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Active Transportation Measurement and Benchmarking Development: New Orleans Pedestrian and Bicycle Count Report, 2010-2011

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Gulf Coast Research Center for Evacuation and Transportation Resiliency

The LSU / UNO University Transportation Center

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New Orleans Pedestrian and Bicycle Count Report, 2010-2011

January 2012

Final Report

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ACTIVE TRANSPORTATION MEASUREMENT AND BENCHMARKING DEVELOPMENT: NEW ORLEANS PEDESTRIAN AND BICYCLE COUNT REPORT 2010-2011

Final Report 11-05 (Part 2)

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16. Abstract

Over the last decade, there has been a surge in bicycle and pedestrian use in communities that have invested in active transportation infrastructure and programming. While these increases show potentially promising trends, many of the cities that have shown the highest growth are geographically concentrated in the northern tier of the country. Communities in the South have tended to lag behind the northern and western cities in terms of active transportation use.

The Active Transportation Measurement and Benchmarking Development: New Orleans Case Study aims to improve the policy making and planning framework by creating a comprehensive set of active transportation indicators on current usage and safety trends in New Orleans. New Orleans is significantly expanding the scope of active transportation facilities, moving from under 5 miles of bicycle facilities before Katrina to over 40 miles in 2010. This project will

The research in this report by the Pedestrian Bicycle Resource Initiative (PBRI) at the University of New Orleans uncovers for the first time the growing demand and use of active transportation in New Orleans. Analysis of bicycle and pedestrian count data shows that New Orleans is emerging as a regional leader in active transportation. In addition to analyzing the trends uncovered through the Census data, this report analyzes primary bicycle and pedestrian count data collected at 17 locations around New Orleans, including data on pedestrian and cyclist behaviors and demographics, as well as seasonal fluctuations in facility use, revealing several key hurdles that must be addressed for New Orleans to become a recognized national leader in active transportation.

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Executive Summary

Active transportation (walking and bicycling) is emerging as an important component of a truly multimodal transportation system. With nearly 50% of all trips being less than 3 miles in length (FHWA, 2006), walking and bicycling can provide convenient, low cost, sustainable transportation choices for neighborhoods across the country.

Over the last decade, there has been a surge in bicycle and pedestrian use in communities that have invested in active transportation infrastructure and programming. From New York to Chicago to Minneapolis to Portland, recent counts of bicyclists and pedestrians show large increases in active transportation use (NYCDOT, 2010; CDOT, 2009; Bike Walk Twin Cities, 2010; PBOT, 2010). While these increases show potentially promising trends, many of the cities that have shown the highest growth are geographically concentrated in the northern tier of the country. Communities in the South have tended to lag behind the northern and western cities in terms of active transportation use (Pucher & Buehler, 2011).

The research in this report by the Pedestrian Bicycle Resource Initiative (PBRI) at the University of New Orleans uncovers for the first time the growing demand and use of active transportation in New Orleans. Analysis of bicycle and pedestrian count data shows that New Orleans is emerging as a regional leader in active transportation. For U.S. cities with populations over 250,000 New Orleans ranks 6th in the country in terms of bicycle commute mode share at 2.57% and 15th in pedestrian commute mode share at 6.01% (ACS, 2009).

In addition to analyzing the trends uncovered through the Census data, this report analyzes primary bicycle and pedestrian count data collected at 17 locations around New Orleans. Overall, daily bicycle use at count sites in New Orleans is up 20% from 2010. Daily pedestrian use at count locations is fairly stable with an increase of less than 1%.

Gateways between the Central Business District (CBD) and Uptown, where considerable investment has been made in new bicycle infrastructure, had the largest increases in bicycle use. These count sites, located along the Pontchartrain Expressway, showed the largest bicycle count increases in 2011 with bicycle traffic up 70% at Simon Bolivar Ave, 66% at Magazine St, 42% at Camp St, 31% at Carondelet St, and 12% at St. Charles Ave. Gentilly Blvd., where bicycle lanes had just been installed before the 2010 count, also showed a large increase with bicycle traffic up 43.7%.

Bicycling also represents a fairly large percentage of all traffic that flows through these CBD gateways. PBRI research staff compared Average Daily Traffic figures for automobiles from the Regional Planning Commission to active transportation count data acquired during this study. The Camp St gateway had an active transportation mode share of 23%. Phrased differently, 23% of all traffic traveling between the CBD and Uptown on Camp St is estimated to be bicyclists and pedestrians. The Magazine St gateway had the next highest active transportation mode share at 12%. This was followed by the St. Charles Ave and Simon Bolivar Ave gateways with active transportation mode shares around 8%.

PBRI researchers also tracked helmet use and bicyclist direction of use on roadways to observe potentially important safety trends. PBRI researchers found that helmet use went up by almost 6 percentage points from 2010 to 16% of all bicyclists in 2011. While this is a promising trend, the percentage of bicyclists using helmets is still far below national leaders like Portland and Minneapolis which have helmet shares of 77% and 64% respectively (PBOT, 2010; Bike Walk Twin Cities, 2010). In addition to helmet use, the direction of travel by bicyclists is also important. As active transportation emerges, bicyclists generally begin to travel in the same direction as auto traffic. PBRI found that the percentage of bicyclists traveling against traffic went down 2.5% from 2010. However, the percentage of bicyclists traveling with traffic also went down 1% to 74% while bicyclists traveling on the sidewalk went up 3.5%.

PBRI researchers also tracked active transportation use by season. Active transportation in New Orleans varies significantly by season with the highest volumes occurring from March to May (springtime and festival season) and lowest volumes occurring in the extreme summer and winter months. This analysis also shows that the highest volumes were observed during periods with average temperatures ranging from 70 to 80 degrees Fahrenheit. Despite the lower overall number of bicyclist and pedestrian users in the summer, New Orleanians continue to use active transportation during the hot summer months. Use of the Jefferson Davis Trail dips by nearly 50% from approximately 714 average daily users in May, the highest count month, to 353 average daily users in August, the lowest.

Despite the emergence of New Orleans as regional leader, analysis of the count data also reveal that New Orleans must address several key hurdles to become a recognized national leader in active transportation. While the active transportation mode shares in New Orleans place the city in the top tier of national cities, the count data show that New Orleans has not yet reached critical mass in comparative terms for creating high volume bicycle destinations. The highest observed volumes were at Camp St near the Pontchartrain Expressway but this site is less than a quarter of volumes at the highest volumes observed in San Francisco, Minneapolis, and Tucson (SFTMA, 2010; Minneapolis Public Works Department, 2010; PAG, 2010). Comparison is difficult though because site selection methodologies vary from place to place and PBRI had a relatively small sample size.

In addition, New Orleans has a relatively low percentage of female bicyclists, a key indicator of widespread acceptance of cycling. PBRI observed females accounting for 28% of all bicyclists in 2011. This percentage, while low, is similar to findings from manual counts in Minneapolis and Portland, which have female percentages of 28% and 31% respectively (Bike Walk Twin Cities, 2010; PBOT, 2010).

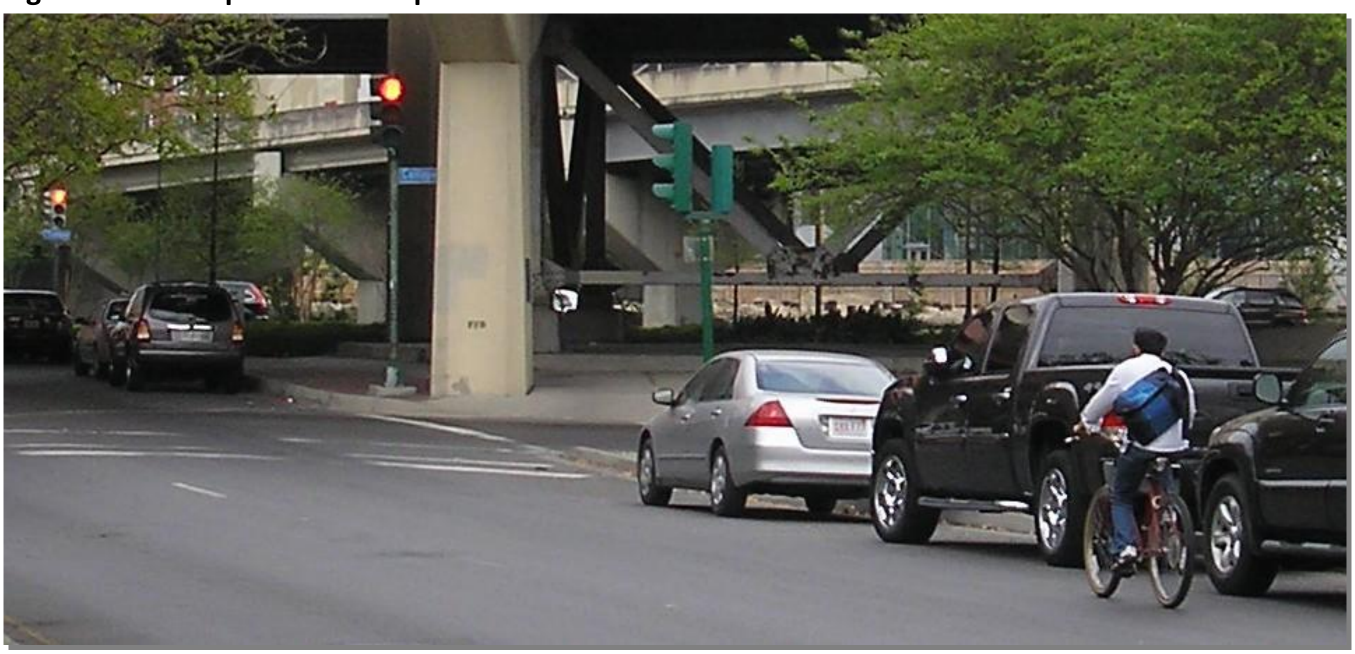
1.0 Introduction

In 2010 and 2011, the Pedestrian and Bicycle Resource Initiative (PBRI) at the University of New Orleans conducted a series of bicycle and pedestrian counts at 17 sites around the New Orleans area. The purpose of the counts is to track changes in active transportation use in the community showing the impact of recent investments in active transportation infrastructure. Examples of those investments can be seen in the growing presence of designated bicycle lanes, sharrows (shared lanes), public bicycle parking, and sidewalk improvements. The data and trends presented in this report are meant to provide key benchmarks as to the progress in achieving higher rates of active transportation use.

This report presents findings from 15 manual and 2 electronic count locations in the New Orleans metropolitan region. The majority of the manual count sites (13) are located in Orleans Parish. Two locations were counted in Jefferson Parish as well. Student workers from The University of New Orleans were trained in count protocol. Protocol required two student workers to count on opposite sides of the street, creating a "plane of observation" from which to tally bicyclists and pedestrians and note respective qualities like gender, age, helmet use, etc. Each site was observed on two mid-week days (Tuesday, Wednesday, or Thursday), during both the morning (7:00-9:00am) and afternoon (4:00-6:00pm).

PBRI also deployed electronic count devices (Eco-Counters) on the Jefferson Davis Trail and Mississippi River Trail in New Orleans. The Eco-Counters observed users continuously from June 2010 to May 2011. This report provides an analysis of the first year of this continuous stream of data. Temporal patterns and variability are analyzed to determine patterns of use.

Figure 1.0.1 Camp St and Calliope St



2.0 Site Selection

New Orleans has been rapidly expanding its bicycle infrastructure since 2005. This expansion provides the opportunity to monitor the effect of investments in bicycle infrastructure. Sites were selected with this and other factors in mind. Refer to the Appendix I for a site by site breakdown of manual site characteristics.

2.1 Orleans Parish Bicycle Network, 2005-2011

Many of the manual count sites and both of the electronic count sites are located on or near designated bicycle infrastructure. Furthermore, much of this infrastructure is relatively new. While trails like the Jefferson Davis Trail and Mississippi River Trail were present in 2005, on-road bicycle infrastructure has increased rapidly from 2005-2011. Bicycle facility mileage has grown from under 5 miles in 2005 to over 40 miles today. Figures 2.1.1 - 2.1.5 illustrate how the bicycle network has grown in New Orleans since 2005.

