Lafitte Greenway
Methods

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The full case study can be found at: https://landscapeperformance.org/case-study-briefs/lafitte-greenway

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Acknowledgements

Research Strategy

This research investigates the landscape performance of the Lafitte Greenway in New Orleans, LA, focusing on the area from Carrollton Avenue to Basin Street. The research is part of the 2021 Case Study Investigation *program supported by the Landscape Architecture Foundation. It was completed through a collaboration between a research team from the Robert Reich School of Landscape Architecture at Louisiana State University in collaboration with Design Workshop and the Friends of Lafitte Greenway (FOLG). The LSU team developed a research framework from February through April 2021 to collect, analyze, and synthesize project related data in May and June.*

Research shows that the Greenway provides sustainable stormwater management for surrounding neighborhoods and markets, sequesters a significant amount of carbon through an increase in a vast amount of plantings, and reduces the heat island effect by a decrease in impervious surfaces. Surveys completed by FOLG and Tulane University discovered that residents from all over New Orleans utilize and interact in the park daily—even more so under quarantine during the 2020-21 COVID-19 pandemic—to run, jog, bike, and walk their dogs, with most visitors coming to interact for community events, engage with the Farmer's Market, and other recreational purposes, or simply to sit and enjoy the outdoor environment. These advancements and opportunities are the product of the implementation of the greenway, which

encourages economic development through increased activity and events and has contributed to a significant financial increase for surrounding retail areas while preserving historic site features, incorporating cultural features, art, and safe engagement of the public.

Environmental Benefits

- ***Infiltrates or evaporates 37% of average annual rainfall by decreasing impervious land cover by 63%. Bioretention swales and rain gardens manage additional runoff onsite. Newly-planted and existing trees and shrubs intercept an additional 24,000 cf of stormwater runoff annually.***

Background:

The 32-acre greenway and surrounding neighborhoods are located within the 100-year floodplain and susceptible to localized flooding (Figure 1). The Greenway's stormwater management green infrastructure system was designed to collect and filter an estimated 1.45 million gallons of water. On-site bioswales planted with native, hydrophilic plants can hold and slowly release water back into the landscape, which helps prevent subsidence and flooding. Existing mature oak trees are able to consume and transpire approximately 880 to 1,000 gallons of water each day,[1] and over 540 newly planted trees will drastically increase this capacity in years to come. In addition, the permeable walkways throughout the Greenway contribute to stormwater capacity by allowing water to pass through instead of pooling on the surface.

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[1] *Lafitte Corridor Connection: Existing Conditions,* 2011.
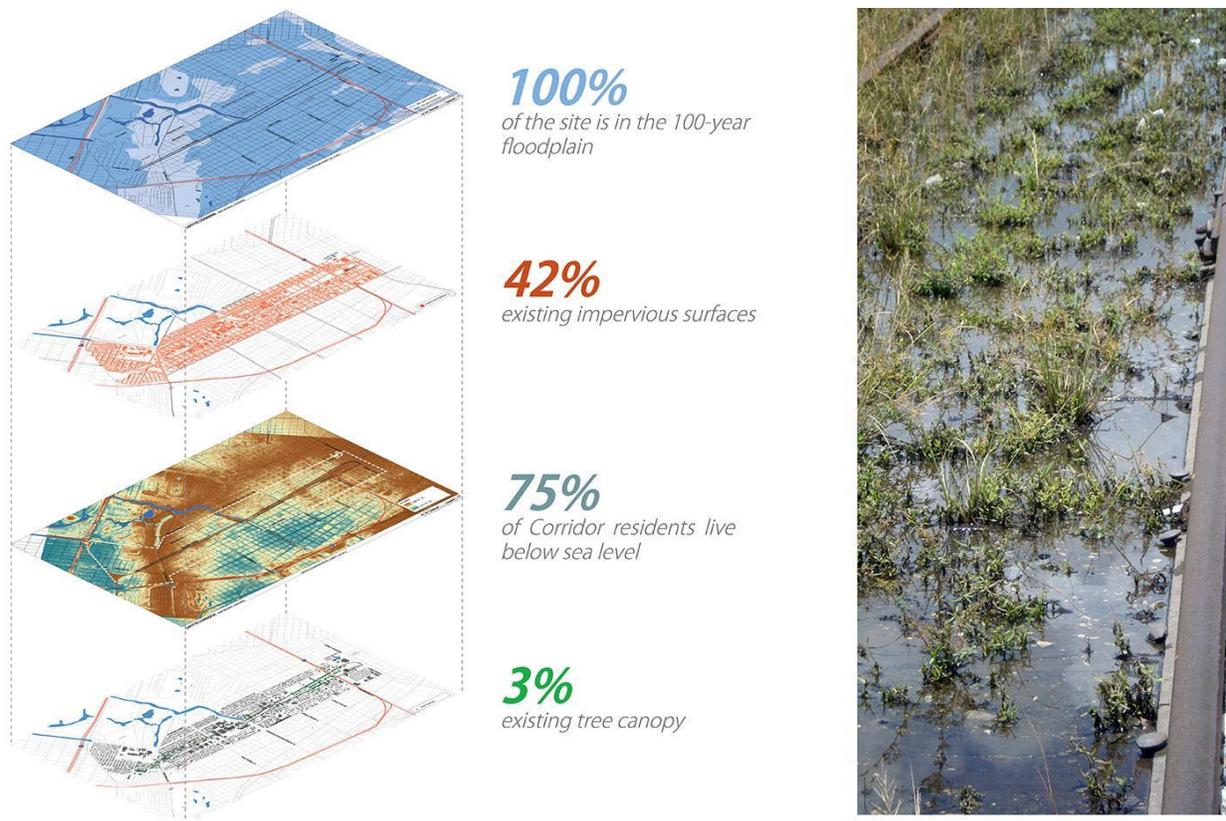
Figure 1: *Axonometric diagram showing the pre-existing conditions for the greenway and surrounding areas including percentages within the 100-year floodplain, impervious surfaces, residents below sea level, and the limited number of existing trees.*
(Source: Design Workshop Master Plan)

Method:
The researchers used i-Tree and the EPA National Stormwater Calculator to estimate the landscape stormwater performance of the greenway. The team referenced documents provided by Design Workshop and orthoimagery accessed through Google Earth Pro to calculate land cover before and after construction of the greenway.

Researchers used the EPA National Stormwater Calculator to estimate the site's performance during rain events. Pre-construction land cover was estimated using 2010 orthoimagery and information from an existing conditions report. The team referenced construction documents, current orthoimagery, and site measurements to estimate the current percentage of lawn, bioswales, and trees along the greenway. This data was entered into the EPA National Stormwater Calculator to calculate the annual volume, amount, frequency and percent of total runoff retained on site in the tree plantings,[2] bioswales, permeable pavement, and open lawn areas.

Researchers used i-Tree to calculate performance metrics of trees and shrubs. An existing conditions report and tree survey provided data for pre-construction vegetation, and the construction documents provided beginning data for current conditions. Researchers verified the

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[2] Tree plantings defined as "forested area" in the calculator.

total number of trees currently on-site, and then calculated an average diameter at breast height (DBH) for each species by sampling 4 representative specimens. The 625 total trees and shrubs on site helped reduce rainwater runoff through transpiration and infiltration of an estimated 24 thousand cubic feet each year, (Figure 2 and Table 1).[3]
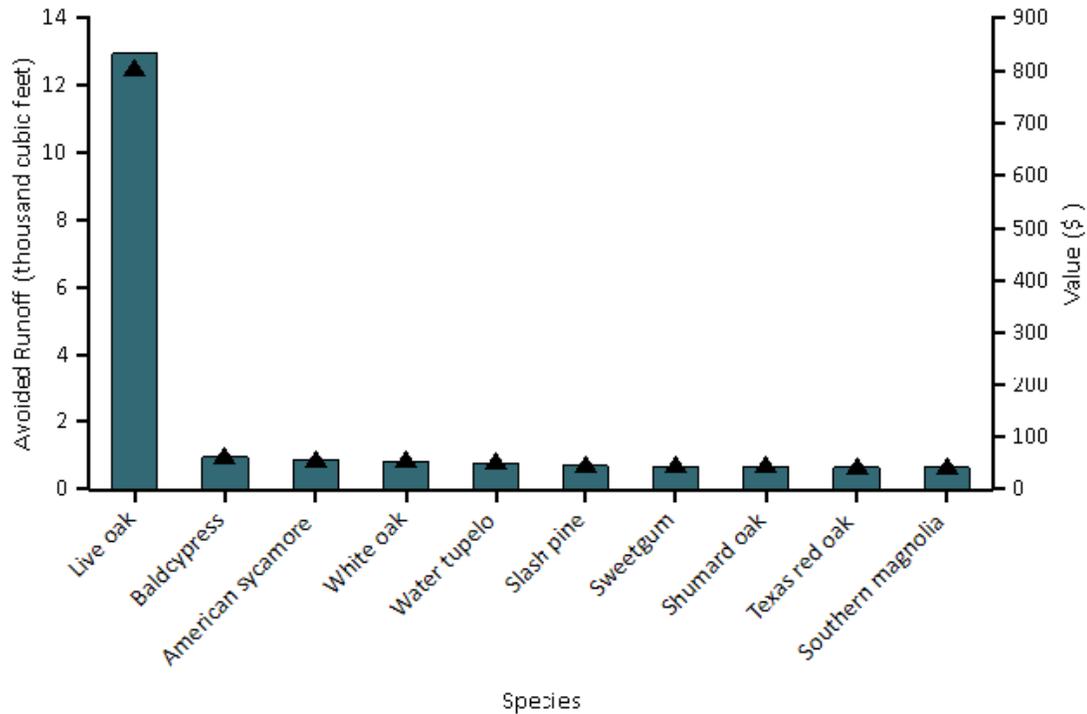

Figure 2: Avoided runoff (points) and value (bars) for species with greatest overall impact on runoff (Source: i-Tree)

Plot ID	Tree ID	Species Name	Leaf Area (ft²)	Potential Evapotranspiration (ft³/yr)	Evaporation (ft³/yr)	Transpiration (ft³/yr)	Water Intercepted (ft³/yr)	Avoided Runoff (ft³/yr)	Avoided Runoff Value ($/yr)
1	1	Red maple	1,671.3	769.3	94.6	448.2	94.6	19.5	1.30
1	2	Northern hackberry	1,220.3	561.7	69.0	327.2	69.1	14.2	0.95
1	3	Fringe tree	439.2	202.1	24.8	117.8	24.9	5.1	0.34
1	4	Green ash	1,229.0	565.7	69.5	329.5	69.6	14.3	0.96
1	5	Two-wing silverbell	1,204.9	554.6	68.2	323.1	68.2	14.0	0.94
1	6	Possum haw	515.9	237.5	29.2	138.3	29.2	6.0	0.40
1	7	Eastern red cedar	568.5	261.7	32.2	152.4	32.2	6.6	0.44
1	8	Sweetgum	2,240.6	1,031.3	126.8	600.8	126.8	26.1	1.74
1	9	Southern magnolia	2,135.8	983.1	120.8	572.7	120.9	24.9	1.66
1	10	Sweetbay	1,403.7	646.1	79.4	376.4	79.5	16.4	1.09
1	11	Water tupelo	2,579.9	1,187.5	145.9	691.8	146.0	30.1	2.01
1	12	Black tupelo	1,341.7	617.6	75.9	359.8	76.0	15.6	1.04
1	13	Eastern hophornbeam	2,118.8	975.3	119.9	568.2	119.9	24.7	1.65
1	14	Slash pine	2,331.2	1,073.0	131.9	625.1	132.0	27.2	1.82
1	15	American sycamore	2,840.5	1,307.4	160.7	761.7	160.8	33.1	2.21
1	16	Texas red oak	2,141.7	985.8	121.2	574.3	121.2	24.9	1.67
1	17	Shumard oak	2,203.8	1,014.4	124.7	590.9	124.8	25.7	1.72
1	18	Live oak	42,776.9	19,689.5	2,420.0	11,470.3	2,421.6	498.3	33.31
1	19	White oak	2,768.7	1,274.4	156.6	742.4	156.7	32.3	2.16
1	20	Pond cypress	965.7	444.5	54.6	259.0	54.7	11.2	0.75
1	21	Baldcypress	3,141.4	1,445.2	177.7	842.3	177.8	36.6	2.45
1	22	Winged elm	893.6	411.3	50.6	239.6	50.6	10.4	0.70
1	23	American elm	896.9	412.8	50.7	240.5	50.8	10.4	0.70
1	24	Pecan	1,269.2	584.2	71.8	340.3	71.8	14.8	0.99
1	25	Babylon weeping willow	1,366.3	628.9	77.3	366.4	77.3	15.9	1.06
		Total	82,265.5	37,865.4	4,653.9	22,058.9	4,657.0	958.3	64.06

Table 1: Hydrology Effects of Individual Trees (Source: i-Tree)

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[3] Please refer to the carbon sequestration benefit for full methodology.

Calculations:

Impervious Surface Calculations:
Total Area of Greenway = 32 ac = 1,393,920 sf

Impervious coverage in 2010 = 809,902 sf
Impervious coverage in 2020 = 296,068 sf
Vegetative coverage in 2010 = 584,018 sf
Vegetative coverage in 2020 = 1,097,852 sf

% Decrease in impervious coverage = ((809,902 sf - 296,068 sf) / 809,902 sf) x 100 = 63.44%

% Increase in vegetative cover = ((1,097,852 sf - 584,018 sf) / 584,018 sf) x 100 = 87.98%
There is a **63%** decrease in impervious surface coverage post-construction of the Greenway.
There is an 89% increase in vegetative coverage post-construction of the Greenway.

