



Assessing the Economic and Livability Value of Multi-Use Trails

**A Case Study into the Tammany Trace Rail Trail
in St. Tammany Parish, Louisiana**

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To Annette for supporting my “LB” ways. Even in the most poignant of times, you always had the confidence that I could finish.

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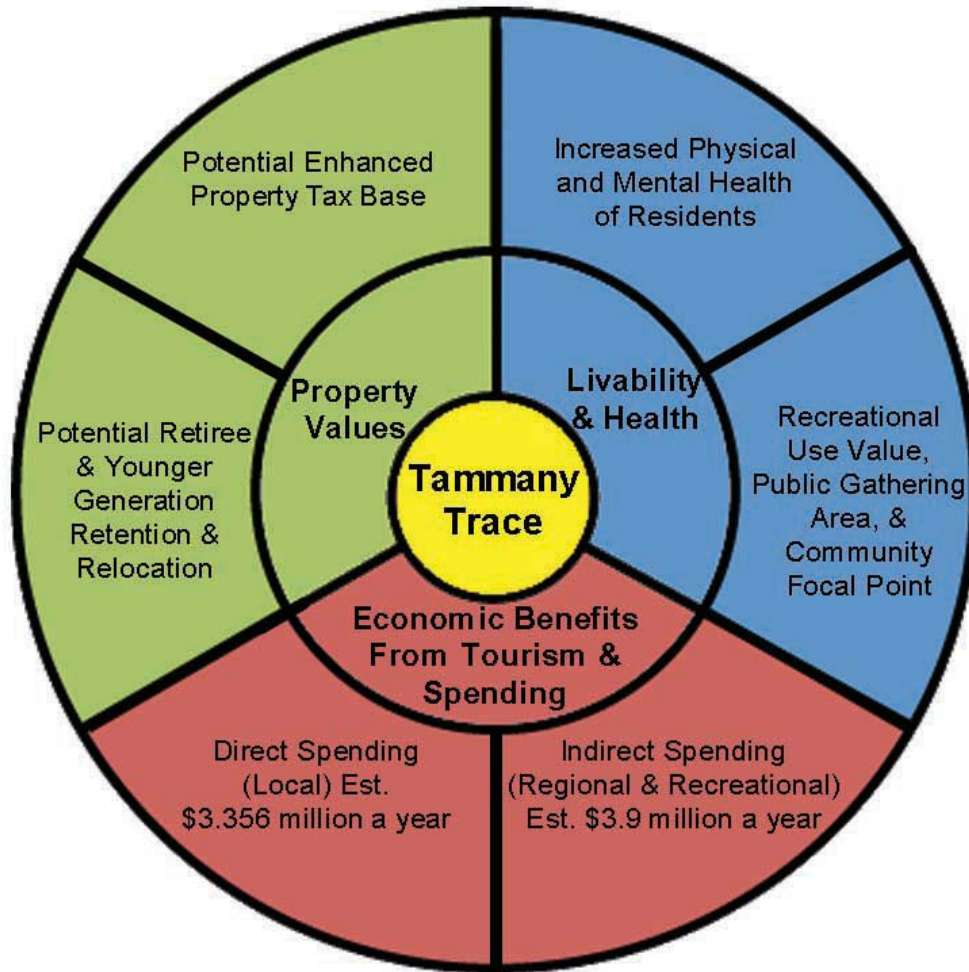
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Executive Summary

Multi-use trails are becoming an economic catalyst and vital contributor to the quality of life for communities all across the nation. This document looks at key factors as to why this is, and takes these factors as a basis into a case study on the Tammany Trace (the “Trace”), a 31-mile rail-to-trail conversion in St. Tammany Parish, Louisiana. The study looks into how the region and local communities have benefited from the facility by collecting data from the following methods:

- Spatial data for existing infrastructure in the region to create, study and compare maps
- In person interviews to local leaders
- Collecting existing yearly trail user numbers
- Intercept surveys to users of the trail over 3 days
- Housing property value comparison GIS map study
- Telephone surveys to local real estate professionals

Mapping the trail and specifically 3 chosen trailheads, along with qualitative feedback from interviewing city mayors and aspects of intercept surveys, reveals how these trailheads are the community focal points and gathering places of each city, contributing to the high quality of life and health factors that St. Tammany parish leads the state in. Correlating the Trace yearly user numbers, along with breaking down different aspects of quantitative answers from spending and use habits from the intercept surveys also revealed economic benefit numbers to the local and regional economies associated with using the Trace. The yearly estimated economic benefits are \$3.356 million for direct spending and \$3.9 million for indirect spending. Finally, the Trace may or may not factor into more desired and/or higher home values when adjacent or close to the facility currently, but it is favorable that newer generations and retirees may increasingly seek to be closer to the trail. The evaluated Tammany Trace livability and economic benefits are highlighted in the graphic below.



This document also includes a Lessons Learned chapter conveying insight from my process of evaluating the Tammany Trace and other trail facilities to bring guidance for municipalities and regions that want to implement and/or improve their own successful trail facility.

In conclusion, the Tammany Trace continues to attract visitors and be an invaluable resource to the locals who frequent it. This makes the facility firmly established as an asset economically, and a vital contributor to a higher quality of life for the local communities and region.

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Chapter I: Introduction

There are many qualities of life that multi-use trails can bring to communities, cities and regions. They can provide relaxation and a way to get away from urban congestion. Local agencies are recognizing the importance of trail linkages to and from downtown city center cores and destinations, and as functional transportation routes. Of course there is the health benefit, as trails provide a safe place to get exercise. People who walk, jog, skate or cycle on trails reap health/fitness benefits such as a lower risk of heart disease (Lindsey, 2004). They can preserve and showcase the environmental qualities of a region through visual and aesthetic alignments and bring about a sense of civic pride to communities in forms interpretational history along its route. Social benefits of living on trails are many and contribute to residents and property owner's quality of life through improved family relationships, increased friendships, and new neighborhood relationships (Corning, 2012). If a trail is planned out and designed sufficiently, then all these qualities will come with the territory, but what is overlooked sometimes is the overall economic impact along with the increased livability that these trails can inevitably bring.

When trails are first proposed, there will most always be an outcry by skeptics that these investments will be a waste of taxpayer's money and will just cater to the occasional recreational rider, being of no benefit to the communities that they serve. Other common misconceptions and opposition outcries include that trails will bring an increase in crime, lower property values, and will be an insufficient use of public funds (Crompton, 2001). Typically though, adjacent residents to trails almost always change their minds soon after a trail is implemented and become fervent users and supporters of the overall positive benefits that they bring. Also, most always, the positive economic gains through either increased property values, increased tax base through consumer spending, or increased tourism associated with a particular trail is felt either gradually with time or soon after completion. In today's society, the X and Millennial Generations are also looking to live in environments that have trail infrastructure, and corporations are looking to start or relocate their businesses to attract talent that want to take advantage of living close to trails. The indirect

values associated include increased community interaction and opportunities for increased civic pride through history interpretation about your community along the trail. Also, as fuel prices rise, people will want to drive less, and having well-connected trail and bikeway infrastructure makes communities more resilient to having to always depend on automobiles to get them places.

This study is twofold. First, at a broader scope, it looks into literature on multi-use paved trails, which can be rail-trails, greenways, or a combination of both, to support the paradigm of how trails are bringing economic and livability benefits to communities. Second, it is a case study on the 31-mile Tammany Trace, the “Trace” as referred from here on, a rail-to-trail conversion in St. Tammany Parish in Southeast Louisiana. Through interviews, intercept surveys, and mapping techniques, it begins to frame a picture of what economic and livability impacts the facility has on this region.

The goals of this study:

- 1. Present the existing conditions and perceptions of the Trace through mapping techniques and feedback from interviews with local leaders.**
- 2. Conduct an intercept survey on Trace users to get responses on spending habits and quality of life perceptions of the trail.**
- 3. Correlate responses from the intercept survey along with existing user counts to develop an economic impact that that the Trace has on the region.**
- 4. Conduct a study on property values to see if there is an association with adjacent Trace homes and increased home values.**

Chapter II: Literature Review

This Literature Review provides excerpts from research on material that I believe are the main components of why multi-use trails are valuable to communities and regions both economically and from an increased livability standpoint. The sections, which include “Trail Oriented Development”, “Property Values”, “Social and Healthy Communities”, and “Tourism and Expenditures,” are a lead into and also correlate on how the latter case study on the Trace is evaluated.

Trail Oriented Development

Bicycle planning and design is an evolving field, especially in the sense that communities are not only implementing this infrastructure for its recreational value, but now increasingly for its economic and livability benefits. For my literature review, I focused on research that suggests that the popularity of trails has been steadily increasing and on specific studies about trails throughout the country. I also was determined to find any research that I could on the emerging trend of “trail oriented development” or TrOD, which capitalizes on the amenity value, placemaking and development potential adjacent to trails.

South Louisiana holds a special place in my heart and being a native is one of the reasons I decided to do my case study on an existing trail, the only rail-trail and only multi-use trail currently of considerable length in the state. In 2005, while living in Sacramento, watching the aftermath of Hurricane Katrina in 2005 and its devastation on New Orleans was utterly profound as it flooded nearly 80% of the city. From this disaster, although, the 2.3 mile Lafitte Greenway trail concept emerged (Image 1), which is one of the biggest and most important post Katrina community revitalization projects. This project was a grassroots effort shortly after the disaster and has been on and off of the planning stages ever since, but is now presently 90% complete. By following this project and first reading *From Green Dots to Greenways: Planning in the Age of Climate Change in Post-Katrina New Orleans* by Billy Fields is where I became interested in TrOD. The basic components of the TrOD approach involve utilizing trails as community amenities that, when planned properly to mitigate



Image 1: Rendering of the proposed Lafitte Greenway. Source: 2013 Lafitte Greenway Master Plan by Design Workshop: <http://www.folc-nola.org/lafitte-greenway-plans>

environmental impact to sensitive areas, can be used as magnets for mixed-use development centers. This approach draws on the lineage of Olmstedian urban parks where the amenity value of well-designed parks was used to spur adjacent development (Fields, 2009).

Fields also highlighted the Midtown Greenway, a 5.5 mile rail-to-trail conversion in Minneapolis and one of the most successful examples of TrOD in the country. The Greenway provides a good example of how focused planning and outreach for trail-oriented development can help to enhance the multiple goals of walkable urbanism and economic revitalization along an urban corridor (Fields, 2009). It has been a key driver of economic growth and development for the area and is one of the few areas in Minneapolis where development has continued unabated, even during the economic downturn (Midtown Greenway Coalition, 2013). This evidence proves that investments along trails go a long way in benefitting the economic vitality of a region, also in the case of the Platte River Greenway Trail in Denver. Recent investments totaling \$70 million has fueled \$2.5 billion in residential, commercial, retail, sports and entertainment projects along the corridor (Arendt 2011).

Property Values

Trails do in fact play a major role when potential homeowners choose a new community as

stated in a 2004 study by The National Association of Homebuilders where trails are the second most important community amenity that potential homeowners look for outranking golf courses, security, ball fields, parks, and access to shopping centers (NAR & NAHB 2002).

Focusing on studies of specific trails, evidence has been known for quite a while about the economic benefit of the Burke Gillman Trail in the Seattle metropolitan area. In a 1987 study, it was determined that property near but not directly adjacent to the trail was significantly easier to sell and sells for an average of six percent more as a result of its proximity to the trail. Interesting however as homes directly adjacent to the trail were only slightly easier to sell, and sold for zero to 1/2 of one percent more (Zarker 1987). In 2001 after an outcry of Pinellas County (FL) residents that were objecting the proposed extension of the Pinellas Trail because of their perceptions that the trail was lowering property values, the MPO did a study to assess properties a quarter mile from the trail compared to property value trends elsewhere. It was determined through realtor interviews and appraiser data that the trail did not negatively impact property values, but perceived as an asset, and was suggested that the trail may in fact help increase property values by roughly two percent to three percent annually (PCMPO 2001). What made this study unique from others I reviewed was the qualitative telephone survey of local realtors, which encouraged me to conduct a similar type survey found in Chapter IV, Section 2, Part B.

The Monon Trail in the Indianapolis region seems to have the biggest effect of property value increase in any study I reviewed making clear that homes in greenway corridors here sold for higher averages. In a 1999 study, a statistical model was used to determine that the sales premium for 334 home sales within a half mile of the trail was \$13,059 more than the average home (Figure 1), making a total estimated property value impact of nearly \$4.4 million. Further to this study estimates the premium to private property owners for all of Marion County's adjacent greenway trail and conservation corridor properties exceeds \$140 million. (Lindsey 2003).

CATEGORY	% Homes Sold Total	Avg Value Homes Sold
All Marion County property sales in 1999	9,348 (100%)	\$111,689
Homes sold in all greenway corridors	2,157 (23%)	\$122,692
Homes sold in greenway trail corridors	1,253 (13%)	\$114,240
Homes sold in greenway conservation corridors	1,087 (11.6%)	\$140,586
Homes sold in greenway trail corridors, excluding the Monon Trail	957 (10.2%)	\$111,592
Homes sold within 1/2 mile of the Monon Trail	334 (3.6%)	\$124,415

*Figure 1: Home values (334) ½ mile of Monon Trail.
Source: <http://hdl.handle.net/2450/447>*

Another study more recently used a hedonic price model on 376 properties within one mile of the Little Miami Scenic Trail in Ohio on prices of houses that are similar in terms of size, age, number of bedrooms and bathrooms, but are different in terms of their proximity to the trail. It was estimated that for every foot closer to the trail, its sale price increased by \$7.05 (Karadeniz 2008).

Social and Healthy Communities

The built environment does have an effect on the formation of social networks. Trails are, for the most part, linear in design, which is a benefit to society because they get adjacent communities out creating family time and connections with existing and newly found friends. They also serve as a great meeting venue for festivals and social gatherings for people, especially at trailhead locations. Residents that are not adjacent to a trail can experience many of the mentioned social benefits, but these benefits seem to be intensified by being adjacent to the trail (Corning 2012). From a case study on the Clear Creek and Bloomington Trails, the author also gave evidence that trails can bring money saving

entertainment as one user said, “Unlike going to the movies or out to have a meal, you can do it together as a family because the price is wonderful.” (Corning 2012).

Providing recreational and open space options play a major role in a community’s overall health and livability. Having trails provide a perfect way to live this healthier lifestyle. The CDC determined that by creating and improving places in our communities to be physically active, there could be a 25 percent increase in the percentage of people who exercise at least three times a week (USDHHS 2002). Multi-use trails provide these places to be active, which aids in reducing health related problems and consequent health care costs, aiding in functional independence as we get older (CDCP 1996)

Tourism and User Expenditures

The popularity of trails has been steadily increasing, attracting thousands of users ever year, which includes the locals to a particular trail and users that travel far and wide just for the love of uniqueness of exploring different separated trail systems. From my research on different trails, the locals, which are the majority, usually spend on light snacks, bicycle parts and gear while the users that travel distances, which vary greatly, spend on snacks, meals, bicycle parts and gear, accommodations and fuel. These increasing trail user profile groups have enriched the communities they pass through significant economic tourism and user expenditure factors. A 1999 study on the Little Miami Scenic Trail in Ohio discovered that the trail got an average of 150,000 to 175,000 users per year with an average expenditure of \$13.54 per outing on food, lodging, retail, etc. This figure was estimated to contribute to more than \$2 million per year to local economies (Ohio-Kentucky-Indiana Regional Council of Governments, 1999). Users of the Midtown Greenway in Minneapolis are the catalyst behind why the trail is such an economic success as some have dubbed it the “superhighway” of cyclists. Between 4,000 and 5,000 people use the trail every day on average, amounting to a whopping 1.5 million trips a year (Asp, 2013). The Elroy-Sparta Trail in Wisconsin uncommonly gets most of its 60,000 annual users from out of state as it is

estimated that the trail generates over \$3 million annually in trip related purchases alone (Pruetz 2013).

The trailhead is the site where the trail user may first come in contact with a trail town. It is the point where the user will make his or her initial and most important decision: whether to come into your town (Allegheny Trail Alliance 2005). Later in Chapter III in this report, several of the Tammany Trace's trailheads are highlighted as popular civic gathering places and placemaking elements, which is also key to tourism and expenditures within the city.

Chapter III: Case Study: The Tammany Trace Overview

Study Location:

To validate the position that trails bring about livability and an economic vitality to communities, I chose to analyze the Tammany Trace (aka, the “Trace” as locals call it) in St. Tammany Parish, Louisiana (Figure 2). I chose this facility because of these reasons:

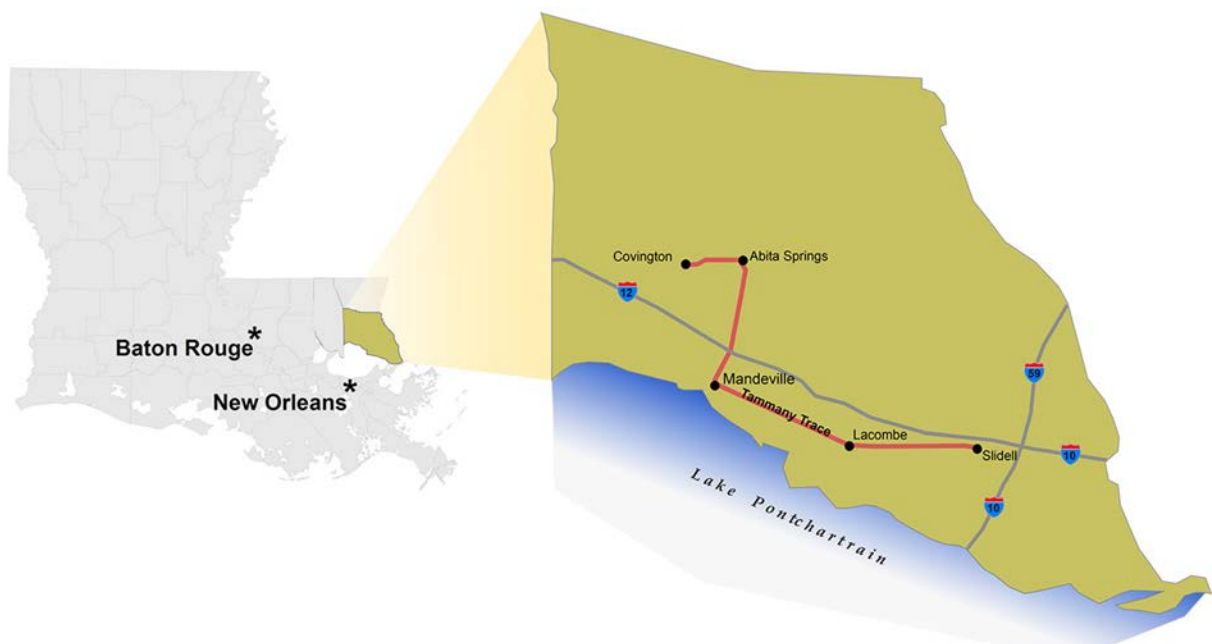


Figure 2: Tammany Trace locator map

- This is the only significantly long urban paved trail in south Louisiana, which makes it very unique to the region, and there has never been an economic impact and/or livability study on the facility.
- Communities all over the country are beginning to realize how trails can be an economic catalyst, so this study could spur on other proposed trail concepts and influence local governments to implement future active transportation infrastructure that is lacking in this part of the country.
- Louisiana is a very automobile oriented and not known to have many bicycle amenities, much less be known as a “bicycle friendly” state. Therefore, it would be justified to prove that the Trace brings a big economic impact to an automobile oriented region.

- The trail runs through small town America creating “Trail Towns,” which are a model of economic revitalization that places trails as the centerpiece of a tourism-centered strategy for small-town revitalization (Rails-to-Trails 2007). These small towns are, or have the potential to, reap the benefits of being next to a trail.

