

**AGENDA
PLANNING COMMISSION
CITY OF ROELAND PARK, KANSAS
ROELAND PARK
4600 W 51ST STREET
AUGUST 27, 2019 6:00 PM**

- I. Roll Call**
- II. Approval of Minutes**
 - 1. May 19, 2019 Minutes
- III. Public Hearing**
- IV. Action Items**
- V. Discussion Items**
 - 1. Comprehensive Plan Update Kick Off
- VI. Other Matters Before the Planning Commission**
 - 1. Preview of NERJ Development
 - 2. Screening Options at 5000 Johnson Dr.
- VII. Adjournment**

Scheduled Meeting Dates

Item Number: **Approval of Minutes- II.-1.**
Committee **8/27/2019**
Meeting Date:



City of Roeland Park
Action Item Summary

Date: 8/27/2019
Submitted By: Jennifer Jones-Lacy
Committee/Department:
Title: **May 19, 2019 Minutes**
Item Type:

Recommendation:

Approve Attached Minutes from 5.21.19

Details:

Financial Impact

Amount of Request:	
Budgeted Item?	Budgeted Amount:
Line Item Code/Description:	

Additional Information

How does item relate to Strategic Plan?

How does item benefit Community for all Ages?

ATTACHMENTS:

Description	Type
☐ Minutes 5.21.19	Exhibit

PLANNING COMMISSION MINUTES
CITY OF ROELAND PARK
4600 W 51st Street, Roeland Park, KS 66205
May 21, 2019, 6:00 P.M.

The Roeland Park Planning Commission met on September 16, 2018, in City Hall, 4600 West 51st Street.

Chair Nielsen declared a quorum and called the meeting to order at 6:02 p.m.

Present: Mark Kohles Bill Ahrens
Mike Hickey Kyle Rogler Pete Davis

Absent: Paula Gleason
Darren Nielsen

Staff: Jennifer Jones-Lacy, Assistant City Administrator
John Jacobson, Building Official

I. ROLL CALL

The roll was called and Commissioners Paula Gleason and Darren Nielsen were absent.

II. APPROVAL OF MINUTES

1. Planning Commission Minutes - 3/19/19

The minutes were approved as submitted.

III. PUBLIC HEARING

No public hearing was held.

IV. ACTION ITEMS

There were no items discussed.

V. DISCUSSION ITEMS

1. Follow-Up on Residential Design Standards

Mr. Jacobson Mr. Jacobson reviewed the Commissioners' comments and they have been compiled and incorporated into the staff report and are available in the agenda packet.

Four areas discussed were:

Massing and Residential Design Standards. Mr. Jacobson said this pertains to an entire lot area, front building setbacks and as well as site setbacks.

Commissioner Hickey believes that what is in place today works, but that they should include best management practices without being too strict.

Mr. Jacobson said he could not support anything less than 5-feet separation between properties. He also would like to see some variety and diversity in construction and layout and that this helps a community and draws people in more than cookie-cutter construction.

Mr. Rogler said his comments were viewed through the lens of a tear-down developer. He added that he would like to see a good balance with a garage not being the whole front of the house.

After discussion, Mr. Jacobson said the take-away is they will develop design guidelines to insert in the zoning ordinance to address the massing component. The design guidelines will give general criteria as far as compliance and use “should” language instead of “shall” and “may.” He will work to make four or five highlights and will send it out to the Planning Commission for the feedback.

He said they should also keep in mind that they can always adopt other design guidelines as they begin to see what works or if there is something else they would like to add. Mr. Jacobson stressed that getting the basis of the guidelines is the key element and to keep it general enough so that it can grow with what is happening in the community.

Windows/Doors. There were no changes to current window and door requirements. It was agreed that “should” be the language used.

Additional Residential Zoning District. Mr. Jacobson said that one particular zoning category for single-family residential is probably short-sighted especially in Roeland Park where there is such a diverse square footage of lots. The idea is to define a denser residential zoning district to accommodate redevelopment in areas of the community with existing platted lots of less than 7,500 square feet. Mr. Jacobson said that approximately 25-30 percent of the community would qualify under that category. He said the tone of the comments received from the Commissioners with regard to this item is that would be acceptable in neighborhoods where that is appropriate and is something worth exploring. He added that the assumption is that there would be a development plan in place to determine what is compatible with the neighborhood.

Mr. Jacobson believes that 6,000 square feet is reasonable and can put together an outline for an R-2 district which is a little denser and also provide potential areas where that type of development would be appropriate.

Lot Coverage. Mr. Jacobson said they need to keep in mind having a maximum 80 percent coverage at the building setback line. He also said that he agreed with Commissioner Rogler’s ratios in his written comments. From an outside perspective they have a very constrained right-of-way which makes it difficult to locate utilities, sidewalks and street trees and it is difficult to get in a 50-foot right-of-way. One suggestion to deal with this would be having sidewalks on one side of the street instead of both sides.

After discussions, Mr. Jacobson said he appreciated the feedback and in-depth work that the Commissioners did. He is also looking forward to the help he expects to receive from Commissioners Kohles and Rogler. He will now compile the information and get it out to the Commissioners as soon as they can on the base criteria.

Ms. Jones-Lacy added that this is a good starting point on the comp plan update since design guidelines was one of the items that is expected to be reviewed. She said that she, Mr. Jacobson, City Administrator Moody met with Confluence who is doing the Planning Sustainable Places project to see if they would be interested in submitting a proposal.

VI. OTHER MATTERS BEFORE THE PLANNING COMMISSION

Ms. Jones-Lacy reported that the last 47th Street Overlay Committee meeting is taking on a different form. She noted she helps staff the committee and that Commissioner Ahrens is a member of the committee as well as CMBR Jen Hill, and CMBR Michael Poppa as a backup. Their primary mission is to look at the overlay district and review applications for anyone that would like to do something within the corridor. They then make a recommendation to the appropriate planning commission. She added that there have not been any new applications for quite some time.

The committee met with the three mayors of the overlay district to get feedback on what direction they want the committee to go and whether they would like the committee to continue. The overall consensus is they still think the district is important. It is very important to keep the overlay district in the minds of the planning commissions as well as the governing bodies on a regular basis as they are trying to develop an identity for the corridor. One of the things the members discussed were the recommendations for updates to the guidelines that were made which none of the cities were actually adopted. They would like revisit that. The plan is for this Planning Commission to review them and have them ultimately adopted with the other cities.

Of note is Scott Bingham, a long-time leader for the district is stepping down and they are now needing new leadership as they work to build this business district. Upcoming is the 47th Street Foodie Fest on September 8 and will mark the district's branding kickoff.

VII. ADJOURNMENT

MOTION: COMMISSIONER DAVIS MOVED AND COMMISSIONER ROGLER SECONDED TO ADJOURN. (MOTION CARRIED 5-0)

(Roeland Park Planning Commission Meeting Adjourned)

Item Number: Discussion Items- V.-1.
Committee 8/27/2019
Meeting Date:



City of Roeland Park
Action Item Summary

Date: 8/27/2019
Submitted By: Jennifer Jones-Lacy
Committee/Department:
Title: Comprehensive Plan Update Kick Off
Item Type:

Recommendation:

For discussion.

Details:

As part of the 2019 Budget, the City budgeted \$65,000 to update its comprehensive plan. The City completed a full update of its comp plan in 2012 with recent revisions in 2016 (attached). The City has hired Confluence to lead the current update process. Tonight is the kickoff meeting for that update. Attached you will find an agenda for the discussion along with the presentation.

Financial Impact

Amount of Request:	
Budgeted Item?	Budgeted Amount:
Line Item Code/Description:	

Additional Information

How does item relate to Strategic Plan?

How does item benefit Community for all Ages?

ATTACHMENTS:

Description

- 2012 Comp Plan with 2016 Updates
- Comp Plan Agenda
- Comp Plan Kick Off Presentation

Type

- Exhibit
- Cover Memo
- Cover Memo

ROELAND PARK, KANSAS COMPREHENSIVE PLAN



*4600 West Fifty-First Street
Roeland Park, Kansas 66205
City Hall (913) 722-2600
Fax (913) 722-3713*

2012 - Final
City Ordinance 874
2016 Update via Ordinance 945

Recommended for Approval by the Roeland
Park Planning Commission

April 17, 2012

Adopted by the Roeland Park City Council

June 4, 2012

ACKNOWLEDGEMENTS

ROELAND PARK CITY COUNCIL 2012

Adrienne Foster <i>Mayor</i>	Jennifer Gunby <i>Ward II</i>	Megan England <i>Ward III</i>
Becky Fast <i>Ward I</i>	Robert Meyers <i>Ward II</i>	Bill Art <i>Ward IV</i>
Betsy Mellor <i>Ward I</i>	Mark Kohles <i>Ward III</i>	Marek Gliniecki <i>Ward IV</i>

ROELAND PARK PLANNING COMMISSION 2012

Paula Gleason, Chair	Jim Owens	John Moylan
Kori Belton	Linus Orth	Scott Gregory

ROELAND PARK CITY STAFF

Mike Flickinger, Building Official

Debra Mootz, City Clerk/Finance Director

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SECTION 1 INTRODUCTION

1.1 Background



The Roeland Park Comprehensive Plan is the City's official plan for the future. The Plan serves as the community's guideline for future development, changes to the City's zoning and subdivision regulations, and compliance with the Code of Kansas Statute No. 12-747 section b.

This comprehensive plan plays an additional role beyond compliance with state statute. It embodies the community's vision for the future of Roeland Park with specific goals, direction for current development opportunities and a community implementation plan.

The plan is based on the following key principles:

- Maintain stability of Roeland Park's single-family residential base.
- Accommodate new types of housing to attract new and maintain current residents.
- Balance the City's opportunity to control the type and quality of development possible with newly created market demand for city-owned property.
- Maximize the City's benefit from the Mission Gateway project.
- Enhance the image and character of Roeland Park.

1.2 History of Roeland Park

On July 2, 2011, Roeland Park celebrated its 60th anniversary as an incorporated city. Before Roeland Park was incorporated, archaeologists explored our region and determined that a group, known as the Hopewellian people, lived in the Kansas City area from 122 BC to AD 800. Around AD 1000 these people gave way to a culture based on hunting, fishing and rudimentary agriculture. The first people to be identified living in the general area that is now Roeland Park, were the Kansa Indians. The Kaw (Kansa) was one of five Dhegiha tribes that migrated west from the Ohio Valley. The Kaw were noted in the area in 1724. The Kansa Indians are believed to be members of a group of Siouan Indians that splintered off a main group and initially settled near the mouth of the Kaw River in Wyandotte County, probably before AD 1800. The tribe also established villages in other locations north of Leavenworth and west of Lawrence. Continued pressures on this group resulted in its moving westward until eventually it, along with other tribes, were relocated to Indian Territory.

In 1829 the United States government granted the Shawnee Indians a reservation that extended along the Kaw River from what is now the Kansas-Missouri state line, westward into Douglas County. The Shawnee Indians initially lived in bark huts or wigwams (Not the tepees of the Plains Indians). They arrived in Kansas in two groups. One group of about 100 arrived in 1829 and the balance of about 900 arrived in 1832. In 1830 the Rev Thomas Johnson attempted to establish a mission for the Shawnee Indians near what is now Turner, Kansas. This proved unsuitable and the mission was relocated and opened in 1839 at its present location. The Shawnees were moved to Indian Territory in 1862, although some individuals stayed on as part of the general population of Johnson County.