Stormwater Calculations:
Annual Rainfall = Annual rainfall obtained from EPA Stormwater output
Runoff = (Runoff from EPA Stormwater output / Annual rainfall) x 100 = %
Infiltration = (Runoff from EPA output / Annual rainfall) X 100 =%
Evaporation = (Evaporation from EPA output / Annual rainfall) x 100 = %

National Stormwater Calculator outputs for Rainfall, Runoff, Infiltration, and Evaporation on Greenway[4]					
Key	Site Section	Annual Rainfall	Runoff	Infiltration	Evaporation
1	Claiborne to Prieur	69.92 in	(42.94 in / 69.92 in) x 100 = 61.41%	(18.70 in / 69.92 in) x 100 = 26.74%	(8.89 in / 69.92 in) x 100 = 12.71%
2	Prieur to Galvez	69.90 in	(41.37 in / 69.90 in) x 100 = 59.18%	(19.90 in / 69.90) x 100 = 28.47%	(9.21 in / 69.90) x 100 = 13.18%
3	Galvez to Rocheblave	69.90 in	(43.40 in / 69.90 in) x 100 = 62.08%	(17.72 in / 69.90 in) x 100 = 25.35%	(9.43 in / 69.90 in) x 100 = 13.49%
4	Rocheblave to Broad	69.87 in	(44.69 in / 69.87 in) x 100 = 63.96%	(16.54 in / 69.87 in) x 100 = 23.67%	(9.31 in / 69.87 in) x 100 = 13.32%
5	Broad to Norman C. Francis Parkway	69.88 in	(50.59 in / 69.88 in) x 100 = 72.40%	(11.57 in / 69.88 in) x 100 = 16.56%	(8.40 in / 69.88 in) x 100 = 12.02%
6	Norman C. Francis Parkway to Carrollton Ave	69.88 in	(45.26 in / 69.88 in) x 100 = 64.48%	(15.95 in / 69.88 in) x 100 = 22.82%	(9.39 in / 69.88 in) x 100 = 13.44%

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[4] The EPA Stormwater calculator did not allow for more than 12 acres to be calculated at one time, so the site calculations were broken down into sections

7	Claiborne to Basin	69.92 in	(42.77 in / 69.92 in) x 100 = 61.17%	(18.74 in / 69.92 in) x 100 = 26.80%	(9.01 in / 69.92 in) x 100 = 12.89%

Table 2: Capability breakdown of rainfall, runoff, infiltration, and evaporation from the EPA Stormwater Calculator per section. (Source: EPA Stormwater Calculator.)

Total Greenway (Sections 1 + 2 + 3 + 4 + 5 + 6 + 7)
Average Annual Rainfall (in) = (69.92 + 69.90 + 69.90 + 69.87 + 69.88 + 69.88 + 69.92) / 7
= 69.86 in

% Total Average Runoff = (61.41 + 59.18 + 62.08 + 63.96 + 72.40 + 64.48 + 61.17) / 7
= 63.53%

% Total Average Infiltration = (26.74 + 28.47 + 25.35 + 23.67 + 16.56 + 22.82 + 26.80) / 7
= **24.34%**

% Total Average Evaporation = (12.71 + 13.18 + 13.49 + 13.32 + 12.02 + 13.44 + 12.89) / 7
= **13.01%**

See Carbon Sequestration Benefit for i-Tree calculations.

Sources:
"National Stormwater Calculator | Water Research." United States Environmental Protection Agency. Accessed June 2021. https://www.epa.gov/water-research/national-stormwater-calculator.
Design Workshop. *Lafitte Greenway Master Plan*. 2013.
Design Workshop. "Lafitte Greenway Construction Documents." 2013
Design Workshop. *Lafitte Corridor Connection: Existing Conditions, Issues, Opportunities and Vision*. 2011.
"Google Earth Pro." earth.google.com/web/. Accessed June 2021.

Limitations:
- Modeled results are estimates and not based on observation of actual rain events.
- Amount of stormwater captured and treated on site might be based on simplified calculations that do not take into account runoff properties of surfaces of the park. Calculations might assume that all rain falling on site becomes runoff and full retention capacity of the stormwater system is available for each rain event. When calculating the volume available for runoff retention within bioswales and rain gardens, assumptions are made about ponded depth and volume that is in the soil underneath.
- The EPA Stormwater Calculator is limited to sites up to 12 acres in size and not for a 32-acre linear park. Site performance was calculated in sections and combined at the end, which may be outside the parameters accounted for in the calculator's algorithm.
- The EPA Stormwater Calculator does not account for tree canopy rainfall interception.

- Square-footage calculations based on orthoimagery are limited by Google Earth Pro software precision and human error.
- EPA Stormwater Calculator estimates avoided runoff through the National Weather Service and is based on total annual precipitation in 2016; rin events vary by year..
- Stormwater mitigation capacity of young trees is estimated to be minimal; mature trees saved during construction account for the majority of stormwater mitigation by trees on site.
- Calculation comparisons of impervious and vegetative cover assessed for the entire 32 ac of greenway. Orthoimagery measurements are subject to human error.
- The EPA Stormwater Calculator parameters for soils is limited to texture and does not account for compaction and other physical modifications common to urban sites.

- ***Reduces average air temperatures by 5-8° F and surface temperatures by 5-10° F when comparing sample locations along the greenway to those in adjacent neighborhoods.***

Method:

Researchers estimated pervious and impervious land cover for 2010 and 2017 by referencing information supplied by Design Workshop in the Existing Conditions report and construction documents, and then measuring impervious surface areas using orthoimagery and digital tools accessed through Google Earth Pro. Orthoimagery from 2017 was used instead of 2019 orthoimagery because it was higher quality imagery, and impervious land cover is virtually unchanged between these years.

Comparisons to post-construction conditions in 2017 showed an 89% increase in vegetative landcover and a 63% decrease in impervious surfaces.

Researchers sampled surface and air temperatures from eight locations inside the greenway and five locations adjacent to the greenway between S. Carrollton Ave and Basin Street. Measurements were recorded using handheld thermometers, ExView RHT and the PocketLab Air Sensor. Temperature measurement locations inside the Lafitte Greenway were chosen to assess a diversity of conditions such as shaded/sunny areas along the paved trail, sunny open fields, shaded grassy areas, and pedestrian promenades. Adjacent temperature measurement locations were chosen based on comparable environmental surroundings (i.e. sun versus shade, open space versus crowded areas) within two blocks of the greenway, (Figure 3 and Table 3).

Temperature samples were measured at each site during the morning between 9:00 am. to 11:00 am., and in the evening from 3:00 pm. to 5:00 pm., for 3 non-consecutive days within a 1-week period. (Refer to Appendix). Sensors were mounted to a table-top tripod or supported by a water bottle, resulting in samples taken roughly 12 in above the ground.

Measurements revealed that there is an 7.56% difference in average temperatures within the greenway as compared to adjacent areas, with the largest difference between the site and adjacent areas (sun surface temperatures) being 9.76 °F and the smallest difference (shade air temperatures) being 5.42 °F.

Site 3 (Greenway)
Along Trail
(between rouses and Petco)

Site 5 (Adjacent)
Residential
(corner of Lopez and Dumain streets)

Site 6 (Adjacent)
Commerical
(on Broad and Toulouse Street, near Broad Theatre)

Site 10 (Greenway)
(basebabll field)

Site 8 (Greenway)
(basketball court)

Site 4 (Adjacent)
Commerical and Residential
(corner of Conti and Cortez streets)

Site 1 (Greenway)
Plaza
(near canal and Camp Bow Wow)

Site 13 (Adjacent)
Commerical and Residential
(corner of Conti and Johnson streets)

Site 9 (Greenway)
Along Trail
(heavily shaded and surrounded by swales, near Claiborne and Lafitte Ave)

Site 11 (Greenway)
near Equestrian Trail
(between two bioswales)

Site 7 (Greenway)
Along Trail
(near canal, St Louis and Dupree streets)

Site 12 (Adjacent)
Commercial and Residential
*(between Conti and Roman streets)*

Figure 3: Locations of temperatures taken along the Greenway and adjacent locations. (Source: Google Maps, Adobe Photoshop and Adobe Illustrator; created by LSU Team)

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Calculations:

Temperature Readings By Day					
Temperature Readings by the Day	Type of Measurement	Calculation of Averages *(from Tables 12, 13, and 14 in Appendix)*		3-Day Averages	
		Sun	**Shade**	**Sun**	**Shade**
Total Greenway Average Day 1:	Air	738.81 / 8	538.07 / 6	**92.35 °F**	**89.67 °F**
	Surface	836.83 / 8	558.39 / 6	**104.60 °F**	**93.07 °F**
Total Adjacent Average Day 1:	Air	505.47 / 5	380.53 / 4	**101.09 °F**	**95.13 °F**
	Surface	576.96 / 5	284.63 / 3	**115.39 °F**	**94.87 °F**
Total Greenway Average Day 2:	Air	659.83 / 7	547.78 / 6	**94.26 °F**	**91.30 °F**
	Surface	780.62 / 7	563.6 / 6	**111.52 °F**	**93.93 °F**
Total Adjacent Average Day 2:	Air	496.68 / 5	378.67 / 4	**99.34 °F**	**94.67 °F**
	Surface	574.52 / 5	422.37 / 4	**114.90 °F**	**105.59 °F**
Total Greenway Average Day 3:	Air	753.27 / 8	547.71 / 6	**94.16 °F**	**91.29 °F**
	Surface	836.84 / 8	560 / 6	**104.61 °F**	**93.33 °F**
Total Adjacent Average Day 3:	Air	524.7 / 5	493.57 / 5	**104.94 °F**	**98.71 °F**
	Surface	598.63 / 5	485.16 / 5	**119.73 °F**	**97.03 °F**

Temperature Reading Average Totals					
Type and Location of Temperature Readings of Greenway and Adjacent Sites	Calculations			Total	
	Sun	**Shade**		**Sun**	**Shade**
Air/Greenway	92.35 °F + 94.26 °F + 94.16 °F = 280.77 °F / 3	89.67 °F + 91.30 °F + 91.29 °F = 272.26 °F / 3		**93.59 °F**	**90.75 °F**
Air/Adjacent	101.09 °F + 99.34 °F + 104.94	95.13 °F + 94.67 °F + 98.71		**101.79 °F**	**96.17 °F**

	°F = 305.37 °F / 3	°F = 288.51 °F / 3		
Surface/Greenway	104.60 °F + 111.52 °F + 104.61 °F = 320.73 °F / 3	93.07 °F + 93.93 °F + 93.33 °F = 280.33 °F / 3	**106.91 °F**	**93.44 °F**
Surface/ Adjacent	115.39 °F + 114.90 °F + 119.73 °F = 350.02 °F / 3	94.87 °F + 105.59 °F + 97.03 °F = 297.49 °F / 3	**116.67 °F**	**99.16 °F**

Table 3: Average temperature reading calculations and totals over three days for air, surface, sun, and shade within and adjacent to the Lafitte Greenway

Average Greenway Air Temperatures
(air, sun, greenway): 92.35 °F + 94.26 °F + 94.16 °F = 280.77 °F / 3 = 93.59 °F
(air, shade, greenway): 89.67 °F + 91.30 °F + 91.29 °F = 272.26 °F / 3 = 90.75 °F

Average Greenway Surface Temperatures
(surface, sun, greenway): 104.60 °F + 111.52 °F + 104.61 °F = 320.73 °F / 3 = 106.91 °F
(surface, shade, greenway): 93.07 °F + 93.93 °F + 93.33 °F = 280.33 °F / 3 = 93.44 °F

Average Adjacent Air Temperatures
(air, sun, adjacent): 101.09 °F + 99.34 °F + 104.94 °F = 305.37 °F / 3 = 101.79 °F
(air, shade, adjacent): 95.13 °F + 94.67 °F + 98.71 °F = 288.51 °F / 3 = 96.17 °F

Average Adjacent Surface Temperatures
(surface, sun, adjacent): 115.39 °F + 114.90 °F + 119.73 °F = 350.02 °F / 3 = 116.67 °F
(surface, shade, adjacent): 94.87 °F + 105.59 °F + 97.03 °F = 297.49 °F / 3 = 99.16 °F

Difference in Average Greenway Air Temperatures and Adjacent Temperatures in the Sun:
((101.79 °F - 93.59 °F) / 101.79 °F) x 100 = 8.06%
8.20 °F / 101.79 °F =
0.08056 x 100 =
8.06%

Greenway air temperatures in the sun are an average of 8.06% less than adjacent area temperatures in the sun.

% Difference in Average Greenway Surface Temperatures and Adjacent Temperatures in the Sun:
((116.67 °F - 106.91 °F) / 101.79 °F) x 100 = 8.36%
9.76 °F /116.67 =
0.08365 x 100 =
8.36%

Greenway surface temperatures in the sun are an average of 8.36% less than adjacent area temperatures in the sun.

Difference in Average Greenway Air Temperatures and Adjacent Temperatures in the Shade
((96.17 °F - 90.75 °F) / 96.17 °F) x 100 = 5.64%
5.42 °F / 96.17 =
0.05636 x 100 =
5.64%

Greenway air temperatures in the shade are an average of 5.64% less than adjacent area temperatures in the shade.

Difference in Average Greenway Surface Temperatures and Adjacent Temperatures in the Shade
((99.16 °F - 93.44 °F) / 99.16 °F) x 100 = 5.77%
5.72 °F / 99.16 =
0.05768 x 100 =
5.77%

Greenway surface temperatures in the shade are an average of 5.77% less than adjacent area temperatures in the shade.

