



Sioux Falls Downtown River Greenway Methods Document

Prepared by:

Research Fellow: Dr. Matthew James, Assistant Professor, South Dakota State University

Research Assistant: Bailey Peterson, MLA Candidate, South Dakota State University

Research Assistant: Erika Roeber, BLA Candidate, South Dakota State University

Firm Liaison: Chad Kucker, ASLA; Jake Coryell, Associate ASLA; Confluence

This Methods Document accompanies a *Landscape Performance Series* Case Study Brief. It was produced in 2015 through the Landscape Architecture Foundation's *Case Study Investigation* program, a unique research collaboration that matches LAF-funded faculty-student research teams with leading practitioners to document the benefits of exemplary high-performing landscapes.

The full Case Study Brief for this project can be found at:

<https://landscapeperformance.org/case-study-briefs/sioux-falls-greenway>

Landscape Performance Benefits

Social Benefits

- **Promotes a healthy lifestyle for 59% of 60 surveyed park users, and increases outdoor activity for 59%. Of 134 observed visitors, 77 were biking, 4 were running, 48 were walking, and 5 were kayaking.**

Methodology

To measure the social performance benefits of Sioux Falls Downtown River Greenway, the research fellow developed a voluntary, on-site survey. The survey included Likert scale, multiple choice, and checkbox answers. The surveys were conducted on site (July 11 and 12, 2015) and on social media (July 15-17, 2015). A total of 60 adults participated in the survey.

Limitations of Methodology

The majority of users observed on site were riding bikes, followed by walkers. It was difficult to obtain surveys from those riding bikes, leading to a majority of survey takers being walkers. This could have led to a bias of survey results leaning heavily on one particular type of user.

Source

See attached survey in appendix.

Methodology

People counts were collected on site on July 11, 2015 between 1:00 PM and 3:30 PM. A total of 134 site users were observed during the count.

Limitations of Methodology

The people counts were only collected 1 day. Multiple people counts over the course of several days may have led to more conclusive data.

Source

On-site observation.

- **Attracts over 25,000 visitors annually for recreation and events, and hosts an average of 16 public events each month.**

Methodology

Numbers were acquired from the Downtown Sioux Falls, Inc. group which organizes and tracks events and number projected number of visitors. Riverfest, a 1-day community festival held in mid-August attracts over 15,000 of the visitors.

Limitations of Methodology

The number of visitors for Riverfest is based upon beverage sales, and the annual visitation is based upon an estimate from the Sioux Falls Police Department.

Source

Brienne Maner (Communications & Membership Director), Downtown Sioux Falls, Inc.

Economic Benefits

- **Created 3 long-term, full-time seasonal jobs.**

Methodology

Numbers were acquired from the City of Sioux Falls Park and Recreation department. The 3 jobs created are long-term maintenance positions that run from April to October.

Limitations of Methodology

Downtown Sioux Falls, Inc. also provides employees to help manage events, although no new positions were specifically created for the greenway.

Source

Kelby Mieras (Park Operations Manager) City of Sioux Falls

- **Supports local businesses, with 61% of 60 survey respondents saying that they patronize local businesses before or after visiting the greenway.**

Methodology

Finding is based off voluntary, on-site survey. The survey included Likert scale, multiple choice, and checkbox answers. The surveys were conducted on site and on social media July 11, 2015. A total of 60 adults participated in the survey.

Limitations of Methodology

While 61.4% of visitors agreed that they patronize local businesses before or after visiting the greenway, it cannot be concluded that they patronize businesses as a result of their visit or would have otherwise patronized local businesses regardless.

Source

See attached survey in appendix.

- **Contributes to an average increase of 50% in residential property values of a sample set within a half-mile of the site.**

Methodology

The current value of 5 residential properties within one-half mile of the greenway was determined from Zillow.com. The values of the homes previous to the year 2012 (but no further back than 2008) were also determined. The average increase in property value for the 5 houses was calculated at 173%. According to USA.com, the house value in Minnehaha County has grown by 46.84% since 2000.

