, Retail Tax
Economic and Environmental Impacts

- **Summary**
- **Impact Assumptions**
- **Impact Findings**
- **Conclusions–Choices for Policy Makers and Planners**

Note: Social impact findings for this appendix

Social impact findings for this appendix are reported in the main report. Two levels of social impacts are projected: those that are thought to follow directly from the proposed change (Primary Impacts) and those that follow indirectly (Secondary Impacts). The types of Primary Impacts that are expected to be associated with the changes in the tax on food and beverage, lodging, and/or retail expenditures in the target area are presented in Table 1, starting on page 8.

A Targeted Tax Impact:
Food and Beverage Tax, Retail Tax Economic and Environmental Impacts

Summary

Who pays what tax, and who benefits? Calculations:

Impact data reported in this study are offered to assist planners making informed choices toward accomplishing their economic development objectives—in this case to support tourism in the Iron Trail communities. This report includes tables which display social, economic and environmental impacts and which demonstrate how planners may set out their choices when determining necessary and/or desired taxes and tax revenue allocations.

For example, if planners limit their discussion to spending tax revenue on marketing alone, and if planners determine that something like $250,000 is needed, then the tax rates can be arrayed by calculating revenue source (food, beverage and/or retail sales tax percentages). This appendix show two such possible sets of calculations for generating funds for 1) marketing only and 2) funds for marketing and local infrastructure. A number of such tables might be used as part of the challenge of making decisions about proposing taxes.

Economic and environmental impact of taxes:

A summary of the economic and environmental impacts, as derived from the IMPLAN and ISF models, is shown below. Readers of the full report will note that environmental (externalized) costs are distributed in a manner similar to the retail sales tax; the benefits of the additional economic activity flow mostly to community businesses in the impacted sectors, whereas the environmental costs are shared by individuals living in and visiting the communities. Planners may need to develop some mechanism by which these costs can be distributed.

Economic and environmental impact numbers provided in this report are projections and estimates. Details of all three impacts are provided and explained in the full report.

Benefits to the communities can include:

- Local businesses benefit directly as a result of increased customer activities, producing a larger revenue stream and increased profit.
- Local residents benefit from increased employment resulting from the increase in customer/sales activity.
- Additional profits result in an increase in investment in services, facilities and/or product lines.
- Increase in services, etc. provides an increase in the quality of options for local residents.
- Direct benefits to local residents will increase as the proportion of funds spent on infrastructure increases (tax revenue generated and converted for infrastructure).
- Employment, Value Added, and Output economic benefits of the additional economic activity flowing to community businesses in the impacted sectors.
- Possible compensation from sharing of environmental costs from businesses who receive most of the economic benefits.

Economic development objectives:

It is anticipated that proposed taxes will allow the Iron Trail Convention & Visitors Bureau to better position the region as a tourist destination and allow Iron Trail communities the ability to provide infrastructure. Because these communities have recently suffered changes in their traditional source of economic development funds, they must identify a new revenue source for further developing the infrastructure of their communities.

The Iron Trail tax impact study gathered information on the potential fiscal, social, and environmental impacts of generating revenue through taxation to support increased marketing of the region as a tourist destination and for community infrastructure development.

APPENDIX TABLE 1: Economic and Environmental Impact Summary

Findings totaled for economic impacts, including Employment, Output and Value Added impacts for two industry groups and three inquiry-to-visitor conversion percentage rates. Findings totaled for environmental impacts, including top 25 impacted sectors which account for over 90% of externalized environmental costs.