Total Average Air Temperatures for Greenway Locations (Sun) = 93.59 °F
Total Average Air Temperatures for Adjacent Locations (Sun) = 101.79 °F
% Temperature Difference (Air, Sun) = ((101.79 °F - 93.59 °F) / 101.79 °F) x 100 = 8.06%

Total Average Air Temperatures for Greenway Locations (Shade) = 90.75 °F
Total Average Air Temperatures for Adjacent Locations (Shade) = 96.17 °F
% Temperature Difference (Air, Shade) = ((96.17 °F - 90.75 °F) / 96.17 °F) x 100 = 5.64%

Total Average Surface Temperatures for Greenway Locations (Sun) = 106.91 °F
Total Average Surface Temperatures for Adjacent Locations (Sun) = 116.67 °F
% Temperature Difference (Surface, Sun) = ((116.67 °F - 106.91 °F) / 101.79 °F) x 100 = 8.36%

Total Average Surface Temperatures for Greenway Locations (Shade) = 93.44 °F
Total Average Surface Temperatures for Adjacent Locations (Shade) = 99.16 °F
% Temperature Difference (Surface, Shade) = ((99.16 °F - 93.44 °F) / 99.16 °F) x 100 = 5.77%

% Total Temperature Difference in Average Greenway Temperatures and Adjacent Temperatures = ((101.79 °F + 96.17 °F + 116.67 °F + 99.16 °F) - (93.59 °F + 90.75 °F + 106.91 °F + 93.44 °F) / 384.69 °F) x 100 = **7.56%**

Sources:
Design Workshop. *Lafitte Corridor Connection: Existing Conditions, Issues, Opportunities and Vision.* 2011.
National Weather Service. "Weather Forecast Office New Orleans." 2021.
<https://www.weather.gov>

Limitations:
- Estimates are limited by accuracy of the sensors and subject to user error. Margin of error for the ExView RHT is +/- 1.8 °F and +/- 2 °F for the PocketLab device.
- ExView RHT temperature measurement tool could not be exposed to direct sunlight, so PocketLab was used for measurements taken in direct sun exposure.
- Temperature readings were taken roughly 12 in above the ground surface and may be affected by radiant heat from those surfaces.
- Overcast skies and rain prior to temperature readings may have affected temperatures.

Time that measurements were taken varies based on the amount of time required to travel between each measurement site, with a max of a 45-minute difference for each day per site.

- ***Sequesters an estimated 12,000 lbs of atmospheric carbon annually through 625 trees and shrubs on-site, equivalent to 13,680 miles driven by an average passenger vehicle annually and a 92% increase in sequestration from previously existing vegetation.***

Background:
Carbon capture and storage is a crucial element in the process of tackling climate change. Carbon sequestration, which is the removal of carbon dioxide from the air, differs from carbon storage.

Method:
The researchers used i-Tree Eco v6 developed by the U.S. Forest Service to estimate the performance of trees and shrubs in the greenway. The existing conditions report and tree survey supplied by Design Workshop provided data to calculate pre-construction carbon sequestration performance. Current tree counts were obtained through the construction documents provided by Design Workshop and verified by site surveying on 2-May-2021 and 8-June-2021. DBH measurements were taken on this day as well. Researchers calculated average diameters at breast height (DBH) by sampling 4 representative specimens of each species. These data were entered into i-Tree to estimate tree performance.

Results estimate that the 625 trees and shrubs on site sequester a total of 12,002 pounds of carbon, store 286.39 tons of carbon, and produce 1,280 tons of oxygen per year. i-Tree results revealed that the mature Live Oak stores approximately 72.2% of carbon among the trees on site and Weeping Willow sequesters approximately 9.53% of carbon sequestered by trees on-site, (Figure 4 and Table 4). Both pre- and post-construction trees were calculated, with an increase in carbon sequestration of 92% post-construction.
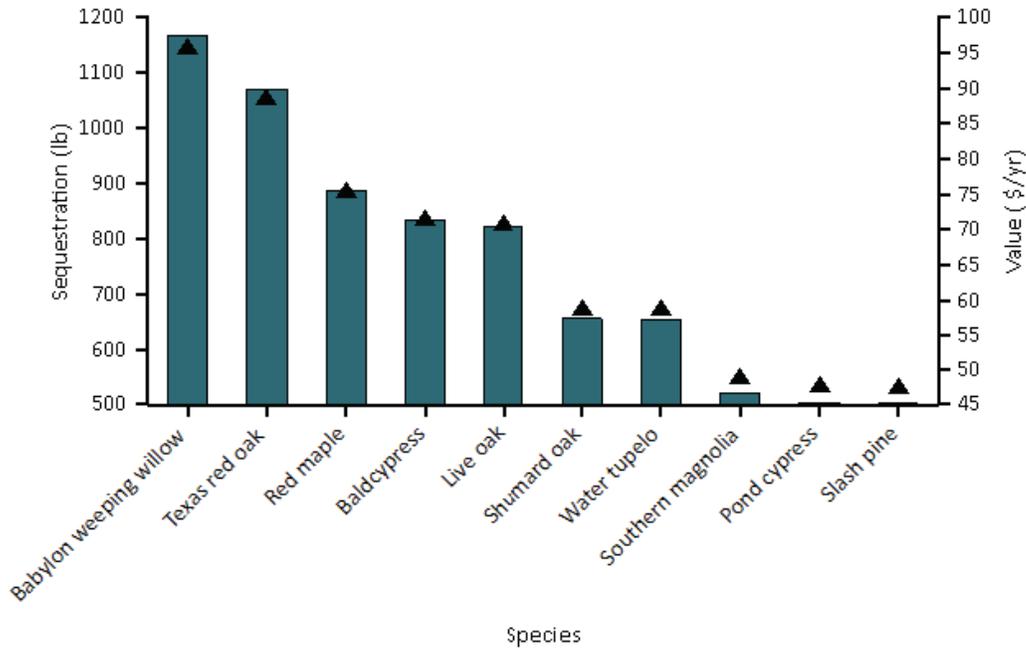
Figure 4: Estimated annual gross carbon sequestration (points) and value (bars) for urban tree species with the greatest sequestration for the Lafitte Greenway (Source: i-Tree)

Calculations:

(1) Calculations of carbon sequestered by newly-planted tree canopy for the greenway project area, using i-Tree Eco v6.0, was based on the Plant Materials Schedule provided by Design Workshop and confirmed all trees outside of bioswales as existing on the Lafitte Greenway.[5] The team also found additional species of newly-planted trees on-site outside of those listed in construction documents, such as *Carya illinoinensis* (Pecan)*, Quercus alba* (White Oak)*,* and *Sambucus canadensis* (Elderberry). The diameter at breast height required for input of i-Tree and amounts of carbon sequestered by newly planted trees are listed on the below table(s) (Tables 4 and 5).

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[5] Surveys conducted on May 2 and June 8, 2021.

Plot ID	Tree ID	Species Name	Gross Carbon Sequestration (lb/yr)	% of Total
1	1	Red maple	35.4	7.4
1	2	Northern hackberry	4.5	0.9
1	3	Fringe tree	0.2	0.0
1	4	Green ash	13.9	2.9
1	5	Two-wing silverbell	0.5	0.1
1	6	Possum haw	0.3	0.1
1	7	Eastern red cedar	8.1	1.7
1	8	Sweetgum	20.6	4.3
1	9	Southern magnolia	21.9	4.6
1	10	Sweetbay	18.8	3.9
1	11	Water tupelo	26.9	5.6
1	12	Black tupelo	17.9	3.7
1	13	Eastern hophornbeam	4.0	0.8
1	14	Slash pine	21.2	4.4
1	15	American sycamore	20.5	4.3
1	16	Texas red oak	42.2	8.8
1	17	Shumard oak	26.9	5.6
1	18	Live oak	33.1	6.9
1	19	White oak	19.4	4.0
1	20	Pond cypress	21.2	4.4
1	21	Baldcypress	33.4	7.0
1	22	Winged elm	16.5	3.4
1	23	American elm	16.0	3.3
1	24	Pecan	11.1	2.3
1	25	Babylon weeping willow	45.8	9.5
		Total	**480.1**	**100%**

Table 4: Carbon Sequestration of Individual Trees at full maturity (Source: i-Tree)

Eco

Stratum	Species	Trees		Carbon Storage			Gross Carbon Sequestration			Avoided Runoff		Pollution Removal	
		Number	SE	(ton)	SE	($)	(ton/yr)	SE	($/yr)	(ft³/yr)	($/yr)	(ton/yr)	($/yr)
Urban	Red maple	25	±0	4.26	±0.00	726.94	0.44	±0.00	75.48	486.73	32.54	0.01	66.97
	Pecan	25	±0	2.34	±0.00	398.49	0.14	±0.00	23.58	369.62	24.71	0.01	50.86
	Northern hackberry	25	±0	0.57	±0.00	96.66	0.06	±0.00	9.53	355.37	23.75	0.01	48.90
	Fringe tree	25	±0	0.99	±0.00	168.43	0.00	±0.00	0.42	127.90	8.55	0.00	17.60
	Green ash	25	±0	1.74	±0.00	296.96	0.17	±0.00	29.68	357.90	23.92	0.01	49.24
	Two-wing silverbell	25	±0	2.52	±0.00	429.41	0.01	±0.00	1.00	350.89	23.46	0.01	48.28
	Possum haw	25	±0	2.57	±0.00	437.62	0.00	±0.00	0.67	150.24	10.04	0.00	20.67
	Eastern red cedar	25	±0	1.45	±0.00	247.14	0.10	±0.00	17.26	165.56	11.07	0.00	22.78
	Sweetgum	25	±0	2.70	±0.00	460.84	0.26	±0.00	43.84	652.52	43.62	0.02	89.78
	Southern magnolia	25	±0	3.79	±0.00	646.54	0.27	±0.00	46.68	621.98	41.58	0.01	85.58
	Sweetbay	25	±0	2.57	±0.00	438.41	0.23	±0.00	40.00	408.78	27.33	0.01	56.24
	Water tupelo	25	±0	5.04	±0.00	859.68	0.34	±0.00	57.31	751.32	50.22	0.02	103.38
	Black tupelo	25	±0	2.46	±0.00	420.30	0.22	±0.00	38.10	390.74	26.12	0.01	53.76
	Eastern hophornbeam	25	±0	2.60	±0.00	443.38	0.05	±0.00	8.49	617.06	41.25	0.01	84.90
	Slash pine	25	±0	4.25	±0.00	725.62	0.26	±0.00	45.13	678.90	45.38	0.02	93.41
	American sycamore	25	±0	2.72	±0.00	464.28	0.26	±0.00	43.64	827.22	55.30	0.02	113.82
	White oak	25	±0	4.60	±0.00	785.02	0.24	±0.00	41.40	806.31	53.90	0.02	110.94
	Texas red oak	25	±0	6.51	±0.00	1,109.69	0.53	±0.00	89.91	623.70	41.69	0.01	85.82
	Shumard oak	25	±0	5.18	±0.00	882.77	0.34	±0.00	57.43	641.80	42.90	0.01	88.31
	Live oak	25	±0	206.68	±0.00	35,250.00	0.41	±0.00	70.50	12,457.62	832.74	0.29	1,714.06
	Babylon weeping willow	25	±0	6.29	±0.00	1,072.51	0.57	±0.00	97.56	397.91	26.60	0.01	54.75
	Pond cypress	25	±0	4.66	±0.00	794.43	0.27	±0.00	45.30	281.24	18.80	0.01	38.70
	Baldcypress	25	±0	6.62	±0.00	1,129.61	0.42	±0.00	71.25	914.84	61.15	0.02	125.87
	Winged elm	25	±0	1.90	±0.00	324.84	0.21	±0.00	35.09	260.25	17.40	0.01	35.81
	American elm	25	±0	1.37	±0.00	234.21	0.20	±0.00	34.17	261.20	17.46	0.01	35.94
	Total	**625**	**±0**	**286.39**	**±0.00**	**48,843.79**	**6.00**	**±0.00**	**1,023.42**	**23,957.58**	**1,601.46**	**0.56**	**3,296.36**

Table 5: Lafitte Greenway Tree Benefits By Stratum and Species (Source: i-Tree)

Total Carbon Sequestration of Trees on Site = 12,000 lbs (6 tons)
Carbon Sequestration of Pre-existing Trees (83) on Site = 935 lbs
*% Difference in Carbon Sequestration = ((Total CS - Pre-existing CS) / Total CS) x 100 = ((6.01 tons - 0.41 tons) / 6 tons lbs) x 100 = ((12,002 lbs - 935 lbs) / 12,000 lbs) x 100 = **92.20% increase***

Calculation of Vehicular Sequestration Removal via EPA Greenhouse Gas Equivalencies Calculator:
8.89 × 10-3 metric tons CO2/gallon gasoline × 11,556 VMT car/truck average × 1/22.5 miles per gallon car/truck average × 1 CO2, CH4, and N2O/0.993 CO2 = 4.60 metric tons CO2E/vehicle /year
*6.001 tons = 12,002 lbs = emissions from **13,682** miles driven in an average passenger vehicle*

Sources:

iTree v7.0, iTree Software Suite v7.0, Accessed May 3, 2021, https://design.itreetools.org/
"Carbon Emissions Calculator." EPA. Accessed June 2021.
https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
City of New Orleans. "Lafitte Corridor Tree Inventory." August 2010.

Limitations:

- i-Tree results do not take into account groundcovers, lawns and grasses, or vegetation within infiltration basins on the site.
- Benefits are estimated at a single point three years after tree planting and will increase over time. Newly planted trees are only a few years old and calculations do not account for the total amount/capacity of carbon that will be sequestered for newly planted trees at full maturity.
- i-Tree input divided the DBH measurements entered evenly, so results for individual tree carbon sequestration are not entirely accurate, though variation between newly planted trees or trees other than the mature Live Oak is low or insignificant.
- Calculation for carbon sequestration of pre-existing trees is an approximation based on DBH measurements provided by Lafitte Corridor Tree Survey were chosen by the researchers based on pre-existing trees observed on-site in 2020.
- Newly planted trees, such as *Quercus alba* and *Salix babylonica* were observed on-site and included in calculations, though these trees were not included in the construction documents or planting plan.
- Rain gardens were excluded from calculations due to insignificance to site and lack of maintenance/upkeep.

Social Benefits

- ***Promotes community health by expanding opportunities for physical activity, with over 312,000 people biking and walking the Greenway in 2018. Visitorship increased by 16% from 2016 to 2017 and 8% from 2018 to 2019.***

Method:

The data for this benefit was provided by Tara Tolford of the University of New Orleans (UNO) Transportation Institute and shared with the researchers by Friends of Lafitte Greenway (Figure 5b). The UNO Transportation Institute researchers installed and maintained Eco-Counters that count visitors along the main greenway trail at two locations, where the greenway crosses Galvez St. and where it crosses Norman Francis Parkway.[6]

Initially EcoPyro counters that detect bodies (pedestrians and cyclists alike) were installed at both locations and began collecting data on 1-January-2016, but the counter at Galvez Street ceased functioning on 23-November-2018 and the counter at Norman Francis Parkway ceased functioning on 21-August-2019. A new Eco-Counter (Eco MULTI, likely the MULTI Nature) was installed at the Galvez Street crossing and began collecting data on 7-March-2020; this counter is able to differentiate between pedestrians and cyclists (Figure 5a).