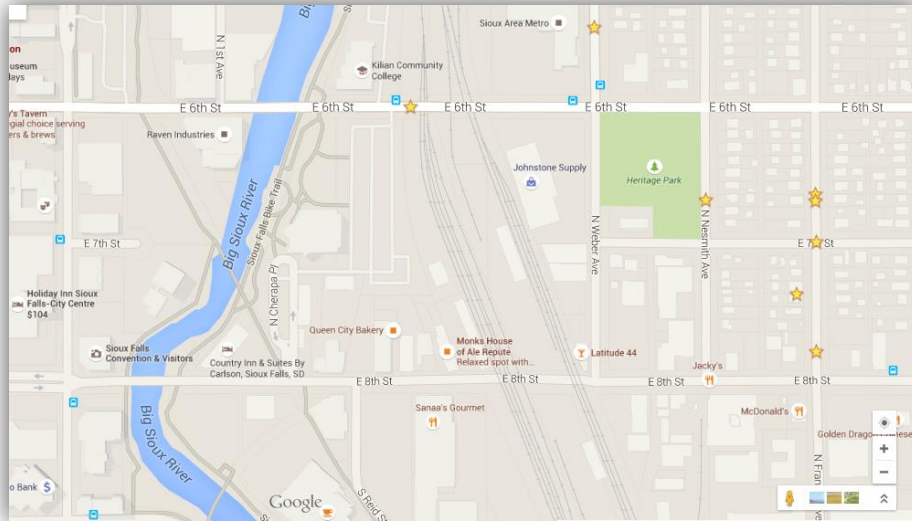


Figure 1: Properties within one-half mile of the greenway

Calculations

Property #1: $(\$127500-40000)/40000 \times 100\% = 218.75\%$ (removed as an outlier)

Property #2: $(\$108872-\$94250)/94250 \times 100\% = 15.51\%$

Property #3: $(\$92524-\$58000)/58000 \times 100\% = 59.52\%$

Property #4: $(\$98471-\$65400)/65400 \times 100\% = 50.57\%$

Property #5: $(\$79900-\$65000)/65000 \times 100\% = 173.46\%$

Average Increase in Value:

$$(15.51+59.52+50.57+73.46) / 4 = \mathbf{49.77\%}$$

Limitations of Methodology

The faster than average increase in property values cannot be exclusively contributed to the greenway development. Other factors likely also influenced the increase in value. However, it is likely that proximity to the greenway and the amenities it provides is a benefit associated with the properties.

Source:

USA.com

Zillow.com

Cost Comparison

Local quartzite was roughly double the cost of a more conventional material, brick. The estimated material cost for brick was \$45,375; installation cost would have been \$117,623. Although the cost of the quartzite was significantly more than an alternative material such as brick or cultured stone, the quartzite provided a feeling of regionalism and was used throughout the project. Quartzite is a more sustainable material than brick or cultured stone because it reduces transportation costs and supports the local and regional economy. Some brick was used on phase 2 of the project due to cost and in the interest of matching adjacent buildings.

Background information

Sioux Quartzite: Sioux quartzite is sourced from a relatively small region at the juncture of South Dakota, Minnesota, and Iowa. The stone color varies from maroon to light rose hues and is very hard (7.5 to 8 rating on the MOHS scale).

Source: www.jasperstoneco.com

Appendix: Plant Choices

Reduces need for irrigation in planting beds by utilizing native and hardy plant material including switchgrass, little bluestem, big bluestem, prairie dropseed, coneflower, and black-eyed susan.

Methodology

The planting schedule and site observations led to the conclusion that hardy and native plant material was utilized to help reduce the need for an abundance of water.