An interesting sidelight of "what might have been" is that Joseph Smith and a deputation of Mormons visited Johnson County in 1832. After a careful survey they selected Shawnee Township as the future home of Mormondom. This was not to be. For once, the government had some scruples and refused to break the treaty with the Shawnee. The Mormons then settled near Independence, Missouri.

The first owner of land that is now part of the City of Roeland Park was Sim-e-to, also known as John Denny. He received 160 acres of land on November 7, 1858. This tract was located in the area between what is now 51st Street to 55th Street and Nall Avenue to about Sherwood. The land was preempted and reissued to Mary Pinner, a widow of the War of 1812 soldier. She assigned the land to Alexander Johnson, the son of Rev. Thomas Johnson. Just why the land was taken from Sim-e-to is not known. One report suggests this may have happened because John Denny was part of a gang of horse thieves. He is reported to have been hanged for stealing horses. He is buried in an unmarked grave in an unmarked cemetery located at what is now 55th and Queal Streets in western Merriam, Kansas.



On April 16, 1865 the United States issued a land patent to the Reverend Thomas Johnson for about 1,800 acres of land. Generally this land consisted of all or parts of Sections 3 and 4, and the North half of Sections 9 and 10, Township 12 South, Range 25 East in Johnson County, Kansas. Reverend Johnson was murdered before the patent was completed and title to the land was vested in his widow and children, each of whom received a portion of the land or other assets. The area that is now the City of Roeland Park is all located on land granted to Reverend Johnson, or acquired from Mrs. Pinner.

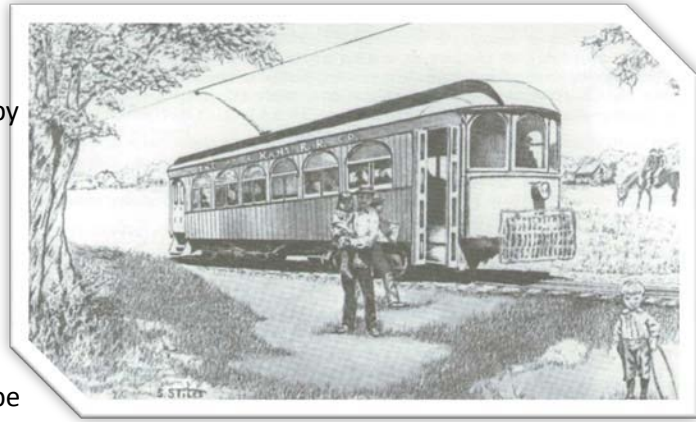
Between 1865 and 1875 various sales and transfers of the property were made. Property owners in 1875 were: Alexander S. Johnson, Andrew M. Johnson and Edna Johnson who were children of Rev. Thomas Johnson; F. A. Waterman, whose wife was the former Laura Johnson, daughter of Thomas Johnson; John B. Wornall whose wife was Eliza S. Johnson; Moses Greno, who owned the Indian Mission site; and J. Chandler, G. W. Fincke, H. Hall, and F. T. Scruggs.

By 1875 Johnson County had several incorporated towns including Shawnee Town, located about five miles west of the Shawnee Indian Mission; Campbellton, located in what is now Merriam, and Glenwood, located four miles southwest of the Mission. Other Johnson County towns included Olathe, Eudora and others. However, only a school, the Shawnee Indian Mission, and farmsteads were in the area in which the City of Roeland Park is now located.

Beginning in 1882, John Roe began to assemble his farm. The original farm was located in the area that is now 55th Street to 59th Street, Nall to Roe. In 1884 and 1893 John Roe expanded his holding northward to 51st Street and subsequently to the Johnson/Wyandotte county line. He also acquired land to the east between Neosho and Mission Road and 55th to what is now Elledge Drive.

In 1905, John Roe granted an easement to William Strang to construct a rail line for the Missouri-Kansas Railroad across the northern parts of his farm. The Missouri-Kansas Railroad, more commonly referred to as the Strang Line, ran from near Westport to Olathe. The line entered the City of Roeland Park area near 47th and Canterbury Streets, traveled southwesterly to near the site of the present City Hall, then across Roe Avenue where it went westerly on the north side of 51st Street.

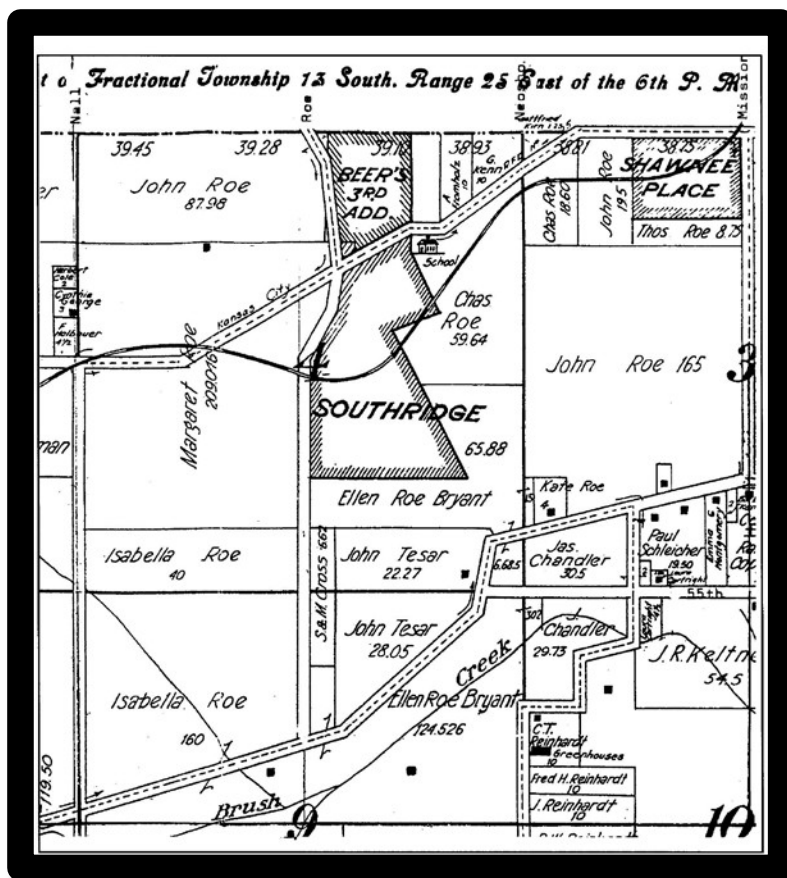
Prior to 1905 the Wornall farm was divided among the children of John B. Wornall. On August 7, 1905 the Wornall children sold this land to William Strang. Strang divided the land by selling the right-of-way for the Strang Line to the Missouri-Kansas Interurban Railway Company. The remaining land was sold to the Strang Land Company. Strang owned a substantial interest in both companies. In 1907 Herman Beers acquired the area between Roe and Delmar, Elledge to County Line. Beers subdivided the land into lots. This appears to be the earliest urbanization of land in what is now the City of Roland Park.



In 1909 the Strang Land Company subdivided the land that had been acquired from the Wornall family and called the area "Southridge." At about the same time, the area that is now between 47th and 48th Street, Mission Road to Reinhardt was platted and designated as "Shawnee Place."

In 1922 Frank Hodges purchased the land now described as Mission Ridge and Mission Grove. Mission Grove had been subdivided in 1921 by Charles Roe, a son of John Roe. Frank Hodges subdivided the Mission Ridge area in 1923 but no substantial development occurred in the area until after World War II.

In 1937, construction was started in the northwest part of the area. Between 1937 and 1940 six houses were constructed in the Pemland Heights area, north of 49th Street and east of Nall. By far the larger area in which development began was the construction by Charles E. Vawter in the areas he named Roe Manor Heights, Roeland Park and Roe Highlands. Initial construction was in the Roe Manor Heights area and along Nall and 51st Street. Construction was halted during World War II due to shortage of materials. Never-the-less, homes under construction were permitted to be completed when Mr. Vawter agreed to rent the houses to war workers.



Charles Vawter purchased the land he developed from Misses Isabella, Catherine, and Margaret Roe, and Mrs. Ellen Roe Bryant, daughters of John Roe. In naming his subdivision for the Roe family, Mr. Vawter established the name for the City of Roeland Park.

1922 Township Map of Roeland Park, Kansas

1.3 Planning Process

The Planning Commission during 2011-2012 spent several months reviewing the 2002/2007 Comprehensive Plan to update statistical information, including the goals and objectives set forth in that plan and to identify, based on updated data about Roeland Park, and the current and future key issues facing the community. The Plan was amended internally in 2016 to reflect updates to various development areas and changes in Roeland Park that affected the document.

- The Planning Commission provided a recommendation by resolution to the governing body after a public hearing process had been completed. The first Comprehensive Plan was created May 7, 1991
- In May, 2002 the City updated the Comprehensive Plan. Consideration was given to future land use and community development issues. The Plan was created by the citizens, City staff, shareholders and elected officials in Roeland Park and is intended to provide guidance on future community development issues. The Plan provided a future vision of the community, a set of common goals for which to strive and a pathway of steps to attain these goals.
- In 2007, the City held an extensive and lively community participation process, guided by a Community Steering Committee, to update the 2002 plan. The Steering Committee held three public town hall meetings and eight Committee meetings. Citizens discussed development pressures, neighborhood concerns, as well as the character and image of Roeland Park, City services and the role Roeland Park should play in the future of the metropolitan area.
- As a function of the Planning Commission, the commissioners are to review and provide updates and recommendations to the Plan. Their focus is on all existing and proposed developments within the City. Public Hearings will be held in April 2012 for public comments.

1.4 Key Issues

One of the primary reasons for replacing the 2002/2007 Comprehensive Plan is the recent development activity in the neighboring City of Mission, Kansas and the subsequent benefit and impact on Roeland Park residents.

This development activity springs from a combination of market forces and the foresight of northeast Johnson County cities to position themselves to not only take advantage of the opportunity presented, but to determine **what** they want and **how** to proceed in order to best serve their citizens.

Many of the action steps outlined in the plan have been completed or are ongoing, especially those related to municipal services and the recent development of the Bella Roe retail area. The city received high marks from citizens at public meetings held in June, 2006.

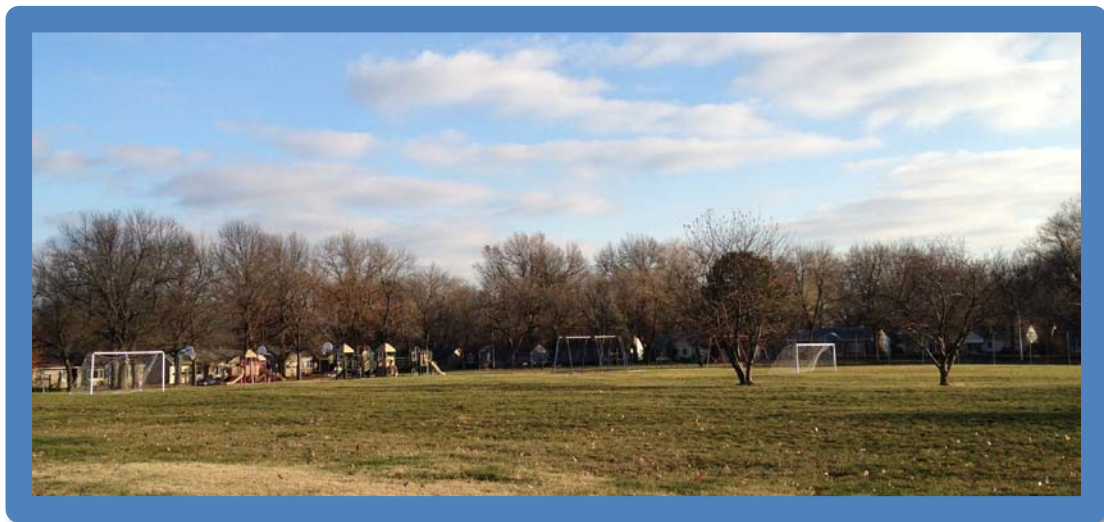
The Plan focuses on the city-owned sites that provide new development opportunities that the city can actually control through property ownership, land use and zoning, thereby leveraging a chance to change the character of Roeland Park.

