

SUBMITTED TO:

Southern Maine Planning and Development Commission
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ECONOMIC IMPACT OF EASTERN TRAIL

CURRENT IMPACT AND HYPOTHETICAL EXPANSION SCENARIO

Southern Maine Planning and
Development Commission (SMPDC)

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ABOUT CAMOIN ASSOCIATES

Camoin Associates has provided economic development consulting services to municipalities, economic development agencies, and private enterprises since 1999. Through the services offered, Camoin Associates has served EDOs and local and state governments from Maine to California; corporations and organizations that include Amazon, Lowes Home Improvement, FedEx, Volvo (Nova Bus) and the New York Islanders; as well as private developers proposing projects in excess of \$6 billion. Our reputation for detailed, place-specific, and accurate analysis has led to over 1,000 projects in 44 states and garnered attention from national media outlets including Marketplace (NPR), Crain's New York Business, Forbes magazine, The New York Times, and The Wall Street Journal. Additionally, our marketing strategies have helped our clients gain both national and local media coverage for their projects in order to build public support and leverage additional funding. We are based in Saratoga Springs, NY, with regional offices in Richmond, VA; Portland, ME; Boston, MA; and Brattleboro, VT. To learn more about our experience and projects in all of our service lines, please visit our website at www.camoinassociates.com. You can also find us on Twitter @camoinassociate and on Facebook.

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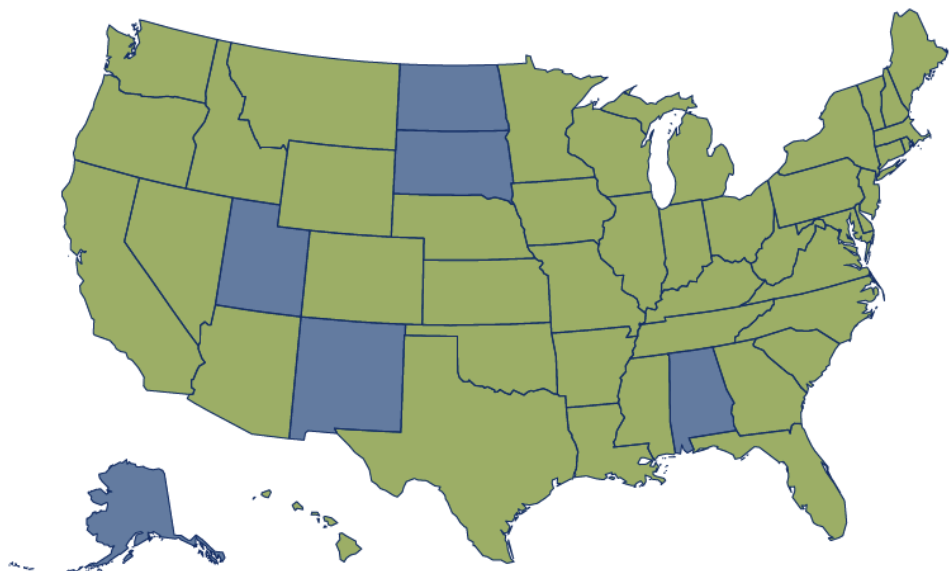




Image Source: Eastern Trail Alliance

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EXECUTIVE SUMMARY

Camoin Associates was retained by the Southern Maine Planning and Development Commission (SMPDC) to conduct an economic impact and fiscal benefit analysis of the Eastern Trail on SMPDC’s region and the state of Maine.¹ The Eastern Trail is intended to provide the route for the East Coast Greenway in southern Maine through a four-season, non motorized, multipurpose, transportation and recreation trail between Portsmouth, New Hampshire, and South Portland, Maine. The approximately 65 mile trail brings users through historical landmarks, scenic vistas, recreation spots, and places to eat and shop.

This analysis considers both the (1) impact of current trail usage; and (2) impacts of a hypothetical trail expansion scenario that results in new construction spending and trail usage. Findings from the analysis are summarized below.