PLANT SCHEDULE: BASE BID						
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	NOTES
CANOPY TREES						
UM	3	ULMUS 'MORTON'	AGCOLADE ELM	2" CAL	B&B	
ORNAMENTAL TREES						
AE	7	ACER GINNALA 'EMBERS'	EMBERS AMUR MAPLE	7-8' HT.	B&B	MULTI-STEM
MC	12	MALUS 'RED BARON'	RED BARON CRAB	2" CAL	B&B	
MD	12	MALUS 'PINK SPIRES'	PINK SPIRES CRABAPPLE	2" CAL	B&B	
SR	10	SYRINGA RETICULATA	JAPANESE TREE LLAC	7-8' HT.	B&B	MULTI-STEM
DECIDUOUS SHRUBS						
DL	349	DIERVILLA LONICERA	DWARF BUSH HONEYSUCKLE	#5	CONT.	
HA	55	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE HYDRANGEA	#5	CONT.	
RA	26	RHUS AROMATICA 'GROW LOW'	GROW LOW SUMAC	#3	CONT.	
SF	95	SPIREA FRITSCHIANA	FRITSCH SPIREA	#2	CONT.	
EVERGREEN SHRUBS						
JH	29	JUNIPERUS HORIZONTALIS 'COMPACTA'	ANDORSA COMPACT JUNIPER	#5	CONT.	
PERENNIALS						
AB	16	AGASTACHE 'BLUE FORTUNE'	BLUE FORTUNE ANISE HYSSOP	#1	CONT.	
AT	5	ASOLEPIAS 'TUBEROSA'	BUTTERFLY FLOWER	#1	CONT.	
EP	16	ECHINACEA PURPUREA 'TWILIGHT'	BIG SKY TWILIGHT CONEFLOWER	#1	CONT.	
HC	46	HEMEROCALLIS 'CHICAGO APACHE'	CHICAGO APACHE DAYLILY	#1	CONT.	
HR	339	HEMEROCALLIS 'ROCKET CITY'	ROCKET CITY DAYLILY	#1	CONT.	ORANGE FLOWERS
HE	345	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILY	#1	CONT.	
HS	38	HEMEROCALLIS 'STRAWBERRY CANDY'	STRAWBERRY CANDY DAYLILY	#1	CONT.	
HO	14	HOSTA 'SUM AND SUBSTANCE'	SUM AND SUBSTANCE HOSTA	#1	CONT.	
RF	9	RUDBECKIA FULLGIDA 'GOLDSTURM'	BLACK EYED SUSAN	#1	CONT.	
SM	54	SEDUM 'MATRONA'	MATRONA SEDUM	#1	CONT.	
GRASSES						
AG	152	ANDROPOGON GERARDI	BIG BLUESTEM	#1	CONT.	
CA	80	CALAMAGROSTIS ACUTIFLORA 'KARL FOENESTER'	FEATHER REED GRASS	#1	CONT.	
PV	272	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	#1	CONT.	
SC	162	SCHIZACHYRIUM SCOPARUM	LITTLE BLUESTEM	#1	CONT.	
SS	256	SCHIZACHYRIUM SCOPARUM 'THE BLUES'	THE BLUES LITTLE BLUESTEM	#1	CONT.	
SH	237	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSDEED	#1	CONT.	
SN	227	SORGHASTRUM NUTANS	INDIANGRASS	#1	CONT.	

Figure 2: Plant Schedule

Limitations of Methodology

While plant material was observed as native and hardy, no specific calculations on how much the water needs were reduced compared to alternative plant materials.

Sources

Confluence

Appendix: Survey

Survey questionnaire

I am: male____; female____; I do not wish to disclose this information_____

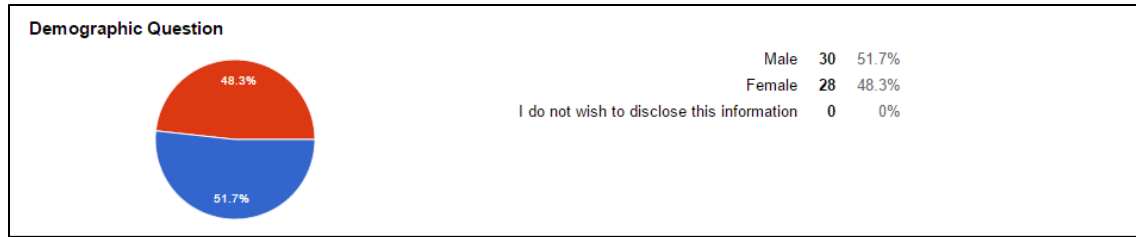


Figure 3. 51.7% of survey respondents were male and 48.3% of respondents were female.