Calculations are based on data from the original counters at both locations. Data on visitor use since 7-March-2020 is affected by the mandatory stay-at-home order issued by the mayor on 16-March-2020 due to the COVID-19 pandemic. We address this data in a note at the end of the calculations.

Figure 5a: Eco-Counter (brown post at the bottom right of the left photo) embedded in Lafitte Greenway trail at N. Galvez St. and St. Louis Ave. (Photo taken by the LSU CSI team.)

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[6] Norman Francis Parkway is the former Jefferson Davis parkway

Calculations:

Recordings taken at Lafitte Greenway at Jefferson Davis Parkway and Lafitte Greenway at N. Galvez Street were combined and averaged.

Lafitte Greenway User Volume Data 2016 (Total Annual Users) = (233,512 + 272,926) / 2 = 253,219
Lafitte Greenway User Volume Data 2017 (Total Annual Users) = (291,678 + 292,277) / 2 = 291,978
Lafitte Greenway User Volume Data 2018 (Total Annual Users) = (306,234 + 318,277) / 2 = **312,256**

Lafitte Greenway % Increase in Usership 2016 - 2017 = (12.3% + 19.8%) / 2 = **16.05%**
Lafitte Greenway % Increase in Usership 2017 - 2018 = (7.4% + 8.9%) / 2 = **8.15%**
Lafitte Greenway % Increase in Usership 2018 - 2019 = (N/A% + 7.9%) / 2 = **7.9%**
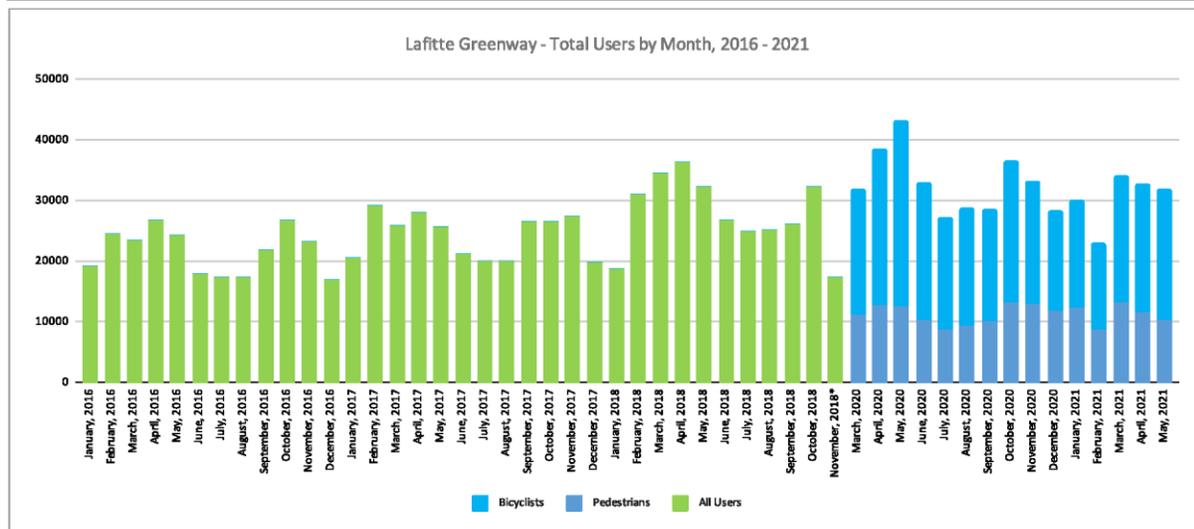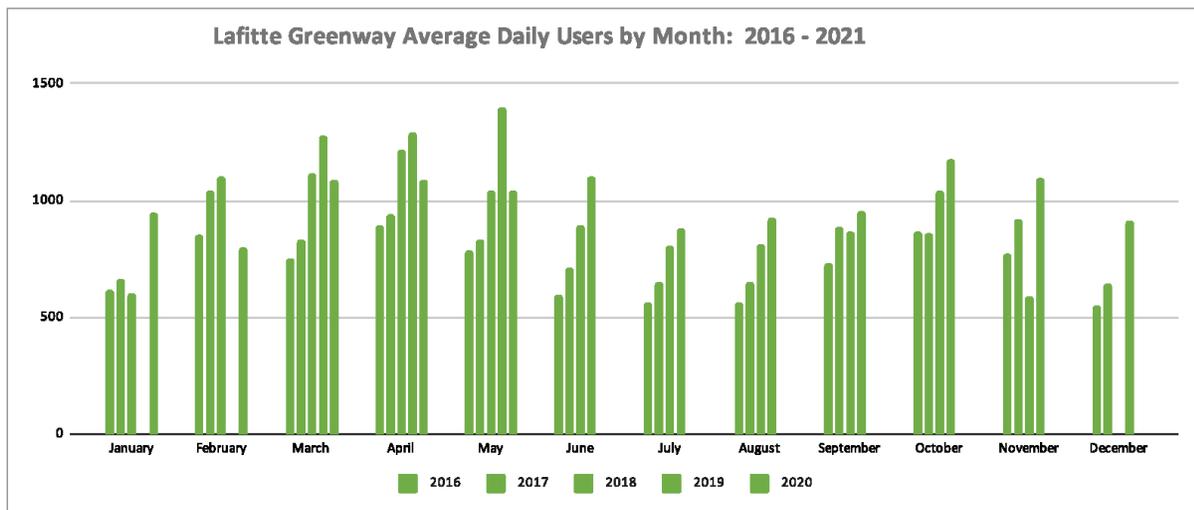
Figure 5b: Lafitte Greenway User Volume Data Summary for 2016 through 2021
(Source: University of New Orleans Transportation Institute)

User counts during the COVID-19 pandemic in 2020 suggest continued high use levels with a 13% increase from the highest comparison period in 2018. This is significant when considering that events that correlate with significant increases in usage data from past years such as the French Quarter Festival did not take place in 2020. Therefore, an overall 13% increase also includes assumed decrease in visitor use normally expected during special events.

UNO Transportation researchers noted that data on all trail and bikeway facilities they monitor suggest notable increase in usage during the first several weeks of the pandemic compared to the week of 7-March-2020 (before the stay-at-home order) with the exception of bike lanes in the Central Business district.

Sources:
Tolford, Tara. "Usage Data." UNO Transportation Institute: 2021.

Limitations:
- Data is limited by accuracy of EcoCounters and human error during calibration. EcoMULTI counter operating temperature is -40 ºF to 104 ºF and the sensor range extends to 19.5 ft. EcoPyro has similar limitations.
- UNO Transportation Institute researchers assume data represent an undercount.
- Data is missing from 23-November-2018 until 7-March-2020 for the N. Galvez Street location due to counter malfunction. Data is missing since 21-August-2019 for the Norman Francis Parkway location due to sensor malfunction.
- Percentage increase per year comes directly from Friends of Lafitte Greenway.
- Data is limited to recordings where counters are installed on the Lafitte Greenway at N. Galvez Street and Jefferson Davis Parkway. Data does not include people who visited the greenway but did not travel through these points.

- ***Contributes to a 15% decrease in average vehicular speed through the greenway from an average of 27 mph to 23 mph, as compared to adjacent blocks that do not have traffic calming and pedestrian safety features at crosswalks.***

Method:
The LSU research team collected vehicular speed data along 4 streets that intersect with Lafitte Greenway. Streets were chosen based on the presence of traffic calming measures (crosswalks at a minimum) and to represent a diversity of sizes, from one-way roads to a 4-lane divided parkway. Data was collected at 13 locations, 6 locations where the streets crossed the greenway (once each way for 2 streets, and one total for the remaining 2 streets) and then seven total locations on these same streets within two blocks of their crossing with the greenway. Using the *Bushnell Velocity Radar Gun*, researchers recorded vehicle speeds of all cars passing each location for five minute intervals. Data was collected at each site between 9:30 am to 11:00 am and again from 3:00 pm to 4:30 pm over 3 non-consecutive days within 1 week. Approximately 26 measurements in five-minute increments at each site were made each day. The average of the cars was then calculated for each location, ultimately showing a

14.81% decrease in vehicular speed within the greenway.[7]

Figure 6: Map showing locations of vehicular speed readings. (Source: Google My Maps, QGIS, Adobe Illustrator and Photoshop; created by LSU CSI team.)

Figure 7: Lafitte Greenway pathway crossing at N. Galvez St. Traffic calming measures include crosswalk striping and solar powered rectangular rapid flashing beacons.
(Photos taken by William Conrad and the LSU team.)

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[7] Refer to Appendix for number of cars measured at each site per day and extended calculations.

Calculations:

	Average Vehicular Speeds for Roads on/through and adjacent to Greenway		
Key	**Locations of Speed Readings**	**Average (mph)** **Recorded over a period of 3 days for 5 minutes at each location**	
		AM	**PM**
1	Moss Street (adjacent block)	26	29
2	**Francis Parkway (on Greenway)**	**19**	**21**
3	Francis Parkway (adjacent block (near Bayou Beer Garden)	26	27
4	Broad Street (adjacent block) between Conti and St. Louis	27	29
5	**Broad Street (on Greenway) (opposite Broad Theatre side)**	**22**	**23**
6	**Broad Street (on Greenway) (Broad Theatre side)**	**20**	**22**
7	Broad Street (adjacent block) and Toulouse	29	29
8	**Galvez (on Greenway) (side closer to dense vegetation)**	**21**	**21**
9	Galvez (adjacent block) between Conti and St. Louis	28	27
10	**Galvez (on Greenway) (side closer to open field)**	**22**	**23**
11	Galvez (adjacent block) between Magic and Lafitte	30	28
12	**Prieur (along Greenway)**	**23**	**25**
13	Prieur (adjacent block) and Orleans Ave	29	28

Table 6: Average Number of Vehicles Travelling through Greenway (Locations in bold font with purple background denote vehicular speeds recorded within the greenway. Locations with gold background denote adjacent block vehicular speeds recorded for comparison.) Refer to Table 15 in Appendix for full calculation breakdown and number of cars surveyed at each site per day.

Greenway AM average speeds at all locations:

22 + 20 + 21 + 22 + 23 = 108 / 5 = ~22 mph

Greenway PM average speeds at all locations:

23 + 22 + 21 + 23 + 25 = 114 / 5 = ~23 mph

Adjacent AM average speeds at all locations:

26 + 19 + 26 + 27 + 29 + 28 + 30 + 29 = 214 / 8 = ~27 mph

Adjacent PM average speeds at all locations:

29 + 21 + 27 + 29 + 29 + 27 + 28 + 28 = 218 / 8 = ~27 mph

Greenway Total average speeds at all locations:

((22 + 23) / 2) = ~23 mph

Adjacent Total average speeds at all locations:

((27 + 27) / 2) = ~27 mph

% Difference:

((27 - 23) / 27) x 100 = **14.81%** average decrease in speeds on Greenway as compared to adjacent blocks without traffic calming measures

Sources:
Design Workshop. *Lafitte Greenway Master Plan*. 2013.
Design Workshop*. Lafitte Corridor Connection: Existing Conditions, Issues, Opportunities and Vision*. 2011.

Limitations:
- Calculations and measurements limited to vehicles along the greenway at the time of surveying; does not account for all vehicles.
- Radar gun measures the speed of target objects travelling at speeds greater than 10 mph with 1 mph precision.
- Cars slowing to a stop at red traffic lights and cars coming to a complete stop (27) at pedestrian crossing beacons were excluded from calculations.
- The averages for the speeds of cars were rounded up or down based on +/- 0.5.
- There were minimal pedestrian safety measures at Prieur greenway and adjacent blocks, compared to other locations measured. There was less traffic at this location on any given day or time.
- There were fewer pedestrians crossing on Sunday; cars still slowed at pedestrian safety measures, but less so than when pedestrians and bikers were apparent or more frequent on greenway. More pedestrians and bikers frequented the greenway during Sunday afternoon than Sunday morning.
- Vehicles noticeably reduced speeds on the road when pedestrians were visible.

Economic Benefits

- ***Contributed to an estimated 60% increase in average residential real estate sales prices within 6 blocks of the greenway.***

- ***Helped to catalyze the creation of at least 10 new commercial developments and 10 new multi-family residential developments within 2 blocks of the greenway.***

Method:

The researchers consulted with a local Realtor for information regarding residential real estate sales around the Lafitte Greenway. This professional had 26 years of experience selling residential real estate, and 20 years in the New Orleans market. They helped determine what area to assess and which years to compare between for sales.

The team decided to compare all sales in 2013 against all sales in 2018 because the Realtor advised that 2013 was the first year the New Orleans market returned to normal activity level after the 2008-2010 recession, in their professional opinion. The Realtor provided information on all residential real estate sales in 2013 and 2018 within the area defined by Canal Street, Carrollton Avenue, Esplanade Avenue, and N. Claiborne Avenue, and that are recorded in the Multiple Listing Service. The search returned 68 results for 2013 sales and 92 results for 2018 sales. The researchers then calculated the average price per square foot to accurately compare values between properties of varying sizes. This calculation showed in a 60% increase in average price per square foot for 2018, compared to 2013.

Researchers gathered information about commercial property sales from online sources including the Orleans Parish Assessor's Office, the Friends of Lafitte Greenway news blog, announcements in the local newspaper the Times Picayune accessed through Newsbank, and searching the www.nola.com website. Data was limited to commercial properties within 2 blocks of the greenway from Claiborne Avenue to Carrollton Avenue. Researchers assumed that most new commercial developments were positively affected by presence of the greenway, and occasionally found direct attributions of this sentiment from business owners. For example, The *New Orleans Advocate* released an article stating that "The Lafitte Greenway was a 'major driving factor, giving it the green light'" to go forward with a commercial catalyzation of a multi-family residential development, 37HUNDRED Luxury Condos. FOLG news blog also provided data noting which properties were catalyzed by the greenway, which helped to determine properties chosen.

