IMPACT OF BICYCLE INFRASTRUCTURE IMPROVEMENTS IN NEW ORLEANS, LOUISIANA

Kathryn M. Parker MPH, Janet Rice PhD, Jeanette Gustat PhD

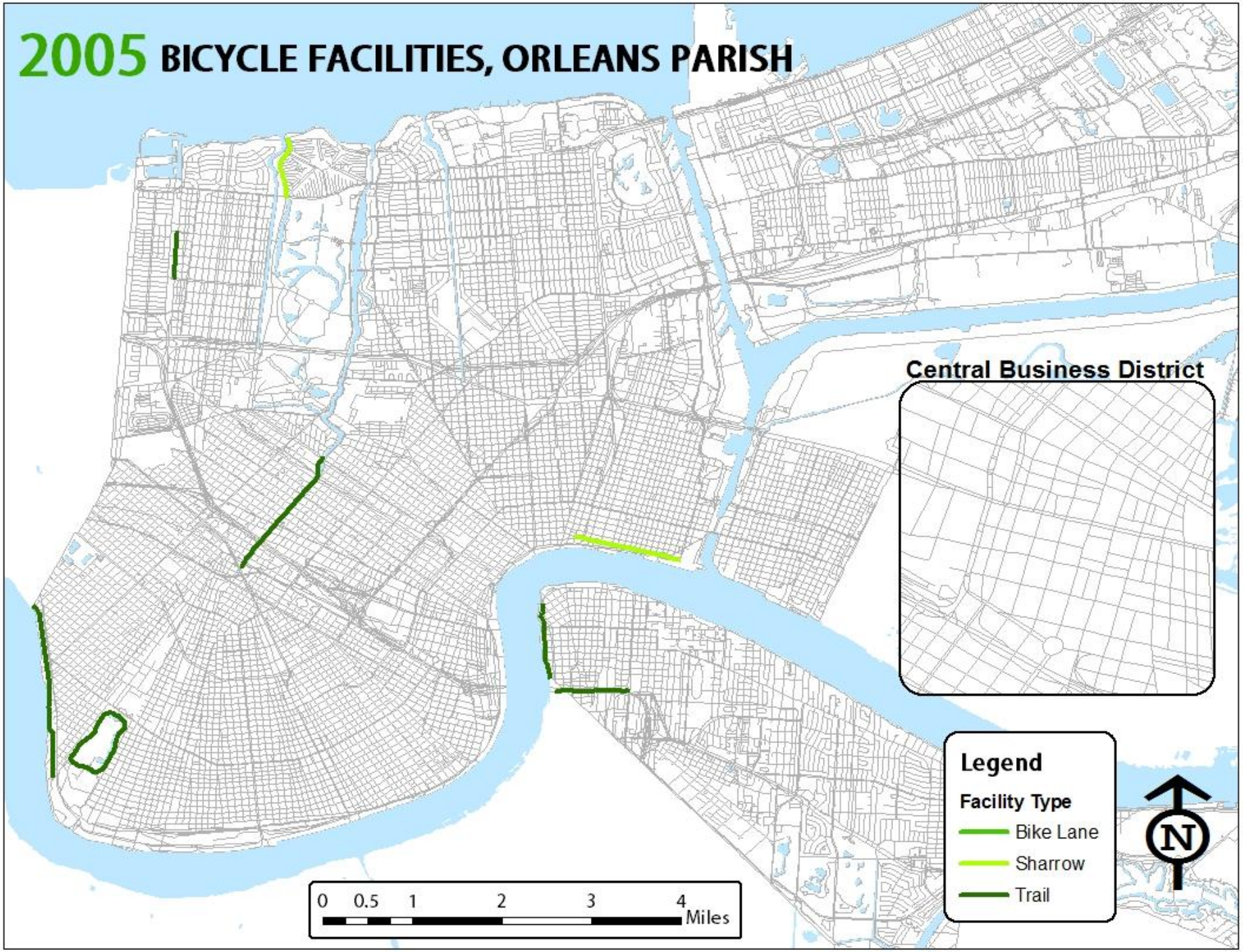
Background

- A comparison of both self-reported and objectively measured health and travel data for 14 countries, 50 U.S. states and 47 U.S. cities found that people who engage in active transportation (i.e. biking and walking) have lower levels of obesity.[1]
- Infrastructure such as mixed land use where shops and public services are dispersed within residential areas, increased housing density, availability of public transit, and sidewalks, trails and bike lanes can increase the possibility that people will walk or bike to meet their daily needs.[2-5]
- The more attributes present, i.e. local shops, transit, sidewalks, bike facilities, the increased likelihood that an adult living near those attributes will meet the recommended guidelines for physical activity.[6]

Background

- Building infrastructure for safer bicycling is one way to promote physical activity.[7] One cross sectional study analyzing data from 43 large cities in the United States found that for every 1% increase in the length of on-street bike lanes, there was an 0.31% increase in bike commuters.[8]
- Previous research on factors affecting cycling have found that cyclists prefer bike lanes to riding on open streets.[9]
- Research conducted in New Orleans showed increases in the number of people cycling after the introduction of bike lanes, but results were limited by a lack of comparison streets.[10]

