STAFF REPORT

IMPERVIOUS SURFACE STORMWATER FEES

November 17, 2009

City Council has asked staff to explore how the City of Ames could implement stormwater utility billing based on impervious/pervious area. This type of billing system would recognize the correlation between hard, impervious surfaces and greater amounts of stormwater run-off.

Money collected into the City's Storm Sewer Fund is expended for the purpose of constructing, operating, repairing, and maintaining many kinds of conduits, drains, storm water detention devices, flow impediments, ponds, ditches, sloughs, streams, filter strips, rip-raps, erosion control devices, and other things useful to the proper control, management, collection, drainage, and disposition of storm water in the City of Ames. Capital Improvement Projects from this fund include the Storm Sewer Intake Rehabilitation Program, the Storm Sewer Facility Rehabilitation Program, Low Point Drainage Improvements, Southwest Ames Storm Water Management Improvements (improvements to Greenbriar Park), and Storm Sewer Outlet Erosion Control (College Creek restoration project as part of this program from 2008-2010). Projects included in the City's operating budget include Illicit discharge detection and elimination, storm sewer maintenance and cleaning, permit administration, public outreach/education, municipal employee training program, construction site erosion control inspection program, pesticide and fertilizer management program, Geographic Information System mapping of storm sewer network, rain barrel grant program, rain garden grant program, stream bank stabilization grant program, and annual Clean Water Festival.

Existing Billing Method

Currently the City charges a flat fee per utility account for stormwater. This charge is currently $3.00 and there are approximately 24,780 utility accounts in the City. This generates approximately **$74,340 a month** in revenue for the stormwater utility. There are currently 18,320[1] residential utility accounts, which calculates to be 73.9% of the total utility accounts.

Impervious/Pervious Analysis

The first step in looking at an impervious/pervious billing is to analyze the data in our Geographic Information System (GIS). In 2008, the City of Ames had planimetrics taken with aerial photography. Planimetrics are linear delineations of features showing both edges and areas produced using stereoscopic methods and orthophotography. This data included streets, sidewalks, driveways, and any structures over 150 square feet.

[1] This is the number of utility accounts on parcels with a residential Assessor designation and the estimate of residential accounts on mixed use property. It is not based on current residentially billed accounts.

Using the GIS, we were able to look at the City of Ames and generate the percentage of imperviousness per classification. The percentages are shown below and were derived from Assessor's Office classifications[2]:

- Residential = 44.9%
- Commercial = 31.4%
- Industrial = 6.8%
- Tax Exempt = 16.8%
- Agriculture = 0.1%

Iowa State University is not included in these calculations because they are their own Municipal Separate Storm Sewer System (MS4). In discussions with the DNR they clarified that the University's permit covers all land owned and/or used by them within the City of Ames corporate limits. It is also the opinion of City Legal staff and the DNR that this would prevent the University from being billed based on impervious area[3].

Billing for Impervious/Pervious

In researching how other cities bill for impervious/pervious surfaces, it was found that many are using the Estimated Residential Unit (ERU) process (see Attachment 1). This process is accomplished by using GIS to estimate the **average impervious area on residential lots**. This number is then used to divide the impervious area of all properties to give each property an ERU value.

Staff used the GIS to calculate an average impervious area for the City of Ames on residential parcels. The GIS showed that an average residential parcel in Ames has 3,050 square feet of impervious area. This calculation did not include mixed use parcels that include residential units. After analyzing the data, City staff determined that one ERU should equal 4000 square feet. This was done since planimetrics does not capture all impervious area on a parcel. Things not captured would include patios and non-public sidewalks on residential parcels. Rounding up to 4,000 square feet would also potentially reduce the number of appeals of ERU calculations.

This formula was then used to do all the analysis for this report. An example of this formula would be that a parcel with 8000 square feet of impervious area would have an ERU equal to two (8000 sf/4000 sf = 2 ERUs). The formula of having 4000 square feet equal one ERU results in 87.2% of residential properties and 79.8% of all properties being less than or equal to one ERU.

Assumptions

Staff needed to make two basic assumptions to analyze an ERU system for billing. The first is that the minimum ERU would be equal to one. This means that properties with less than 4000 square feet of impervious surface would be charged one ERU. The

[2] Does not include Iowa State University land; only billable parcels.
[3] Iowa City does not charge the University of Iowa properties

second assumption is that for the purpose of billing, the calculated ERU would be rounded to the nearest half ERU. An example would be that a property with a calculated ERU of 10.24 would be rounded to 10 ERUs for the purpose of billing. The rounding calculation of ERUs results in 93.6% of residential properties and 86.2% of all properties being less than or equal to one ERU. All calculations in this report are done with these two assumptions for the purpose of billing.