CURRENT TRAIL USAGE

- ◆ An estimated 242,955 users will use the trail in 2021. This represents total user days, not unique users (i.e. one person using the trail five times would count as five users).
- ◆ In the SMPDC region:
 - 223 jobs, \$7.6 million in earnings, and \$19.6 million in annual sales are associated with the Eastern Trail.
 - Approximately \$598,000 in property tax revenue is associated with the Eastern Trail.
- ◆ In Maine:
 - 141 jobs, \$4.9 million in earnings, and \$12.5 million in annual sales are associated with the Eastern Trail.
 - Approximately \$425,000 in property and sales tax revenue is associated with the Eastern Trail.

Table 1

Summary of Current Impacts (Annual)	
SMPDC Region	
Total Jobs	223
Total Earnings	\$7,593,975
Total Sales	\$19,626,782
Total Tax Revenue	\$597,679
Maine	
Total Jobs	141
Total Earnings	\$4,940,582
Total Sales	\$12,536,420
Total Tax Revenue	\$425,359

Source: Camoin Associates

¹ Note that the impacts on the SMPDC region and on Maine are independent and should not be combined. Each considers the economic activity that would be net new to that specific region.

EXPANSION SCENARIO

- ◆ \$1.0 million of construction spending in Maine to expand the trail is estimated to result in one-time construction related impacts of:
 - 3 jobs, \$215,000 in earnings, and \$200,000 in sales in the SMPDC region.
 - 10 jobs, \$688,000 in earnings, and \$1.6 million in sales in Maine, along with approximately \$19,000 in sales tax revenue.
- ◆ 1,000 net new user days are estimated to result in:
 - 1 job, \$62,514 in earnings, and \$161,568 in sales in the SMPDC region, in addition to approximately \$5,000 in property tax revenue.
 - 1 job, \$40,670 in earnings, and \$104,000 in sales in Maine, in addition to approximately \$3,500 in property and sales tax revenue.

Table 2

Summary of Scenario Impacts		
	One-Time Construction Impact (\$1.0 million)	Annual Impacts (1,000 new user days)
SMPDC Region		
Total Jobs	3	1
Total Earnings	\$214,680	\$62,514
Total Sales	\$200,125	\$161,568
Total Tax Revenue	\$0	\$4,920
Maine		
Total Jobs	10	1
Total Earnings	\$688,032	\$40,670
Total Sales	\$1,608,364	\$103,199
Total Tax Revenue	\$19,007	\$3,501

Source: Camoin Associates

INTRODUCTION

Camoin Associates was retained by the Southern Maine Planning and Development Commission (SMPDC) to conduct an economic impact and fiscal benefit analysis of the Eastern Trail on SMPDC's region and the state of Maine. The Eastern Trail is intended to provide the route for the East Coast Greenway in southern Maine through a four-season, non motorized, multipurpose, transportation and recreation trail between Portsmouth, New Hampshire, and South Portland, Maine. The approximately 65 mile trail brings users through historical landmarks, scenic vistas, recreation spots, and places to eat and shop.

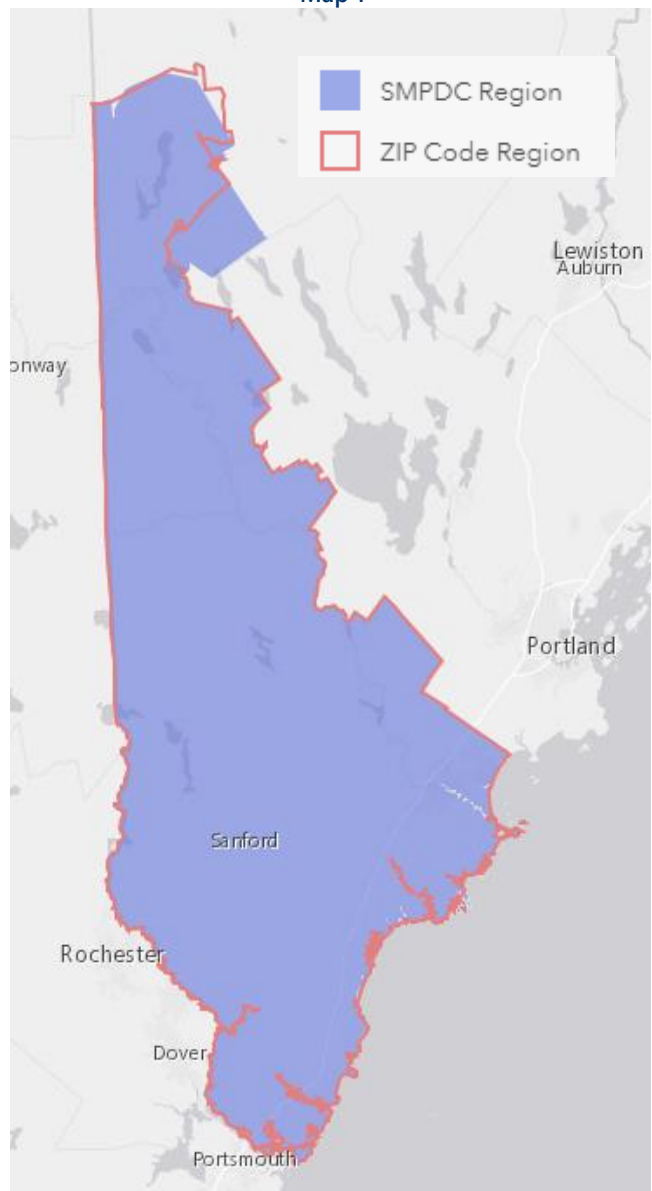
This analysis considers both the (1) impact of current trail usage; and (2) impacts of a hypothetical trail expansion scenario that results in new construction spending and trail usage. Findings from the hypothetical scenario can be used by the Eastern Trail as future expansion is planned and related funding is applied for.

