

### Tom Hanafan River's Edge Park, Phase 1 Methods

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

### Overview

Located along the Missouri River in Council Bluffs, Iowa, Tom Hanafan River's Edge Park reclaims the Missouri River floodplain for native ecological riparian communities and human access to the river. The site is known for experiencing the Great 2011 Flood; one of the worst floods in the area's recent history, resulting in immense property damages. Because of this flood event, the site of Tom Hanafan River's Edge Park not only presented an opportunity to preserve and restore the riparian forest in the floodplain, but also to withstand a 500-year storm event. This reclamation is achieved through the revitalization of the riparian forest with native tree plantings along the northern and southern areas surrounding the park's open space, and a native meadow mix planted along the Army Corps of Engineers' levee turned amphitheater. Previously deteriorated by ATV use and invasive species, Tom Hanafan River's Edge Park converted a landscape of misuse to a friendly, highly accessible public park.

The following Methods document presents a variety of data collection and analysis methodologies, both on and off site. Tree sampling was done on site to obtain DBH averages to calculate carbon sequestration for a total of 621 planted trees. User surveys were distributed during evening events and on typical days to quantify user perception of the park. Various online tools such as the EPA National Stormwater Calculator and Council Bluff's County Assessor allowed the research team to illustrate not only environmental resilience to flood damage, but also the economic and social resiliency of the park.

Site development from 2005 - 2017, including imagery of the 2011 Flood



Aerial imagery from Google Earth Pro Author: Brandon Zambrano

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### 1. Environmental Benefits

#### • Sequesters 86,685 lbs of atmospheric carbon annually in 621 newly-planted trees.

#### Methods:

Prior to the park, this area was a low-quality woodland with significant populations of invasive species—resulting in many trees needing to be removed and replaced. Part of the firm's design strategy was to rehabilitate the riparian woodland on the northern and southern portion of the property. Additionally, two tree groves were planted on the north and south sides of the Great Lawn.

Due to the large quantity of trees planted, up to 5 of each tree species on site had their circumference at breast height (4.5 ft. up from the tree base) and location inventoried. Circumference was then translated to average diameter of each species (Table 1.1). Because some species were planted in a variety of environmental conditions on site (such as in turf versus bioswale), specimens from both conditions were factored into the species average to obtain a more comprehensive DBH average for the site (see Table 1.1). Some specific species, such as swamp white oak and American yellowwood, had fewer than 5 measurements taken for their average because of lower planted numbers and difficulties with physical accessibility to certain species on site. To calculate the amount of carbon reduction provided by these trees per year, i-Tree Streets software was utilized. When a species was not available to enter, the genus was used instead. The tree species, average DBH, and land use was entered into this calculator (see Table 1.2). The amount of atmospheric carbon reduction per year was then multiplied by the number of trees on site of that specific species. All totals were added to obtain a total annual reduction of atmospheric carbon on-site.

#### Calculations:

	#1 Circ.	#2 Circ.	#3 Circ.	#4 Circ.	#5 Circ.	#6 Circ.	#7 Circ.	#8 Circ.	#9 Circ.	Avg. Circ.	C=πd	Avg. DBH
Red Sunset Red Maple <i>Acer rubrum</i> 'Red Sunset'	1'-4"									16"	16=πd	5.09"
Sun Valley Red Maple <i>Acer rubrum</i> 'Sun Valley'	1'-5"	1'-4"	1'-5"	1'-4"	1'-9"					17.4"	17.4=πd	5.54"
Autumn Blaze Freeman Maple <i>Acer x freemanii</i> 'Autumn Blaze'	1'-4.5"	1'-9.5"								19"	19=πd	6.05"
Allegheny Serviceberry Amelanchier Iaevis 'Snowcloud' Bioswale Turf	6"	6.5"	6.5"	6.5"	6.5"	5.5"	5.5"			6.14"	6.14=πd	1.95"

Table 1.1: Tree Specimen Circumference and Average Diameter (DBH)

Common Serviceberry Amelanchier arborea	6"	8"								7"	7=πd	2.23"
Heritage River Birch <i>Betula nigra</i> 'Heritage' Parking Lot Beach	1'-4"	1'-2"	8.5"	1'-3.5"	1'	1'-7"	1'-3"	11"	1'-7"	14.44"	14.44=πd	4.6"
American Yellowwood <i>Cladrastis</i> <i>Kentukea</i>	1'-3"	1'-2"	11"							13.33"	13.33=πd	4.24"
Common Honeylocust <i>Gleditsia</i> <i>triacanthos var.</i> <i>Inermis</i> 'Skyline' Aggregate Turf	1'-6"	1'-8"	10"	1'-5"	1'-9"	1'-6"	1'-9"	1'-10"	1'-8"	18.56"	18.56=πd	5.91"
Sycamore Platanus occidentalis	1'-5.5"	1'-5"	1'-3.5"	1'-4"	1'-4"					16.4"	16.4=πd	5.22"
Swamp White Oak <i>Quercus bicolor</i>	1'-2"	1'-1.5"								13.75	13.75=πd	4.38"
Bur Oak Quercus macrocarpa	1'	1'-2.5"	1'	10.5"	11"					12"	12=πd	3.82"
Bald Cypress Taxodium distichum	1'-3"	1'-4"	1'-7"	1'-4"	1'-6"					16.8"	16.8=πd	5.35"

### Table 1.2: Total Street Tree Atmospheric Carbon Reduction

Species	Average DBH (inches)	Land Use	Atmospheric Carbon Reduction Per Year (Ibs)	# of Trees	Calculation	Total Atmospheric Carbon Reduction by Species Per Year (Ibs)
Red Sunset Red Maple Acer rubrum 'Red Sunset'	5.09"	Park, or other vacant land	132	26	132 x 26	3,432
Sun Valley Red Maple Acer rubrum 'Sun Valley'	5.54"	Park, or other vacant land	157	36	157 x 36	5,652
Autumn Blaze Freeman Maple <i>Acer x freemanii</i> 'Autumn Blaze'	6.05"	Park, or other vacant land	185	52	185 x 52	9,620
Allegheny Serviceberry Amelanchier laevis 'Snowcloud'	1.95"	Park, or other vacant land	23	48	23 x 48	1,104
Common Serviceberry Amelanchier arborea	2.23"	Park, or other vacant land	29	43	29 x 43	1,247
Heritage River Birch <i>Betula nigra</i> 'Heritage'	4.6"	Park, or other vacant land	165	91	165 x 91	15,015
American Yellowwood Cladrastis Kentukea	4.24"	Park, or other vacant land	147	21	147 x 21	3,087
Common Honeylocust Gleditsia triacanthos var. Inermis 'Skyline'	5.91"	Park, or other vacant land	221	145	221 x 145	32,045
Sycamore Platanus occidentalis	5.22"	Park, or other vacant land	162	27	162 x 27	4,374