My age range is: 18-25___; 26-35___; 36-45___; 46-55___; 56-65___; 66-75___; 76-85___; above 85___; I do not wish to disclose this information

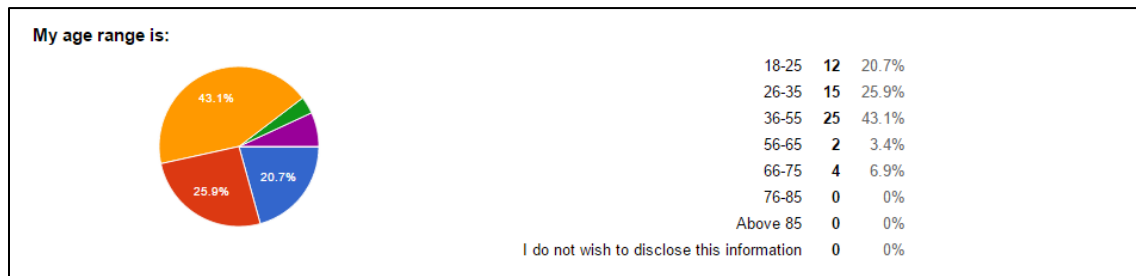


Figure 4. 20.7% of survey respondents were ages 18-25.

Please select the response below that most accurately describes your geographic relationship to this place.

- a. I live in Sioux Falls.
- b. I live within 50 miles of Sioux Falls.
- c. I am a South Dakota resident, but live further than 50 miles from Sioux Falls.
- d. I am a visitor from another state.

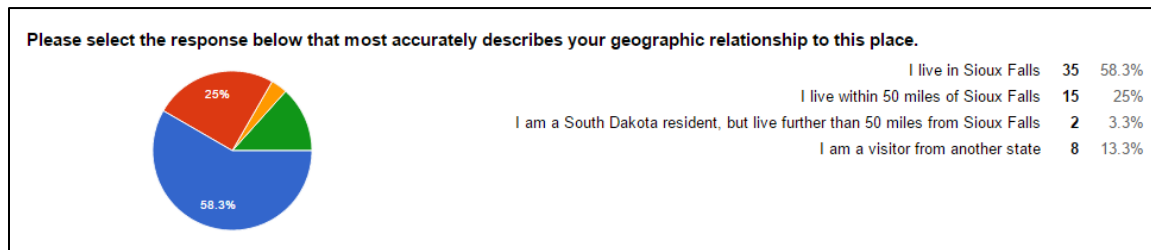


Figure 5. 58.3% of respondents live in Sioux Falls. 13.3% of respondents were visitors from another state.

Additional Questions:

Before or after visiting the Sioux Falls Downtown River Greenway did you shop or dine within ½ mile of the greenway?

- a. Yes
- b. No



Figure 6. 61.4% of respondents shop or dine within 1/2 mile of greenway when visiting.

How did you arrive to the downtown river greenway?

- a. On foot
- b. By personal vehicle
- c. By carpool
- d. By bike
- e. Other: _____

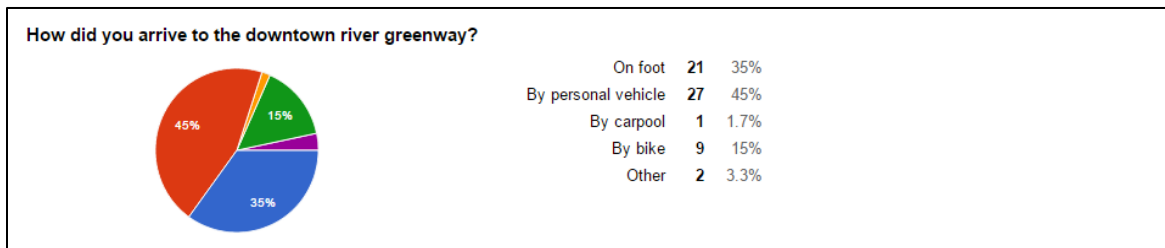


Figure 7. 35% of respondents arrived to greenway of foot. 45% of respondents arrived by personal vehicle.