Setting


2005 BICYCLE FACILITIES, ORLEANS PARISH
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Facility Type
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Trail
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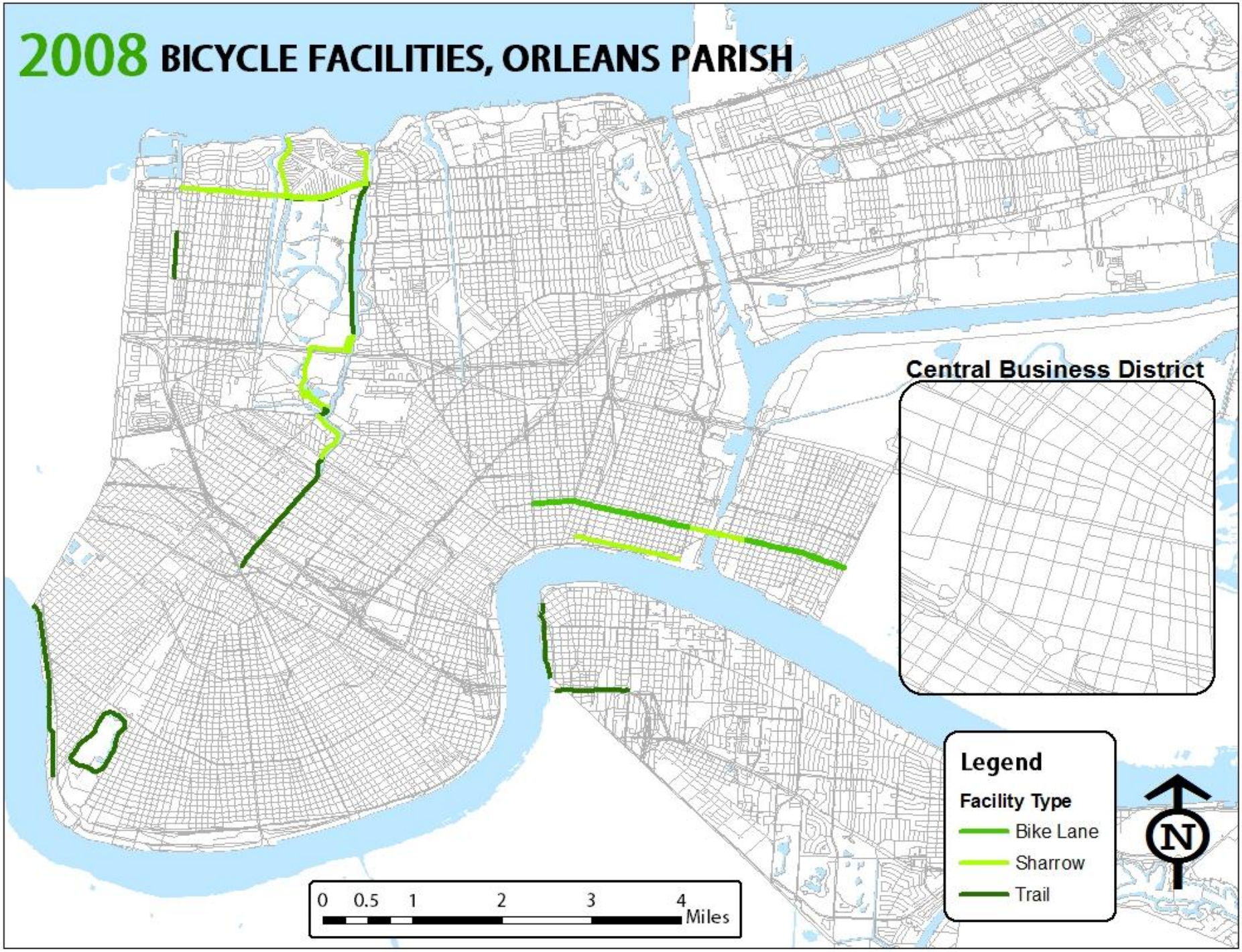
2008 BICYCLE FACILITIES, ORLEANS PARISH
Central Business District
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Facility Type
Bike Lane
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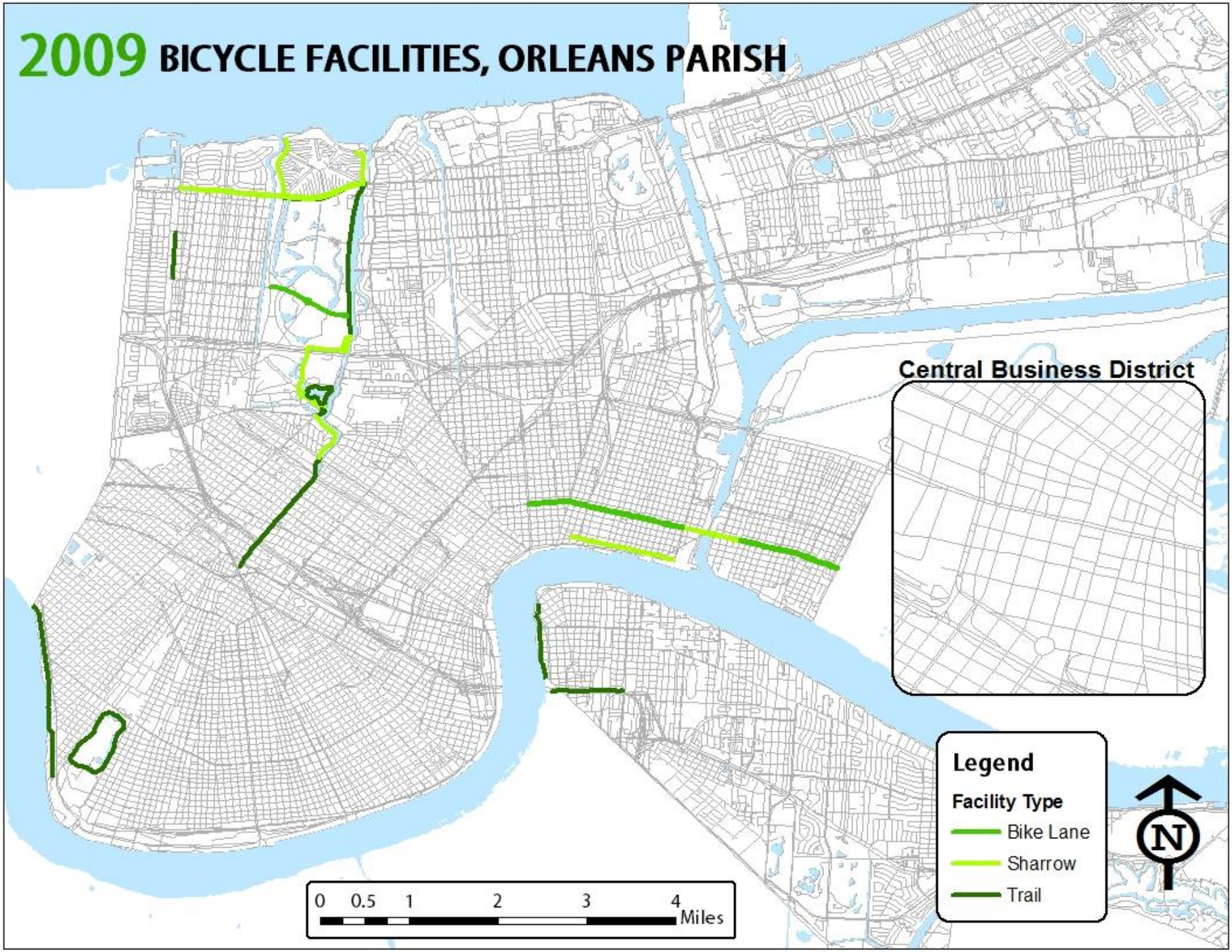
2009 BICYCLE FACILITIES, ORLEANS PARISH
Central Business District
Legend
Facility Type
Bike Lane
Sharrow
Trail
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Miles


