

A report by the University of Vermont Transportation Research Center

Estimating Tourism Expenditures for the Burlington Waterfront Path and the Island Line Trail

Report # 10-003 | February 2010

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UVM Transportation Research Center

February 2010

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Acknowledgements

This project team thanks Local Motion, the Chittenden County Metropolitan Planning Organization (CCMPO), and the Vermont Tourism Data Center (VTDC) for providing data and information to advance this report. Funding for this research was provided by the United States Department of Transportation through the University Transportation Center program at the University of Vermont Transportation Research Center.

Disclaimer

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1. Introduction

Shared use paths and trails are important for communities in numerous ways. First, they provide for non-motorized transportation routes for commuting and other travel. Second, they provide for active recreational opportunities that improve quality of life and promote healthy activities. Finally, of particular interest in this report, paths and trails attract visitors and contribute to the economy of a community.

Tourism in Vermont has an important impact on the state's economy. As a major source of state income, tourism helps to generate revenue from retail sales, accommodations, restaurants and supports jobs in tourism-related businesses. Tourists from out-of-state and even out-of-country come to Vermont to enjoy its nature settings, recreation amenities, and other attractions. In addition to ski resorts and hiking paths, shared use paths in Vermont, especially the Waterfront Trail along Lake Champlain in Burlington, Vermont, attract tourists.

In this study, we estimate the economic activity associated with visitors using the Waterfront Trail in Burlington and also on the Island Line in Colchester where the trail follows a causeway into Lake Champlain to a "cut" where ferry service is provided at limited times during the summer season by Local Motion. Some of the data used in this project were provided by Local Motion who conducted an observational study at four locations on the trail in August 2008. CCMPO and community volunteers assisted. This work is the output of an undergraduate summer 2009 fellowship program of Transportation Research Center (TRC) at the University of Vermont. This work is also related to efforts of "Signature Project #4" at the UVM TRC that seeks to measure seasonal patterns in travel including bicyclists and pedestrians.

2. Objective

The objective of this project is to estimate the economic activity associated with non-resident users of the Waterfront and Island Land Trail.

3. Background

There are limited studies on the economic impact of bicycle tourism. However, bicycling is a popular outdoor activity in many tourist destinations. It is relatively inexpensive and does not necessarily require much physical exertion (1). Studies show that bicycle visitors contribute significantly to the tourism economy (2). The same study also found that no matter how scenic and flat, bicyclists are less likely to be attracted to the area if bicycling is difficult and/or unsafe. While we cannot draw definite conclusions that tourists are attracted by the presence and quality of bicycle facilities in Vermont, it is important to evaluate their usage, perception of the system and associated economic activity.

A study in Wisconsin has shown that areas with bicycling facilities benefit the communities around them. Places that are bicycle-friendly are identified by residents as human-scaled environments or social arenas. This creates a greater sense of neighborhood and community bonding which contributes to the community's quality of life (3). These bicycle-friendly areas in turn attract businesses and tourists to the area that generate revenue for the local economy through sales, taxes, and entry fees (3).

4. Study Area

Burlington is the largest city in the state of Vermont with a population of 39,000 (4). The Metropolitan area includes 19 municipalities and has a total population of 153,000 (4). In Burlington, the Island Line Trail also known as the Waterfront Trail or Burlington Bikeway, runs for 12.5 miles along the Lake Champlain from its south end in Burlington to its north end in Colchester, Vermont (population 17,000)(4). The Trail is shown in Figure 1. The trail sustains a relatively high level of activity due to its proximity to the lakeshore, scenic views, downtown, and convenient connections to the surrounding retail and entertainment businesses. The shared use path also connects to the Causeway and a Local Motion Bike Ferry that bridges Colchester to South Hero (shown in Figure 1) at "the cut". In the Local Motion data collection, user counts and interviews were conducted not only at "the cut" but also at three other locations labeled on Figure 1.