Figure 2.1.1 Orleans Parish Bicycle Network, 2005

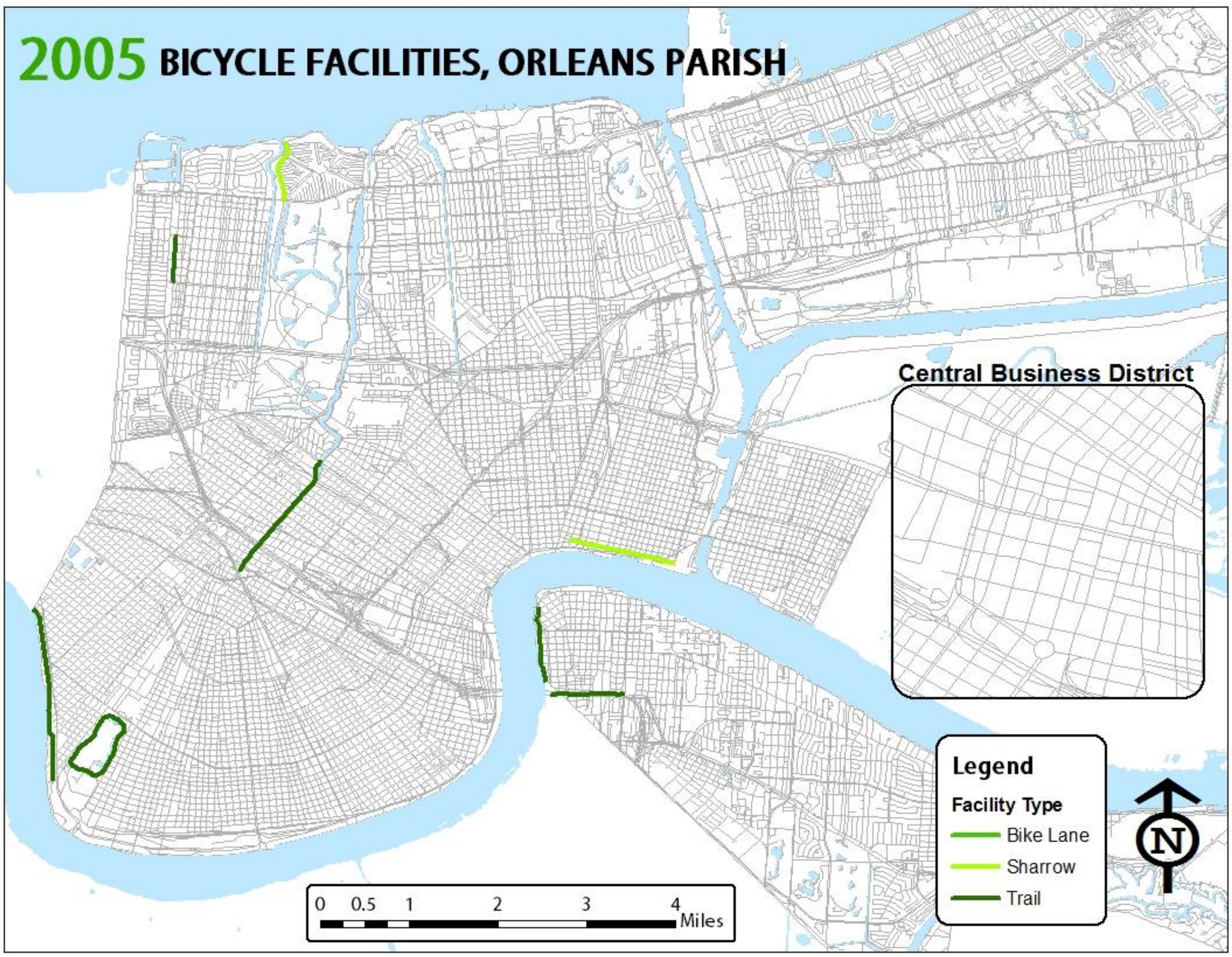


Figure 2.1.2 Orleans Parish Bicycle Network, 2008

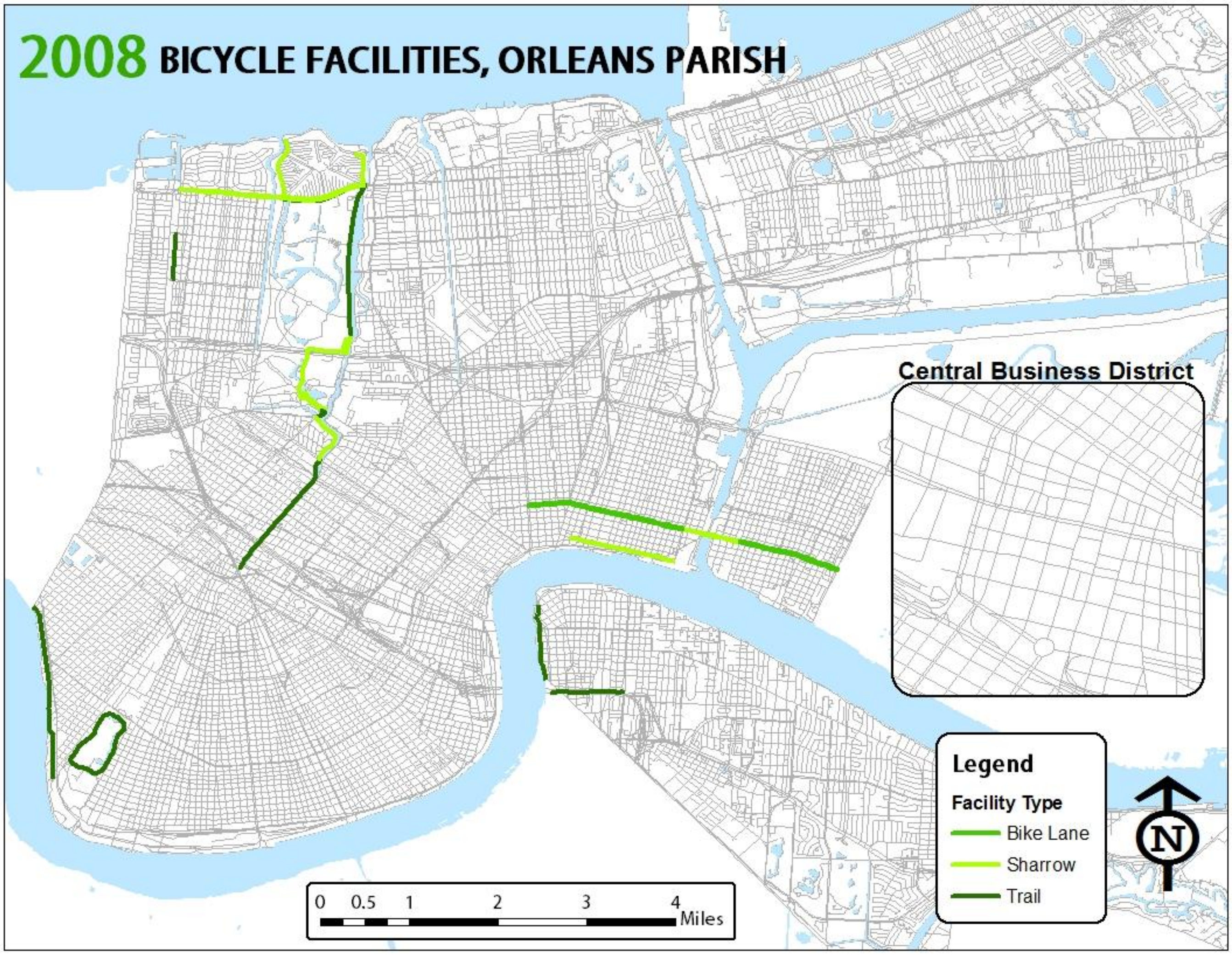


Figure 2.1.3 Orleans Parish Bicycle Network, 2009

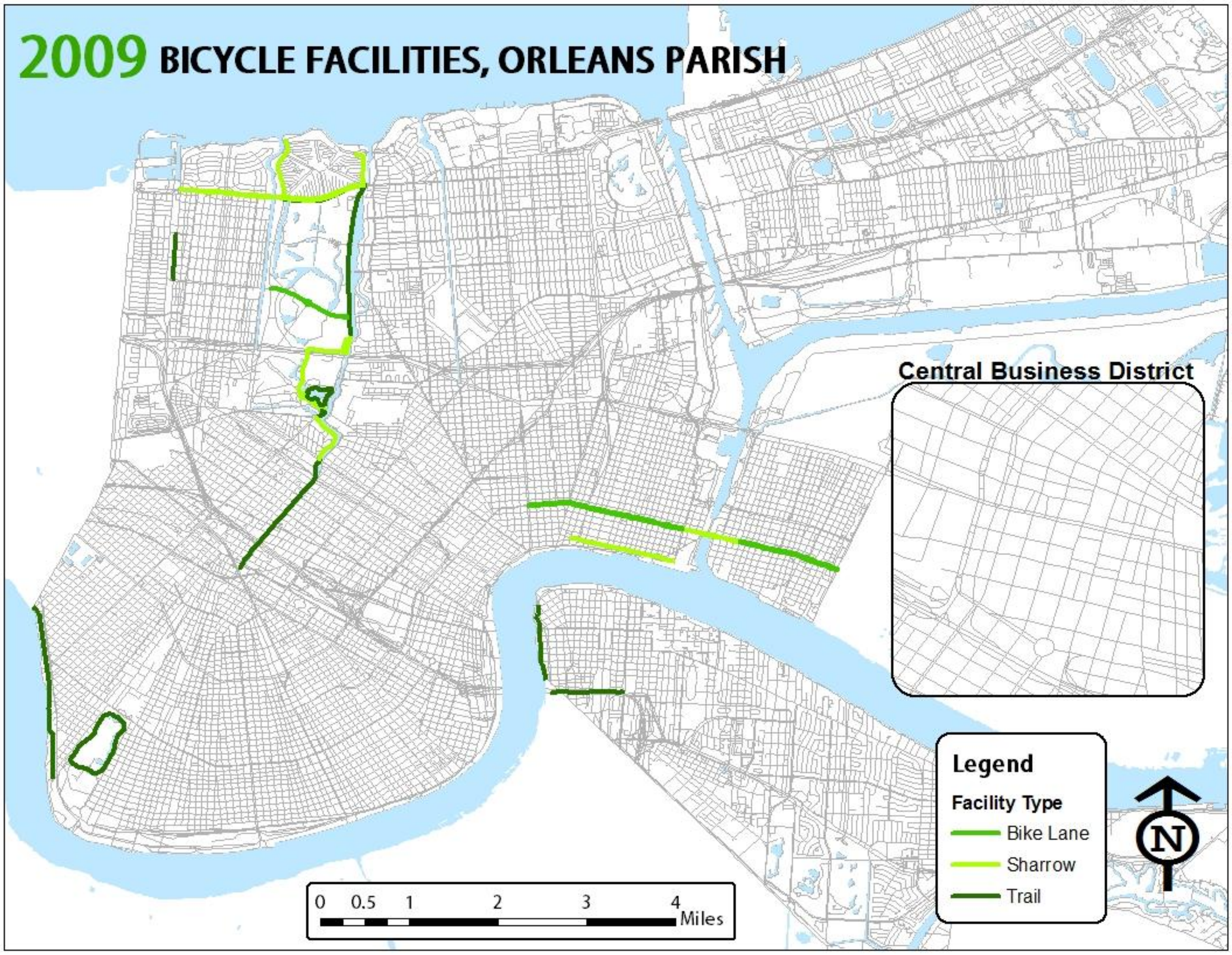


Figure 2.1.4 Orleans Parish Bicycle Network, 2010

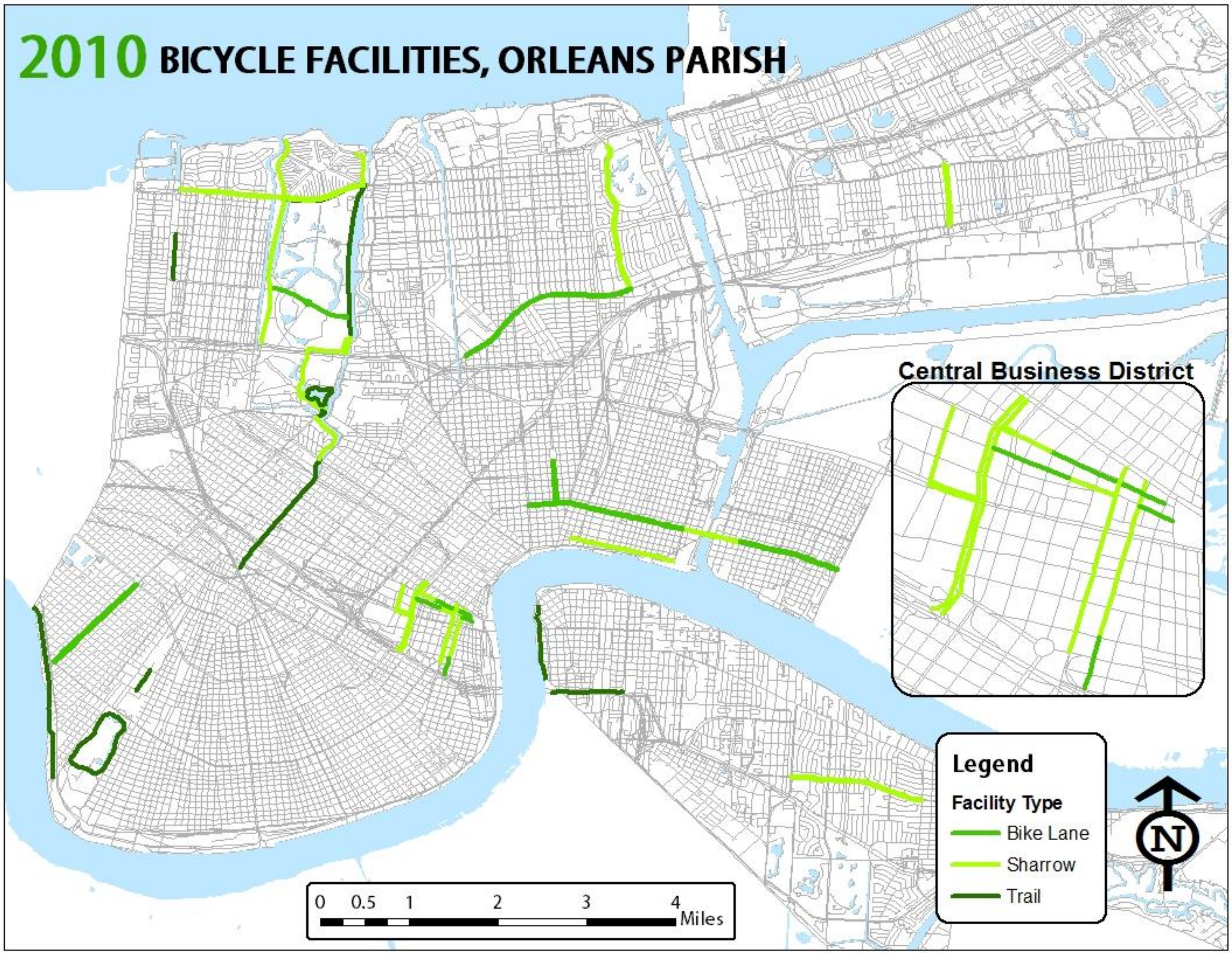
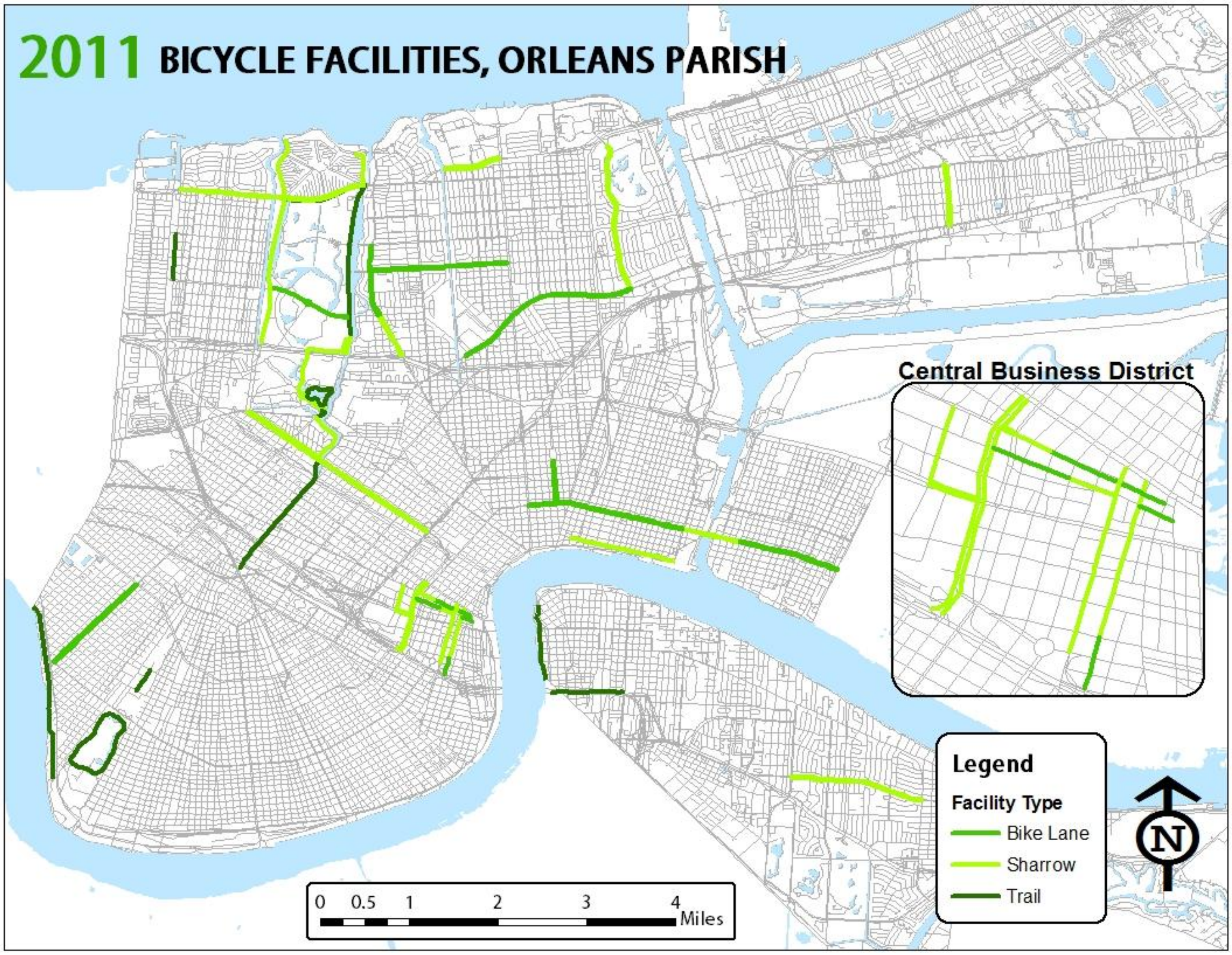


Figure 2.1.5 Orleans Parish Bicycle Network, 2011



2.2 Manual Count Locations

In the spring of 2010, PBRI conducted manual counts at 13 sites throughout the City of New Orleans which were detailed in the *2010 State of Active Transportation*. In April and May of 2011 PBRI conducted counts at these locations again, as well as at two new sites in Jefferson Parish, LA. Both of these Jefferson Parish sites are being considered for bicycle improvements. Their inclusion also helps to provide more regional context. Both new sites are in Metairie. One is on Metairie Hammond Highway near Carrollton Avenue and the other is on Papworth Avenue near Veterans Boulevard.

Sites were selected for a variety of reasons, including:

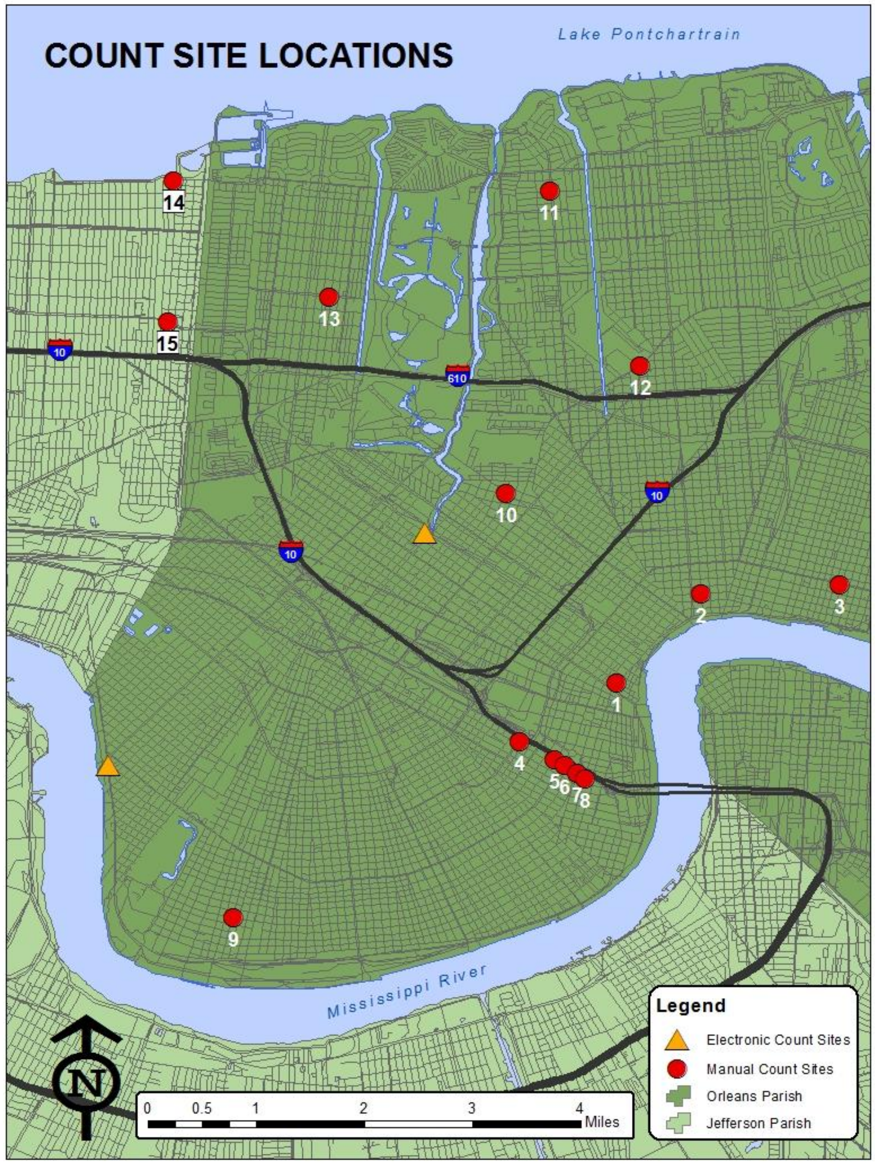
- Proximity to future bicycle infrastructure, sidewalk improvements or other infrastructure improvements
- Use as a gateway between the Central Business District (CBD) and Uptown
- Representative of specific neighborhood

Table 2.2.1 below lists the sites observed in 2011 and Figure 2.2.1 maps these locations.

Table 2.2.1 2011 Count Site Locations

#	Site	Boundary Streets
1	Decatur Street	Iberville St & Canal St
2	Royal Street	Mandeville St & Marigny St
3	St. Claude Avenue	Pauline St & Independence St
4	Simon Bolivar Avenue (Gateway)	Clio St & Calliope St
5	Carondelet Street (Gateway)	Clio St & Calliope St
6	St. Charles Avenue (Gateway)	Clio St & Calliope St
7	Camp Street (Gateway)	Clio St & Calliope St
8	Magazine Street (Gateway)	Erato St & Calliope St
9	Magazine Street (Uptown)	Arabella St & Joseph St
10	Esplanade Avenue	N White St & N Dupre St
11	Paris Avenue & Burbank Drive	Intersection
12	Gentilly Boulevard	St. Denis St & Milton St
13	Harrison Avenue	Gen. Diaz & Harrison Ct
14	Metairie Hammond Highway	Carrollton Ave & Seminole Ave
15	Papworth Avenue	Veterans Blvd & Raspberry St

Figure 2.2.1 Count Site Distribution Map



2.3 Electronic Count Locations

PBRI selected two off-street, multi-use trails on which to place electronic count devices (Eco-Counters). The locations selected are on the Jefferson Davis Trail in Mid-City and on the Mississippi River Trail in Uptown. These locations can be seen in Figure 2.2.1 above. The electronic counters continuously monitored trail users for a full year from June 2010 to May 2011.

Jefferson Davis Trail

The site on the Jefferson Davis Trail is located on the wide neutral ground (median) of Jefferson Davis Parkway in the Mid-City neighborhood. This site is notable for several reasons: its connectivity in linking multiple neighborhoods for commuting, proximity to recreational facilities, and future intersection with the proposed Lafitte Greenway. The approximately 1.5 mile facility serves as an important and rare active transportation connection between neighborhoods which otherwise are physically separated by Interstate 10. In addition to housing playground equipment and neighborhood open space, this site is also located near the recreational amenities of Bayou St. John, City Park, and the Fairgrounds/Race Track.

Figure 2.3.2 Jefferson Davis Trail Eco-Counter

Mississippi River Trail

The site on the Mississippi River Trail is located in the Riverbend area of Uptown and follows the ridge of the Mississippi River levee. This trail is part of the larger Mississippi River Trail network which stretches some 3,000 miles from the river's delta in coastal Louisiana to its headwaters in Minnesota. While the trail forms an important connection along the Mississippi River, there are few clear, safe connections along the corridor to adjacent neighborhood and businesses. This present limitation makes the trail more recreational in character than the Jefferson Davis Trail.

Figure 2.3.3 Mississippi River Trail Eco-Counter

3.0 Count/Observation Methodologies

This section explains the methodologies utilized by PBRI in performing manual and electronic counts and attempts to qualify their accuracy and effectiveness.

3.1 Manual Counts

In order to conduct the manual counts, PBRI recruited student workers from The University of New Orleans. Workers were trained by the Tulane School of Public Health on observation protocol and required to satisfactorily perform a practice count to gain certification. Tulane Protocol can be found in Appendix I. PBRI methodology follows the methodology of this protocol, with a few exceptions.

All counts were mid-block screenline counts with the exception of the Paris and Burbank site which was an intersection count. Volume was anticipated to be low at this intersection so one observer was assigned Paris Avenue and the other Burbank Drive.

Aside from the Paris and Burbank site, all counters sat in view of each other on opposite sides of the street, creating a visual "plane of observation" for users to cross and be counted. If there was a neutral ground (median), each counter counted their side of the street and their sidewalk while one counter was designated to count bicycles and pedestrians using the neutral ground. If there was no neutral ground, both counters were responsible for the entire street and both sidewalks and their counts were averaged together.

Counters tallied pedestrians and bicyclists and noted their respective gender, race, and general age group (adult vs. child). Counters also distinguished bicyclists and pedestrians by their travel orientation, i.e. whether they were observed in the street, sidewalk, or neutral ground. For bicyclists, counters also noted helmet usage and right-way vs. wrong-way use. Wrong way use was defined as on-street bicyclists traveling in the opposite direction of traffic.

Counts were performed on two days for each site, either on a Tuesday, Wednesday, or Thursday. Each day included counts from 7:00-9:00 AM and from 4:00-6:00 PM. These time periods and days of the week are based on recommendations by the National Bicycle and Pedestrian Documentation (NBPD) Project (Alta Planning and Design, 2011).

3.2 Electronic Counts

As mentioned in 2.0 Site Selection, each electronic count site was equipped with an automated count device that continuously recorded active transportation traffic. These devices, Eco-Counters, were installed in late May 2010 and operated virtually uninterrupted for one full year. The data collected over the year shows temporal patterns of use for the region.

Figure 3.2.1 Eco-Counter box at Mississippi River Trail

The Eco-Counters use passive infrared sensor technology to record all users. Two directional sensors (IN and OUT) count all users within a distance of 4 meters (approximately 13 feet) and record that information in a data box from which it may be retrieved via infrared or Bluetooth technology. Two key limitations to the Eco-Counters are important to note: its inability to distinguish between types of users (bicyclists vs. pedestrians) and potential undercounting due to parallel movement of users (Greene-Roesel, Diogenes, Ragland & Lindau 2007).

In order to address these issues and the possibility of other observational error, PBRI staff calibrated the machines upon installation. However, in March of 2011, PBRI became aware of large disparities between recorded volumes for the IN (downriver) and OUT (upriver) directions at the Mississippi River Trail location. Soon after, a series of manual counts were conducted adjacent to the Eco-Counter which confirmed that it was not accurately detecting direction, impacting count measurement. For detailed results of these accuracy tests refer to Appendix I.

After the first manual count check was performed on the Mississippi River Trail on March 22nd, 2011 and the large discrepancy in recorded and actual IN and OUT volumes by the Eco-Counter was discovered, calibration measures were taken to improve its accuracy. This involved adjusting the counter height to account for the steep slope of the levee. The capture rate changed after this adjustment. Instead of a slight overcount, the Eco-Counter began to undercount, which it has been systematically shown to do because of the parallel movement of users and its difficulty in counting groups (Greene-Roesel, Diogenes, Ragland & Lindau 2007). Still, the directional inaccuracy persisted.

After analyzing the data and consulting *Eco-Counter* for technical support, it became apparent that the directional inaccuracy and overall accuracy were caused by the same problem. The Eco-Counter at the Mississippi River Trail is placed on top of a levee and is directly exposed to sunlight. This sunlight causes the ambient temperature around the Eco-Counter to rise which causes the hardware to malfunction. There was a strong correlation between the IN/OUT (directional) ratio and average temperature. These graphs can be seen in Appendix I.

Despite the overall accuracy problems, the Mississippi River Trail data still provides a good estimate of trail use on the facility. Numbers presented in this report reflect the best efforts of researchers to accurately reflect actual conditions.

4.0 Manual Count Estimation/Extrapolation Methodology

This section details the methods used to estimate daily, monthly, and yearly volumes of pedestrians and bicyclists at the observed manual count sites. Estimations were not necessary for the electronic count sites because their automated nature provides a continuous stream of data. The estimations in this report are essentially extrapolations based upon the manual counts performed by PBRI and on temporal patterns of use as suggested by the NBPD Project.

4.1 Manual Count Extrapolations

The methodology for extrapolating manual counts to daily, monthly, and annual estimates is based on the methods provided by the National Bicycle and Pedestrian Documentation (NBPD) Project. NBPD methodology classifies count sites as either Multi-use Paths or Pedestrian Districts. Manual Counts are therefore classified as Pedestrian Districts, defined by the NBPD Project as "higher density pedestrian areas with some entertainment uses such as restaurants."

The methodology for extrapolating manual count site figures is exactly the same as used in the *2010 State of Active Transportation Report*. That methodology is generally outlined below:

- All count observation periods for a single site are separated into A.M. and P.M. counts. Bicycle and pedestrian counts from both days observed are then averaged together for a combined user average for each time period.

- These averages are used to derive a daily and weekly extrapolation for each time period based on time of the day and day of the week counts were observed.

- Weekly extrapolations for A.M. and P.M. counts are then averaged together for each location in order to form the weekly estimate.

- This weekly estimate is multiplied by 4.33 to get the estimated monthly users. The annual estimate is then extrapolated by multiplying this monthly estimated by the monthly adjustment factor provided by the NBPD methodology.

- Estimated Daily Traffic (EDT) for manual count sites is figured by dividing the annual estimate by 365. To disaggregate bicycle and pedestrian estimates at any point, the estimate is simply multiplied by the respective ratio (bicycle vs. pedestrian) observed at the count site.

For more detailed information regarding the methodology refer to Appendix II. There is a methodology summary as well as the *NBPD Adjustment Factors* document from which the methodology is derived.

4.2 Impact of Patterns of Use

It should be noted that the extrapolation methodology provided by the NBPD Project is based on patterns of use by climate region. These patterns of use influence how much weight any given count will have depending on: the hour of the day, day of the week, and month of the year. NBPD Project methodology provides three climates to choose from, effectively placing New Orleans into the "Very hot summer, Mild winter" category. While this climate category is the most appropriate selection available, observed trends of use from the continuous electronic counts did not precisely fit this national formula.

Appendix II provides tables comparing the NBPD Project patterns of use with the patterns of use observed by the Eco-Counters at the Jefferson Davis Trail and Mississippi River Trail. These comparisons show that patterns of use in New Orleans differ from all of the provided climates. Further research is necessary to better understand local patterns of use.

5.0 Manual Count Data

This section utilizes the manual count data collected in both 2010 and 2011 to present Estimated Daily Traffic (EDT) figures and to discuss mode share, commuting patterns, and compositional statistics for bicyclists and pedestrians (gender, helmet use, and travel orientation).

Detailed count data can be found in Appendix IV.

5.1 Estimated Daily Traffic for Manual Count Sites, 2010-2011

In order to give context to the numbers and allow for comparison between sites, count volumes observed by PBRI counters were extrapolated to Estimated Daily Traffic (EDT) figures. This methodology was outlined in section 5.0 and is further elaborated in Appendix II.

Overview

Overall, bicycling and walking are increasing at the sites observed in New Orleans. Combined EDT figures show an overall increase of approximately 20% for bicyclists and less than 1% for pedestrians from 2010 to 2011. This excludes the two Jefferson Parish sites because they were only observed in 2011. The discrepancy in growth between bicyclists and pedestrians is rather large and could be interpreted as a result of the sizable and rather rapid investment in bicycle infrastructure in New Orleans between 2010 and 2011. While investment in pedestrian infrastructure was also significant during this time span, notably through sidewalk re-pavement and installation of ADA ramps at sidewalk crossings, bicycle improvements appear to have more of an immediate impact.

The sites where bicyclists increased the most were mostly those that serve as gateways between the CBD and Uptown. The Gentilly Blvd site, which had bicycle lanes installed in the spring of 2010 just before PBRI observed that location, also had a large increase. Only three sites had lower numbers for bicyclists in 2011 than in 2010.

The sites where pedestrians increased the most also include some of the sites that serve as gateways between the CBD and Uptown (Magazine St and Carondelet St) as well as the Paris and Burbank and Decatur St sites. Five sites saw lower numbers for pedestrians with the larger decreases being observed at most four-lane, divided facilities with new bicycle infrastructure. The Magazine St (Uptown) site also had a sizable decrease in 2011 which was likely the result of precipitation and strong wind during the 2011 observation periods and construction which blocked the sidewalk on one side of the street. Change over time for pedestrians appears to be more variable than it is for bicyclists.

2010 Estimated Daily Traffic, Ranked

The top sites for bicyclists in 2010 were located in or near the Central Business District (CBD). The lowest EDT sites tended be located in the newer, more suburban neighborhoods of Gentilly and Lakeview. Also, the Magazine St (Uptown) site had a relatively low EDT figure for bicyclists.

The top sites for pedestrians in 2010 were more dispersed. They included a few sites in or near the CBD (Decatur St; Simon Bolivar Ave; and St. Charles Ave) but also included the Magazine St (Uptown) and St. Claude Ave sites. The lowest sites for pedestrians were similar to those of bicyclists, mostly those sites located in Gentilly and Lakeview. However, two CBD gateway sites, Carondelet St and Magazine St, were also in the bottom five.

Table 5.1.1 2010 Bicycle EDT, Ranked

2010 Bicycle Estimated Daily Traffic	
Royal St	1,056
St. Charles Ave (Gateway)	665
Camp St (Gateway)**	598
Decatur St	490
Magazine St (Gateway)**	471
St. Claude Ave***	437
Simon Bolivar Ave (Gateway)**	332
Esplanade Ave	330
Carondelet St (Gateway)	322
Gentilly Blvd*	151
Magazine St (Uptown)	121
Harrison Ave***	71
Paris and Burbank	49
*Bicycle facilities installed on observed segment of facility	
**Bicycle facilities installed on connecting segment of facility	
***Bicycle facilities already present in 2010, either on observed segment or on connecting segment	

Figure 5.1.1 Relative Bicycle EDT, 2010

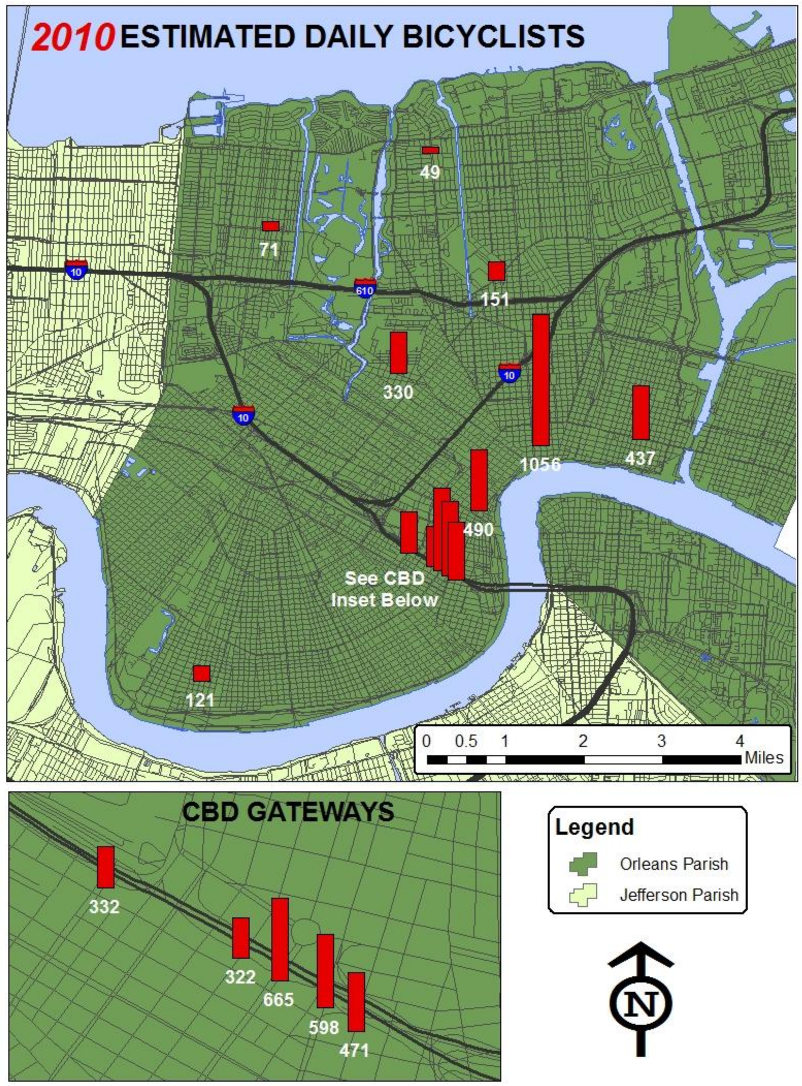
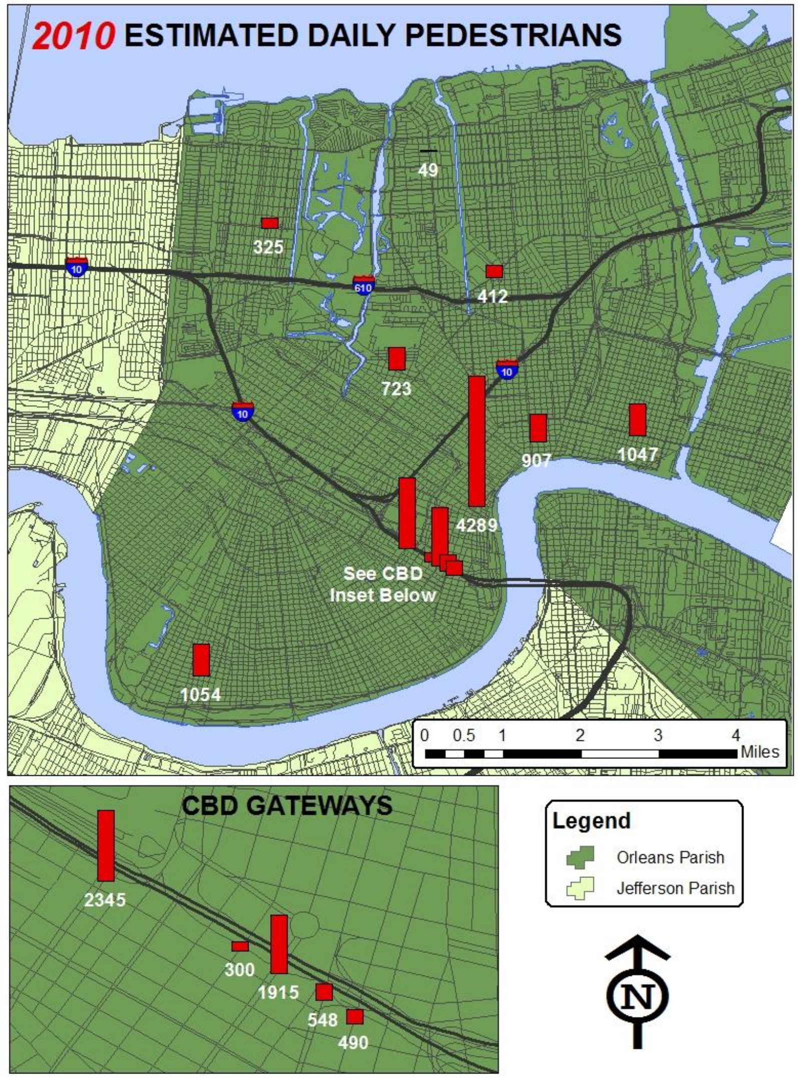


Table 5.1.2 2010 Pedestrian EDT, Ranked

2010 Pedestrian Estimated Daily Traffic	
Decatur St	4,289
Simon Bolivar Ave (Gateway)**	2,345
St. Charles Ave (Gateway)	1,915
Magazine St (Uptown)	1,054
St. Claude Ave***	1,047
Royal St	907
Esplanade Ave	723
Camp St (Gateway)**	548
Magazine St (Gateway)**	490
Gentilly Blvd*	412
Harrison Ave***	325
Carondelet St (Gateway)	300
Paris and Burbank	49
*Bicycle facilities installed on observed segment of facility	
**Bicycle facilities installed on connecting segment of facility	
***Bicycle facilities already present in 2010, either on observed segment or on connecting segment	

Figure 5.1.2 Relative Pedestrian EDT, 2010



2011 Estimated Daily Traffic, Ranked

The top sites for bicyclists in 2011 were located in or near the Central Business District (CBD). Furthermore, the sites serving as gateways between the CBD and Uptown account for five of the seven highest bicycle counts in 2011. The lowest sites tended to be located in the newer, more suburban locations in Gentilly, Lakeview, and Metairie. Also, as in 2010, Magazine St (Uptown) had a relatively low bicycle EDT figure.