Swamp White Oak Quercus bicolor	4.38"	Park, or other vacant land	154	2	154 x 2	308
Bur Oak Quercus macrocarpa	3.82"	Park, or other vacant land	96	57	96 x 57	5,472
Bald Cypress Taxodium distichum	5.35"	Park, or other vacant land	73	73	73 x 73	5,329
				Total # of Trees: 621		Total Atmospheric Carbon Reduction On Site Per Year (Ibs): 86,685

Sources:

Tree Plan provided by Sasaki i-Tree Streets software by i-Tree <u>https://www.itreetools.org/streets/</u>

Limitations:

- 1. With environmental conditions differing across the site (turf, bioswales, beach, etc.) trees of the same species may have varying DBH values.
- 2. While on site, slight differentiation in some species was observed compared to the construction documents.
- 3. The calculations above assume that the proposed number of trees was planted. This excludes the Japanese stewartia (never planted) and London plane trees (replaced with honey locusts).
- 4. Upon on-site observation, some American yellowwoods were replaced with other species or in poor condition, resulting in a slight discrepancy between number of proposed trees versus actual planted trees.
- 5. In a few cases, the number of measurements per species was limited due to physical accessibility to certain species.
- 6. Only newly planted trees were inventoried. However, older trees remain on site which are also contributing to atmospheric carbon sequestration.
- 7. Serviceberry is not an option in i-Tree Streets. "Other, Broadleaf Deciduous Small" was selected for the calculation.
- 8. Bald cypress is not an option in i-Tree Streets. Although a deciduous conifer, the nearest option used was "Other, Conifer Evergreen Large".
- Manages approximately 8.3 million gallons or 80% of annual rainfall on site, equivalent to 13 Olympic-sized swimming pools.

Figure 1.1: Surface Typology Author: Brandon Zambrano



#### Methods:

Park information and site parameters, which consist of 29% lawn, 7% meadow, 39% forest, 1% desert, and 24% impervious surface, were entered into the EPA National Stormwater Calculator to identify the runoff, infiltration, and evaporation percentages based on the estimated annual rainfall (see Appendix B for all specific EPA National Stormwater Calculator entry data and outputs). Additionally, although there are bioswales and bioretention areas that contribute to the project's Best Management Practices, their areas were insignificant when compared to the overall project area; less than 1% of the total site area. Therefore, this area was not incorporated into the calculation as it was too small to be entered into the calculator and impact the results. To calculate the percent of prevented annual runoff, infiltration and evaporation were added together and multiplied by the amount of annual rainfall to identify how much rainfall will stay on site (see Table 1.3). The amount of prevented runoff was then multiplied by the site size to obtain the cubic-foot value of runoff retained on site per year (see Table 1.4). This value was then converted to gallons of prevented runoff (see Table 1.5).

#### Calculations:

Figure 1.1: EPA National Stormwater Calculator Output



Runoff Infil. Evap.

Table 1.3: Prevented Runoff Per Year (ft)

Annual On Site Rainfall	% of Prevented Runoff	Prevented Runoff (ft)
17.77 inches = <b>1.48 feet</b>	77% (infiltrated) + 3% (evaporated) = 80%	(1.48 ft) x .8 = <b>1.184</b>

#### Table 1.4: Prevented Runoff Per Year (cu ft)

Site Size	Prevented Runoff (ft)	Prevented Runoff (cu ft)
21.64 acres = 942,638.4 sq ft	(1.48 ft) x .8 = <b>1.184</b>	942,638.4 sq ft x 1.184 ft <b>= 1,116,084</b>

#### Table 1.5: Prevented Runoff Per Year (gal)

Prevented Runoff (cu ft)	Conversion	Prevented Runoff (gal)
942,638.4 sq ft x 1.184 ft <b>= 1,116,084</b>	1 cu ft = 7.48 gal	1,116,084 x 7.48 = <b>8,348,307</b>

#### Sources:

EPA's National Stormwater Calculator

#### Limitations:

- 1. EPA National Stormwater Calculator inputs such as climate change scenario, site suitability, event threshold, and soil drainage rate were conservatively estimated to ensure a realistic output.
- 2. The amount of annual rainfall on site is a projected value generated by the EPA National Stormwater Calculator based on inputs such as expected climate change and site location. This is an estimate from the calculator, not a current measured value.
- The site's green infrastructure (bioretention ponds and bioswales) area totaled less than 1% of the overall site area. Therefore, these areas were not incorporated into the calculation.

• Protects 33% of the area damaged by the 2011 flood (33.7 acres), avoiding an estimated \$16.3 million in damage costs for a major flood event.



Figure 1.2: Flood Safe Zones Author: Brandon Zambrano

#### Methods:

Knowing the high costs of damage in the area after the 2011 flood, the design firm prioritized the integration flood infrastructure to prevent future flood damages in the park. A \$50 million price tag on the cost of repairs for the area along the levee was obtained from local Council Bluffs news. The Corps of Engineers will not complete repairs to the levee until 2023 due to a lack of funding.

A protected area boundary was first established using the "Council Bluffs Riverfront: Key Flood Elevations" diagram based on the design firm's hydraulic modeling. Protected area after park reconstruction was divided by the original 2011 flood damaged area along the levee to obtain the percent of total damaged area now protected. Areas were measured using Google Earth Pro (see Table 1.6). This percentage was then multiplied by the damage cost in the 2011 flood along the levee to determine the cost saved in damage repairs in the event of another similar size flood event (see Table 1.7).