Staff has also assumed that Assessor codes would be used when looking at residential versus other classifications. Currently the City of Ames utility billing system uses different residential versus commercial classifications based on the type of utility. An example would be on a commercially classed parcel that contains apartments. For the Electric utility the apartments would be billed as residential while common area Electric accounts of the apartment would be billed as commercial. For the purpose of this report, staff assigned all accounts by their assessor codes, rather than their utility billing codes. In the apartment example above, all accounts of the parcel would be assigned as commercial.

For the purposes of mixed use development, staff assumed that those properties were residential for the purposes of this study. This is due to the fact that residential utility accounts are 99% of the accounts in the mixed use parcels

ERU Billing Analysis

In looking at a system to bill by ERUs, staff has come up with three alternatives and a baseline of “no change”. These calculations follow the assumptions noted above. The alternatives are as follows:

- Alternative 1: Leave existing flat fee in place
- Alternative 2: Billing per parcel ERUs
- Alternative 3: Billing Residential at 1 ERU per utility account and all others on ERUs
- Alternative 4: Billing a minimum of 1 ERU per utility account on all parcels. Only use ERUs for properties with more ERUs than utility accounts.

Alternative 1 would be to leave the existing flat fee in place. This flat fee is currently assigned to all utility customer accounts in the City. This means that on a parcel basis, an 8-plex that has 10 utility accounts would pay the fee on all 10 accounts regardless of classification of the 8-plex.

Alternative 2 would use the rounded ERU number for the basis of billing regardless of classification per parcel. For the purposes of billing, the ERU number for the parcel would be divided by the number of utility accounts. An example would be a parcel that has 3 ERUs and 10 utility accounts. If this parcel was designated as residential, the accounts would be billed at 0.30 ERUs. If the same parcel was commercial it would also be billed at 0.30 ERUs per account.

Alternative 3 would use the current system for billing for stormwater on residential properties only. This means that each utility account of a residential property would be charged one ERU. All other classifications of properties would be charged by the ERU per parcel. Using the same example of a parcel with 3 ERUs and 10 utility accounts for this alternative would show that a residential parcel would pay 10 ERUs. A commercial parcel would pay 0.3 ERUs per account under this alternative.

Alternative 4 would use a minimum of one ERU per utility account on all parcels. This would mean that a parcel would pay 1 ERU per utility account unless the ERUs divided by the number of utility accounts was greater than 1. This would mean that the example parcel of 3 ERUs and 10 utility accounts would pay 10 ERUs regardless of classification of the parcel. In this scenario, a parcel with 10 utility accounts would need to have an ERU of 10.5 or greater to show more than 1 ERU per utility account. An example of this would be a parcel with 12 ERUs and 10 utility accounts, which would pay 1.2 ERUs per utility account.

This report will next identify how these alternative billing approaches could be used to generate the same amount of monthly funding generated by the current system. Tables 1, 2, 3, and 4 show the revenue that would be generated each month by the different alternatives. It is assumed for all alternatives that the ERU charge for residential classification will be $3.00 (current charge per utility account), and that the other classifications charge is modified to get approximately the same amount of revenue as the current system.

Table 1: Alternative 1 Revenue

Classification	**Accounts**	**Charge per Account**	**Total Per Month**
Residential	18276.0	$3.00	$54,828.00
All Others	6504.0	$3.00	$19.152.00
	Total Revenue per Month		**$74,340.00**

Table 2: Alternative 2 Revenue

Classification	**ERUs**	**Charge per ERU**	**Total Per Month**
Residential	13347.0	$3.00	$40,041.00
All Others	12538.0	$2.75	$34,479.50
	Total Revenue per Month		**$74,520.50**

Table 3: Alternative 3 Revenue

Classification	ERUs	Charge per ERU	Total Per Month
Residential	18484.5	$3.00	$55,435.0
All Others	12538.00	$1.50	$18,807.00
	Total Revenue per Month		**$74,260.50**

Table 4: Alternative 4 Revenue

Classification	ERUs	Charge per ERU	Total Per Month
Residential	18967.0	$3.00	$56,901.00
All Others	15770.0	$1.10	$17,347.00
	Total Revenue per Month		**$74,248.0**

Table 5 shows the amount of monetary contribution that residential properties make in each billing strategy.