A “Trail Town” is a destination along a long-distance trail. Whether on a rail trail, towpath, water trail, or hiking trail—trail users can venture off the trail to enjoy the scenery, services, and heritage of the nearby community with its own character and charm. It is a safe place where both town residents and trail users can walk, find the goods and services they need, and easily access both trail and town by foot or vehicle. In such a town, the trail is an integral and important part of the community. (Allegheny Trail Alliance 2005)



Image 2: Tammany Trace (photo credit- nola.com)

The Trace (Image 2) is a 31-mile rail-to-trail conversion; Louisiana’s first and only present rail trail, located in Southeast Louisiana in St. Tammany Parish, the “Northshore” of Lake Pontchartrain. The trail connects five distinct communities from east to west (Figure 2) starting at Covington (2013 population-9,352), to Abita Springs (2,450), to Mandeville (12,193), to Lacombe (8,679) and ending at the western city limits of Slidell (27,526).

Background and Costs:

Using federal money, the parish purchased the abandoned Illinois Central rail line in 1992 and the right of ways for \$1.46 million. The rest is follows:

- Covington Trailhead to Abita Springs Trailhead- \$428, 903
- Abita Springs Trailhead to Lacombe Trailhead- \$1.5 million
- Lacombe Trailhead to Slidell Trailhead- \$632,042
- Total- \$4,040,620
- Cost to maintain each year approximately \$1.1 million

Currently, the Trace has its east terminus just outside of the parish’s largest city of Slidell, but recently the parish secured funding and approval to extend the Trace east into old Town Slidell. Parish President, Pat Brister saying, "The connection of the iconic Tammany Trace, truly a recreational benchmark, with our easternmost city, will open this trail to more users and give regular users another landmark along the way to easily access and enjoy" (Chatelain 2013).

The Trace annual costs total approximately \$1.1 million in the St. Tammany Parish budget, which is \$959,550.00 for maintenance and \$165,013 for administration. This is funded by a 2-cent sales tax in unincorporated areas and through rental income. The facility is also considered a parish road.

St. Tammany Parish Census Estimates and Selected Economic Indicators:

The following census estimates shows projections through year 2030:

St Tammany Parish Census Estimates	
Population, 2015 estimate	288,710 (16.9% change from 2010)
Population forecast 2020	338,300 (17.18% change from 2015)
Population forecast 2030	459,160 (59% change from 2015)

(data retrieved from <http://louisiana.gov/PopProjections/ExcelFiles/LA%20Projections%20Technical%20Report.pdf>)

From census block data I collected from the Louisiana GIS Clearinghouse, I created this map (Figure 3) showing the population densities within a mile of the Trace. In 2010, 40.3% of the St. Tammany Parish population lived within a mile of the Trace.

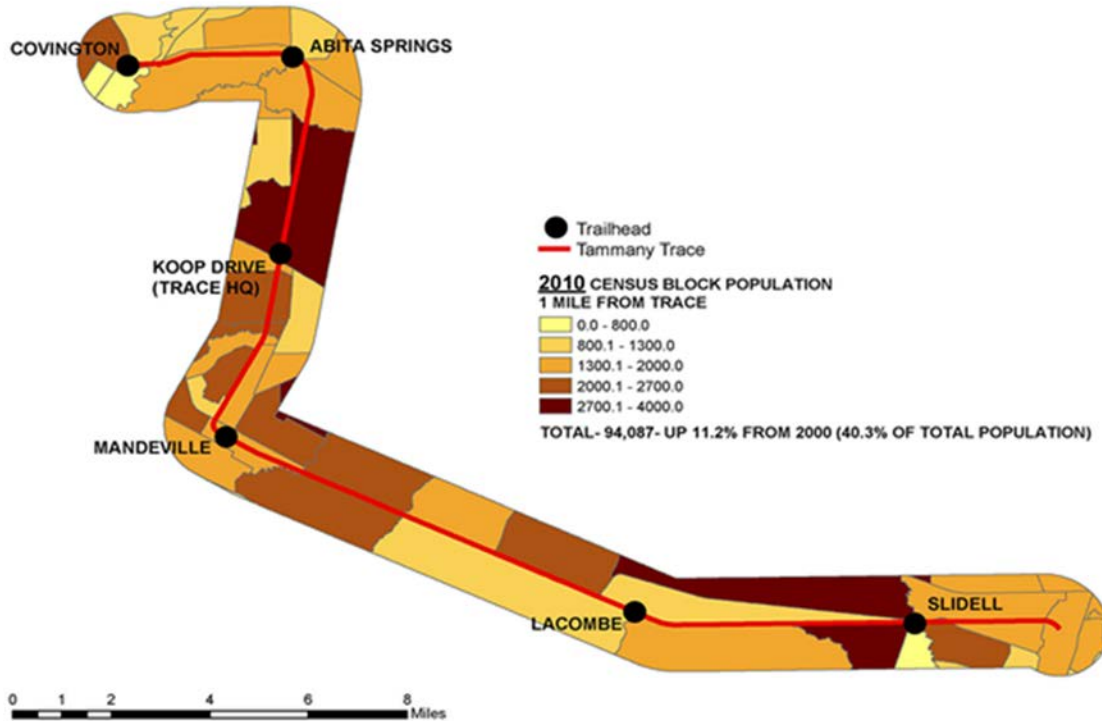


Figure 3: St. Tammany Parish population densities 1 mile from the Trace

The following table depicts some existing economic indicators relative to this study’s forthcoming look at economic impacts and property values:

Economic Indicators from St Tammany Economic Development Foundation	
Residential Housing Units Sold 2013	3,221 (up 8.7% from 2012 and 37.3% from 2008)
Median sales price occupied housing units, 2013	\$225,540
Total Sales Tax Collections (\$), 2013	202,940,949 (up 4.2% from 2008)
Number of Hotel Rooms, 2013	2,951 (up 73% from 2008)
Total Hotel Receipts (\$), 2013	\$45,490,380 (up 20.9% from 2008)

(data retrieved from <http://www.stedf.org/10year.htm>)

Trace Trailhead Oriented Development and Local Leader Perceptions:

The Trace boasts six trailheads, three of which are vital and central pieces to each downtown core, Covington, Abita Springs and Mandeville. All three of the trailheads have an archetypal large structure that are focal points and community gathering places that host live concerts, farmer's markets, and a variety of other events. An interview with Wensel Conroy, St. Tammany Parish Director of Culture, Recreation and Tourism, said “Room occupancy is definitely up, and new hotels are being added every year,” in which the Trace and trailhead events have a significant influence on. Trailhead event statistics:

- 4 events at Trace trailheads that draw up to 50,000 visitors
- 25 events that draws upwards of 10,000 visitors
- Estimated 426,000 visitors in 2013 got hotel rooms

This section looks at these three trailhead’s existing surrounding development and shares perceptions from conducted interviews with all three mayors of why the Trace is so important to their community. The maps were created in GIS from data retrieved from Louisiana GIS Clearinghouse and the Louisiana Speaks dataset. They depict, in a 1-mile diameter, the percentage of the city’s housing inventory in this area, restaurants, businesses and schools.

The Beer Factor:

All over the country, breweries and/or brew pubs adjacent to bike trails are becoming an economic catalyst and draw for the small towns they serve, and the Tammany Trace is no exception. The Abita Brew Pub (Image 6) has been around as long as the Trace, but in recent years, two more breweries have opened up, all directly adjacent to trailheads and in each town center: the Covington Brewhouse (Image 3) and Old Rail Brewing (Image 9). Chafunkta Brewing has also opened recently. Some visitors ride the Trace to specifically stop at each craft brew pub to taste the suds (Image 3).



Image 3: Bike & Brew Tour along the Tammany Trace
image retrieved from:
<http://covingtonweekly.com/2014/02/19/brooks-bike-brew-tour-st-tammany-tour-local-breweries-by-bike-with-brooks-bike-shop/>

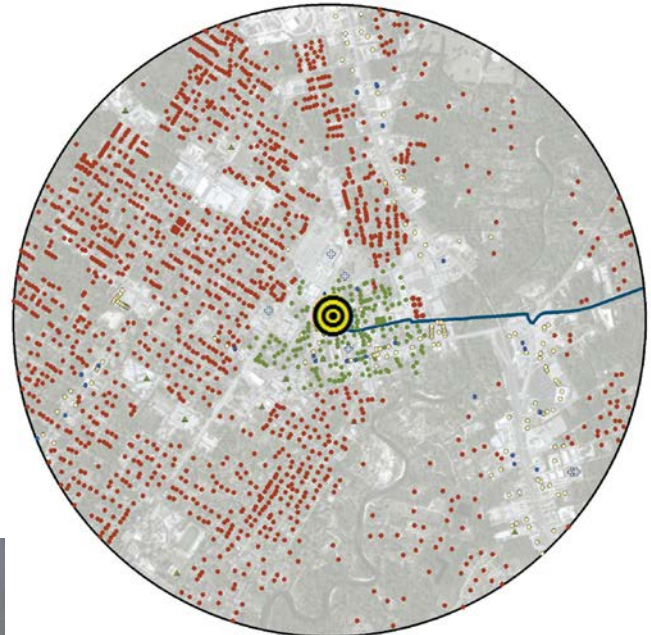
1-mile Covington Trailhead oriented development: (Figure 4)

- Close proximity to the most restaurants of any trailhead location
- Few blocks from parish and city governments buildings employing hundreds
- Housing inventory- 1,633 which is around 50% of the total in the city
- Beer factor: adjacent to the Covington Brewhouse (Image 4).



Image 4: Covington Brewhouse. Image retrieved from: http://www.nola.com/business/index.ssf/2013/10/new_owners_have_big_plans_for.html

1-mile DIA from TH



Covington TH

- + Government- 6
- Misc. Business-368
- ▲ Schools- 11
- Housing- 1,633 (50%)

Figure 4: Covington Trailhead oriented development

Covington Mayor Mike Cooper quotes:

“The Trace is an invaluable asset to us economically and culturally.”

“Access to the Trace brings more people into the city to shop, dine and play. They spend their money here and it boosts our revenue.”

“The Trace boosts economic development and civic pride because it is in close proximity to many restaurants and it showcases city history.”

“The trailhead brings people here to start their journey along Trace, or as a stopping and resting point in between their journeys.”



Image 5: Bicycle race event culminating at the Covington Trailhead. Retrieved from: <http://trippalukastyle.com/tag/louisiana/>



Image 6: Covington Trailhead

1-mile Abita Springs Trailhead oriented development: (Figure 5)

- 100% of the city’s housing inventory is within a mile of the trailhead.
- Most all businesses and restaurants are within a quarter mile.
- Beer factor: adjacent to the Abita Brewpub (Image 7).



Abita Springs TH

- Business- 24
- ▲ Schools- 2
- Housing- 932 (100%)



Image 7: Abita Brew Pub.

Image retrieved from: <http://www.tripadvisor.com>

Figure 5: Abita Springs Trailhead oriented development

Abita Springs Mayor Greg Lemons:

“The Trace is the lifeblood of this community, as it goes right through the middle of town.”

“It’s a ribbon that brings people into town. This is important because of the businesses around the Trace. People come in off the Trace to buy, which makes sales tax go up.”

“It’s very important to us because it brings a lot of people into our quaint little town.”

“All community amenities and most everything we plan for is set up to orient toward the Trace.”

“We, as a city, invest in the Trace, and as we speak we are spending \$300K on a lighting project to showcase the Trace at night.”

“It is the prime non-motorized entry/exit to/from the city.”

“I moved back myself after 36 years of being away. The main factor of why we built where we did was the close proximity to the Trace.”



Image 8: Abita Springs Trailhead with ongoing Busker Festival



Image 9: Abita Springs Trailhead from atop center pavilion

1-mile Mandeville Trailhead oriented development (Figure 6)

- 40% of the city’s housing inventory is within a mile of the trailhead.
- Businesses are lacking close to the trailhead, but many are a couple blocks away along an arterial roadway.
- Beer factor: adjacent to Old Rail Brewpub (Image 10)



Mandeville TH

- + Government- 3
- Business- 99
- ▲ Schools- 7
- Housing- 1,636 (40%)



Image 10: Old Rail Brewing Company
image retrieved from: <http://www.tripadvisor.com/>

Figure 6: Mandeville Trailhead oriented development

Mandeville Mayor Donald Villere:

“The Trace goes through the economic hubs of each city it passes through.”

“It provides a great opportunity to leisurely connect through the different parts of Old Town.

Hope to spur off of the Trace for a bike/walk tour of historical Mandeville. To venture off of Trace and flow through the city.”

“Everything from natural beauty to old town architecture can be appreciated from the Trace.”

“The trailhead is vital to providing to the citizens and visitors of the City of Mandeville and users of the Tammany Trace a historical, environmental, and cultural interpretive center.”

“The trailhead contributes toward community enrichment, environmental awareness, educational opportunities and a venue for special events.”



Image 11: Atop Mandeville Trailhead iconic pavilion



Image 12: Tammany Trace with Mandeville Trailhead pavilion

The other three trailheads, Caboose, Lacombe and Slidell, are not a focused part of a city center. As stated earlier, although, the Trace is being extended in to Old Town Slidell, which will inevitably improve the Slidell community's connection to the Trace. The Caboose trailhead (Image 13) is not in an incorporated city, but it does house the Trace headquarters and the popular Kids Konnection playground, and adjacent to the trailhead are the St. Tammany Parish government buildings, which employ hundreds. The Lacombe Trailhead (Image 14) is the most isolated and scenic of all the trailheads, as it is set adjacent to a drawbridge crossing Bayou Lacombe. Even though this trailhead is not adjacent to any services, the drawbridge and scenery alone make it a destination for users.



Image 13: Caboose Trailhead



Image 14: Lacombe Trailhead drawbridge



Image 15: Slidell Trailhead



Image 16: Adjacent to Slidell Trailhead

Chapter IV: Methodology

Section 1. Tammany Trace Expenditure and Livability Evaluation

Assessing how a trail impacts the local economy is essential to retaining public support for future funding and development (Litman 2010), and is beneficial in encouraging other communities to expand or develop their own trail networks. Identifying the spending by trail users can also provide incentive for revitalization and economic development around specific areas adjacent to the trail corridor, attracting residents and new businesses. For this part of the study, the goal is to correlate the following user statistics and intercept surveys to determine spending habits and an estimated economic that the Trace has. This evaluation approach was guided by Rails-to-Trails Conservancy's, Trail User Survey Workbook: How to Conduct a Survey and Win Support for Your Trail (Rails-to-Trails 2005). My research methodology framework is shown in (Figure 7).

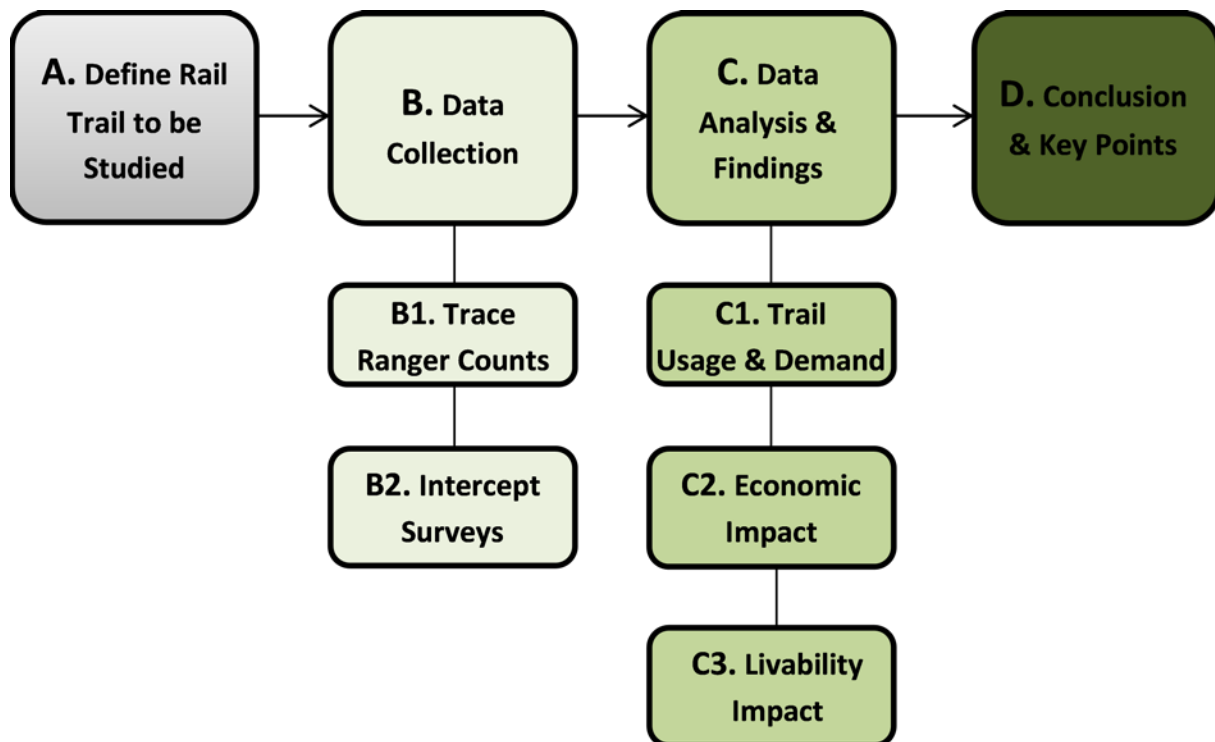


Figure 7: Research Methodology Framework

Part A. Define Rail Trail to be Studied

The rail trail studied is the 31 mile Tammany Trace in St. Tammany Parish, Louisiana as identified in Chapter 3.

Part B. Data Collection

The data collection was completed using two methods, manual counts and intercept surveys. The manual counts correlated with the intercept surveys reveal detailed information about trail use and spending.

B1. Trace Ranger Counts

The Trace is unique compared to most trails in the country, as the Parish sets aside funding every year for Trace rangers (Image 17) who patrol, give information to visitors, perform safety inspections, and (especially useful to this particular study) count users all year long from morning until dark. The



Image 17: Trace ranger in facility patrol unit

Tammany Trace Foundation provided me with these user stats from 2008 thru 2014, which are counted daily (Figure 8 and Appendix B).

2011 Tammany Trace Stats											
	Caboose TH	Slidell TH	Lacombe TH	Total Trace	Kids Konn	Zip Codes Out of state	Zip Codes Out of Parish	Zip Codes Total	Out of Country	Bike Rentals	Events
January	5632	2348	4342	12322	6992	67	104	171	2	25	10
February	4994	2429	5523	12946	9451	155	141	296	6	62	24
March	8004	3480	7596	19080	13942	244	193	437	4	133	44
April	9890	4196	9686	23772	13170	341	400	741	6	148	48
May	10502	4526	9227	24255	10510	151	407	558	5	182	32
June	8769	3732	7775	20276	5964	154	302	456	6	101	11
July	7562	3658	6700	17920	4469	98	170	268	5	67	4
August	8036	3774	7258	19068	3137	78	79	157	7	34	4
September	8174	3924	6683	18781	8707	84	179	263	5	75	14
October	8240	4539	8149	20928	13685	111	262	373	3	150	65
November	5384	3304	4952	13640	10587	116	191	79	0	65	36
December	17332	2946	4627	24905	9982	105	78	183	3	13	11
TOTAL	102519	42856	82518	227893	110596	1704	2506	3982	52	1055	303

Figure 8: Example of user statistics spreadsheet taken by Trace rangers for year 2011

User Number Error Factors:

The user numbers are taken by rangers from the 3 trailhead locations that house Trace ranger stations (Caboose TH, Lacombe TH and Slidell TH), and while patrolling between these different sections of the trail. In some other trail user survey analyses studies that I reviewed that are done on a one time project basis over a span of time, an adjustment factor is factored in to adjust for the possibility of two-way trips, meaning for users who pass the same counter in one trip, there and back. These other studies account for this error simply by dividing the counts by two, which is frustrated by the fact that some users take only one-way trips and some do not even pass the counters, whether human or automatic. So any trail user counter survey is not exact because of the error factor mentioned. Trace rangers, if aware, will not count the same user twice and also mentioned other “qualitative factors” that could affect user numbers to actually be on the lower side even with the possibility of double counted users. These include:

- Including users of the Kids Konnection, in the column to the right of ‘Total Trace’ in Table xx, which is a playground adjacent to the Caboose TH and gets an average of 106,115 visitors a year (121,276 in 2014). A good percentage of parents that visit this playground with their kids will venture out of the playground and ride their bikes, skate boards or walk along the Trace. The Tammany Trace director considers this part of the Trace facilities, and estimates that 40% use both the Kids Konnection and the Trace.
- Users on short less than an hour trips that do not get counted.
- Ranger breaks and lunch time
- Other duties, paper work, shift changes
- Inclement weather

B2. Intercept Surveys

Intercept surveys were performed over a three-day span on a clear, partly cloudy spring day from March 28-30, 2014. The temperature all days was around 75 degrees. I chose to conduct my surveys in late March because, according to my analysis of the user numbers, spring time is usually peak time for Trace use. This is probably because the temperature is usually pleasant this time of year, as opposed to the scorching hot, humid summers that south Louisiana can bring. For Friday, the 28th I spent an hour starting at 6:00 P.M. at the Covington Trailhead just to ease in to the process and get an idea of how long it would take. For the next two days, I spent 3 hours each (Saturday at Mandeville and Lacombe Trailheads, and Sunday at Abita Springs and Slidell Trailheads), both starting at 3 P.M. for a total of 7 hours all together. The Mandeville and Abita Springs trailheads are consistently the most popular, so I spent most of my time here. As an added incentive for Sunday, the Abita

Springs Trailhead hosted the Busker Festival, a celebration of “olde thyme” music.