#### Calculations:

#### Table 1.6: Percent of Flood Damaged Area Turned Into Flood Protected Area

Area Damaged by 2011 Flood Along the Levee (sq ft)	Estimated Area Damaged in 2011 Flood Now Protected After Park Construction (sq ft)	% of Total Damaged Area Now Protected	
4,500,000	1,466,149	1,466,149 / 4,500,000 = .32581 = <b>32.58%</b>	

#### Table 1.7: Savings in Damage Cost

Cost of Damage by 2011 Flood Along the Levee	% of Total Damaged Area Now Protected	Cost Saved in Damage Repairs in the Event of Another Flood After Reconstruction
\$50 million	32.58%	\$50,000,000 x .3258 = <b>\$16,290,000</b>

#### Sources:

Google Earth Pro

Leu, Jon. 2017. "Continuation of Levee Repairs Waiting on Corps of Engineers," *Nonpareil Online.* 

https://www.nonpareilonline.com/news/region/continuation-of-levee-repairs-waiting-oncorps-of-engineers/article\_31da5e18-aa26-11e7-ae92-1fd39398ece3.html

Sasaki Associates. "Council Bluffs Riverfront: Key Flood Elevations." https://drive.google.com/file/d/1w1Vq3mMu1yVwqEJyFWLmVB4hSPBqf1Z3/view

#### Limitations:

- 1. Land value in the adjacent area may have increased, resulting in a higher damage cost if affected by flood.
- 2. Measurements obtained via Google Earth Pro are not 100% accurate and are subject to human error, but provide a basis for comparison
- 3. Hydraulic modeling scenarios are projective, hypothetical, and not 100% accurate. Actual factors and influences will likely change over time

#### 2. Social Benefits

• Increases levels of outdoor activity for 68% of 47 surveyed users.

#### Methods:

Users were asked to select which phrases correspond to Tom Hanafan River's Edge Park (all that apply). Surveys were distributed to both concert goers on event days and park users on typical days.

Author: SurveyMonkey

55.32% 46.81%

59.57%

68.09%

12.77% 6.38%

8.51%

29.79%

17.02%

27.66%

78.72%

0.00%

22

#### Calculations:



#### Figure 2.1: Level of Outdoor Activity Results

Table 2.1: Increased Level of Outdoor Activity

Response	Responses (%)	Responses (#)	
"Increases outdoor activity"	68.09	32	
		Total Responses: 47	

#### Sources:

Survey Question #15 under "About You" (see Appendix A)

Limitations:

- 1. Although this survey was distributed to both event visitors and average day park users, visitors on-site for a concert or event may have different responses than those who frequent the park on a daily basis or are familiar with the limited site access prior to the park's construction.
- 2. Because Tom Hanafan River's Edge Park doesn't have frequent visitors on a day to day basis, it was difficult to get responses from a large number of users. The sampling size for survey distribution was 50. Not all participants answered each question.
- Improves perception of safety for 84% of 37 surveyed users.

#### Methods:

Previously a woodland with an unsafe feeling and ATV usage, Tom Hanafan River's Edge Park provides an organized, accessible public space for dog walkers, athletes, concert goers, and families. Users were asked about the park's effect on their sense of safety on-site via survey. Surveys were distributed to both concert goers on event days and park users on typical days.

#### Calculations:



Q24 Do you feel safer and more comfortable using Tom Hanafan River's Edge Park at all times of the day after the reconstruction? How much safer and more comfortable?



ANSWER CHOICES	RESPONSES	
-5 (Much Less Safe)	0.00%	0
4	0.00%	0
-3	0.00%	0
-2	2.70%	1
-1	0.00%	0
0	13.51%	5
1	5.41%	2
2	2.70%	1
3	13.51%	5
4	40.54%	15
5 (Much More Safe)	21.62%	8
TOTAL		37

#### Table 2.2: Level of Safety Ratings

Answer Choice	Responses (%) Responses (#)	
-5 (Much Less Safe)	0.00	0
-4	0.00	0
-3	0.00	0
-2	2.70	1
-1	0.00	0
0	13.51	5
1	5.41	2
2	2.70	1
3	13.51	5
4	40.54	15
5 (Much More Safe)	21.62	8
		Total: <b>37</b>

Table 2.3: In	creased Safety	Responses
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"Safer" Range Answers	Response (%)
1	5.41

2	2.70
3	13.51
4	40.54
5	21.62
	Total "Safer" Responses: 83.78

#### Sources:

Survey Question #6 under "Access & Safety" (see Appendix A)

#### Limitations:

- 1. Although this survey was distributed to both event visitors and average day park users, visitors on-site for a concert or event may have different responses than those who frequent the park on a daily basis or are familiar with safety issues prior to the park's construction.
- 2. Because Tom Hanafan River's Edge Park doesn't have frequent visitors on a day to day basis, it is difficult to get responses from a large number of users. The sampling size for survey distribution was 50. Not all participants answered each question.
- Increases ease of access to the Missouri River according to 89% of 35 surveyed users.

#### Methods:

Previously a woodland without public access to the river, Tom Hanafan River's Edge Park opens up a section of the riverfront to the public. Users were asked about the park's impact on their access to the Missouri River via on-site survey. Surveys were distributed to both concert goers on event days and park users on typical days. Calculations:

#### Figure 2.3: Ease of Access Results Author: SurveyMonkey

Q23 Do you find access to the Missouri river from Tom Hanafan River's Edge Park easier or more difficult after the reconstruction? How much easier or more difficult?



ANSWER CHOICES	RESPONSES	
-5 (Much More Difficult)	0.00%	0
4	0.00%	0
-3	0.00%	0
-2	0.00%	0
4	0.00%	0
0	11.43%	4
1	5.71%	2
2	8.57%	3
3	25.71%	9
4	17.14%	6
5 (Much Easier)	31.43%	11
TOTAL		35

#### Table 2.4: Ease of Access to the Missouri River Responses

Answer Choice	Responses (%) Responses (#)	
-5 (Much More Difficult)	0.00	0
-4	0.00	0
-3	0.00	0
-2	0.00	0
-1	0.00	0
0	11.43	4
1	5.71	2
2	8.57	3
3	25.71	9
4	17.14	6
5 (Much Easier)	31.43	11
		Total: <b>35</b>

#### Table 2.5: Increased Ease of Access to the Missouri River Responses

"Easier" Range Answers	Response (%)
1	5.71
2	8.57
3	25.71

4	17.14
5	31.43
	Total "Easier" Responses: 88.56%

Sources:

Survey Question #5 under "Access & Safety" (see Appendix A)

#### Limitations:

- 1. Although this survey was distributed to both event visitors and average day park users, visitors on-site for a concert or event may have different responses than those who frequent the park on a daily basis or are familiar with the limited site access prior to the park's construction.
- 2. Because Tom Hanafan River's Edge Park doesn't have a large number of visitors on a day to day basis, it is difficult to get responses from a large number of users. The sampling size for survey distribution was 50. Not all participants answered each question.

#### 3. Economic Benefits

• Generated \$365,217 in revenue for the City of Council Bluffs between June 2015 and May 2017 through the park's annual LoessFest, which attracts over 100,000 attendees each year.