Table 5: Percentage of Residential contribution

Billing Strategy	% of Residential Contribution
Alternative 1	73.7%
Alternative 2	53.7%
Alternative 3	74.7%
Alternative 4	76.6%

Table 6 shows the minimum and maximum charges per utility account for the three alternatives. It should be noted that Table 6 is not representative of the largest impervious area as it is per utility account. A parcel can have anywhere from one to many utility accounts.

Table 6: Maximum and Minimum Charges per utility account for Alternatives

	Residential		All Others	
Billing Strategy	**Minimum Charge**	**Maximum Charge**	**Minimum Charge**	**Maximum Charge**
Alternative 1	$3.00	$3.00	$3.00	$ 3.00
Alternative 2	$0.30	$84.00	$0.11	$577.50
Alternative 3	$3.00	$3.00	$0.06	$288.75
Alternative 4	$3.00	$84.00	$1.1	$211.75

We have attached several figures that show impacts on different types of properties as follows: Figure 1 – 3311 E. Lincoln Way (Barilla), Figure 2 – 2000 Dayton Avenue (USDA), Figure 3 – 2801 Grand Avenue (North Grand Mall), Figure 4 – 1921 Ames

High Drive (Ames High School), Figure 5 – 3002 Heathrow Drive (Wessex), Figure 6 – 4702 Mortensen Road (Mixed Use Parcel), Figure 7 – 1218 Delaware Avenue (Commercial Multi-Family), Figure 8 – 1302 Florida Avenue (Residential Multi-Family), Figure 9 – 2900 Hoover Avenue (St. Cecilia Church), Figure 10 – 1310 S. Duff Avenue (Commercial Development), Figure 11 – 2500 Northwestern Avenue (Single Family Residential)

Before Billing with an ERU System

Before the City of Ames could begin billing on an ERU system, it would be important to recognize associated start-up issues and costs for setting up the system. The first issue is that there are approximately 446 parcels in the City that have impervious area but no utility account. These parcels would need to be entered and set up with a utility account under the ERU system. It is anticipated that this would take $2,550 of Public Works and Customer Service staff time. Using GIS, we have also identified approximately 96 parcels that have been constructed since the 2008 planimetrics (e.g., the north Fareway store) that would need their impervious area mapped in GIS. It is anticipated that this would cost $1,000 of staff time to update these parcels. By using the GIS, it is anticipated that there would also be staff time to insert the ERU numbers into our financial system. It is also anticipated that there will be staff time devoted to verifying and checking the calculated ERU values for accuracy, as well as interfacing with individual account holders who have questions about any new billing approach.

Changes with Billing by ERU

It is anticipated that, with the change to an ERU system, more time would be required by the City's Customer Services staff. Currently, Customer Services program costs are allocated to the Sewer, Water, and Electric utilities based on the number of charges billed. The Stormwater utility currently does not contribute to these costs. If the Stormwater utility was calculated into this same system, it would account for 28.6% of Customer Services costs. Using the financial amount from the latest fiscal year, this would amount to approximately $292,390 that would be charged to the Stormwater utility. The amount calculated using the charges billed would use up 33% of the current funding generated by the stormwater fee. A second option could be to cover only the incremental increase generated by the new system. This strategy would cost approximately $6,134 using the same fiscal information.

Another item that affects the utility billing system is classification of billing. If the cost per ERU is the same for all accounts there will be no issue with this. However, if we do one cost per ERU for residential and a different cost for all other classifications, it will require extra coordination for implementation. This is due to the fact that utility accounts might have different classifications for their current utility account than how the parcel is classified (i.e., apartment on a commercial parcel is currently billed as residential). One option for this could be to set the cost per ERU as a dollar amount, but then to apply an adjustment factor to ERUs for non-residential properties. Since the ERU calculation will be done in GIS, it could be handled before any classification issues.

Besides Customer Services staff, it is anticipated that there would be a degree of additional time from other staff devoted to an ERU System. Using the City's current Development Review Committee process, it would not be difficult to have the ERUs calculated for all non-residential projects. For residential homes, the Public Works Stormwater Specialist reviews each lot for compliance with our stormwater ordinance. As part of that process, staff could add the review of ERUs for each lot. It is not anticipated that staff would re-calculate ERUs for lots based on additions, but instead to review the ERU calculations when new planimetrics are received. This is currently on a 5-year cycle.