A table was then created for all property values and compared to square footage. A total of 9 commercial properties determined to be catalyzed by the greenway were selected based on information from the FOLG news blog and *The New Orleans Advocate* references, (Figure 8 and Table 7). For example, the Refresh Project in 2014, which was referenced by FOLG and a statement in *The New Orleans Advocate* as a project that was spurred by the Lafitte Greenway development.[8] Another 26 properties developed pre-construction from 2007 to 2013 were selected for comparison (to compare to the 6 years of projects catalyzed by the greenway). The researchers then calculated the average value per square foot to accurately compare values between properties of varying sizes. The increase in revenues showed a 1,700% increase in commercial property values.[9]

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[8] https://www.nola.com/entertainment_life/article_c1316914-3658-11eb-a796-e76a3a7f4703.html

[9] Refer to Appendix for commercial businesses assessed in 2021.
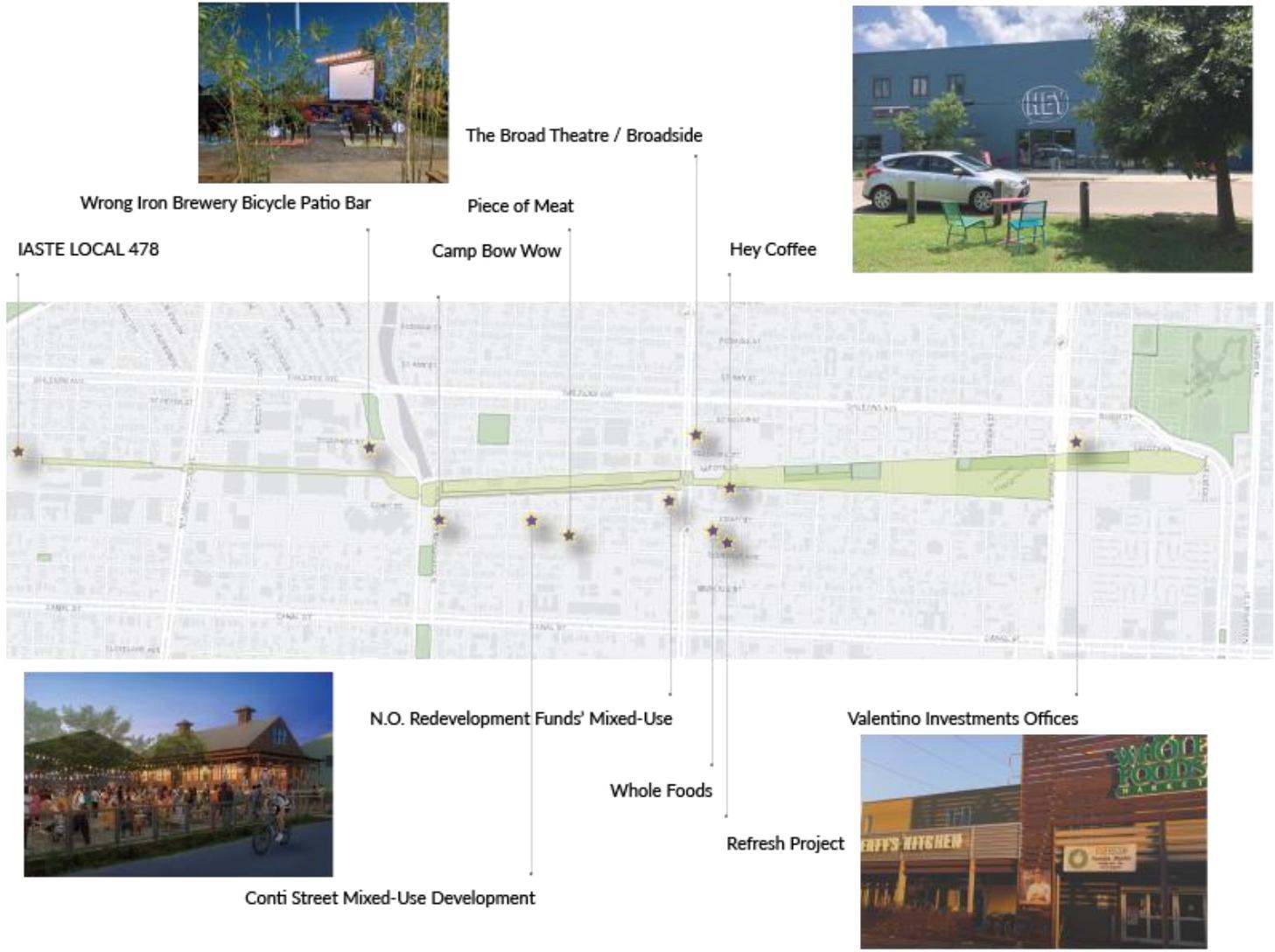
Figure 8: Commercial developments catalyzed by the Greenway, implemented post-construction showing the location and cost of each development. (Source: Google My Maps, QGIS, Adobe Illustrator and Photoshop; created by the LSU CSI team.)

Calculations:

Commercial Developments			
Business	**Address**	**Year**	**Value**
Wrong Iron Brewery Bicycle Patio Bar	3532 Toulouse St.	2019	$1.8M; 5K sf
Camp BowWow	3301 Conti St.	2016	>$1M; 10K sf
Hey Coffee	2606 St. Louis St.	2018	>$2.3M; 20K sf
Piece of Meat	3301 Bienville Ave	2018	$1M; 2K sf
The Broad Theater / Broadside	636 N. Broad St. / 600 N. Broad St.	2016 / 2020	$1.4M; 19K sf / 12K sf
IATSE LOCAL 478	511 N. Hennessey St.	2018	>$2.2M; 13K sf
Refresh Project	3008 N. Broad St	2014	>$21M; 60K sf
Valentino Investments Offices	830 Conti St.	2017	>$6M; 15K sf
Conti Street Mixed-Use Development	N. Scott St., N. Jefferson Davis Pkwy, Conti St.	IP	$65M; 380K sf
N.O. Redevelopment Funds' Mixed-Use	2720 St. Louis St.	2018	$4M; 20K sf

Table 7: Commercial Developments catalyzed post-implementation of Greenway.

Multi-Family Residential Development			
Development	**Address**	**Year**	**Value**
American Can Apartments	3700 Orleans Ave.	2016	>$3.5M; 239K sf
Lumina Apartments	3701 Conti St.	2019	$65M; 217K sf
St. Peter Residential	2640 St. Peter St.	2020	$7.4M; 45K sf
37HUNDRED Luxury Condos	3701 Bienville St.	2020	>$620K; 48K sf
SBP National Headquarters & St. Peter Mixed Income Apartments	2640 St. Peter St.	2020	>$10M; 45K sf
Faubourg Lafitte Senior Building	700 N. Galvez St.	2016	$11M; 96K sf
Edwards Communities Apartments	3601 Conti St.	2018	>$1.9M; 25K sf
Greenway Apartments + Retail	2606 St. Louis St.	2018	>$2.3M; 20K sf
Atlas Greenway Partners Homes	2720 St. Louis St.	2017	$4M; 20K sf
Bienville Basin Neighborhood	St. Louis St., Basin St., Iberville St., Robertson St. *Multiple Addresses*	(2019) IP	$913M; 1M sf

Table 8: Multi-Family Residential Developments catalyzed post-implementation of Greenway.[10]

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[10] This table does not include all residential properties sold in 2018, only the noteworthy ones mentioned in FOLG news blogs and other sources as catalyzed by the Greenway.

Figure 9: Residential properties around the greenway sold in 2013. (Created by the LSU CSI team.)

Figure 10: Residential properties around the greenway sold in 2018. (Created by the LSU CSI team.)

Average $/sf in 2013 = $127.22

Average $/sf in 2018 = $204.11

% Increase of Residential Real Estate Values in Lafitte Greenway Neighborhood(s):
((($/sf value 2018 / # of homes) - ($/sf value 2013 / # of homes)) / ($/sf value 2013 / # of homes)) x 100 = ((($204.11) - ($127.22)) / ($127.22))) x 100 = 60.44% = **~60%**

$ value of 26 commercial property values implemented pre-construction of the greenway 2007-2013
=$15,572,000

$ value of 10 commercial property values post-construction of/catalyzed by the greenway 2014-2021
= $105,700,000

% Increase of Commercial Development Values in Lafitte Greenway Neighborhood(s):
$((($/sf$ value 2014-2021 / # of developments) - ($ value 2007-2013 / # of developments)) / ($ value 2007-2013 / # of developments)) x 100 = ((($105,700,000 / 10) - ($15,572,000 / 26)) / ($15,572,000 / 26))) x 100 = 1,664.83\% = $**1,665%**

Sources:
Design Workshop. 2015. "Economic Impact Documents."
Jazmin Castillo. "Friends of Lafitte Greenway Releases Statement on Housing Affordability."
Friends of Lafitte Greenway. *NationBuilder*, November 26, 2018.
https://www.lafittegreenway.org/housing_affordability
Orleans Parish Assessor's Office. Accessed May 7 2021.
https://www.qpublic.net/la/orleans/search.html.
"US Census Bureau | Housing Facts." United States Census Bureau. Accessed May 8, 2021.
https://www.census.gov/quickfacts/neworleanscitylouisiana
"Census Place Comparisons: New Orleans, LA." Accessed June 2021.
https://datausa.io/profile/geo/new-orleans-la/
"Housing Authority of New Orleans." Accessed May 17, 2021. https://www.hano.org/
Redfin. "Redfin: Real Estate." Accessed May 18, 2021. https://www.redfin.com
"The New Orleans Advocate." Accessed June 2, 2021. https://www.nola.com/
"New Orleans Advocate Archives." NewsBank. Accessed June 2021.
https://nola.newsbank.com/
"News and Blog" Friends of Lafitte Corridor website, Accessed June 2021.
https://www.lafittegreenway.org/news
"OneHome Portal | Homes Sold In The Lafitte Greenway." Accessed July 2021.
https://portal.onehome.com/
"Property Viewer | City of New Orleans." City of New Orleans website, accessed July 2021.
https://property.nola.gov/

Limitations:
- Estimates of residential real estate sales limited to transactions recorded in the Multiple Listing Service.
- Information on commercial developments limited to that available in the sources listed in the methods section above.

- ***Catalyzed over $4.9 million in investment in additional Greenway investments and public infrastructure for adjacent areas.***

Method:
Data for this benefit were sourced from keyword searches of local news sources and the Master Plan provided by Design Workshop to determine projects included in this method. For example, the Brake Tag Station was listed in the master plan to be transformed into a community pavilion, and the Friends of Lafitte Greenway news blog mentioned streetscape improvements being made by the City of New Orleans Department of Public Works as a part of the construction of the Lafitte Greenway. Additional information was obtained through The New Orleans Advocate,

Mid-City Messenger. Information was verified by following up on sources mentioned in the blog/publication where possible though reaching out to contacts from Friends of Lafitte Greenway.

Calculations:

Project	Sponsor	Estimated cost	Completion date
Brake Tag Station	NOLA	$1.5M	2020
NYX Inclusive Playground	Mystic Krewe of Nyx	>$140K	2020
Lemann Playground	National Recreation Parks Association	$1M	2017
Broad/Lafitte Streetscape Improvements	NOLA	$713k	2019
St. Louis St. repaving	NOLA	$1.5M	2021/IP
FitLot @ Sojourner Truth Community Center	Thomas Morestead	>$40k	2017
	Total	$4,893,000	

Table 9: Infrastructure improvement projects inside or adjacent to the greenway since opening.

Sources:
"News and Blog." Friends of Lafitte Greenway. Accessed May 2021.
https://www.lafittegreenway.org/blog.
Design Workshop and City of New Orleans. *Lafitte Corridor Revitalization Plan*. 2013
"Mid-City Messenger - News From Mid-City New Orleans." Accessed June 2021.
https://midcitymessenger.com/.
"The New Orleans Advocate." Accessed June 2, 2021. https://www.nola.com/.

Limitations:
- This is not an exhaustive list. Some projects may not have been featured in local media.

Features

- ***Increases urban wildlife habitat through the addition of 271,750 sf of native herbaceous plantings representing a 1,088% increase in habitat area from 23,295 sf to 313,295 sf. 542 native trees known to support urban wildlife were also planted.***

Method:

Researchers referenced an existing conditions report and tree survey supplied by Design Workshop and historical orthoimagery through Google Earth Pro to estimate pre-construction vegetation. Observation and analysis of site plans, project documents, current orthoimagery, plant lists, and a field survey provided data on the conditions of current vegetation. The team referenced iNaturalist for information on wildlife supported by different tree species to estimate the capacity of present-day vegetation to support urban wildlife. The square footage of previously existing vegetation was subtracted from the current vegetation coverage, and results were compared to find the percentage change.

Of the trees planted, 100% of these trees are known to create habitat for wildlife. Calculations comparing existing vegetation in 2010 and 2020 revealed that there was an 89% increase in vegetative coverage, with 271,750 sf of native herbaceous plantings added and over 625 native trees. Thus, we have increased the habitat roughly 10x by including 542 of these native trees that are known for hosting the specific wildlife species, in addition to maintaining the 83 trees that were pre-existing on-site.[11]

Calculations:

Vegetative Coverage (2010) = 584,018 sf
# of Pre-Existing Trees (2010) = 83
Tree Canopy Area (2010) = 26,370 sf
Since there was no wildlife habitat observed on-site pre-construction with the exception of trees, the potential for Urban Wildlife Habitat in 2010 is the same as the Tree Canopy Area in 2010.

Vegetative Coverage (2020) = 1,097,852 sf
Vegetated Swale/Meadow/Herbaceous Plantings (2020) = 271,750 sf
The Vegetated Swale/Meadow/Herbaceous Plantings are included in the Vegetated Coverage, but extracted from vegetative coverage that is considered lawn, since lawn is not found to attract wildlife.

# of Trees Post-Construction (2020) = (newly planted trees + pre-existing trees still on site) = (542 + 83) = 625
Tree Canopy Area (2020) = (newly planted trees + pre-existing trees still on site) = 41,545 sf
Total Urban Wildlife Habitat (2020) = (41,545 sf + 271,750 sf) = 313,295 sf

% Increase in Urban Wildlife Habitat (2010 to 2020) = ((313,295 sf - 26,370 sf) / 26,370 sf) x 100 = **1,088%** or 10x more habitat

Sources:
Design Workshop. "Environmental Impact Assessment Report(s)." 2011.