GEOGRAPHIES STUDIED

Impacts were calculated for both the SMPDC region and Maine. The SMPDC region encompasses York County, southern Oxford County, and the Town of Baldwin in Cumberland County.

Emsi, the primary modeling tool used in this analysis, provides data at the ZIP code level. Therefore, the SMPDC region is defined as the 40 ZIP codes that most closely align with the region's borders. The map to the right shows the SMPDC region and the ZIP code region used throughout this analysis.

Map 1



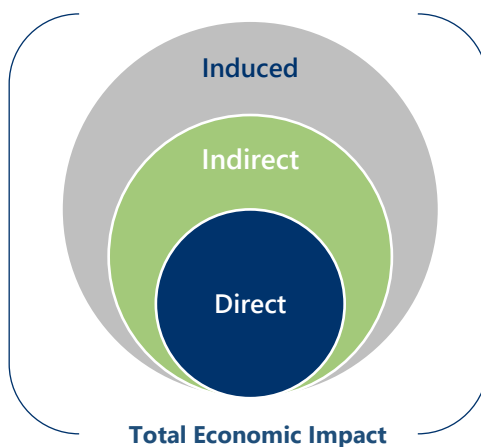
MODELING PROCESS

An economic impact analysis of current and projected usage of the Eastern Trail was conducted to quantify the impact of the trail and its potential expansion on the regional and state economy. The economic impact includes not only the “direct” economic impacts, such as visitor spending but also the secondary economic impacts that are generated throughout the economy through the economic “ripple” effect. The three specific types of impacts considered in the analysis include:

- **Direct:** The most immediate impacts, which include spending by trail users at local businesses.
- **Indirect:** Indirect effects occur at businesses within the region and Maine that supply goods and services to the businesses that users are visiting. In other words, for every dollar spent at a local supplier, a portion of that dollar will again be spent on goods and services at other businesses in the state. This is considered the indirect effect.
- **Induced:** Another “ripple” effect that occurs is when workers at both the directly and indirectly impacted businesses spend a portion of their wages at businesses within the state for things such as retail goods and services. The portion of the spending by new businesses that are paid to workers and re-spent in the state economy is considered the induced impact.

The sum of the direct, indirect, and induced impacts equals the total economic impact. The Emsi Input-Output model is used to calculate the total economic impact, including the three different types of impacts.

Measuring the Total Economic “Ripple Effect”



Modeling Software

Economic Modeling Specialists, Intl. (Emsi) designed the input-output model used in this analysis. The Emsi model allows the analyst to input the amount of new direct economic activity (spending, earnings, or jobs) occurring within the region and uses the direct inputs to estimate the spillover effects that the net new spending, earnings, or jobs have as these new dollars circulate throughout the economy. This is captured in the indirect and induced impacts and is commonly referred to as the “multiplier effect.” See Attachment A for more information on economic impact analysis.