The top 2011 sites for pedestrians were geographically dispersed, as in 2010. The highest counts were in or near the CBD but also included the Esplanade Ave and Magazine St (Uptown) sites. The lowest sites for pedestrians were similar to those of bicyclists, mostly those sites located in Gentilly, Lakeview, and Metairie. Carondelet St also had a relatively low number of pedestrians.

Table 5.1.3 2011 Bicycle EDT, Ranked

2011 Bicycle Estimated Daily Traffic	
Royal St	901
Camp St (Gateway)**	850
Magazine St (Gateway)**	783
St. Charles Ave (Gateway)	748
Decatur St	586
Simon Bolivar Ave (Gateway)**	565
Carondelet St (Gateway)	423
St. Claude Ave***	395
Esplanade Ave	332
Gentilly Blvd*	217
Magazine St (Uptown)	163
Harrison Ave***	87
Metairie Hammond Hwy	41
Paris and Burbank	38
Papworth Ave	19
*Bicycle facilities installed on observed segment of facility	
**Bicycle facilities installed on connecting segment of facility	
***Bicycle facilities already present in 2010, either on observed segment or on connecting segment	

Figure 5.1.3 Relative Bicycle EDT, 2011

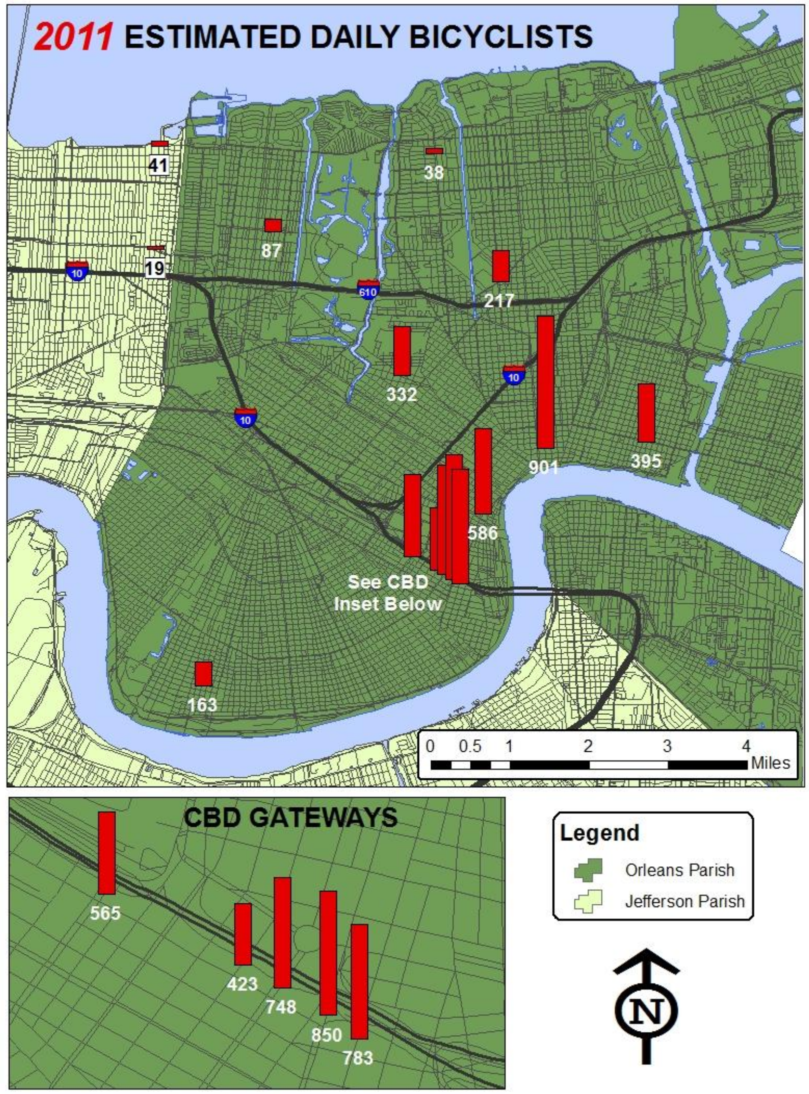
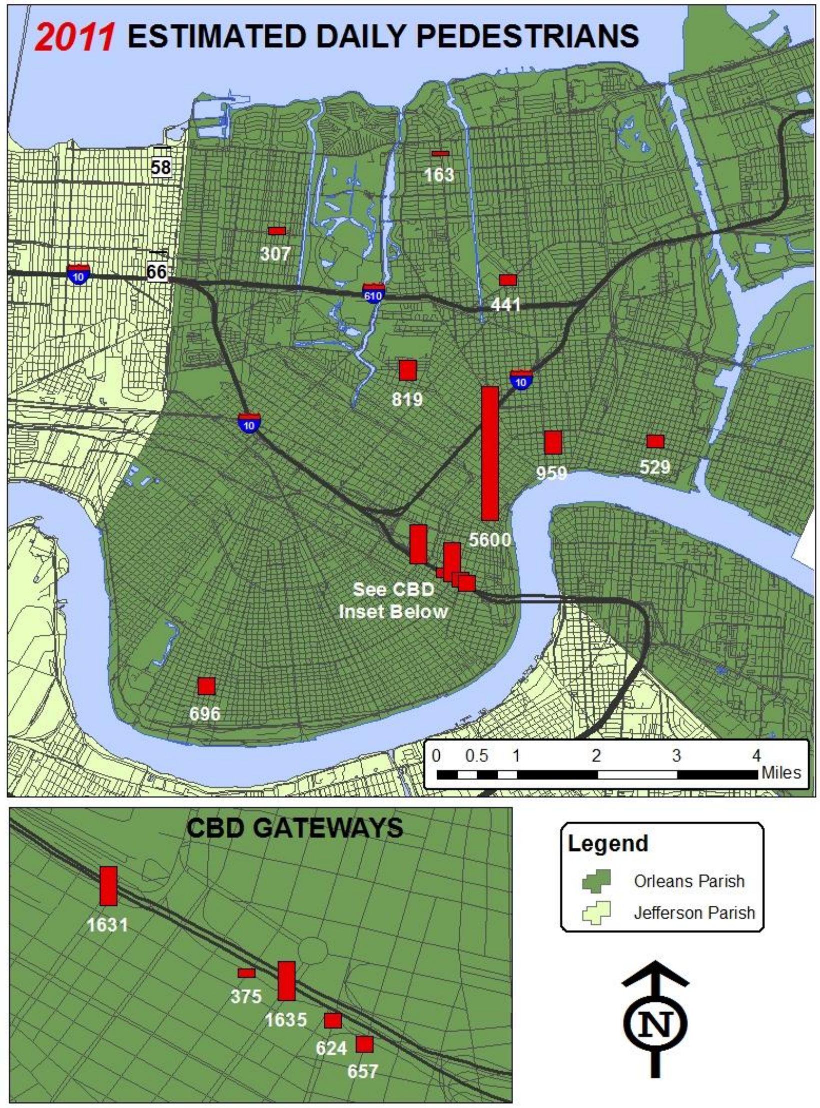


Table 5.1.4 2011 Pedestrian EDT, Ranked

2011 Pedestrian Estimated Daily Traffic	
Decatur St	5,600
St. Charles Ave (Gateway)	1,635
Simon Bolivar Ave (Gateway)**	1,631
Royal St	959
Esplanade Ave	819
Magazine St (Uptown)	696
Magazine St (Gateway)**	657
Camp St (Gateway)**	624
St. Claude Ave***	529
Gentilly Blvd*	441
Carondelet St (Gateway)	375
Harrison Ave***	307
Paris and Burbank	163
Papworth Ave	66
Metairie Hammond Hwy	58
*Bicycle facilities installed on observed segment of facility	
**Bicycle facilities installed on connecting segment of facility	
***Bicycle facilities already present in 2010, either on observed segment or on connecting segment	

Figure 5.1.4 Relative Pedestrian EDT, 2011



Change Over Time, 2010-2011

The Estimated Daily Traffic (EDT) for bicyclists increased at all but three sites from 2010-2011. The decreases were at the Royal St, St. Claude Ave, and Paris and Burbank sites. The CBD gateway sites, as well as the Gentilly Blvd and Magazine St (Uptown) sites, experienced some of the highest rates of increase in bicyclist EDT.

The change in Estimated Daily Traffic (EDT) for pedestrians was highly variable from 2010-2011. One-way streets with two-lanes that acted as CBD gateways saw some of the larger increases. Interestingly, the majority of the sites with new bicycle infrastructure saw significant decreases in pedestrian EDT.

Table 5.1.5 Change in Bicycle EDT

Change in Bicycle EDT, 2010-2011		
	#	%
Simon Bolivar Ave (Gateway)**	233	70.2%
Magazine St (Gateway)**	312	66.2%
Gentilly Blvd*	66	43.7%
Camp St (Gateway)**	252	42.1%
Magazine St (Uptown)	42	34.7%
Carondelet St (Gateway)	101	31.4%
Harrison Ave***	16	22.5%
Decatur St	96	19.6%
St. Charles Ave (Gateway)	83	12.5%
Esplanade Ave	2	0.6%
St. Claude Ave***	-42	-9.6%
Royal St	-155	-14.7%
Paris and Burbank	-11	-22.4%
*Bicycle facilities installed on observed segment of facility		
**Bicycle facilities installed on connecting segment of facility		
***Bicycle facilities already present in 2010, either on observed segment or on connecting segment		
The two Jefferson Parish sites were excluded because they were only observed in 2010		

Figure 5.1.5 Change in Bicycle EDT

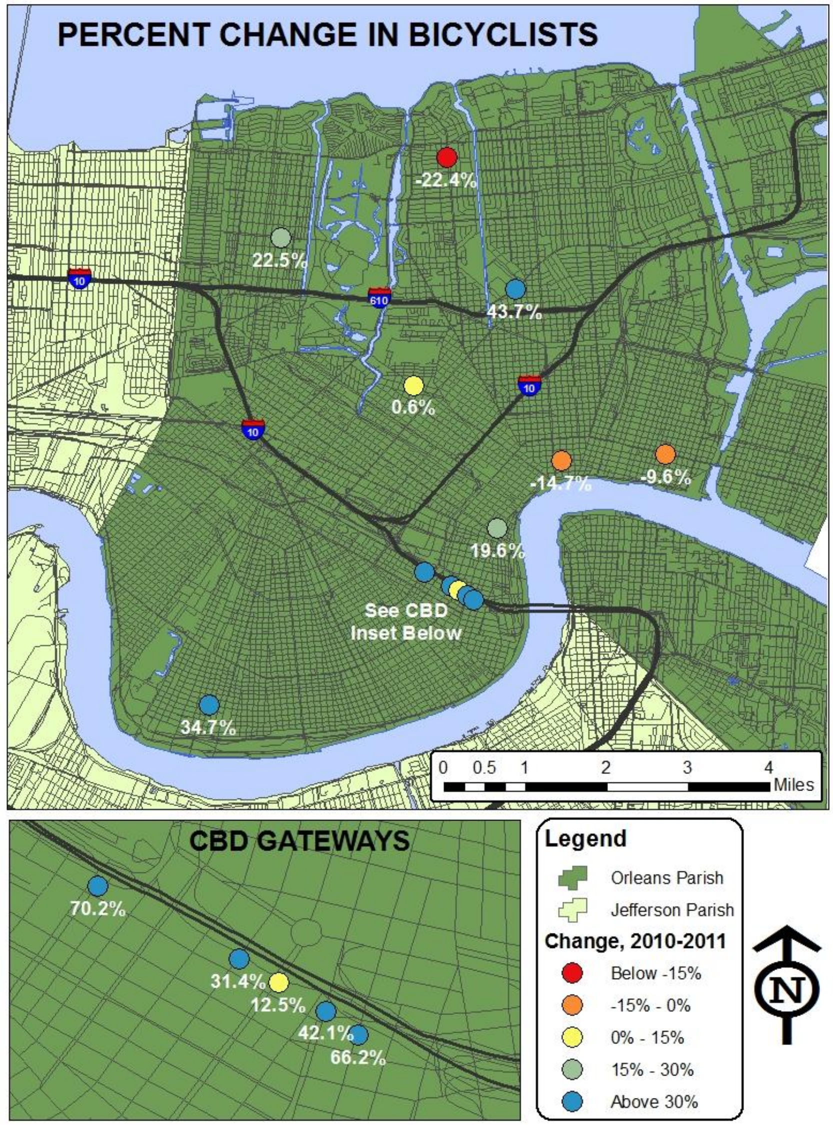
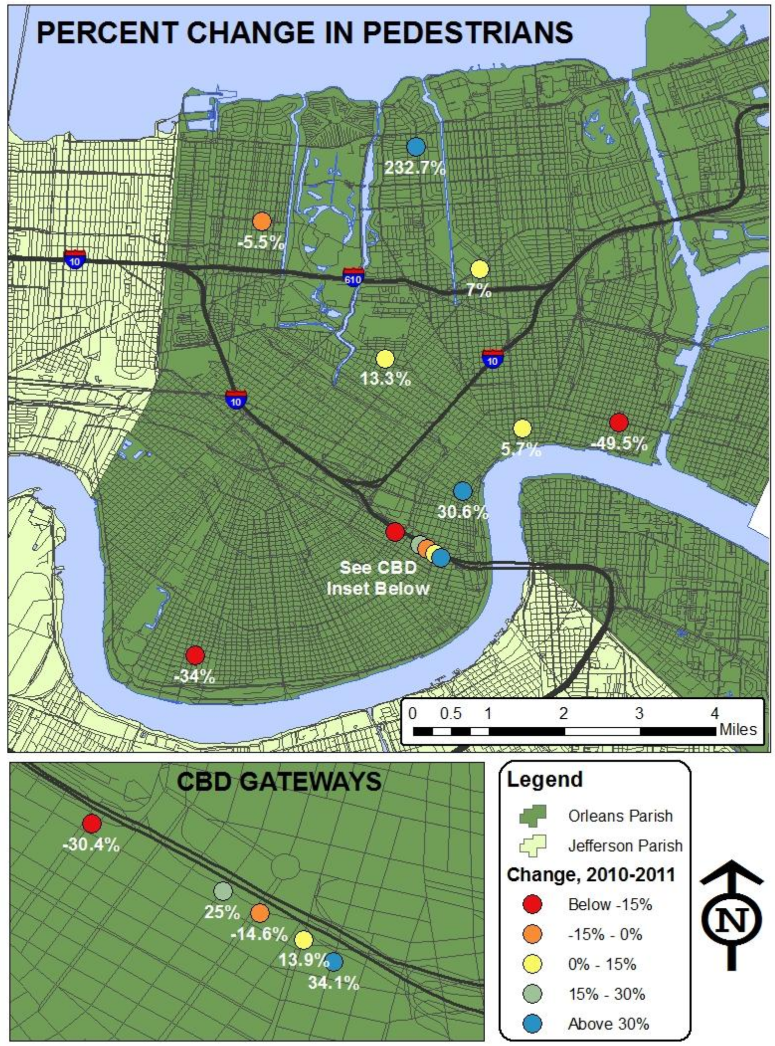


Table 5.1.6 Change in Pedestrian EDT

Change in Pedestrian EDT, 2010-2011		
	#	%
Paris and Burbank	114	232.7%
Magazine St (Gateway)**	167	34.1%
Decatur St	1,311	30.6%
Carondelet St (Gateway)	75	25.0%
Camp St (Gateway)**	76	13.9%
Esplanade Ave	96	13.3%
Gentilly Blvd*	29	7.0%
Royal St	52	5.7%
Harrison Ave***	-18	-5.5%
St. Charles Ave (Gateway)	-280	-14.6%
Simon Bolivar Ave (Gateway)**	-714	-30.4%
Magazine St (Uptown)	-358	-34.0%
St. Claude Ave***	-518	-49.5%
*Bicycle facilities installed on observed segment of facility		
**Bicycle facilities installed on connecting segment of facility		
***Bicycle facilities already present in 2010, either on observed segment or on connecting segment		
The two Jefferson Parish sites were excluded because they were only observed in 2010		

Figure 5.1.6 Change in Pedestrian EDT



5.2 Commuting Patterns near Manual Count Sites

Utilizing data from the American Community Surveys from 2005-2009, census tract-level commuting patterns were mapped in Figures 5.2.1 and 5.2.2. As would be expected, high count sites are generally located in census tracts with high active transportation use.

The manual count sites with the highest bicyclist EDT were those nearest the census tracts with the highest rates of bicyclist commuting. ACS data show that the tracts with the highest rates of bicyclist commuting are those near the CBD gateway sites, the Royal St site, and the St. Claude Ave site. Conversely, the lowest EDT sites are near census tracts with low, or non-existent, rates of commuting by bicycle.

For pedestrians, site specific characteristics such as business density and particular amenities/disamenities may have played a larger role. While the Decatur St site is surrounded by census tracts with high rates of pedestrian commuting, other top sites like Esplanade Ave and Magazine St (Uptown) are surrounded by relatively low rates of pedestrian commuting. There are many potential, site-specific characteristics which many explain the weakness of this relationship, such as differing land uses, varying socio-economic compositions, and pedestrian/transit infrastructure.

Caveat: Because of Hurricane Katrina, ACS data from 2005-2009 reflect a region in transition. Also, the margin of error is generally greater at the census tract level and may not accurately represent small sample populations like bicyclist and pedestrian commuters.

Figure 5.2.1 Percentage of Commuters that Bike to Work, 2005-2009

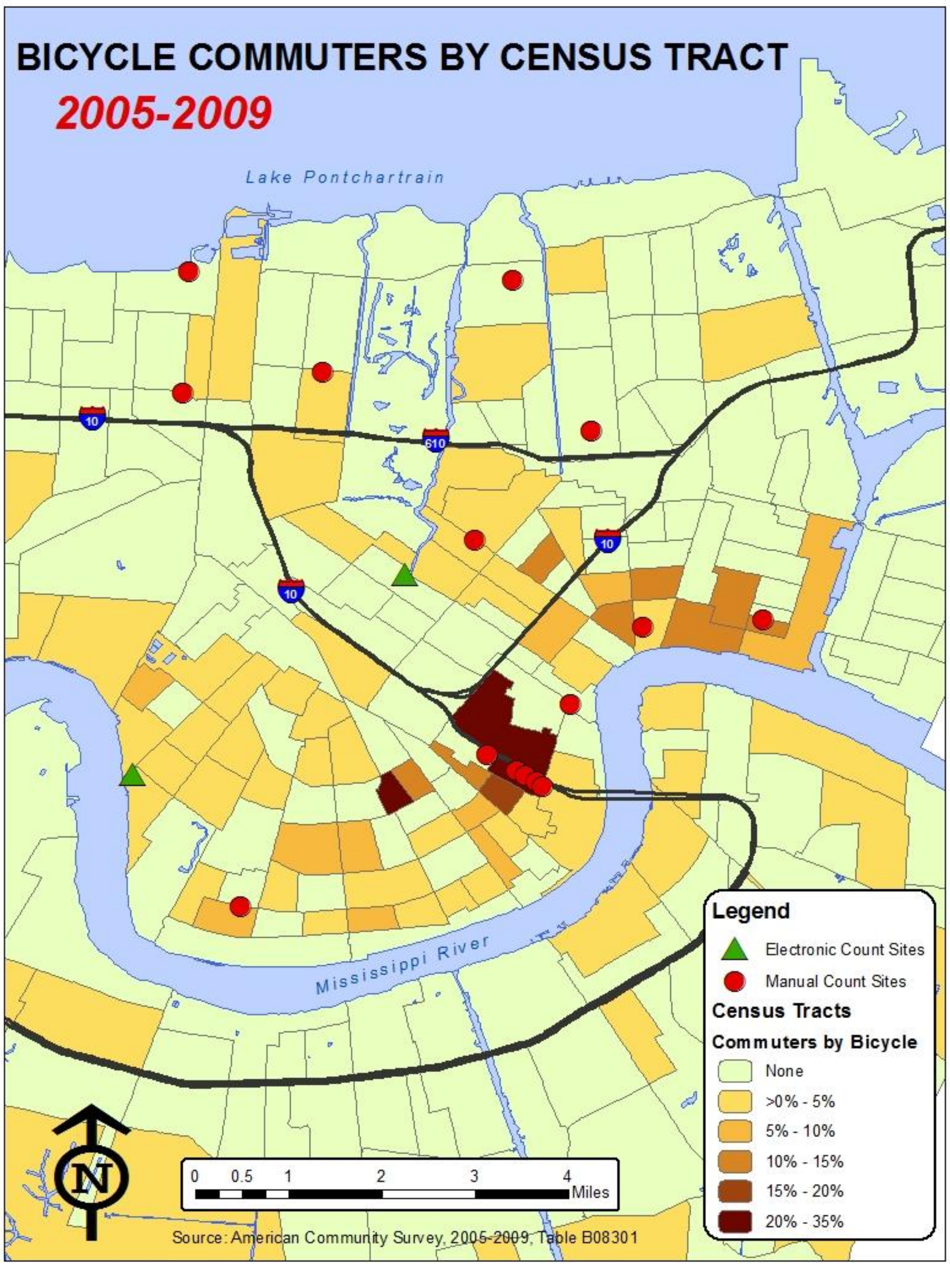
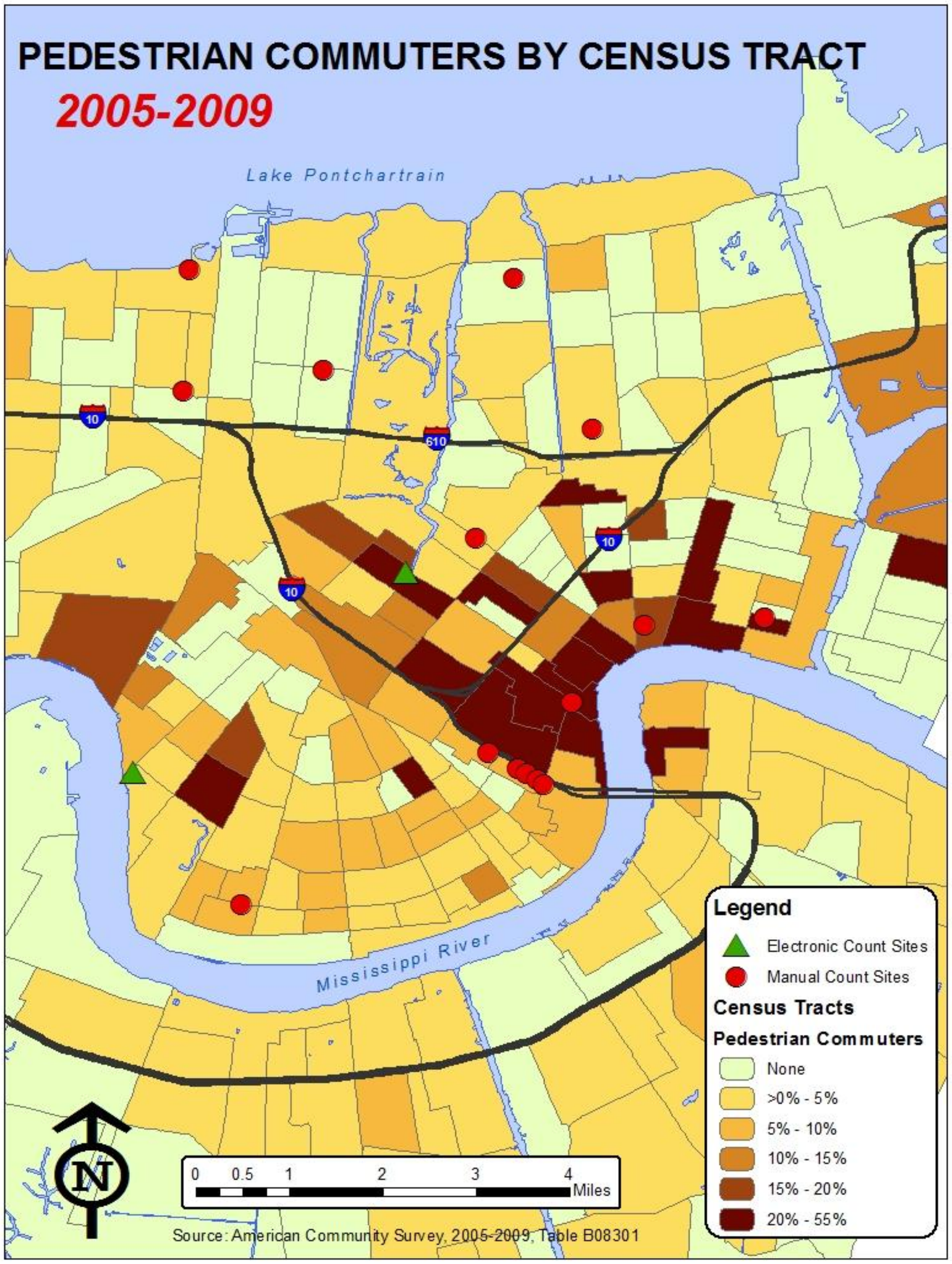


Figure 5.2.2 Percentage of Commuters that Walk to Work, 2005-2009



5.3 Mode Shares for Manual Count Sites

This section will compare mode shares in two ways. First, it compares active transportation (bicycling and walking) with automobile traffic where relevant data is available. Secondly, for all count sites, it breaks down active transportation traffic to determine the relative mode share of bicyclists and pedestrians.