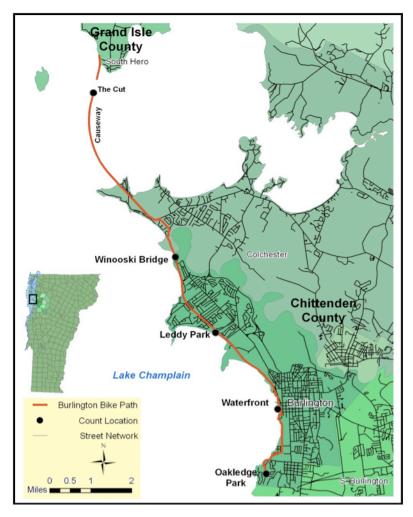


Figure 1. Map of the Waterfront Trail and Island Line Trail Count Locations

The attraction of the area to domestic and international tourists is apparent but exact studies to determine the economic impact associated with the trail have not been undertaken. In addition to estimating this economic activity associated with visitors using the trail, the data were intended to

assist planners in understanding the relative number of path users in different locations at different times.

5. Local Motion Trail Observational Survey and Interviews

In the summer of 2008, Local Motion conducted surveys in collaboration with local volunteers at 4 (3 plus the "cut") different locations along the Burlington Waterfront and Island Line Trail. During the survey, Local Motion surveyors and volunteers observed trail users and recorded information for all individuals passing survey points including their approximate age, gender, transportation mode (walking, biking, roller-blading, etc), and helmet usage if applicable (see survey form Appendix A). For a subset of trail users who agreed to stop and answer more specific interview questions, the surveyors collected home state, zip code, trip purpose if the user was from within Chittenden County, and length of stay by accommodation type (camping, hotel and staying with friends/relatives) if the user was from outside of Chittenden County. Comments regarding trail improvements were also invited.

These locations were not identical with automated counts collected by CCMPO and discussed below. The observational and interview studies were collected at a) Oakledge Park, b) Waterfront Park in downtown Burlington, c) Leddy Park, and d) the Causeway "cut" in Colchester. At the Causeway and Oakledge Park the survey was conducted for only one day each, on Saturday, August 23rd and Thursday, August 21st, 2008, respectively. At Leddy Park and Waterfront Park, the survey was conducted for both days on Thursday, August 21st and Saturday, August 23rd, 2008.

The survey data were analyzed to understand the overall profile of the trail user groups, by mode (biking, walking, scooting, etc), by age, by gender, or by trip purpose. Because all four locations are along the same continuous trail, the same users might have been counted at more than one location thus leading to over-estimation. As a result, we computed estimates by working with survey data by location. In other words we did not sum the counts across all locations.

Table 1 shows the total number of path users counted (including roundtrip double counts) and the breakdowns of the total number by type for each location on different days. These results show that bicyclists are the majority users of the path; pedestrians are the second largest user group; and other users on roller-blades and roller-boards are the fewest. The helmet usage results showed that between 30 to 40 percent of the bicyclists and roller-blade/scooter users passing these points did NOT wear helmets.

Table 1 Total Number of Path Users by Type by Location

					J - J F - ~ J			
Location	Survey Day	Day of week	Hours	Total Users ¹	Pedestrians	Bicyclists		Helmet Usage ²
Oakledge Park	08/21/08	Thursday	6:30am - 8:30pm	1012	313	675	8	56.0%
Waterfront	08/21/08	Thursday	6:30am - 8:30pm	1851	701	1100	33	58.2%
Park	08/23/08	Saturday	6:30am - 8:30pm	2958	1085	1787	41	62.6%
	08/21/08	Thursday	6:30am - 8:30pm	1125	162	904	43	60.1%
Leddy Park	08/23/08	Saturday	6:30am - 8:30pm	2012	223	1704	45	61.3%
Causeway	08/23/08	Saturday	10am - 6pm	218	2	215	0	71.6%

Note 1: Total is greater than sum because some modes were missing.

Note 2: Cyclists and bladers only.

As shown in Figure 2, the majority of trail users were observed to be in the age group 21-64 years. There were small percentages of users from other age categories at all four locations on weekdays and weekends. Figure 3 illustrates the gender of users by location. In all cases except the causeway cut, there were more male users. Users at the causeway were relatively equally split between male and female.