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[11] Beneficial pollinators hosted include *Lepidoptera* (butterflies and moths) and *Apis mellifera* (honey bees). Most of the species planted on-site are hosts to the full cycle of these beneficial pollinators. Refer to Appendix for list of wildlife associated with species.

City of New Orleans. August 2010. "Lafitte Corridor Tree Inventory."
California Academy of Sciences and National Geographic Society. 2021. "iNaturalist."
https://www.inaturalist.org/.
Jared Zerinque. "Wildlife Use of a Proposed Urban Greenway in New Orleans." University of New Orleans, 2011.

Limitations:
- The University of New Orleans survey conducted by Jared Zerinque in 2011 noted that minimal herbaceous plantings existed on the site prior to construction, likely leading to the little wildlife observed.
- Newly planted shrubs not mentioned in construction documents such as *Sambucus canadensis* were observed on-site and included in calculations/considerations as species significant for wildlife habitat.
- The comparison of urban wildlife habitat is limited to estimations based on orthoimagery.
- The number of trees were limited to those within the greenway boundaries only and excludes 844 trees in the surrounding area that were included in the pre-existing survey.
- Tree coverage is based on orthoimagery canopy measurements and is subject to human error.
- This excludes the tree area located within vegetated swales, since the square footage for those and their benefits are accounted for in other calculations.
- *See stormwater benefit above for estimations of impervious landcover and increase in vegetative cover.*
- *Refer to carbon sequestration benefit limitations for pre-existing tree count information.*

- ***Generated more than $206,000 funding for public art through 11 projects on or directly adjacent to the greenway from 2015 to 2021.***

Method:
The data for this benefit comes from Friends of Lafitte Greenway and is publicly available on their website, either by searching the news blog and events page, or in "Art on the Greenway." Supplemental information was gathered through information posted in the Times Picayune newspaper, www.nola.com, and other local blogs. The researchers verified information by following up with sources mentioned in the blog/publication where possible. The data was then collected together in a table (Table 10).

For example, the 2020 Greenway Supernova event was created to feature 10 permanent art pieces, such as the "Iris of Memory," which were set in place to celebrate 5 years since the opening of the greenway.

Calculations:

Project	Sponsor	Estimated Cost	Completion Date
Lafitte Plaza	Clarity Parks Project	$40k	2020
Iris of Memory (William Nemitoff)	Arts Council of New Orleans, NORD, City of New Orleans Percent for Art Program, FOLG, Elaine Ravich, Greg Vorhoff family	$100k	2020
Ephemera Lafitte Greenway	Helis Foundation	$1k	2019
BMike Paul Pogba Mural (Brandan 'BMike' Odums)			2018
BMike Mural (Brandan 'BMike' Odums)			2018
Turning (Michel Varisco)	Arts Council of New Orleans; Propeller	$25k	2017
Broad & Water		$40k	
Lafitte, Treme: Between The City And Me (Keith Dunchan & Young Artists Movement)	YAM, Welcome Table New Orleans Mid-City Circle, Prospect New Orleans, Arts Council of New Orleans		2016
Tree Of Life (Rick Sinnett)	Sinnett, Massey's Outfitters, and Project for Public Spaces		2018
Roger Kramer Memorial Mural (Teressa Parod)	Parod, Gusti, Kertayuda		2021
The FENCE (6 New Orleans-based artists/photographers)	The New Orleans Photo Alliance, Photoville		2020 - 2021
2019 Ephemera (5 emerging artists)			2019 (1 month)
	Total	**$206,000**	

Table 10: Public art projects inside or adjacent to greenway since the opening.

Sources:

Friends of Lafitte Greenway. "Friends of Lafitte Corridor | News and Blog." Nation Builder, 2021. https://www.lafittegreenway.org/news

The Times Picayune. "The New Orleans Advocate." Accessed June 2, 2021. https://www.nola.com/.

Friends of Lafitte Greenway. 2021. "Events." https://www.lafittegreenway.org/events.

Friends of Lafitte Greenway. 2021. "Supernova On The Greenway." https://www.lafittegreenway.org/supernova.

Catzen, Penelope. "Press Release: Greenway Plaza and Iris of Memory Grand Opening," *Friends of Lafitte Greenway,* (New Orleans, LA), December 7, 2020, https://www.lafittegreenway.org/plazaopening.

Strachan, Sue. "More Than A Bike Path, Lafitte Greenway Becoming A Center for Public Art," *Mid-City Messenger*, (New Orleans, LA), December 14, 2020.

https://midcitymessenger.com/2020/12/14/more-than-a-bike-path-lafitte-greenway-becoming-a-center-for-public-art/.

Limitations:

- This is not an exhaustive list and limited to projects published in local media.
- Some publicized projects may have been missed by the researchers.
- Temporary art installations not mentioned on the FOLG website, though featured in Lafitte Greenway events, were not included in the table and cost calculations.
- Some cost information was unavailable or not able to be found through the means mentioned in the methodology.

Table 12: Temperature Readings within Greenway and adjacent areas Day 1, June 10, 2021.

			Temperature Readings (**Day 1**) Thursday, June 10, 2021					
			Time AM (9a-11a)		Time PM (3p-5p)		**Average**	
Site	Description	Type of Measurement (Air or Surface)	Sun	Shade	Sun	Shade	**Sun**	**Shade**
1	*Plaza Center*	Air	92.30 °F	87.50 °F	92. 46 °F	92.37 °F	**92.38 °F**	**89.94 °F**
		Surface	STasphalt: 112.15 STveg: 90.0 °F	STasphalt: 107. 5 STveg: 87.4 °F	STv: 93, 85 Sta: 107.71 °F	STa 101.43 STv: 99.25 °F	**100.92 °F**	**98.90 °F**
2	*Near plaza on trail (by camp bow wow)*	Air	89.88 °F	88.42 °F	90.67 °F	91.43 °F	**90.28 °F**	**89.93 °F**
		Surface	STa(sun): 117.5 °F STv(sun): 98.7 °F	STa(shade): 105.2 °F STv(shade): 88.6 °F	STa(sun): 123.6 °F STa(sun): 95.4 °F	STa(shade): 108.9 °F STa(shade): 93.2 °F	**108.8 °F**	**98.98 °F**
3	*Trail (between Rouses and Petco)*	Air	93.4 °F	87.8 °F	94.5 °F	92.8 °F	**93.95 °F**	**90.3 °F**
		Surface	STa(sun): 113.3 °F STv(sun): 109.1 °F	STa(shade): 95.1 °F STv(shade): 86.2 °F	STa(sun): 119.7 °F STv(sun): 112.3 °F	STa(shade): 93.5 °F STv(shade): 88.1 °F	**113.6 °F**	**90.73 °F**
4	*Conti & Cortez*	Air	103.4 °F	98.2 °F	106.8 °F	N/A °F	**105.1 °F**	**98.2 °F**
		Surface	STa(sun): 117.6 °F STv(sun): 105.6 °F STsw(sun): 110.7 °F	STa(shade): 95.5 °F STv(shade): 91.3 °F STsw(shade): 94.7 °F	STa(sun): 121.7 °F STv(sun): 108.5 °F STsw(sun): 114.8 °F	N/A °F	**113.15 °F**	**93.83 °F**
5	*Lopez & Dumaine*	Air	102.75 °F	98.45 °F	102.55 °F	98.1 °F	**102.65 °F**	**98.28 °F**
		Surface	STa(sun): 127.3 °F STv(sun): 94.2 °F STsw(sun): 119.4 °F	STa(shade): 93.5 °F STv(shade): 92.1 °F STsw(shade): 94.7 °F	STa(sun): 131.5 °F STv(sun): 97.9 °F STsw(sun): 121.4 °F	STa(shade): 111.3 °F STv(shade): 91.8 °F STsw(shade): 95.7 °F	**115.28 °F**	**96.52 °F**
6	*(Broad Theatre/Broad & Toulouse)*	Air	100.1 °F	95.9 °F	102.3 °F	95. 01 °F	**101.2 °F**	**95.46 °F**
		Surface	STa(sun): 112.8 °F STv(sun): 101.7 °F STsw(sun): 110.5 °F STpl(sun): 124.9 °F	STa(shade): 94.3 °F STv(shade):.90.4 °F STsw(shade): 95.3 °F STpl(shade): N/A °F	STveg(sun): 98.2 STasphalt(sun): 132.9 °F STsw(sun): 115.7 °F STpl(sun): 131.8	STa(shade): 95.4 °F STv(shade): 94.5 °F STsw(shade): 95.8 °F STpl(shade): N/A °F	**116.06 °F**	**94.28 °F**
7	*(on trail between Gayoso & Dupree, near canal/St. Louis)*	Air	93.9 °F	91.5 °F	94.6 °F	N/A °F	**94.25 °F**	**91.5 °F**
		Surface	STa(sun): 111.0 °F STv(sun): 89.8 °F	STa(shade): 94.2 °F STv(shade): 90.8 °F	STa(sun): 107.4 °F STv(sun): 90.5 °F	N/A °F	**99.68 °F**	**91.6 °F**
8	*Basketball Court (on greenway)*	Air	93.9 °F	N/A °F	94.5 °F	N/A °F	**94.2 °F**	**N/A**
		Surface	STcourt(sun): 115.8 °F STv(sun): 97.6 °F	N/A °F	STcourt(sun): 120.5 °F STv(sun): 98.8 °F	N/A °F	**108.18 °F**	**N/A**
9	*Tree on Trail nearest Basin (on greenway)*	Air	N/A* °F	89.1 °F	91.3 °F	86.7 °F	**91.3 °F**	**87.9 °F**
		Surface	N/A* °F	STa(shade): 92.9 °F STv(shade): 85.8 °F	STa(sun): 112.7 °F STv(sun): 107.3 °F	STa(shade): 95.8 °F STv(shade): 90.2 °F	**110.0 °F**	**91.18 °F**
10	*Baseball field (on greenway)*	Air	93.8 °F	N/A °F	83.2 °F	N/A °F	**88.5 °F**	**N/A**
		Surface	STveg: 87.1 °F	N/A °F	STveg: 92.1°F	N/A °F	**89.6 °F**	**N/A**
11	*Equestrian Trail (on greenway)*	Air	93.7 °F	84.5 °F	94. 2 °F	92.5 °F	**93.95 °F**	**88.5 °F**
		Surface	STv(sun): 89.9 °F STsw(sun): 118.5 °F	STv(shade): 85.9 °F STsw(shade): N/A °F	STv(sun): 94.5 °F STsw(sun): 121.3 °F	STv(shade): 88.1 °F STsw(shade): N/A °F	**106.05 °F**	**87.0 °F**
12	*St. Roman & Conti*	Air	96.7 °F	88.59 °F	101.12 °F	N/A °F	**98.91 °F**	**88.59 °F**
		Surface	STa(sun): 129.7 °F STsw(sun): 115.0 °F	N/A	STsw: 118.7 °F STasphalt: 123.0 °F	N/A	**121.6 °F**	**N/A**
13	*Johnson & Conti (open field vegetation near asphalt and buildings, etc.)*	Air	91.31 (overcast) 93.4 (sun) °F	N/A °F	101. 82 °F	N/A °F	**97.61 °F**	**N/A**
		Surface	STa: 119.2 °F STveg: 94.2 °F STsw: 102.1 °F	N/A °F	STa: 129.5 °F STveg: 102.2 °F STsw: 118.0 °F	N/A °F	**110.87 °F**	**N/A**

Table 13: Temperature Readings within Greenway and adjacent areas Day 2, June 11, 2021.