My initial catch phrase to probe users if they would like to take the survey asked:

“Hello, I am a graduate student doing research on the Tammany Trace and the economic and livability benefits it has on St. Tammany Parish. Would you like to take a short survey to contribute to this study?”

If they stopped then I would state that there is no expected risk, nor that I will not use any information in the study that would make it possible for anyone to identify them, all to meet the terms of the Institutional Review Board and Research Compliance Services purposes.

The design of my intercept survey questionnaire (Appendix A) was to keep the questions short and closed-ended, so as to give the respondent a list of answers

Intercept Survey Objective

To get direct answers to help form an initial economic impact analysis

to choose from, which makes analyzing the data more efficient. Questions 1 – 5 (below) eased the respondent into the survey and asked about trail use habits and frequency of use. Questions 6 – 9 (reviewed in C: Data Analysis section) helped with my overall objective to determine an economic impact through trail-related spending and recreational spending, which included Question 1 asking if they were local to the area. Questions 10 -12 closed out the survey asking qualitative questions about what is valued most of the Trace and its trailheads, and future improvement needs. My goal was to get 100 surveys, spanning over 5 trailheads (Figure 9). I ended up completing 120, with a vast majority of the surveys done at the Mandeville and Abita Springs trailheads (74%) because of the more rapid response from bigger crowds due to the festival going on and overall trailhead popularity.

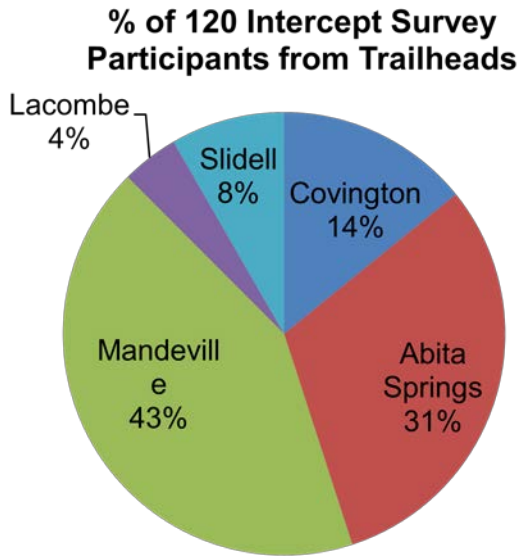


Figure 9: % of users surveys from each trailhead

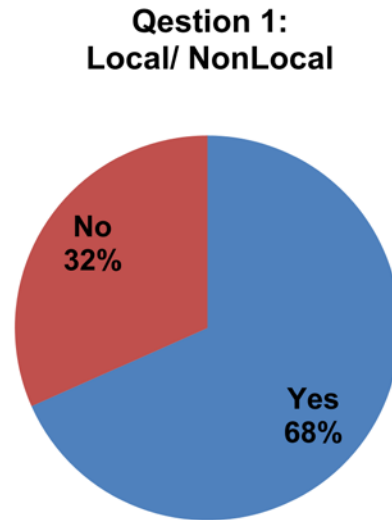


Figure 10: Local or Non-Local

Key points:

- Question 1 (Figure 10): 68% of users surveyed were local, which were 82 out of the 120 surveyed.
- 39 % of those locals got to the Trace by car, while 46% got there by bike. (Figure 11)
- Only 7% of people walked to the Trace, which includes only 4% (2 people) of the 51 surveyed from Mandeville.
- Viewing the City of Mandeville Bicycle and Pedestrian Master Plan in Appendix C, shows the need for an improved sidewalk to access the Trace.

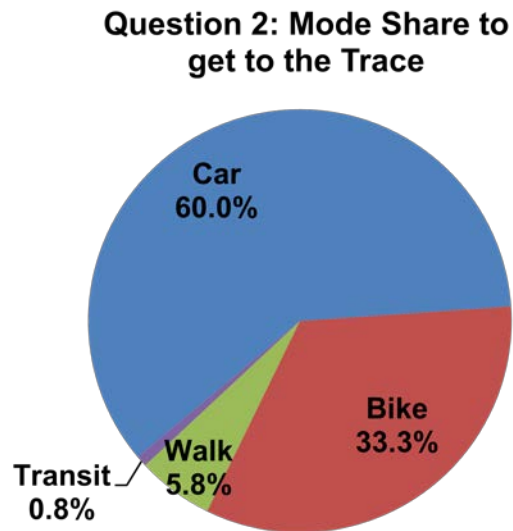


Figure 11: Mode share to get to the Trace

The value impact of the Trace is based on what the user gets out of their experience and why they use the trail (Figure 12), the regularity of how many times they use it (Figure 13), and how long they use the trail on average (Figure 14). Based on the intercept survey Question 3, most people get a health and quality of life benefit out of the Trace with exercise, recreation and enjoying nature receiving 72.4% of the total. As expected in an automobile centric area, the Trace isn't used much for utilitarian purposes, as 'Doing Errands' and 'Commuting' had minimal responses.

Question 3: Purpose for Using Trace

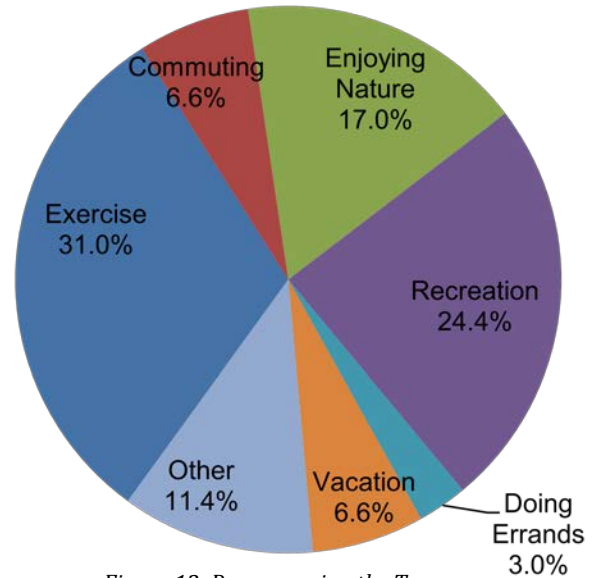


Figure 12: Purpose using the Trace

Question 4: How Often Do You Use the Trace in a Year?

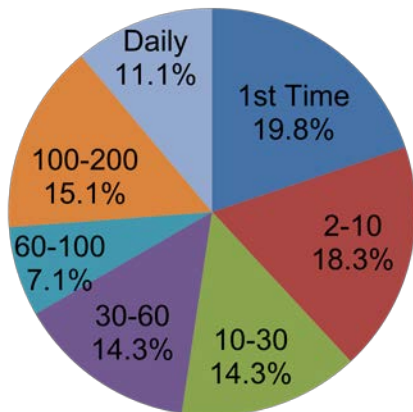


Figure 13: How often do you use the Trace

Question 5: How Long Do You Usually Spend On the Trace?

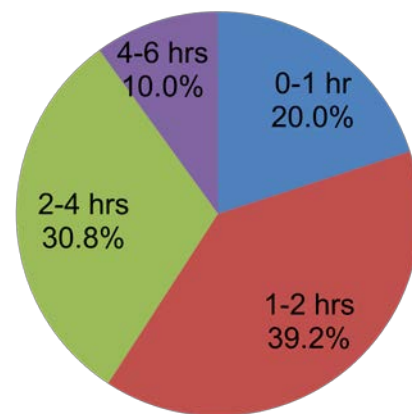


Figure 14: How long do you usually spend on the Trace?

Part C. Data Analysis and Findings

Data analysis and findings looks at the estimated usage of the Trace from years 2008 – 2014 in C1. This includes total users, users at a regional context from other parishes in Louisiana, out of state users, and visitors from other countries. C2 correlates this usage with the intercept survey question results from user spending (Questions 6 – 9) to determine an estimated economic impact. C3 takes the qualitative Questions 10 – 11 from the intercept survey to determine user perceptions of livability and any improvements that need to be made.

C1. Trace Usage and Demand

Figure 15 shows the estimated total Trace user counts over a 7 year period from 2008 thru 2014. The user numbers peaked in 2011 with 227,893, and the average usage over the 7 year span was 197,219.

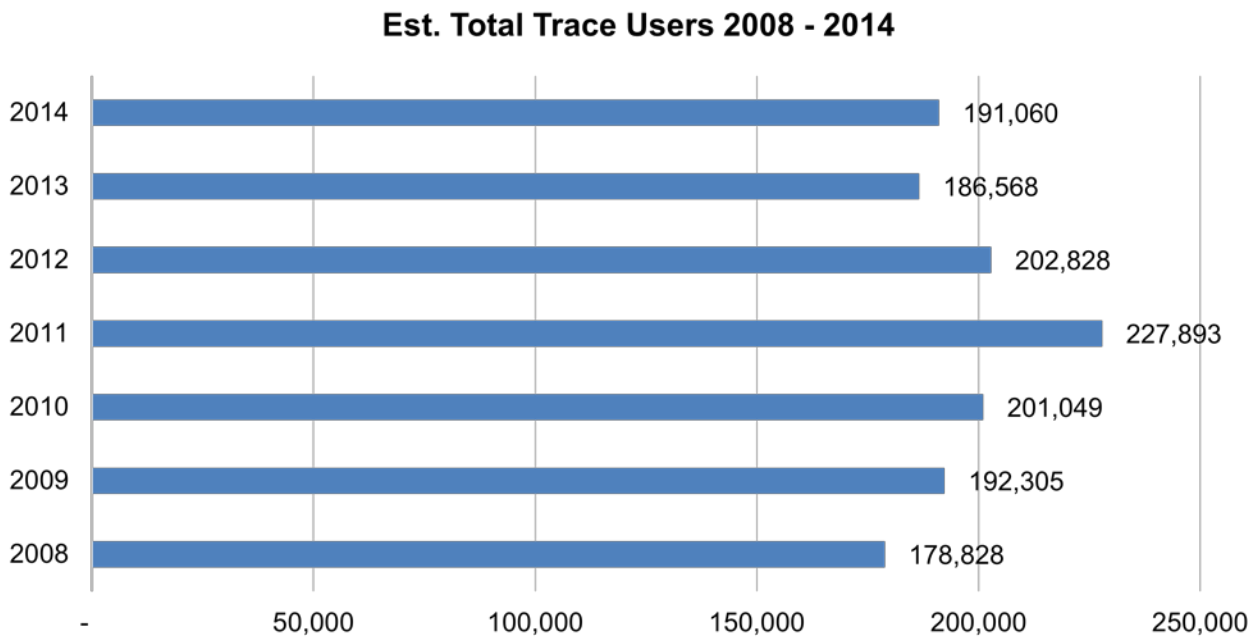


Figure 15: Total estimated Trace users from 2008 - 2014

Figure 16 breaks out 3 month increments from 2008 - 2014 to show estimated usage by season. Most people use the Trace in the more pleasant climate of spring, but not by much

(29%), as Figure 16 verifies the Trace gets heavy use year round.

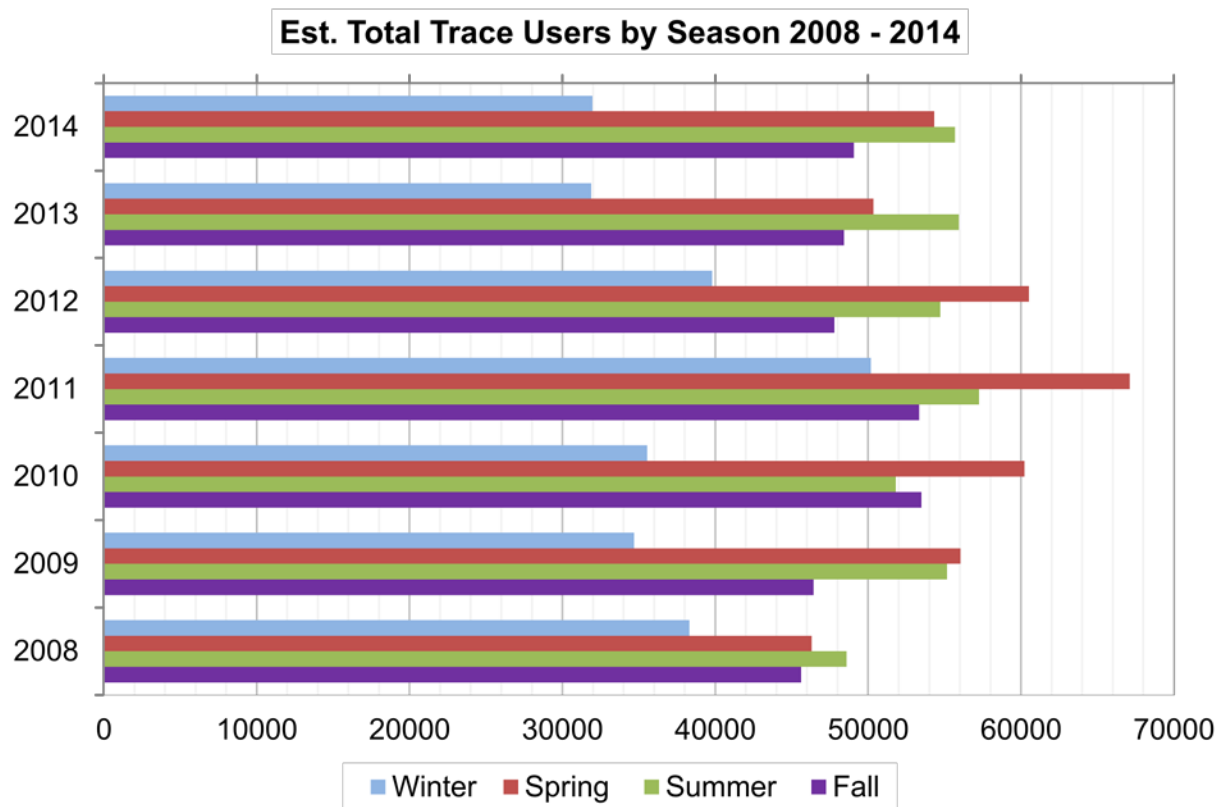


Figure 16: Total Trace users by season

Of the estimated 1,380,531 users in this 7-year span:

- Spring- 394,853 users (29% of total)
- Summer- 379,162 (27%)
- Fall- 344,147 (25%)
- Winter- 262,369 (19%)

For a regional context, Trace Rangers also collect numbers for users outside the Parish and outside the State broken out in Figures 17 and 18, correlated with seasonal change (Figure 19). The numbers for outside the Parish and state were collected by zip codes, which I was unable to obtain. Estimated total in 7 years for out of parish is 12,266 and out of state is 9,110. For regional and out of state users, spring is clearly the preferred season with 38%.

Est. Total Trace Zip Codes Out of Parish 2008 - 2014

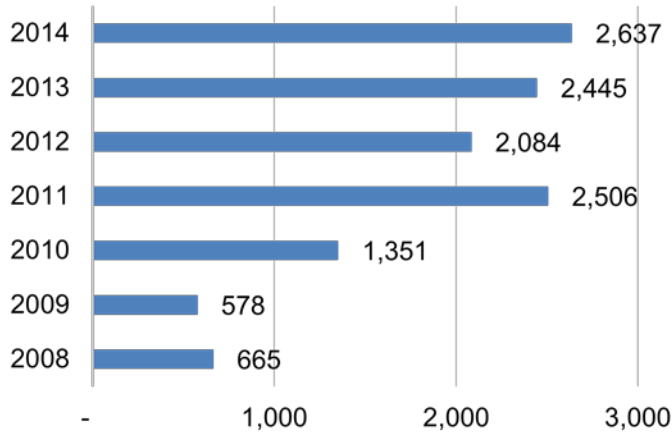


Figure 17: Total zip codes out of parish

Est. Total Trace Zip Codes Out of State 2008 - 2014

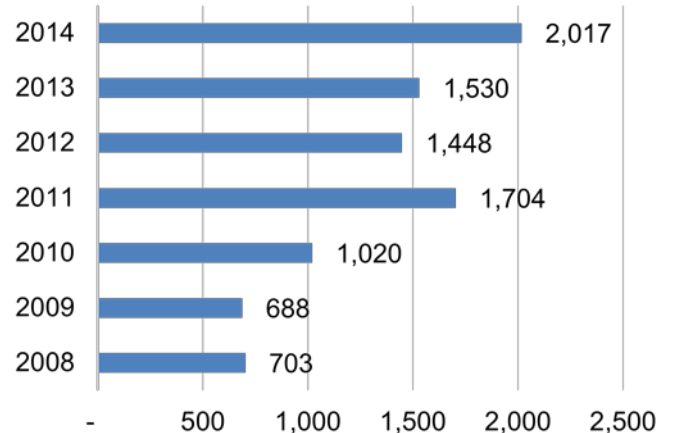


Figure 18: Total zip codes out of state

Total Zip Codes for Trace Users Out of State and Parish 2008 - 2014

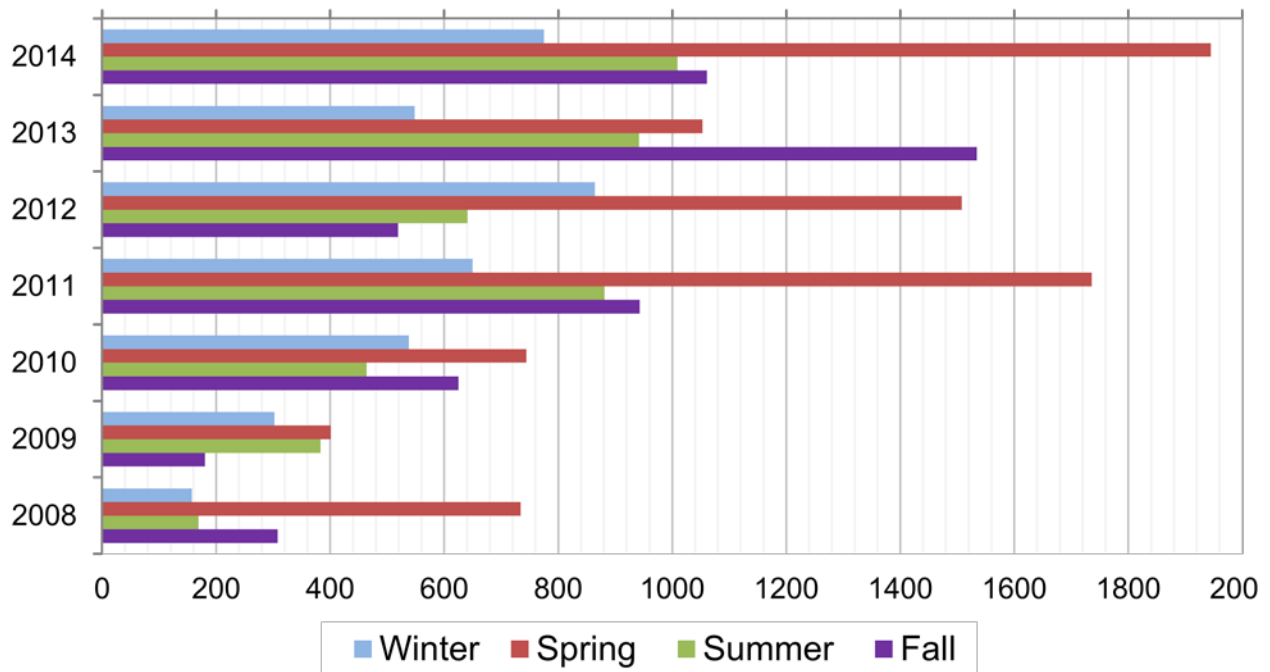


Figure 19: Total Out of Parish & State Trace users by season

The Trace is also increasingly getting international visitors and, starting in 2010, Rangers started collecting the numbers (Figures 20 & 21). Consistent with out of state and parish users, spring is clearly the preferred season for international visitors with an estimated 44% of the 397 counted users in the 5-year span. Some of the countries counted included the United Kingdom, Spain, Portugal, South Africa, Philippines, The Netherlands, Canada, Ireland, Papa New Guinea, Scotland, New Zealand, Australia, Germany, Japan and Russia.