Industry Sector	Inquiry- to-visitor rates[1]		Economic Impacts[2]		Externalized Environmental Costs[3]
Eating & Drinking	Low	40%	Employment	66.6	$44,266
			Output	$2,230,856	
			Value Added	$1,356,789	
	Medium	54%	Employment	89.9	$59,759
			Output	$3,011,658	
			Value Added	$1,831,666	
	High	65%	Employment	108.2	$71,932
			Output	$3,625,144	
			Value Added	$2,204,784	
Retail Tax	Low	40%	Employment	268.5	$178,576
			Output	$8,999,660	
			Value Added	$5,473,525	
	Medium	54%	Employment	362.6	$241,077
			Output	$12,149,541	
			Value Added	$7,389,258	
	High	65%	Employment	436.5	$290,185
			Output	$14,624,447	
			Value Added	$8,894,477	

[1] High and low estimated by BBER, medium provided by Iron Trail Convention and Visitors Bureau

[2] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

[3] Institute for a Sustainable Future; The Economic Input Output-Life Cycle Assessment Model.

As an example of the ways the impact findings can be used, readers are offered the following table which shows comparisons of projections of revenue and amounts available for infrastructure and marketing. For example, if all tax rates = 1%, the following calculations can be made for revenue.

APPENDIX TABLE 2: Example: Revenue Comparison

This table shows comparisons of projections of revenue and amounts available for infrastructure and marketing. For example, if all tax rates = 1%, the following calculations can be made for revenue.

Revenue source	*Location*	*Percent*	*Amount generated*[1]	*Possible Allocation of Tax Resources*	
		Percent[2]		***percent:***	50%
Revenue from tax on **Food and Beverage Tax Rate = 1%**	Within area	77%	$362,179	for infrastructure:	$235,181
	Out of area	23%	$108,183	for marketing:	$235,181
	Total	100%	$470,362		
				percent:	25%
Revenue from tax on **Retail Sales Tax Rate = 1%**	Within area	85%	$3,225,713	for infrastructure:	$2,846,218
	Out of area	15%	$569,244	for marketing:	$948,739
	Total	100%	$3,794,957		$3,794,957

[1] Values derived from IMPLAN (see Table 4).

[2] BBER conducted an informal sampling of area firms to determine percentage guidelines for this calculation.

Impact Assumptions

How the economic and environmental impacts are measured

1) Capacity assumptions: The process of building the impact model began with determining the most accurate assumptions on which to model the economy of the ten communities in the study project. Specific capacity assumptions on current tourism industry sectors capacity included estimates for number of rooms, average daily rate (ADR), and percent occupancy.

Given that the model used here and the conversion rates employed are designed to maximize capacity rather than include impacts on new capacity that might be built, the assumptions below are adjusted inputs for the IMPLAN economic model so that lodging revenue does not exceed the maximum revenue possible given that no new capacity is built. The Iron Trail Visitor's Convention and Bureau provided the following assumptions:

TABLE 3: Capacity Assumptions

Iron Trail Communities, 1999[1]

Year 1999 Actual Occupancy	
Number of rooms:	940
Average Daily Rate:	$53.00
Per cent annual occupancy:	40%
Room nights stayed	137,240
total actual lodging revenue	$7.3 million
Year 1999 Potential Occupancy	
Number of rooms:	940
Average Daily Rate:	$53.00
Average Minnesota Per cent occupancy[2]:	58%
Room nights stayed	200,199
total potential lodging revenue	$10.6 million

[1] Iron Trail Convention and Visitor's Bureau

[2]Smith Travel Reseach

2) Iron Trail Tax Ratios: Without primary survey data collection, which was beyond the scope and budget of this project, it was necessary to arrive at data representing tax rates and resources for preparing inputs to the economic model, including data for the two targeted industry groups in the tourism sector: an Iron Trail 1% Food and Beverage Tax, and an Iron Trail 1% Retail Sales Tax.

These data were determined by comparing Duluth and the Iron Trail communities' Food and Beverage Tax compared to Eating and Drinking Dollar Output, and Retail Sales Tax compared to Retail Sales Output. (Ratios derived from Duluth applied to Iron Trail Communities.)