#### Methods:

LoessFest is an annual outdoor festival consisting of musical acts, food trucks, and fireworks on the lawn of Tom Hanafan River's Edge Park at the end of May (LoessFest, 2018). LoessFest has been awarded the 2017 Outstanding Event Award by the Iowa Tourism Department for the quality and success as well as the Gold Citation of Excellence in 2015 presented by the American Marketing Association for the success of Loessfest in 2014 (The City of Council Bluffs, 2017).

Data was obtained from the City of Council Bluffs in their Fiscal Year 2017 Budget to Actual Revenue Comparison chart on pg. 43 of the City Council Agenda (The City of Council Bluffs City Council, 2017) which records the yearly revenue contributed by LoessFest. Fiscal year 16/17 revenue at May 31, 2017 was \$129,217 and fiscal year 15/16 revenue at May 31, 2016 was \$236,000. Both these values were added together for total revenue provided from Loessfest for 2016 and 2017. The number of Loessfest attendees since its 2013 establishment was pulled from the LoessFest official website (LoessFest, 2018).

#### Calculations

Table 3.2: Loessfest Revenue Yield 2016 and 2017

YTD (05/31/2017) <sup>1</sup>	YTD (05/31/2016) <sup>1</sup>	Total Revenue Yield 2016 & 2017	
\$129,217	\$236,000	Total:\$129,217 + \$236,000 = <b>\$365,217</b>	

1 The City of Council Bluffs City Council Agenda pg. 43 (The City of Council Bluffs City Council, 2017) \*See Appendix C for pg. 43 of the City Council Agenda

Sources:

The City of Council Bluffs City Council. 2017. "Council Agenda, City of Council Bluffs, Iowa Regular Meeting June 26, 2017, 7:00 PM Council Chambers, 2nd Floor, City Hall 209 Pearl Street," *The City of Council Bluffs, IA*. <u>http://www.councilbluffs-ia.gov/AgendaCenter/ViewFile/Agenda/\_06262017-</u> 1604

The City of Council Bluffs. 2017. "Awards and Recognitions," *The City of Council Bluffs.* <u>http://www.councilbluffs-ia.gov/2148/Awards-Recognitions</u>

LoessFest. 2018. "About LoessFest," *Iowa West Foundation and The City of Council Bluffs.* 

http://loessfest.com/about/

#### Limitations:

- 1. LoessFest revenue was publicly recorded by the City of Council Bluffs for only 2016 and 2017. LoessFest began in 2013.
- 2. Although many attendees of Loessfest were brought to Tom Hanafan River's Edge Park solely because of the festival, there is overlap between those that repeatedly visit the park and those that only attend Loessfest.
- 3. The 2017 Loessfest revenue yield was a little over half of the 2016 revenue. The cause for this reduction in revenue is unknown. Factors such as weather could have played a significant role.
- Catalyzed approximately \$460 million in public and private development within a half-mile radius since 2011.

#### Figure 3.1: Development Projects Within 1/2 Mile Radius Author: Brandon Zambrano



#### Methods:

The redevelopment of Tom Hanafan River's Edge Park is credited as a catalyst for multiple private and public investments along the Council Bluffs and nearby Omaha riverfront (Riverfront Revitalization Project, 2018). The amount of public and private investments pre- and post-project are compared to reveal an estimated increase in development.

Since 2011, only one major project was completed—Tom Hanafan River's Edge Park. There are two major developments each that are in the process of being developed adjacent to the park; River's Edge Mixed Use Campus and Omaha's Riverfront Development (see Figure 3.1). Referencing local news articles, estimated investments were recorded (see Table 3.1). Various companies will be moving into the area such as Pillar Technology which will occupy 8000 sq/ft in the first office building of the mixed use campus. The company plans to commit 30 new full-time IT positions and move to buildings third floor by 2019. Inspection of aerial images using Google Earth Pro confirmed no other new development (other than the Mixed Use Campus and Omaha Riverfront) after the construction of Tom Hanafan River's Edge Park.

#### Calculations:

Table 3.1: Redevelopment Investments

Riverfront Redevelopment (Omaha, NE)	River's Edge Mixed Use Campus (Council Bluffs, IA) Developers: Noddle Cos. & Iowa West Foundation	Total
Total Investment: 290 Million	Total Investment: 170 Million	Total Investment: 460 million

Sources:

AIM. 2018. "Pillar Technology Coming to Council Bluff's Rivers' Edge Development," *AIM Career Link.* 

https://careerlink.com/careerhub/pillar-technology-coming-to-council-bluffs-rivers-edge -development/

- Gonzalez, Cindy. 2017. "Flurry of Construction Projects at River's Edge Leads to Creation of 'a New Front Door to Council Bluffs," *Omaha World Herald*. <u>http://www.omaha.com/money/flurry-of-construction-projects-at-river-s-edge-leads-to/a</u> rticle\_ae6fac05-18df-59e1-8f35-032b611fa03d.html
- Moselle. 2018. "Living at the Edge," Moselle at River's Edge. http://moselleriversedge.com
- Nohr, Emily and Cindy Gonzalez. 2018. "\$290 Million Plan for Omaha Riverfront Draws Praise, But Some Like Gene Leahy Mall as it is," *Omaha World Herald.* <u>http://www.omaha.com/money/flurry-of-construction-projects-at-river-s-edge-leads-to/a</u> <u>rticle\_ae6fac05-18df-59e1-8f35-032b611fa03d.html</u>
- Riverfront Revitalization Project. 2018. "Creating a Catalyst on the Riverfront," *Riverfront Revitalization Project*

http://riverfrontrevitalization.com

Limitations:

- 1. This project has affected development in both Council Bluffs and Omaha. Utilizing records from two separate cities, the data is based on estimates reported, not actual costs as these developments are in progress.
- 2. Other external factors may have contributed to new development nearby, such as population growth.

### 4. Cost Comparison

• Although the integrated meadow's upfront cost of \$29,600 was \$1 more per sf than conventional turfgrass, which would have cost \$9,900, the cost for annual landscape maintenance on a meadow is 3.85 times less than the care of a traditional mown lawn. In 5 years, savings on maintenance will surpass the premium paid to install the meadow, and the park will save \$4,700 every year thereafter.