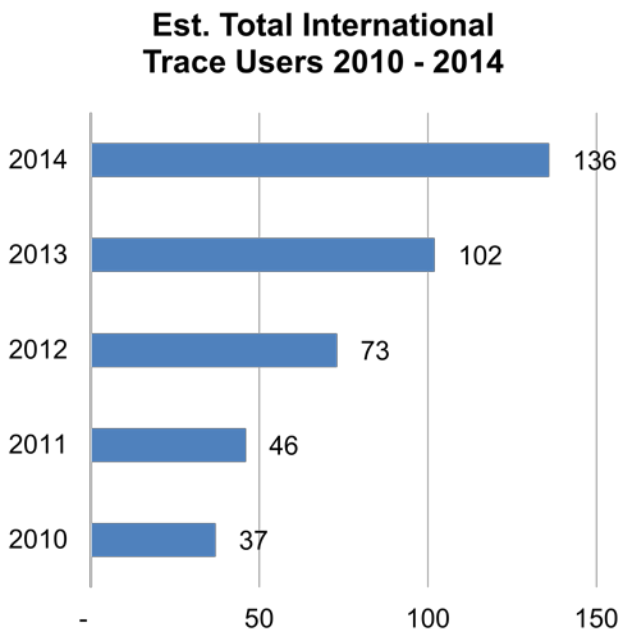


Figure 20: Total International users 2011-2014

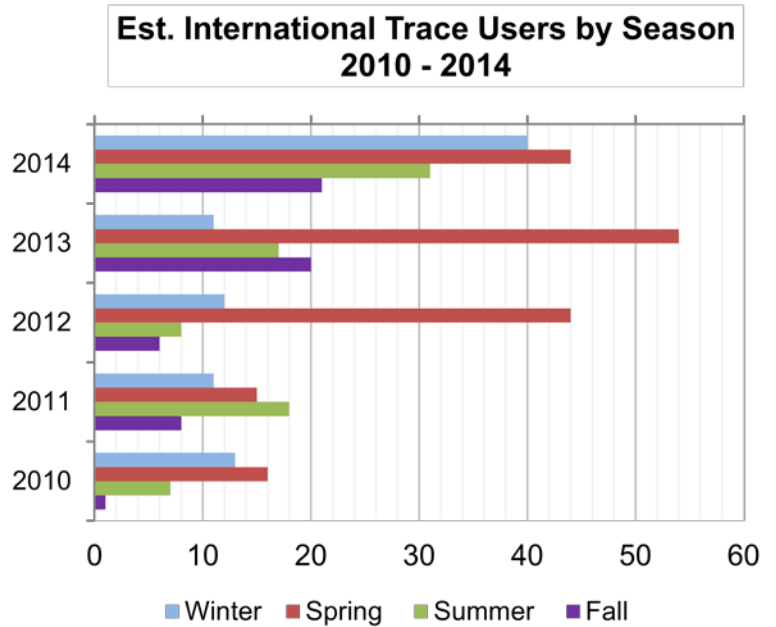


Figure 21: International users by season

The Kids Konnection (Images 18 and 19) is south Louisiana's first totally accessible playground valued at over \$1 million. The playground is adjacent to the Caboose TH and is very popular, as it gets an average of 106,115 users a year (Figure 22). However, it is difficult to assess the direct correlation to the playground with Trace users, as it is considered to be part of the Trace facilities. Estimates are roughly that 40% of visitors use both the Kids Konnection and the Trace. A good percentage of parents that visit this playground with their kids will venture out of the playground and ride their bikes, skate boards or walk along the Trace.

**Est. Total Kids Konnection Users
2008 - 2014**

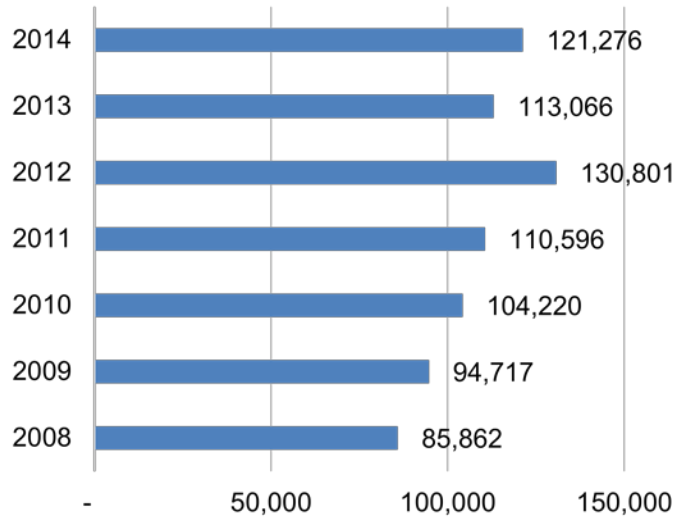


Figure 22: Est. Total Kids Konnection users 2008-2014



Image 18: Kids Konnection playground adjacent to Trace



Image 19: Kids Konnection Playground

C2. Estimated Economic Impact

The determined estimated economic impact of the Trace results from evaluating the quantitative results from intercept survey questions 4, and 6 – 9 correlated with collected Trace usage numbers for local and non-local users. The Four categories of spending applicable to both the trail and user evaluated below are:

1. Indirect spending resulting from the trip to get to the Trace (fuel, auto maintenance, refreshments, etc.)
2. Direct spending while riding the Trace (food, refreshments, apparel, equipment/parts, bike rental)
3. Overnight accommodations
4. Recreational Spending (bicycle, bike supplies, footwear, clothing)

Local users are users that live in St. Tammany Parish. Non-local users are from outside St. Tammany parish, which include outside the parish and outside the state. Non-local visitors are usually the major spender in a tourist environment and are considered to be new money, which usually indicates that these expenditures quantify for economic growth (Tomes 2009). Of the 120 users that participated in the intercept survey, 32% (38) considered themselves non-local (Figure 10). From the Trace Ranger surveys, for the last four years counted from 2011 – 2014 (Figure 23), there has been an average of 2,418 out parish zip codes and 1,675 out of state zip codes for an average yearly 4 year total of 4,165 non-local visits.

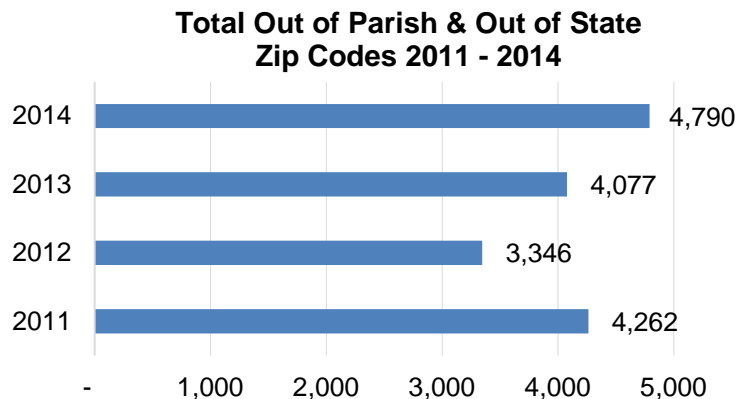


Figure 23: Total Out of State & Out of Parish Zip Codes 2011 -2014

Economic Impact Evaluation Part 1:
Indirect Spending Getting To/From Trace

Intercept Survey Question #6 (Figure 24) asks how much people spend, on average, to get to/from the Trace, meaning how much did they spend on the total trip which could include fuel, auto maintenance, food, etc. These purchases can be considered an indirect impact as the spending is not directly being made on the Trace.

Question 6: How much did you spend, on average, during the trip to get to/from the Trace?

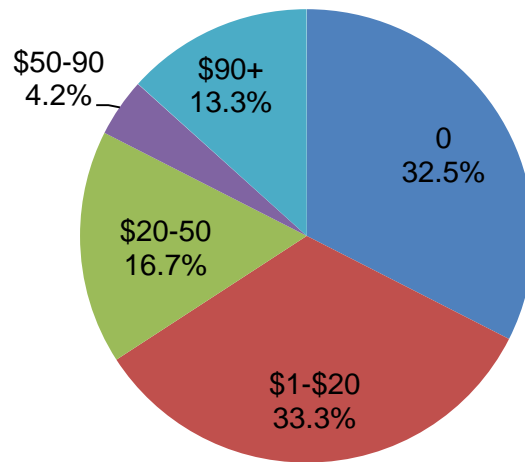


Figure 24: Spending to get to the Trace

Locals: How much do you spend to get to Trace?

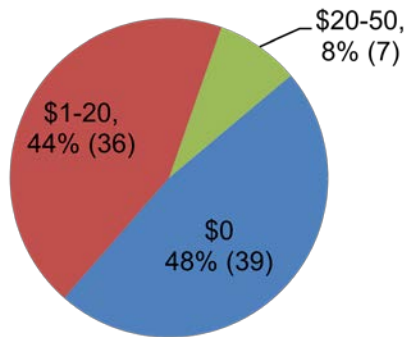


Figure 25: Local Spending to get to Trace

Non-Locals: How much do you spend to get to Trace?

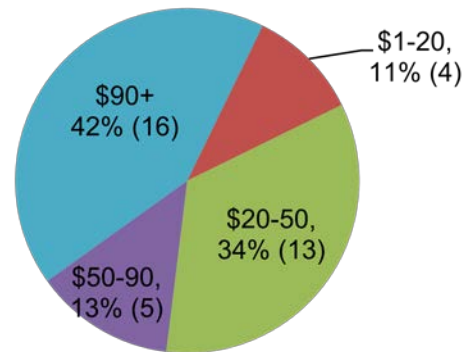


Figure 26: Non-local Spending to get to Trace

The concept behind indirect impacts is that any initial/ensuing spending has a ripple effect throughout the broader economy (Oswald 2012). Figures 25 and 26 break out (Question 1) Local and Non-Local answers to Question 6. Taking the averages of the answers as \$0, \$10, \$35, \$70, and \$90+ gives an estimate for spending, on average, to get to/from the Trace as:

- 82 Locals- \$6.89
- 38 Non-Locals- \$61.71

Correlating these numbers with the Trace user number starts to give a picture of the

estimated indirect impact on the regional economy in terms of travel spending to get to and from the Trace shown below (Figure 27).

Data derived from:

- Figure 23: Total Out of State & Out of Parish Zip Codes 2011 -2014
- Figure 15: Total estimated Trace users from 2011 – 2014
- Intercept Survey Q6, average, spending getting to/from the Trace
- Figure 22: Total estimated Kids Konnection users from 2008 – 2014 Calculated from 40% of avg. 2011-2014 Kids Konnection users.
 - 40% number was a recommended estimate to use from Tammany Trace Foundation.
 - Only Local user average is factored in to Kids Konnection numbers.

<u>Indirect Spending Getting To/From Trace</u>		
Spending Estimates	<u>Local (\$6.89)</u>	<u>Non-Local (\$61.87)</u>
Users 2011	227,893	4,790
2012	202,828	4,077
2013	186,568	3,346
2014	191,060	4,262
Total users 2011-2014	808,349	16,475
	X \$6.89 (Local) = \$5,569,524	X \$61.87 (Non-Local) = \$1,019,308
	= \$1,392,381 avg. per year	= \$254,827 avg. per year
Kids Konnection 4 yr. user avg.= 47,574	47,574 x \$6.89 = \$327,785 avg. per year	
	\$1,392,381 + \$327,785 = \$1,720,166 Local avg. spending per yr.	\$254,827 Non-Local avg. spending per yr.
\$1,720,166 (Local) + \$254,827 (Non-Local) = \$1,974,993 Total avg. per year 2011-2014		

Figure 27: Economic Impact Study, Indirect Spending Getting To/From Trace

Economic Impact Evaluation Part 2:

Direct Spending While Riding the Trace

For this study, direct trail spending is defined as spending made at destinations while using the Trace (food/refreshments) and/or spending directly required to use (or prepare to use) the Trace (equipment, apparel, bike rental, lodging). Some users stated accessing adjacent restaurants, convenience and grocery stores, sno-ball stands, sandwich shops, bike shops, and apparel stores. Some especially stated using the Trace for bike beer pub tours from the 4 craft breweries, mentioned earlier, adjacent to the Trace. Intercept survey Question 7 (Figure 28) probes this information from the 120 users surveyed.

Question 8 (Figure 29) is a follow up to Q7 and is a multi-answer response to see what exactly users are spending on while riding and to prepare for riding the Trace. The percentage of users who made these direct purchases is important data for determining the direct local economic impact that the Trace has. As in the Indirect Spending evaluation from Q6, breaking out local from non-local spending is essential to recognize the difference between local spending and visitor, or, tourist spending.

Question 7: How much do you spend while riding the Trace? (All 120 surveyed)

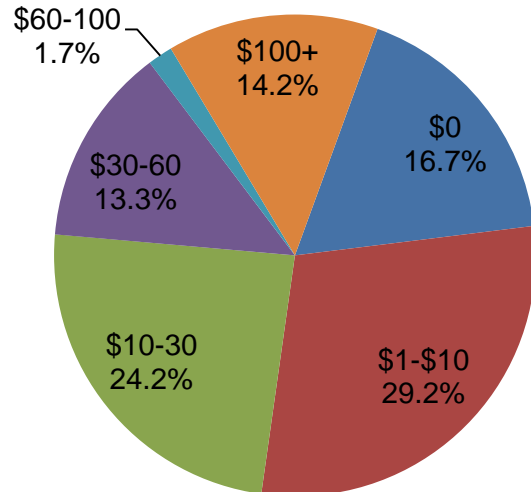


Figure 28: Amount spending while riding or to ride Trace

Question 8: What All do you spend \$ on to use or while using the Trace?

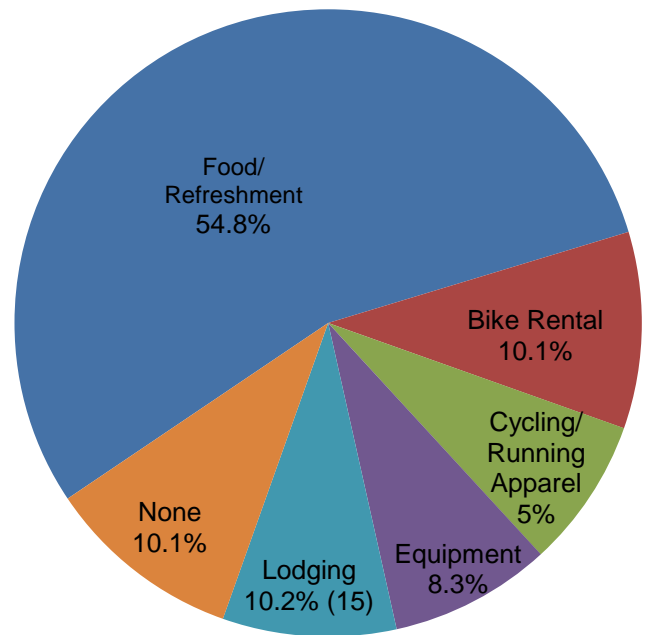


Figure29: What all users spent on while riding or to ride Trace

The third factor in the estimate of economic impact is lodging (staying overnight), explained later for part 3, which includes 15 users from the survey. For this part of the study, the remaining 23 non-local users (from 38 overall) that are not lodging is broken out from Q7 for amount they spend (Figure 31), as well as locals (Figure 30), and items (Figures 32 & 33).

Locals: How much do you spend while riding the Trace?

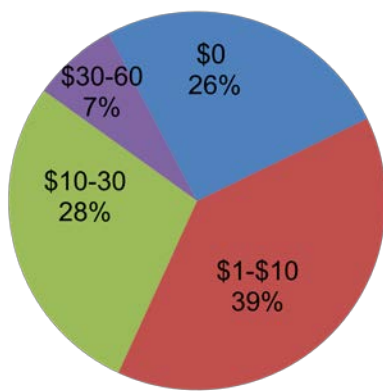


Figure 30: Locals Spending on Trace

Non-Locals Not Lodging (23): How much do you spend while riding the Trace?

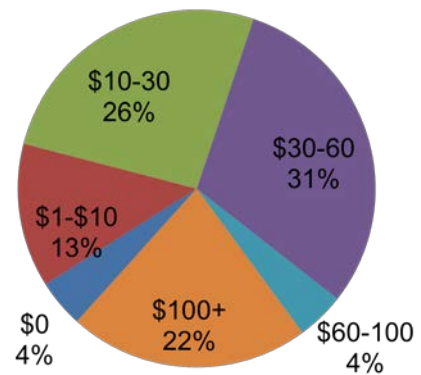


Figure 31: Non-Locals not Lodging spending

Of 82 Locals what did you spend on?

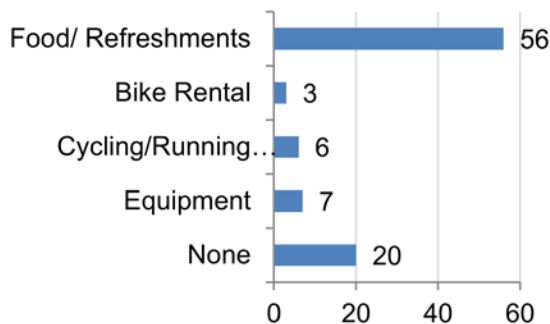


Figure 32: What Locals spent on

Of 23 Non-Locals Not Lodging, what did you spend on?

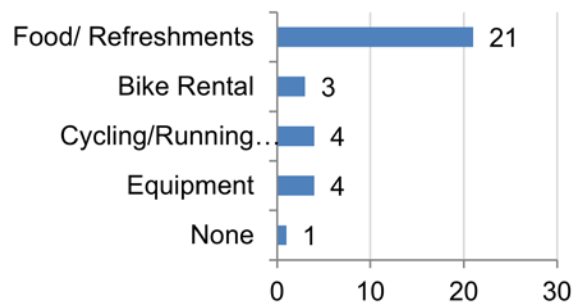


Figure 33: What Non-locals spent on

Taking the averages of the answers from Q8 as \$0, \$5, \$20, \$45, \$80 and \$100+ gives an estimate for direct spending while using and/or preparing to use the Trace as:

- \$10.85 - 82 Locals
- \$44.78 - 23 Non-Locals Not Lodging

Correlating these numbers with the Trace user numbers starts to give a picture of the estimated direct impact on the local economy in terms of spending at local establishments. Determining Non-Local spending, however, gets challenging especially if there is no data for where people are coming from. Trace rangers do collect zip codes from out of state and out of parish but the zips were not available for this study, so the zip code counts for just out of parish (Figure 31) will be used for estimated yearly user numbers for Non-Locals Not Lodging. Users from a statewide regional context are more likely to not stay overnight than users that come from states outside Louisiana.

Figure 34 below gives an estimate for direct impact on the local economy in terms of spending while riding the Trace.

Data derived from:

- Figure 23: Total Out of Parish Zip Codes 2011 -2014
- Figure 15: Total estimated Trace users from 2011 – 2014
- Intercept Survey Q7, how much spent while riding the Trace
- Figure 22: Total estimated Kids Konnection users from 2011 – 2014. Calculated from 40% of avg. 2011-2014 Kids Konnection users.
 - 40% number was a recommended estimate to use from Tammany Trace Foundation.
 - Only Local average is factored in to Kids Konnection numbers because it is a local parish park.