APPENDIX TABLE 4: Iron Trail Tax Ratios and Calculations

Ratios derived from Duluth applied to Iron Trail Communities. Food and Beverage Tax compared to Eating and Drinking Dollar Output, and Retail Sales Tax compared to Retail Sales Output.

Duluth ratios:

Duluth	1% Food and Beverage Tax Collected	$1,266,268
	Eating & Drinking Dollar Taxable Output[1]	$126,626,800
	Duluth Food & Bev Tax to Output Ratio	**1%**

An Output ratio for Duluth Food and Beverage tax was calculated by comparing the tax to the 1999 IMPLAN dollar output for the industry sector Food and Beverage.

Duluth	1% Retail Sales Tax Collected	$10,066,762
	Retail Trade Output[1]	$1,006,676,200
	Duluth Retil Sales Tax to Output Ratio	**1%**

An Output ratio for Duluth Retail Sales tax was calculated by comparing the tax to the 1999 IMPLAN dollar output for the Retail Sales.

Iron Trail tax calcuations:

Iron Trail	Eating & Drinking Dollar Taxable Output[1]	$47,035,200
	1% Food and Bev Tax Rate	1%
	Iron Trail 1% Food and Bev Tax	**$470,352**

An Output ratio for Iron Trail Food and Beverage tax was calculated by comparing the tax to the 1999 IMPLAN dollar output for the Retail Sales.

Iron Trail	Iron Trail Retail Trade Dollar Taxable Output[1]	$379,495,700
	1% Retail Sales Tax Rate	1%
	Iron Trail 1% Retail Sales Tax	**$3,794,957**

An Output ratio for the Iron Trail community group was calculated by comparing the tax to the IMPLAN dollar output for the industry sector Reatail Sale.

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

3) Distribution of taxes: Another set of assumptions that needed to be made were about the distribution of taxes generated: What would be the percent to marketing funds, the cost to generate inquiry, new inquiries, new visitors parties, expenditures per party per trip, for two industry groups: Retail Sales Tax, Eating and Drinking Only, at the tax rate 1%?

APPENDIX TABLE 5: Iron Trail Tourism Assumptions

Taxes Generated, Percent to Marketing funds, Cost to Generate Inquiry, New Inquiries, New Visitors Parties, Expenditures per party per trip, for two industry groups: Retail Sales Tax, Eating and Drinking Only, tax rate 1%

		Low estimate by the UMD BBER:	**Middle estimate** provided by the Iron Trail Convention and Visitors's Bureau:	**High estimate** by the UMD research bureau:
Inquiry Conversion Rate (inquiry-to-visitor):		**40%**[1]	**54%**[2]	**65%**[3]
Assumptions				
EATING AND DRINKING TAX ONLY	Taxes Generated	$470,352	$470,352	$470,352
	Community Share	$235,176	$235,176	$235,176
	Percent to New Tourism Marketing[6]	50%	50%	50%
	Marketing funds	$235,176	$235,176	$235,176
	Cost to Generate Inquiry	$12.50	$12.50	$12.50
	Total New Inquiries	18,814	18,814	18,814
	Total New Visitors Parties	7,526	10,160	12,229
	Avg Expenditure per party per trip	$244.50	$244.50	$244.50
	Total New Visitor Party Expenditures	$1,840,016	$2,484,021	$2,990,026
RETAIL SALES TAX ONLY	Taxes Generated	$3,794,957	$3,794,957	$3,794,957
	Community Share	$2,846,218	$2,846,218	$2,846,218
	Percent to New Tourism Marketing[6]	25%	25%	25%
	Marketing funds	$948,739	$948,739	$948,739
	Cost to Generate Inquiry	$12.50	$12.50	$12.50
	Total New Inquiries	75,899	75,899	75,899
	Total New Visitors Parties	30,360	40,986	49,334
	Avg Expenditure per party per trip	$244.50	$244.50	$244.50
	Total New Visitor Party Expenditures	$7,422,937	$10,020,965	$12,062,272

Conversion rate ranges:

[1] Estimated by the UMD Bureau of Business and Economic Research

[2] Provided by the Iron Trail Convention and Visitor's Bureau;
see 2001 Tourism Travel Survey Results, Iron Trail Convention and Visitor's Bureau, January 22, 2202.