2010 BICYCLE FACILITIES, ORLEANS PARISH
Central Business District
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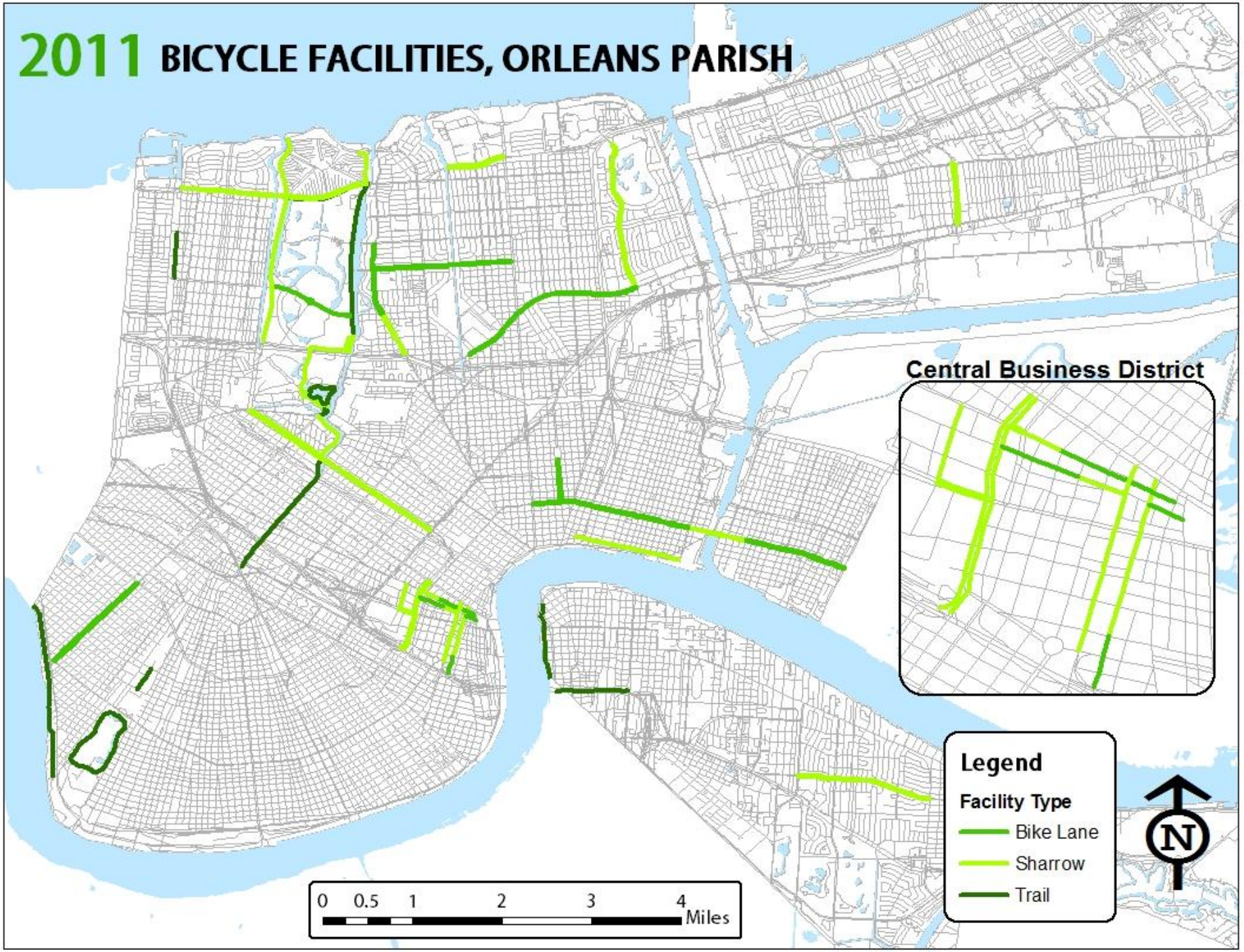
2011 BICYCLE FACILITIES, ORLEANS PARISH