The key issues are as follows:

- Support the redevelopment plans currently underway for the 47th and Mission Road Neighborhood Center. Refer to Section 3 (New & Neighboring Developments).
- Work in concert with the Cities of Mission and Fairway to promote the redevelopment of the former Mission Mall site into a mixed use development which enhances this highly visible gateway

for the three communities.

- Promote quality development at the two cloverleaf sites at Roe Boulevard and Johnson Drive.
- Utilize the development opportunity at Roe Boulevard and Johnson Drive as a formal southern gateway to the City and create a northern gateway to the City.
- Minimize the physical barriers for vehicles and pedestrians crossing Roe Boulevard.
- Promote higher density residential development where it compliments public uses and supports mixed use development. Higher density residential design should provide options attractive to all ages, affording young people to make memories, raise a family and enjoy their retirement years all within our community.”
- Redevelop the old City Pool site and Roe Lane corridor to be a more viable establishment within the Town Village Center.
- Implement the recommendations of the Park Master Plan on City park properties.
- Encourage upkeep and worth of the Bella Roe Plaza development at Town Center.
- Support quality development in the City.
- Encourage development that maximizes revenue for the City.
- Create and preserve revenue for the City in all development.



R Park- 5535 Juniper

SECTION 2 EXISTING CONDITIONS

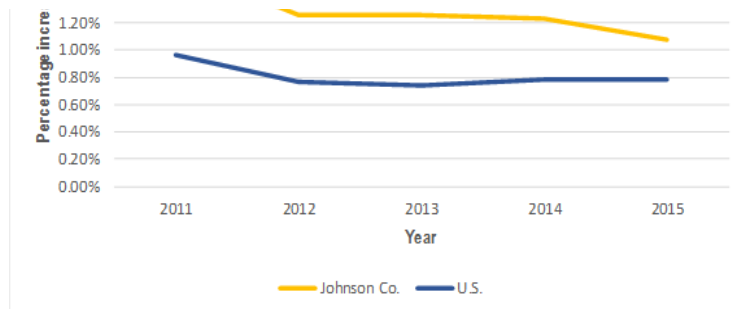
2.1 Demographics

Population

Roeland Park is located in Johnson County, the most populous of the counties in Kansas. Johnson County has experienced tremendous population growth over the last 50 years. The county has grown by over 400,000 residents since 1960. According to 2015 Census Bureau estimates there were approximately 580,000 residents in Johnson County.



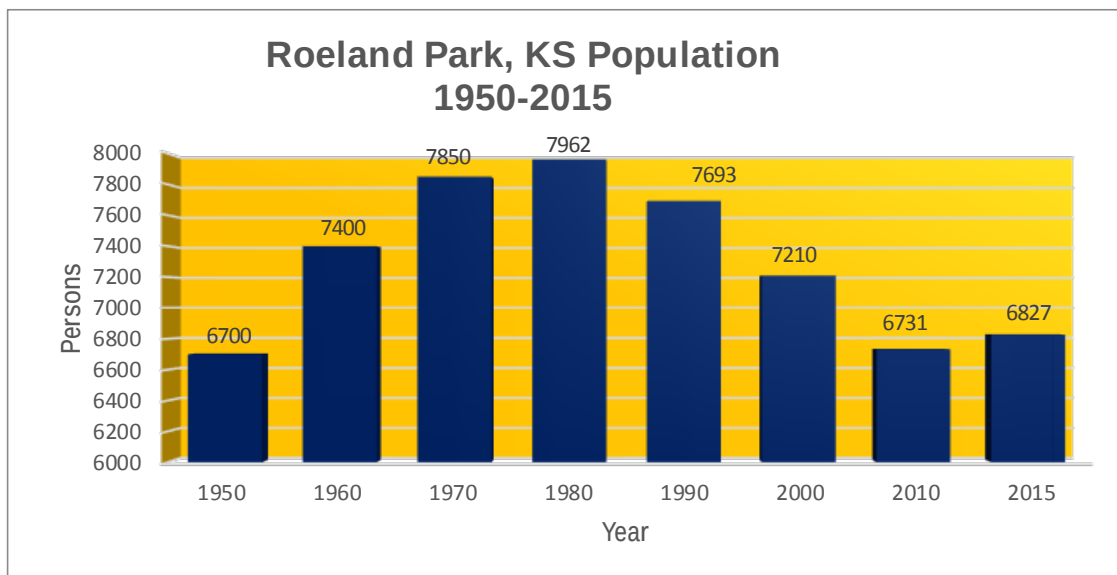
Percentage Change in Population 2011-2015



Population Growth – 2011-2015

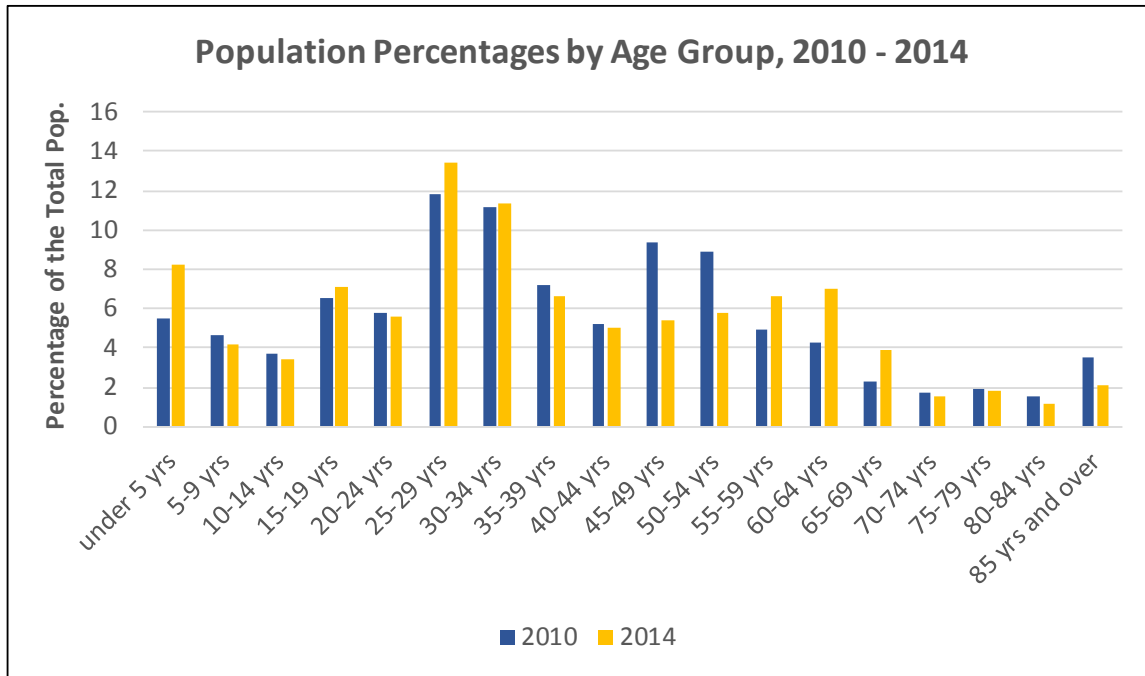
Johnson County	6.61%
United States	4.1%

Roeland Park has not shared in the county's growth. Much of this can be attributed to the lack of developable land within Roeland Park's boundaries, being landlocked by the neighboring communities, the single-family land use that occupies the vast majority of Roeland Park and the general national trend of smaller households. However, 2015 estimates indicate a slight rise in population since the 2010 Census.



Corrected 2000 population count from original 6817 based on Census Count Question Resolution Program.

The estimated population of Roeland Park in 2015 was 6,827 which represents a 1.4% increase from the official 2010 figure. According to the U.S. Census Bureau's American Community Survey (ACS) estimates, in 2014 the population was 47.3% male and 52.7% female. The median age was 33.6 which is a 6% younger than the median age in 2010. In comparison to the median age of residents in neighboring Fairway (40.7), Mission (34.0) and to the US (37.4), Roeland Park is a relatively younger community. The population density in the city is 4,212 people per square mile.



The census trend in Roeland Park is typical for communities of Northeast Johnson County. The level population trend is the result of established housing stock, aging population, lack of available developable land, and the growth and development taking place in southern Johnson County.

2014 US Census Bureau ACS	Roeland Park	Mission	Merriam	Lenexa	Fairway
Population	6,799	9,451	11,191	49,573	3,946
Population Density (persons/sq mi)	4,212	3,735.57	2,590.51	1,445.28	3,461.40
Households (2010 Census)	3,065	5,000	4,900	19,288	1,749
Median Household Income	\$64,394	\$51,080	\$55,103	\$75,400	\$104,916
Total Population Median Age	33.6	34.0	36.5	36.6	40.7

Employment

Roeland Park is primarily a residential community with three commercial anchor stores and an industrial center. Most people are employed by an entity outside the city limits. The primary exceptions to this are the BellaRoe center at Roe and 51st Street and an industrial park located off of Roe Lane on the north side of the community.

The majority of employment offered in Roeland Park can be classified as service. Fast food restaurants, retail stores and drug stores are examples of the types of service sector employment. The three largest employers in

Roeland Park are Wal-Mart, Price Chopper and Lowe's. Most non-service sector employment is provided through a small number of manufacturing businesses and banks.

In 2014, there were 4,336 people over the age of 16 in the labor force. Of City residents 97% were employed, 2.2% were unemployed and 22.7% were not in the labor force. In the same year, unemployment in this area was 3.5% and in 2010 it was estimated 3.6%.

In 2000, 86.7% of residents were employed in white-collar jobs in the management, service, sales and related fields. By 2014, the percentage of white collar workers increased to 89.7%, and those employed in blue collar occupations in the construction, maintenance, production and related fields made up 10.2% of employed Roeland Park residents.

Income

In 2014, estimated median household income in Roeland Park was \$64,394, compared to Fairway (\$104,916), Mission (\$51,080) and the US median which was \$53,482. In 2000 the median household income in Roeland Park was \$51,962. The change from 2000 to 2014 was nearly 24%.

In 2014, the per capita income in Roeland Park was \$33,645, compared to Merriam (\$27,986), Mission (\$33,362) and the \$US per capita, which was \$28,555. Most citizens receive income from salaries and wages, with some citizens deriving income from investments as well.

Households

Housing makes up the vast majority of Roeland Park. A household is defined as a family, group or individual residing in a housing unit. A housing unit is the actual physical structure. During the 10 years between the 1990 and 2000 U.S. Census surveys, total households decreased and total housing units have increased in Roeland Park. These reported trends reflect national trends of similar aging inner ringsuburbs.