Active Transportation and Automobile Mode Shares

The Regional Planning Commission (RPC) provides data for Average Daily Traffic (ADT) for automobile traffic on many roadway facilities throughout the metropolitan area. By combining this ADT figure, where available, with the active transportation EDT figures derived from the 2011 manual counts we can begin to infer the mode share of certain facilities. Mode share refers to the percentage of a particular type or mode of transportation traveling through a particular location. It should be noted that transit riders are not accounted for in this analysis because data was not available. Table 5.3.1 breaks down mode share for count sites with available data.

Active transportation, or bicycling and walking, accounts for a sizable percentage of the overall daily traffic at sites that serve as gateways between the CBD and Uptown. The highest active transportation mode shares are at the Camp St (23%) and Magazine St (12%) gateway sites which are one-way, two-lane facilities. The St. Charles Ave and Simon Bolivar Ave sites have active transportation mode shares around 8%. The St. Claude Ave and Gentilly Blvd sites are both only around 3%. Clearly, the gateway area is a “special district” in the active transportation system.

Table 5.3.1 Mode Shares for Select Sites

	Mode Share for Select Sites					
	2011 Bicycle/Pedestrian EDT		Motorized Vehicle ADT			Total
	#	%	#	Year	%	#
St. Charles Ave (Gateway)	2,383	7.5%	29,180	2009	92.5%	31,563
Simon Bolivar Ave (Gateway)**	2,196	8.5%	23,579	2009	91.5%	25,775
Camp St (Gateway)**	1,474	22.9%	4,960	2009	77.1%	6,434
Magazine St (Gateway)**	1,440	12.3%	10,287	2009	87.7%	11,727
St. Claude Ave***	924	3.8%	23,714	2008	96.2%	24,638
Gentilly Blvd*	658	3.1%	20,366	2008	96.9%	21,024
Notes	*Bicycle facilities installed on observed segment of facility					
	**Bicycle facilities installed on connecting segment of facility					
	***Bicycle facilities already present in 2010, either on observed segment or on					
Source	http://www.norpc.org/traffic_counts.html					

Bicycle and Pedestrian Mode Shares

Figures 5.3.1 and 5.3.2 show the relative mode shares for bicyclists and pedestrians in 2010 and 2011 which, when combined, represent the active transportation mode. Most sites had higher mode shares for pedestrians than for bicyclists. The Decatur St and Magazine St (Uptown) sites had the highest pedestrian mode shares. The Royal St, Carondelet St, Camp St, and Magazine St (Gateway) sites had the highest bicycle mode shares with bicyclists equaling or exceeding pedestrians. Paris and Burbank had a high bicyclist mode share in 2010 but did not in 2011. Again, low volumes at this site contribute to high variability despite little absolute change. Aside from this site, variation from 2010 to 2011 was minimal.

Figure 5.3.1 Relative Bicycle and Pedestrian Mode Shares, 2010

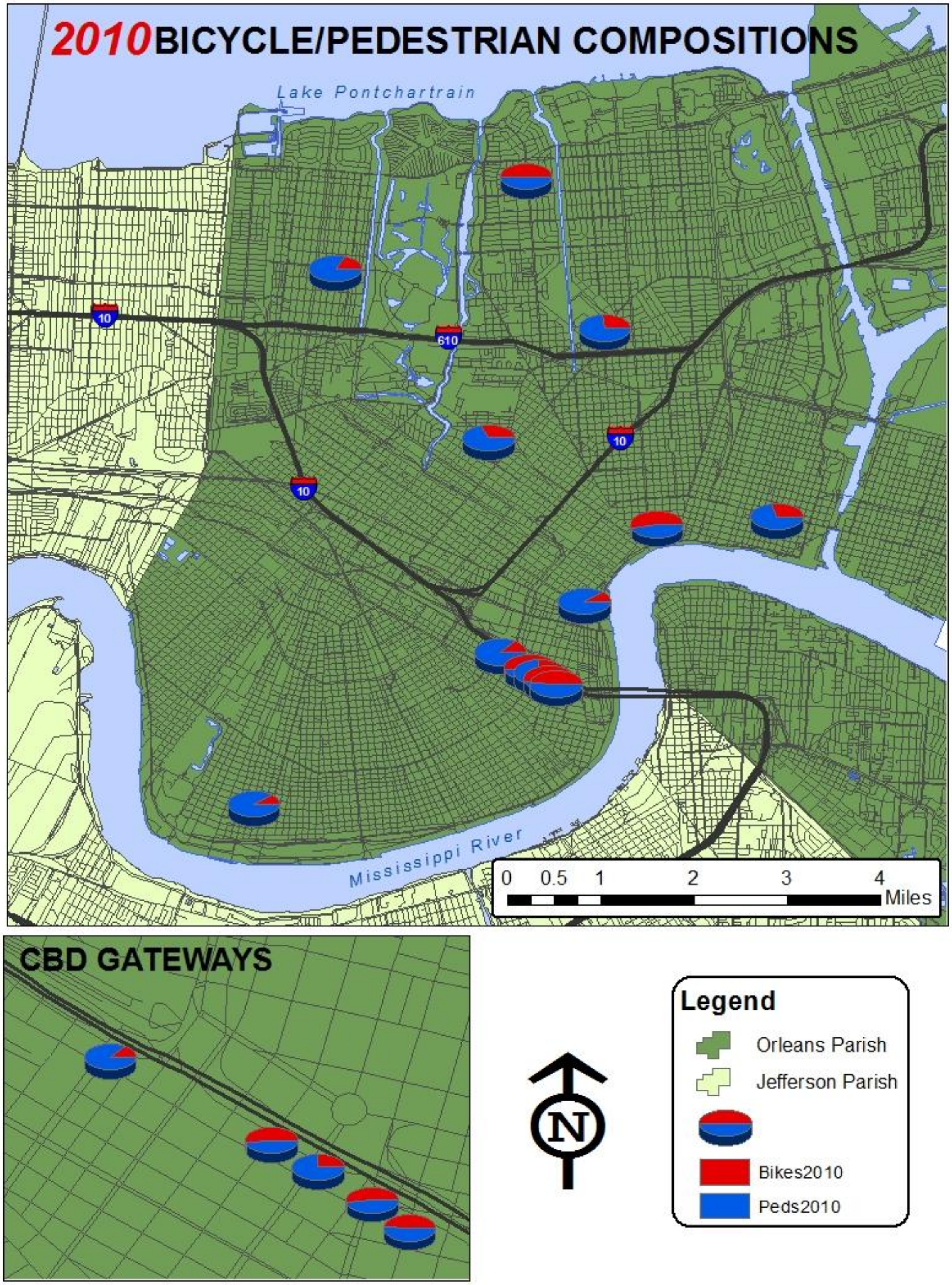
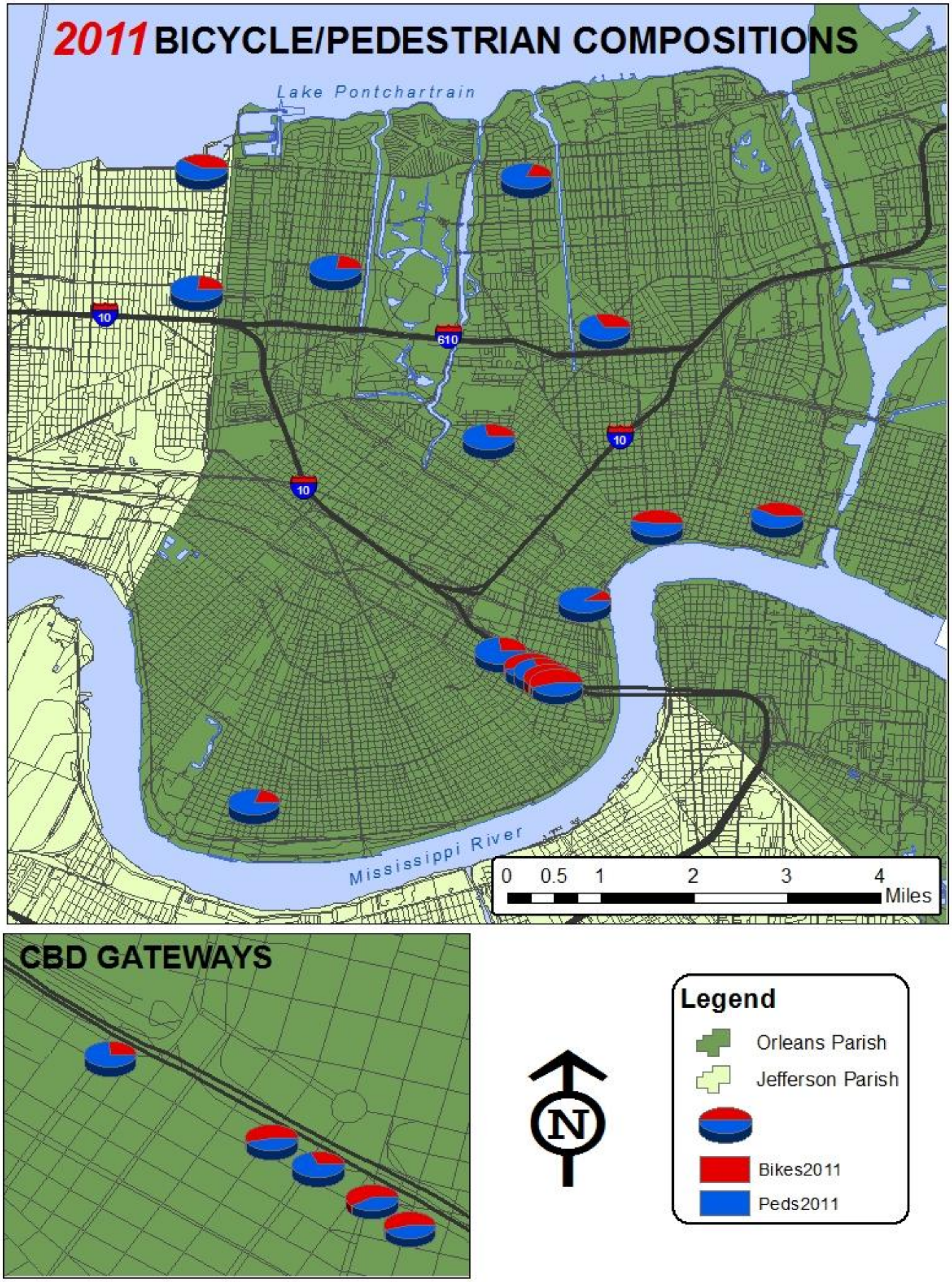


Figure 5.3.2 Relative Bicycle and Pedestrian Mode Shares, 2011



5.4 Gender, Helmet Use, and Travel Orientation for Bicyclists

This section details the user characteristics of bicyclists observed in both 2010 and 2011. Specifically, it presents data on the gender split, helmet use, and travel orientation. The percentage of female bicyclists is important because it can indicate the perceived user-friendliness of a location, with higher percentages indicating a more user-friendly environment (Baker, 2009). Helmet use is an important safety indicator. Travel orientation describes the direction bicyclists are traveling. Bicyclists were broken down into the following categories for travel orientation: Right Way Riders (traveling with flow of traffic); Wrong Way Riders (traveling against flow of traffic); Sidewalk Riders; and Neutral Ground (Median) Riders.

Overview

New Orleans, as a whole, appears to be improving in most measured categories. Female bicyclists are up 1.5% from 2010 to 28% overall. Helmet use is up 5.6% to 16.1% overall. This increase is encouraging, but the helmet use percentage is still well below national leaders such as Portland and Minneapolis which have 77% and 64% helmet use respectively (PBOT, 2010; Bike Walk Twin Cities, 2009).

In terms of travel orientation, wrong way riders are down 2.5% from 2010 to 9.6% overall. Right way riders were fairly stable (down 1%) to 73.8% overall. Bicyclists using the sidewalk were up 3.5% to 16.2% overall. Taken together, wrong way and sidewalk bicyclists represent 25.8% of bicyclists observed. As New Orleans installs more bicycle facilities and more public service advertisements target travel orientation, it is hoped that these numbers will begin to decrease. Future counts should monitor these trends carefully.

Table 5.4.1 Overall Bicyclist Compositions for New Orleans

	Overall Bicyclist Compositions		
	2010	2011	% Point Change
Female Bicyclists	26.5%	28.0%	1.5%
Helmet Users	10.5%	16.1%	5.6%
Travel Orientation:			
Right Way (Street)	74.9%	73.8%	-1.1%
Wrong Way (Street)	12.1%	9.6%	-2.5%
Sidewalk	12.7%	16.2%	3.5%
Neutral Ground	0.3%	0.3%	0.0%
Note	Excludes both Jefferson Parish Counts because they were not observed in 2010.		

Table 5.4.2 2010 Count Site Statistics for Bicyclists, Ordered by EDT

	2010 Count Site Statistics					
	Female Bicyclists	Helmet Use	Bicyclist Travel Orientation			
	%	%	RW	WW	Sidewalk	Neutral Ground
Royal St	22.28%	6.63%	83.02%	15.65%	1.33%	n/a
St. Charles Ave (Gateway)	29.84%	24.61%	73.30%	1.05%	23.56%	2.09%
Camp St (Gateway)**	36.31%	11.46%	69.43%	3.18%	27.39%	n/a
Decatur St	26.00%	8.00%	83.33%	6.67%	10.00%	n/a
Magazine St (Gateway)**	**36.60%**	9.80%	68.63%	19.61%	11.76%	n/a
St. Claude Ave***	25.00%	2.08%	**86.46%**	10.42%	3.13%	0.00%
Simon Bolivar Ave (Gateway)**	6.98%	8.14%	56.98%	**27.91%**	15.12%	0.00%
Esplanade Ave	36.19%	7.62%	82.86%	7.62%	9.52%	n/a
Carondelet St (Gateway)	31.03%	11.49%	70.93%	22.09%	6.98%	n/a
Gentilly Blvd*	8.70%	13.04%	67.39%	17.39%	15.22%	n/a
Magazine St (Uptown)	18.42%	7.89%	26.32%	5.26%	**68.42%**	n/a
Harrison Ave***	18.52%	11.11%	74.07%	14.81%	7.41%	**3.70%**
Paris and Burbank	0.00%	**30.77%**	69.23%	23.08%	7.69%	0.00%
Notes:	*Bicycle facilities installed on observed segment of facility					
	**Bicycle facilities installed on connecting segment of facility					
	***Bicycle facilities already present in 2010, either on observed segment or on connecting					
	RW = Right Way, WW =Wrong Way, Neutral Ground = Median					
	Highest Values in Bold					
	Jefferson Parish sites not included because they were not observed in 2010					

Table 5.4.3 2011 Count Site Statistics for Bicyclists, Ordered by EDT

	2011 Count Site Statistics					
	Female Bicyclists	Helmet Use	Bicyclist Travel Orientation			
	%	%	RW	WW	Sidewalk	Neutral Ground
Royal St	30.51%	5.76%	83.05%	15.25%	1.69%	n/a
Camp St (Gateway)**	32.53%	18.88%	67.87%	0.80%	31.33%	n/a
Magazine St (Gateway)**	34.08%	14.35%	71.75%	9.87%	18.39%	n/a
St. Charles Ave (Gateway)	24.02%	28.82%	81.22%	2.62%	13.97%	2.18%
Decatur St	28.14%	18.09%	77.89%	10.55%	11.56%	n/a
Simon Bolivar Ave (Gateway)**	20.00%	13.33%	64.00%	20.00%	16.00%	0.00%
Carondelet St (Gateway)	18.42%	10.53%	72.81%	17.54%	9.65%	n/a
St. Claude Ave***	23.53%	11.11%	75.16%	8.50%	16.34%	0.00%
Esplanade Ave	37.61%	26.50%	82.05%	0.00%	17.95%	n/a
Gentilly Blvd*	21.74%	14.49%	75.36%	18.84%	5.80%	n/a
Magazine St (Uptown)	**39.68%**	7.94%	36.51%	7.94%	**55.56%**	n/a
Harrison Ave***	15.15%	21.21%	51.52%	18.18%	27.27%	**3.03%**
Metairie Hammond Hwy	28.57%	50.00%	85.71%	14.29%	0.00%	n/a
Paris and Burbank	0.00%	**60.00%**	**90.00%**	0.00%	10.00%	0.00%
Papworth Ave	0.00%	0.00%	50.00%	**33.33%**	16.67%	n/a
Notes:	*Bicycle facilities installed on observed segment of facility					
	**Bicycle facilities installed on connecting segment of facility					
	***Bicycle facilities already present in 2010, either on observed segment or on connecting segment					
	RW = Right Way, WW =Wrong Way, Neutral Ground = Median					
	Highest Values in Bold					

Table 5.4.4 Change in Count Site Statistics for Bicyclists, 2010-2011, Ordered by 2011 EDT

	Percentage Point Change in Count Site Statistics, 2010-2011					
	Female Bicyclists	Helmet Use	Bicyclist Travel Orientation			
	%	%	RW	WW	Sidewalk	NG
Royal St	8.23%	-0.87%	0.03%	-0.40%	0.37%	n/a
Camp St (Gateway)**	-3.78%	7.41%	-1.56%	-2.38%	3.94%	n/a
Magazine St (Gateway)**	-2.52%	4.55%	3.12%	-9.74%	6.62%	n/a
St. Charles Ave (Gateway)	-5.83%	4.21%	7.92%	1.57%	-9.59%	**0.09%**
Decatur St	2.14%	10.09%	-5.44%	**3.89%**	1.56%	n/a
Simon Bolivar Ave (Gateway)**	13.02%	5.19%	7.02%	-7.91%	0.88%	0.00%
Carondelet St (Gateway)	-12.61%	-0.97%	1.88%	-4.55%	2.67%	n/a
St. Claude Ave***	-1.47%	9.03%	-11.29%	-1.92%	13.21%	0.00%
Esplanade Ave	1.42%	18.88%	-0.81%	-7.62%	8.42%	n/a
Gentilly Blvd*	13.04%	1.45%	7.97%	1.45%	-9.42%	n/a
Magazine St (Uptown)	**21.26%**	0.04%	10.19%	2.67%	-12.87%	n/a
Harrison Ave***	-3.37%	10.10%	-22.56%	3.37%	**19.87%**	-0.67%
Paris and Burbank	0.00%	**29.23%**	**20.77%**	-23.08%	2.31%	0.00%
Notes:	*Bicycle facilities installed on observed segment of facility					
	**Bicycle facilities installed on connecting segment of facility					
	***Bicycle facilities already present in 2010, either on observed segment or on connecting					
	RW = Right Way, WW =Wrong Way, NG = Neutral Ground (Median)					
	Highest Values in Bold					
	Jefferson Parish sites not included because they were not observed in 2010					

5.5 Gender and Travel Orientation for Pedestrians

Overview

After examining all pedestrians observed by PBRI in 2010 and 2011 a few characteristics begin to emerge. The percentage of pedestrians that were female was approximately 40% in both 2010 and 2011. This is over 10% higher than the percentage of bicyclists that were female in those years.

Regarding travel orientation, the overwhelming majority of pedestrians observed traveled on the sidewalk (91% in 2010 and 93% in 2011). Pedestrians traveling in the street accounted for the next largest share, around 5% in both 2010 and 2011. Neutral ground pedestrians accounted for approximately 3% both years.

Table 5.5.1 Overall Pedestrian Compositions for New Orleans

	Overall Pedestrian Compositions		
	2010	2011	% Point Change
Female	40.2%	39.7%	-0.5%
Travel Orientation:			
Street	6.1%	4.2%	-2.0%
Sidewalk	90.6%	93.0%	2.4%
Neutral Ground	3.3%	2.8%	-0.5%
Note	Excludes both Jefferson Parish Counts		

Table 5.5.2 2010 Count Site Statistics for Pedestrians, Ordered by EDT

	2010 Pedestrian Count Site Statistics			
	% Female	Pedestrian Travel Orientation		
		Street	Sidewalk	Neutral Ground
Decatur St	45.70%	1.90%	98.10%	n/a
Simon Bolivar Ave (Gateway)**	25.16%	10.20%	83.88%	5.92%
St. Charles Ave (Gateway)	33.09%	1.27%	87.09%	11.64%
Magazine St (Uptown)	**59.09%**	1.21%	98.79%	n/a
St. Claude Ave***	40.87%	6.09%	91.74%	2.17%
Royal St	36.73%	20.06%	79.94%	n/a
Esplanade Ave	50.87%	10.00%	86.52%	3.48%
Camp St (Gateway)**	39.58%	3.47%	96.53%	n/a
Magazine St (Gateway)**	30.19%	0.63%	**99.37%**	n/a
Gentilly Blvd*	30.95%	7.14%	90.48%	2.38%
Harrison Ave***	58.87%	**25.81%**	55.65%	**18.55%**
Carondelet St (Gateway)	28.40%	13.58%	86.42%	n/a
Paris and Burbank	15.38%	15.38%	84.62%	0.00%
Notes:	*Bicycle facilities installed on observed segment of facility			
	**Bicycle facilities installed on connecting segment of facility			
	***Bicycle facilities already present in 2010, either on observed segment or on connecting segment			
	Highest Values in Bold			
	Jefferson Parish sites not included because they were not observed in 2010			

Table 5.5.3 2011 Count Site Statistics for Pedestrians, Ordered by EDT

	2011 Pedestrian Count Site Statistics			
	% Female	Pedestrian Travel Orientation		
		Street	Sidewalk	Neutral Ground
Decatur St	43.27%	1.16%	**98.84%**	n/a
St. Charles Ave (Gateway)	33.13%	1.60%	85.23%	**13.17%**
Simon Bolivar Ave (Gateway)**	26.33%	10.16%	81.76%	8.08%
Royal St	35.99%	14.65%	85.35%	n/a
Esplanade Ave	49.48%	3.11%	96.89%	0.00%
Magazine St (Uptown)	53.16%	5.58%	94.42%	n/a
Magazine St (Gateway)**	34.22%	3.74%	96.26%	n/a
Camp St (Gateway)**	35.52%	3.28%	96.72%	n/a
St. Claude Ave***	33.17%	12.68%	81.46%	5.85%
Gentilly Blvd*	37.86%	2.86%	96.43%	0.71%
Carondelet St (Gateway)	24.75%	1.98%	98.02%	n/a
Harrison Ave***	**56.41%**	3.42%	83.76%	12.82%
Paris and Burbank	37.21%	6.98%	86.05%	6.98%
Papworth Ave	47.62%	33.33%	66.67%	n/a
Metairie Hammond Hwy	40.00%	**85.00%**	15.00%	n/a
Notes:	*Bicycle facilities installed on observed segment of facility			
	**Bicycle facilities installed on connecting segment of facility			
	***Bicycle facilities already present in 2010, either on observed segment or on connecting segment			
	Highest Values in Bold			

Table 5.5.4 Change in Count Site Statistics for Pedestrians, 2010-2011, Ordered by 2010 EDT

	Percentage Point Change Over Time, 2010-2011			
	% Female	Pedestrian Travel Orientation		
		Street	Sidewalk	Neutral Ground
Decatur St	-2.43%	-0.75%	0.75%	n/a
Simon Bolivar Ave (Gateway)**	1.16%	-0.04%	-2.13%	2.16%
St. Charles Ave (Gateway)	0.04%	0.32%	-1.86%	1.54%
Magazine St (Uptown)	-5.93%	4.36%	-4.36%	n/a
St. Claude Ave***	-7.70%	6.60%	-10.28%	3.68%
Royal St	-0.74%	-5.41%	5.41%	n/a
Esplanade Ave	-1.39%	-6.89%	10.36%	-3.48%
Camp St (Gateway)**	-4.06%	-0.19%	0.19%	n/a
Magazine St (Gateway)**	4.04%	3.11%	-3.11%	n/a
Gentilly Blvd*	6.90%	-4.29%	5.95%	-1.67%
Harrison Ave***	-2.46%	**-22.39%**	**28.12%**	-5.73%
Carondelet St (Gateway)	-3.64%	-11.60%	11.60%	n/a
Paris and Burbank	**21.82%**	-8.41%	1.43%	**6.98%**
Notes:	*Bicycle facilities installed on observed segment of facility			
	**Bicycle facilities installed on connecting segment of facility			
	***Bicycle facilities already present in 2010, either on observed segment or on connecting segment			
	Highest Values in Bold			
	Jefferson Parish sites not included because they were not observed in 2010			

6.0 Electronic Count Data

This section analyzes count data from Eco-Counters from June 2010 to May 2011 on the Jefferson Davis Trail and the Mississippi River Trail. After this data was retrieved, two variables were analyzed: time and weather. For detailed data, refer to Appendix III.