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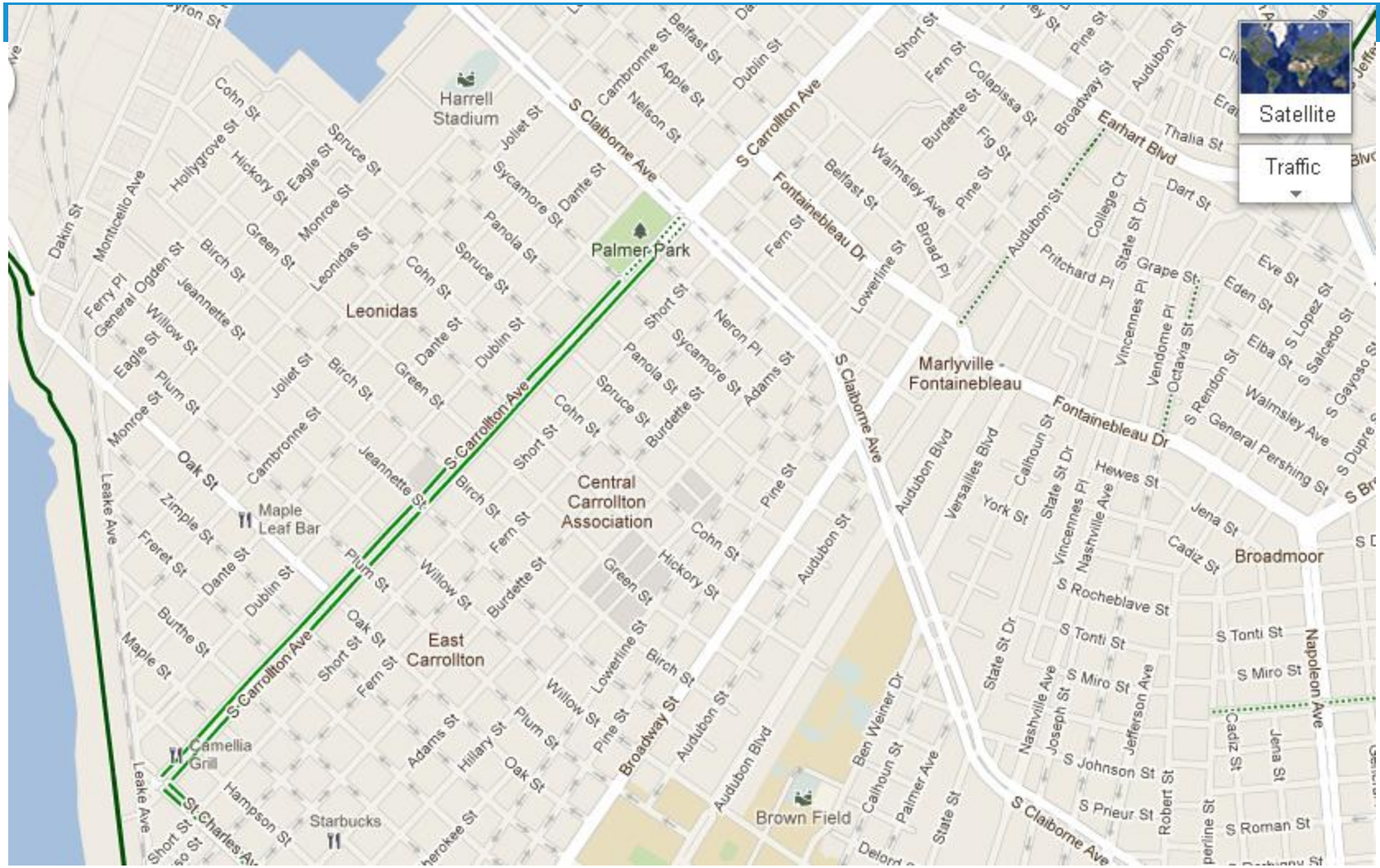
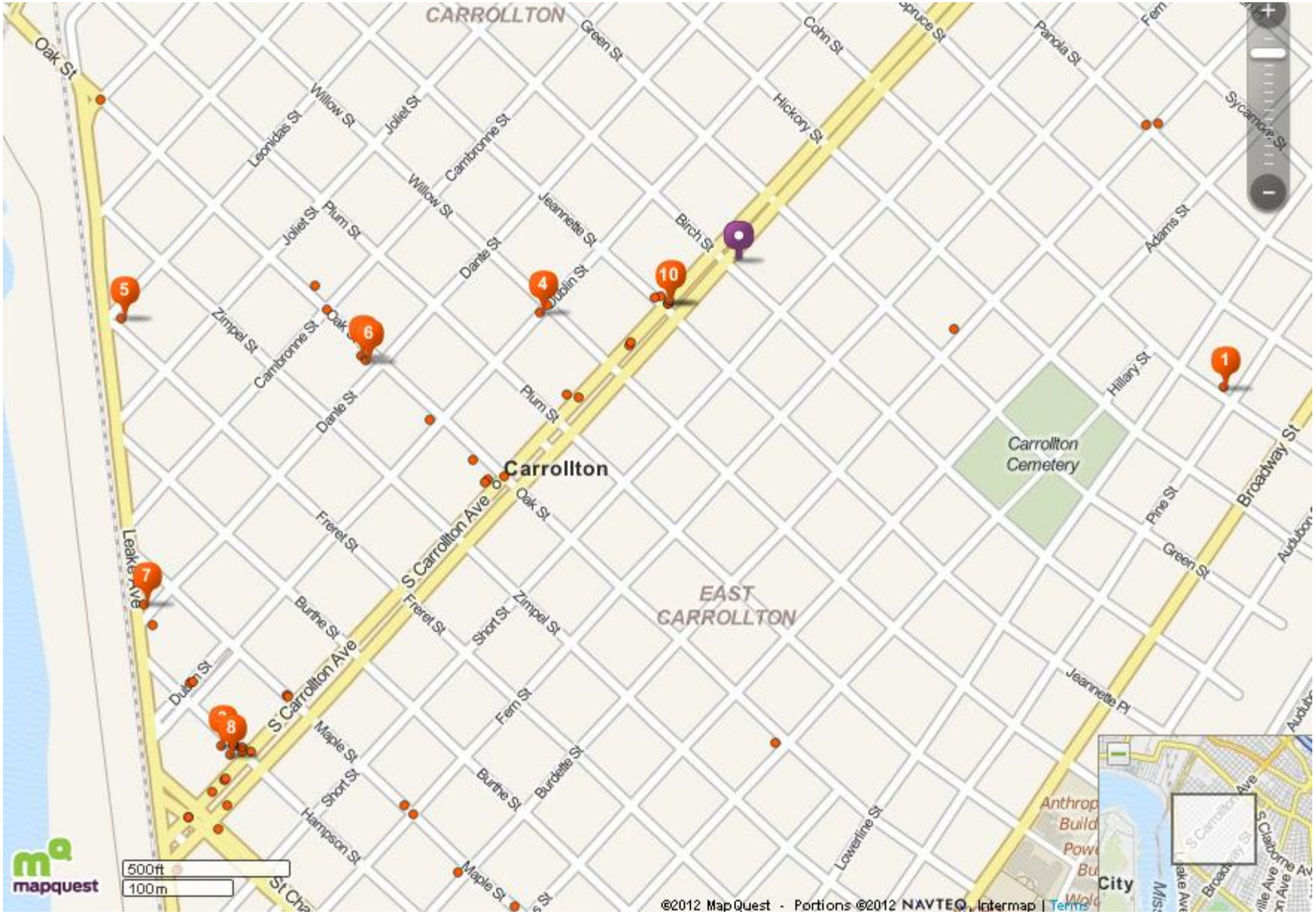
S Carrollton Avenue Bike Lane