As of the 2010 Census there were 3,065 households in Roeland Park. Although estimates of households are not available in ACS estimates, the total number has likely increased alongside the total population. According to the Tapestry Segmentation study conducted by Esri, an international GIS company, approximately 88% of Roeland Park residents belong to households comprised of singles in shared housing, married couples without children, and other nonfamily units. Most of these mainly younger residents are mobile and have some college education.

Housing Units

As of 2014 there were an estimated 3,215 housing units in the city, a 5.6% decrease from 3,405 in 2010. The median unit value in 2014 was \$155,300 which represents a slight 0.6% decrease from the 2010 median value of \$156,300. For comparison, the 2014 median unit value in Mission was \$153,800 and in Fairway was \$292,800. In 2014, 2,227 housing units were owner occupied and 752 were occupied by renters. The average monthly mortgage payment in 2014 was \$1,386 compared to \$866 for renters. The same figures for 2010 were \$1,377 for a mortgage and \$801 for rent.

Race and Ethnicity

In 2014 the racial makeup of the community was 91.1% white, 2.6% black, 0.3% Native American/Alaska Native, 2% Asian, and 3.5% identified as belonging to two or more races. Compare these to Fairway (96.1% white, 0.3% black, 0.1% Native American/Alaska Native, 1% Asian), Mission (85% white, 7.8% black, 0.1% Native American/Alaska Native, 2.9% Asian) and the U.S. (73.8% White, 12.6% Black, 0.8% Native American/Alaskan Native, 5% Asian).

The Census includes people who identify as Hispanic or Latino as "white" for survey purposes. In 2014 12.9% of

residents identified as Hispanic and Latino compared to 3.0% in Fairway 8.2% in Mission and 16.9% of the U.S. population.

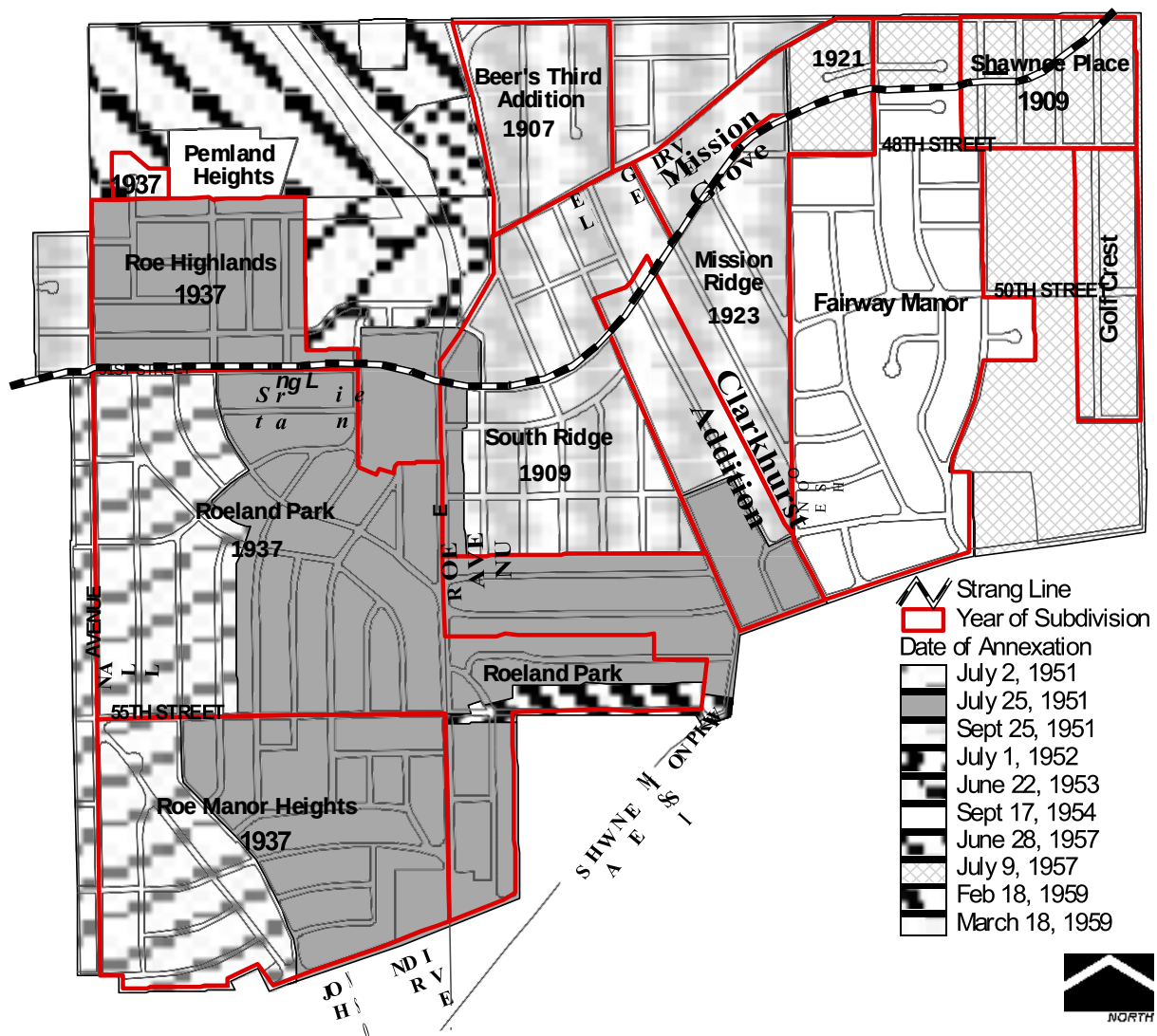
2.2 Existing Land Use

The City of Roeland Park was incorporated on July 2, 1951, soon after additional subdivisions were annexed into the community, creating present day Roeland Park. Throughout the years Roeland Park has been able to maintain its basic character and identity that existed at the City's inception.

Single Family Residential Neighborhoods

Today Roeland Park is primarily a single-family residential community. Other existing land uses include: parks, schools, neighborhood commercial, industry, utilities and a community recreation campus. Most of Roeland Park's subdivisions were platted in the first half of the 20th Century, prior to incorporation. Records show the first subdivision was created in 1907. The popular architectural styles of the time can be seen throughout the community in smaller one and one-half story homes. The residential neighborhoods are well established and maintained. Mature trees are common, providing shade and creating a quiet ambiance. Many homes are old enough to have had multiple owners.

City Subdivisions



Roeland Park is a community of neighborhoods which can be seen by the subdivision map. Traversing the community one can see distinct differences between adjacent neighborhoods. The differences are primarily in the styles of houses, the layout of the streets, the size of the parcels, and the flow between adjacent neighborhoods. These differences are the result of a variety of factors including different periods of development, different developers and land topography.

The subdivisions of Southridge and Shawnee Place are two of the oldest neighborhoods within Roeland Park. Both developed in 1909, these two neighborhoods share many similarities with each other. Both neighborhoods were developed along the historic Strang Line Trolley. This is evident when looking at the layout of the subdivision's parcels and streets. Southridge and Shawnee Place were developed using a grid-like pattern for their layout. Both developments also have comparatively smaller lot sizes than other Roeland Park neighborhoods. Newer homes constructed in these two areas have been built on two or three existing parcels.



During the 1930's, Charles Vawter developed the residential subdivisions of Roe Highlands, Roeland Park, and Roe Manor. A similar style and scale is shared by these neighborhoods. A more flowing, less grid-like, street layout was used. Slightly larger lots than the Southridge neighborhoods were common too. Most of these three neighborhoods don't have sidewalks but do have curbs and underground storm sewers. Landscaped islands, ornamental statues and lush vegetation are all common throughout Charles Vawter's Roeland neighborhoods.

The subdivision of Fairway Manor is located on the eastern side of Roeland Park. During the mid-1950's the Old Mission Golf Course was annexed into Roeland Park after it was subdivided into land for residential and educational uses. The Fairway Manor subdivision contains larger lots and more spacious houses than other Roeland Park neighborhoods. Landscaped medians and islands decorated with flowers and statues are found throughout the subdivision.



The Mission Ridge subdivision was created in 1923. While Fairway Manor has a suburban feel, Mission Ridge has a more rural feel. The lots are larger and the houses appear older and less uniform in their style and scale.

Medium Density Residential

Residential units that are occupied by more than one family, but have a lower density than multi-family residential uses, are classified as medium density. A common example of medium density structures are duplexes, triplexes and townhomes. Roeland Park has a small number of medium density uses in the north and northeast. They are located along 47th Street and Roe Lane. The medium density structures are in single family neighborhoods. They are designed to blend in with adjacent single family.

Multi-Family Residential

The vast majority of Roeland Park residents reside in single-family homes. Other types of housing are minimal in number and are dispersed. The major exception is the large multi-family complex called the Boulevard Apartments. Located west of Roe Boulevard and north of the community center, the Boulevard Apartments create a transition zone between the single-family residential to the south and the busy Interstate 35 to the north.

Commercial

In the 1950's, Roeland Park's only commercial center was created (Town Center). The commercial area is located along Roe Boulevard with the heart of the area located at the 51st Street intersection. Over the years a variety of changes have taken place with various tenants coming and going. Even with the many changes affecting the commercial area the basic layout has remained the same. The layout consists of large stores connected by large surface parking lots. Smaller commercial businesses such as restaurants, gas stations and drug stores have cropped up and are thriving around the larger anchor businesses.



Other businesses do exist within Roeland Park that are not located in the Town Center. They are small businesses, many in renovated residential homes, along Mission Road and the north side of Johnson Drive. Although there is only one major commercial center in Roeland Park, residents don't have to go far outside the city to find additional neighborhood and regional commercial areas.

Light Industry

The only major industrial park in Roeland Park is located in the north central part of the City. Just north of the city property on Roe Boulevard (the old swimming pool complex) sits the Roeland Business Park. There are manufacturing and warehousing businesses, as well as a large power sub-station located in the area.

Parks and Open Spaces

Parks and open spaces are important to any community. They provide a place for recreation and relaxation. Roeland Park is home to two community parks and three neighborhood parks. Nall Park, located at the intersection of Nall Avenue and 48th Street, and R Park, located along Juniper at 55th Terrace, are the two community parks. The five smaller neighborhood parks can be found at the intersections of Sycamore and Cedar Streets, Neosho and Wells Streets, on Juniper between Alder and Rosewood Drive, Johnson Drive and Roeland Drive and on 51st Street and Granada across from City Hall.



The Shawnee Indian Mission State Park is located on 53rd Street just south of the city limits. Roeland Park residents benefit from this state historic landmark. Roeland Park actively participates in the sustainability of this facility.

Schools

Many communities are judged by the quality of their schools. Roeland Park currently has four schools in the community. One public school is affiliated with the Shawnee Mission School District. Roesland Elementary School is located at the corner of Elledge Drive and Parish Drive. The school was established around 1873 but has undergone numerous renovations, and was rebuilt in 2008. Two other schools are private, the St. Agnes Elementary School and the Bishop Miege High School. Located in the southeastern corner of the city, these two schools are affiliated with the Catholic Archdiocese and were opened in 1947 and 1957 respectively. On the Bishop Miege North Campus, The Children's Garden Montessori School and Horizon Academy provide additional educational resources.