#### Methods:

In correspondence with both the design firm and The City of Council Bluff's Maintenance Staff, data was collected on site size, install costs, and maintenance costs. Tom Hanafan River's Edge Park has a planted meadow that is 19,711 sf, or 0.45 acres. This area was considered for either lawn or meadow during the design phase. Because meadows require only 1 annual mow (Pennsylvania Land Trust Association, 2017), the cost of mowing the meadow was calculated

by multiplying the site size by the cost of mowing per acre. For turf, it was assumed that it would be mowed once per week for 26 weeks of the year in the Council Bluffs climate (The Conservation Foundation). Therefore, the cost of mowing was multiplied by 26 to obtain this value. Since turf requires weekly watering for all 26 weeks using 1 gal/sq ft at \$0.004 (The City of Council Bluffs Water Works), the total cost of the site's weekly gallon requirements was multiplied by 26 weeks (see Table A, row 1). Other annual expenses to maintain turf grass consists of fertilizer (\$0.01 per sf), grub control (\$0.006 per sf), aeration (\$0.008 per sf), and repairs (\$0.02 per sf), which adds an additional cost of \$0.04 per sf for lawn maintenance (The Conservation Foundation). In comparison, additional annual meadow expenses consist of herbicide treatments (\$0.02 per sf) and controlled-burning management every 3-4 years (\$0.015 per sf), which can vary year by year (The Conservation Foundation). However, average additional costs were obtained from The Conservation Foundation and are recorded as "Extras" Cost (see Table A, row 2). Combined with the annual mowing and watering costs, the total annual costs of both turf and meadow were obtained (see Table A, row 2).

Provided by the design firm, the cost of install per sq ft (including material and labor) for each condition was multiplied by the site area. The difference between these two costs was then identified (see Table B), as well as the difference factor between turf and meadow for annual maintenance (see Table C). Finally, The breakeven point was found to determine when savings on meadow maintenance would surpass the turf install and maintenance fees. Annual maintenance fees were added to the initial installation costs of each material to determine at what year would it break even (see Table D).

#### Calculations:

Meadow Or Turf Area <sup>1</sup>	Cost of Mowing Per Acre <sup>2</sup>	Cost of Mowing a Meadow Per Year (1 Occurrence)	Cost of Mowing Turf Per Year (26 Occurrences)	Annual Turf Watering Cost : (1 gallon/ sq. ft at \$0.004 <sup>3</sup> for 26 weeks)
19,711 sq ft = 0.45 acres	\$185	0.45 acres x \$185 = <b>\$83.25</b>	\$83.25 x 26 = <b>\$2,164.50</b>	19,711 gal x \$.004 = \$78.84 x 26 weeks = <b>\$2,050</b>
Annual Turf Maintenance "Extras <sup>4</sup> " Cost <sup>2</sup>	Annual Meadow Maintenance "Extras <sup>4</sup> " Cost <sup>2</sup>	Total Annual Additional Cost of Turf	Total Annual Additional Cost of Meadow	Difference of Turf and Meadow Annual Costs
\$2,075	\$1,550	\$2,075 + \$2,050, + \$2,164.50 = <b>\$6,289.50</b>	\$83.25 + 1,550 = <b>\$1,633.25</b>	\$6,289.50 - \$1,633.25 = <b>\$4,656.25</b>

#### Table A: Annual Maintenance Costs

1 Source: Sasaki Associates

2 Source: The Conservation Foundation

3 Source: The City of Council Bluffs Water Works

4 "Extras" include fertilizer, grub control, aeration, herbicide treatments, and burn management. (The Conservation Foundation)

#### Table B: Labor and Install Costs

Initial Cost of Meadow Install	Initial Cost of Meadow Install	Initial Cost of Lawn Install	Initial Cost of Lawn Install	Difference in Initial Costs of
Per sq ft (Seed and Labor) <sup>1</sup> :	(Seed and Labor):	Per sq ft (Sod and Labor) <sup>1</sup> :	(Sod and Labor):	Install:
\$1.50 per sq ft	\$1.50 x 19711 sq ft =	\$0.50 per sq ft	\$0.50 x 19711 sq ft = <b>\$9855.50</b>	\$29,566.50 - \$9855.50 =

\$29,566.50 \$19,711	\$29,56	66.50		\$19,711
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1 Source: Sasaki Associates

#### Table C: Annual Maintenance Difference Factor

Total Annual Additional Cost of Turf for Maintenance	Total Annual Additional Cost of Meadow for Maintenance	X Times Less Expensive Annually to Maintain Meadow
\$2,075 + \$2,050, + \$2,164.50 = <b>\$6,289.50</b>	\$83.25 + 1,550 = <b>\$1,633.25</b>	\$6,289.50 / \$1,633.25 = <b>3.85x</b>
Cost per sq ft: \$6,289.50 / 19,711 sq ft = \$0.32	Cost per sq ft: \$1,633.25 / 19,711 sq ft = \$.08	Cost per sq ft Differene: \$0.32 - \$.08 = <b>\$0.24</b>

#### Table D: Breakeven Point

	Initial Cost	Total Cost After Yr. 1 <sup>1</sup>	Total Cost After Yr. 2	Total Cost After Yr. 3	Total Cost After Yr. 4	Total Cost After Yr. 5
Turf	\$9,855.50	\$16,145.00	\$22,434.50	\$28,724.00	\$35,013.50	\$41,303.00
Meadow	\$29,566.50	\$31,199.75	\$32,833	\$34,466.25	\$36,099.50	\$37,732.75

1 The annual maintenance cost is added to the initial cost each year

#### Sources:

Sasaki Associates

The City of Council Bluffs Water Works

https://www.cbwaterworks.com/devandcontractor/installationspecs.aspx

The Conservation Foundation. "The Conservation Foundation's Pollinator Meadow Mix," *The Conservation Foundation.* 

http://www.theconservationfoundation.org/images/Meadow%20Mix%20Brochure%20 FINAL%202.19.15.pdf

## Pennsylvania Land Trust Association. 2017. "From Lawn to Meadow," *Pennsylvania Land Trust Association.*

https://conservationtools.org/guides/151-from-lawn-to-meadow

#### Limitations:

- Annual turf grass expenses consisting of fertilizer, grub control, aeration, and repairs along with annual meadow expenses of herbicide treatments and burn management vary year by year due to the extent in which they are needed. Therefore, the values reported in Table 1 under Annual "Extras" cost are averages obtained from The Conservation Foundation.
- 2. Cost of an irrigation system and install was not included in this calculation.

#### 5. Appendix A: Survey Questions and Results

#### TOM HANAFAN RIVER'S EDGE PARK USER SURVEY

**ð** By selecting this box, I agree to participate in this survey and am aware that my personal information will not be collected.