It is recommended that an ERU system not give credits for ERU reduction. The only way to change the ERU would be to reduce impervious area (e.g., to reduce paved parking area or install pervious pavements). It is also important to note that, as part of the City's federal MS4 permit, the City will be instituting water quality standards on top of quantity standards in the future. This will require more upfront time and greater on-going costs to private developments and to City staff.

Summary

This report has laid out the practical components and issues that would need to be addressed before implementing stormwater utility billings based on impervious/pervious surface. Following the ERU approach used by other communities, three billing alternatives have been presented, in addition to the option of continuing to utilize the present, standardized billing approach.

Since this report was written in response to a directive from Council, staff has no recommendation on whether any of these approaches should be pursued. However, warning should be given regarding several important challenges that would occur with implementation of any of these alternatives.

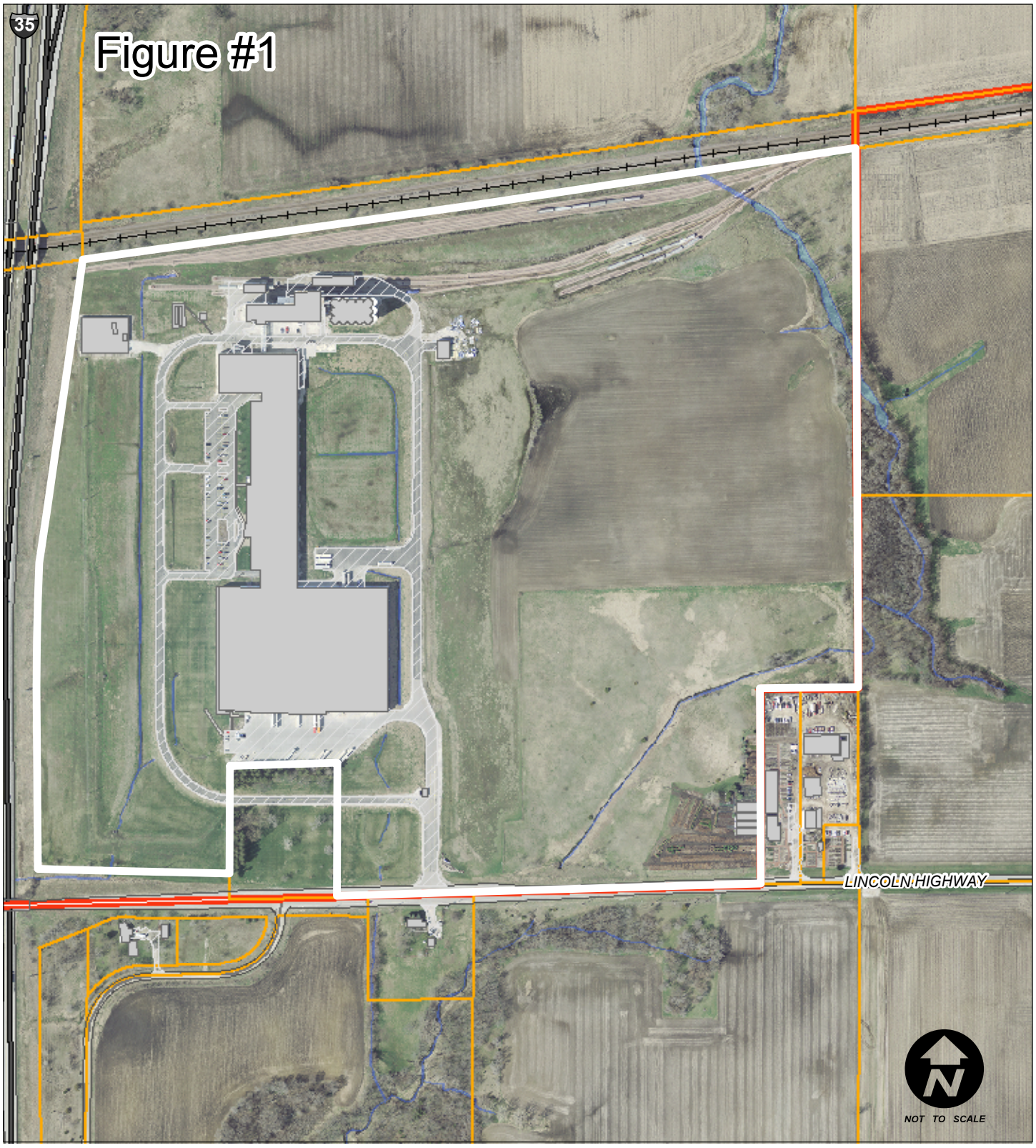
A change to an impervious billing system would impact different customers in different ways. For most residential customers, there would be relatively little change in their monthly stormwater bill. However, changes in how customers with larger properties are billed would undoubtedly elicit great concern. This would include rate payers such as places of worship, schools and businesses who now pay only $3.00 per account per month. These customers could experience major increases in their monthly stormwater utility bills.