			Temperature Readings (**Day 2**) Friday, June 11, 2021					
			Time AM (9a-11a)		Time PM (3p-5p)		**Average**	
Key	Description	Type of Measurement (Air or Surface)	Sun	Shade	Sun	Shade	**Sun**	**Shade**
1	*Plaza Center*	Air	90.23 °F	88.40 °F	94.73 °F	92.78 °F	**92.48 °F**	**90.59 °F**
		Surface	STveg: 107.0 STasphalt: 110.6 °F	STa: 97.4 °F STveg: 89.4 °F	STasphalt/sun: 133.2 °F STveg(sun): 113.7 °F	STa (shade): 110.1 °F STveg (shade): 85.6 °F	**116.13 °F**	**95.63 °F**
2	*Near plaza on trail (by camp bow wow)*	Air	91.43 °F	90.1 °F	94.15 °F	92.33 °F	**92.79 °F**	**91.22 °F**
		Surface	STa(sun): 122.46 °F STv(sun): 97.2 °F	STa(shade): 103.4 °F STv(shade): 90.93 °F	STa(sun): 115.68 °F STv(sun): 98.2 °F	STa(shade): 109.45 °F STv (shade): 89.6 °F	**108.39 °F**	**98.35 °F**
3	*Trail (between Rouses and Petco)*	Air	96.76 °F	92.43 °F	95.12 °F	93.9 °F	**95.94 °F**	**93.17 °F**
		Surface	STa(sun): 119.0 °F STv(sun): 112.6 °F	STa(shade): 95.46 °F STv(shade): 90.5 °F	ST(asphalt): 132.7 °F STveg: 125.5 °F	ST(asphalt): 98.9 °F STveg: 96.8 °F	**122.45 °F**	**95.42 °F**
4	*Conti & Cortez*	Air	98.93 °F	AT(shade): 94.34 °F	100.49 °F	N/A °F	**99.71 °F**	**94.34 °F**
		Surface	STa(sun): 129.0 °F STv(sun): 93.2 °F STsw(sun): 114.6 °F	STa(shade): 97.5 °F STv(shade): 91.1 °F STsw(shade): 96.1 °F	ST(asphalt): 130.1 ST(veg): 113.7 ST(concrete sidewalk): 115.9 °F	N/A °F	**116.08 °F**	**107.4 °F**
5	*Lopez & Dumaine*	Air	98.98 °F	94.5 °F	99.92 °F	96.9 °F	**99.36 °F**	**95.7 °F**
		Surface	STa(sun): 118.9 °F STv(sun): 95.1 °F STsw(sun): 109.87 °F	STa(shade): 95.1 °F STv(shade): 93.2 STpl(sun): 134.6 °F	ST(asphalt): 129.9°F STsw(shade): 123.6°F STveg(shade):104.3°F	STa(shade): 121.4 °F STsw(shade) 114.6 °F STv(shade): 99.6 °F	**113.61 °F**	**109.75 °F**
6	*(Broad Theatre/Broad & Toulouse)*	Air	99.2 °F	93.9 °F	100.02 °F	93.16 °F	**99.61 °F**	**93.53 °F**
		Surface	STa(sun): 116.2 °F STv(sun): 110.4 °F STsw(sun): 98.82 °F STpl(sun): 120.3 °F	STa(shade): 111.89°F STv(shade): 108.3 °F STsw(shade): 94.79°F STpl(shade): 119.3 °F	STpl (sun): 136.5 STcs: 122.6 STveg (sun):108.6°F STa (sun): 127.8 °F	STconcretesidewalk (shade): 96.2 STveg(shade): 101.6 °F	**117.65 °F**	**105.31 °F**
7	*(on trail between Gayoso & Dupree, near canal/St. Louis)*	Air	95. 93 °F	93.77 °F	101.19 °F	N/A °F	**98.56 °F**	**93.77 °F**
		Surface	STa(sun): 124.5 °F STv(sun): 94.2 °F STpl(sun): 123.7 °F	STv(shade): 91.9 °F STa(shade): 99.4 °F	STaspalt: 132.8 STsidewalk: 123.7 STparking lot: 129.3 °F	N/A °F	**121.37 °F**	**95.65 °F**
8	*Basketball Court (on greenway)*	Air	AT: 92.71 °F	N/A °F	AT: 93.02 °F	N/A °F	**92.87 °F**	**N/A**
		Surface	ST: 110.1 °F	N/A °F	ST: 123.3 °F	N/A °F	**116.7 °F**	**N/A**
9	*Tree on multipurpose Trail nearest Basin (on greenway)*	Air	N/A* °F	AT: 87.49 °F	92.4 °F	90.19 °F	**N/A**	**88.84 °F**
		Surface	N/A* °F	STasphalt: 88.3 ST(veg under tree): 84.0 ST(veg near swale*): 87.8 °F	N/A °F	STveg: 90.6 STasphalt: 99.1 °F ST(veg near swale*): 89.66 °F	**N/A**	**89.91 °F**
10	*Baseball field (on greenway)*	Air	AT:90.49 (@11ish) °F	N/A °F	AT: 92.85 °F	N/A °F	**91.67 °F**	**N/A**
		Surface	ST: 90.5 °F	N/A °F	ST: 95.1 °F	N/A °F	**92.8 °F**	**N/A**
11	*Equestrian Trail (on greenway)*	Air	94.5 °F	87.3 °F	AT(sun): 96.53 °F	AT: 93.07 (shade) °F	**95.52 °F**	**90.19 °F**
		Surface	STv(sun): 96.1 °F STsw(sun): 102.5 °F	STv (shade): 93.47 °F STsw(shade): N/A °F	STveg(sun): 98.4 °F STsw(sun): 114.1 °F	STveg(shade): 83.8 °F STsw(shade): N/A °F	**102.78 °F**	**88.64 °F**
12	*St. Roman & Conti*	Air	99.78 °F	AT: 96.1 °F	104.8 °F	N/A °F	**102.29 °F**	**96.1 °F**
		Surface	STa(sun): 106.1 °F STsw(sun): 95.0 °F	STa(shade): 98.4 °F STsw(shade): 92.41 °F	STa(sun): 122.4 °F STswsun): 115.92 °F	STa(shade): 109.66 °F STsw(shade): 99.18 °F	**109.86 °F**	**99.91 °F**
13	*Johnson & Conti (open field vegetation near asphalt and buildings, etc.)*	Air	95.9 °F	N/A °F	AT(sun): 95.52 °F	N/A °F	**95.71 °F**	**N/A**
		Surface	STa(sun): 130.0 °F STv(sun): 109.19 °F STsw(sun): 118.43 °F	N/A °F	STa(sun): 125.3 °F STv(sun): 106.4°F STsw(sun): 114.6°F	N/A °F	**117.32 °F**	**N/A**

Table 14: Temperature Readings within Greenway and adjacent areas Day 3, June 13, 2021.

Key	Description	Type of Measurement (Air or Surface)	Time AM (9a-11a)		Time PM (3p-5p)		Average	
			Sun	Shade	Sun	Shade	**Sun**	**Shade**
1	*Plaza Center*	Air	90.48 °F	88.63 °F	94.40 °F	91.31 °F	**92.44 °F**	**89.97 °F**
		Surface	STveg: 90.8 °F STasphalt: 104.7 °F	STa: 98.4 °F STv: 95.2 °F	STasphalt(sun): 107.54 °F STveg(sun): 93.76°F	STa(shade) 101.42 °F STv(Shade): 98.2 °F	**99.2 °F**	**98.31 °F**
2	*Near plaza on trail (by camp bow wow)*	Air	90.68 °F	88.43 °F	94.40 °F	91.31 °F	**92.54 °F**	**89.67 °F**
		Surface	STa(sun): 112.4 °F STv(sun): 95.5 °F	STa(shade): 106.3 °F STv(shade): 86.7 °F	STveg(sun): 93.87 °F STa(sun): 110.2 °F	STv(shade): 92.23 °F STa(shade: 100.46 °F	**102.99 °F**	**96.42 °F**
3	*Trail (between Rouses and Petco)*	Air	92.33 °F	89.52 °F	95.2 °F	90.3 °F	**93.77 °F**	**89.91 °F**
		Surface	STa(sun): 117.1 °F STv(sun): 108.2 °F	STa(shade): 92.0 °F STv(shade): 87.2 °F	STa(sun): 116.89 °F STv(sun): 108.92 °F	STa(shade): 93.65 °F STv(shade): 90.49 °F	**112.78 °F**	**90.84 °F**
4	*Conti & Cortez*	Air	106.25 °F	101.12 °F	102.44 °F	98.4 °F	**104.35 °F**	**99.76 °F**
		Surface	STa(sun): 123.2 °F STv(sun): 108.6 °F STsw(sun): 113.1 °F	STa(shade): 96.6 °F STv(shade): 89.7 °F STsw(shade): 93.1 °F	STv(sun): 115.38 °F STsw(sun): 120.1 °F STa(sun): 127.8 °F	STv(shade): 96.2 °F STsw(shade): 99.0 °F STv(shade): 95.6 °F	**118.03 °F**	**95.03 °F**
5	*Lopez & Dumaine*	Air	101.62 °F	99.66 °F	105.7 °F	101.3 °F	**103.66 °F**	**100.48 °F**
		Surface	STa(sun): 122.6 °F STv(sun): 92.6 °F STsw(sun): 116.4 °F	STa(shade): 99.3 °F STv(shade): 90.9 °F STsw(shade): 97.7 °F	STa(sun): 125.6 °F STv(sun): 95.0 °F STsw(sun): 119.2 °F	STa(shade): 102.3 °F STv(shade): 94.2 °F STsw(shade): 101.15 °F	**111.9 °F**	**97.59 °F**
6	*(Broad Theatre/Broad & Toulouse)*	Air	104.07 °F	94.56 °F	103.2 °F	98.3 °F	**105.2 °F**	**96.43 °F**
		Surface	STa(sun): 115.1 °F STv(sun): 99.5 °F STsw(sun): 111.7 °F STpl(sun): 127.7 °F	STa(shade): 92.3 °F STv(shade): 88.8 °F STsw(shade): 95.7 °F STpl(shade): N/A °F	STa(sun): 118.5 °F STv(sun): 102.4 °F STsw(sun):114.27°F STpl(sun): 129.8 °F	STa(shade): 95.6 °F STv(shade): 92.9 °F STsw(shade): 99.3 °F STpl(shade): N/A °F	**114.8 °F**	**94.1 °F**
7	*(on trail between Gayoso & Dupree, near canal/St. Louis)*	Air	96.74 °F	92.35 °F	97.88 °F	N/A °F	**97.31 °F**	**92.35 °F**
		Surface	STa(sun): 113.0 °F STv(sun): 90.7 °F	STa(shade): 95.1 °F STv(shade): 87.8 °F	STa(sun): 115.7 °F STveg: 96.9 °F	N/A °F	**104.08 °F**	**91.45 °F**
8	*Basketball Court (on greenway)*	Air	94.62 °F	N/A °F	99.46 °F	N/A °F	**97.04 °F**	**N/A**
		Surface	STcourt(sun): 118.7°F STv(sun): 98.2 °F	N/A °F	STa(sun): 122.5 °F STv(sun): 100.3 °F	N/A °F	**109.93 °F**	**N/A**
9	*Tree on Trail nearest Basin (on greenway)*	Air	98.65 °F	92.42 °F	92.83 °F	89.57 °F	**95.74 °F**	**91.0 °F**
		Surface	STa(sun): 109.8 °F STv(sun): 105.4 °F	STa(shade): 93.7 °F STv(shade): 87.8 °F	STv(sun): 102.4 °F STsw(sun): 114.27 °F	STv(shade): 92.9 °F STa(shade): 99.3 °F	**107.97 °F**	**93.43 °F**
10	*Baseball field (on greenway)*	Air	94.11 °F	N/A °F	81.6 °F	N/A °F	**87.86 °F**	**N/A**
		Surface	STv(sun): 86.2 °F	N/A °F	90.69 °F	N/A °F	**88.45 °F**	**N/A**
11	*Equestrian Trail (on greenway)*	Air	94.64 °F	93.39 °F	98.5 °F	96.22 °F	**96.57 °F**	**94.81 °F**
		Surface	STv(sun): 91.5 °F STsw(sun): 127.8 °F	STv(shade): 87.5 °F STsw(shade): N/A °F	STv(sun): 95.24 °F STsw(sun): 131.2 °F	STv(shade): 91.6 °F STsw(shade): NA °F	**111.44 °F**	**89.55 °F**
12	*St. Roman & Conti*	Air	AT(sun): 106.21 °F	AT(shade): 96.4 °F	107.42 °F	99.3 °F	**106.82 °F**	**97.85 °F**
		Surface	STa(sun): 129.7 °F STsw(sun): 115.5 °F	STa(shade): 95.62 °F STsw(shade): 105.5°F	STa(sun): 131.8 °F STsw(sun): 119.7 °F	STa(shade): 95.62 °F STsw(shade): 96.4 °F	**124.18 °F**	**98.29 °F**
13	*Johnson & Conti (open field vegetation near asphalt and buildings, etc.)*	Air	AT(sun): 103.13 °F	N/A °F	106.2 °F	N/A °F	**104.67 °F**	**99.05 °F**
		Surface	STa(sun): 140.5 °F STv(sun): 127.5 °F STsw(sun): 116.6 °F	N/A °F	STa(sun): 143.22 °F STv(sun/open field): 130.3 °F STsw(sun): 120.2 °F	N/A °F	**129.72 °F**	**100.15 °F**

	Notes For Temperature Readings Tables	
Key		
Reference	a = asphalt v/veg = vegetation ST a = Surface Temperature (asphalt) ST v/veg = Surface Temperature (vegetation) cs = concrete sidewalk pl = parking lot	
1	Shade temperatures were taken under a tree in the center of the plaza; Day 2 was often overcast and windy; drizzled from 9:20 am - 9:40 am; mostly sunny when taking morning temperatures in greenway, mostly overcast when taking morning temps in adjacent areas (go figure!)	
4	Residential and commercial buildings surrounding, some grass vegetation, concrete sidewalks, asphalt road.	
5	Sidewalk is painted red (with iridescent fish); residential	
8	Felt cooler on basketball court than in adjacent parking lots, even though both are open to the sun.	
9	Part sun with vegetation near the swale; no sun in area in the morning on Day 2, trail surrounded by trees here	
12	Felt cooler on basketball court than in adjacent parking lots, even though both are open to the sun equestrian trail, gravel; swales near Galvez/equestrian trail/park bench; part shade, mostly sun (until trees get larger in the future) Shade from wall of building; overcast in morning on Day 2	
13	Concrete sidewalk, asphalt road, buildings surrounding, shade from building/reflective brick building wall, light traffic Partial overcast in AM; No shade, some vegetation (grass); overcast and slight drizzle (for 20 minutes) prior to temperature reading on Day 1; Vegetation surface measurement taken from open field in full sun/no shade	

Table 15: Vehicular Speeds, number of cars recorded, additional calculations and site observations.