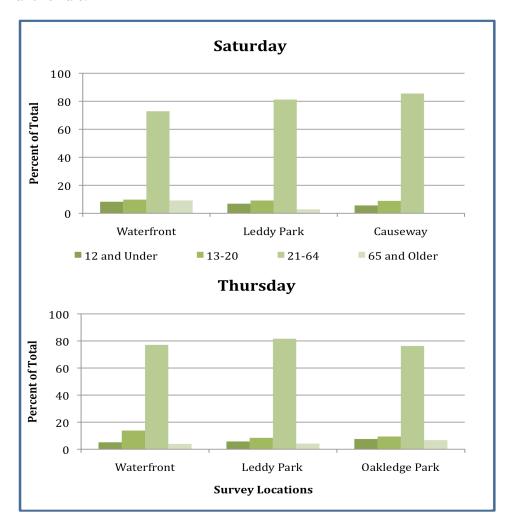


Figure 2. Age Distribution of Path Users by Location

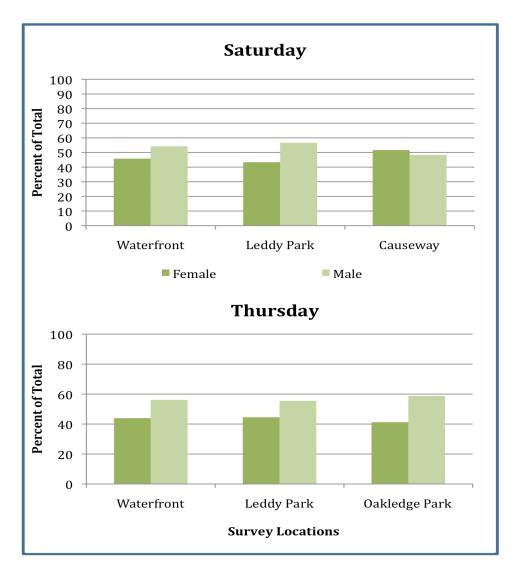


Figure 3. Gender Distribution by Location

Figure 4 illustrates the distribution of path users by home location. Overall, at all four locations there are more in-state users than out-of-state users. Out-of-state visitors are of particular interest for tourism expenditures because they tend to spend more, prefer eating meals at restaurants, shop in retail establishments, and stay overnight at lodges or hotels (5). Though in-state visitors on average spend less per visit than out-of-state visitors, they provide a robust share in Vermont's tourism-based revenue income especially during an economic downturn (6).

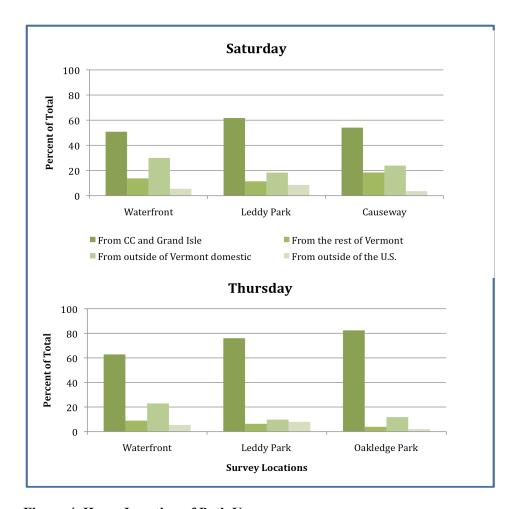


Figure 4. Home Location of Path Users

The trip purpose was asked for local, not tourist, users of the path. Tourists were assumed to be recreational users. Table 2 summarizes the trip purpose of users by location. On weekdays a consistently high percentage of users were using the trail for recreational purpose at all locations but between 15 and 18 percent of users were using the trail for a work commute. All other purposes were very small. On weekend days, the vast majority of users were using the trail for recreational purposes (over 90 percent for all locations).