[3] Estimated by the UMD Bureau of Business and Economic Research

[4] Data for capacity assumptions provided by Iron Travel Convention and Visitors Bureau

[5] Data for capacity assumptions provided by Iron Travel Convention and Visitors Bureau

[6] Data for capacity assumptions provided by Iron Travel Convention and Visitors Bureau

Impact Findings

Food and Beverage Tax, Retail Tax Economic and Environmental Impacts

Once the assumptions have all been calculated, the two models used to derive the estimated economic and environmental impacts can be implemented.

When supplied with the above assumptions, the IMPLAN model shows the following economic impacts. (For details on this model, please see the full report.)

APPENDIX TABLE 7: Summary

Employment, Output and Value Added impacts for two industry groups and three inquiry-to-visitor conversion percentage rates.

		Impacts[1]	Total	Direct	Indirect	Induced
Eating & Drinking	40%	Employment	66.6	56.9	4.8	4.9
		Output	$2,230,856	$1,654,173	$281,992	$294,691
		Value Added	$1,356,789	$1,013,454	$153,503	$189,832
	54%	Employment	89.9	76.8	6.5	6.6
		Output	$3,011,658	$2,233,135	$380,690	$397,833
		Value Added	$1,831,666	$1,368,165	$207,229	$256,273
	65%	Employment	108.2	92.5	7.8	7.9
		Output	$3,625,144	$2,688,033	$458,237	$478,873
		Value Added	$2,204,784	$1,646,865	$249,442	$308,477
Retail Tax	40%	Employment	268.5	229.6	19.3	19.6
		Output	$8,999,660	$6,673,220	$1,137,606	$1,188,834
		Value Added	$5,473,525	$4,088,452	$619,257	$765,816
	54%	Employment	362.6	310.0	26.1	26.5
		Output	$12,149,541	$9,008,847	$1,535,768	$1,604,926
		Value Added	$7,389,258	$5,519,410	$835,997	$1,033,851
	65%	Employment	436.5	373.2	31.4	31.9
		Output	$14,624,447	$10,843,982	$1,848,610	$1,931,855
		Value Added	$8,894,477	$6,643,734	$1,006,293	$1,244,450

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

When supplied with the above assumptions, the ISF model shows the following environmental impacts. (For details on this model, please see the full report.)

Iron Trail Environmental Impact Data (externalized env costs) continued

Note: top 25 impacted sectors account for over 90% of externalized environmental costs.