#### ABOUT YOU

- Select one of the following as your best descriptor
- I am a local from \_\_\_\_\_(please indicate your community/neighborhood)
- I'm visiting from out of town
- How far do you travel to Tom Hanafan River's Edge Park?
- Less than 1 mile
- 1-2 miles
- o 3-5 miles
- More than 5 miles
- If given the opportunity, would you like to live closer to Tom Hanafan River's Edge Park?
- Yes
- **No**
- Maybe
- Select your age group:
- o **18-25**
- o **26-35**
- o **36-45**
- o **46-55**
- o **56-65**
- o 65+
- What time of day do you typically visit Tom Hanafan River's Edge Park? (select all that apply)
- Early Morning: 6am-10am
- Late Morning: 10am-12pm
- Early Afternoon: 12pm-2pm
- Late Afternoon: 3pm-5pm
- Evening: 5pm-7pm
- Night: 8pm-12am
- Other:\_\_
- On average, how often do you visit Tom Hanafan River's Edge Park?
- Everyday
- Several times a week
- About once a week
- About once a month
- Once every six months
- Once a year or less
- Don't know, this is my first visit
- How do you usually arrive to the park?
- On foot
- By bicycle
- By car
- By public transportation
- When you visit Tom Hanafan River's Edge Park, how long do you usually stay?
- 15 minutes or less
- Half hour
- 1-2 hours
- 3+ hours
- Other: \_
- What do you think of when you think of Tom Hanafan River's Edge Park

- Connection to the Pedestrian Bridge
- Place for recreation and events
- Access to Missouri River
- See and be seen spot/people watching
- Other\_
- How would you rate the appearance of Tom Hanafan River's Edge Park today?
- Very good
- Good
- Neutral
- Poor
- Very Poor
- Why did you give Tom Hanafan River's Edge Park this rating?
- If neutral or less, what would improve your perception of Tom Hanafan River's Edge Park?
- My motivation for visiting Tom Hanafan River's Edge Park is to...(select all that apply)
- Run
- Other exercise and fitness activities
- o Walk
- o Bike
- Attend events
- Play/bring my children
- Access the water
- Connect to Omaha via the pedestrian bridge
- Enjoy nature and be outdoors
- Socialize with friends and family
- Reduce Stress
- Other:\_
- What activities do you participate in while visiting Tom Hanafan River's Edge Park?
- Walking
- Jogging/running
- Walking dog
- Plant/wildlife viewing
- Picnicking/eating
- Sledding or other winter activities (please specify)
- Cycling
- Play time with my children
- Relaxing
- Outdoor education
- Community events
- Other:\_
- Tom Hanafan River's Edge Park \_\_\_\_\_ (select all that apply):
- Improves my quality of life
- Makes my lifestyle healthier
- Provides a safe and secure environment
- Increases my outdoor activity
- Enhances my understanding of the site's flooding capacity
- Contributes to my understanding of alternative stormwater management practice

(please specify)

Contributes to my understanding of floodplain forest ecology

- Creates habitat for wildlife
- Provides an environment to see artwork
- Gives me an opportunity to learn something new
- Promotes scheduled outdoor events
- Have you ever attended an event held in Tom Hanafan River's Edge Park?
- Yes
- **No**

• If you answered no, would you be interested in attending an event if it is held in Tom Hanafan River's Edge Park?

- Yes
- No
- Maybe
- What types of events would you like to see take place at Tom Hanafan River's Edge Park?

#### ACCESS & SAFETY

- Within the Tom Hanafan River's Edge Park, I feel the quantity of parking is...
- Sufficient
- Should be reduced
- Should be increased
- Should be increased in the form of parking garages
- I don't know.
- How would you rate your satisfaction with the amount of bike parking in Tom Hanafan River's Edge

Park?

- Very good
- Good
- Neutral
- Poor
- Very Poor
- I feel safe and comfortable using Tom Hanafan River's Edge Park at all times of the day.
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Other: \_\_\_

• Are you familiar with what Tom Hanafan River's Edge Park looked like before it became a public park?

- Yes
- **No**

## If you answered "Yes," please continue to fill out the following questions. If you answered "No," please skip to the next section titled "ENVIRONMENTAL BENEFITS"

• Do you find access to the Missouri river from Tom Hanafan River's Edge Park easier or more difficult after the reconstruction? How much easier or more difficult?

(Much More Difficult) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much Easier) • Do you feel safer and more comfortable using Tom Hanafan River's Edge Park at all times of the day after the reconstruction? How much safer and more comfortable?

(Less Safe) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much Safer)

#### **ENVIRONMENTAL BENEFITS**

- Are you aware that the park contributes to the flood resiliency of Council Bluffs?
- Yes
- **No**
- Maybe
- If not, would you like to learn more?
- Yes
- No
- Maybe
- What new ways could Tom Hanafan River's Edge Park educate those about the environmental benefits that the site offers to the community?
- Pamphlet
- Signs
- Art Piece
- Events
- Other \_\_\_\_
- Do the ecological restoration and flood control benefits influence your desire to come visit the park?
- Yes
- No

#### **Selected Survey Results**



#### Q1 Select one of the following as your best descriptor



ANSWER CHOICES		RESPONSES	
I am a local from	(please indicate your community/neighborhood)	86.00%	43
I'm visiting from out of tow	'n	14.00%	7
TOTAL			50



#### Q2 How far do you travel to Tom Hanafan River's Edge Park?

ANSWER CHOICES	RESPONSES	
Less than 1 mile	8.00%	4
1-2 miles	14.00%	7
3-5 miles	32.00%	16
More than 5 miles	46.00%	23
TOTAL		50

## Q3 If given the opportunity, would you like to live closer to Tom Hanafan River's Edge Park?



ANSWER CHOICES	RESPONSES	
Yes	26.00%	13
No	40.00%	20
Maybe	34.00%	17
TOTAL		50



#### Q4 Select your age group:

ANSWER CHOICES	RESPONSES	
18-25	20.00%	10
26-35	10.00%	5
36-45	16.00%	8
46-55	28.00%	14
56-65	16.00%	8
65+	10.00%	5
TOTAL		50

#### Q5 What time of day do you typically visit Tom Hanafan River's Edge Park? (select all that apply)



ANSWER CHOICES	RESPONSES	
Early Morning: 6am-10am	30.61%	15
Late Moming: 10am-12pm	20.41%	10
Early Afternoon: 12pm-2pm	6.12%	3
Late Afternoon: 3pm-5pm	6.12%	3
Evening: 5pm-7pm	48.98%	24
Night: 8pm-12am	38.78%	19
Other (please specify)	8.16%	4
Total Respondents: 49		