S Carrollton Avenue
Major arterial roadway
Posted speed 35 mph
ADT 17,400 vehicles in 2008
Total construction cost: $3,440,000

The Bike Lane:
Striped both sides of the road
5-ft wide, 1.2 miles long
Located between 11-ft travel lane and a parking lane
60-ft wide median with a street car stops every two blocks
Lanes and signage cost $11,320

Photos: Ted Jackson, Times-Picayune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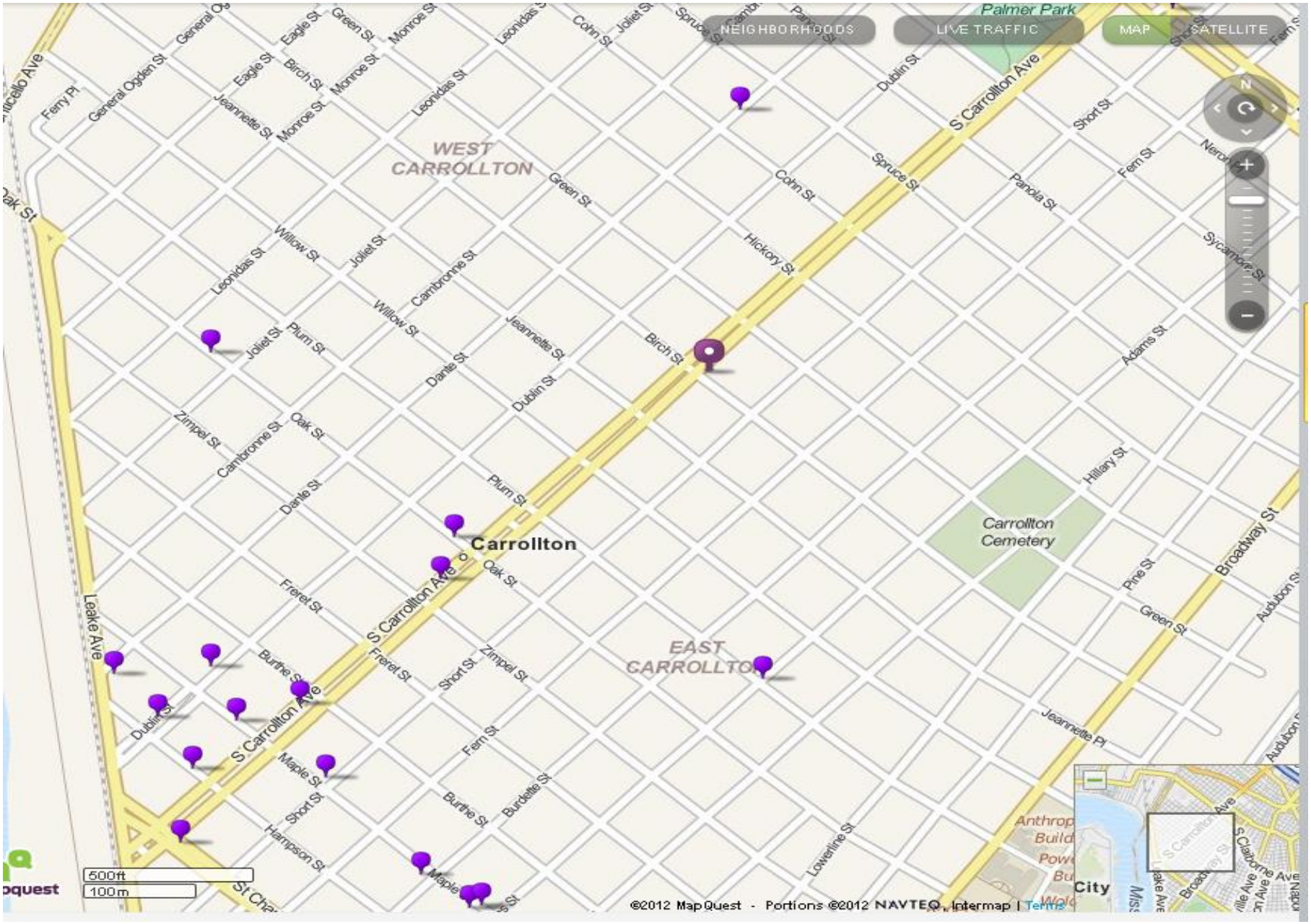
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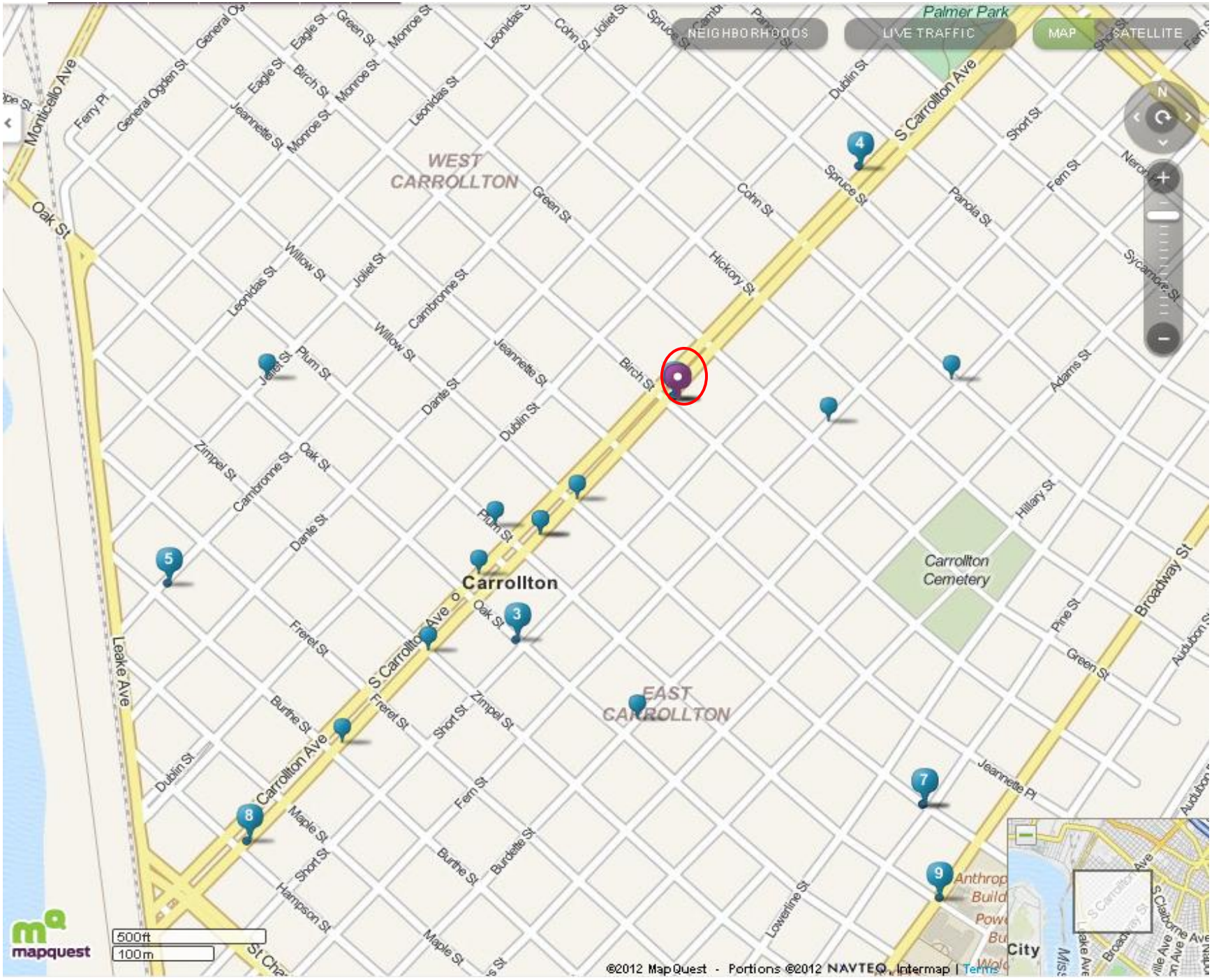
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City

Study Objectives

Study Objectives:

- (1) Determine if more people cycling after bike lanes are striped.
- (2) Determine whether people ride on the street rather than the sidewalk and with the flow of traffic after the bike lanes are striped.

Methods

Methods

- Direct observation of cyclists on one intervention (S Carrollton) and two adjacent comparison (Short and Dublin) streets.
- Pairs of observers counted cyclists in Sept 2009 and again in Sept 2010. Lane striping completed in June 2010.
- Cyclists were counted riding on the street (both in and outside of the bike lane) and sidewalk, with and against traffic, before and after the bike lanes were striped.
- All observations were categorized by gender, race and approximate age.

Methods II

- Data were collected continuously over a one-week period for each location for 11 hours from 7 a.m. to 6 p.m., five days a week (Tuesday, Wednesday, Thursday, Saturday and Sunday).
- During periods of light rain, observers continued to take data, but if rain was heavy, observations were canceled for that day and rescheduled for the same day of the following week.
- Differences were tested with negative binomial regression and logistic regression, with a p-value of 0.05.
- Models included time (pre/post), group (S Carrollton or Side Streets), and group by time interactions as the predictors.