Retail Sales Tax

	Sector	External cost per $ Impact	40% Total Econ Impact	40% External Env Costs	54% Total Econ Impact	54% External Env Costs	65% Total Econ Impact	65% External Env Costs
1	hotels and lodging	0.0208	$ 2,537,835	$ 52,787	$ 3,426,078	$ 71,262	$ 4,123,983	$ 85,778.85
2	eating and drinking	0.0206	$ 1,651,696	$ 34,025	$ 2,229,790	$ 45,934	$ 2,684,006	$ 55,290.52
3	entertainment and rec	0.0162	$ 1,497,052	$ 24,252	$ 2,021,021	$ 32,741	$ 2,432,710	$ 39,409.90
4	electric services	0.3388	$ 38,550	$ 13,061	$ 52,042	$ 17,632	$ 62,643	$ 21,223.45
5	passenger transit	0.0796	$ 157,052	$ 12,501	$ 212,019	$ 16,877	$ 255,208	$ 20,314.56
6	auto dealers and service	0.017	$ 648,513	$ 11,025	$ 875,492	$ 14,883	$ 1,053,834	$ 17,915.18
7	retail	0.0167	$ 538,876	$ 8,999	$ 727,482	$ 12,149	$ 875,673	$ 14,623.74
8	auto repair and services	0.017	$ 249,456	$ 4,241	$ 336,765	$ 5,725	$ 405,366	$ 6,891.22
9	maintenance and repair other	0.0355	$ 61,732	$ 2,191	$ 83,338	$ 2,958	$ 100,315	$ 3,561.18
10	state and local gov	0.0458	$ 46,298	$ 2,120	$ 62,503	$ 2,863	$ 75,235	$ 3,445.76
11	wholesale trade	0.0121	$ 153,849	$ 1,862	$ 207,696	$ 2,513	$ 250,004	$ 3,025.05
12	owner occupied dwellings	0.0121	$ 118,821	$ 1,438	$ 160,409	$ 1,941	$ 193,085	$ 2,336.33
13	other business services	0.0125	$ 104,725	$ 1,309	$ 141,379	$ 1,767	$ 170,178	$ 2,127.23
14	hospitals	0.0118	$ 99,598	$ 1,175	$ 134,458	$ 1,587	$ 161,847	$ 1,909.79
15	banking	0.0085	$ 135,747	$ 1,154	$ 183,258	$ 1,558	$ 220,589	$ 1,875.01
16	bread, cake and related	0.0204	$ 48,169	$ 983	$ 65,028	$ 1,327	$ 78,275	$ 1,596.81
17	real estate	0.0107	$ 91,952	$ 984	$ 124,135	$ 1,328	$ 149,422	$ 1,598.82
18	maintenance/repair residential	0.0336	$ 22,865	$ 768	$ 30,868	$ 1,037	$ 37,156	$ 1,248.44
19	doctors and dentists	0.006	$ 118,794	$ 713	$ 160,371	$ 962	$ 193,039	$ 1,158.23
20	newspapers	0.0165	$ 40,130	$ 662	$ 54,176	$ 894	$ 65,212	$ 1,076.00
21	publishing	0.0113	$ 47,295	$ 534	$ 63,848	$ 721	$ 76,854	$ 868.45
22	motor vehicle parts	0.0334	$ 15,284	$ 510	$ 20,634	$ 689	$ 24,837	$ 829.56
23	fluid milk	0.0369	$ 13,661	$ 504	$ 18,442	$ 681	$ 22,199	$ 819.14
24	radio and TV broadcasting	0.0093	$ 42,922	$ 399	$ 57,944	$ 539	$ 69,748	$ 648.66
25	social services	0.0191	$ 19,768	$ 378	$ 26,686	$ 510	$ 32,123	$ 613.55
	Totals		$ 8,500,640	**$178,576**	$ 11,475,862	**$ 241,077**	$ 13,813,541	**$ 290,185**

Iron Trail Environmental Impact Data (externalized env costs)

Note: top 25 impacted sectors account for over 90% of externalized environmental costs.