Table 2. Trip Purpose by Location by Day

Day of	T	Trip Purposes	Гrip Purposes								
Week		Recreational	Work	Shop	School	Social	Other	Total			
	Oakledge	73.0%	18.0%	2.2%	1.2%	2.2%	3.4%	100%			
	Waterfront	75.7%	14.4%	3.4%	0.7%	3.2%	2.6%	100%			
	Leddy Park	78.3%	15.2%	3.6%	0.0%	1.2%	1.7%	100%			
	Waterfront	90.5%	3.5%	1.8%	0.4%	1.8%	2.1%	100%			
	Leddy Park	91.3%	2.7%	3.4%	0.4%	1.1%	1.1%	100%			
	Causeway	97.6%	0.0%	1.4%	0.0%	1.0%	0.0%	100%			

Users of the trail who were not local were classified into three categories based on home: in-state, out-of-state domestic, and out-of-country (international). Interviewees were also asked if they were visiting for the day or stayed overnight. When counting overnight stays, we considered hotel lodging, family/friends accommodation, and camping. Tabulation of these interview results by location is shown in Table 3.

Table 3. Visitor Accommodation Type

	100	e o. visitoi i			or Type	
Location	Day of Week	Type of visit	CC* visitors	In-state	Domestic	Out-of- country
Oaldadaa	Thursday	Overnight	82.4%	0.0%	3.3%	0.0%
Oakledge	Thursday	Day	82.4%	3.9%	8.5%	2.0%
	Thursday	Overnight	62.8%	1.6%	16.4%	3.8%
Waterfront	Thursday	Day	02.670	7.3%	6.5%	1.6%
waterfront	0-4-1-	Overnight	50.8%	1.4%	15.8%	3.1%
	Saturday	Day	50.6%	12.3%	14.2%	2.4%
	Thursday	Overnight	76.0%	0.5%	3.7%	1.6%
Leddy Park	Thursday	Day	70.070	5.8%	6.1%	6.3%
	Saturday	Overnight	61.7%	0.6%	9.8%	5.3%
	Saturday	Day	01.770	10.8%	8.5%	3.2%

^{*}CC=Chittenden County

Table 4 summarizes the comments made by users who stopped for interviews. Note that only Waterfront and Leddy Park were conducted on both a weekend and weekday. Trail users' comments were taken on any subject they wished to comment on. Between 30 to 65 percent of users questioned at Oakledge, Waterfront, and Leddy Park suggested no improvements, while only about 6 percent of users at the Causeway gave the same feedback. About 15 to 25 percent of the users at Oakledge, Waterfront, and Leddy Park suggested pavement quality needed to be improved, while nearly 80 percent of users at the Causeway commented on surface quality. Trail width received the second highest number of comments especially at Leddy Park.

Table 4. Comments for Improvements by Location by Day

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	Survey	Comments for improvements									
Day of Week	Location	None	Pavement quality	Trail width	Signs	User courtesy	Other	Total			
	Oakledge	28.7%	24.7%	25.3%	7.0%	6.7%	7.7%	100%			
Weekdays	Waterfront	50.0%	20.9%	16.7%	5.2%	3.7%	3.5%	100%			
	Leddy Park	32.9%	17.3%	26.7%	8.7%	7.1%	7.3%	100%			
	Waterfront	64.0%	22.7%	8.5%	2.1%	1.2%	1.5%	100%			
Weekends	Leddy Park	52.0%	14.8%	21.2%	6.9%	3.4%	1.7%	100%			
	Causeway	5.7%	77.1%	13.7%	1.8%	0.9%	0.9%	100%			

6. Methodology

In order to estimate the economic activity associated with tourists on different sections of the trail three types of data were needed. First, continuous 24-hour automatic count data from CCMPO were used to measure how volume varies from month to month. Second, observational counts and

interviews from users in August 2008 were used to determine the percentage of total users from different areas of Vermont, the United States and other Countries. Finally, expenditures per day by visitors to Vermont were used from the State of Vermont.

The associated tourist expenditures is to be calculated for four locations on the Burlington Waterfront Trail for the months May through September, 2008 because these are the months for which continuous path user counts were available from CCMPO. Table 5 lists the four locations where automatic 24-hour counts were conducted by CCMPO for 2007 and 2008 (also shown in Figure 1 above).