Results

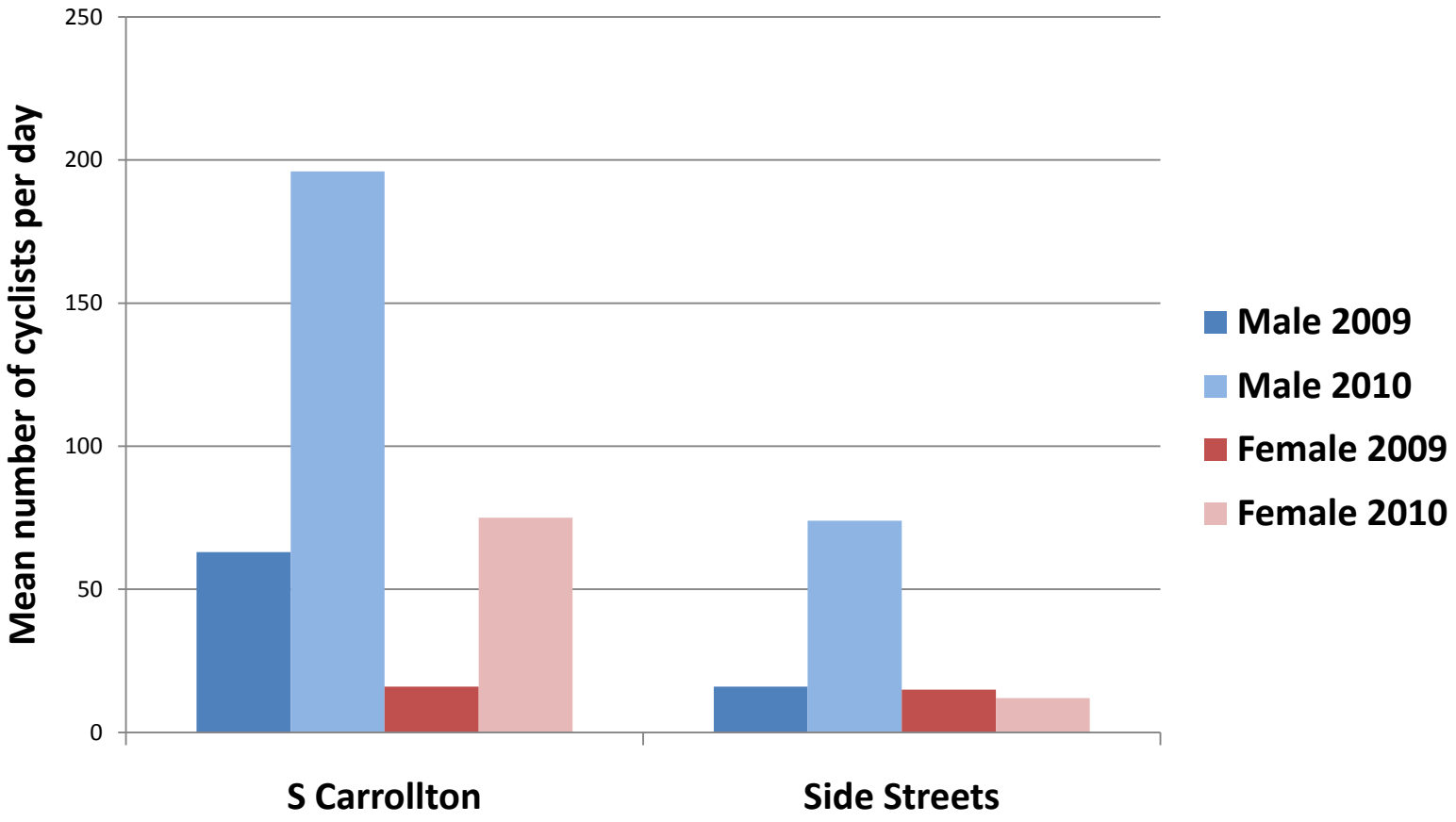
Results

- September 2009
  - mean temperature 79.4°F
  - 10 Observation days
  - Weekend and weekdays
- September 2010
  - mean temperature 78.1°F
  - 10 Observation days
  - Weekend and weekdays