Food and Beverage Tax

	Sector	External cost per $ Impact:	40% Total Econ Impact:	40% External Env Costs:	54% Total Econ Impact:	54% External Env Costs:	65% Total Econ Impact:	65% External Env Costs:
1	hotels and lodging	0.0208	$ 629,085	$ 13,085	$ 849,264	$ 17,665	$ 1,022,263	$ 21,263
2	eating and drinking	0.0206	$ 409,426	$ 8,434	$ 552,725	$ 11,386	$ 665,318	$ 13,706
3	entertainment and rec	0.0162	$ 371,093	$ 6,012	$ 500,976	$ 8,116	$ 603,026	$ 9,769
4	electric services	0.3388	$ 9,556	$ 3,238	$ 12,900	$ 4,371	$ 15,528	$ 5,261
5	passenger transit	0.0796	$ 38,930	$ 3,099	$ 52,555	$ 4,183	$ 63,262	$ 5,036
6	auto dealers and service	0.017	$ 160,755	$ 2,733	$ 217,020	$ 3,689	$ 261,227	$ 4,441
7	retail	0.0167	$ 133,578	$ 2,231	$ 180,330	$ 3,012	$ 217,064	$ 3,625
8	auto repair and services	0.017	$ 61,835	$ 1,051	$ 83,479	$ 1,419	$ 100,483	$ 1,708
9	maintenance and repair other	0.0355	$ 15,302	$ 543	$ 20,658	$ 733	$ 24,866	$ 883
10	state and local gov	0.0458	$ 11,477	$ 526	$ 15,493	$ 710	$ 18,649	$ 854
11	wholesale trade	0.0121	$ 38,136	$ 461	$ 51,484	$ 623	$ 61,972	$ 750
12	owner occupied dwellings	0.0121	$ 29,454	$ 356	$ 39,763	$ 481	$ 47,862	$ 579
13	other business services	0.0125	$ 25,959	$ 324	$ 35,045	$ 438	$ 42,184	$ 527
14	hospitals	0.0118	$ 24,689	$ 291	$ 33,330	$ 393	$ 40,119	$ 473
15	banking	0.0085	$ 33,649	$ 286	$ 45,426	$ 386	$ 54,680	$ 465
16	bread, cake and related	0.0204	$ 11,940	$ 244	$ 16,119	$ 329	$ 19,403	$ 396
17	real estate	0.0107	$ 22,793	$ 244	$ 30,771	$ 329	$ 37,039	$ 396
18	maintenance/repair residential	0.0336	$ 5,668	$ 190	$ 7,652	$ 257	$ 9,210	$ 309
19	doctors and dentists	0.006	$ 29,447	$ 177	$ 39,753	$ 239	$ 47,851	$ 287
20	newspapers	0.0165	$ 9,948	$ 164	$ 13,429	$ 222	$ 16,165	$ 267
21	publishing	0.0113	$ 11,724	$ 132	$ 15,827	$ 179	$ 19,051	$ 215
22	motor vehicle parts	0.0334	$ 3,789	$ 127	$ 5,115	$ 171	$ 6,157	$ 206
23	fluid milk	0.0369	$ 3,386	$ 125	$ 4,572	$ 169	$ 5,503	$ 203
24	radio and TV broadcasting	0.0093	$ 10,639	$ 99	$ 14,363	$ 134	$ 17,289	$ 161
25	social services	0.0191	$ 4,900	$ 94	$ 6,615	$ 126	$ 7,963	$ 152
	Totals		$ 2,107,158	**$ 44,266**	$ 2,844,664	**$ 59,759**	$ 3,424,134	**$ 71,932**

The two environmental impact tables above are summarized below.

Table 9: Summary: Eating and Drinking; Retail Environmental Impacts

SUMMARY

Eating and Drinking	***Total Ext Env Costs***
40% conversion rate; Output	$ 44,266
54% conversion rate; Output	$ 59,759
65% conversion rate; Output	$ 71,932
Retail	
40% conversion rate; OP	$ 178,576
54% conversion rate; OP	$ 241,077
65% conversion rate; OP	$ 290,185

Conclusions–Choices for policy makers and planners

For purposes of discussion we have developed two further tables to demonstrate how planners might set out their choices when determining the necessary and/or desired tax rate and tax revenue allocations.

1) What if all the tax revenue is used for marketing?

Table 10 limits the discussion to spending tax revenue on marketing alone. Table 10 suggests that if planners determine that something like $250,000 is needed, then the taxes and percentage choices might be arrayed as in this table.

APPENDIX TABLE 10: Example: Revenue Comparison: Funds for Marketing

Comparison of projections of revenue and amount available for marketing as derived from two different tax revenue sources.