Analysis shows relatively similar traffic volumes for both trails yet distinct differences in the patterns of use. The Jefferson Davis Trail appears to be used on a much more continuous basis throughout the day while the Mississippi River Trail appears to be less dynamic, with most traffic occurring in daylight hours around commuting times.

6.1 Observed Traffic Volumes

As previously mentioned, there were some accuracy problems with the Eco-Counter on the Mississippi River Trail. Because of this, it is difficult to discern actual traffic volumes for this trail. The margin of error is assumed to be within 15% and this must be taken into account when comparing volumes on both trails. Still, the Jefferson Davis Trail operated without problems and is a reliable indication of actual traffic volumes.

Table 6.1.1 below shows the annual and monthly traffic volumes observed for both trails which have similar annual totals. Monthly totals are relatively close as well, with the exception of the summer months of June-September. Again, the Eco-Counter at the Mississippi River Trail likely had a higher degree of inaccuracy during the summer months which could explain some of this discrepancy. Permanently establishing and regularly monitoring the Eco-Counters is recommended to follow up these baseline volumes. Following sections will discuss patterns of use and provide urban comparisons for context.

Table 6.1.1 Observed Traffic Volumes for Trails, 2010-2011

	Observed Traffic Volumes			
	Jefferson Davis Trail		Mississippi River Trail	
	Total Users	Average Daily Users	Total Users	Average Daily Users
June	11,648	388.3	12,968	432.3
July	12,506	403.4	15,084	486.6
August	10,945	353.1	13,057	421.2
September	13,191	439.7	16,468	548.9
October	15,755	508.2	16,977	547.6
November	10,975	365.8	11,170	372.3
December	11,502	371.0	7,572	244.3
January	12,245	395.0	10,066	324.7
February	12,301	439.3	11,788	421.0
March	17,188	554.5	17,402	561.4
April	18,946	631.5	18,044	622.2
May	22,128	713.8	23,227	749.3
Annual Total	**169,330**	**463.9**	**173,823**	**477.5**

Tables 6.1.2 and 6.1.3 show the 10 days with the highest and lowest volumes for each trail. The highest counts for the Jefferson Davis Trail all occurred on days with special events while the highest days at the Mississippi River Trail occurred mostly on weekends and holidays in the spring. The lowest counts for both trails included Christmas and the day after Thanksgiving. Other low volume days can be attributed to seasonal variation in weather as most of these occur during the winter.

Table 6.1.2 Highest User Volume Days at New Orleans Trails

Jefferson Davis Trail		
Date	Volume	Holiday/Event
Sun 22 May 2011	2379	Bayou Boogaloo
Sat 21 May 2011	2342	Bayou Boogaloo
Sat 23 Oct 2010	1607	Komen Race for the Cure
Sun 17 Apr 2011	1348	Earth Day Festival
Fri 29 Apr 2011	1202	Jazz Fest
Fri 06 May 2011	1171	Jazz Fest
Sat 07 May 2011	1171	Jazz Fest
Thu 05 May 2011	1080	Jazz Fest
Sat 30 Apr 2011	968	Jazz Fest
Sun 01 May 2011	951	Jazz Fest

Mississippi River Trail		
Date	Volume	Holiday/Event
Sun 15 May 2011	1858	
Sat 14 May 2011	1449	
Mon 30 May	1114	Memorial Day
Sun 20 Feb 2011	1082	
Sat 19 Mar 2011	1071	
Sun 20 Mar 2011	1052	
Tue 19 Apr 2011	1040	
Sun 03 Apr 2011	1039	
Sun 27 Mar 2011	1007	
Sat 02 Apr 2011	1006	

Table 6.1.3 Lowest User Volume Days at New Orleans Trails

Jefferson Davis Trail		
Date	Volume	Holiday/Event
Sat 25 Dec 2010	45	Christmas
Sun 26 Dec 2010	99	Day after Christmas
Fri 26 Nov 2010	111	Day after Thanksgiving
Sun 09 Jan 2011	112	
Fri 04 Feb 2011	129	
Sat 28 Aug 2010	157	
Thu 03 Feb 2011	176	
Sun 30 Jan 2011	207	
Mon 15 Nov 2010	211	
Sat 18 Dec 2010	213	

Mississippi River Trail		
Date	Volume	Holiday/Event
Fri 04 Feb 2011	30	
Sat 25 Dec 2010	33	Christmas
Wed 02 Feb 2011	54	
Fri 26 Nov 2010	59	Day after Thanksgiving
Thu 03 Feb 2011	60	
Mon 13 Dec 2010	81	
Thu 10 Feb 2011	81	
Wed 05 Jan 2011	89	
Fri 04 Mar 2011	91	
Mon 15 Nov	93	

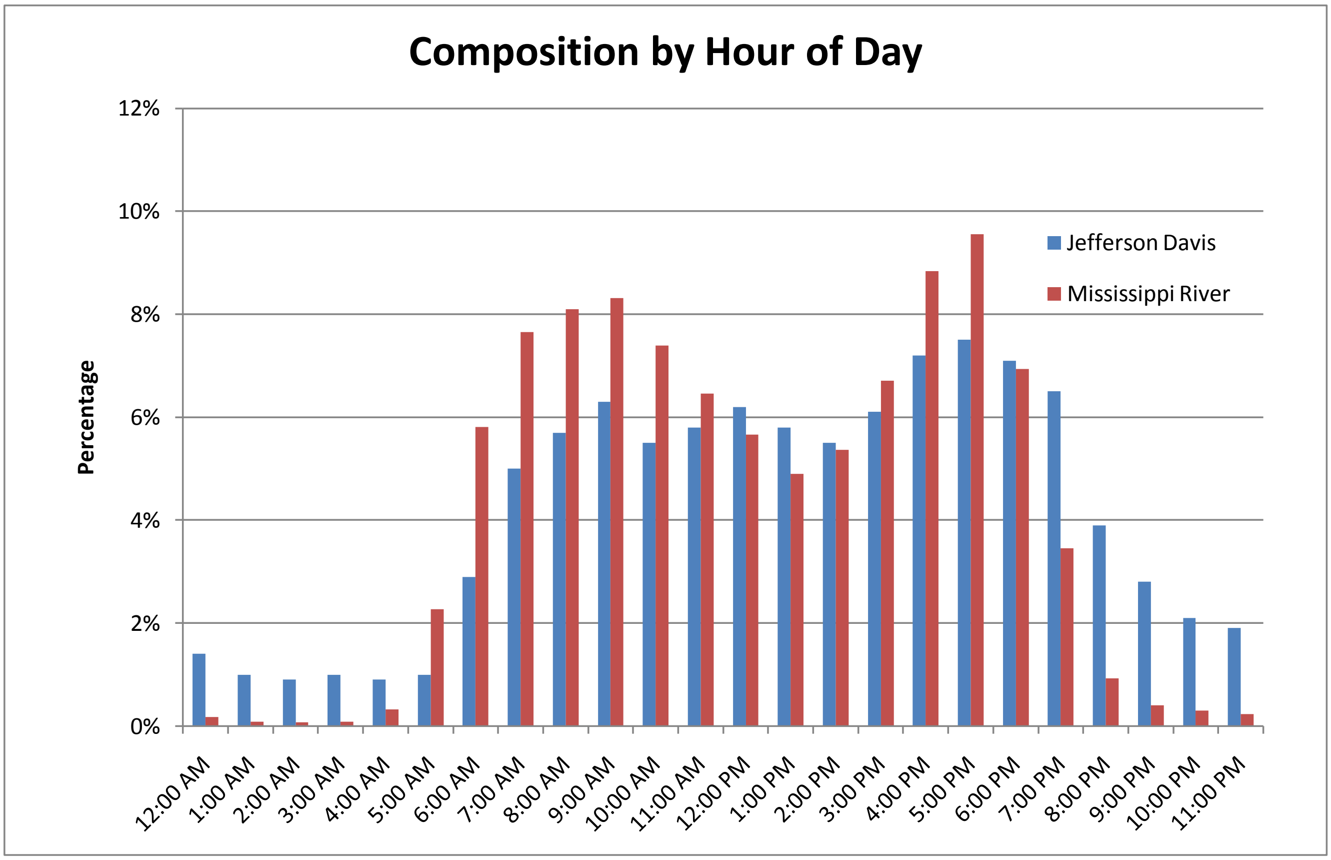
6.2 Patterns of Use by Hour, Day, and Month

By breaking down the electronic counts by hour, day of the week, and month, patterns of use emerge. The following figures summarize these patterns.

Hourly Trends

Figure 6.2.1 breaks down the electronic count data by hour for both trails. The two trails differ in notable ways. The highest traffic hours for the Jefferson Davis Trail are from 4:00PM to 8:00PM while the highest traffic hours for the Mississippi River Trail are split between 8:00-10:00AM and 4:00-6:00PM. The Jefferson Davis Trail has significantly more traffic between the evening hours of 7:00PM to 5:00AM while the Mississippi River Trail has virtually no traffic during these hours. However, the Mississippi River Trail has more traffic from 5:00AM to 12:00PM.

Figure 6.2.1 Electronic Count Compositions by Hour

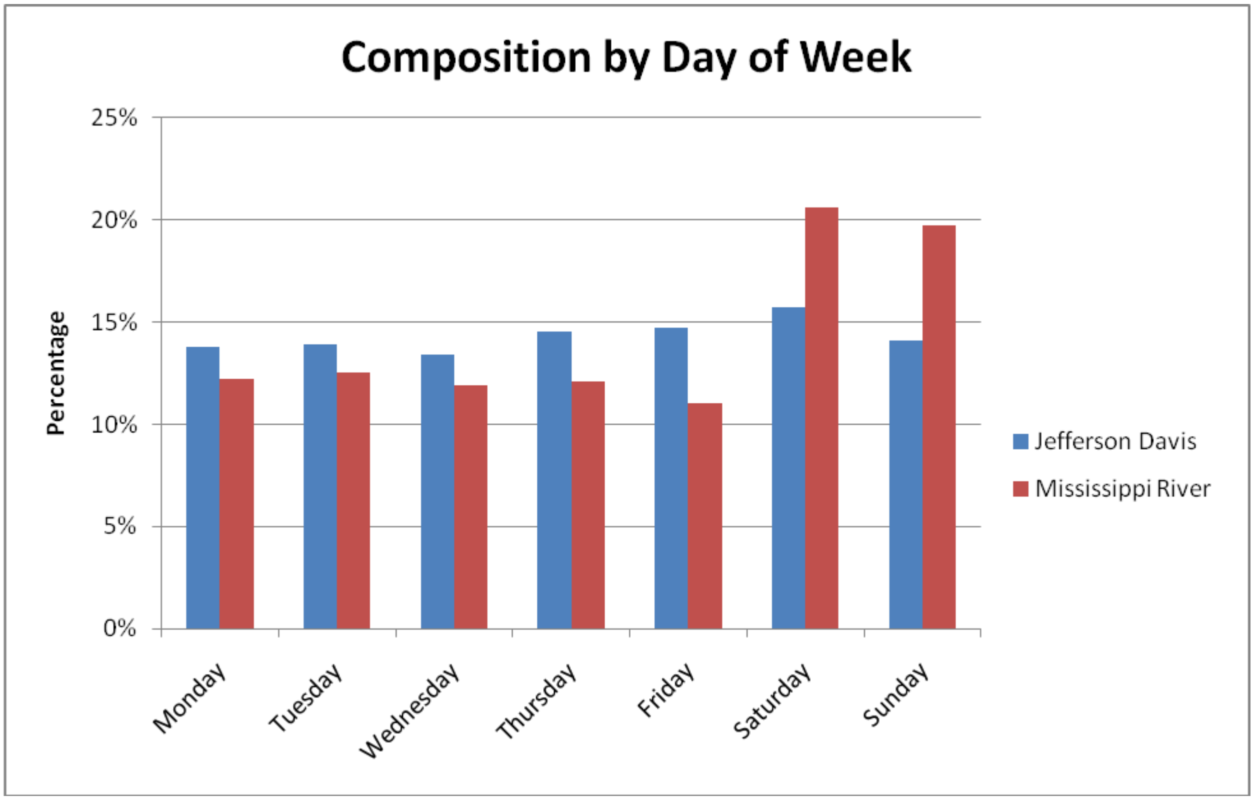


Daily Trends

Figure 6.2.2 breaks down the electronic count data by day of the week for both trails. As with hourly trends, the two trails differ in notable ways. For the Mississippi River Trail, Saturday and Sunday are by and far the highest traffic days with weekday traffic varying little. Interestingly, Friday is its lowest traffic day.

For the Jefferson Davis Trail, daily trends appear to be more stable from day to day with Saturday recording the highest traffic. The other days of the week are more or less similar though the latter half of the work week and weekend appear to be stronger than the early part of the work week. This is likely the result of many special events and festivals which take place nearby the count site.

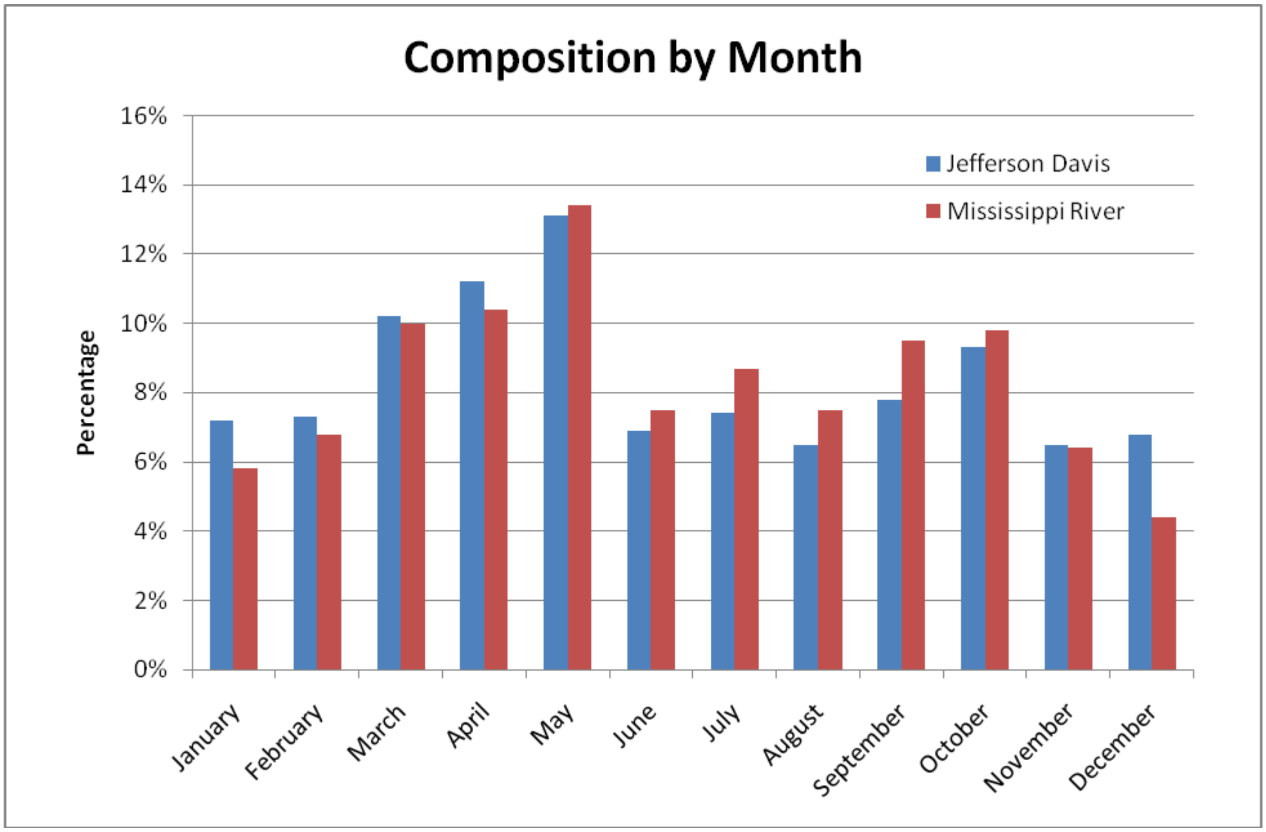
Table 6.2.2 Electronic Count Compositions by Day of the Week



Monthly Trends

Figure 6.2.3 breaks down the electronic count data by month of the year for both trails. For all of their differences at the hourly and daily level, there are many similarities at the monthly level which could hint at regional patterns of use for active transportation. The most striking similarity is the large percentage of users that were recorded from March to May. With the festival season in New Orleans overlapping springtime, perhaps this is no surprise. Furthermore, both trails see numbers peak in May and then drop by nearly 50% in June, the end of festival season and beginning of summer. As we will see in Section 6.2, summer not only has the highest temperatures but also recorded the highest amount of rainfall. Both trails also see high numbers in the month of September and October. Winter appears to affect the Mississippi River Trail more acutely than the Jefferson Davis Trail.

Table 6.2.3 Electronic Count Compositions by Month



6.3 Meteorological Variables and Traffic Volume

The correlation between weather and pedestrian and bicycle traffic is thought to be significant (Niemeier, 1996). Therefore PBRI has paired daily, weekly, and monthly electronic counts with their respective average temperatures and total precipitation in order to glean any obvious patterns. These tables are provided in their entirety in Appendix III.

Temperature and precipitation data were obtained from The Weather Underground historical database at www.wunderground.com. The National Weather Service substation utilized is the Lakefront New Orleans location. Initially, temperature was looked at in terms of high, low, and average temperatures but analysis showed that all three of these had similar relationships with user volumes. The analysis of temperature for this report focuses on the effect of average daily temperature.

Temperature

Figures 6.3.1 and 6.3.2 illustrate the relationship between average temperatures and user volumes at the weekly level. Weekly average temperatures are used for this analysis. The analysis shows that for both trails, the highest weekly volumes all have average temperatures ranging from approximately 70 to 80 degrees. Weeks with higher or lower average temperatures are more likely to have lower volumes. Therefore, this range of temperatures represents a threshold at which user volumes peak and then decline in either direction (higher or lower temperatures).

Figure 6.3.1 Temperature and User Volumes by Week, Jefferson Davis Trail

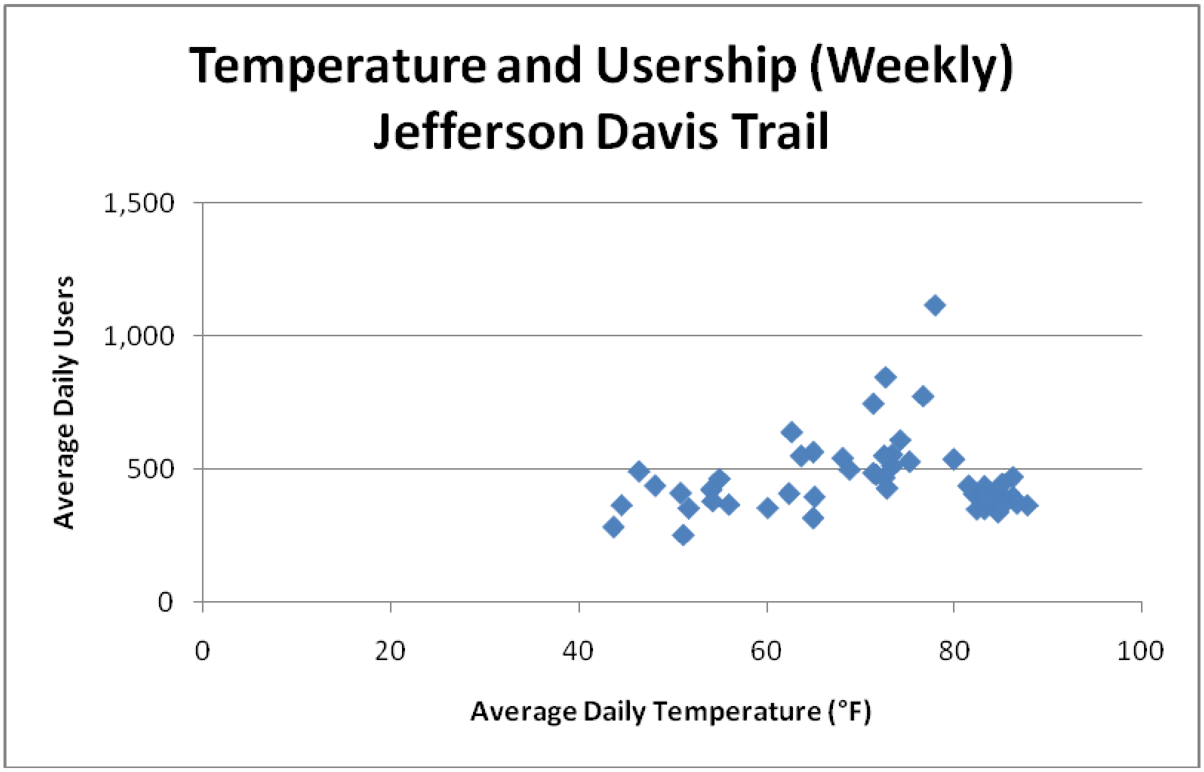
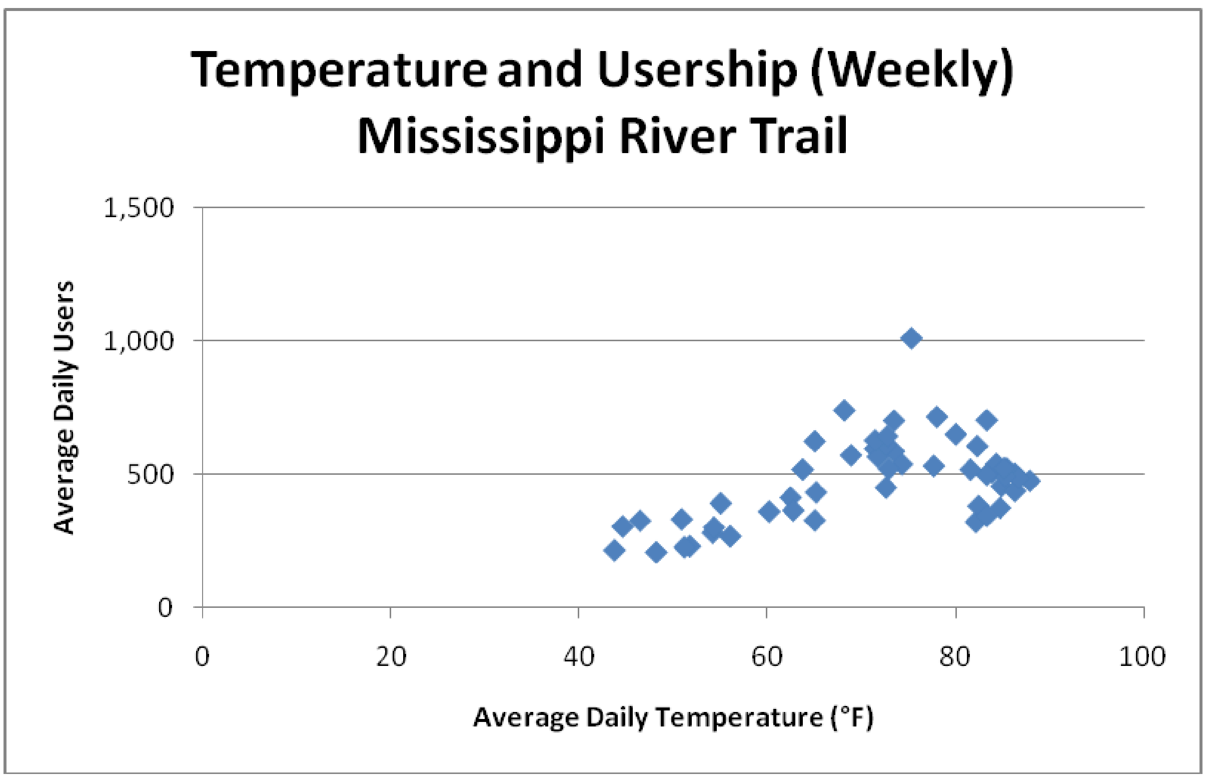


Figure 6.3.2 Temperature and User Volumes by Week, Mississippi River Trail



Meteorological patterns of use are clearly evident at the monthly level. What this monthly level data shows, in Figures 6.3.3 and 6.3.4 and Tables 6.3.1 and 6.3.2, is that average temperature is highly correlated with user volumes at the monthly level. For both trails, the highest average daily users occurred in May where average temperatures were in the high 70s. The lowest average daily users, though, were different for each trail. The lowest month for the Jefferson Davis trail is August, with approximately half of the use of the highest month (May). The Mississippi River Trail had its lowest month in December, with about one third of the use of the highest month (May). This pattern likely reflects the higher number of recreational cyclists using the Mississippi River Trail.