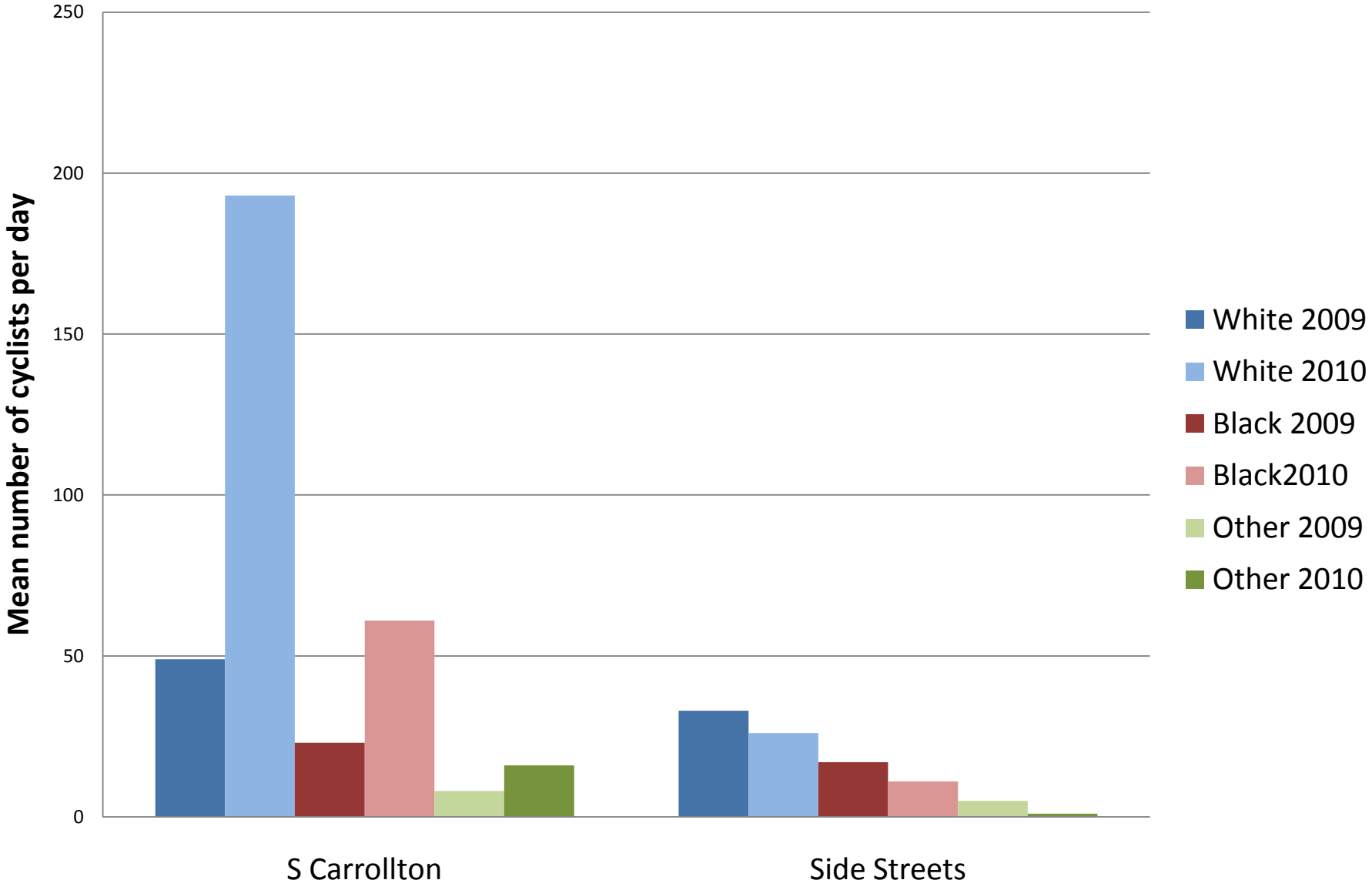
Total (n/day)		Pre	sd	Post	sd	P-value
Total Neighborhood	All riders	62.5	28.8	110	109	0.000
Sex						
	Male	46.8	1.3	82.9	4.4	0.000
	Female	15.2	0.44	32.6	1.6	0.000
Age						
	Youth	2.2	3.1	5.2	7.4	0.000
	Adult	59.8	27.8	110.3	109.5	0.000
Race						
	White	38.0	19.9	81.6	82.8	0.000
	Black	18.6	9.4	28.1	24.6	0.000
	Other	5.9	3.3	6.0	7.6	0.745

Mean number of cyclists observed		2009	sd	2010	sd	p-value
S. Carrollton All Cyclists		79.2	30.5	257.1	50.9	0.000
Sex	Male	62.7	24.3	195.8	46.8	0.000
	Female	15.8	7.6	74.1	10.1	0.000
Age	Youth	3.6	4.5	11.6	9.8	0.000
	Adult	74.9	28.2	258.3	48.4	0.000
Race	White	48.9	17	192.9	37.3	0.000
	Black	22.8	12.8	61.3	11.5	0.000
	Other	7.5	2.7	15.7	5.4	0.000
Side Streets All Cyclists		54.4	24.1	36.4	16.1	0.000
Sex	Male	39	17.3	26.3	10.2	0.000
	Female	15	8.2	11.8	7.9	0.000
Age	Youth	1.6	1.8	2.1	1.8	0.818
	Adult	52.4	24.4	36	17	0.000
Race	White	32.7	19.1	25.7	15.3	0.00
	Black	16.6	6.3	11.4	3.5	0.00
	Other	5.1	3.2	1.2	1.3	0.00

Observed Male and Female Cyclists on S Carrollton and Adjacent Side Streets in New Orleans, LA 2009 and 2010



Observed Cyclists by Race, S Carrollton and Adjacent Side Streets in New Orleans, LA 2009 and 2010



Location and Direction of Cyclists Observed Riding Before and After Installation of S Carrollton Bike Lane, New Orleans, LA 2009-2010

	S Carrollton				Side Streets			
	2009	2010	Z	*p*-value	2009	2010	Z	*p*-value
Direction: Cyclists Riding with Traffic	93%	96%	2.93	0.003	97%	93%	3.05	0.002
Location: Cyclists Riding in the Street	99%	98%	-4.03	0.000	93%	93%	-0.24	0.810

Conclusions

Conclusions

- Bike lanes can have a positive impact in creating a healthy community.
- Installation of bike lanes can increase the number of cyclists in a neighborhood. Streets with bike lanes will attract more cyclists than streets without bike lanes.
- Bike lanes can encourage people to ride in the direction of traffic.
- Installing bike lanes on roads can be a low-cost mechanism to improving physical activity in urban areas.

Support/Funding Sources

- Robert Wood Johnson Active Living Research Rapid Response Program (grant #67306)
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- ASPH/CDC Environmental Health Scholarship
- *HRSA MCHB* Maternal and Child Health/Epidemiology Doctoral Training Program (Grant T03MC07649)

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- Maps of bicycle lane infrastructure over time available from the University of New Orleans Pedestrian Bicycle Resource Initiative: http://planning.uno.edu/pbri/

Contact Information

Kathryn Parker

kparker1@tulane.edu

504.988.4773