Community Center/ Library

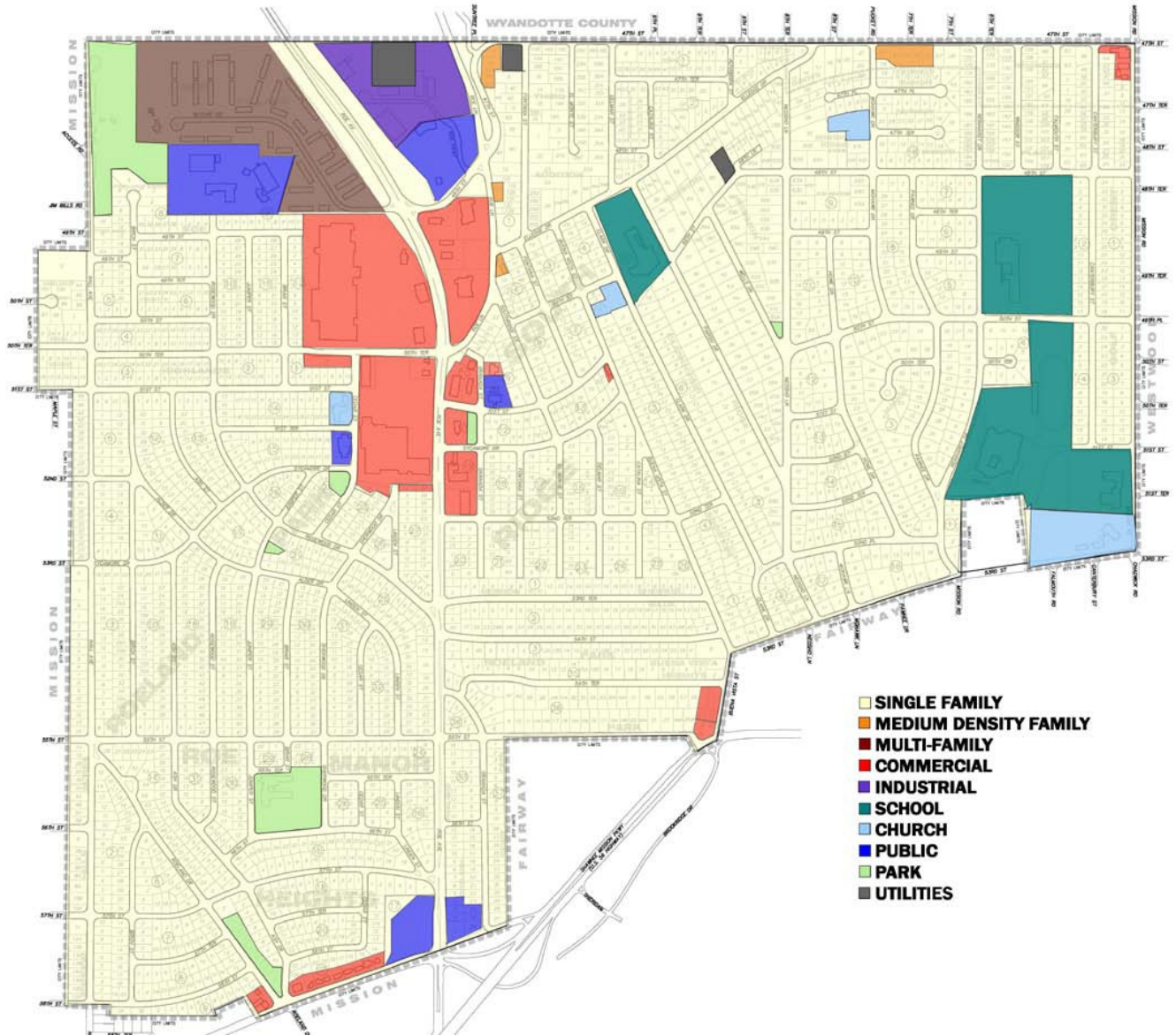
A strong community center is a source of pride for any community. Roeland Park's community center is located just south of Boulevard Apartments and east of Nall Park. The community center building, formally the Skyline Elementary School, was purchased by the city in the early 1980's. The city opened the Community Center's doors in early 1985. The center provides Roeland Park and the surrounding area with educational and recreation services.

A branch of the Johnson County Library sits at the corner of Cedar and 51st Terrace. The library provides local residents with an educational resource and access to the internet.

Land Use

Single family residential is the most prevalent land use in Roeland Park. Over 600 acres, or almost 80%, of the community can be classified as single family. Schools, with 53 acres, is the second most prevalent land use. Schools are followed by commercial (46 acres), multi-family residential (31 acres), open space (19 acres), semi-public (12 acres), industrial (11 acres), church (11 acres), utilities (4 acres), medium density (4 acres) and office (3 acres).

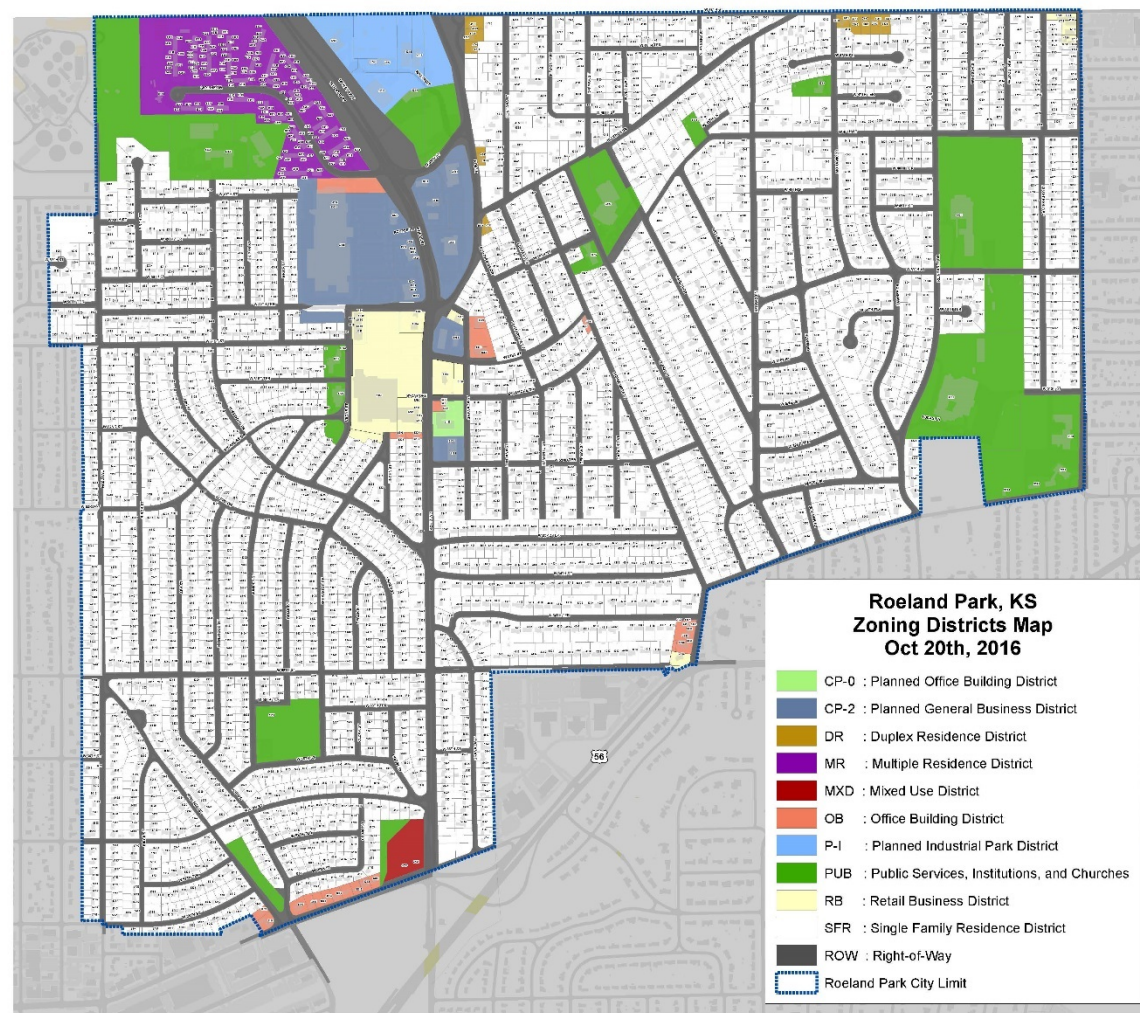
Existing Land Use Map



2.3 Zoning

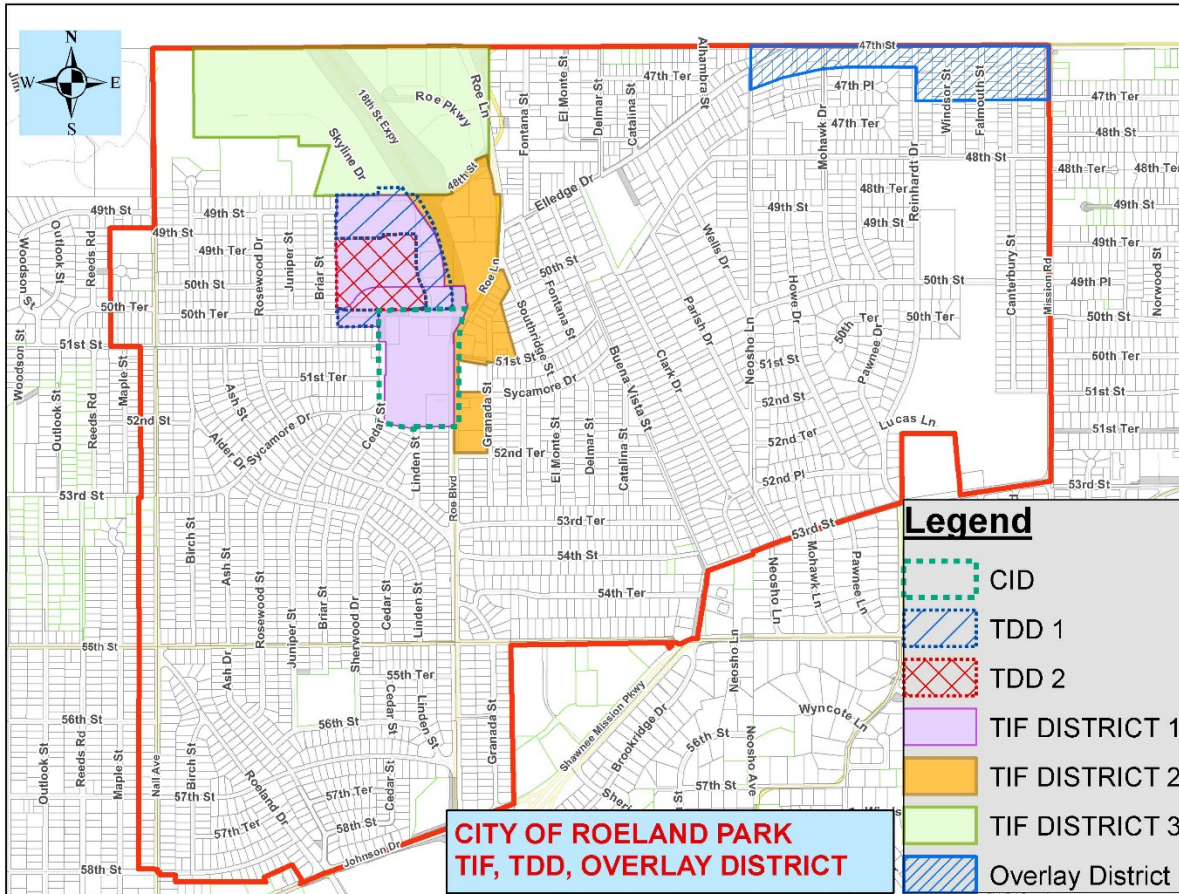
The Roeland Park Zoning Map designates the uses that are allowed on a given parcel. The Roeland Park Zoning Ordinances (Chapter XVI Zoning and Planning) are used to help shape the community’s future by enforcing an objective set of rules and regulations. In order to accomplish the vision and goals set forth in this comprehensive plan, ordinances may have to be created and/or modified. The proposed town and neighborhood centers will require a more multi-use orientated zoning district.