What does “Net New” Mean?

When looking at the economic impacts of a trail, it’s important to look only at the economic changes that would not happen in the trail’s absence. These effects are the “net new” effect: purchases made only as a result of the trail in question.

Definition of a “Job”

A “job” is equal to one person employed for some amount of time (part-time, full-time, or temporary) during the study period.

IMPACT OF CURRENT TRAIL USERS

Current Eastern Trail users have an economic impact in terms of jobs, earnings, and sales as a result of their spending in the local economy. A fiscal benefit is also generated in terms of property and sales tax revenue.

ECONOMIC IMPACT

NET NEW TRAIL USERS

The first step in calculating the economic impact of current Eastern Trail users is to determine the number of users that are net new to the SMPDC region and Maine. In this analysis, net new users are considered to be those who do not live in the SMPDC region or Maine; in other words, it is assumed that without the Eastern Trail these individuals would not be spending time within the region. Note that the impacts calculated for both the SMPDC region and for Maine are independent, these should not be combined. Impacts consider the net new activity that is specific to each region.

According to the Eastern Trail Alliance, there will be an estimated 242,955 trail users in 2021. This represents user days rather than unique users (i.e. one person using the trail five times in 2021 would count as five user days). Based on observations of license plates of trail users, the Eastern Trail Alliance estimates that 50% of users come from outside of the SMPDC region and that half of these (or 25% of total users) come from outside of Maine. This means that there are 121,478 net new user days in the SMPDC region and 60,739 in Maine.

Table 3
Eastern Trail Net New User Days

2021 Total Users	242,955
SMPDC Region Net New (50%)	121,478
Maine Net New (25%)	60,739

Source: Eastern Trail

VISITOR SPENDING

The next step in calculating the economic impact of current Eastern Trail users is to estimate the total spending by net new users. Camoin Associates used visitor spending data from the Maine Office of Tourism's *Visitor Tracking Research, 2019 Annual Report* along with additional trail-related research to estimate spending per user day by category. It is estimated that trail users spend an average of \$118 per day. Spending per user day was multiplied by the net new user days in each geography to calculate net new visitor spending of over \$14.3 million in the SMPDC region and nearly \$7.2 million in Maine.

Table 4
Scenario New Visitor Spending

Category	Spending per		SMPDC Region		Maine
	User Day		(121,478 user days)		(60,739 user days)
Lodging	\$	48	\$	5,864,934	\$ 2,932,467
Food	\$	24	\$	2,868,084	\$ 1,434,042
Retail	\$	14	\$	1,759,298	\$ 879,649
Transportation	\$	14	\$	1,694,611	\$ 847,306
Other Recreation	\$	6	\$	782,315	\$ 391,158
Equipment	\$	11	\$	1,368,748	\$ 684,374
Total	\$	118	\$	14,337,989	\$ 7,168,995

Source: Camoin Associates; Maine Office of Tourism Visitor Tracking Research, 2019 Annual Report, February 2020

ECONOMIC IMPACT OF CURRENT TRAIL USERS

The net new visitor spending amounts were used as the direct input in the Emsi model. Spending amounts were distributed amongst the NAICS codes for each spending category to calculate the total economic impact of trail users.

In total, 223 jobs, nearly \$7.6 million in associated earnings, and over \$19.6 million in total sales in the SMPDC region are associated with the Eastern Trail. In Maine, 141 jobs, over \$4.9 million in earnings, and over \$12.5 million in sales are associated with the Eastern Trail. This represents the total economic impact and is inclusive of all spillover impacts. The economic impact on the SMPDC region considers activity that is net new to the region, while the economic impact on Maine considers the economic impact that is net new to the state. Less user activity is considered to be net new to Maine, therefore the statewide impacts are smaller than the regional impacts.

Table 5

Economic Impact of Eastern Trail Visitation, 2021			
	Jobs	Earnings	Sales
SMPDC Region			
Direct	176	\$5,407,914	\$14,337,989
Indirect	22	\$925,258	\$2,263,143
Induced	25	\$1,260,802	\$3,025,650
Total	223	\$7,593,975	\$19,626,782
Maine			
Direct	97	\$2,703,957	\$7,168,995
Indirect	16	\$778,225	\$1,902,868
Induced	28	\$1,458,400	\$3,464,557
Total	141	\$4,940,582	\$12,536,420

Source: Emsi

FISCAL BENEFIT

In addition to the economic impacts of the trail, economic activity associated with the Eastern Trail generates a fiscal benefit in terms of new property and sales tax revenue.