EXPERIENTIAL QUESTIONS

I visit this place:

- a. Very infrequently (once per year, or less)
- b. Infrequently (2-3 times per year)
- c. Somewhat frequently (1 time per month)
- d. Frequently (1-2 times per week)
- e. Very frequently (More than 3 times per week)
- f. Every day

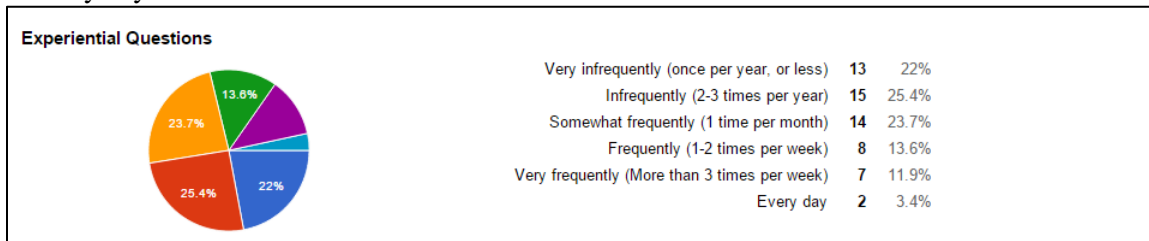


Figure 8. 25.4% of respondents visit the site infrequently and 13.6% of respondents visit the site frequently.

What are the reasons that you use or visit this place? (check all that apply):

- a. For relaxing/stress reduction
- b. For recreating/letting kids play
- c. For reading
- d. I walk through it to get where I am going
- e. To enjoy nature
- f. To people watch
- g. To meet people
- h. To socialize with friends and family
- k. Other (Please explain)

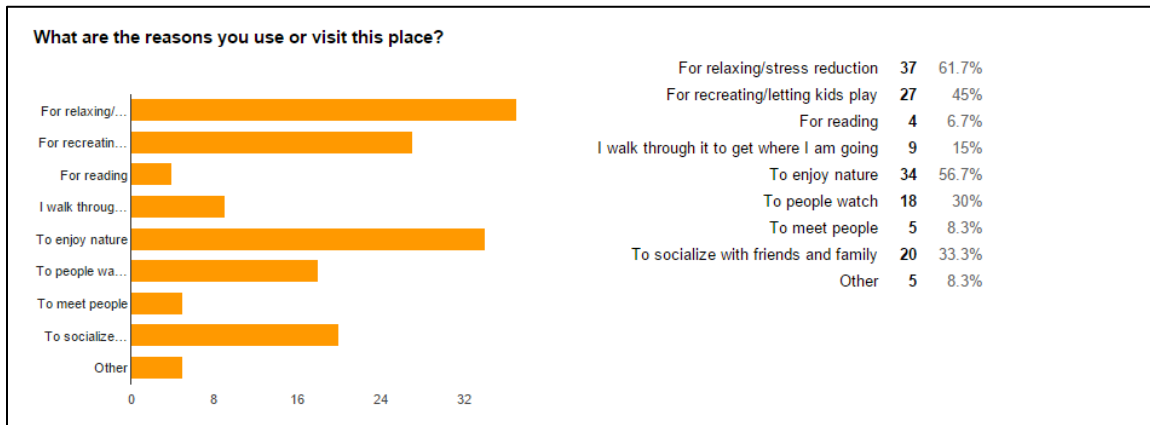


Figure 9. 61.7% of users responded that they used the space to relax, 56.7% responded that they use the site to enjoy nature, and 33.3% use the site to socialize with friends and family.

The features I enjoy most in the space are (check all that apply):

- a. Views
- b. Overall character of the place
- c. Plants, (trees, lawn, flowers)
- d. Amphitheater
- e. Plazas
- f. Fresh air, sunshine, breezes
- g. Access to Big Sioux River
- h. Scheduled events
- i. Active recreation
- j. Other: _____