Figure 6.3.3 Temperature and User Volumes by Month, Jefferson Davis Trail

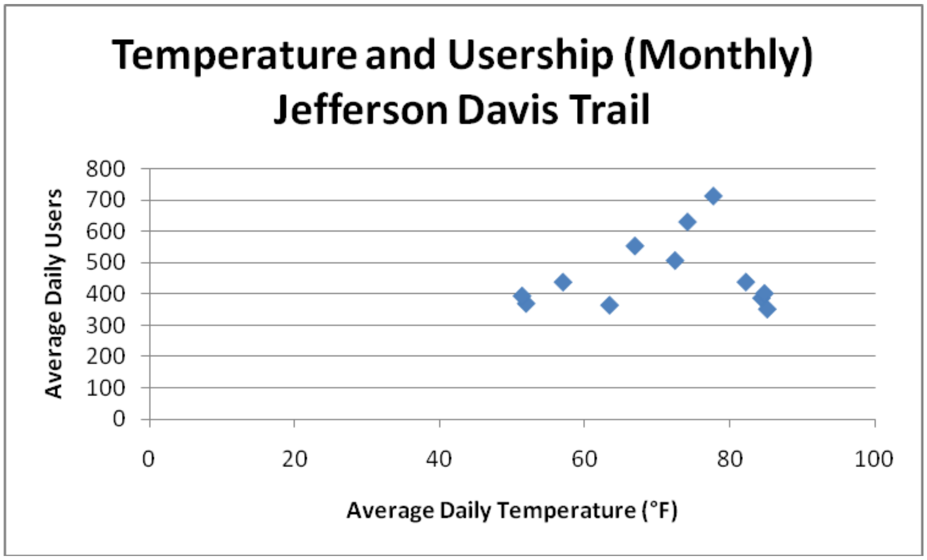


Table 6.3.1 Temperature and User Volumes by Month, Jefferson Davis Trail

	Jefferson Davis Trail	
Month	Average Daily Users	Average Daily Temperature
May 2011	713.8	77.8
April 2011	631.5	74.2
March 2011	554.5	66.9
October 2010	508.2	72.5
September 2010	439.7	82.3
February 2011	439.3	57.0
July 2010	403.4	84.8
January 2011	395.0	51.4
June 2010	388.3	84.4
December 2010	371.0	51.9
November 2010	365.8	63.4
August 2010	353.1	85.2
Notes: Daily Temperatures were retrieved from www.wundergound.com		

Figure 6.3.4 Temperature and User Volumes by Month, Mississippi River Trail

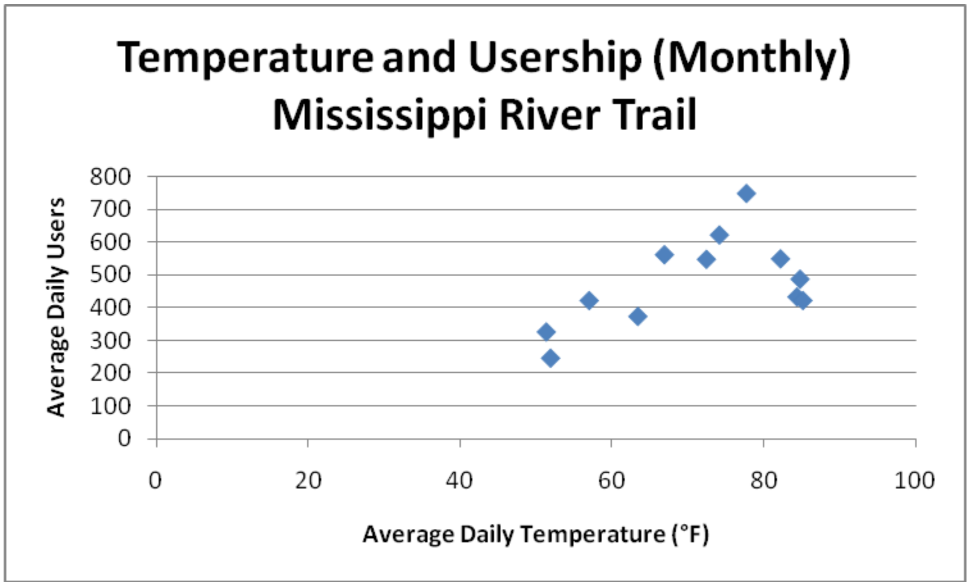


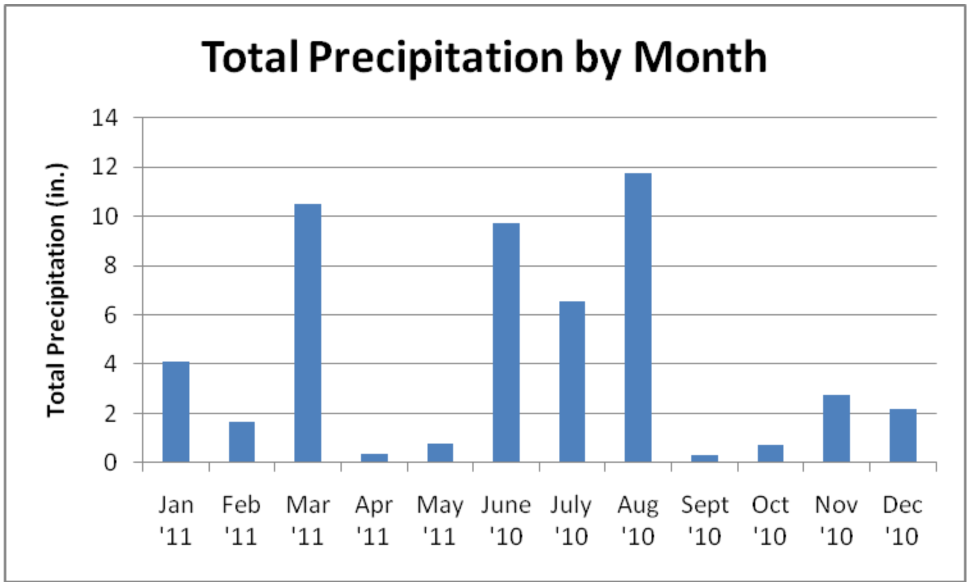
Table 6.3.2 Temperature and User Volumes by Month, Mississippi River Trail

	Mississippi River Trail	
Month	Average Daily Users	Average Daily Temperature
May 2011	749.3	77.8
April 2011	622.2	74.2
March 2011	561.4	66.9
September 2010	548.9	82.3
October 2010	547.6	72.5
July 2010	486.6	84.8
June 2010	432.3	84.4
August 2010	421.2	85.2
February 2011	421	57.0
November 2010	372.3	63.4
January 2011	324.7	51.4
December 2010	244.3	51.9
Notes: Daily Temperatures were retrieved from www.wundergound.com		

Total Precipitation Correlation

Precipitation, like temperature, is highly variable in New Orleans, and it is therefore another useful unit of analysis to measure active transportation. Precipitation is similar to average temperature in that it is easily broken up into seasons. The rainy season is composed of the summer months of June, July, and August which overwhelmingly have the highest amounts of precipitation and the lowest amount of users. March also had high total precipitation.

Figure 6.3.5 Observed Precipitation in New Orleans by Month



Source: www.wunderground.com

The relationship between precipitation and user volumes is strongest at the weekly and daily level. However, in order to remove the impact of daily variation, which was strong at the Mississippi River Trail, we will use weekly data. Figures 6.3.6 and 6.3.7 show that the weeks with the highest amount of precipitation tend to fall near the bottom or middle of the range. This relationship is similar for both trails.

Figure 6.3.6 Precipitation and User Volumes, Jefferson Davis Trail

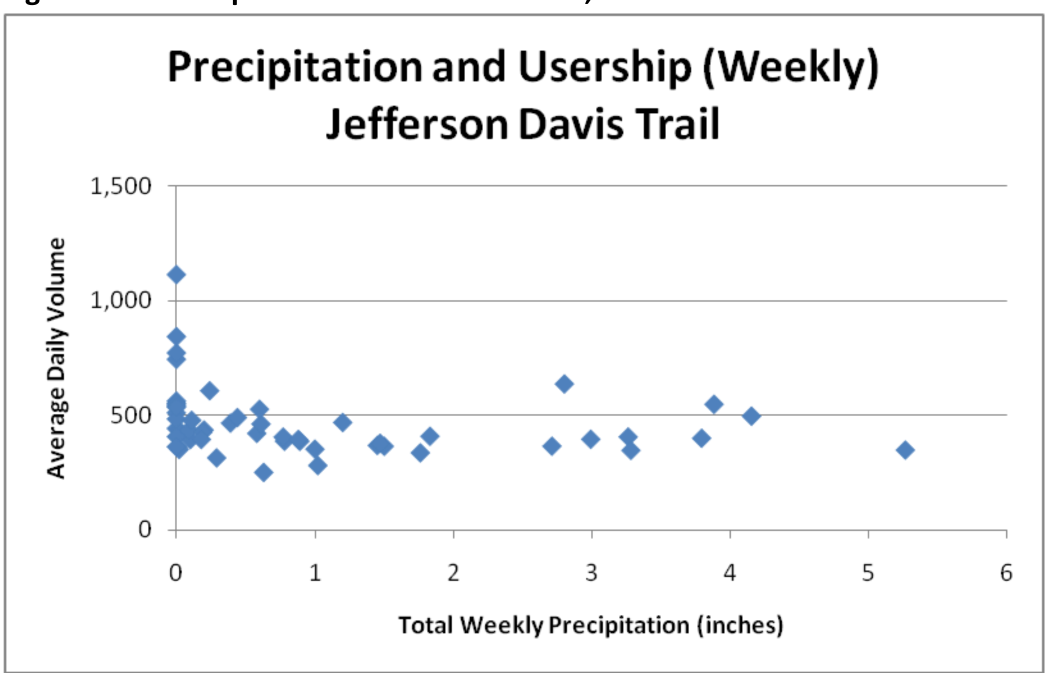
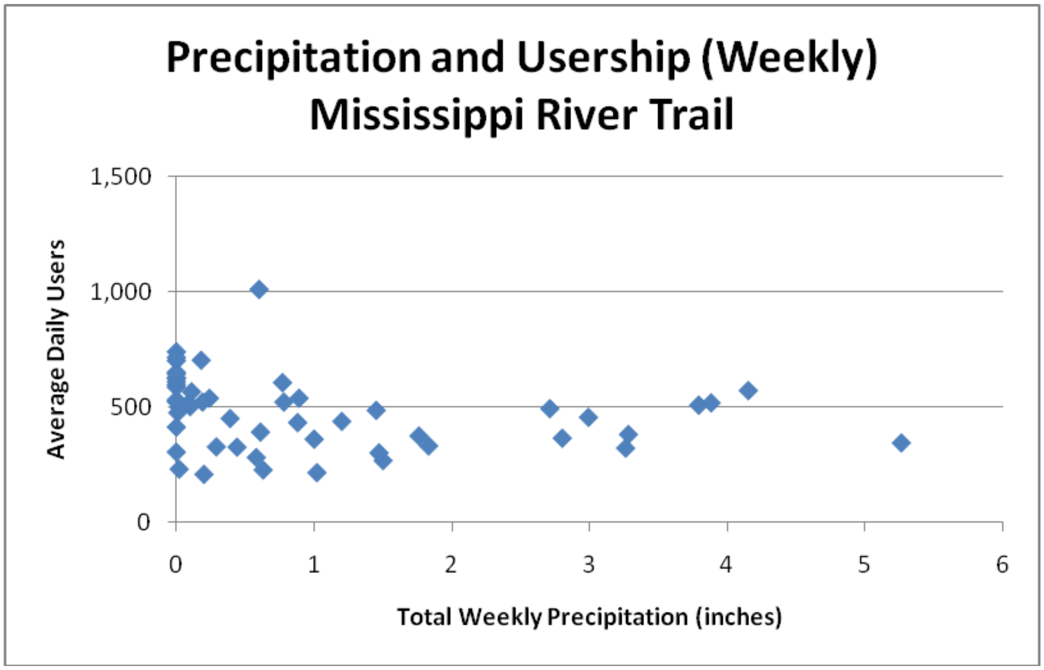


Figure 6.3.7 Precipitation and User Volumes, Mississippi River Trail



7.0 Urban Comparisons

This section gives context to both manual and electronic count data by comparing data to areas of similar size, climate, etc. It also attempts to put the data in relation to the region and national leaders in active transportation.

Figure 7.0.1. Camp Street in the Central Business District, July 2011

7.1 Manual Count Comparisons

Existing public data on manual pedestrian and bicycle counts is difficult to come by and even more difficult to compare due to inconsistencies in methodologies. The urban areas selected for comparison met the following requirements:

- Easily accessible count data
- Recent counts (from either 2009 or 2010)
- Observation periods conducted from 7-9 AM and/or 4-6 PM on Weekdays
- Observed both bicyclists and pedestrians

The urban areas selected represent areas of similar population (Minneapolis, MN; Long Beach, CA;), mild winters (San Francisco, CA; Long Beach, CA; Tucson, AZ), national leaders in active transportation (San Francisco, CA; Minneapolis, MN; Seattle, WA), and a regional comparison (Nashville, TN). Both Bellevue, WA and Hartford, CT represent smaller cities. In addition, attempts were made to access the data from the NBPD Project to provide as broad a cross-section as possible. Data was not supplied to provide these comparisons.
Tables 7.1.1 and 7.1.2 compare the highest bicycle and pedestrian volumes observed from the selected urban areas. In order to meaningfully compare these areas with our manual count data for New Orleans the following methodology was followed:

- Multi-Use Paths and bridges were excluded from comparison as PBRI did not conduct manual counts at such locations.
- 2-hour count locations were utilized to create an hourly average.
- The highest count volumes were only selected from either AM or PM counts on Weekdays. Weekend counts were disregarded as PBRI did not conduct manual counts on weekends.

The gender of active transportation users is also an important point of comparison. Since the majority of the accessible count reports did not provide sufficient data on gender compositions at specific locations, data from the American Community Survey is utilized to provide comparisons at the city-level.

Comparing the Highest Bicycle Sites

From Table 7.1.1 below, New Orleans falls below recognized national leaders in average hourly bicyclists at the highest volume sites. It also falls below cities with similar populations and cities with mild winters. It does, however, have twice the average hourly bicyclists as the only regional comparison, Nashville, and approximately twice the average hourly bicyclists as Bellevue, WA or Hartford, CT. Of course, these comparisons are extremely limited by the low number of comparison cities and differences in population, climate, geography, etc.

Table 7.1.1 National Manual Count Comparison of Highest Bicycle Volumes

	Urban Comparison: Hourly Bicyclists			
	Year	Hourly Average	Respective Population	Intersection
San Francisco, CA	2009/2010	545*	805,235	11th & Market
Minneapolis, MN	2009	317	385,378	SE 15th Ave & SE University
Tucson, AZ	2010	273	520,116	University Blvd & Park Ave
Seattle, WA	2010	144	608,660	NE Ravenna Blvd & E Greenlake
Long Beach, CA	2009	67	462,604	2nd Street & Bayshore
New Orleans, LA	2011	56	343,829 (2010)	Camp St & Calliope St
Bellevue, WA	2010	34	122,363	Bike lane on 118th Ave SE N/O I-90
Nashville, TN	2009	27	605,473	Belmont Boulevard & Portland
Hartford, CT	2009	24	124,060	Franklin & Brown
Notes:	Hourly Averages are derived from volumes from weekday 2-hour counts from either 7-9AM or 4-6PM (unless otherwise specified).			
	Volumes exclude Multi-Use Path locations and bridges.			
	*This average is deduced from a count from 5:00-6:30 PM.			
	Respective Population refers to the city population during the year counts were observed.			
Sources:	SFTMA, 2010; WSDOT, 2011; Minneapolis Public Works Department, 2010; PAG, 2010; Long Beach Department of Public Works, 2009; City of Bellevue Transportation Department, 2010; CRCOG, 2009; Nashville Area MPO, 2009; U.S. Census Bureau, Population Estimates Program; U.S. Census Bureau, 2010 Redistricting Data			

Comparing the Highest Pedestrian Sites

From Table 7.1.2 below, New Orleans also falls below recognized national leaders in average hourly pedestrians at the highest sites. It falls in between the two cities with similar populations (Minneapolis and Long Beach, CA). As with bicyclists, New Orleans has twice the average hourly pedestrians as the only regional comparison, Nashville. Unlike with bicyclists, New Orleans' average hourly pedestrians are actually on par with the selected cities with mild winters, excluding San Francisco. Again, comparisons are limited by the lack of available data.

Table 7.1.2 National Manual Count Comparison of Highest Pedestrian Volumes

	Urban Comparison: Hourly Pedestrians			
	Year	Hourly Average	Respective Population	Intersection
San Francisco, CA	2009	10,042	805,235	4th Street & Market
Seattle, WA	2010	984	608,660	Broadway E & E John St
Minneapolis, MN	2009	961	385,378	SE Oak St & SE Washington Ave
Tucson, AZ	2010	487	520,116	University Blvd & Park Ave
New Orleans, LA	2011	392	343,829 (2010)	Decatur St & Canal St
Long Beach, CA	2009	360	462,604	Metro Blue Line & Anaheim
Bellevue, WA	2010	222	122,363	Bellevue Way NE & NE 4th St
Hartford, CT	2009	204	124,060	Farmington & LaSalle
Nashville, TN	2009	193	605,473	21st Avenue & Blakemore Avenue
Notes:	Hourly Averages are derived from volumes from weekday 2-hour counts from either 7-9AM or 4-6PM (unless otherwise specified).			
	Volumes exclude Multi-Use Path locations and bridges.			
	Respective Population refers to the city population during the year counts were observed.			
Sources:	SFTMA, 2010; WSDOT, 2011; Minneapolis Public Works Department, 2010; PAG, 2010; Long Beach Department of Public Works, 2009; City of Bellevue Transportation Department, 2010; CRCOG, 2009; Nashville Area MPO, 2009; U.S. Census Bureau, Population Estimates Program; U.S. Census Bureau, 2010 Redistricting Data			

Comparing the Gender Split for Bicyclist and Pedestrian Commuters

Commuting data from the U.S. Census Bureau's American Community Survey provides additional context for the state of active transportation in New Orleans. The analysis compares New Orleans' female bicycle and pedestrian commuters to national leaders in active transportation, the South Region (as defined by the U.S. Census), and other cities in Louisiana.

Comparing Female Bicyclists with National Leaders in Active Transportation

Table 7.1.3 ranks the ten highest rates of commuting by bicycle for cities over 250,000 in 2009 (the most recent ACS data). While New Orleans had the sixth highest rate of commuting by bicycle, its gender split was less favorable. Of these "top ten" cities, New Orleans ranks second to last with 29.4% female bicycle commuters. PBRI data mirror the ACS data with only an estimated 28% of female cyclists identified during the manual counts. Minneapolis was the top city for female bicycle commuting with 45.4%.

Table 7.1.3 Bicycle Commuting in Cities over 250,000 in 2009

Top 10 Cities over 250,000 for Bicycle Commuting, 2009		
City	Bicycle Mode Share	Female Bicyclists
Minneapolis, MN	4.04%	45.4%
Portland, OR	6.18%	39.1%
Washington, DC	2.28%	37.6%
Boston, MA	2.19%	37.5%
Philadelphia, PA	2.24%	36.7%
Oakland, CA	2.70%	33.7%
San Francisco, CA	3.20%	31.4%
Seattle, WA	3.17%	30.2%
New Orleans, LA	2.57%	29.4%
2011 PBRI Findings	n/a	28.0%
Honolulu, HI	2.42%	21.5%
Note	Total commuting population excludes those that work at home	
Source	U.S. Census Bureau, 2009 American Community Survey, Table B08006	

Comparing Female Bicyclists at the Regional Level

Regional trends, as illustrated in Table 7.1.4, show that New Orleans' relatively low rate of female bicyclists is typical for cities over 250,000 in the South Region. In 2009, the South Region had both the lowest bicycle mode share and rate of female bicyclists. Some South Region cities over 250,000 (Washington, DC; Virginia Beach, VA; and Lexington-Fayette, KY) had higher rates of female bicyclists than New Orleans. Even so, New Orleans had the highest overall mode share for bicyclists in South Region cities over 250,000.

Table 7.1.4 Bicycle Commuting by Region in 2009

Regional Bicycling Commuting Statistics, 2009		
Geography	Bicyclist Commuters	Female Bicyclists
West Region	**1.12%**	**27.84%**
Midwest Region	**0.49%**	**26.44%**
Northeast Region	**0.50%**	**25.95%**
South Region	**0.33%**	**25.34%**
Virginia Beach, VA	0.98%	49.40%
Washington, D.C.	2.28%	37.58%
Lexington-Fayette, KY	0.88%	32.33%
Tampa, FL	0.88%	29.40%
New Orleans, LA	2.57%	29.37%
2011 PBRI Findings	n/a	28.00%
Atlanta, GA	1.15%	26.57%
Baltimore, MD	1.03%	24.27%
Austin, TX	1.10%	22.99%
Tulsa, OK	0.64%	16.87%
Raleigh, NC	0.71%	13.21%
United States	**0.58%**	**26.74%**
Notes	Selected cities in the South Region represent the 10 highest commuting rates for cities over 250,000	
	Total commuting population excludes those that work at home	
Source	U.S. Census Bureau, 2009 American Community Survey, Table B08006	

Comparing Female Bicyclists at the State Level

In order to compare New Orleans to other cities in Louisiana, data had to be retrieved from the 2007-2009 American Community Survey. This three-year aggregate data source allows for larger sample sizes and comparison of smaller geographic areas. Table 7.1.5 summarizes the resulting bicycle commuting patterns in Louisiana. While New Orleans had the highest bicycle mode share by far, its rate of female bicyclists was only mediocre compared to other Louisiana cities. Lake Charles, Lafayette, Alexandria, and Metairie all had higher rates of female bicyclists. Louisiana, as a whole, had a higher average bicycle mode share than the South Region but a lower rate of female bicyclists. It was lower in both categories compared to the national average. Again, the margin of error when comparing smaller sample populations is greater than it is for larger populations. This may skew data for smaller cities like Lake Charles, Alexandria, Kenner and Bossier City.

Table 7.1.5 Bicycle Commuting in Louisiana, 2007-2009

Bicycle Commuting in Louisiana, 2007-2009		
Geography	Bicyclist Commuters	Female Bicyclists
Lake Charles	0.35%	56.88%
Alexandria	0.22%	45.24%
Lafayette	0.91%	33.73%
Metairie	0.41%	27.72%
New Orleans	1.76%	23.61%
Kenner	0.23%	20.00%
Baton Rouge	0.55%	14.44%
Bossier City	0.13%	0.00%
Shreveport	0.07%	0.00%
Louisiana	0.37%	21.08%
South Region	0.32%	23.55%
United States	0.55%	25.96%
Note	Louisiana cities selected were the only geographies with data available	
	Total commuting population excludes those that work at home	
Source	U.S. Census Bureau, 2007-2009 American Community Survey, Table B08006	

Comparing Female Pedestrians with National Leaders in Active Transportation

Table 7.1.6 ranks the fifteen highest rates of pedestrian commuting for cities over 250,000 in 2009. New Orleans had the lowest rate of pedestrian commuting amongst these national leaders and its gender split was second to last. PBRI's 2011 manual counts did, however, show as slightly larger share of female pedestrians with a total of 39.7%, 9% higher than the ACS data.

Table 7.1.6 Pedestrian Commuting in Cities over 250,000 in 2009

Top 15 Cities over 250,000 for Pedestrian Commuting, 2009		
City	Pedestrian Commuters	Female Pedestrians
Philadelphia, PA	9.00%	60.00%
Baltimore, MD	7.42%	53.19%
New York, NY	10.70%	52.48%
Pittsburgh, PA	12.73%	52.06%
Honolulu, HI	9.04%	52.03%
Chicago, IL	6.19%	52.01%
San Francisco, CA	11.10%	51.74%
Boston, MA	14.67%	49.23%
Seattle, WA	8.16%	49.04%
Buffalo, NY	6.52%	48.52%
Washington, D.C.	11.71%	47.19%
Minneapolis, MN	6.70%	42.13%
Newark, NJ	8.41%	40.65%
New Orleans, LA	6.01%	30.91%
2011 PBRI Findings	n/a	39.70%
Cincinnati, OH	6.30%	30.84%
Note	Total commuting population excludes those that work at home	
Source	U.S. Census Bureau, 2009 American Community Survey, Table B08006	

Comparing Female Pedestrians at the Regional Level

Even when compared to the South Region trends, New Orleans' rate of female pedestrians is low as illustrated in Table 7.1.7. As with bicyclist commuters, in 2009 the South Region had both the lowest pedestrian mode share and rate of female pedestrians. If we compared PBRI's 2011 manual count results to the selected South Region cities, the result is only marginally better. The female pedestrian rate of 39.7% would only put New Orleans ahead of Charlotte, NC and Miami, FL. Even so, New Orleans ranks third in pedestrian mode share overall for cities over 250,000 in the South Region.

Table 7.1.7 Pedestrian Commuting by Region in 2009

Regional Pedestrian Commuting Statistics, 2009		
Geography	Pedestrian Commuters	Female Pedestrians
Northeast Region	**4.92%**	**49.88%**
West Region	**3.14%**	**46.00%**
Midwest Region	**2.88%**	**45.70%**
South Region	**1.97%**	**42.76%**
Baltimore, MD	7.42%	53.19%
Raleigh, NC	2.64%	49.44%
Washington, D.C.	11.71%	47.19%
El Paso, TX	2.55%	43.49%
Tampa, FL	2.49%	42.77%
Lexington-Fayette, KY	3.69%	41.75%
Atlanta, GA	4.81%	41.71%
Charlotte, NC	2.57%	39.20%
Miami, FL	3.54%	36.42%
New Orleans, LA	6.01%	30.91%
2011 PBRI Findings	n/a	39.70%
United States	**2.99%**	**46.36%**
Notes	Selected cities in the South Region represent the 10 highest commuting rates for cities over 250,000	
	Total commuting population excludes those that work at home	
Source	U.S. Census Bureau, 2009 American Community Survey, Table B08006	

Comparing Female Pedestrians at the State Level

In order to compare pedestrians in New Orleans to other cities in Louisiana, data had to be retrieved from the 2007-2009 American Community Survey. This three-year aggregate data source allows for larger sample sizes and comparison of smaller geographic areas. Table 7.1.8 summarizes the resulting pedestrian commuting patterns in Louisiana. As with bicyclist commuting, New Orleans had the highest mode share for pedestrians in the state. Also like the bicyclist commuting patterns, the rate of female pedestrians commuting in New Orleans was in the middle compared to other Louisiana cities. Lake Charles, Alexandria, Shreveport, and Baton Rouge all had higher rates of female pedestrians. Interestingly, both the average pedestrian mode share and rate of female pedestrians were higher in Louisiana than for the South Region as a whole. Still, both of these categories were lower when Louisiana is compared to the national average.