CITY OF ROELAND PARK, KANSAS
ZONING DISTRICTS



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Tax Increment Financing District (TIF), Transportation Development District (TDD) and Overlay District Map



SECTION 3 NEW AND NEIGHBORING DEVELOPMENTS

Introduction

Communities are impacted by factors that occur outside of their boundaries. These factors should be examined before any community plans a course for the future. Roeland Park's proximity to surrounding communities make these impacts likely to occur. Currently, a number of planning and construction projects are moving forward in and adjacent to Roeland Park.

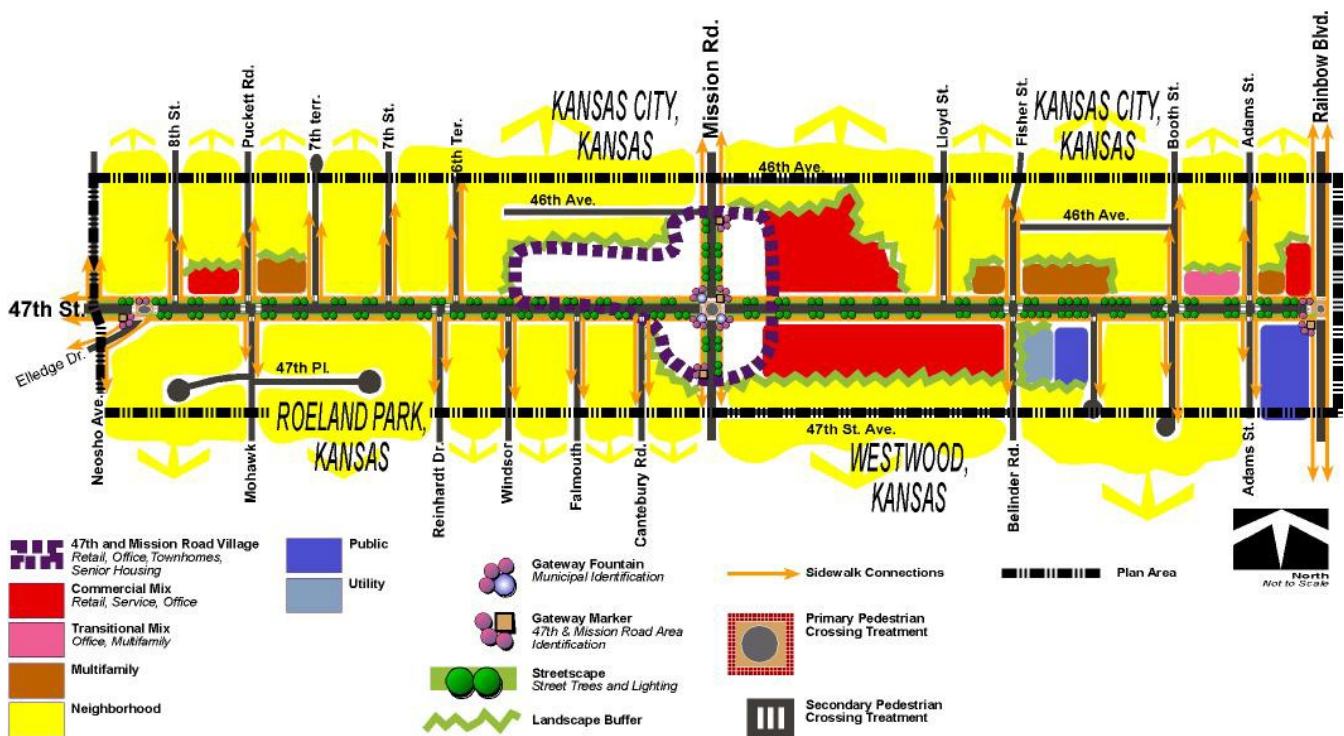
3.1 47th Street & Mission Road Area Concept Plan

A redevelopment plan for the 47th and Mission Road Neighborhood Center has continued to be a focus for the cities of Roeland Park, Westwood, and Kansas City, Kansas. An overlay district has been established as part of this redevelopment plan as shown on the Zoning Map and the Tax Increment Financing (TIF), Transportation Development District (TDD), and Overlay District Map.

The land at the southwest corner of 47th and Mission in Roeland Park was purchased by private developers in 2015. The buildings were demolished with the goal of installing a permanent sit-down restaurant. The developer also purchased a single family lot adjacent to the property and hopes to rezone to a planned district.

47th & Mission Road Concept Plan

Figure 1: General Framework

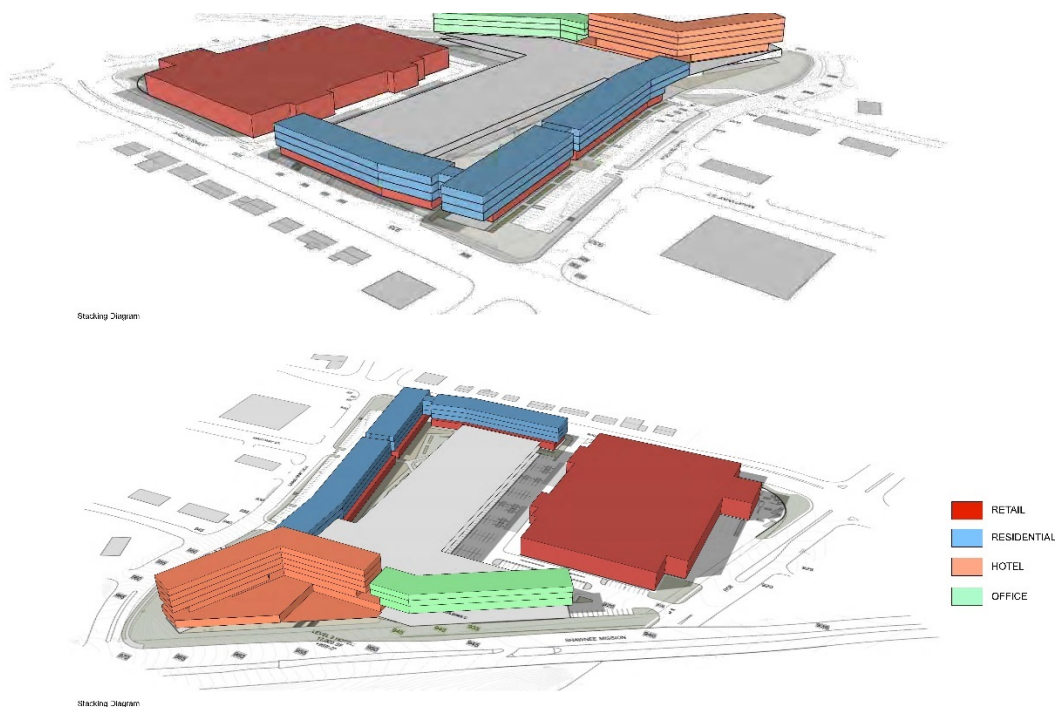


3.2 East Gateway Redevelopment Plan

In March of 2006, the cities of Mission, Roeland Park and Fairway, Kansas completed an unprecedented joint planning effort called the East Gateway Redevelopment Plan. This plan, with citizen input from all three cities recommends a mixed-use concept of residential/retail and office uses along the Johnson Drive corridor to correspond with and support the new redevelopment plan for the former Mission Mall Shopping center site. This 17 acre site on the southwest corner of Johnson Drive and Roe Boulevard was purchased in 2005 by The Cameron Group, a New York developer.

The Gateway development has received approval for mixed use of residential, office, retail, entertainment and public spaces compatible with each other. Features of the Gateway include, major anchor retail (1), office space (4), apartments (4), fitness center (3), boutique hotel (5), small store retail (2, 4), restaurants (4), The Kansas Aquarium (6), theater/entertainment, mid-size anchor retail, public park/green space.

The Mission City Council recently rejected a plan by the Gateway developer to install a mixed use development with a Wal-Mart Supercenter as the anchor tenant. Roeland Park's Wal-Mart was going to close upon the successful completion of the new Supercenter. Wal-Mart subsequently announced it was abandoning the Mission Gateway site and would redevelop the Roeland Park facility. The developer has pledged to return to the City Council with a new plan involving a mixed-use development.



FDP-002

FINAL DEVELOPMENT PLAN
OCTOBER 12, 2010

MISSION GATEWAY
eldorado OLSSON
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MISSION GATEWAY
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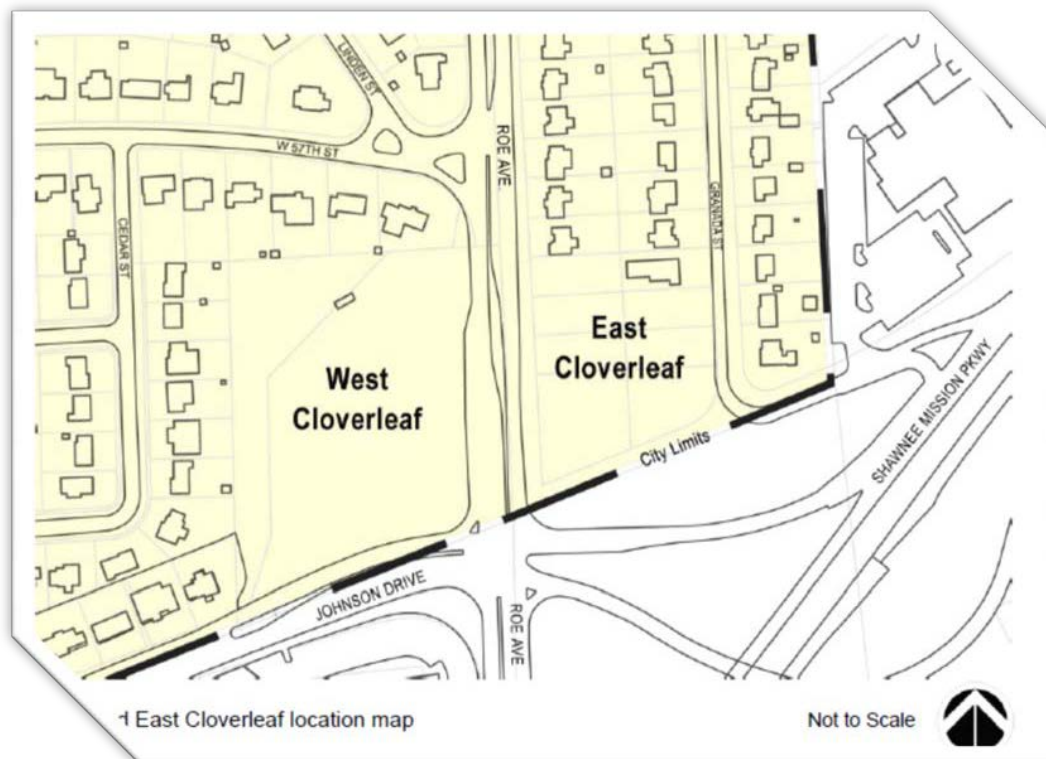
Stacking Diagrams

3.3 Johnson Drive/Roe Boulevard Interchange

In 2004, the cities of Roeland Park and Mission rebuilt the cloverleaf intersection at Roe Boulevard and Johnson Drive, leaving two potential sites for development north of the new intersection.. These two sites are referred to in this plan as the East and West Cloverleaf sites.