In addition, in order to allow customers time to prepare and budget for higher costs, any billing system change should not be implemented for at least one year after a decision is made. A great deal of public education must also precede implementation of any new billing approach.

Finally, it is important to recognize that, regardless of how bills are calculated, stormwater utility revenues will need to be increased over the next several years

to cover the growing costs of complying with our MS4 permit. Those cost increases would magnify any changes made during a conversion to an impervious/pervious based billing system.

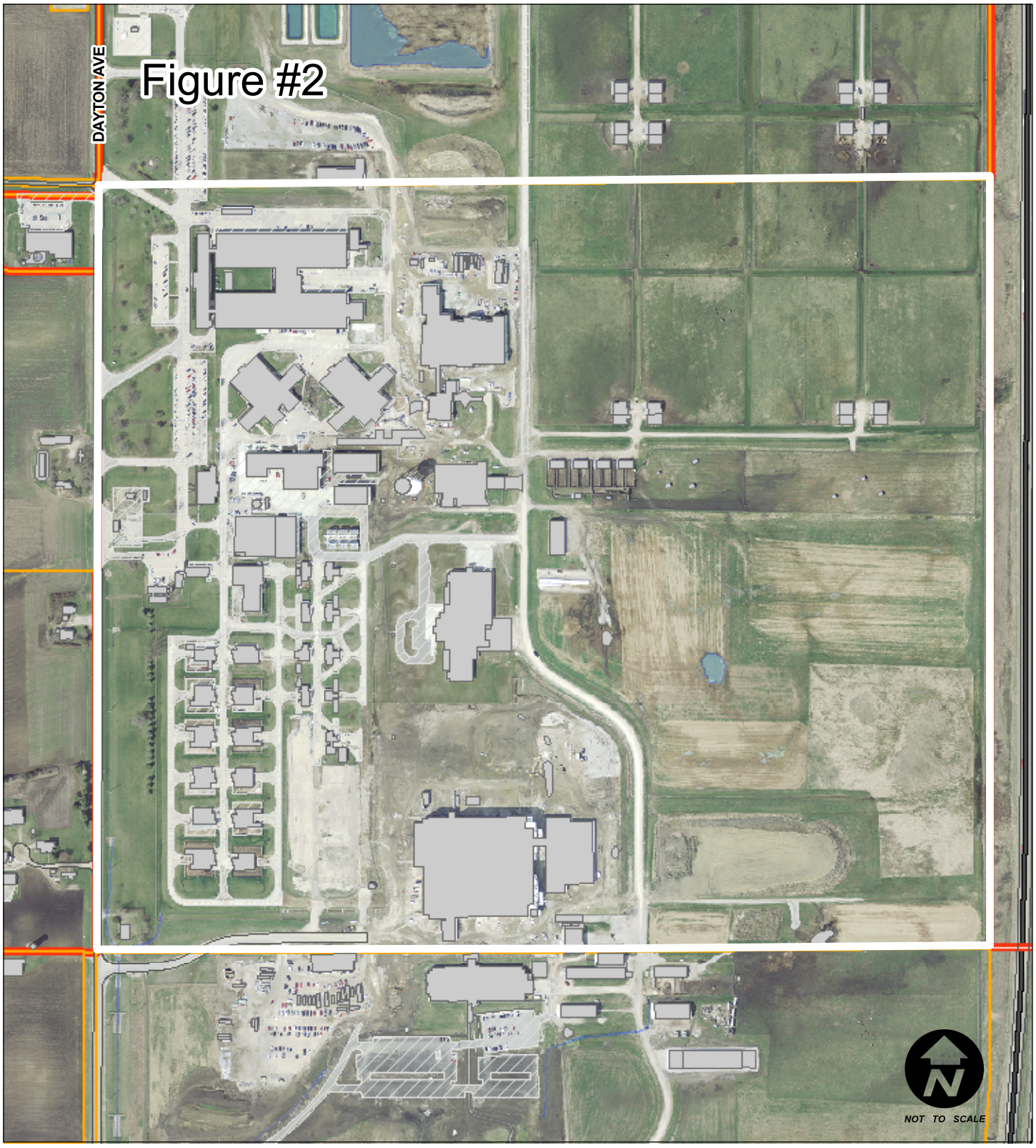
ATTACHMENT 1		
Cities Researched that are using ERU Billing in Iowa		
City	**ERU = Square feet**	**Fee Per ERU monthy**
Des Moines	2349	$7.09
Ankeny	4000	$4 one and two family residences. $3 for commercial, industrial, and multi-family.
West Des Moines	4000	$2.75
Clive	3667	$3.75
Forest City	2200 residential, 3520 nonresidential units	$5 Residential $8.30 non-residential unit
Davenport	All single family pay 1 ERU (2600), all non-residential pay based on ERU	$1.60 single family, $0.80 duplexes, non residential $1.60 X ERU's (2600)
Dubuque	2917	$5.00
Bettendorf	2500; Charge 1-5 ERU's	$1.50
Cities Researched that are using Flat Fee Billing in Iowa		
City	**Flat Fee**	**Fee Per Month**
Dewitt Iowa	Flat Fee	$2.50
Hiawatha	Flat Fee for Residence	$1.00
Perry	Flat Fee	$3.00
State Center	Flat Fee	$3, $6, $10 residential, commercial, industrial
Sac City Iowa	Flat Fee	$3, $7, $15, $10 (Based on Classification)
Manhatton, KS	Flat Fee	$3.50
Iowa City	Flat fee + .75 for other than residential	$2.00
Cedar Rapids	Flat Fee (Currently exploring ERU)	$1.60
Ames	Flat Fee	$3.00