Table 5. Automated 24-hour User Counts (CCMPO)

			Measured Daily Counts (One-way)									
Site#	Station Name	Count Duration		Weekdays				Weekend Days				
			May	June	Jul	Aug	Sep	May	June	Jul	Aug	Sep
1	Oakledge Park	08/05 - 09/01, 2008				470					706	
2	Waterfront Park	05/03 – 05/20, 2007	620					810				
3	Leddy Park	08/20 - 09/23, 2008				674	448				1133	556
4	Winooski Bridge	06/11 – 08/18, 2008		314	440	439	318		500	620	896	

The associated tourist expenditures were also calculated for August 2009 for the Colchester Causeway users. This set of counts comes from Local Motion at the "cut" in the Colchester Causeway in Lake Champlain based on ferry boardings in 2009. Therefore these are not 24-hour counts as the above four locations are.

Ratios between months at locations 3 and 4 were used to estimate the average daily trail user counts on weekdays and weekends at each of the other locations (For weekdays, average 796 based on Winooski Bridge data, June factor 0.79 (May factor 0.79), July factor 1.105, August factor 1.103; average 1122 based on Leddy Park data, August factor 1.201, September factor 0.798. For weekend days, average 1345 based on Winooski Bridge data, June factor 0.74 (May factor 0.79 too), July factor 0.92, August factor 1.33; average 1688 based on Leddy Park data, August factor 1.34, September factor 0.66.)

The total number of weekday and weekend path users between May 2008 and September 2008 were estimated for the four count locations and are shown in Table 6. Note that the continuous counters captured non-motorized traffic in both directions and might have double counted users that made round trips. Thus, 50 percent of the total CCMPO counts at each location were used for assessing the associated economic activity.

Table 6. Estimate of Total Daily Users

	rabio of Estimate of Total Bally Cools											
		*Estimated Average Daily Users (One-way)										
Site #	Station Name	Weekdays				Weekend Days						
		May	June	Jul	Aug	Sep	May	June	Jul	Aug	Sep	
1	Oakledge Park	372*	372*	520*	470	375*	558*	558*	780*	706	466*	
2	Waterfront Park	620	620*	685	684	495	810	810*	745	1078	535	
3	Leddy Park	443*	443*	620*	674	448	624*	624*	776*	1133	556	
4	Winooski Bridge	314*	314	440	439	318	500*	500	620	896	444*	

Table 6 contains the estimate of total trail users per day. Note that only a portion of these users are tourists. In order to estimate the number of tourists by type at each location the observational surveys conducted by Local Motion in August 2008 were used. The interview data included the zip code of the user. Therefore, the percent of users at each of the five locations in each of the following categories was calculated: 1) Chittenden County (CC), 2) outside CC in Vermont, 3) outside Vermont domestic, and 4) international.

Several assumptions were made for this analysis. First, for the Causeway cut estimate the local travelers category (1) was defined as both Chittenden County and Grand Isle due to the connectivity provided by the ferry between Causeway and South Hero. Second, for Waterfront and Leddy Park locations (location 2 and 3) the percent visitor type was calculated separately for weekdays and weekend days. However, at Oakledge Park (location 1), interviews and observations were only collected on a weekday and the weekend visitor percentage was assumed to be the same as at Waterfront Park (location 2) due to the similarity in their weekday percentages. Third, the percent visitor type at Leddy Park (location 3) was used for the Winooski Bridge CCMPO count location.

The percent visitor type was multiplied by the total volume to estimate the number of visitors by type for each of the 5 locations. For the first 4 locations total visitors by type was calculated for all days between May 1 and September 30, 2008. For location 5, the causeway cut total number of visitors by type was estimated for the volume of users boarding the ferry in August 2009. The estimate of tourism expenditures associated with users at each of the five locations was determined by multiplying these volumes by the average visitor spending provided by The Vermont Department of Tourism and Marketing (6).

7. Results – Associated Economic Activity

7.1 Waterfront Path

Table 7 shows the total estimated users by month for weekdays and weekend days for the four locations on the Waterfront Path in Burlington where economic impact will be calculated for tourists or visitors. These locations are Oakledge Park, Waterfront Park, Leddy Park, and the Winooski River Bridge.