#### Q6 On average, how often do you visit Tom Hanafan River's Edge Park?

neor ondeo	
2.08%	1
8.33%	4
29.17%	14
14.58%	7
16.67%	8
14.58%	7
14.58%	7
	48
	2.08% 8.33% 29.17% 14.58% 16.67% 14.58% 14.58%

#### Q7 How do you usually arrive to the park?



ANSWER CHOICES	RESPONSES	
On foot	19.15%	9
By bicycle	10.64%	5
By car	68.09%	32
By public transportation	2.13%	1
TOTAL		47





ANSWER CHOICES	RESPONSES	
15 minutes or less	6.52%	3
Half hour	8.70%	4
1-2 hours	71.74%	33
3+ hours	13.04%	6
TOTAL		46

## Q9 What do you think of when you think of Tom Hanafan River's Edge Park



ANSWER CHOICES	RESPONSES	
Connection to the Pedestrian Bridge	68.75%	33
Place for recreation and events	60.42%	29
Access to the Missouri River	10.42%	5
See and be seen/people watching	10.42%	5
Other (please specify)	10.42%	5
Total Respondents: 48		

### Q10 How would you rate the appearance of Tom Hanafan River's Edge Park today?



ANSWER CHOICES	RESPONSES	
Very good	75.00%	36
Good	20.83%	10
Neutral	4.17%	2
Poor	0.00%	0
Very Poor	0.00%	0
TOTAL		48



## Q13 My motivation for visiting Tom Hanafan River's Edge Park is to... (select all that apply)

ANSWER CHOICES	RESPONSES	RESPONSES	
Run	14.29%	7	
Other exercise and fitness activities	6.12%	3	
Walk	44.90%	22	
Bike	24.49%	12	
Attend Events	67.35%	33	
Play/bring my children	6.12%	3	
Access the water	10.20%	5	
Connect to Omaha via the pedestrian bridge	40.82%	20	
Enjoy nature and be outdoors	40.82%	20	
Socialize with friends and family	40.82%	20	
Reduce stress	32.65%	16	
Other (please specify)	8.16%	4	
Total Respondents: 49			





ANSWER CHOICES	RESPONSES	RESPONSES	
Walking	63.27%	31	
Jogging/running	18.37%	9	
Walking dog	12.24%	6	
Plant/wildlife viewing	14.29%	7	
Picnicking/eating	14.29%	7	
Sledding or other winter activities (please specify)	2.04%	1	
Cycling	22.45%	11	
Play time with my children	8.16%	4	
Relaxing	46.94%	23	
Outdoor education	10.20%	5	
Community events	65.31%	32	
Other (please specify)	8.16%	4	
Total Respondents: 49			



ANSWER CHOICES	RESPONSES	5
Improves my quality of life	55.32%	26
Makes my lifestyle healthier	46.81%	22
Provides a safe and secure environment	59.57%	28
Increases my outdoor activity	68.09%	32
Enhances my understanding of the site's flooding capacity	12.77%	6
Contributes to my understanding of alternative stormwater management practice	6.38%	3
Contributes to my understanding of floodplain forest ecology	8.51%	4
Creates habitat for wildlife	29.79%	14
Provides an environment to see artwork	17.02%	8
Gives me an opportunity to learn something new	27.66%	13
Promotes scheduled outdoor events	78.72%	37
Other (please specify)	0.00%	0
Total Respondents: 47		

## Q16 Have you ever attended an event held in Tom Hanafan River's Edge Park?



ANSWER CHOICES	RESPONSES	
Yes	65.31%	32
No	34.69%	17
Other (please specify)	0.00%	0
TOTAL		49

## Q17 If you answered no, would you be interested in attending an event if it is held in Tom Hanafan River's Edge Park?



ANSWER CHOICES	RESPONSES	
Yes	80.95%	17
No	0.00%	0
Maybe	19.05%	4
Other (please specify)	0.00%	0
TOTAL		21

## Q19 Within the Tom Hanafan River's Edge Park, I feel the quantity of parking is...



RESPONSES	
51.02%	25
0.00%	0
28.57%	14
4.08%	2
16.33%	8
0.00%	0
	49
	RESPONSES   51.02%   0.00%   28.57%   4.08%   16.33%   0.00%

#### Q20 How would you rate your satisfaction with the amount of bike parking in Tom Hanafan River's Edge Park?



ANSWER CHOICES	RESPONSES	
Very good	35.56%	16
Good	26.67%	12
Neutral	35.56%	16
Poor	2.22%	1
Very Poor	0.00%	0
TOTAL		45



Q22 Are you familiar with what Tom Hanafan River's Edge Park looked like before it became a public park?

#### Q23 Do you find access to the Missouri river from Tom Hanafan River's Edge Park easier or more difficult after the reconstruction? How much easier or more difficult?



ANSWER CHOICES	RESPONSES	
-5 (Much More Difficult)	0.00%	0
-4	0.00%	0
-3	0.00%	0
-2	0.00%	0
-1	0.00%	0
0	11.43%	4
1	5.71%	2
2	8.57%	3
3	25.71%	9
4	17.14%	6
5 (Much Easier)	31.43%	11
TOTAL		35

Q24 Do you feel safer and more comfortable using Tom Hanafan River's Edge Park at all times of the day after the reconstruction? How much safer and more comfortable?



ANSWER CHOICES	RESPONSES	
-5 (Much Less Safe)	0.00%	0
-4	0.00%	0
-3	0.00%	0
-2	2.70%	1
-1	0.00%	0
0	13.51%	5
1	5.41%	2
2	2.70%	1
3	13.51%	5
4	40.54%	15
5 (Much More Safe)	21.62%	8
TOTAL		37

## Q25 Are you aware that the park contributes to the flood resiliency of Council Bluffs?



ANSWER CHOICES	RESPONSES	
Yes	54.00%	27
No	46.00%	23
Maybe	0.00%	0
TOTAL		50

#### Q26 If not, would you like to learn more?



ANSWER CHOICES	RESPONSES	
Yes	56.25%	18
No	25.00%	8
Maybe	18.75%	6
TOTAL		32

# Q27 What new ways could Tom Hanafan River's Edge Park educate those about the environmental benefits that the site offers to the community?