ADDRESS: 3311 E LINCOLN WAY

ERUs (Rounded): 209.5
Assessor Classfication I

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	3	N/A	N/A	$3.00	$9.00
#2	3	209.5	69.83	$192.03	$576.09
#3	3	209.5	69.83	$104.75	$314.25
#4	3	209.5	69.83	$76.81	$230.43



ADDRESS: **2000 DAYTON AVE**

ERUs (Rounded): **371.5**
Assessor Classfication **E**

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	2	N/A	N/A	$3.00	$6.00
#2	2	371.5	185.75	$510.81	$1,021.62
#3	2	371.5	185.75	$278.63	$557.26
#4	2	371.5	185.75	$204.33	$408.66

Figure #3

ADDRESS: **2801 GRAND AVE**

ERUs (Rounded): **207.0**
Assessor Classfication **C**

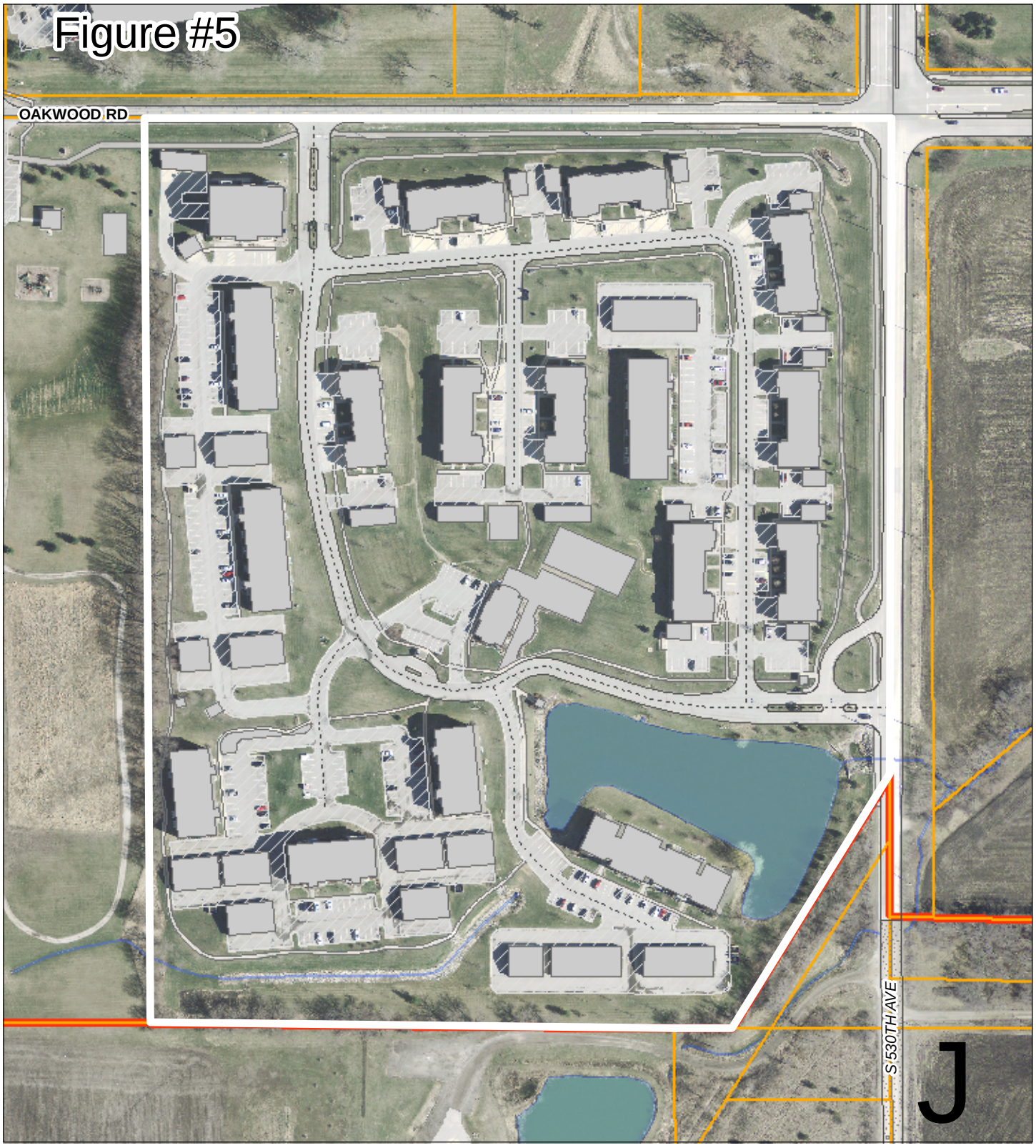
Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	61	N/A	N/A	$3.00	$183.00
#2	61	207	3.39	$9.32	$568.52
#3	61	207	3.39	$5.09	$310.49
#4	61	207	3.39	$3.73	$227.53

ADDRESS: **1921 AMES HIGH DR**

ERUs (Rounded): **134.5**
Assessor Classfication **E**

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	0	N/A	N/A	$3.00	$0.00
#2	0	134.5	134.50	$369.88	$369.88
#3	0	134.5	134.50	$201.75	$201.75
#4	0	134.5	134.50	$147.95	$147.95

Figure #5



ADDRESS: 3002 HEATHROW DR

ERUs (Rounded): 127.0
Assessor Classfication R

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	18	N/A	N/A	$3.00	$54.00
#2	18	127	7.06	$21.18	$381.24
#3	18	18	1.00	$3.00	$54.00
#4	18	127	7.06	$21.18	$381.24

ADDRESS: 4702 MORTENSEN RD

ERUs (Rounded): 105
Assessor Classfication R

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	345	N/A	N/A	$3.00	$1,035.00
#2	345	105	0.30	$0.90	$310.50
#3	345	345	1.00	$3.00	$1,035.00
#4	345	345	1.00	$3.00	$1,035.00

ADDRESS: 1218 DELAWARE AVE

ERUs (Rounded): 3.0
Assessor Classfication C

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	10	N/A	N/A	$3.00	$30.00
#2	10	3	0.30	$0.83	$8.30
#3	10	3	0.30	$0.45	$4.50
#4	10	10	1.00	$1.10	$11.00