PROPERTY TAX REVENUE

Although the use of the Eastern Trail does not directly generate property tax revenue for the communities in the SMPDC region and Maine, property tax revenue can be thought of as a function of the overall economic activity within a region. As economic activity increases so do assessed property values, and therefore, property tax revenue.

To estimate the portion of property tax revenue that can be attributed to the Eastern Trail users and resulting economic activity, we determined the ratio of total “value added” sales² associated with the trail activity to the total Gross Regional Product (GRP)³ of the region and state. This ratio is used as a proxy for the portion of property tax revenue that can be attributed to the Eastern Trail users.

² Value added sales are a measure of contribution to GRP. This is the difference between an industry’s total sales and the cost of its intermediate inputs. Intermediate inputs are goods and services that are used in the production process of other goods and services.

³ Gross Regional Product (GRP) measures the market value of all final goods and services produced in a region in a year.

Of the total sales calculated in the *Economic Impact* section, a portion is considered to be value-added. Value added sales account for 0.12% of the SMPDC region’s GRP and 0.01% of Maine’s GRP.⁴ This is, in effect, the portion of each region’s property tax base that is reliant on economic activity generated by the trail users. Applying this ratio to the property tax commitments of the region and state, total property tax revenue attributed to the Eastern Trail is estimated.

Table 6

Property Tax Revenue

	SMPDC Region	Maine
Total Sales (from <i>Economic Impact</i>)	\$19,626,782	\$12,536,420
Value Added Portion of Total Sales	\$11,300,749	\$7,206,235
2020 Gross Regional Product	\$9,413,681,150	\$68,308,631,990
Pct. Of GRP Attributable to Eastern Trail	0.12%	0.01%
FY19 Property Tax Commitment	\$497,875,285	\$2,738,276,430
Property Tax Revenue Attributable to Eastern Trail	\$597,679	\$288,875

Source: Emsi, Camoin Associates, Maine Revenue Services 2019 Municipal Valuation Return Statistical Summary

Eastern Trail’s Impact on Location Decisions

The presence of the Eastern Trail has attracted residential developments and businesses to the region. According to the Eastern Trail Alliance several organizations have indicated that the Eastern Trail was a primary driver of their decision to locate within the region. Additionally, organizations have used their proximity to the Eastern Trail as part of their marketing. The trail’s impact on location decisions has helped to make the region a more desirable place to live and work, supporting and improving the quality of life of residents. Examples of organizations whose location decisions have been impacted by the Eastern Trail include:

- ◆ **Cape Arundel Preserve Cottages (Arundel):** This cottage development has a formal connection to the Eastern Trail and their website describes amenities that includes access to the 65-mile Eastern Trail for hiking and biking.
- ◆ **Southern Maine Health Care (Biddeford):** This hospital partners with the Eastern Trail and provides parking and trail access via their parking lot. The hospital places a sign posted at the trailhead that indicates the value of the trail to human health. Several people who have family and friends at the hospital facility have said they walk the trail to clear their mind. There are also regular hospital staff users who use the trail for exercise at lunch as well as before and after work hours.
- ◆ **Maine Molecular Quality Controls, Inc. (Saco):** Maine Molecular manufactures disease testing molecular controls. They are located adjacent to the trailhead in Saco and support the trail financially, with workers from the facility using the trail regularly. Maine Molecular has provided their parking area and property adjacent to the trail for Eastern Trail sponsored fundraising events.
- ◆ **Village Tavern (Kennebunk):** This tavern is located adjacent to the terminus of the off-road portion of the Eastern Trail. The addition of new trail adjacent to the tavern opens the potential for shared parking space for the trail and the tavern, benefitting both entities.

⁴ Source: Emsi

SALES TAX REVENUE

Economic activity related to the Eastern Trail also generates sales tax revenue for the state. Sales tax revenue is calculated by estimating the portion of earnings that will be spent on taxable items. Maine collects a 5.5% tax on general sales, an 8% tax on prepared food sales, and a 9% tax on lodging sales.