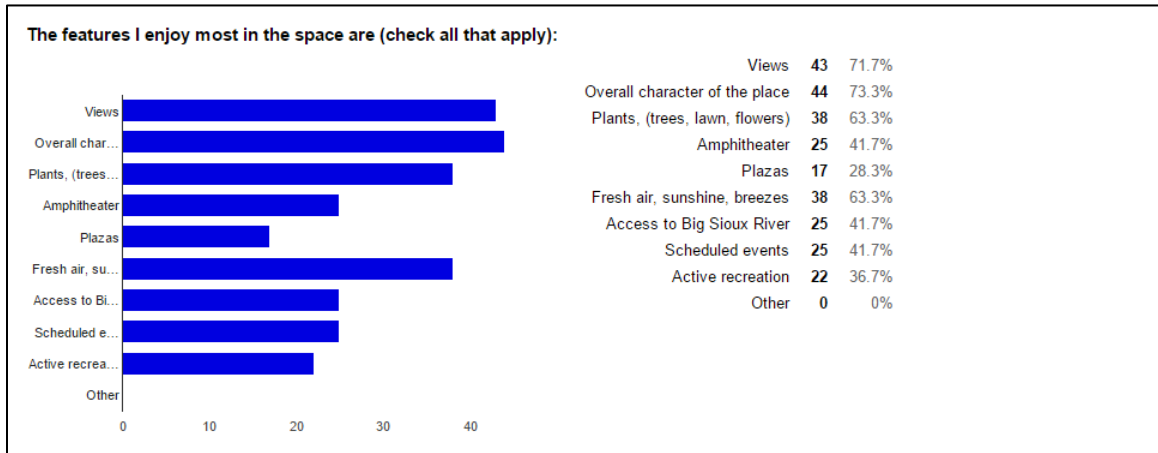


Figure 10. 73.3% of respondents agreed that they enjoy the overall character of the site, 41.7% enjoyed the scheduled events, and 41.7% also agreed that they enjoyed the access to the Big Sioux River.

Sioux Falls Downtown River Greenway _____ (check all with which you agree based on your experience/use at the park).

- Improves my quality of life
- Influences my perspective of Sioux Falls
- Promotes a healthy lifestyle
- Provides a safe and secure environment
- Increases my outdoor activity
- Enhances my understanding of the site's cultural history
- Promotes art
- Promotes schedules outdoor events

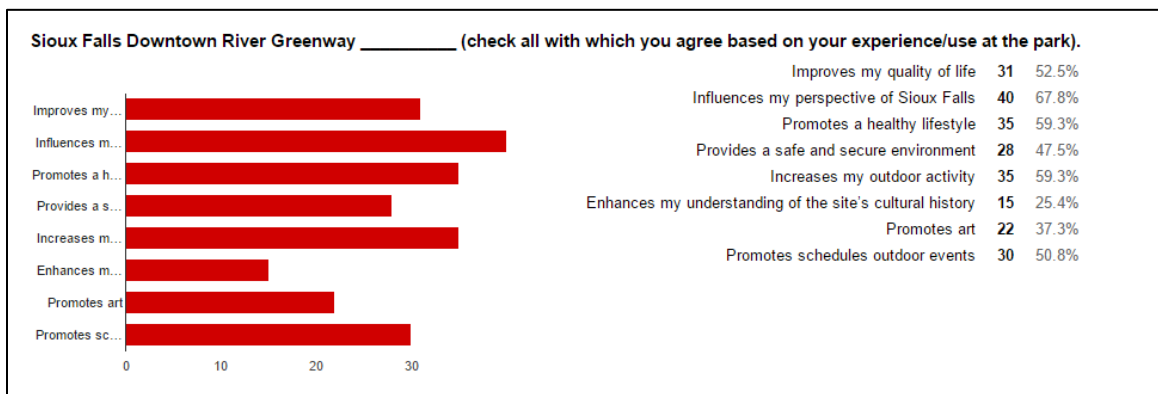


Figure 11. 59.3% of respondents agreed that the greenway promotes a healthy lifestyle and 25.4% agreed that their understanding of the site's cultural history was enhanced.

I am satisfied with the overall quality of my life in Sioux Falls.