<u>Direct Spending While Riding Trace</u>		
Spending Estimates	<u>Local (\$10.85)</u>	<u>Non-Local Not Lodging (\$44.78)</u>
Users 2011	227,893	2,506
2012	202,828	2,084
2013	186,568	2,445
2014	191,060	2,637
Total users 2011-2014	808,349	9,672
	X \$10.85 (Local) = \$8,770,587 (4 yr. total)	X \$44.78 (Non-Local) = \$433,112
	= \$2,192,646 avg. per year	= \$108,278 avg. per year
Kids Konnection 4 yr. user avg.= 47,574	47,574 x \$10.85 = \$516,178 avg. per year	
	\$2,192,646 + \$516,178 = \$2,708,834 Local avg. spending per yr.	\$108,278 Non-Local Not Lodging avg. spending per yr.
\$2,708,834 (Local) + \$108,278 (Non-Local Not Lodging) = \$2,816,924 Total avg. per year 2011-2014		

Figure: 34: Economic Impact Study, Direct Spending While Riding the Trace

Economic Impact Evaluation Part 3: Users with Overnight Accommodations

As shown in Economic Indicators from St Tammany Economic Development Foundation table on page 14, the number of total hotel receipts in St. Tammany Parish was \$45,490,380 in 2013, up 20.9% from 2008, and during that same span available hotel rooms are up by 73%. It is not definite to say whether or not the Trace has a significant impact on those numbers, but this part of the economic impact study looks closer into estimating the users who stay overnight while using the Trace and the spending associated. For this part of the

study, estimated user numbers for out of state (Figure 35) and international visitors (Figure 36) will be used. Correlated with these user numbers will be Question 7 quantitative answers from the 15 users that stated 'Lodging' as one of their Question 8 answers as to what specifically they spend on.

**Total Trace Zip Codes Out of State
2011 - 2014**

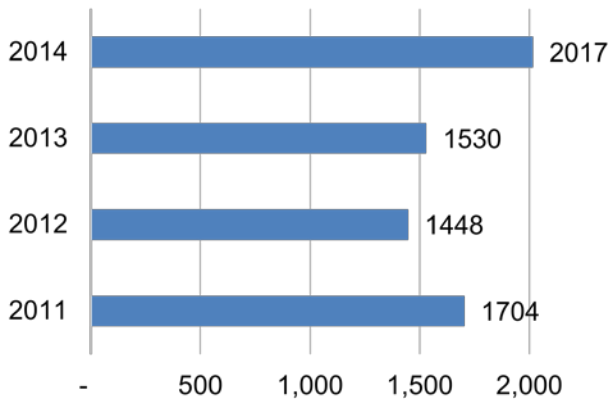


Figure 35: Est. Total Trace Zip Codes Out of State 2011-2014

**Total International Trace Users
2011 - 2014**

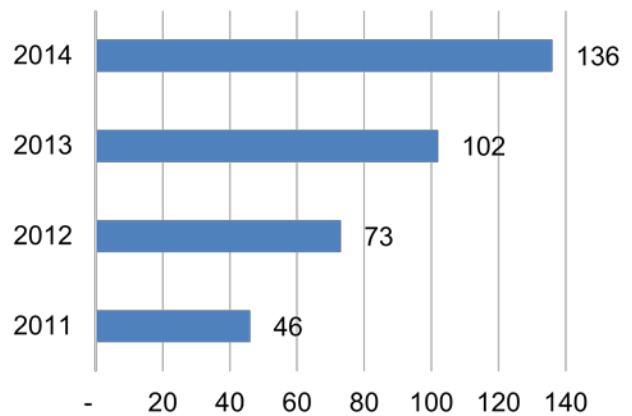


Figure 36: Est. Total International visitors 2011-2014

Of 15 Lodging, how much did you spend ?

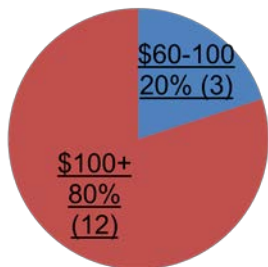


Figure 37: How much on average did Lodging users spend

Of the 15 Lodging, what else did they spend on?

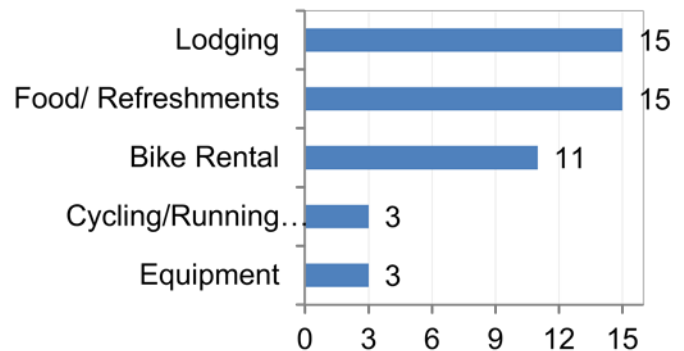


Figure 38: 15 Non-Locals Lodging item spending

**Of 15 users Lodging:
How long are you staying?**

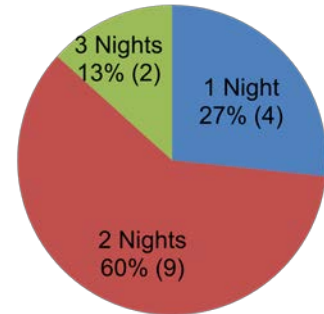


Figure 39: How long are lodgers staying

Lodging users data:

- 15 of the 38 non-local respondents said they were staying overnight, and spent the most of anyone with hotel expenses, and other spending (Figures 37 and 38).
- A majority (60%) stayed 2 nights (Figure 39).
- Average hotel cost in parish is around \$99.

With the above known facts and values along with Q7 answers for estimated spending while riding the Trace, approximations can be derived out for estimated spending for non-local lodging users as:

- **13 users answering Q7 as \$100+:**
 - **3 night stay users**
 - \$300 for lodging + \$200 for food, equipment, etc.
 - \$500 x 3 users = \$1500 total spending
 - **2 night stay users**
 - \$200 for lodging + \$200 for food, equipment, etc.
 - = \$300 x 9 users = \$2700 total spending
- **2 users answering Q7 as \$60-100:**
 - \$80 per user x 2 = \$160 total spending

An estimated figure for the 15 non-locals lodging resulted from dividing the total estimated spending above by 15:

$\$4,360 / 15 = \underline{\$291}$

International visitors: As Figure 36 shows, there is an increasing number of international visitors that visits the Trace from countries such as United Kingdom, Spain, Portugal, South Africa, Philippines, The Netherlands, Canada, Ireland, Papa New Guinea, Scotland, New

Zealand, Australia, Germany, Japan and Russia. Applying the estimated \$291 spending number could be justified, but there is strong evidence that international users spend much more than American visitors. Foreign visitors probably spend about five times as much money as domestic visitors, on average because the length of their stay is longer, they're more likely to use hotels, and many who are on leisure trips have more time to spend money (Levere 2011). For this reason, International visitor spending will be estimated as double that of out of state spending to \$582 for the calculations below.

Figure 40 below gives an estimated direct impact on the local economy from out of state and international users.

Data derived from:

- Table 35: Total Out of State Zip Codes 2011 -2014
- Table 36: Total International Trace Users from 2011 – 2014
- Intercept Survey Q7, how much spent while riding the Trace

Estimated Overnight Lodging User Spending		
Spending Estimates	Out of State Users \$291	International Users \$582
Users 2011	1,704	46
2012	1,448	73
2013	1,530	102
2014	2,017	136
Total users 2011-2014	6,699	357
	X \$291 = \$1,949,409 (4 yr. total)	X \$582 = \$207,774
	= \$487,352 avg. per year	= \$51,944 avg. per year
\$487,352 (Out of State) + \$51,944 (International) = \$539,296 Total avg. per year 2011-2014		

Figure 40: Estimated Overnight Lodging User Spending

Economic Impact Evaluation Part 4: Recreational Spending

Recreational spending is defined as spending on recreational goods influenced by the use and/or existence of a recreational amenity (Oswald 2012), like the Tammany Trace. These purchases are considered ‘hard goods’ and include bicycles, bicycle supplies, clothing, and footwear and are associated with indirect spending. The final part of the economic impact evaluation correlates data from answers received from Question 4, “How often do you use the Trace in a year” (Figure 41) and Question 9 “Has your use of the Trace influenced your purchase of?” (Figure 42). This evaluation process was guided by Rails to Trails Conservancy’s Three Rivers Heritage Trail 2014 User Survey and Economic Impact Analysis report (Rails-to-Trails 2014). My steps to get the average number of trips per year of 7.36 calculation process are located in Appendix E.

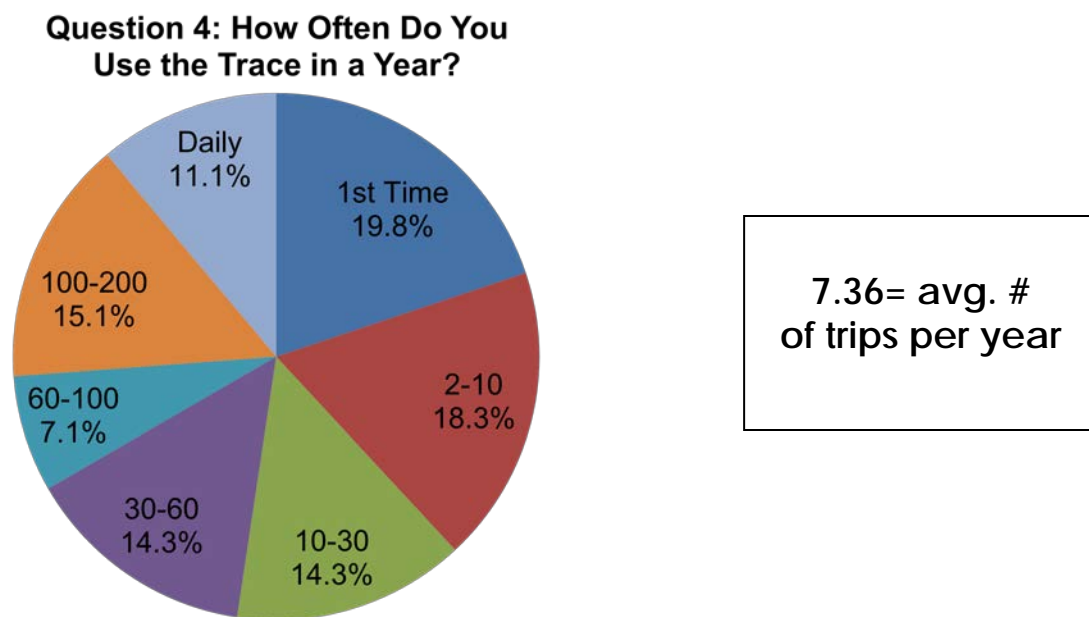


Figure 41: How often do you use the Trace in a year?

Based on the answers given in Question #9, Hard Goods (Bicycle, Bike Supplies, Footwear and Clothing) make up 84.2% of the answers given. Durable hard goods, such as a bicycle, may be purchased every 5-10 years. Running shoes may be replaced once or twice a year or longer, as does clothing. For the purposes of this recreational spending analysis, the average of 6 years for all hard goods purchases will be used.

Question 9: Has Your Use of the Trace Influenced Your Purchase of?



Figure 42: Trace influenced purchases

Bicycle prices can vary from \$200 to upwards of \$5,000+, but the average price used for this analysis will be \$500, which will include bike supplies, footwear and clothing for total durable goods. In accordance with the guide used by the Rails to Trails Economic Impact Analysis Report, the following formula is used to determine recreational spending in Figure 43:

$$\begin{aligned}
 & \text{(Hard Goods \% Usage X (Avg. \$ / Avg. Life)) X (\# Users / Avg. Number of Trips)} \\
 & .842 \text{ X } (\$500 / 6) \text{ X } (202,087 / 7.36)
 \end{aligned}$$

Estimated Recreational Spending				
<u>Hard Goods % Usage =84.2%(.842)</u>	<u>Avg. \$ = \$500</u>	<u>Avg. life =6 years</u>	<u>Avg. # of Trips per year = 7.36</u>	<u>2011-2014 Annual User Avg. = 202,087</u>
(.842 X (\$500 / 6)) X (202,087 / 7.36)				
= \$1,925,867 Total avg. per year 2011-2014				

Figure 43: Estimated Recreational Spending

C3. Livability Impact

The final section of the data analysis is a qualitative look into how the Trace and its trailheads are perceived by its users from its positive impact on the community and if there are any improvements that are needed. The first part looks at the responses to Question 10: Do you see the Trace and its Trailheads as valuable community amenities? (Figure 44) All but one person said yes.

Question 10: Do You See the Trace and its Trailheads As Valuable Community Amenities?

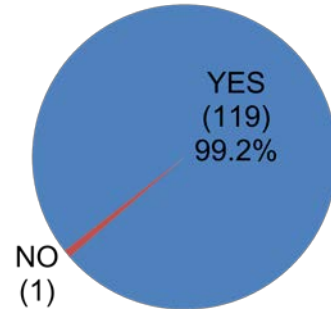


Figure 44: Do you see the Trace/Trailheads as valuable community amenities?

The best way to appraise the qualitative values of the Trace was to keep the question open ended and let the users express how they feel about the trail, so as a follow up to this question, I asked why they thought it was so valuable. The responses were numerous, but Figure 45 puts it all in context. All of the feedback was positive, but what I take from the graph is that the top three answers: Gathering Places, Community Health, and Community Revenue, are the foundation for a more livable, civilized and viable community.

The following are some collected statements from users during the intercept surveys:

“Perfect! Extend It” “Valuable Community Amenity” “Absolute Asset”
“I want to move here because of the Trace” “I live here because of the Trace”
“Wouldn’t come to the Northshore without the Trace” “Great Tourist Destination”
“Love it! I get excited to come here” “Nothing else like it” “I wish it was in New Orleans”
“I’m lucky to live next to the Trace” “Highlight of the reason why I live here”
“Great resource” “Come here often to ride and tour brew pubs with friends”

Health Factor

Supporting the fact that the Trace is so vital to its residents from a livability and health standpoint, it is no coincidence that St. Tammany Parish is consistently voted the healthiest parish in Louisiana. The parish has been #1 for 4 of the last 5 years according to County Health Rankings (CHR 2014).

“It’s easier for people to lead a healthy lifestyle when they live in a healthy community — one that chooses to do positive things for community health such as creating more opportunities for physical activity,”

-State Health Officer for the Louisiana Department of Health and Hospitals regarding the consistent ranking (Hayes 2010).

Why are Trace Trailheads so Valuable?

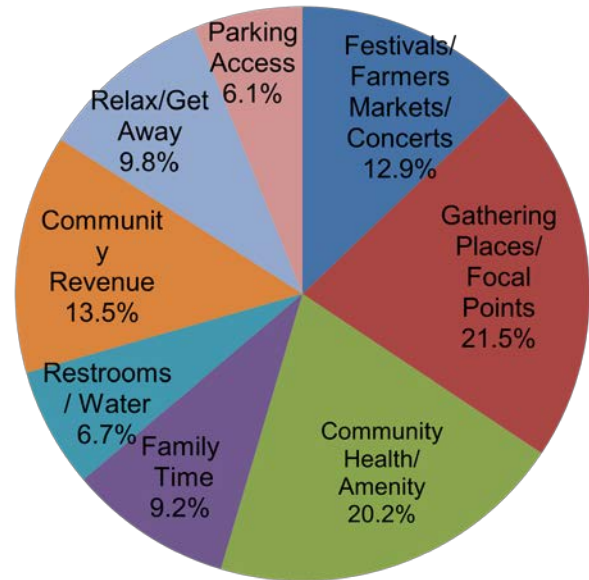


Figure 45: Why are Trace Trailheads so valuable?

Improvements

An important question in a trail user survey is to ask for feedback from users on improvements, if any, which should be made that would increase user experience. Another reason that this is important is because this is vital feedback coming from the public, the actual users of the trail both local and non-local. This criticism can be critically important not only for the needed improvements but economically significant, as a better trail will invite more users. This study, expectantly, can be an accommodating tool for Trace management and decision making, so the last question, Q11, of the survey asks: What improvements, if any, would you like to see on the Trace? (Figure 46).

Question 11: What Improvements, If Any, Would You Like to See for the Trace?

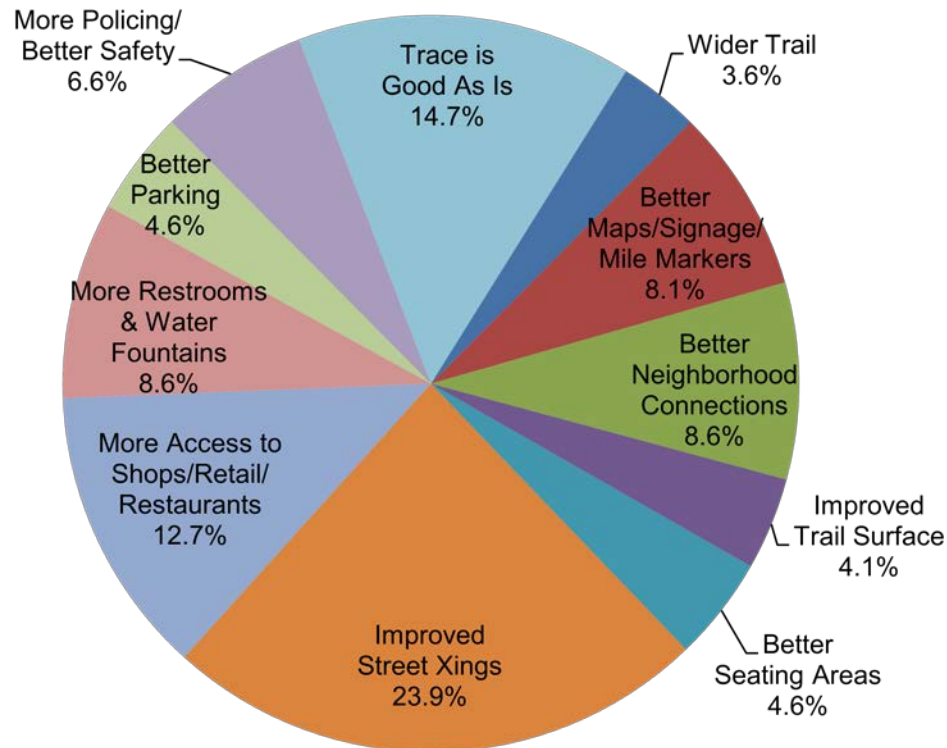


Figure 46: What improvements would you like to see?

Improvement Findings:

- ‘Improved Street Xings’ is the clear choice for improvements and rightfully so, as there are two main major arterial surface crossings that limit and break the flow for users, especially going into one of the gateway cities and trailheads, Covington. Also, there are many local collector road crossings that need improvements from an automobile visual perspective.
- ‘More Access to Shops/Retail/Restaurants’ should be a top priority as well, as some of the city cores areas that the Trace passes through have limited options. More well established businesses could reap the benefits of being next to the Trace.
- ‘Better Neighborhood Connections’ should also be a priority by making more bicycle/pedestrian friendly linkages to the Trace from the many surrounding neighborhoods.

Part D: Trace Expenditure and Livability Evaluation Conclusion

This evaluation provided a process in to estimating the economic impacts that the Tammany Trace has. The understanding and realization that these impacts are significant economic boosts from tourism and user expenditure factors is vital for continued community support, funding and future expansion. There is no perfect method into evaluating the economic benefits of any trail facility because of the difficulty in determining trail usage and user spending habits, and the estimates that I have developed may be too high or too low, but I am confident in any case, that the Trace brings economic vitality to the region.

From my evaluation, direct spending which includes spending while riding the Trace and non-local (out of state and international visitor) overnight spending is estimated to bring in \$3.356 million per year to the local economy from 2011-2014. Also, from a regional context, indirect spending getting to and from the Trace and recreational spending associated with using the Trace brings in an estimated \$3.9 million a year . From Chapter 3 in Background and Cost information, it is stated that the Trace has a hefty price of \$1.1 million to maintain and operate, but when the direct and indirect economic benefits are factored in, this is well worth the price.