Revenue source	*Location*	*Percent*	*Amount generated*[2]	*Possible Allocation of Tax Resources*	
		Percent[1]	$235,176	***percent:***	100%
Revenue from tax on **Food and Beverage**	Within area	77%	$181,086		
Tax Rate = 0.5%	Out of area	23%	$54,090	for marketing:	$235,176
	Total	100%	$235,176		$235,176
		Percent	$379,496	***percent:***	100%
Revenue from tax on **Retail Sales Tax**	Within area	85%	$322,571		
Rate = 0.1%	Out of area	15%	$56,924	for marketing:	$379,495
	Total	100%	$379,495		$379,495

[1] BBER conducted an informal sampling of area firms to determine percentage guidelines for this calculation.

[2] Values derived from IMPLAN

2) What if the tax revenue is used for marketing and infrastructure?

Table 11 includes a discussion of how to spend tax revenue on marketing and on infrastructure. Table 11 suggests that if planners determine that something like $500,000 is needed, then the taxes and percentage choices might be arrayed as in this table.

APPENDIX TABLE 11: Example: Revenue Comparison: Funds for Marketing and

Comparison of projections of revenue and amount available for projects and marketing as derived from four

Revenue source	*Location*	*Percent*	*Amount generated*[2]	*Possible Allocation of Tax Resources*	
		Percent[1]		***percent:***	50%
Revenue from tax on **Food and**	Within area	77%	$362,179	for infrastructure:	$235,181
Beverage Tax Rate = 1%	Out of area	23%	$108,183	for marketing:	$235,181
	Total	100%	$470,362		$470,362
		Percent		***percent:***	25%
Revenue from tax on **Retail**	Within area	85%	$419,343	for infrastructure:	$370,008
Sales Tax Rate = 0.13%	Out of area	15%	$74,001	for marketing:	$123,336
	Total	100%	$493,344		$493,344

[1] BBER conducted an informal sampling of area firms to determine percentage guidelines for this calculation.

[2] Values derived from IMPLAN

Many such tables might be imagined as part of the challenge of decisions about making a change in taxation.

3) What are the combined impacts in dollar amounts of both the economic and environmental impacts for these two industry sectors?

APPENDIX TABLE 12: SUMMARY: Economic and Environmental Impacts

Employment, Output and Value Added impacts for two industry groups and three inquiry-to-visitor conversion percentage rates.

		Impacts[1]	*Direct*	*Indirect*	*Induced*	***Total Econ Impacts***	***Total Ext Env Costs*** [2]
Eating & Drinking	**40%**	Employment	56.9	4.8	4.9	66.6	
		Output	$1,654,173	$281,992	$294,691	$2,230,856	$ 44,266
		Value Added	$1,013,454	$153,503	$189,832	$1,356,789	
	54%	Employment	76.8	6.5	6.6	89.9	
		Output	$2,233,135	$380,690	$397,833	$3,011,658	$ 59,759
		Value Added	$1,368,165	$207,229	$256,273	$1,831,666	
	65%	Employment	92.5	7.8	7.9	108.2	
		Output	$2,688,033	$458,237	$478,873	$3,625,144	$ 71,932
		Value Added	$1,646,865	$249,442	$308,477	$2,204,784	
Retail Tax	**40%**	Employment	229.6	19.3	19.6	268.5	
		Output	$6,673,220	$1,137,606	$1,188,834	$8,999,660	$ 178,576
		Value Added	$4,088,452	$619,257	$765,816	$5,473,525	
	54%	Employment	310.0	26.1	26.5	362.6	
		Output	$9,008,847	$1,535,768	$1,604,926	$12,149,541	$ 241,077
		Value Added	$5,519,410	$835,997	$1,033,851	$7,389,258	
	65%	Employment	373.2	31.4	31.9	436.5	
		Output	$10,843,982	$1,848,610	$1,931,855	$14,624,447	$ 290,185
		Value Added	$6,643,734	$1,006,293	$1,244,450	$8,894,477	

[1] Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

[2]Institute for a Sustainable Future; The Economic Input Output-Life Cycle Assessment Model.