Table 7. Total Trail Users by Location May - September 2008

Station #	Station Name	Total One-way Trail users (May-September, 2008)					
Station #	Station Name	Weekdays	Weekend days				
1	Oakledge Park	46,043	27,081				
2	Waterfront Park	67,669	35,591				
3	Leddy Park	57,308	28,276				
4	Winooski Bridge	39,848	26,490				

Table 8 indicates the average spending per person per trip for in-state, out-of-state domestic, and out-of-country visitors for day visits and overnight visits (6). In this case, visitors from Canada were assumed to be out-of-country. As shown in Table 8, out-of-state domestic visitors on average spend more than in-state visitors, and out-of-country visitors on average spend more compared to the other two types of visitors.

Table 8. Spending per Person per Trip by Visitor Type (6)

Ī	Type of	Average visitor spending						
	person trip	In-state	Out-of-state domestic	Out-of-country				
	Day	\$60.20	\$67.16	\$80.63				
ſ	Overnight	\$124.78	\$156.84	\$193.31				

^{*} The average spending per person per trip were based on The Vermont Department of Tourism and Marketing 2007 survey data

Taking these spending rates and multiplying by the estimated five-month visitor volume by in-state, domestic, and international visitors, we are able to estimate the spending associated with tourist path users by location. Table 9 indicates the highest estimated associated spending, a total of 2.5 million dollars, was associated with visitors observed at the waterfront location of the trail during weekdays. Note that these results are presented by location and should not be summed. It is known that some users were counted at more than one location.

Table 9. Visitor Spending by Location

	Daylof	Trung of		ending by Vis		Total visitor	Visitor	
Location	Day of Week	Type of Visitor	In-state	Domestic	Out-of- country	spending	spending per day	
	Weekdays	Overnight	\$0	\$101,054	\$0	\$1,114,460	\$10,224	
Oakledge	weekuays	Day	\$225,304	\$613,582	\$174,521	\$1,114,400	Φ10,224	
Oakieuge	Weekends	Overnight	\$23,112	\$287,590	\$66,673	\$1,521,515	\$34,580	
	weekends	Day	\$416,408	\$602,137	\$125,595	\$1,521,515	\$54,58U	
	Weekdays	Overnight	\$64,406	\$745,466	\$204,875	\$2,531,156	\$23,222	
Waterfront		Day	\$617,427	\$692,166	\$206,816	\$2,051,106		
waterfront	Weekends	Overnight	\$30,375	\$377,963	\$87,624	\$1,999,640	\$45,446	
		Day	\$547,261	\$791,354	\$165,062	\$1,999,040	\$45,440	
	Weekdays	Overnight	\$18,205	\$142,172	\$73,152	\$1,895,600	\$17,391	
Leddy Park	Weekuays	Day	\$415,091	\$545,457	\$701,523	\$1,095,000	φ17,551	
Leddy Fark	Weekends	Overnight	\$24,869	\$510,570	\$141,953	\$1,288,473	\$29,283	
	weekends	Day	\$215,970	\$189,628	\$205,483	\$1,200,473	φ <i>Δ9</i> ,260	
	Weekdays	Overnight	\$12,659	\$98,855	\$50,864	\$1,318,052	¢19.009	
Winooski	weekuays	Day	\$288,622	\$379,268	\$487,784	φ1,316,032	\$12,092	
Bridge	Weekends	Overnight	\$10,255	\$174,475	\$113,319	\$1,172,771	\$26,654	
	weekends	Day	\$356,050	\$354,017	\$164,655	φ1,172,771		

7.2 Causeway "Cut"

The information gathered at the Causeway "Cut" for home location of users was analyzed in the same manner as for the other locations (Table 10). While the percent visitors was obtained in the 2008 interviews the associated economic impact is calculated for the total ferry use in 2009. A

total of 3,498 riders used the ferry service over the 13 days of operation. The total associated tourist spending is shown at the bottom right of Table 10. It is of note to compare this value to that of the Waterfront users. At the "cut" associated daily tourist expenditures is an average \$13,746 per day of ferry operation, while at the Waterfront in Burlington the expenditures are \$16,544. These similar values for associated tourist expenditures are not necessarily expected given the relative remote location of the causeway and cut.