	Vehicular Speeds for Roads through and adjacent to Greenway						
Locations of Speed Readings	AM" 9:30am – 11:00am (5 minutes at each location)			PM: 3:00pm – 4:30pm (5 minutes at each location)			Average (only part that goes in methods) (separate into adjacent blocks versus greenway blocks)
	(Day 1) Sunday, June 10, 2021	(Day 2) Sunday, June 11, 2021	(Day 3) Sunday, June 13, 2021	(Day 1) Sunday, June 10, 2021	(Day 2) Sunday, June 11, 2021	(Day 3) Sunday, June 13, 2021	
1 Moss Street (adjacent block)	30, 25, 26, 27, 29, 20, 32, 21, 25, 24, 27, 28, 31, 33, 32, 34, 28, 28 Mean: 500 / 18 = 28	32, 21, 21, 21, 23, 23, 30, 23, 29, 19, 27, 23, 20, 23, 21, 19, 20, 29, 30 Mean: 433 / 19 = 23	28, 27, 34, 30, 30, 31, 26, 27, 24, 28, 30, 32, 27, 27, 27, 26 Mean: 454 /16 = 28	33, 32, 24, 27, 27, 26, 33, 28, 26, 29, 32, 23, 26, 25, 31, 30 Mean: 452 / 16 = 28	27, 24, 23, 26, 28, 32, 33, 32, 29, 25, 26, 27, 34, 32, 33, 27, 28 Mean: 486 / 17 = 29	34, 32, 31, 26, 29, 25, 25, 23, 27, 29, 35, 31, 32 Mean: 379 / 13 = 29	Average AM: (28 + 23 + 28) / 3 = ~26 mph Average PM: (28 + 29 + 29) / 3 = ~29 mph
2 Conti and Lafitte (adjacent block)	17, 18, 20, 22, 27, 14, 23, 22, 20, 23, 21, 24, 19, 19, 27, 26, 22 Mean: 364 / 17 = 21	24, 13, 18, 12, 17, 13, 12, 12, 12, 17, 11, 16, 16, 17, 16, 15, 19, 20, 20, 18, 18, 13, 17 Mean: 366 / 23 = 16	19, 20, 21, 21, 22, 18, 17, 19, 23, 22, 22, 14, 15, 24, 23, 24, 21, 19, 23, 20 Mean: 407 /20 = 20	25, 22, 16, 17, 23, 20, 23, 22, 19, 13, 14, 24, 27, 23, 17, 16, 18, 12, 12, 19, 22 Mean: 404 / 21 = 19	18, 15, 21, 21, 25, 21, 23, 17, 19, 20, 23, 24, 21, 26, 23, 24, 17, 16 Mean: 374 / 18 = 21	23, 30, 25, 27, 29, 17, 18, 23, 24, 28, 19,12 Mean: 275 / 12 = 23	Average AM: 19 Average PM: 21
3 Jefferson Parkway (adjacent block) (Bayou Beer Garden)	25, 21, 26, 24, 24, 24, 29, 29, 27, 28, 20, 19, 32, 34, 21, 28 Mean: 411 / 16 = 26	29, 25, 23, 25, 24, 25, 23, 25, 24, 26, 23, 27, 27, 25, 25, 26, 19, 25, 35, 25 Mean: 506 / 20 = 25	25, 24, 23, 34, 32, 27, 28, 29, 31, 30, 27, 26, 25, 25, 24, 19, 23, 20, 23, 17, 25, 25, 23, 24, 17, 24 Mean: 629 / 26 = 24	26, 25, 26, 29, 30, 29, 29, 26, 23, 23, 22, 27, 29, 26, 28, 34, 27, 18 Mean: 487 / 18 = 27	27, 25, 24, 32, 25, 27, 29, 26, 28, 23, 28, 29, 31, 25, 29, 23, 24, 27, 32, 30, 26, 27, 26, 24 Mean: 647 / 24 = 27	22, 27, 28, 24, 23, 17, 26, 26, 29, 30, 32 Mean: 284 / 11 = 26	Average AM: 26 Average PM: 27
4 Broad Street (adjacent block) and Conti and St. Louis	33, 32, 28, 26, 24, 22, 30, 29,, 26, 25, 22, 21, 20, 27, 26, 28 Mean: 419 / 16 = 26	31, 25, 23, 21, 25, 23, 33, 21, 24, 18, 28, 27, 32, 22, 25, 18, 21, 23, 32 Mean: 472 / 19 = 25	30, 31, 27, 31, 20, 28, 26, 31, 28, 29, 27, 29, 30, 30, 32, 33, 30, 30, 31, 34 Mean: 791 / 27 = 29	24, 28, 24, 35, 37, 29, 28, 26, 20, 31, 27, 28, 34, 36, 33, 31, 30, 27, 25, 28, 26, 29, 32, 32 Mean: 700 / 24 = 29	27, 27, 26, 32, 34, 29, 32, 25, 26, 28, 29, 26, 23, 25, 36, 33, 32, 27, 28, 26, 23, 29, 32, 34, 28, 24 Mean: 741/ 26 = 29	27, 29, 34, 34, 30, 28, 32, 29, 25, 27, 28, 32, 29, 25, 27, 29, 25 Mean: 477 / 17 = 28	AM: 27 PM: 29
5 Broad Street (on Greenway) (opposite Broad Theatre side)	**17, 19, 22, 22, 23, 28, 24, 26, 17, 19, 12, 12, 16, 22, 24, 22, 23, 26, 22, 27, 29, 23 Mean: 475 / 22 = 22**	**18, 22, 18, 23, 25, 26, 11, 12, 17, 27, 22, 24, 22, 24, 19, 12, 19, 20 Mean: 361 / 18 = 20**	**19, 22, 30, 25, 26, 25, 25, 19, 18, 18, 18, 17, 24, 22, 35, 24, 32, 23, 22, 23, 24, 23, 25, 24, 29, 20, 27, 28, 27 Mean: 694 / 29 = 24**	**18, 15, 23, 23, 17, 13, 16, 12, 24, 27, 26, 12, 13, 19, 22, 24, 26, 25, 22, 18, 23, 22 Mean: 440 / 22 = 20**	**24, 25, 23, 26, 28, 28, 29, 23, 17, 17, 24,12, 16, 29, 22, 25, 27, 25, 28, 22, 28 Mean: 498 / 21 = 24**	**17, 26, 30, 26, 27, 28, 23, 27, 23, 24, 28, 29, 22, 24 Mean: 354 / 14 = 25**	**AM: 22 PM: 23**
6 Broad Street (on Greenway) (Broad Theatre side)	**29, 23, 16, 16, 17, 18, 16, 22, 23, 24, 29. 27, 22, 22, 18 Mean: 322 / 15 = 22**	**12, 15, 13, 12, 13, 19, 16, 23, 21, 23,19, 12, 11, 20, 18, 28, 22, 21, 18, 13, 18, 12 Mean: 379 / 22 = 17**	**16, 29, 21, 15, 15, 16, 32, 16, 28, 24, 26, 24, 15, 16, 15, 20, 17, 18, 19, 26, 30, 18, 17, 28 Mean: 495 / 24 = 21**	**15, 19, 23, 27, 27, 26, 28, 22, 23, 25, 29, 17, 19, 24, 26, 23, 28, 24, 29, 21, 27, 18 Mean: 532 / 23 = 23**	**17, 19, 27, 23, 12, 14, 15, 19, 23, 25, 27, 24, 28, 24, 27, 23, 25, 12, 14 Mean: 398 / 19 = 21**	**23, 13, 25, 27, 23, 23, 17, 26, 25, 28, 13, 17, 18, 16, 23, 27, 24 Mean: 368 / 17 = 22**	**AM: 20 PM: 22**
7 Broad Street (adjacent block) and Toulouse	32, 31, 23, 27, 28, 29, 26, 27, 29, 22, 27, 29, 30, 26, 29, 17, 15, 15, 12, 24 Mean: 498 / 20 = 25	30, 35, 28, 27, 20, 31, 29, 26, 27, 27, 32, 33, 30, 25, 31, 40, 41, 26, 26, 26, 30, 31 Mean: 679 / 23 = 30	32, 47, 40, 29, 30, 41, 29, 28, 29, 28, 28, 29, 33, 28, 29, 29, 27, 27, 37, 36, 37, 39, 33, 29, 30, 31, 36, 37, 33, 29 Mean: 970 / 30 = 32	28, 25, 22, 29, 32, 30, 29, 27, 34, 27, 29, 29, 29, 23, 24, 26, 29, 28, 25, 23, 24, 28, 27, 28, 28 Mean: 712 / 26 = 27	25, 25, 29, 27, 26, 28, 35, 29, 27, 25, 34, 33, 37, 39, 32, 38, 35, 34, 39, 28, 26, 27, 28, 34 Mean: 740 / 24 = 31	34, 32, 28, 28, 25, 26, 32, 29, 27, 27, 28, 27, 26, 30, 26, 25 Mean: 450 / 16 = 28	AM: 29 PM: 29
8 Galvez (on Greenway) (side closer to dense vegetation)	**22, 20, 29, 28, 22, 24, 27, 17, 15, 24, 23, 11, 16, 25, 29, 20, 20, 22, 23, 19, 18, 27, 20 Mean: 501 / 23 = 22**	**23, 29, 24, 22, 22, 25, 24, 22, 21, 19, 19, 17, 12, 11, 20, 20 Mean: 330 / 16 = 21**	**24, 23, 38, 15, 25, 15, 27, 11, 17, 29, 32, 26, 18, 29, 25, 16 Mean: 317 / 16 = 20**	**24, 11, 14, 16, 17, 13, 12, 22, 24, 27, 23, 28, 25, 23, 28, 19, 19 Mean: 345 / 17 = 20**	**27, 24, 22, 23, 17, 19, 18, 13, 14, 17, 27, 26, 23, 22, 21, 17 Mean: 330 / 16 = 22**	**26, 22, 24, 23, 28, 26, 24, 13, 13, 17, 22 Mean: 226 / 11 = 21**	**AM: 21 PM: 21**
9 Galvez (adjacent block) between Conti and St. Louis	35, 25, 32, 27, 22, 25, 27, 32, 21, 20, 20, 28, 29 Mean: 343 / 14 = 25	35, 34, 28, 29, 27, 22, 23, 22, 35, 36, 23, 29, 25, 27, 26, 32, 30 Mean: 483 / 17 = 28	31, 32, 35, 27, 31, 30, 27, 28, 26, 30, 29 Mean: 326 / 11 = 30	27, 27, 25, 27, 29, 22, 23, 26, 31, 25, 28 Mean: 290 / 11 = 26	29, 31, 31, 26, 27, 23, 25, 27, 28, 27, 27, 29, 32, 30 Mean: 392 / 14 = 28	32, 32, 26, 28, 26, 24, 27, 29, 26, 27 Mean: 277 / 10 = 28	AM: 28 PM: 27
10 Galvez (on Greenway) (side closer to open field)	**17, 20, 22, 22, 23, 22, 21, 27, 26, 24, 18, 19, 22, 22 Mean: 305 / 14 = 22**	**25, 28, 23, 19, 18, 22, 24, 25, 26, 23, 21, 23, 22, 27, 22, 23, 25, 31, 25, 25 Mean: 477 / 20 = 24**	**15, 18, 26, 15, 24, 20, 17, 20, 19, 30, 15, 22 Mean: 241 / 12 = 20**	**24, 17, 18, 25, 29, 23, 25, 27, 25, 23, 22, 22, 26, 24, 23, 28, 19, 16, 18 Mean: 452 / 20 = 23**	**25, 24, 23, 29, 18, 18, 25, 23, 26, 25, 22, 17, 24 Mean: 299 / 13 = 23**	**24, 27, 23, 28, 19, 16, 34, 22, 27, 17, 18, 22, 23 Mean: 300 / 13 = 23**	**AM: 22 PM: 23**
11 Galvez (adjacent block) between Magic and Lafitte	28, 32, 33, 34, 43, 25, 22, 22, 23, 28, 28, 26, 25, 29, 30, 33, 32, 21, 25, 26 Mean: 565 / 20 = 28	36, 35, 22, 29, 29, 32, 33, 36, 40, 42, 34, 28, 22, 27, 27, 28, 32, 45, 34, 30, 41, 40 Mean: 717 / 22 = 33	37, 38, 36, 31, 32, 27, 25, 20, 19, 30, 39, 38, 25, 27, 26, 30, 32, 31 Mean: 543 / 18 = 30	28, 32, 27, 27, 28, 25, 23, 28, 26, 27, 32, 31, 24, 35, 32, 33, 26, 26 Mean: 510 / 18 = 28	25, 28, 26, 25, 25, 27, 24, 34, 31, 32, 29, 28, 28, 30, 37, 34, 27 Mean: 490 / 17 = 29	25, 28, 29, 30, 32, 34, 30, 28, 29, 27, 26, 29, 23, 28 Mean: 398 / 14 = 28	AM: 30 PM: 28
12 Prieur (along Greenway)	**22, 25, 28, 22, 27, 18, 24, 28, 26, 23, 23, 26, 23, 25 Mean: 340 / 14 = 24**	**29, 23, 18, 11, 15, 25, 23, 23, 26 Mean: 193 / 9 = 21**	**21, 23, 25, 27, 24, 23, ,27, 22 Mean: 192 / 8 = 24**	**30, 27, 26, 27, 25, 22, 18, 17, 24, 31, 25 Mean: 272 / 11 = 25**	**25, 26, 27, 22, 28, 25, 23, 35, 29, 22 Mean: 262 / 10 = 26**	**28, 28, 26, 34, 29, 25, 19, 16, 19 Mean: 224 / 9 = 25**	**AM: 23 PM: 25**
13 Prieur (adjacent block) and Orleans Ave	32, 40, 41, 45, 29, 23, 25, 25, 24, 34, 42, 33, 35, 20, 31, 26, 28, 27 Mean: 560 / 18 = 31	26, 25, 32,33, 29, 30, 27, 25, 29, 21, 27, 26, 24, 23, 27, 29, 29, 26 Mean: 488 / 18 = 27	28, 24, 29, 24, 25, 26, 27, 27, 23, 31, 29, 31, 38, 25 Mean: 387 / 14 = 28	30, 26, 29, 30, 32, 31, 32, 32, 27, 29, 35, 37, 28, 29, 28 Mean: 455 / 15 = 30	29, 29, 25, 27, 28, 26, 26, 27, 29, 28, 27, 24, 34, 33, 37, 26 Mean: 455 / 16 = 28	29, 27, 26, 28, 31, 25, 27, 23, 25, 23, 23 Mean: 287 / 11 = 26	AM: 29 PM: 28

Table Notes	
Location	Note
1	The averages for the speeds of the number of cars were rounded up or down based on +/- 0.5. There were less pedestrians crossing on Sunday; cars still slowed at pedestrian safety measures, but less so than when pedestrians and bikers were apparent or more frequent on greenway. More pedestrians and bikers frequented the greenway during Sunday afternoon than Sunday morning. Vehicles reduced speeds on the road when pedestrians were visible in the greenway
2	Number of cars coming to a complete stop (excluded from calculations): 6
5	Number of cars coming to a complete stop (excluded from calculations): 8
6	Number of cars coming to a complete stop (excluded from calculations): 5
8	Number of cars coming to a complete stop (excluded from calculations): 7
10	Number of cars coming to a complete stop (excluded from calculations): 5
12	There are minimal pedestrian safety measures here, compared to other sites chosen; less traffic on any given day/time. Number of cars coming to a complete stop (excluded from calculations): N/A