It is assumed that the vast majority (85%) of earnings will be spent in Maine.⁵ The Bureau of Labor Statistics' 2020 Consumer Expenditure Survey was used to estimate the portion of earnings that will be spent in each of these taxable categories. It is estimated that 50% of in-state spending will be on general taxable sales, 4% on prepared food, and 2% on lodging. In total, \$136,484 in total sales tax revenue is estimated to be attributed to the Eastern Trail.

Table 7
Sales Tax Revenue

	Maine
Total Earnings	\$4,940,582
Amount Spent in Maine (85%)	\$4,199,495
Amount Spent on Taxable General Sales (50%)	\$2,099,747
Sales Tax Rate	5.5%
General Sales Tax Revenue	\$115,486
Amount Spent on Taxable Prepared Food Sales (4%)	\$167,980
Sales Tax Rate	8%
Prepared Food Sales Tax Revenue	\$13,438
Amount Spent on Taxable Lodging Sales (2%)	\$83,990
Sales Tax Rate	9%
Lodging Sales Tax Revenue	\$7,559
Sales Tax Revenue Attributable to the Eastern Trail	\$136,484

Source: Camoin Associates, Maine Revenue Services, Bureau of Labor Statistics 2020 Consumer Expenditure Survey

TOTAL FISCAL BENEFIT

The total annual fiscal benefit of the Eastern Trail is displayed in Table 8.

Table 8
Total Annual Tax Revenue

	SMPDC	
	Region	Maine
Property Tax Revenue	\$597,679	\$288,875
Sales Tax Revenue	\$ -	\$136,484
Total	\$597,679	\$425,359

Source: Camoin Associates

⁵ A portion of spending will occur in neighboring states or through travel outside of Maine.

IMPACT OF EXPANSION SCENARIO

The following section includes projections of the future economic impact of the trail under a hypothetical scenario. This scenario assumes \$1.0 million of construction spending occurring within Maine and 1,000 new user days of the Eastern Trail in the SMPDC region. Though the impacts presented here are for a hypothetical scenario, the methodology used is the same as for the *Impact of Current Trail Users*.

IMPACT OF CONSTRUCTION

ECONOMIC IMPACT

For the purpose of this analysis, \$1.0 million of construction spending to expand the trail is assumed to occur in Maine. It is assumed that 16%⁶ of this spending, or \$160,000, will occur within the SMPDC region.

Table 9

Scenario Construction Spending	
Region	Spending
SMPDC Region	\$160,000
Maine	\$1,000,000

Source: Emsi

The in-region spending amounts were used as the direct inputs in the Emsi model to calculate the economic impact of \$1.0 million construction spending in Maine on Maine and the SMPDC region. The results are displayed in Table 10. If, for example, \$1.0 million in construction spending to expand the trail occurs each year, these impacts would occur annually. In other words, for every \$1.0 million in construction spending the following impacts are estimated to result. Note that the economic impacts are specific to each geography and should not be added together.

Table 10

Scenario Economic Impact of Construction			
	Jobs	Earnings	Sales
SMPDC Region			
Direct	1	\$71,560	\$160,000
Indirect	1	\$71,560	\$19,048
Induced	1	\$71,560	\$21,076
Total	3	\$214,680	\$200,125
Maine			
Direct	6	\$447,251	\$1,000,000
Indirect	1	\$70,288	\$202,217
Induced	3	\$170,493	\$406,147
Total	10	\$688,032	\$1,608,364

Source: Emsi

⁶ According to Emsi, the SMDC region accounts for 16% of Maine’s construction sales and therefore can reasonably be assumed to provide 16% of the goods/labor for this project.

FISCAL BENEFIT

The construction of new portions of the trail would have a temporary fiscal benefit for the State in terms of new sales tax revenue. One-time sales tax revenue attributed to \$1.0 million of trail construction spending was calculated using the total earnings (from the *Economic Impact*) and following the same methodology used in the previous section. The results are displayed in Table 11.