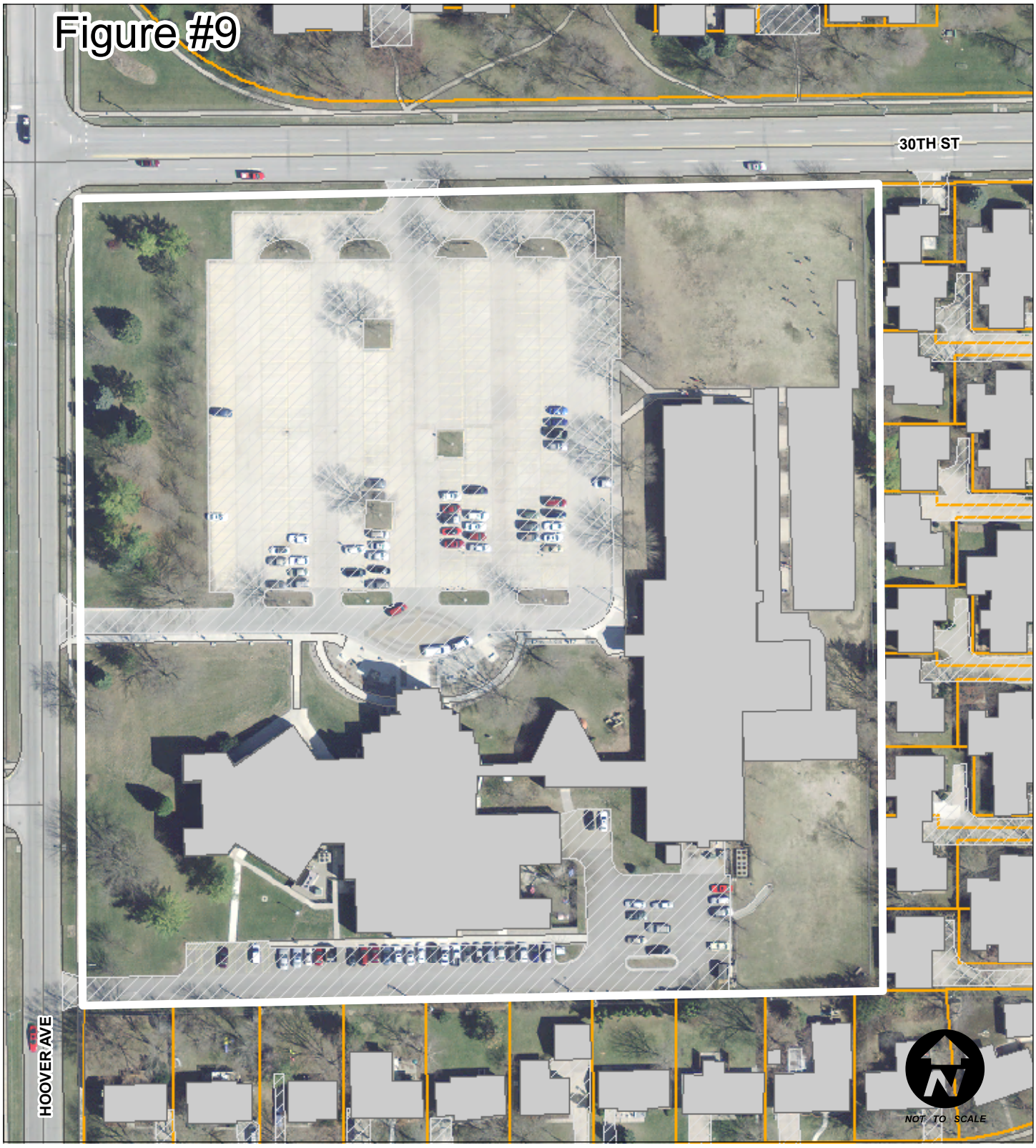
Figure #8

ADDRESS: **1302 FLORIDA AVE**

ERUs (Rounded): **3.0**
Assessor Classfication **R**

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	10	N/A	N/A	$3.00	$30.00
#2	10	3	0.30	$0.90	$9.00
#3	10	10	1.00	$3.00	$30.00
#4	10	10	1.00	$3.00	$30.00

Figure #9



ADDRESS: 2900 HOOVER AVE

ERUs (Rounded): 53.0
Assessor Classfication E

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	3	N/A	N/A	$3.00	$9.00
#2	3	53	17.67	$48.59	$145.77
#3	3	53	17.67	$26.51	$79.53
#4	3	53	17.67	$19.44	$58.32

Figure #10

ADDRESS: **1310 S DUFF AVE**

ERUs (Rounded): **7.5**
Assessor Classfication **C**

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	7	N/A	N/A	$3.00	$21.00
#2	7	7.5	1.07	$2.94	$20.58
#3	7	7.5	1.07	$1.61	$11.27
#4	7	7.5	1.07	$1.18	$8.26

ADDRESS: 2500 NORTHWESTERN AVE

ERUs (Rounded): 1
Assessor Classfication R

Alternative	Utility Accounts	ERUs	ERU per Account	Monthly Charge per Account	Total Monthly Charge
#1	1	N/A	N/A	$3.00	$3.00
#2	1	1	1.00	$3.00	$3.00
#3	1	1	1.00	$3.00	$3.00
#4	1	1	1.00	$3.00	$3.00