ANSWER CHOICES	RESPONSES	
Pamphlet	23.91%	11
Signs	60.87%	28
Art Piece	45.65%	21
Events	45.65%	21
Other (please specify)	6.52%	3
Total Respondents: 46		

## Q28 Do the ecological restoration and flood control benefits influence your desire to come visit the park?



ANSWER CHOICES	RESPONSES	
Yes	77.55%	38
No	22.45%	11
TOTAL		49

### 6. Appendix B: EPA National Stormwater Calculator Report

### National Stormwater Calculator Report

## Site Description

Tom Hanafan River's Edge Park

Parameter	Current Scenario	Baseline Scenario
Site Area (acres)	21.64	
Hydrologic Soil Group	A	
Hydraulic Conductivity (in/hr)	1.1	
Surface Slope (%)	5	
Precip. Data Source	OMAHA EPPLEY AIRFIE	
Evap. Data Source	OMAHA EPPLEY AIRFIE	
Climate Change Scenario	Median/Near Term	
% Forest	39	
% Meadow	7	
% Lawn	29	
% Desert	1	
% Impervious	24	
Years Analyzed	20	
Ignore Consecutive Wet Days	False	
Wet Day Threshold (inches)	0.10	
LID Control	Current Scenario	Baseline Scenario
Disconnection	0	
Rain Harvesting	0	
Rain Gardens	0	
Green Roofs	0	
Street Planters	0	
Infiltration Basins	0	
Porous Pavement	9 / 100	

% of impervious area treated / % of treated area used for LID

US EPA National Stormwater Calculator - Release 1.2.0.1

### Summary Results

Tom Hanafan River's Edge Park

Statistic	Current Scenario	Baseline Scenario
Average Annual Rainfall (inches)	17.77	
Average Annual Runoff (inches)	3.47	
Days per Year With Rainfall	32.98	
Days per Year with Runoff	10.79	
Percent of Wet Days Retained	67.27	
Smallest Rainfall w/ Runoff (inches)	0.42	
Largest Rainfall w/o Runoff (inches)	0.58	
Max. Rainfall Retained (inches)	3.33	



Page 2 Of 6



Tom Hanafan River's Edge Park



Page 3 Of 6



Tom Hanafan River's Edge Park





Tom Hanafan River's Edge Park



## National Stormwater Calculator Report Estimate of Probable Costs

#### LID Control Current Scenario **Baseline Scenario** Cost Difference Disconnection \$ - \$ Rainwater Harvesting \$-\$ Rain Gardens \$ - \$ Green Roofs \$ - \$ Street Planters \$-\$ Infiltration Basins \$-\$ Permeable Pavement \$ 406,300 - \$ 542,200 Total \$ 406,300 - \$ 542,200

### Tom Gapital Rivests dge Park

### Maintenance Costs

LID Control	Current Scenario	Baseline Scenario	Cost Difference
Disconnection	\$-\$		
Rainwater Harvesting	\$ -\$		
Rain Gardens	\$ - \$		
Green Roofs	\$-\$		
Street Planters	\$-\$		
Infiltration Basins	\$ - \$		
Permeable Pavement	\$ 4,800 - \$ 26,300		
Total	\$ 4,800 - \$ 26,300		

# 7. Appendix C: City of Council Bluffs Fiscal Year 2017 Budget to Actual Revenue Comparison Chart

State Budg	et	Budget	YTD Actual	% Collected	YTD Actual
Reference	Revenue Description	FY 2017	05/31/2017	05/31/2017	05/31/2016
	Police Services Fees	29,500	70,272	238.21%	38,155
	Fire Suppression Fees	-	136	100.00%	136
	Fire Technical Fees	-	9,200	100.00%	
	Animal Control Fees	10,000	7,714	77.14%	7,655
	Public Health Inspection Fees	2,500	6,338	253.52%	6,111
	Library Fees	43,000	44,590	103.70%	46,014
	Parks Administrative Fees	3,000	2,400	80.00%	1,157
	Parks Recreation Fees		1,000	100.00%	
	Parks Dodge Golf Fees	42,000	895	2.13%	19,120
	Parks Pool Fees	65,000	30,288	46.60%	32,203
	Parks Cemetery Fees	2,500	2,014	80.56%	1,675
	PW Equipment Maintenance	-	4,520	100.00%	3,887
	General Government Fees	1,173,500	1,083,357	92.32%	1,063,228
	General Revenues	-	150,000	100.00%	-
	Other Indemnities	1,000	1,005	100.48%	962
	Other Indemnities	150,000	-	0.00%	75,000
	Reimbursement Restitution	-	224	100.00%	457
	Other Indemnities		1.1	0.00%	13
	CD Non Capital Projects	-	-	100.00%	753,941
	Other Indemnities Received	-	41,666	100.00%	43,533
	Federal Grant	-	584	100.00%	1,046
	Miscellaneous Grants	-	155,100	100.00%	120,400
	Loessfest 2016	-	129,217	100.00%	236,000
	Misc. Government Donations	-	180,575	100.00%	128,101
	Reimbursements	-	312,765	100.00%	1,191,312
	Forfeited Assets	-	893	100.00%	1,708
	Other	225,000	-	0.00%	
Line 36	Miscellaneous	1,763,700	2,277,135	129.11%	3,823,329
Line 37	Transfers In	15,024,727	15,623,377	103.98%	7,353,893
Line 41	Capital Asset Sales	140,755	93,083	66.13%	82,451
	GENEREAL FUND REVENUE TOTAL	61,788,471	58,085,331	94.01%	51,044,990
	SPECIAL REVENUE FUND		REVEN	NUE	
TAXES LEV	ED ON PROPERTY:		202 22 2		
	Taxes Levied on Property Emergency Fund	638,179	618,527	96.92%	591,394
	Taxes Levied on Property - Employee Benefit Fund	13,895,535	13,467,643	96.92%	12,344,955
	Taxes Levied on Property-Lake Manawa SSMID	125,000	128,295	102.64%	130,907
Line 3	Total Net Current Property Taxes	14,658,714	14,214,465	96.97%	13,067,256
OTHER CIT	Y TAXES:				
	Utility Tax Replacement - Emergency Fund	49,699	49,633	99.87%	57,428
for the stand stationers	Utility Tax Replacement - Employee Benefit Fund	1,082,138	1,080,699	99.87%	1,198,773
Line 6	Utility Tax Replacement Excise Tax	1,131,837	1,130,332	99.87%	1,256,201
	Other Revenue	-	2,373,746	100.00%	2,742,761
	Local Option Sales Tax-Roads	8,900,000	6,974,690	78.37%	8,252,432

#### City of Council Bluffs Fiscal Year 2017 Budget to Actual <u>Revenue</u> Comparison 11 month period ending May 31, 2017

43 3