Quality of life certainly has a value, and the built environment certainly does have an effect on the formation of social networks and healthy, livable communities. These livability benefits to the Trace are difficult to quantify, but they are absolutely evident from my survey responses and St. Tammany parish being consistently the healthiest parish in the state. As Abita Springs Mayor Lemons said, “The Trace is the lifeblood of this community,” therefore, it is absolutely justified to say, from a public viewpoint, that the Trace is considered a livable and invaluable jewel of the region.

Section 2. Property Value Evaluation

After conducting intercept surveys it was apparent that the vast majority of people who frequented the Trace and/or lived within close proximity of the trail did so because of the significant quality of life and health aspects that it brings. Also many other non-locals I talked to envy St. Tammany residents have this amenity, and wish they had a similar facility in their communities. Researching various local newspapers, realty guides and local HOA websites validated this claim as a huge draw when it comes to St.

Tammany Parish real estate (Image 20). These assertions were also backed up considerably from my conducted interviews with

city mayors and other local leaders. Including the results from my literature review on how many trails throughout the country affect property values positively inspired me to look into how the Trace may also affect home values. Therefore, the next focus of this study's

methodology is to attempt to prove that property values may be higher and that people may be willing to pay more to live adjacent to or near the Trace.



Hunters Glen is made up of 122 spacious half-acre lots filled with trees and beautiful gardens. We have a pool and covered cabana open to all residents and direct access to the thirty-one mile St. Tammany Trace recreational walking/jogging/biking trail.
source: <http://www.hgpoa.com/hgpoa/page.html>



Deerfield consists a direct private access to the St. Tammany Trace. The Trace is a 31 mile paved bike/jogging/walking path appealing to serious cyclists, marathon runners or the occasional enthusiast just wanting to enjoy a sunny day with his family.
source: <http://deerfieldneighborhood.org/>



Conveniently Located 1 Block from Tammany Trace
This home won't last long
source: <http://homes.trovit.com/>



Backs up to the Tammany Trace bike path!
source: <http://www.movoto.com/mandeville-la>

Image 20: HOAs and realtors highlighting the Trace

Property Value Study Objective

Attempt to show that property values may be valued more when closer to the Trace

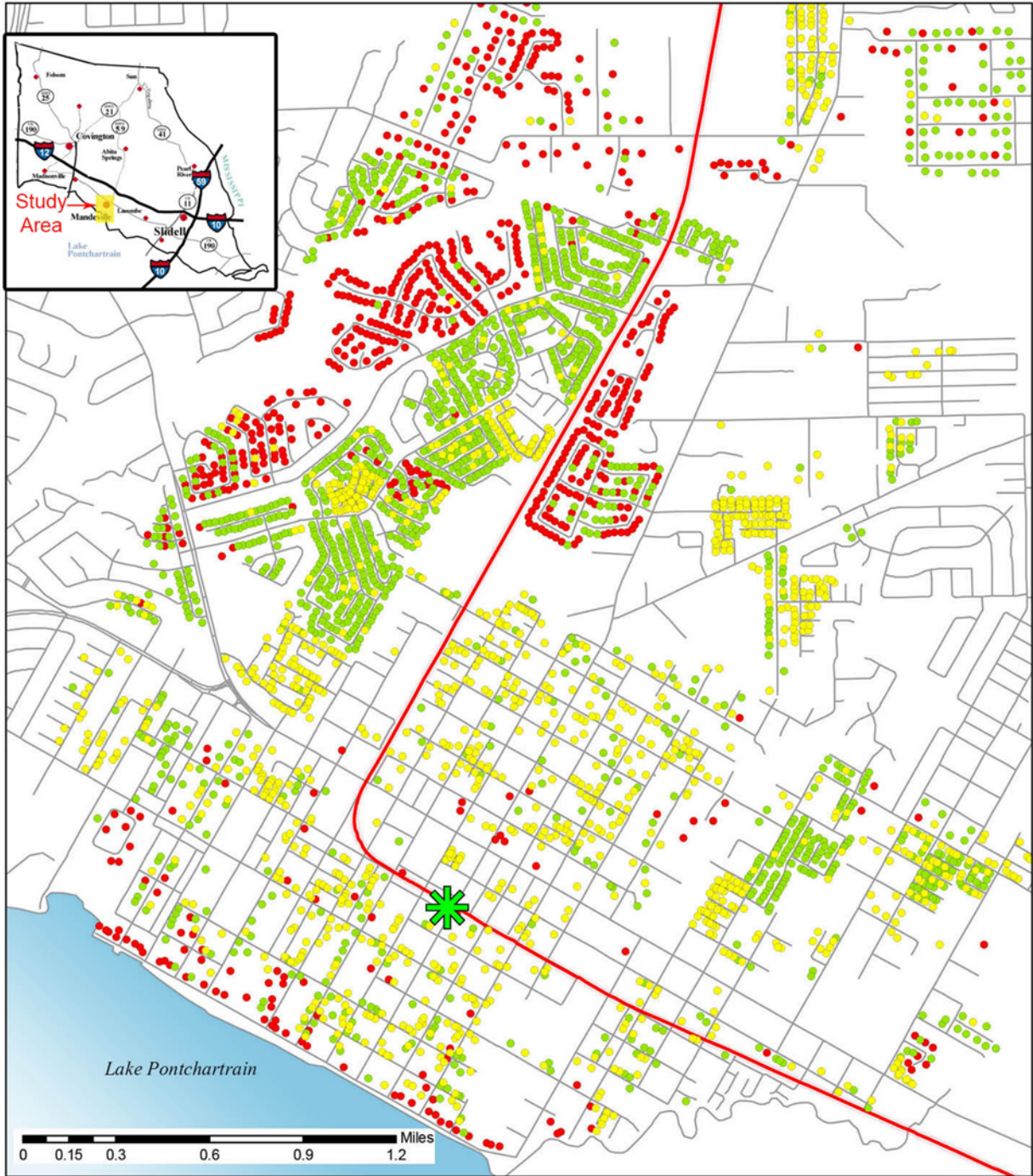
Part A. Property Value Comparison GIS Map Study

The city of Mandeville home values were studied mainly because of the time extent involved in studying all cities, and Mandeville currently has the most subdivisions developed in the last 25+ years that are close to the Trace.

A1. Process

The following steps were used to conduct the property value study: (Figure 47)

1. Obtaining infrastructure and landscape spatial data from the Louisiana GIS Clearinghouse and Louisiana Speaks regional planning process.
 - a. This data included a housing inventory for the parish.
2. Obtaining year 2013 Multiple Listing Service (MLS) property value spreadsheets from the Southeastern La. University Research Center.
 - a. Narrowing property value locations to only areas interested in studying. In this case, the city of Mandeville, La.
3. Using GIS spatial function of joining and relating the interested property value data with the existing housing shapefiles obtained from Louisiana Speaks data collection.
 - a. The join and relate process was performed by the associated 'Assessment' value number for both data sets.
4. Using GIS geoprocessing tools to buffer a 1-mile distance on both sides of the Trace, then clip houses that fell within this buffer to develop a study area of 3,258 houses. I chose a 1-mile buffer because:
 - a. The suitable/preferred walking distance is considered a quarter-mile in most walkability studies.
 - b. Comparing the home values in this quarter mile buffer compared to homes on the outer fringe could give a good insight, if any, to increased home values adjacent to the Trace.
5. Obtaining the average median price for homes in St. Tammany Parish for 2013, which was \$225K (found in Chapter III under Economic Indicators).
6. Taking the median price of \$225K and developing a three tiered classification manual breaks model in GIS as:
 - a. Low Range- \$0 - \$168,750 (\$168,750 being 25% below the median home value).
 - b. Median Range- \$168,750 - \$275K (\$281,250 being 25% above the median home value).
 - c. High Range- \$281,250 - \$1,878,010, the highest price home in this buffer zone.



**2013 Mandeville Market Value Homes
1 Mile from Tammany Trace**

-2013 Median Home Value= \$225,000

-3,258 Homes 1 mile from Trace

- \$0 - \$168,750 (25% below Median)
-1,197 Homes (36.7% of total)
- \$168,750 - \$281,250 (25% above/below median)
-1,392 Homes (42.7% of total)
- \$281,250 - \$1,878,010
-666 Homes (20.4% of total)

*1,137 Total homes above median value (35%)

- ✱ Mandeville Trailhead
- Tammany Trace
- Roads

Figure 47: Mandeville home value comparative study

A2: Key Findings

The results of this study are displayed on Figure 47. Some key findings from the study of 3,258 homes in the mile buffer zone include:

- A majority 42.7% were in the Median range (either 25% below or 25% above the median home value of \$225K).
- 36.7% of the total home values were in the Low range (below \$168,750, which is 25% below the median home value).
- 20.4% of the homes were in the High range (above \$281,250, which is 25% above the median home value).
- 35%, or 1,137 homes were above the \$225K median home price.
- The majority of the highest value homes were adjacent or within a few blocks of the Lake Pontchartrain waterfront.
- The majority of the lower tiered homes are located in the older part of Mandeville, not within a subdivision.
- A quarter-mile buffer around the newest subdivisions built in last 25 years (the clusters in the top portion of the map), revealed 438 homes with a median home value of \$243K.
 - Subdivisions include: Oak Island, Hunters Glen, Laurelwood, Greenleaves and Deerfield.

A3: Trace Oriented Development Potential

As shown in Figure 3 in Chapter 3, over 40% of St. Tammany Parish's population lives within a mile of the Trace. This is probably because the Trace passes through all three major city centers, Covington, Mandeville and Slidell. Looking into possible future development close to the Trace, I created a map that illustrates vacant land within a mile of the Trace (Figure 48) from the Louisiana Speaks data set. As the map shows, there is potential future Trace oriented development opportunities especially north of Mandeville around the Caboose (Trace HQ) trailhead, and around Slidell and Abita Springs. All together there is 12,786 acres of vacant land within a mile that is mostly zoned Single Family Residential.

Trace Oriented Development Potential

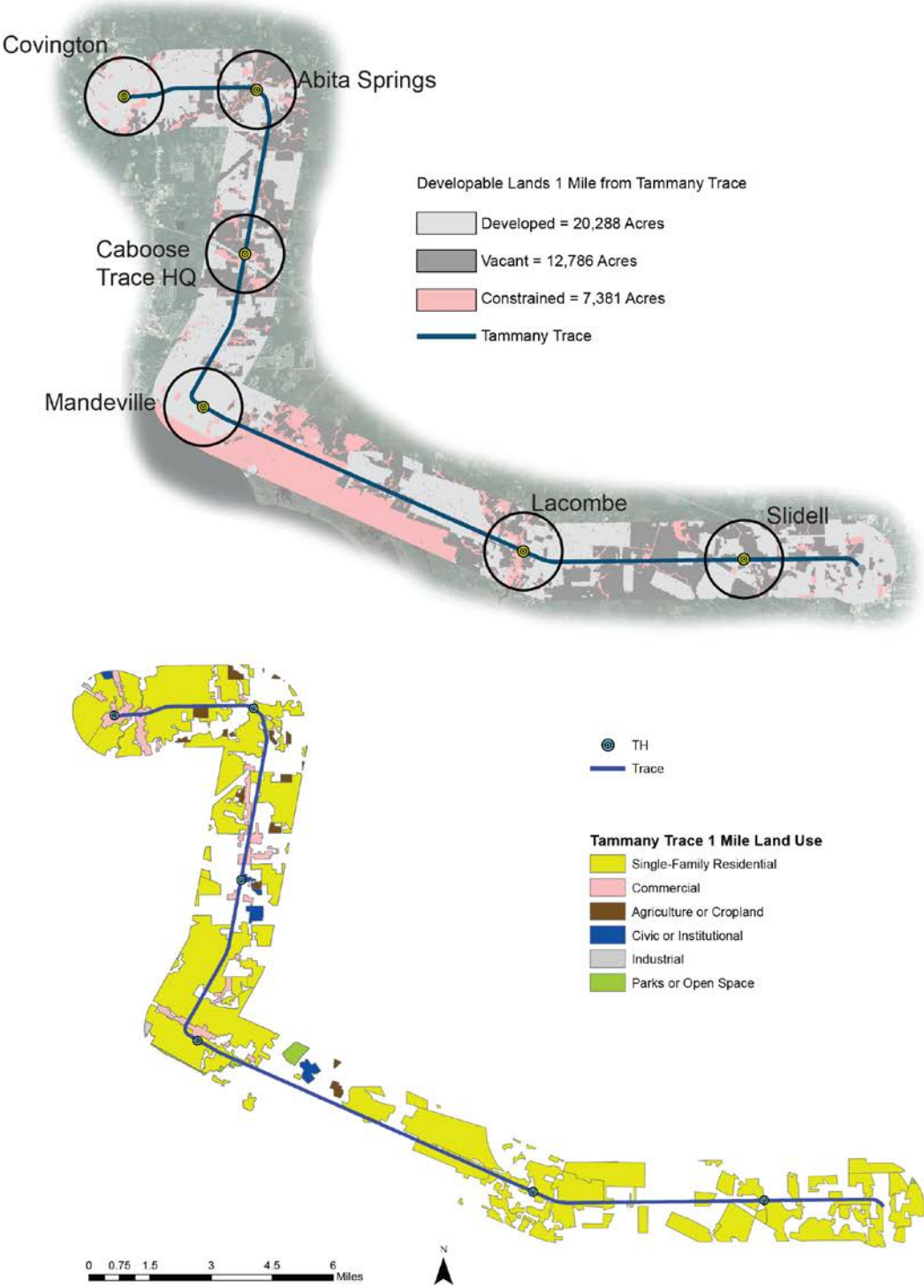


Figure 48: Trace Oriented Development potential

Part B. Realtor Telephone Surveys

Realtor Survey Objective

Identify real estate professionals perception of how the Trace has influenced property values

This section summarizes the results from an informal survey of 13 real estate agents that serve St. Tammany Parish's key cities, the cities the Trace passes through. After getting a majority feedback from the Trace user intercept survey that many users choose to live where they do is because of the Trace, along with the not as convincing Mandeville adjacent Trace homes property value impact study (Figure 47), this directed telephone survey (Appendix C) attempts to identify real estate professionals perception of how the Trace has influenced property values. Although the number of real estate agents that responded to this survey is too small to produce statistically legitimate findings, it does begin to give an understanding of the potential value of living close to the Trace.

B1. Survey Methodology and Response Rates

A total of 20 professional real estate agents that serve the St. Tammany region were contacted by researching on the internet of agents that have sold or are currently highlighting homes along the Trace. Of those 20 agents, 13 replied for a response rate of 65%. The following results are considered qualitative because of the type of questions asked and the small sample size.

B2. Findings

St. Tammany home values are spread out across the parish to desirable locations like the lakefront, affluent golf course communities, the countryside, along with the Trace. So to compare these values, the first question (Figure 49) was, "Do properties adjacent or within a ¼ mile walking distance of the Trace differ from the values of the same size and value that are farther away from the Trace?" Similar to the conclusion from the home value comparative study (Figure 47), the agent's majority response (54%) was that properties of the same value adjacent to the Trace are not necessarily worth more. This is mainly due to

(mostly) other desirable locations throughout the Parish, and other factors such as home owner privacy concerns and lifestyle choices. Most of the agents contemplated on either this response or that the Trace has a somewhat higher value (38%). No agents considered that values are considered significantly higher or lower. The one agent who responded that the Trace has a somewhat lower value stated that buyers may be concerned with privacy and/or crime

Do properties adjacent or within a ½ mile of the Trace differ from the values of the same size and value that are farther away from the Trace?

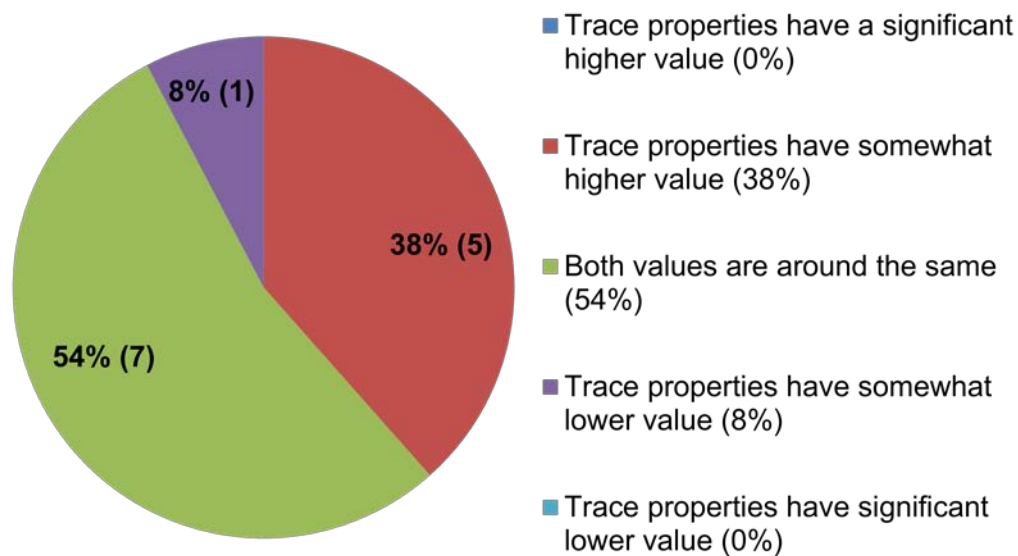


Figure 49: Realtor Survey Question #1

As a follow up, the realtors were then asked, “Would you say that properties located within a quarter mile of the Trace are more marketable than those that are not?” (Figure 50).

Consistent with question 1, the realtor’s majority opinions (54%) were that adjacent Trace homes were equally as marketable as other areas of the parish, but most said that water front homes were currently more marketable. Several of the realtors who stated that Trace properties had a somewhat higher value (38%), said that buyers not only liked having direct

access, but the homes that had the Trace as an adjacent greenspace “neighbor” were incentives over another home as a neighbor.

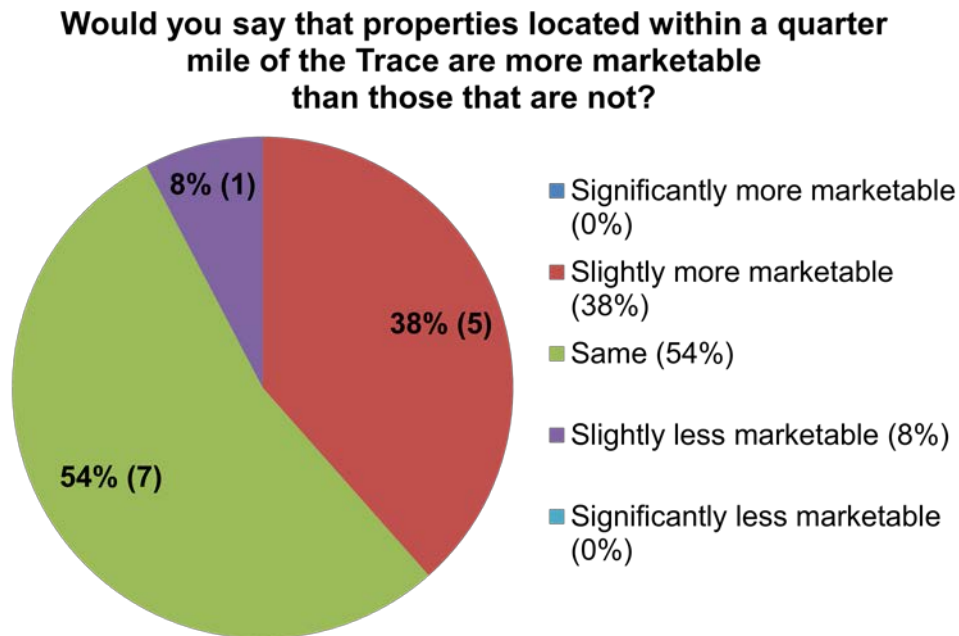


Figure 50: Realtor Survey Question #2

The newest generation to enter the workforce and be potential new home owners are the millennials (ages early 20s to mid 30s). The American Public Transportation Association considers this group as more likely to drive less and choose alternate forms of transportation such as biking and walking (APTA 2013), which would include lifestyle choices to live near trails. Atlanta’s Midtown Alliance says approximately half of the neighborhood's residents are millennials, that live along the Atlanta Beltline's Eastside Trail (Wheatley 2015). Question #3 (Figure 51) asks the realtors, “What types of buyers are more interested in buying a home close to the Trace?” The answers given could be one or multiple out of the Millennial, X or Baby Boomer generations and Retirees. Reflecting the current trend in active transportation and recreation lifestyles, the realtors answered that the millennial generation are more likely to enquire about home availability close to the Trace at 44% of the respondents. What was interesting was that retirees came in second at 28% over Gen X at 17%. After viewing these results, I researched this topic and found out that in the 1980s and early 1990s the retiree

group would have been on the lower spectrum of this survey, but from 1995-2009 this group has had the most significant increase in bicycling rates at 320% (Andersen 2014).