Table 11

Scenario Sales Tax Revenue from Construction	
	Maine
Total Earnings	\$688,032
Amount Spent in Maine (85%)	\$584,827
Amount Spent on Taxable General Sales (50%)	\$292,414
Sales Tax Rate	5.5%
General Sales Tax Revenue	\$16,083
Amount Spent on Taxable Prepared Food Sales (4%)	\$23,393
Sales Tax Rate	8%
Prepared Food Sales Tax Revenue	\$1,871
Amount Spent on Taxable Lodging Sales (2%)	\$11,697
Sales Tax Rate	9%
Lodging Sales Tax Revenue	\$1,053
Sales Tax Revenue Attributable to the Eastern Trail	\$19,007

Source: Camoin Associates, Maine Revenue Services, Bureau of Labor Statistics 2020 Consumer Expenditure Survey

IMPACT OF NEW USER DAYS

ECONOMIC IMPACT

NET NEW TRAIL USERS

This scenario calculates the economic impact that 1,000 new visitor days on the trail would have on the SMPDC region and the state of Maine. This represents a 0.4% increase in current total trail usage.

These 1,000 visitor days are assumed to be net new to the region; in other words, they live outside of the SMPDC region and will travel to the region to use the trail. According to the Eastern Trail, half of the trail users from outside of the region are also from outside of Maine. Therefore, it is assumed that 500 of the 1,000 visitors are net new to Maine.

VISITOR SPENDING

The spending per person per trip (used in the *Current Eastern Trail Impact* section) was used to calculate the total visitor spending in each region based on the assumed net new visitors. In total, 1,000 net new visitors to the SMPDC region will result in \$118,030 total spending and 500 net new visitors to Maine will result in \$59,015 total spending.

Table 12

Scenario New Visitor Spending				
Category	Spending per User Day	SMPDC Region		Maine
		(1,000 user days)	(500 user days)	
Lodging	\$ 48	\$ 48,280	\$ 24,140	
Food	\$ 24	\$ 23,610	\$ 11,805	
Retail	\$ 14	\$ 14,483	\$ 7,241	
Transportation	\$ 14	\$ 13,950	\$ 6,975	
Other Recreation	\$ 6	\$ 6,440	\$ 3,220	
Equipment	\$ 11	\$ 11,268	\$ 5,634	
Total	\$ 118	\$ 118,030	\$ 59,015	

Source: Camoin Associates; Maine Office of Tourism Visitor Tracking Research, 2019 Annual Report, February 2020

The total spending figures were used as the direct input in the Emsi model. The economic impacts associated with these new users are displayed in Table 13.

Table 13

Scenario Economic Impact of Visitation				
	Jobs	Earnings	Sales	
SMPDC Region				
Direct	1	\$44,518	\$118,030	
Indirect	0	\$7,617	\$18,630	
Induced	0	\$10,379	\$24,907	
Total	1	\$62,514	\$161,568	
Maine				
Direct	1	\$22,258	\$59,015	
Indirect	0	\$6,406	\$15,664	
Induced	0	\$12,005	\$28,520	
Total	1	\$40,670	\$103,199	

Source: Emsi

FISCAL IMPACT

In addition to the economic impacts of the scenario, economic activity associated with the scenario generates a fiscal benefit in terms of new property and sales tax revenue.

PROPERTY TAX REVENUE

Using the same methodology outlined previously, the portion of property tax revenue that can be attributed to the new users under this scenario was estimated. The results are displayed in Table 14.

Table 14
Scenario Property Tax Revenue

	SMPDC Region	Maine
Total Sales (from <i>Economic Impact</i>)	\$161,568	\$103,199
Value Added Portion of Total Sales	\$93,028	\$59,320
2020 Gross Regional Product	\$9,413,681,150	\$68,308,631,990
Pct. Of GRP Attributable to Eastern Trail	0.0010%	0.0001%
FY19 Property Tax Commitment	\$497,875,285	\$2,738,276,430
Property Tax Revenue Attributable to Eastern Trail	\$4,920	\$2,378

Source: Emsi, Camoin Associates, Maine Revenue Services 2019 Municipal Valuation Return Statistical Summary

SALES TAX REVENUE

Sales tax revenue generated under this scenario was calculated using the same methodology as outlined previously. The results are displayed in Table 15.