Table 10. Visitors and Associated Spending at the "Cut"

10	ng at the v	Jui							
Trung of		Visitor Type							
Type of visitors	Type of stay	In CC and Grand Isle	In-state	Domestic	Out-of-country				
Percentages	Overnight		0.0%	14.7%	2.8%				
of visitors	Day	54.1%	18.4%	9.2%	0.8%				
# of visitors	Overnight	1892	0	514	98				
# 01 VISITORS	Day	1092	644	322	28				
Visitor	Overnight		\$0	\$34,520	\$7,902				
spending	Day		\$80,358	\$50,502	\$5,413				
	Total				\$178,695				

7. Conclusions

The shared use path studied in this project in Burlington and Colchester, Vermont carries a significant number of users. Most are adult users and the majority are traveling for recreation. A substantial number of users, 18% to 49% are visitors to the area. The proportion of visitors as well as their origin from within state, out-of-state and even international varies by location. The downtown Burlington and the Colchester Causeway "cut" have the highest proportion of visitors.

The associated tourism expenditures of the Burlington Bikeway and Island Trail Line along Lake Chaplain was estimated, using the 2008 interview-based visitor information, 2009 Local Motion ferry boardings, 24-hour multi-day automated continuous counts from CCMPO and average visitor spending data from the State of Vermont. The results show that the overall average tourism spending of tourist users ranges from \$1 to \$2.5 million, over a five-month period between May and September, 2008. Non-resident riders on the bicycle and pedestrian ferry at the "cut" in Colchester were estimated to have spent \$178,695 for only 13 days of operation. These are conservative estimates for two reasons. First, the spending associated with local users of the path is not included. Second, in order to avoid double counting 24-hour counts were halved and users at different locations were not summed. But it is unlikely that all users were counted at all location along the trail. Note also these measures of tourist spending associated with the waterfront trail do not include public health and quality of life benefits.

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9. Appendix – Survey Form

User#	Mode	Age	Sex	Helmet	Zip Code	If from <u>away</u>	If from <u>this area,</u> Type of Activity or purpose of this trip	Trail Improvements
1001	_ bike _ walk _ run/jog _ blades/scooter _ wheelchair _ other	_ <12 _ 13-20yrs _ 21-64yrs _ > 65yrs	_ male _ female	_ yes _ no	05	Nights in hotel	_ recreation _ work commute _ shopping/errand/personal biz _ school (where I'm a student) _ social or entertainment _ other	_ none _ pavement quality _ trail width _ signs _ user courtesy _ other
1002	_ bike _ walk _ run/jog _ blades/scooter _ wheelchair _ other	_ <12 _ 13-20yrs _ 21-64yrs _ > 65yrs	_ male _ female	_ yes _ no	05	Nights in hotel	_ recreation _ work commute _ shopping/errand/personal biz _ school (where I'm a student) _ social or entertainment _ other	_ none _ pavement quality _ trail width _ signs _ user courtesy _ other
1003	_ bike _ walk _ run/jog _ blades/scooter _ wheelchair _ other	_ <12 _ 13-20yrs _ 21-64yrs _ > 65yrs	_ male _ female	_ yes _ no	05	Nights in hotel	recreation work commute shopping/errand/personal biz school (where I'm a student) social or entertainment other	_ none _ pavement quality _ trail width _ signs _ user courtesy _ other
1004	_ bike _ walk _ run/jog _ blades/scooter _ wheelchair _ other	_ <12 _ 13-20yrs _ 21-64yrs _ > 65yrs	_ male _ female	_ yes _ no	05	Nights in hotel	_ recreation _ work commute _ shopping/errand/personal biz _ school (where I'm a student) _ social or entertainment _ other	_ none _ pavement quality _ trail width _ signs _ user courtesy _ other
1005	_ bike _ walk _ run/jog _ blades/scooter _ wheelchair _ other	_ <12 _ 13-20yrs _ 21-64yrs _ > 65yrs	_ male _ female	_ yes _ no	05	Nights in hotel	_ recreation _ work commute _ shopping/errand/personal biz _ school (where I'm a student) _ social or entertainment _ other	_ none _ pavement quality _ trail width _ signs _ user courtesy _ other