Specific improvements for these redevelopment sites are described in Section 5.3. The West Cloverleaf site was included in the East Gateway Plan referenced above, which called for a 10-16 story residential tower for future land use to complement the proposed tower on the Gateway project across the street to the south.

Proposed development at the east and west cloverleaf sites would include commercial, mixed-use or residential with consideration to the abutting residential properties.



3.4 Caves Site

This site is referred to in this plan as the Caves site. Specific improvement for this redevelopment is described in Section 5.3. Proposed development at this site would include planned restricted business or mixed-use.



SECTION 4 VISION AND GOAL

Introduction

The vision statement and goals have been revised to reflect changes that have taken place in Roeland Park since the last Comprehensive Plan was implemented. The revisions mainly affect civic development and housing revitalization issues. The revised goals are as follows:

4.1 Vision

Based on the Community Participation Process, a vision statement was formed. This vision is elaborated on further through the development of planning goals in four major categories.

To enhance the image, livability and long term sustainability of Roeland Park.

4.2 Planning Goals

- **Economic Development** - Actively promote quality redevelopment while maintaining a strong tax base. Pursue various scales of owner occupied housing ranging from single detached units to attached townhouses. Implement the visions and goals outlined for the 47th Street & Mission Road study area and the East Gateway Redevelopment Plan.
- **Infrastructure** – Plan, provide and maintain efficient and effective infrastructure that promotes sustained growth, connects neighborhoods and centers, is aesthetically pleasing, environmentally sound and meets the current and future needs of the community.
- **City Character/Image** - Strive to improve Roeland Park through quality civic and commercial development that creates a “sense of place” and promotes pedestrian traffic of appropriate scale and character. Work toward rebranding to establish a clear identity for Roeland Park. Work to preserve, rejuvenate and upgrade existing residential neighborhoods and encourage additional green space and trail linkages connecting neighborhoods and activity centers.
- **Implementation/Enforcement** - For the safety of all citizens, businesses and property owners in Roeland Park, equitably enforce all city property codes and regulations.

4.2.1 Economic Development

Objectives

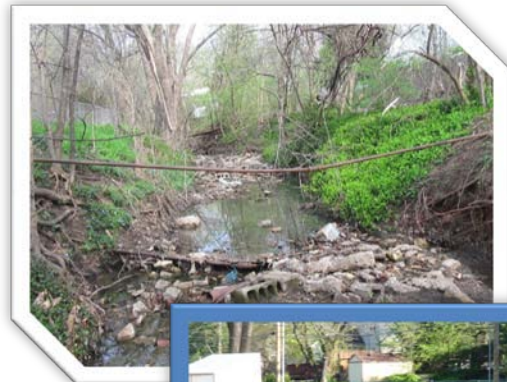
1. Pursue redevelopment of existing retail centers that promote multi-use/pedestrian-friendly development and adheres to the plan and direction set forth in this comprehensive plan.
2. Actively pursue improvements to the current shopping districts. Continue implementation of streetscape and landscape amenities.
3. Work with area businesses and property managers on an ongoing basis to improve the appearance of building facades and parking lots. Encourage future expansion of the Town Center Area. Work with area businesses and property managers to improve ingress and egress, parking efficiency, façade design and pedestrian accommodations. Improve East/West traffic flow across the Town Center Area.
4. Consider enticements and tax/property incentives to attract developers to projects deemed appropriate.

5. Promote somewhat higher densities of owner occupied residential redevelopment that adhere to the plan and direction set forth in this comprehensive plan. Examples of higher densities include townhouses and senior citizen facilities.
6. Promote preservation and improvements in existing single family neighborhoods to upgrade conditions and/or expand facilities while adhering to existing character and scale.

4.2.2 Infrastructure

Objectives

1. Support the development of a comprehensive pedestrian and bicycle trail network with linkages to and between residential and commercial areas.
2. Provide efficient and effective infrastructure that will promote and attract redevelopment that adheres to the plan and direction set forth in this comprehensive plan.
3. Seek roadway upgrades that promote traffic calming and other pedestrian-friendly improvements.
4. Continue Roe Boulevard improvements and add streetscape elements as outlined in Section 6.1.
5. Add and upgrade infrastructure so that it is aesthetically pleasing to residents and visitors and helps to improve the overall quality of life.
6. City will continue to adequately and equitably address the issues of storm water.
7. Promote east/west pedestrian movement across Roe Boulevard at the Town Center area. (see Section 5.1 Map)



4.2.3 City Character/Image

Objectives

1. Seek quality multi-use centers/commercial development that incorporates amenities as focal points, encourages street & sidewalk connections, creates a unique look and feel and becomes a destination and source of pride for Roeland Park.
2. Enhance the civic presence of Roeland Park's public amenities such as the City Hall, Community Center, library, parks, public art, and gateways to the community.
3. Preserve integrity of existing neighborhoods by encouraging maintenance, upgrading, paint programs, tree planting and public art.

4. Consider creating design guidelines that serve as a framework for all new development and building additions and renovations. Consider the implementation of requirements for sustainable green building design components.
5. A trail system should be developed that is aesthetically pleasing, connects existing greenspace and schools, promotes development of future greenspace, brings neighborhoods together and connects residential to commercial destinations.
6. Develop a consistent branding/marketing strategy for the City of Roeland Park and an implementation strategy for new development and redevelopment.
7. Continue to successfully participate in Tree City U.S.A. program.

4.2.4 Implementation / Enforcement

Objectives

1. Continue and maintain equitable enforcement of city codes and regulations.
2. Promote codes and regulations that encourage continuity and transition between commercial and single family neighborhoods.
3. Encourage codes and regulations that adhere to the vision, goals or objectives of the plan as developed in the community participation process.

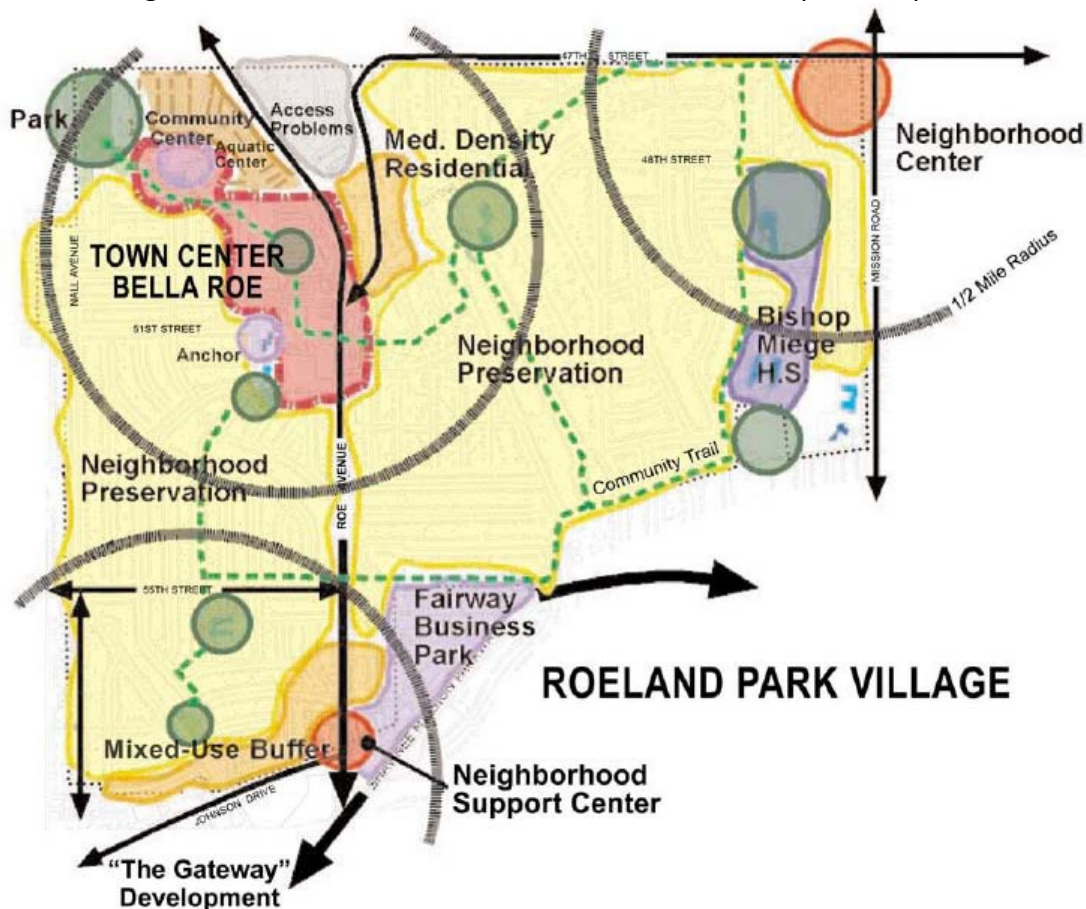
SECTION 5 LAND USE AND DEVELOPMENT PLAN

5.1 Roeland Park Village Center Concept

Roeland Park Village Centers concept envisions a series of walk-able villages. Each village would be centered around a mixed-use cluster consisting of parks and open spaces, a trail/bikeway connection, institutions, retail and residential. Although the exact nature of each village center would be market driven, a premium would be placed on the clustering, coordination and land use integration of these and other uses.

Three village centers of varying scale and character are envisioned for Roeland Park: Town Center, 47th & Mission Neighborhood Center and Gateway Development/Johnson Drive Regional Center. A small neighborhood support center, at Roe Boulevard and Johnson Drive, supportive of the Gateway Development/Johnson Drive Regional Center.

This concept was overwhelmingly favored by community participants in the 2002 planning process, although it was recognized that this was the most difficult of the concepts to implement.



The concept balances new development, redevelopment and open space on the critical city-owned properties within the scale, density and character of Roeland Park. It optimizes a new southern gateway to the city from Johnson Drive, enhances Roe Boulevard as the spine through the community, increases housing options within the city and acknowledges the city's single-family residential foundation of affordable housing.

5.2 Village Centers

The Roeland Park Development Framework contemplates three types of village centers: neighborhood center, town center and regional center. The three types of centers will be different in overall size, however, each village center will be designed to include or be linked to the following:

- Compact, walkable neighborhoods with approximately a one-half mile walking radius
- Public space, such as a square or an important intersection
- Pedestrian/bicycle trails and open spaces linking all villages
- A commercial and/or institutional core that responds to market-driven realities

Neighborhood Village Center

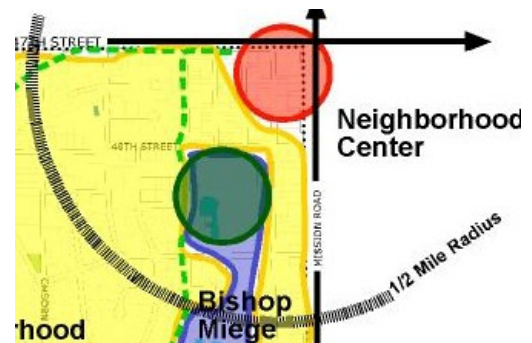
Description A Neighborhood Village Center is a mix of residential uses supporting a small commercial/retail development with locally focused services.