Table 15
Scenario Sales Tax Revenue

	Maine
Total Earnings	\$40,670
Amount Spent in Maine (85%)	\$34,569
Amount Spent on Taxable General Sales (50%)	\$17,285
Sales Tax Rate	5.5%
General Sales Tax Revenue	\$951
Amount Spent on Taxable Prepared Food Sales (4%)	\$1,383
Sales Tax Rate	8%
Prepared Food Sales Tax Revenue	\$111
Amount Spent on Taxable Lodging Sales (2%)	\$691
Sales Tax Rate	9%
Lodging Sales Tax Revenue	\$62
Sales Tax Revenue Attributable to the Eastern Trail	\$1,124

Source: Camoin Associates, Maine Revenue Services, Bureau of Labor Statistics 2020 Consumer Expenditure Survey

TOTAL FISCAL BENEFIT

The total annual fiscal benefit of the scenario is displayed in Table 16.

Table 16
Scenario Total Annual Tax Revenue

	SMPDC Region	Maine
Property Tax Revenue	\$4,920	\$2,378
Sales Tax Revenue	\$ -	\$1,124
Total	\$4,920	\$3,501

Source: Camoin Associates

ATTACHMENT A: WHAT IS ECONOMIC IMPACT ANALYSIS?

The purpose of conducting an economic impact study is to ascertain the total cumulative changes in employment, earnings and output in a given economy due to some initial “change in final demand”. To understand the meaning of “change in final demand”, consider the installation of a new widget manufacturer in Anytown, USA. The widget manufacturer sells \$1 million worth of its widgets per year exclusively to consumers in Canada. Therefore, the annual change in final demand in the United States is \$1 million because dollars are flowing in from outside the United States and are therefore “new” dollars in the economy.

This change in final demand translates into the first round of buying and selling that occurs in an economy. For example, the widget manufacturer must buy its inputs of production (electricity, steel, etc.), must lease or purchase property and pay its workers. This first round is commonly referred to as the “Direct Effects” of the change in final demand and is the basis of additional rounds of buying and selling described below.

To continue this example, the widget manufacturer’s vendors (the supplier of electricity and the supplier of steel) will enjoy additional output (i.e. sales) that will sustain their businesses and cause them to make additional purchases in the economy. The steel producer will need more pig iron and the electric company will purchase additional power from generation entities. In this second round, some of those additional purchases will be made in the US economy and some will “leak out”. What remains will cause a third round (with leakage) and a fourth (and so on) in ever-diminishing rounds of industry-to-industry purchases. Finally, the widget manufacturer has employees who will naturally spend their wages. Again, those wages spent will either be for local goods and services or will “leak” out of the economy. The purchases of local goods and services will then stimulate other local economic activities. Together, these effects are referred to as the “Indirect Effects” of the change in final demand.

Therefore, the total economic impact resulting from the new widget manufacturer is the initial \$1 million of new money (i.e. Direct Effects) flowing in the US economy, plus the Indirect Effects. The ratio of Total Effects to Direct Effects is called the “multiplier effect” and is often reported as a dollar-of-impact per dollar-of-change. Therefore, a multiplier of 2.4 means that for every dollar (\$1) of change in final demand, an additional \$1.40 of indirect economic activity occurs for a total of \$2.40.

Key information for the reader to retain is that this type of analysis requires rigorous and careful consideration of the geography selected (i.e. how the “local economy” is defined) and the implications of the geography on the computation of the change in final demand. If this analysis wanted to consider the impact of the widget manufacturer on the entire North American continent, it would have to conclude that the change in final demand is zero and therefore the economic impact is zero. This is because the \$1 million of widgets being purchased by Canadians is not causing total North American demand to increase by \$1 million. Presumably, those Canadian purchasers will have \$1 million less to spend on other items and the effects of additional widget production will be canceled out by a commensurate reduction in the purchases of other goods and services.

Changes in final demand, and therefore Direct Effects, can occur in a number of circumstances. The above example is easiest to understand: the effect of a manufacturer producing locally but selling globally. If, however, 100% of domestic demand for a good is being met by foreign suppliers (say, DVD players being imported into the US from Korea and Japan), locating a manufacturer of DVD players in the US will cause a change in final demand because all of those dollars currently leaving the US economy will instead remain. A situation can be envisioned whereby a producer is serving both local and foreign demand, and an impact analysis would have to be careful in calculating how many “new” dollars the producer would be causing to occur domestically.

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