Strongly Agree Agree Neither Agree nor Disagree Strongly Disagree

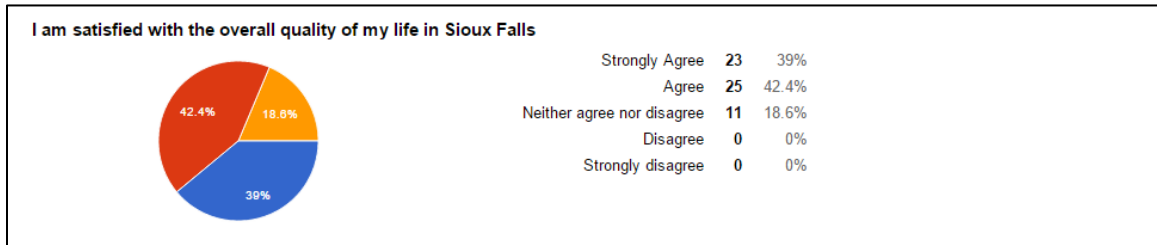


Figure 12. 42.4% of respondents agreed that they were satisfied with the overall quality of life in Sioux Falls.

Spending time in this place influences my perspective of the city.

Strongly Agree Agree Neither Agree nor Disagree Strongly Disagree

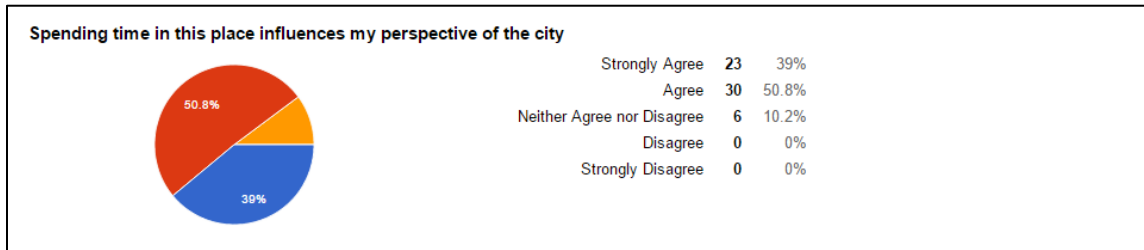


Figure 13. 50.8% of respondents agree that spending time in this place influences their perspective of the city.

Spending time in this place influences my satisfaction with quality of life in this city.

Strongly Agree Agree Neither Agree nor Disagree Strongly Disagree

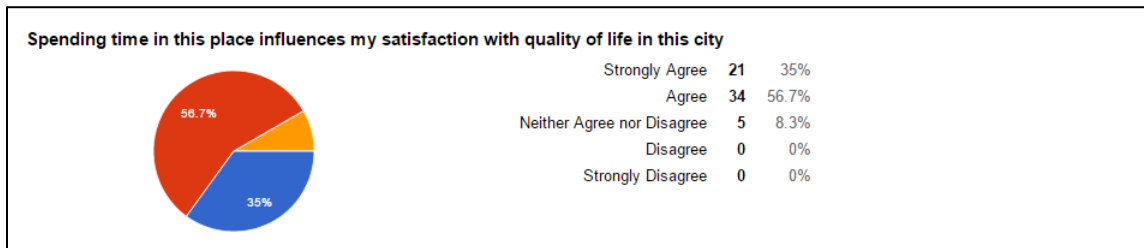


Figure 14. 56.7% of respondents agree that spending time in this place influences their satisfaction with the quality of life in the city.

Spending time in this space helps me to cope with the demands of work, family and other stressful situations.

Strongly Agree Agree Neither Agree nor Disagree Strongly Disagree

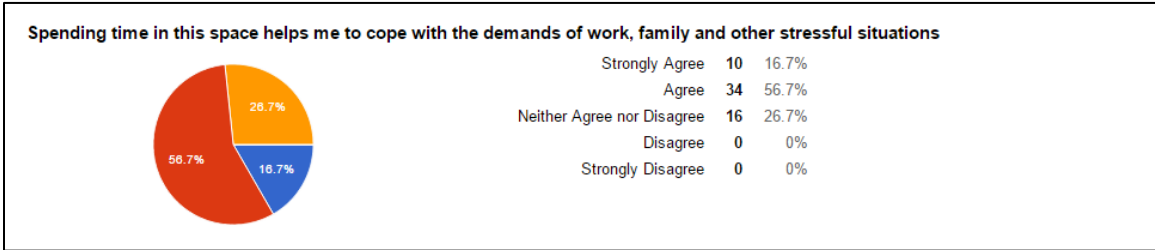


Figure 15. 56.7% of respondents agree that spending time in this space helps to cope with the demands of work, family and other stressful situations.