Table 7.1.8 Pedestrian Commuting in Louisiana, 2007-2009

Pedestrian Commuting in Louisiana, 2007-2009		
Geography	Pedestrian Commuters	Female Pedestrians
Lake Charles	2.05%	65.62%
Alexandria	2.10%	63.05%
Shreveport	2.29%	56.77%
Baton Rouge	3.49%	52.53%
New Orleans	6.07%	39.55%
Lafayette	2.53%	38.58%
Metairie	2.03%	38.29%
Kenner	1.06%	33.94%
Bossier City	3.26%	30.05%
Louisiana	2.07%	44.96%
South Region	1.97%	42.73%
United States	2.99%	46.14%
Notes	Louisiana cities selected represent the only geographies with data available	
	Total commuting population excludes those that work at home	
Source	U.S. Census Bureau, 2007-2009 American Community Survey, Table B08006	

7.2 Electronic Count Comparisons

Daily averages were taken from the Mississippi River Trail and Jefferson Davis Trail and then compared alongside other off-street, multi-use urban trails in large U.S. urban areas. It should be noted that comparison between other urban areas is complicated by:

- Varying count methodologies (manual counts vs. electronic counts)
- Time, season, and length of the observation period which would affect the daily average or extrapolation
- Demographic differences

There is also a lack of easily accessible, relevant data for regional comparison so the majority of comparison is to larger cities or areas with progressive active transportation programs like Minneapolis and Marin County, CA. Also, several trails have been recognized by the Rails-To-Trails Hall of Fame, including the Pinellas Trail, Minuteman Bikeway; Monon Trail; and Burke Gilman Trail (Rails-to-Trails Conservancy, 2011).

Given these limitations, the comparison shows that the two New Orleans trails ranked low compared to national leaders. While New Orleans' relatively low population in comparison to larger cities could impact the ranking, comparisons to similarly sized cities show that there is potential to grow New Orleans' trail use numbers. Minneapolis, with a similar population, has a trail with 3 times the traffic compared to New Orleans. Marin County, CA has a lower population base, but has a trail with almost 5 times the traffic. The most similar climatic comparison is the Pinellas Trail in Florida which also shows significantly higher numbers.

While the Mississippi River Trail and Jefferson Davis Trail may have low volumes compared to these national leaders, they may be well above the national or regional average. The only way to be sure is to conduct more electronic counts at the regional level. Future locations could include the Wisner Trail in New Orleans, the Tammany Trace in St. Tammany Parish, and different points along both banks of the Mississippi River, up to Baton Rouge. These regional urban comparisons would be valuable as they would have similar demographic and geographic constraints.

Table 7.2.1 National Trail Comparison for New Orleans Trails

Multi-Use Urban Trail Comparisons				
Trail	Location	Year	Respective Population	Average Daily Users
Hudson River Greenway	New York City, NY	2010	8,175,133	6,216*
Capital Crescent	Washington, D.C.	2006	583,978	3,288
Pinellas Trail	Pinellas County, FL	2008	910,058	3,000
Minuteman Bikeway	Boston, MA	2010	617,594	2,908*
Mill Valley-Sausalito Path	Marin County, CA	2010	252,409	2,140
Monon Trail	Indianapolis, IN	2000	781,870	1,838
Midtown Greenway	Minneapolis, MN	2009	385,378	1,622
Burke Gilman Trail	Seattle, WA	2008	602,934	1,200
Los Gatos Creek Trail	San Jose, CA	2010	945,942	1,080**
Strand Path	San Diego, CA	2007-2008	1,305,754 (2008)	500
Mississippi River Trail	New Orleans, LA	2010-2011	343,829 (2010)	478
Jefferson Davis Trail	New Orleans, LA	2010-2011	343,829 (2010)	464
Sources	NYCDOT, 2011; CCCT, 2006; Pinellas County Communications Department, 2008; Cathy Buckley of Boston Region MPO (2010); Walk Bike Marin, 2010; Eppley Institute for Parks and Public Lands & the Center for Urban Policy and the Environment, 2001; Minneapolis Public Works Department, 2009; Tulinksy, 2009; City of San Jose Department of Parks, Recreation, and Neighborhood Services, 2010; Caltrans, 2010; U.S. Census Bureau, Population Estimates Program; U.S. Census Bureau, 2010 Redistricting Data			
Notes	*The Hudson River Greenway is the result of an 18-hour count and The Minuteman Trail number is the result of a 12-hour count, so their numbers are not averages and do not include all 24 hours.			
	**Los Gatos Creek Trail volume is based on a 12 hour count which is assumed to represent total daily users as trails are closed the other 12 hours of the day.			
	Pinellas and Monon Trail volumes are based on monthly data. Capital Crescent volume is based on weekly data. Mill Valley-Sausalito Path is based on data from March-November.			
	The Midtown Greenway location utilized is at Cedar Avenue as it was the highest location with the most days of the year actually observed. It does not include pedestrians.			
	Respective Population refers to the city or county population for the area during the year counts were observed.			

8.0 Conclusion

This section synthesizes the trends and data presented in this report.

Bicycle Activity in New Orleans

Bicycle Estimated Daily Traffic (EDT) at PBRI's manual count sites are low compared to national leaders in active transportation like San Francisco, Seattle, and Minneapolis (SFTMA, 2010; WSDOT, 2011; Minneapolis Public Works Department, 2010). However, EDT increased 20% at the sites observed in both 2010 and 2011. For both years the highest traffic sites are those located the closest to the Central Business District (CBD).

Helmet use around New Orleans appears to be very low, around 16% in 2011. While this is an improvement from the 10% observed in 2010, it is still extremely low compared to national leaders like Portland and Minneapolis which have helmet use rates of 77% and 64% respectively (Bike Walk Twin Cities, 2010; PBOT, 2010).

The percentage of bicyclists that are female increased 1.5 percentage points from 2010 to 2011 but females still only account for 28% of all bicyclists. While low, this percentage is similar to findings from recent count studies in Minneapolis (28%) and Portland (31%) which are considered national leaders in active transportation (Bike Walk Twin Cities, 2010; PBOT, 2010).

Manual Counts show that in both 2010 and 2011 approximately 75% of bicyclists traveled the right way, in the road with the flow of traffic. Bicyclists traveling the wrong way, in the road against the flow of traffic, decreased from 12% in 2010 to 10% in 2011. At the same time, bicyclists using sidewalks increased from 13% to 16%. Bicyclists on the neutral ground accounted for less than 1% of observed bicyclists in both years. While the shift from traveling the wrong way in the road to traveling on the sidewalk is potentially troubling, overall there was no significant change in directional composition from 2010 to 2011.

Pedestrian Activity in New Orleans

Pedestrian Estimated Daily Traffic (EDT) at PBRI's manual count sites are low compared to national leaders in active transportation like San Francisco, Seattle, and Minneapolis (SFTMA, 2010; WSDOT, 2011; Minneapolis Public Works Department, 2010). Furthermore, pedestrian activity does not appear to be increasing significantly as EDT increased only 1% at the sites observed in both 2010 and 2011. The sites with the highest traffic are geographically dispersed, though most appear to be the result of surrounding land use as many are destination shopping or entertainment areas.

Female pedestrians decreased less by less than 1% from 2010 to 2011. For both years, the percentage is approximately 40%, much higher than the bicyclist female percentage.

The overwhelming majority of pedestrians, 91% in 2010 and 93% in 2011, were observed traveling on the sidewalk. Street pedestrians were around 5% in both years while neutral ground pedestrians were around 3% each year.

Impact of Bicycle Facilities

In order to discern any potential impact of installing bicycle infrastructure, sites were divided into two categories: those with bicycle facilities present or adjacent and those with no nearby bicycle facilities. These categories are compared in terms of relative change from 2010 to 2011 in the table below.

Table 8.0.1 Attribute Comparison: Bicycle Facilities

Change in Site Statistics, 2010-2011					
Sites	Bicyclist EDT	Pedestrian EDT	Helmet Use	% Female	% Right Way
Bike Facilities Present or Adjacent	40.6%	-18.9%	6.6%	0.7%	-0.8%
No Nearby Bicycle Facilities	5.2%	10.9%	5.1%	2.1%	0.0%
All Facilities	19.5%	0.2%	5.6%	1.5%	-1.1%

Table 8.0.1 shows that the sites with bicycle facilities present or adjacent saw their bicycle EDT increase at a much more rapid rate than those with no nearby bicycle facilities, 41% to 5%. Conversely, pedestrian EDT decreased by 19% at sites with bicycle facilities present or adjacent while it increased 11% at sites with no nearby bicycle facilities.

If there is a relationship between the presence of bicycle facilities and compositional statistics like helmet use, the percentage of females, and travel orientation it is subtle. Helmet Use increased at a slightly higher rate at sites with bicycle facilities present or adjacent. The percentage of bicyclists that were female increased more rapidly at sites with no bicycle facilities nearby. Also, bicyclists traveling the right way decreased slightly at sites with bicycle facilities present or adjacent while they stayed the same at sites with no nearby bicycle facilities.

Multi-Use Trails

The Jefferson Davis Trail and Mississippi River Trail have similar volumes with each recording, on average, just under 500 users a day over 12 months. However, Average Daily Traffic (ADT) at both trails is variable by season with the highest ADT volumes occurring during the springtime/festival season and the lowest occurring during the summer. May has an ADT volume of 713.8 while August has an ADT volume of 353.1. The trails differ though in their hourly patterns of use. The Jefferson Davis Trail is used on a more consistent basis throughout the day while the Mississippi River Trail is used almost exclusively during daylight hours and then mostly around commuting times.

Average Daily Traffic at both trails is low when compared to nationally recognized trails. While many of these trails are located in much larger urban areas, Minneapolis, with a similar population, has 3 times the traffic on its Midtown Greenway.

Evaluating Active Transportation in New Orleans

New Orleans ranks high for large American cities in both bicycle and pedestrian mode shares (ACS, 2009). These mode shares make it one of the top cities in the census-designated South Region. However, as Section 7.0 points out, the South Region ranks last in the nation for active transportation mode shares. It also ranks last in terms of female bicyclists.

Unfortunately, regarding female bicyclists, New Orleans is low compared to the nation, region, and state. If female bicyclists are an indicator species, as research suggest, then active transportation in New Orleans has immense potential to grow and improve (Baker, 2009). Though New Orleans is already a regional leader in active transportation, if its potential is realized, New Orleans could emerge as a national leader. In fact, it may well be on its way as overall bicycle volumes, female bicyclists, and helmet use appear to be increasing.

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Appendices

Appendix I: Technical Appendix

- Site Characteristics
- Manual Count Protocol Sheet
- Manual Count Observation Sheets
- Manual Count Weather Data
- Eco-Counter Accuracy Control Counts
- IN/OUT Ratio and Average Temperatures

Appendix II: Manual Count Extrapolation Methodology

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- NBPD Project Extrapolation Worksheet
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Appendix III: Automatic Count Data

- Data Sorted by Units of Time

Appendix IV: Manual Count Data

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- Extrapolated Estimated Daily Traffic Figures for Manual Counts, 2010-2011

Appendix I: Technical Appendix

Manual Counts Site Characteristics

Site	Neighborhood	Facility Type	On-Street Parking	Bicycle Infrastructure Improvements	Year Installed	CBD Gateway
Decatur St	CBD/FQ	1-lane, One-Way	One Side			
Royal St	Marigny	1-lane, One-Way	Both Sides			
St. Claude Ave	Bywater	4-Lane, Divided	Both Sides	Bike Lanes	2008	
Simon Bolivar Ave	Central City	4-Lane, Divided	Both Sides*	Connecting segment with sharrows	2010	X
Carondelet St	Central City	2-Lane, One Way	Both Sides**			X
St. Charles Ave	Central City	6-Lane, Divided	Both Sides			X
Camp St	Central City	2-Lane, One Way	One Side	Connecting segment with sharrows	2010	X
Magazine St	Central City/ LGD	2-Lane, One Way	Both Sides	Connecting segment with sharrows	2010	X
Magazine St (Uptown)	Uptown	2-Lane	None			
Esplanade Ave	Mid-City	4-Lane, Divided	Both Sides			
Paris and Burbank	Gentilly	4-Lane, Divided	Both Sides			
Gentilly Blvd	Gentilly	6-Lane, Divided	None	Bike Lanes	2010	
Harrison Ave	Lakeview	4-Lane, Divided	Both Sides	Connecting segment with bike lanes	2009	
Metairie Hammond Hwy	Bucktown	2-Lane	None			
Papworth Ave	Metairie	2-Lane	None			
Notes:	CBD is the Central Business District. FQ is French Quarter. LGD is Lower Garden District. Orleans Parish neighborhood classification derived from Greater New Orleans Community Data Center (GNOCDC, 2002).					
	*Facility terminates into Earhart Blvd as a 2-lane, one-way street with no parking					
	**One side of the block observed on Carondelet has an off-street parking strip immediately perpendicular to the road.					

Bike Ped Observation Protocol (Tulane)

Rationale

In 2009-2011, the city of New Orleans Department of Public Works and the State of Louisiana Department of Transportation will install approximately fifty miles of bicycle lanes in New Orleans. These bike lanes will run through several neighborhoods in New Orleans. We would like to examine the effect of bike lanes on ridership and pedestrian behavior in New Orleans.

Summary

This data collection method was created by Kathryn Parker, MPH. The data collection sheet is based upon examples of other pedestrian and bicycle data collection methods from the United States Department of Transportation.[1] The method is based upon two individuals counting bicycle riders on the street, sidewalk and neutral ground before and after the installation of bike lanes. The counts of pedestrians will also be made. The data can be analyzed to find the number of cyclists by direction of travel, specific location, (i.e. street, sidewalk or neutral ground) gender, race and approximate age.

Observation Areas

Each group of streets will have different observation areas. These areas will be provided on maps we give to you.

Two observers should stand or sit at the designated location as indicated by the observation area maps. One observer should be located at each side of the street, within eyesight of the other observer.

Training and Certification

All observers will read this protocol with the trainer and then practice near the corner of N. Rampart and Canal Streets. Observers will be certified with 80% agreement with the trainer after 30 minutes of observation.

Codes and Recoding

Intersection: Usually, this will be Broad and Lafitte; etc.

Temperature: Observers will leave this section blank. The temperature will be filled out by the PRC Assistant Director using the average hour weather data from www.wunderground.com

Rain: Observers will record if there are any rain showers.

Observer Name: Observers will record their first and last name

Hour: example: 7:00-8:00am will read: 7:00am. Only one hour should be indicated per time slot. If the observer sees that they are running out of room, they may use a time slot for every half hour or less.

Comments: Observers should note if there are any unusual circumstances affecting lane usage, such as cars parked on the bike lane or unsafe riding conditions. It should also be noted if another observer substitutes counting by adding their name and the time they observed under comments (i.e., for a bathroom break).

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[1]Schneider, Robert; Patton, Robert; Toole, Jennifer; Raborn, Craig. Pedestrian and Bicycle Data Collection in United States Communities: Quantifying Use, Surveying Users, and Documenting Facility Extent. January 2005. Pedestrian and Bicycle Information Center, University of North Carolina at Chapel Hill. Sponsored by the Federal Highway Administration.

Observation Procedures

Observers will arrive 10 minutes early to the intersection of the observation area so that they will be ready to observe promptly at the top of the hour. After filling out the top of the form for the intersection, rain, name, day, date and hour; observers will then observe the cyclists and pedestrians at both sides of the street. Observers should imagine a line in the middle of the block as the observation plane. No cyclist or pedestrians will be counted unless they cross that observation plane.

Observers may sit or stand, as long as they have a view of the observation plane on both sides of the street. Both observers will observe all cyclists and pedestrians at all times. One observer will be designated to observe the sidewalk, street, and neutral ground, while the other observer will only observe the sidewalk and street.

As soon as the observers see a cyclist cross the observation plane, they will mark a straight line in the appropriate box. The fifth line in every box will be made diagonally across the previous four lines. Observers will note the gender, race, approximate age and direction the cyclist is riding. Approximate age is indicated by 'adult' or 'child,' i.e. appearance of high school or older as 'adult' and middle school and younger as 'child.' Riding with traffic is denoted as 'Right Way' (RW); riding against traffic is denoted as 'Wrong Way.' (WW) Observers will also count the number of cyclists riding on the sidewalk and neutral ground and mark the appropriate age, race, and gender for the rider.

Observers will also count pedestrians in the same manner on the separate pedestrian form; however they will not note the direction of travel for pedestrians.

For streets with bike lanes, observers will count bikers in the same manner described above; additionally, they will note if the biker is riding in or out of the bike lane. Observers will mark people using the bike lane below the dotted line; those who are riding out of the lane are marked above the dotted line.

Observers should have their UNO identification cards at all times. If at any time there is an unsafe activity, the observers should leave the area, return to UNO and inform Dr. Fields of any situation that interfered with the data collection.

Data collection times will be three days per week, with 2 special event counts on either Friday or Saturday during Jazz Fest. Data will be collected Tuesday, Wednesday, and Thursday from 7-9 AM and 4-6 PM.

Bicycle Observation Tally Form

Observer Name: ______________________ Intersection: ______________________

Day: ________ Date: ________ Temperature: _____ Rain: Y/N

Hour	Street								Neutral Ground				Sidewalk				Helmet?
	Women		Girls		Men		Boys		Women	Girls	Men	Boys	Women	Girls	Men	Boys	
	RW	WW	RW	WW	RW	WW	RW	WW									
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
__:__	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
__:__	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
__:__	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	

Comments:

Pedestrian Observation Tally Form

Observer Name: ______________________________ Intersection: ______________________________

Day: ________ Date: ________ Temperature: _____ Rain: Y/N

Hour	Street				Neutral Ground				Sidewalk			
	Women	Girls	Men	Boys	Women	Girls	Men	Boys	Women	Girls	Men	Boys
	W	W	W	W	W	W	W	W	W	W	W	W
__:__ __	B	B	B	B	B	B	B	B	B	B	B	B
	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W
__:__ __	B	B	B	B	B	B	B	B	B	B	B	B
	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W
__:__ __	B	B	B	B	B	B	B	B	B	B	B	B
	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W
__:__ __	B	B	B	B	B	B	B	B	B	B	B	B
	O	O	O	O	O	O	O	O	O	O	O	O

Comments:

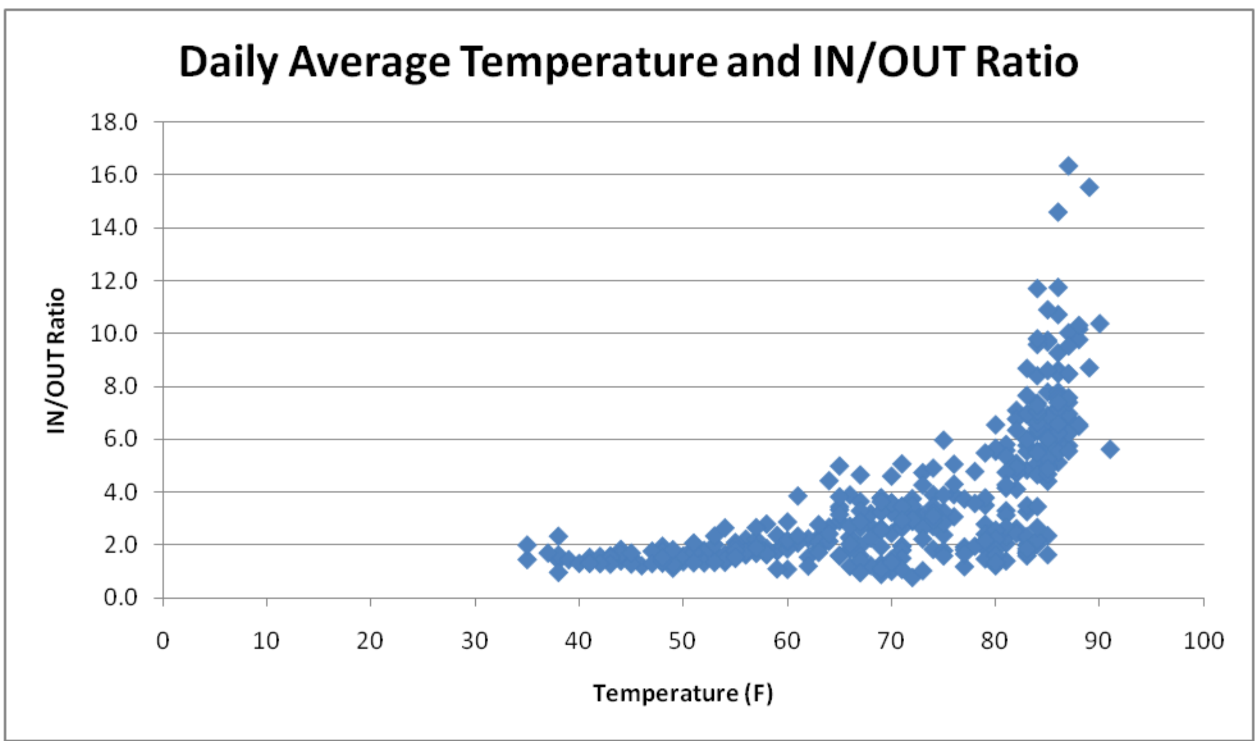
2011 Manual Counts Weather Data

		Temperature (°F)			Precip.	Observed Weather Events
		High	Average	Low	(in)	
Harrison Ave	4/5/2011	66	59	52	0	None
	4/6/2011	74	62	49	0	None
Metairie Hammond Hwy	4/5/2011	66	59	52	0	None
	4/7/2011	83	71	59	0	None
Papworth Ave	4/5/2011	66	59	52	0	None
	4/7/2011	83	71	59	0	None
Gentilly Blvd	4/12/2011	79	71	63	0	None
	4/14/2011	82	73	63	Trace	None
Esplanade Ave	4/12/2011	79	71	63	0	None
	4/14/2011	82	73	63	Trace	None
Royal St	4/19/2011	88	81	74	0	None
	4/20/2011	89	82	75	0	None
St. Claude Ave	4/26/2011	87	80	73	Trace	None
	4/28/2011	78	70	62	0	None
Magazine St (Uptown)	4/26/2011	87	80	73	Trace	Light Rain in AM; Strong Wind in both
	4/28/2011	78	70	62	0	None
Paris and Burbank	5/3/2011	78	68	58	Trace	None
	5/4/2011	75	67	58	0	None
Camp St (Gateway)	5/3/2011	78	68	58	Trace	None
	5/4/2011	75	67	58	0	None
Magazine St (Gateway)	5/10/2011	89	81	72	0	None
	5/12/2011	89	80	71	0	None
Decatur St	5/10/2011	89	81	72	0	None
	5/11/2011	88	80	71	0	None
Simon Bolivar Ave (Gateway)	5/10/2011	89	81	72	0	None
	5/12/2011	89	80	71	0	None
Carondelet St (Gateway)	5/17/2011	76	67	57	0	None
	5/19/2011	87	77	66	0	None
St. Charles Ave (Gateway)	5/17/2011	76	67	57	0	None
	5/18/2011	81	70	58	0	None
Source: The Weather Underground at www.wundergound.com						

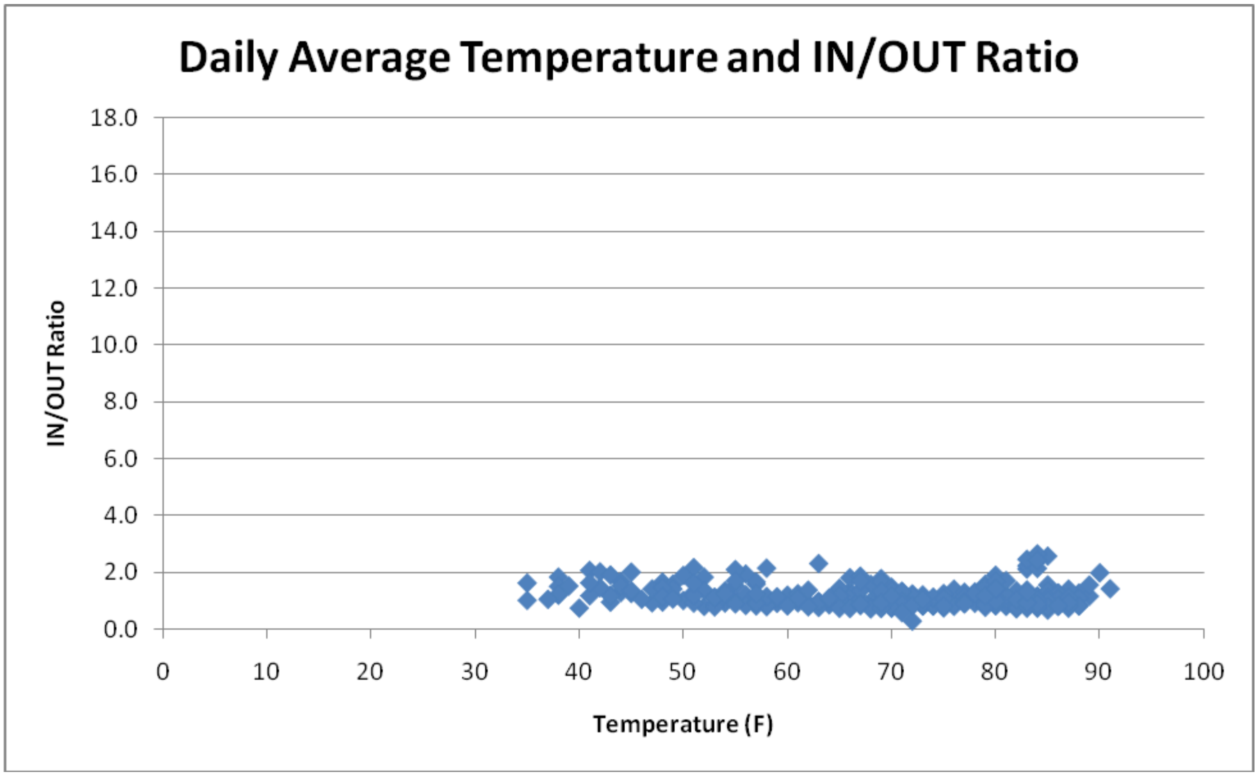
Eco-Counter Accuracy Control Counts for Mississippi River Trail

		Direction	Total	% of Observed	Overall Capture Rate
3/22/11 5:00-6:00pm	Manual Count	IN	45	100.00%	108.89%
		OUT	45	100.00%	
	Eco-Counter	IN	71	157.78%	
		OUT	27	60.00%	
4/1/11 5:00-6:00pm	Manual Count	IN	31	100.00%	89.87%
		OUT	48	100.00%	
	Eco-Counter	IN	37	119.35%	
		OUT	34	70.83%	
4/19/11 4:15-6:00pm	Manual Count	IN	59	100.00%	87.70%
		OUT	63	100.00%	
	Eco-Counter	IN	71	120.34%	
		OUT	36	57.14%	
Notes	3/22/11 – Baseline count				
	4/1/11 – After height adjustment				
	4/19/11 – After sensor realignment				

Temperature and IN/OUT Ratio for Mississippi River Trail



Temperature and IN/OUT Ratio for Jefferson Davis Trail



Appendix II: Manual Count Extrapolation Methodology

Manual Counts were performed at 15 sites in Orleans and Jefferson Parish, LA. Each count site represents a total of four observation periods: two AM counts (7-9 AM) and two PM counts (4-6 PM). For all sites, with the exception of the Paris and Burbank intersection count, two volunteers observed from opposite sides of the street, creating a "plane" of observation. Observers differentiated between pedestrians and bicyclists and noted gender, race, age group, helmet use, and travel orientation. With the data collected by PBRI student workers, the following extrapolation method, derived from the National Bicycle and Pedestrian Documentation (NBPD) Project, was used to estimate daily, weekly, monthly, and annual traffic volumes of pedestrians and bicyclists.