What types of buyers are more interested in buying a home close to the Trace?

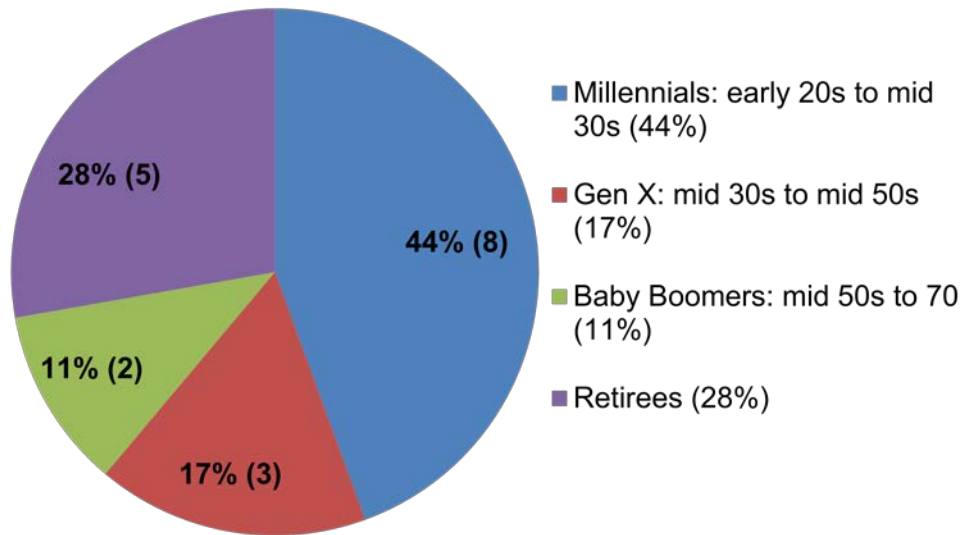


Figure 51: Realtor Survey Question #3

For the last 10 years, St. Tammany Parish is consistently one of the fastest growing and healthiest parishes in the state. As the expected popularity of the Trace grows along with the Parish, the last survey question (Figure 52) probed the realtor’s perception of future trends and asked “Do you see a future trend for home buyers that want to be close to the Trace.” Correlating with question #3 and how the future generation apparently desires healthier lifestyles, 54% said yes. There are some conceptual developments that could be on the horizon on vacant land adjacent to the Trace (Figure 48) which also indicates that the Parish sees this new trend as advantageous to the future health of its residents. The realtors that answered “Not Necessarily” still believe strongly that other desirable areas in the region will continue to be equally as sought out, while one of the realtors that answered “no” was

concerned about future safety concerns being a deterrent.

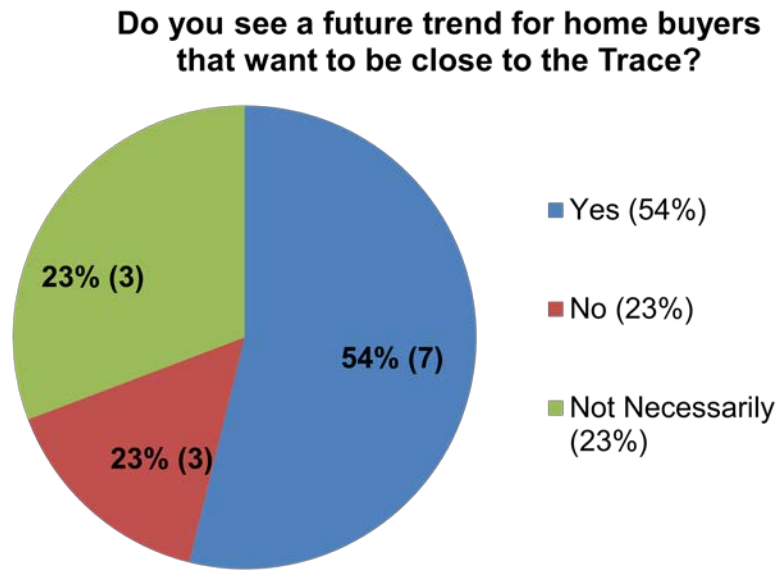


Figure 52: Realtor Survey Question #4

Part C. Property Value Conclusion

Although the above survey does not produce measureable quantitative results, the majority perceptions of local realtors do see the present value of adjacent Trace homes as equally valuable, if not slightly more valuable compared to other areas. However, from the entire property value section of this study, it is not conclusive to state that home values adjacent to the Trace are currently valued more than homes away from the Trace at this time. This may be because of factors such as other desirable property locations on and around the waterfront by Lake Pontchartrain and the several affluent golf course communities in the area. Other reasons could include specific details about each home as the size, architectural aesthetic, number of garages, age of home, etc. which are spread out across the southern end of the parish. It is, however, justified to state that homes close to the Trace are seemingly being desired more, especially in the newest subdivisions (where most of the clusters of median value homes are in Figure 47). Also, apparently there is a majority that sees living next to the Trace will increase in value for the younger generations and likely for future

retirees that want to be adjacent because of the increased livability and healthier lifestyle that is associated. With further possible development potential adjacent to the Trace (Figure 48), added with the continuous realization that living close to trails brings a healthier lifestyle, the future does look favorable for people to pay a premium for Trace front development. This said, the Trace may very well influence home values now and into the future and continue to contribute be an economic benefit to the parish from this point of view.

The following two images (Image 21 & 22) show some of the residential areas that the Trace traverses. These areas are some of the same subdivisions that were analyzed in the Property Value Study in Mandeville.



Image 22: Residential neighborhood close to Mandeville along Trace



Image 21: Residential Trace street crossing

Chapter V: Overall Conclusion

The most imperative conclusion of this study is that connecting communities with alternate transportation corridors, in this case the Tammany Trace rail-trail, produces a wide range of benefits. These include but not limited to:

- An invaluable boost to local and regional economies through local spending and tourism.
- Compared to homes of the same structure value away from the Trace, adjacent or homes within close proximity to the Trace values being of equal value or slightly more valuable. Also, the probability that adjacent Trace homes will be more desired into the future.
- The important social, civic pride and quality of life values that trails create by bringing communities together.

This world, especially this country and the region where this case study was conducted, is still overwhelmingly dominated by the automobile, creating unsafe and unwanted environments to be in while on a bicycle or on foot. Implementing safer, complete streets for cyclists and pedestrians goes a long way in improving and encouraging more multi-modal options and can in fact advance healthier local economies (Smart Growth America 2015). Seemingly though, they will not match the potential tourism draw and social benefits for both locals and non-locals that a separate rail-trail can bring (Sallis 2015). Nevertheless, for a community and region to thrive into a future of climate change and limited resources, these two distinct types of systems should be linked to make for a more sustainable economy and vital community resource.

Chapter VI: Lessons Learned

This chapter brings insight from my process of evaluating the Tammany Trace and other trail facilities into a list of lessons learned to bring a start to guidance for municipalities and regions that want to implement and/or improve their own successful trail facility. The list explores suggested policy recommendations to be implemented for the trail to thrive from a livability, quality of life, placemaking and economically viable standpoint.

1. Improved Connectivity

A trail can have success as a standalone facility, especially from a tourism standpoint, but to have a truly successful trail that benefits the whole community that it serves, better bicycle and pedestrian connectivity access to the trail and trailheads should be implemented. These connections will increase safer access to the trail and also will inevitably be embraced as a potential non-motorized commuter route, supporting sustainability and non-automobile dependence. Some recommended connectivity improvements include:

- Improve and/or add sidewalks between designated connections.
- Incorporate ‘road diet’ and shared roadway conversions to local connector streets to create safer complete streets connections for users of all ages, modes and mobilities.
- Coordinate with local schools to make safer trail connections and a viable safe routes to school network.
- Provide opportunities for trail links to destinations like commercial and employment centers, libraries and other public places.
- Wherever possible develop user agreements within road right of ways and utility corridors to develop trail connections to the main focus trail.

2. Leverage Trail Wayfinding with Gateway City Amenities

Gateway cities along trails are the cities that the trail traverses, but sometimes trail users, especially tourists, may not realize the hidden amenities located in each city that are close to the trail. These amenities could include parks, museums, natural areas, downtown cores, transit connections and other attractions. Most all trails, including

the Trace, have a map system along the trail corridor showing mileage to each trailhead. However, to fully influence users to explore each gateway city and be aware of their surroundings, a wayfinding system should be implemented with the cities and the trail as a spine to the whole system. Wayfinding will help tourists find the amenities and attractions they seek and/or discover while riding the trail, but it will also bring focus to city visitors that are unaware that the trail is even present. To add, a clever wayfinding system (Image 23) will also help create identity and make the trail and the city all together more useful to its residents.

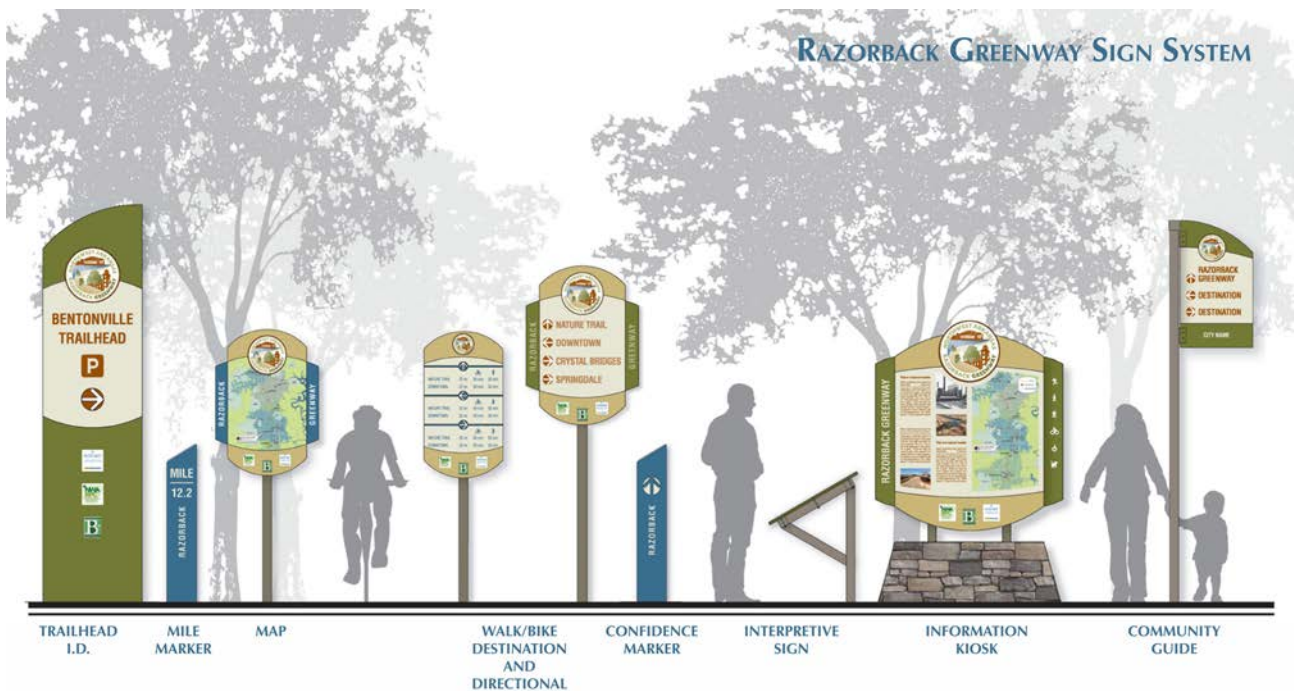


Image 23: Arkansas's Razorback Greenway Trail Wayfinding System
<http://altaplanning.com/services/complete-streets/bicycle-and-pedestrian-wayfinding-design/>

3. Improve Physical Barrier Crossings

Because of the safety factor, high traffic surface road crossings can deter trail users from continuing on to the next trailhead or city. Investing in overcrossings and/or undercrossings can improve considerably the safety and comfort of the trail and be more inviting for visitors resulting in increased use and visitation. To add,

overcrossings in particular can be a placement for an archetypal city welcoming sign, be an invitation to potential users passing under in automobiles (Image 24), or create an iconic structure as a destination for users (Image 25). The Trace's Bayou Lacombe bicycle/pedestrian only Drawbridge (Image 26) has become a scenic destination and goal for Trace users to get to.



*Image 24: The Silver Comet Trail bridge over crossing in Dallas, GA.
<http://www.pauldingdevelopment.org/uploads/images/the-silver-commet.jpg>*



*Image 25: High Trestle Bridge along the High Trestle Trail in Iowa
<http://forecastpublicart.org/public-art-review/current-projects/2012/08/high-trestle-bridge/>*



*Image 26: Tammany Trace Bayou Lacombe drawbridge
http://blog.nola.com/news_impact/2008/09/large_blogbridge120.jpg*

Local collector surface street crossings can also be improved, as in many cases there can be too many local street crossings from block to block causing lack of flow for trail riders and inevitably dangerous situations. Some recommended improvements include:

- Closing some local neighborhood collector through streets at trail crossings, especially in short neighborhood block grids making it safer for trail users and automobiles.
- Incorporate traffic calming strategies such as bulb outs to make road crossing distances shorter, raised crosswalks, speed tables, chicanes and refuge islands and at or near trail crossings.
- Improved signage and/or flashing warning lights for both trail users and automobiles at trail crossings.
- Improve communication with city/county departments and community cycling/pedestrian advocacy groups to ensure that safe access across physical barriers is achieved.

4. Trailheads as Community Gathering Places

As detailed in Chapter III of this document, 3 of the 6 trailheads along the Trace serve as vital city focal centers and public gathering places. These trailheads are some of the key reasons for the continued success of the Trace as they not only bring people together, but some learn about the Trace from these attended events, become intrigued, and come another day(s) to ride. Some of the elements that continue to make these trailheads so successful revolve around:

- Hosting numerous festivals and events all year long.
- Locating the trailhead in each city center and historic downtown core.
- Having an archetypal large structure as the focal point of each trailhead and inevitably the focal point of each town center.
- Expanding on the increasingly popular and eclectic craft beer movement around the nation by having local craft breweries directly adjacent to each trailhead, and encouraging “bike and brew” tours.

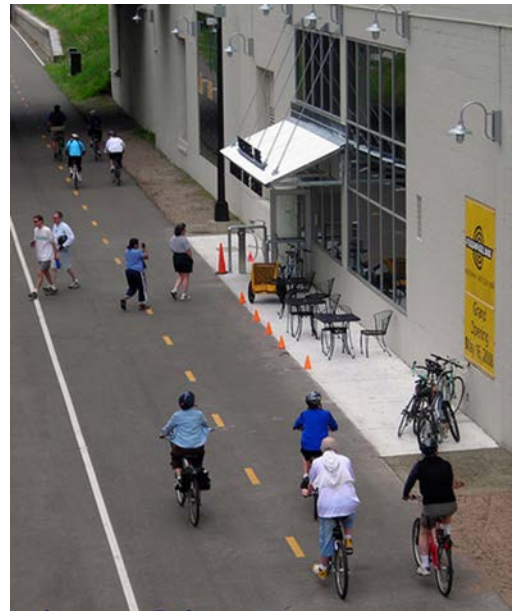
5. Locate Food and Retail Along the Trail

“Trail oriented development,” or TrOD as introduced in Chapter II, capitalizes on the amenity value, placemaking and development potential adjacent to trails and is a successful tool that correlates commercial density and trail infrastructure. As revealed in this document from the intercept surveys and from specific examples in Chapter II under Tourism and User Expenditures, users of trails will spend money at adjacent

retail stores and especially trail side cafes and eateries. Regarding the Trace, there seems to be a lot of potential for much more trail side cafes and eateries. This kind of adjacent development (Image 27 and 28) not only increases revenue for local communities, but also creates a unique type of placemaking and people watching setting to relax trailside and watch cyclists and trail users pass by. Therefore the takeaway here is to encourage cities to revise land use zones and density restrictions to allow for more commercial development directly adjacent to trails to capitalize on trail user spending and placemaking potential.



*Image 27: Café adjacent to the Atlanta Beltline
photo courtesy of Ralph Daniel Dobbs*



*Image 28: Bike shop and eatery directly adjacent
to the Midtown Greenway in Minneapolis
http://farm4.static.flickr.com/3199/2525791516_4c9b14dfec.jpg*

6. Increase Opportunities for Trail Oriented Housing Developments

Another aspect of TrOD is to plan for future or increased home developments adjacent to or close to trail corridors. The Property Values section of Chapter II details that trails adjacent to homes are increasingly playing a major role where potential homeowners desire to live, and people are paying a premium for it. As detailed in Chapter IV- Section 2, although, homes along the Trace are not necessarily valued more than those away from the Trace at this time. This said, with the increasing quality of life benefits that it brings and the expected desire for newer generations to want to live next to trails, the need to create high quality community

densities next to the Trace is expected to increase in demand into the future. Therefore, some recommendations for future trail oriented housing developments include:

- Integrate the trail into community design. Reflecting on Lessons Learned Part 1- Improve Connectivity, make safer and direct connections from strategic locations within the community.
- If desired by certain homeowners, open up green space between home frontage and trail. Image 29 shows an example of a home oriented to the Trace, but separated by thick brush and trees. Separation could also be used by fence (Image 30).
- Take advantage of greenspace and trail watching opportunities with rear loaded homes, i.e., garages facing street and front of home facing the trail and greenspace.
- Work with the HOA on desired home frontages, and on public and private trail responsibilities.
- Pursue and encourage developer and/or HOA marketing structure for trail frontage homes.



Image 29: Housing development adjacent to Tammany Trace separated by thicket



Image 30: Housing development adjacent to Silver Comet Trail in Rockmart, GA

7. Interpretive Signage and Public Art Along Trails and Trailheads

Trails can create an opportune setting for displaying interpretive signage (Image 31 & 32) about the culture, history, environmental features and identity of the corridor and/or region it passes through. For tourists, this signage captures curiosity and draws trail users in to want learn more about the cities and region the trail passes through, leaving the visitor with more a sense of place and increased appreciation. For locals, this signage generates civic pride about their home region, a potential

outdoor leaning classroom for all ages, and further identity.

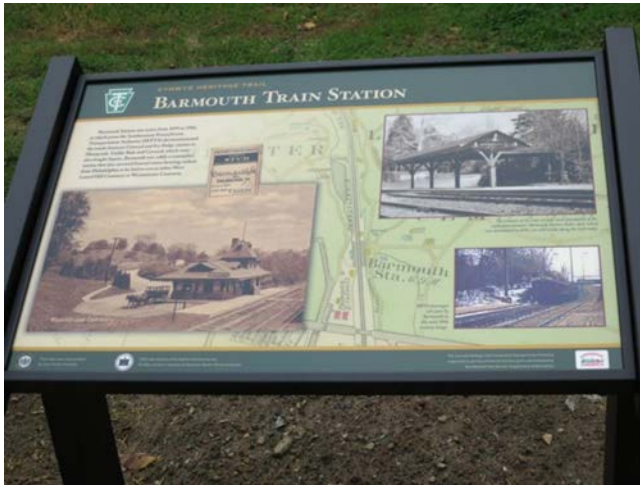


Image 31: Interpretive signage along the Cynwyd Heritage Rail Trail outside of Philadelphia, PA. <http://www.cynwydtrail.org/interpretive/>



Image 32: Interpretive signage along the Silver Comet Trail in Rockmart, GA

Adding public art along trails (Image 33 & 34) can further this sense of place and identity, and further increase the trail as a revered part of the community. Trail art also stimulates the senses of the young and old, increases community participation and is a setting for artistic showcases drawing regional and national tourism.

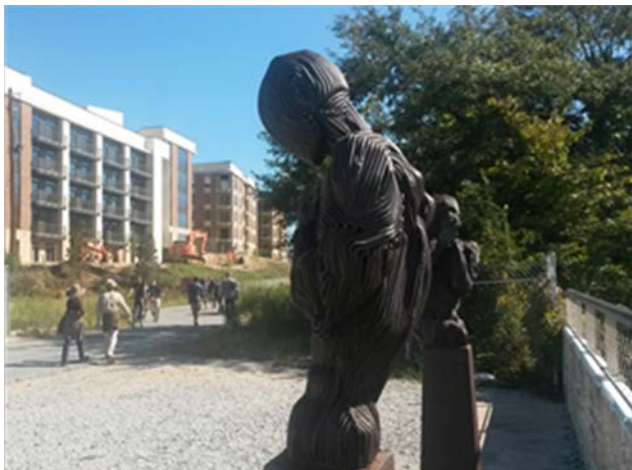


Image 33: Public Art along the Atlanta Beltline



Image 34: Trout Run Trail public art in Decorah, IA. <http://www.bikeiowa.com/News/4132/trout-run-trail-public-art-dedication>

Conclusion

Multi-use trails are mostly seen for their recreational benefit, but these lessons learned begin to formulate features of how to improve trails to make them more economically viable and embraced by visitors and the communities they serve. These features focus on improving the economic, connectivity, livability and community identity aspects of trails to further improve an already valuable community resource. When communities embrace and expand on these potential improvements, then the far-reaching benefits of their trail facility will most certainly be expanded.

Appendix A: Intercept Survey Example Questionnaire

91

Tammany Trace Economic Benefits
User Survey Template For Trail Users

Time: 4/5 Sex: F

- 1. Are you a local to the area? If not, where are you from? *Y*
- 2. How did you get to the Trace?
 - a. Car
 - b. Transit
 - c. Bike
 - d. Walk
 - e. Skateboard
- 3. What best describes the purpose of your outing on the Trace?
 - a. Exercise
 - b. Commuting
 - c. Enjoying Nature
 - d. Recreation
 - e. Doing errands
 - f. Vacation
 - g. Other
- 4. In the past year, how often have you used the Trace?
 - a. 1st time
 - b. 2-10 times
 - c. 10-30 times
 - d. 30-60 times
 - e. 60-100 times
 - f. 100-200 times
 - g. daily
- 5. How long do you usually spend on the Trace?
 - a. 0-1 hour
 - b. 1-2 hours
 - c. 2-4 hours
 - d. 4-6 hours
- 6. How much \$ do you spend, on average, during the trip to get to the Trace?
 - a. nothing
 - b. \$1-20
 - c. \$20-50
 - d. \$50-90
 - e. \$90+ 0
- 7. How much do you spend while riding the Trace?
 - a. Nothing
 - b. \$1-10
 - c. \$10-30
 - d. \$30-60
 - e. \$60-100
 - f. \$100+
- 8. What do you spend \$ on to use or while using the trail?
 - a. Food/refreshments
 - b. Bike rental
 - c. Cycling/running apparel
 - d. Equipment (tubes, parts, etc.)
 - e. Lodging
 - f. None

- 9. Has your use of the Trace influenced your purchase of:
 - a. A bicycle
 - b. Bike supplies
 - c. Auto maintenance
 - d. Footwear
 - e. Clothing
 - f. Nothing
 - g. Other

- 10. Do you see the Trace Trailheads as valuable community amenities? If so, why? *Y*
B/C people like underneath exercise
- 11. Would improvements along the Trace encourage you to use it more? Yes or No
If so, what improvements would you like to see?
 - a. Wider trail
 - b. Better maps/signage
 - c. Better neighborhood connections
 - d. Better trail surface
 - e. Better seating areas
 - f. Better street xings
 - g. Better access to shops
 - h. More restrooms
 - i. Better Parking
- 12. Is there anything else that you would like to share about your experience and knowledge about the Tammany Trace?
MARK WHERE WHERE

*I LIVE HERE
B/C OF THE
TRACE*

Appendix B: Tammany Trace User Numbers from 2008-2014

Provided by Tammany Trace Foundation

2008 Tammany Trace Stats										
	Caboose TH	Slidell TH	Lacombe TH	Total Trace	Kids Konn	Zip Codes Out of state	Zip Codes Out of Parish	Zip Codes Total	Bike Rentals	Events
January	2847	1450	4173	8470	4815	27	17	44	17	12
February	4327	2176	5357	11860	9974	39	0	39	34	20
March	6265	2938	5905	15108	12700	135	301	436	103	48
April	4962	2700	5569	13231	7339	149	16	165	99	41
May	6479	3070	8413	17962	6222	69	64	133	84	46
June	5705	3304	8250	17259	4044	38	36	74	38	36
July	6047	3146	7962	17155	3906	27	32	59	72	21
August	6946	2572	4661	14179	4147	23	13	36	34	11
September	5866	2993	4856	13715	6269	34	27	61	29	29
October	8098	3822	6003	17923	7687	68	71	139	53	57
November	5897	2927	5154	13978	9482	60	48	108	39	44
December	12772	2290	2926	17988	9277	34	40	74	31	11
TOTAL	76211	33388	69229	178828	85862	703	665	1368	633	376

2009 Tammany Trace Stats										
	Caboose TH	Slidell TH	Lacombe TH	Total Trace	Kids Konn	Zip Codes Out of state	Zip Codes Out of Parish	Zip Codes Total	Bike Rentals	Events
January	5916	2396	4112	12424	8048	49	45	94	18	14
February	6087	2554	4799	13440	10078	68	117	185	11	42
March	7533	3337	6268	17138	9305	100	38	138	57	40
April	8142	3612	6381	18135	13051	123	76	199	74	35
May	8614	3534	8621	20769	8214	37	27	64	83	45
June	7143	3186	8323	18652	5037	35	13	48	67	23
July	7526	3500	6248	17274	5371	48	42	90	60	6
August	8583	3763	6885	19231	5162	120	125	245	48	9
September	8624	2649	5439	16712	5777	22	40	62	19	39
October	8420	2822	5137	16379	8840	24	15	39	62	35
November	5904	2622	4807	13333	9797	44	35	79		42
December	3528	1652	3638	8818	6037	18	5	23		11
TOTAL	86020	35627	70658	192305	94717	688	578	1266	499	341

2010 Tammany Trace Stats											
	Caboose TH	Slidell TH	Lacombe TH	Total Trace	Kids Konn	Zip Codes Out of state	Zip Codes Out of Parish	Zip Codes Total	Out of Country	Bike Rentals	Events
January	4004	2111	3456	9571	5156	98	76	174	1	0	10
February	4452	1618	3511	9581	6826	86	62	148	5	7	28
March	9156	2933	6157	18246	15744	199	190	389	10	49	49
April	10227	3317	7164	20708	13834	66	75	141	0	59	51
May	9673	2357	9238	21268	9901	77	137	214	6	142	42
June	7537	2495	6874	16906	4911	81	115	196	2	51	16
July	9236	2567	7707	19510	5917	95	95	190	5	115	5
August	6117	2622	6652	15391	2515	46	32	78	0	78	5
September	10601	3972	6294	20867	6422	50	106	156	0	140	16
October	9030	3448	7512	19990	13055	34	161	195	0	192	41
November	5603	2411	4609	12623	10648	105	169	274	1	73	36
December	10919	1695	3774	16388	9291	83	133	216	7	38	16
TOTAL	96555	31546	72948	201049	104220	1020	1351	2371	37	944	315

2011 Tammany Trace Stats												
	Caboose TH	Slidell TH	Lacombe TH	Total Trace	Kids Konn	Zip Codes Out of state	Zip Codes Out of Parish	Zip Codes Total	Out of Country	Bike Rentals	Events	
January	5632	2348	4342	12322	6992	67	104	171	2	25	10	
February	4994	2429	5523	12946	9451	155	141	296	6	62	24	
March	8004	3480	7596	19080	13942	244	193	437	4	133	44	
April	9890	4196	9686	23772	13170	341	400	741	6	148	48	
May	10502	4526	9227	24255	10510	151	407	558	5	182	32	
June	8769	3732	7775	20276	5964	154	302	456	6	101	11	
July	7562	3658	6700	17920	4469	98	170	268	5	67	4	
August	8036	3774	7258	19068	3137	78	79	157	7	34	4	
September	8174	3924	6683	18781	8707	84	179	263	5	75	14	
October	8240	4539	8149	20928	13685	111	262	373	3	150	65	
November	5384	3304	4952	13640	10587	116	191	307	0	65	36	
December	17332	2946	4627	24905	9982	105	78	183	3	13	11	
TOTAL	102519	42856	82518	227893	110596	1704	2506	4210	52	1055	303	

2012 Tammany Trace Stats												
	Caboose TH	Slidell TH	Lacombe TH	Total Trace	Kids Konn	Zip Codes Out of state	Zip Codes Out of Parish	Zip Codes Total	Out of Country	Bike Rentals	Events	
January	6449	3607	6093	16149	10903	192	174	366	4		15	
February	4310	2929	4906	12145	7654	118	141	259	7		14	
March	7372	4336	6840	18548	11611	282	322	604	21		47	
April	8030	4682	9468	22180	12999	106	470	576	15		40	
May	10815	4765	4210	19790	8584	153	175	328	8		20	
June	14919	4457	743	20119	6081	135	158	293	4		7	
July	15228	3815	871	19914	4947	104	104	208	2		6	
August	7012	2975	4710	14697	3495	72	68	140	2		4	
September	6535	2498	5716	14749	6103	27	62	89	0		15	
October	7779	4427	6493	18699	11808	79	86	165	2		39	
November	6440	3638	4258	14336	12057	112	153	79	4		30	
December	4637	2764	4101	11502	34559	68	171	239	4		17	
TOTAL	99526	44893	58409	202828	130801	1448	2084	3346	73	0	254	

2013	Hwy 59	Lacombe	Slidell	Total Trace	Kids Kon.	Ranger's Total Zip Codes	Out of Parish	Out of State	Out of Country
January	5014	4352	2731	12,097	7909	160	90	67	3
February	6128	3842	1223	11,193	8882	172	94	74	4
March	6864	6564	3485	16,913	15,798	348	169	158	21
April	7325	6131	3494	16,950	10,576	395	213	171	11
May	5140	7223	4110	16,473	9033	310	150	138	22
June	8108	7507	3566	19,181	5194	349	307	36	6
July	7523	7477	4066	19,066	6041	312	165	139	8
August	7154	6205	4323	17,682	5162	281	156	122	3
September	6919	6129	4032	17,080	5870	385	235	144	6
October	6411	6791	4658	17,860	9798	518	319	193	6
November	5509	4632	3338	13,479	10,977	631	426	197	8
December	3577	3215	1802	8,594	17826	216	121	91	4
Totals	75672	70068	40828	186,568	113,066	4077	2445	1530	102

2014	Hwy 59	Lacombe	Slidell	Total Trace	Kids Kon.	Events	Z.Code Total of people	Out of Parish	Out of State	Out of Country
January	4316	3947	2590	10,853	6249		320	113	178	29
February	4955	3922	2513	11,390	8315		324	160	158	6
March	6603	6625	4006	17,234	14,165		723	347	367	9
April	8212	5881	4059	18,152	15,158		672	353	293	26
May	8383	6407	4151	18,941	10,021		550	316	225	9
June	7393	6434	4084	17,911	6,348		283	146	130	7
July	8204	6416	4711	19,331	6610		380	216	149	15
August	6345	8334	3761	18,440	4845		346	218	119	9
September	6163	9539	3461	19,163	6178		232	170	61	1
October	7617	5891	4209	17,717	15,825		516	340	158	18
November	4615	4749	2831	12,195	10,009		313	210	101	2
December	3778	3522	2433	9733	17,553		131	48	78	5
Totals	76584	71667	42809	191060	121276	0	4790	2637	2017	136

Appendix C: Real Estate Telephone Survey Example Questionnaire

Realtor Questions:

- 1) Do values for properties adjacent or within a ½ mile of the Trace differ from the values of the same size and value that are farther away from the Trace?
 - a. Trace properties have a significant higher value
 - b. Trace properties have somewhat higher value
 - c. Both values are around the same
 - d. Trace properties have somewhat lower value
 - e. Trace properties have significant lower value
 - f. Not sure

- 2) What types of buyers are more interested in buying a home close to the Trace?
 - a. Millennials: early 20s to mid 30s
 - b. Gen X: mid 30s to mid 50s
 - c. Baby Boomers: mid 50s to 70
 - d. Retirees

*WATERBURY
MILLENIA*

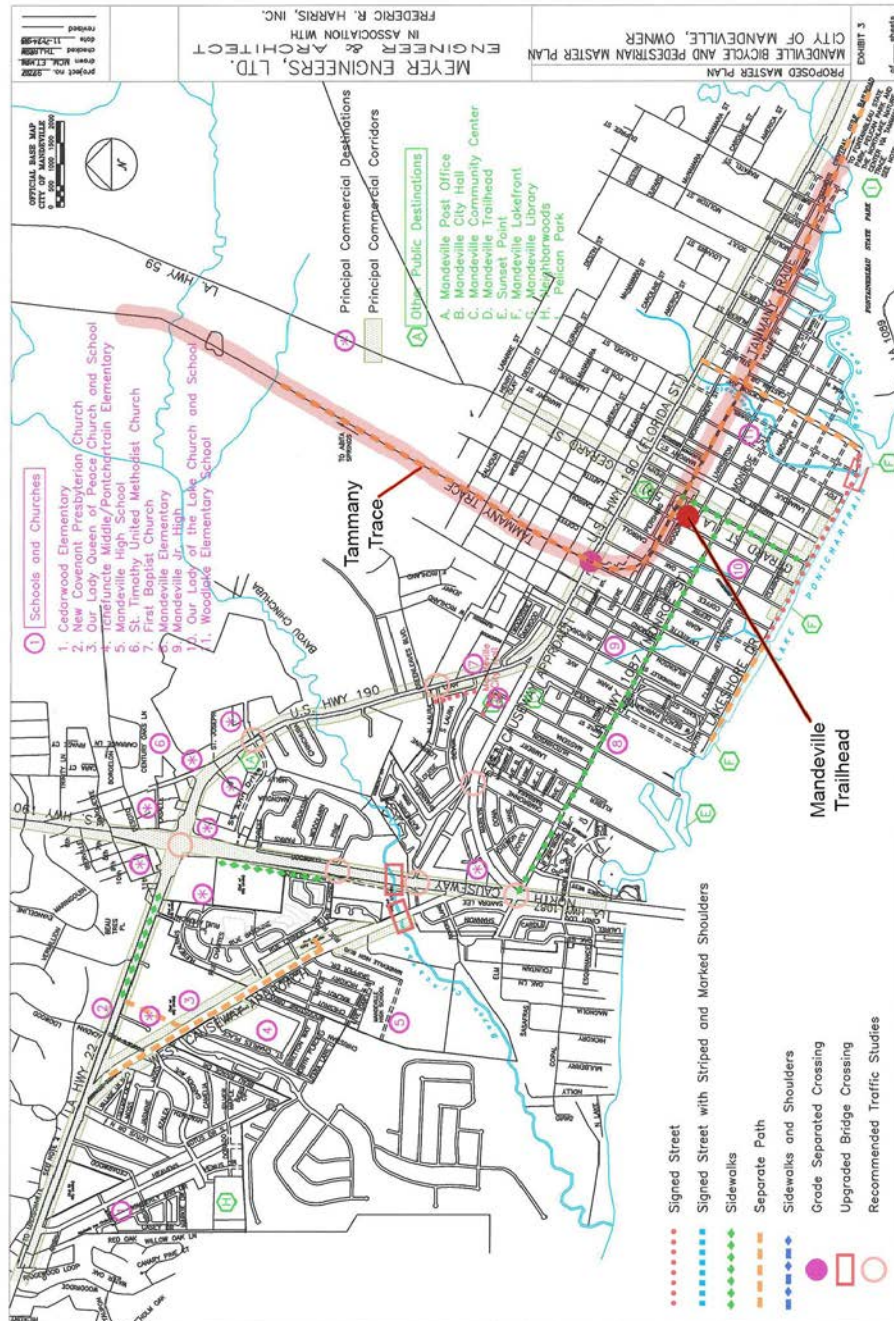
- 3) Over all, would you say that properties located within a half mile of the Trace are more marketable than those that are not?
 - a. Significantly more marketable
 - b. Slightly more marketable
 - c. Same
 - d. Slightly less marketable
 - e. Significantly less marketable

- 4) Do you see a future trend for home buyers that want to be close to the Trace?
 - a. Yes
 - b. No

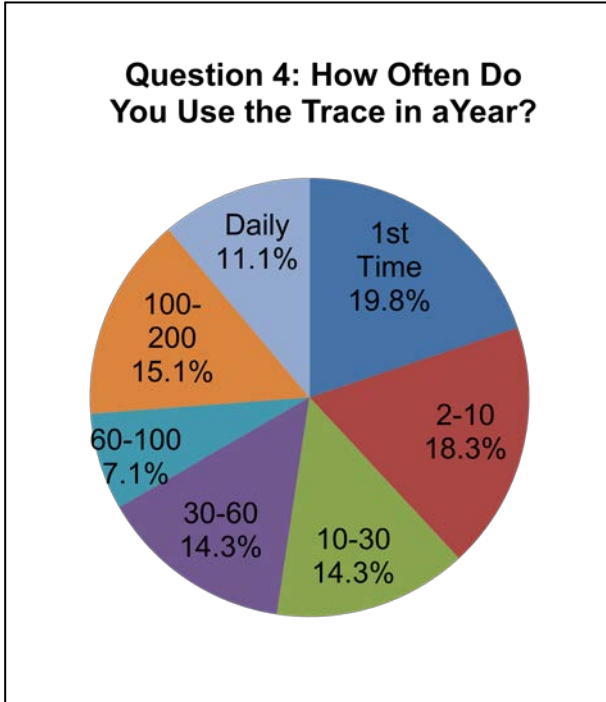
- 5) What qualities do home buyers see when they want to be the next to the Trace
 - a. Quality of life
 - b. Recreation amenity
 - c. Safe place to take kids for exercise and outdoors
 - d. Civic qualities (meeting neighbors)
 - e. Commuting
 - f. Connections to restaurants/beer pubs

Appendix D: Excerpt from 2007 City of Mandeville Bicycle and Pedestrian Plan

Retrieved from: <http://www.cityofmandeville.com/Images/Interior/departments/bicycleplan.pdf>



Appendix E: Breakdown of Average # of Trips Calculation Process



Breakdown of 120 respondents to Question #4 to get an average # of trips per year:

- a. 1st Time- 19.8 % = 18 users
- b. 2-10 Times- 18.3% = 21 users
- c. 10-30- 14.3% = 18 users
- d. 30-60- 14.3% = 21 users
- e. 60-100- 7.1% = 9 users
- f. 100-200- 15.1% = 19 users
- g. Daily- 11.1% = 14 users

Total Trips by each category

- a. 1st Time- 1 X 18(users) =18
- b. 2-10 Times- (5 is avg) 5 x 21(users) =105
- c. 10-30- (20 is avg) 20 x 18 =360
- d. 30-60- (45 is avg) 21 x 45 =945
- e. 60-100- (80 is avg) 9 x 80 =720
- f. 100-200- (150 is avg) 19 x 150 =2850
- g. Daily- 14 x 360 =5040
- Total-----=10,038**

	<u>% of the 120 users</u>	<u>X Total Trips</u>
a. 1 st time =18 users / 120	= .15	X 18 =2.7
b. 2-10 = 21 users / 120	= .18	X 105 =18.9
c. 10-30 = 18 users / 120	= .15	X 360 =54
d. 30-60 = 21 users / 120	= .18	X 945 =170.1
e. 60-100 = 9 users / 120	= .08	X 720 =57.6
f. 100-200 = 19 users / 120	= .16	X 2845 =455.2
g. Daily = 14 users / 120	= .12 x	X 5040 =604.8
		Total= 1,363

10,038 / 1,363
=7.36 avg. # of trips per year

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