PBRI Extrapolation Methodology

- Divide counts into AM and PM sessions. There should be two, 2-hour counts for each session.
- Come up with separate bicycle and pedestrian averages for AM and PM sessions. (i.e. for AM bicycle average, add both 2-hour AM bicycle counts and divide by the amount of hours observed, which should be four.)
- Add the bicycle and pedestrian averages together for a total user average. Then, multiply this number by 1.05 (this multiplier accounts for traffic between 11pm and 6am which is rarely manually counted and assumed to make up 5% of all daily volume).
- To calculate the daily volume, note the time (hours) that were observed for AM and PM counts. These should always be 7-9am for AM counts and 4-6pm for PM counts. Also note the month of the year. Use the NBPD Project extrapolation formula to find the corresponding adjustment factors for the time period and month. For our purposes, all manual counts are PED trails and should have been observed on a weekday. Divide total user averages by their appropriate adjustment factor to get the daily user average.
- For weekly volumes, determine the days that the AM and PM counts were observed. They may be the same or different. Use NBPD Project methodology to find the correct adjustment factor(s) for the AM and PM counts. If, for example, one AM count (2 hours) was taken on a Tuesday and the other count (2 hours) was taken on a Thursday, take the average of the two adjustment factors and apply it. Divide the AM and PM session daily user averages by their appropriate adjustment factor to get the weekly averages for AM and PM sessions.
- At this point, average the weekly user averages for the AM and PM sessions together since all unique data attributes have now been accounted for.
- Get the monthly user average by multiplying the combined AM and PM weekly average by 4.33 (the number of weeks in a year).
- In order to get the annual estimate, note the month that the counts were observed. This is done to account for seasonal variation in use. Use NBPD Project methodology to find the respective adjustment factor for the month observed under our climate pattern and divide the monthly user average by this

number. NBPD methodology provides 3 climates to choose from. For New Orleans, choose "very hot summer, mild winter." Climate is accounted for because it affects monthly patterns.

- To get monthly or daily averages from the annual estimate above, simply divide by 12 or 365 respectively.
- In order to get individual bicycle and pedestrian averages, multiply the desired average (daily, weekly, monthly, or annual) by the bicycle or pedestrian percentage observed from the manual counts at that site.

NATIONAL BICYCLE & PEDESTRIAN DOCUMENTATION PROJECT

Count Adjustment Factors

March 2009

While more year-long automatic count data is needed from different parts of the county, especially for pedestrians and on-street bicyclists, enough data now exists to allow us to adjust counts done almost any period on multi-use paths and pedestrian districts to an annual figure.

All percentages in the following tables represent the percentage of the total period (day, week, or month).

How to Use This Data

The factors in the following tables are designed to extrapolate daily, monthly, and annual users based on counts done during any period of a day, month, or year. The factors currently are designed to be used by (a) multi-use pathways (PATH) and (b) higher density pedestrian and entertainment areas (PED).

How Many Counts Can it Be Based On?

Given the variability of bicycle and pedestrian activity, we strongly encourage that all estimates be based on the average of at least two (2) and preferably three (3) counts during the same time period and week, especially for lower volume areas. For example, counts could be done from 2-4pm on consecutive weekdays (Tuesday – Thursday) during the same week, or, in consecutive weeks. Weekday counts should always be done Tuesday through Thursday, and never on a holiday. Weekend counts can be done on either day.

Bicyclists versus Pedestrians

The factors used in these formulas are for combined bicyclist and pedestrian volumes. Once you have calculated your total daily, monthly, or annual volume, you can simply multiple the total by the percent breakdown between bikes and pedestrians based on your original count information.

Start with the Hour Count

Once you have collected your count information and developed an average weekday and weekend count volume for bicyclists and/or pedestrians, pick any one (1) hour period from either of those days.

<u>Adjustment Factor</u>

Your next step is to multiply those counts by 1.05.

Sample #1

Average 1 hour weekday count: 236 bikes/peds x 1.05 = 248

Average 1 hour weekend day count: 540 bikes/peds x 1.05 = 567

NBPD Count Adjustment Factors (March 2009)

This adjustment factor is done to reflect the bicyclists/pedestrians who use the facility between 11pm and 6am, or, about 5% of the average daily total. The count formulas are all based on total counts between 6am and 10pm, since many available counts only cover those periods. If you are certain your facility gets virtually no use between those hours, you can forgo this step.

Calculate Daily Weekday and Weekend Daily Total

Identify the weekday and weekend hour your counts are from in Table 1 below. Be sure to use the PATH column for all multi-use paths, and the PED column for all higher density pedestrian areas with some entertainment uses such as restaurants. Be sure to select the correct time of year (April-September, or, October-March) as well.

Sample #2: done in June on a multiuse path (weekday = 4-5pm, weekend day = 12-1pm):

Adjusted weekday hourly count = 248/.07 = 3,542 daily users

Adjusted weekend day hourly count = 567/.1= 5,670 daily users

Calculating Average Weekly Volumes

We need to adjust these figures based on the day of the week. See table 2 below. Find the day of the week your counts were done, and factor them by that percent. If you did multiple counts on different days of the week, then take the average of those factors.

Sample #3: counts were done on a Tuesday and a Saturday.

Adjusted weekday count = 3,542/.13 = 27,246 average weekly users

Adjusted weekend count = 5,670/.18 = 31,500

Add these two figures together, and divide by 2: 27,246+31,500=58,746/2 = 29,373 people

The average weekly volumes for that month are 29,373 people.

Convert to Monthly Volumes

To convert from average weekly volumes to an average monthly volume, multiply the average weekly volume by the average number of weeks in a month (4.33 weeks).

Sample #4: 29,373 x 4.33 = 127,282 people.

This is the average monthly volume for the month the counts were conducted.

Convert to Annual Totals

To convert from the average monthly volume for the month the counts were taken into an annual total, divide the average monthly figure by the factor from Table 3 for the month the counts were conducted. Use the general climate zones described. Some climate zone types are not included.

Sample #5: counts were done in June in a moderate climate zone.

Average monthly volumes = 127,282/.08 = 1,591,037 people.

Based on these sample figures, it is estimated that almost 1.6 million people use the pathway annually.

2

Average Monthly and Daily Figures

To identify the average monthly and daily figures, simply divide the annual figure by 12 (for month) or by 365 (for daily figures).

Monthly average = 1,591,037/12 = 132,586 people

Daily Average = 1,591,037/365 = 4,359 people

Table 1

Hourly Adjustment Factors

Multi-use paths and pedestrian entertainment areas by season

	April - September 6am - 9pm					October - March 6am - 9pm			
	---- PATH------		-----PED-----			---- PATH------		-----PED-----	
	wkdy	wkend	wkdy	wkend		wkdy	wkend	wkdy	wkend
0600	2%	1%	1%	1%	0600	2%	0%	1%	0%
0700	4%	3%	2%	1%	0700	4%	2%	2%	1%
0800	7%	6%	4%	3%	0800	6%	6%	3%	2%
0900	9%	9%	5%	3%	0900	7%	10%	5%	4%
1000	9%	9%	6%	5%	1000	9%	10%	6%	5%
1100	9%	11%	7%	6%	1100	9%	11%	8%	8%
1200	8%	10%	9%	7%	1200	9%	11%	9%	10%
1300	7%	9%	9%	7%	1300	9%	10%	10%	13%
1400	7%	8%	8%	9%	1400	9%	10%	9%	11%
1500	7%	8%	8%	9%	1500	8%	10%	8%	8%
1600	7%	7%	7%	9%	1600	8%	8%	7%	7%
1700	7%	6%	7%	8%	1700	7%	5%	6%	6%
1800	7%	5%	7%	8%	1800	6%	3%	7%	6%
1900	5%	4%	7%	8%	1900	4%	2%	7%	6%
2000	4%	3%	7%	8%	2000	2%	1%	6%	6%
2100	2%	2%	6%	8%	2100	2%	1%	5%	5%

Table 2

Daily Adjustment Factors

Note: Holidays use weekend rates.

MON	14%
TUES	13%
WED	12%
THURS	12%
FRI	14%
SAT	18%
SUN	18%

Table 3

Monthly Adjustment Factors by Climate Area

	Climate Region		
Month	Long Winter Short summer	Moderate Climate	Very hot summer Mild winter
JAN	3%	7%	10%
FEB	3%	7%	12%
MAR	7%	8%	10%
APR	11%	8%	9%
MAY	11%	8%	8%
JUN	12%	8%	8%
JUL	13%	12%	7%
AUG	14%	16%	7%
SEP	11%	8%	6%
OCT	6%	6%	7%
NOV	6%	6%	8%
DEC	3%	6%	8%

Patterns of Use Comparison: NBPD Project versus Eco-Counters

Patterns of use observed by PBRI's Eco-Counters differ from those suggested by the NBPD extrapolation methodology in the following ways:

- Users observed between 10:00PM and 6:00AM at the Jefferson Davis Trail accounted for a larger share of the overall daily users (6-15%) compared to the NBPD suggested share (5%). The Mississippi River Trail, on the other hand, had a lower share than the suggested 5%, ranging from 2-5%.
- The percentage of users observed between 10:00PM and 6:00AM varied greatly between the October-March and April-September periods for the Jefferson Davis Trail. Percentages in the October-March period that were approximately twice that of the April-September period on both weekdays and weekends. Conversely, the NBPD share of 5% is suggested for all observation periods.
- For the Mississippi River Trail, the percentage of users observed between 10:00PM and 6:00AM was 1% higher in the April-September period than the October-March period for both weekends and weekdays.

Multi-Use Trail Users, 10:00PM to 6:00AM

	Percentage of Daily Users			
	Weekday		Weekend	
	October-March	April-September	October-March	April-September
NBPD	5%	5%	5%	5%
Jeff Davis	14%	6%	15%	7%
Mississippi River	4%	5%	2%	3%
Notes				

- Hourly patterns of use as suggested by the Eco-Counters are relatively similar in the October-March and April-September periods.
    - Jefferson Davis Trail
        - Weekdays: Users observed between 6:00-8:00AM and 4:00-10:00PM on weekdays generally accounted for higher percentages than suggested by NBPD. Conversely, users observed from 9:00AM-4:00PM generally accounted for lower percentages than suggested.
        - Weekends: Users observed between 6:00-8:00AM and 4:00-10:00PM on weekends generally accounted for higher percentages than suggested by NBPD. Conversely, users observed from 8:00AM-4:00PM generally accounted for lower percentages than suggested.
    - Mississippi River Trail
        - Weekdays: Users observed between 6:00-8:00AM and 4:00-7:00PM on weekdays generally accounted for higher percentages than suggested by NBPD. Conversely, users observed from 9:00AM-4:00PM and 7:00-10:00PM generally accounted for lower percentages than suggested.

- Weekends: Users observed between 6:00-11:00AM on weekends accounted for significantly higher percentages than suggested by NBPD. Conversely, users observed from 11:00AM-10:00PM generally accounted for slightly lower percentages than suggested.

Hourly Patterns of Use, April – September

	NBPD		Jeff Davis				Mississippi River			
	Multi-Use Path		Multi-Use Path				Multi-Use Path			
Time	Weekday	Weekend	Weekday	Difference	Weekend	Difference	Weekday	Difference	Weekend	Difference
0600	2%	1%	4%	2%	2%	1%	8%	6%	5%	4%
0700	4%	3%	6%	2%	4%	1%	8%	4%	11%	8%
0800	7%	6%	7%	0%	4%	-2%	7%	0%	13%	7%
0900	9%	9%	6%	-3%	6%	-3%	6%	-3%	13%	4%
1000	9%	9%	6%	-3%	6%	-3%	6%	-3%	10%	1%
1100	9%	11%	5%	-4%	7%	-4%	5%	-4%	7%	-4%
1200	8%	10%	6%	-2%	8%	-2%	4%	-4%	6%	-4%
1300	7%	9%	5%	-2%	8%	-1%	3%	-4%	5%	-4%
1400	7%	8%	5%	-2%	7%	-1%	4%	-3%	5%	-3%
1500	7%	8%	6%	-1%	7%	-1%	5%	-2%	5%	-3%
1600	7%	7%	8%	1%	8%	1%	9%	2%	5%	-2%
1700	7%	6%	8%	1%	8%	2%	13%	6%	6%	0%
1800	7%	5%	9%	2%	8%	3%	13%	6%	5%	0%
1900	5%	4%	9%	4%	10%	6%	7%	2%	3%	-1%
2000	4%	3%	5%	1%	5%	2%	2%	-2%	1%	-2%
2100	2%	2%	3%	1%	3%	1%	1%	-1%	0%	-2%
Notes	Percentages for the New Orleans trails, like those of NBPD, are percentages of the total from 6:00AM to 10:00PM. For hourly percentages of the entire day refer to Section 5.1.									

Hourly Patterns of Use, October – March

	NBPD		Jeff Davis				Mississippi River			
	Multi-Use Path		Multi-Use Path				Multi-Use Path			
Time	Weekday	Weekend	Weekday	Difference	Weekend	Difference	Weekday	Difference	Weekend	Difference
0600	2%	0%	4%	2%	2%	2%	6%	4%	3%	3%
0700	4%	2%	6%	2%	5%	3%	6%	2%	7%	5%
0800	6%	6%	7%	1%	5%	-1%	6%	0%	10%	4%
0900	7%	10%	6%	-1%	12%	2%	6%	-1%	12%	2%
1000	9%	10%	6%	-3%	7%	-3%	6%	-3%	11%	1%
1100	9%	11%	7%	-2%	8%	-3%	6%	-3%	9%	-2%
1200	9%	11%	7%	-2%	7%	-4%	7%	-2%	8%	-3%
1300	9%	10%	7%	-2%	7%	-3%	6%	-3%	7%	-3%
1400	9%	10%	6%	-3%	7%	-3%	7%	-2%	8%	-2%
1500	8%	10%	7%	-1%	8%	-2%	9%	1%	9%	-1%
1600	8%	8%	9%	1%	7%	-1%	13%	5%	8%	0%
1700	7%	5%	9%	2%	7%	2%	13%	6%	5%	0%
1800	8%	3%	7%	-1%	6%	3%	6%	-2%	2%	-1%
1900	4%	2%	5%	1%	5%	3%	1%	-3%	1%	-1%
2000	2%	1%	4%	2%	4%	3%	1%	-1%	0%	-1%
2100	2%	1%	3%	1%	3%	2%	0%	-2%	0%	-1%
Notes	Percentages for the New Orleans trails, like those of NBPD, are percentages of the total from 6:00AM to 10:00PM. For hourly percentages of the entire day refer to Section 5.1.									

- Daily patterns of use varied between the observed trails, but both were different than the patterns of use suggested by the NBPD project.
  - Jefferson Davis Trail
    - Weekdays were higher than the suggested percentages while the weekend days were lower.
  - Mississippi River Trail
    - Weekdays were generally lower than the suggested percentages while the weekend days were higher.

Daily Patterns of Use

	NBPD	Jeff Davis		Mississippi River	
		Percentage	Difference	Percentage	Difference
Monday	14%	14%	0%	12%	-2%
Tuesday	13%	14%	1%	12%	-1%
Wednesday	12%	13%	1%	12%	0%
Thursday	12%	14%	2%	12%	0%
Friday	14%	15%	1%	11%	-3%
Saturday	18%	16%	-2%	21%	3%
Sunday	18%	14%	-4%	20%	2%

- Monthly patterns of use show that neither trail fits neatly into the Moderate or Warmer climate provided by the NBPD project.
    - Jefferson Davis Trail
        - Moderate Climate: Users in the springtime (March-May) accounted for larger shares of the annual total than suggested by this climate while users in July and August accounted for significantly smaller shares.
        - Warmer Climate: Users in the April, May, September, and October accounted for larger shares of the annual total than suggested by this climate while users in the winter months (November-February) accounted for smaller shares.
    - Mississippi River Trail
        - Moderate Climate: Users in the springtime (March-May) and early fall (September and October) accounted for larger shares of the annual total than suggested by this climate while users in the summer months of July and August accounted for significantly smaller shares. Users in December and January are also underrepresented by this climate.
        - Warmer Climate: Users from April-October generally accounted for larger shares of the annual total than suggested by this climate while users in the winter months (November-February) accounted for significantly smaller shares.

Monthly Patterns of Use

	NBPD		Jeff Davis			Mississippi River		
	Moderate Climate	Warmer Climate	%	Difference		%	Difference	
				Moderate	Warmer Climate		Moderate	Warmer Climate
January	7%	10%	7%	0%	-3%	6%	-1%	-4%
February	7%	12%	7%	0%	-5%	7%	0%	-5%
March	8%	10%	10%	2%	0%	10%	2%	0%
April	8%	9%	11%	3%	2%	10%	2%	1%
May	8%	8%	13%	5%	5%	13%	5%	5%
June	8%	8%	7%	-1%	-1%	8%	0%	0%
July	12%	7%	7%	-5%	0%	9%	-3%	2%
August	16%	7%	7%	-9%	0%	8%	-8%	1%
September	8%	6%	8%	0%	2%	10%	2%	4%
October	6%	7%	9%	3%	2%	10%	4%	3%
November	6%	8%	7%	1%	-1%	6%	0%	-2%
December	6%	8%	7%	1%	-1%	4%	-2%	-4%

Appendix III: Automatic Count Data

All summary tables in this appendix reflect data collected by Eco-Counters from June 1, 2010 to May 31, 2011.

Counts Sorted by Hour of the Day

	Jefferson Davis Trail		Mississippi River Trail	
Hour	Users	Percentage	Users	Percentage
0000	2,448	1.4%	312	0.2%
0100	1,651	1.0%	153	0.1%
0200	1,453	0.9%	127	0.1%
0300	1,752	1.0%	149	0.1%
0400	1,470	0.9%	562	0.3%
0500	1,625	1.0%	3,946	2.3%
0600	4,918	2.9%	10,094	5.8%
0700	8,464	5.0%	13,309	7.7%
0800	9,658	5.7%	14,069	8.1%
0900	10,717	6.3%	14,453	8.3%
1000	9,290	5.5%	12,852	7.4%
1100	9,779	5.8%	11,230	6.5%
1200	10,578	6.2%	9,833	5.7%
1300	9,737	5.8%	8,518	4.9%
1400	9,367	5.5%	9,328	5.4%
1500	10,300	6.1%	11,660	6.7%
1600	12,259	7.2%	15,352	8.8%
1700	12,626	7.5%	16,607	9.6%
1800	11,969	7.1%	12,051	6.9%
1900	11,055	6.5%	6,006	3.5%
2000	6,686	3.9%	1,607	0.9%
2100	4,665	2.8%	698	0.4%
2200	3,578	2.1%	519	0.3%
2300	3,285	1.9%	395	0.2%

Counts Sorted by Day of the Week

	Jefferson Davis Trail		Mississippi River Trail	
Day of Week	Users	Percentage	Users	Percentage
Monday	23,317	13.8%	21,274	12.2%
Tuesday	23,509	13.9%	21,720	12.5%
Wednesday	22,668	13.4%	20,709	11.9%
Thursday	24,515	14.5%	20,967	12.1%
Friday	24,854	14.7%	19,069	11.0%
Saturday	26,517	15.7%	35,860	20.6%
Sunday	23,950	14.1%	34,224	19.7%

Counts Sorted by Month

	Jefferson Davis Trail		Mississippi River Trail	
Month	Users	Percentage	Users	Percentage
January	12,245	7.2%	10,066	5.8%
February	12,301	7.3%	11,788	6.8%
March	17,188	10.2%	17,402	10.0%
April	18,946	11.2%	18,044	10.4%
May	22,128	13.1%	23,227	13.4%
June	11,648	6.9%	12,968	7.5%
July	12,506	7.4%	15,084	8.7%
August	10,945	6.5%	13,057	7.5%
September	13,191	7.8%	16,468	9.5%
October	15,755	9.3%	16,977	9.8%
November	10,975	6.5%	11,170	6.4%
December	11,502	6.8%	7,572	4.4%
*April 29th is removed from the data because the Eco-Counter was temporarily removed				

Appendix IV: Manual Count Data

Total Actual Observed Volumes for Manual Counts

	2-hour Count Observation Totals, 2010-2011							
	Observed Bike Volumes				Observed Pedestrian Volumes			
Site	2010	2011	Difference	% Change	2010	2011	Difference	% Change
Harrison Ave***	27	33	6	22.2%	124	117	-7	-5.6%
Metairie Hammond Hwy	n/a	14	n/a	n/a	n/a	20	n/a	n/a
Papworth Ave	n/a	6	n/a	n/a	n/a	21	n/a	n/a
Gentilly and St. Anthony*	46	69	23	50.0%	126	140	14	11.1%
Esplanade Ave	105	117	12	11.4%	230	289	59	25.7%
Royal and Mandeville	377	295	-82	-21.8%	324	314	-10	-3.1%
St. Claude Ave***	96	153	n/a	n/a	230	205	n/a	n/a
Magazine Uptown	38	63	25	65.8%	330	269	-61	-18.5%
Paris and Burbank	13	10	-3	-23.1%	13	43	30	230.8%
Camp and I-10	157	249	92	58.6%	144	183	39	27.1%
Magazine and I-10**	153	223	70	45.8%	159	187	28	17.6%
Iberville and Decatur	150	199	49	32.7%	1,313	1,902	589	44.9%
Simon Bolivar and I-10**	86	150	64	74.4%	608	433	-175	-28.8%
Carondelet and I-10	87	114	27	31.0%	81	101	20	24.7%
St. Charles Ave	191	229	38	19.9%	550	501	-49	-8.9%
Total	1526	1924	n/a	n/a	4232	4725	n/a	n/a
Notes:	*Bicycle facilities installed on observed segment of facility							
	**Bicycle facilities installed on connecting segment of facility							
	***Bicycle facilities already present in 2010, either on observed segment or on connecting segment							
	There was only 1 AM shift in 2010 for St. Claude Ave							

Extrapolated Estimated Daily Traffic Figures for Manual Counts

	Estimated Daily Traffic (EDT), 2010-2011							
	Bicycles				Pedestrians			
Site	2010	2011	Difference	% Change	2010	2011	Difference	% Change
Harrison Ave***	71	87	16	22.5%	325	307	-18	-5.5%
Gentilly and St. Anthony*	151	217	66	43.7%	412	441	29	7.0%
Esplanade Ave	330	332	2	0.6%	723	819	96	13.3%
Royal and Mandeville	1,056	901	-155	-14.7%	907	959	52	5.7%
St. Claude Ave***	437	395	-42	-9.6%	1,047	529	-518	-49.5%
Magazine Uptown	121	163	42	34.7%	1,054	696	-358	-34.0%
Paris and Burbank	49	38	-11	-22.4%	49	163	114	232.7%
Camp and I-10	598	850	252	42.1%	548	624	76	13.9%
Magazine and I-10**	471	783	312	66.2%	490	657	167	34.1%
Iberville and Decatur	490	586	96	19.6%	4,289	5,600	1,311	30.6%
Simon Bolivar and I-10**	332	565	233	70.2%	2,345	1,631	-714	-30.4%
Carondelet and I-10	322	423	101	31.4%	300	375	75	25.0%
St. Charles Ave	665	748	83	12.5%	1,915	1,635	-280	-14.6%
Subtotal	5,093	6,088	995	19.5%	14,404	14,436	32	0.2%
Metairie Hammond Hwy	-	41	-	-	-	58	-	-
Papworth Ave	-	19	-	-	-	66	-	-
Total	5,093	6,148	-	-	14,404	14,560	-	-
Notes:	*Bicycle facilities installed on observed segment of facility							
	**Bicycle facilities installed on connecting segment of facility							
	***Bicycle facilities already present in 2010, either on observed segment or on connecting segment							