The Roeland Park Comprehensive Plan designates the 47th Street & Mission Road intersection as the neighborhood center. The Plan also designates a neighborhood village support center at the Roe Boulevard & Johnson County intersection.

Service Area Neighborhood Village Centers are intended to provide convenience, goods and personal services with an approximate 1/2-mile service area radius. Residents of Roeland Park, Westwood and Kansas City, Kansas would be within walking distance to this village center.

Size This center is relatively small and focused on providing neighborhood-level services, for example: grocery store, personal services (dry cleaning, beauty salon, bank), restaurant and gas station. These convenience uses can be provided in an area of 60,000 to 150,000 square feet on approximately 8 to 15 acres.

Location Neighborhood Village Centers should be located adjacent to the intersection of arterial and either arterial or collector streets. Pedestrian accessibility, should be assured.



<i>Uses</i>	• Park, trails or public space • School(s) • Religious institution(s) • Local retail and personal services • Single family residential	• Recreation facility • Day care (children or adult) • Neighborhood market • Multi-family residential • Small professional offices and clinics
<i>Amenities</i>	• Public or private parks • Additional width of greenspace between sidewalk and curb • Selected roundabouts at four-way intersections • Greenspace and trails providing pedestrian and bicycle access • Reserved school/ institutional sites • Landscaping and streetscaping	• Tree lined streets
<i>Policies</i>	• Promote the inclusion of amenities as focal points • Protect existing neighborhoods from intrusion of incompatible land uses; ensure that neighborhood villages have identifiable centers and edges • Ensure pedestrian accessibility • Provide a public gathering place • Encourage street and sidewalk connections • Nonresidential buildings should provide space for multiple tenants and uses	

Neighborhood Village Support Center

The Neighborhood Village Support Center is called for at the intersection of Roe Boulevard and Johnson Drive.

The Support Center is envisioned as a mixed-use center; guided by the principles and policies that shape the larger Neighborhood Village at 47th Street and Mission Road. Smaller in size (roughly 7 acres) and in relatively close proximity to the Regional Center, the Support Center supports the Gateway Development and acts as the prominent southern gateway into Roeland Park.



Town Center

Description A Town Village Center is intended to be the focal point of Roeland Park. Within this village center, residents and visitors will find retail shopping, restaurants, entertainment, cultural institutions, workspace, governmental functions and a sense of place and destination.

Service Area The Town Village Center is intended to serve both Roeland Park and neighboring communities as well.

Size The Town Village Center should include 100,000 to 350,000 square feet of gross floor area on a total of 20 to 40 acres.

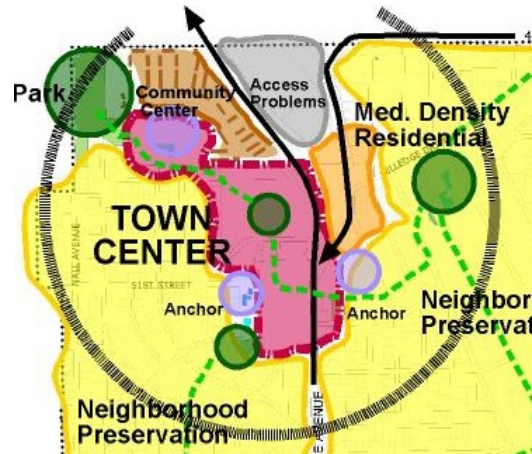
Location The Town Village Center should be located within the existing commercial district at the intersection of Roe Boulevard and 50th Street. The Town Village Center may incorporate existing or redevelop “big box” stores and/or strip malls.

Uses

- Retail sales and services
- Office and workspace
- Multi-family residences
- Mixed-use developments
- Public institutions
- Single family residences (detached and attached)
- Park, trails, open space

Policies

- Uses that generate high levels of pedestrian traffic are encouraged
- Residential uses should be considered as part of a mix of uses within a building
- Streets and public spaces should be designed to enhance pedestrian and bicycle activity, creating easy access to public library and community center
- Town Center should bring together east and west Roeland Park by creating a central destination.
- Small parks and open spaces are encouraged to link trails and higher traffic uses



Regional Center

As stated in Section 3.2, the East Gateway and businesses along Johnson Drive are located just south of Roeland Park. This retail area has a more regional pull attracting people from northeast Johnson County, Wyandotte County and western Kansas City, Missouri.

Roeland Park has minimal influence on decisions made involving this Regional Center. However, Roeland Park can take advantage of the neighboring center and the destination it creates. The Plan calls for the land within Roeland Park and adjacent to the retail center to be phased into townhouses over time and to connect the Regional Center to existing neighborhoods, the future Town Center and the nearby Neighborhood Support Center by extending a trail system south to Johnson Drive. This would be beneficial to Roeland Park for the following reasons:

- Townhouses would create a buffer between the single family residential and commercial uses, lowering noise and light pollution and stopping possible commercial expansions into Roeland Park neighborhoods.
- Higher density townhouses would attract people wanting to live on streets of higher traffic and commercial activity.

- Increased density would bring more disposable income to the Regional Center.
- Additional trails and green space both enhance the area and connect the Johnson Drive corridor to the rest of the community.

It would be beneficial for Roeland Park officials to work with the City of Mission on issues pertaining to the future growth and development of the Gateway Development/Johnson Drive Corridor. This cooperation should be similar to the tri-community effort that produced the *47th and Mission Road Area Concept Plan*. (Section 3.1)

Key Development Components

- The West Cloverleaf Site, owned by a private developer , is being developed as a mixed use district zoning category.
- An assessment of highest and best use should be completed on the East Cloverleaf Site to establish the best use of this site in light of its size, neighboring uses and accessibility. This assessment along with this comprehensive plan should then serve as the plan for redevelopment of the site..
- Johnson Drive, between Roe Boulevard and Ash contains commercial property along the northside within the City of Roeland Park. In the Johnson Drive Corridor Design Guidelines, this corridor was recommended to change from single-family home conversions of sparse retail and commercial uses to redeveloped two and three-story mixed use to complement the planned retail and residential uses across the street. Existing houses would remain to the north.
- Development of the Caves Site (Site 4) as a mix use that may include multi-story structures. The development should take into account the Former City Pool Site Design Guidelines.

Key Open Space Components:

The City should prioritize and implement the recommendations of the City's Park Master Plan.

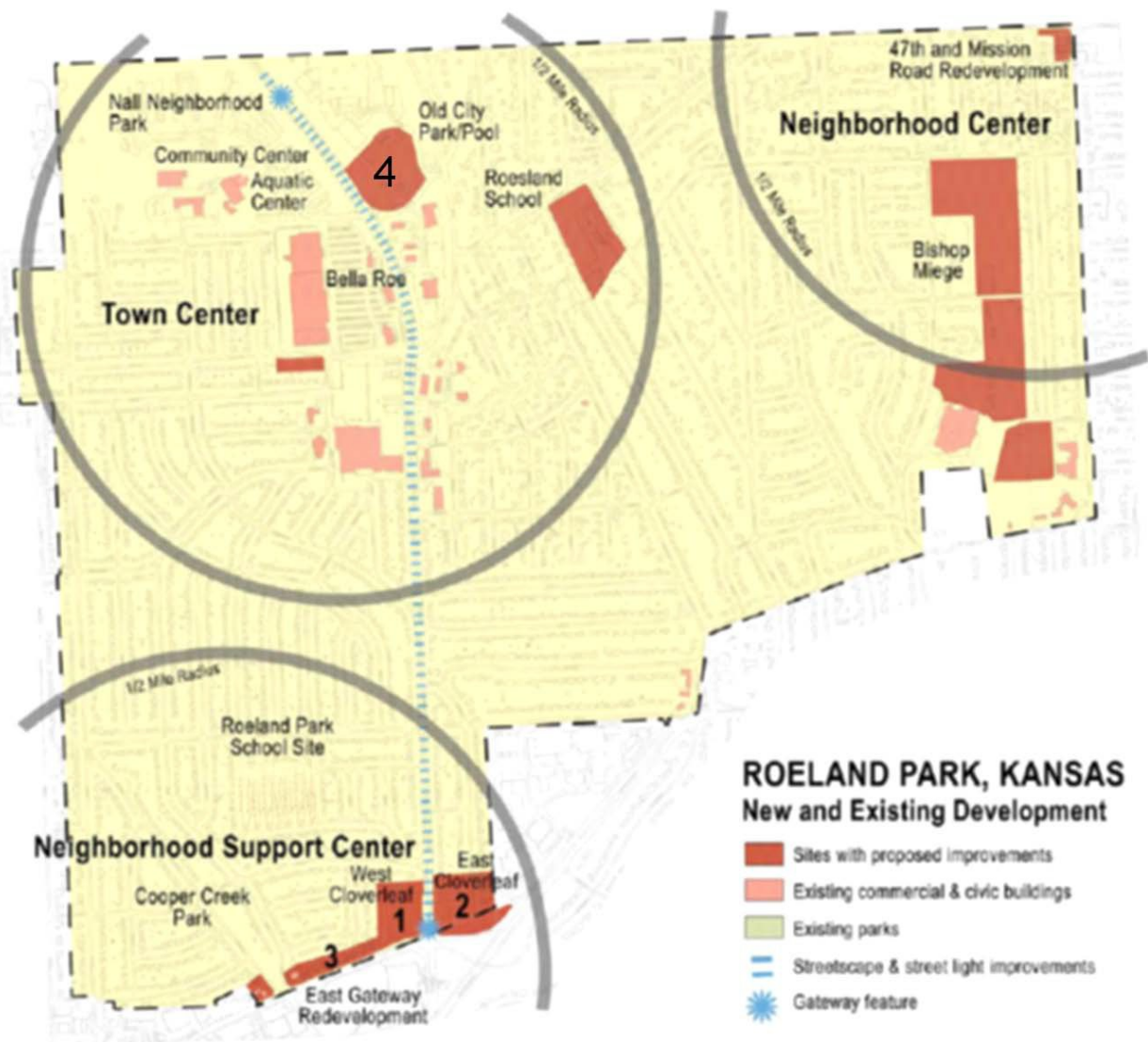
Key Neighborhood Components:

- The City must continue to enforce its property and maintenance codes to keep existing neighborhoods attractive and healthy.
- The City should maintain its involvement in the Mid-America Regional Council's First Suburbs Coalition, to capitalize on innovative loan programs and helpful information for residents on maintaining the marketability of post World War II era housing.

Key Streetscape Components:

- Decorative lighting
- Street trees
- Decorative pavement
- Crosswalks
- Plantings; and
- Other amenities, including formal gateway treatments.

5.3 Site Enlargements



SITES 1 & 2 - Cloverleaf Sites

The properties located north of Johnson Drive at Roe Boulevard, are the result of the interchange reconfiguration completed in 2004. Both sites provide prime development opportunities for the City. During the course of the 2007 Comprehensive Plan the development plans for both parcels were revisited because of additional public input.

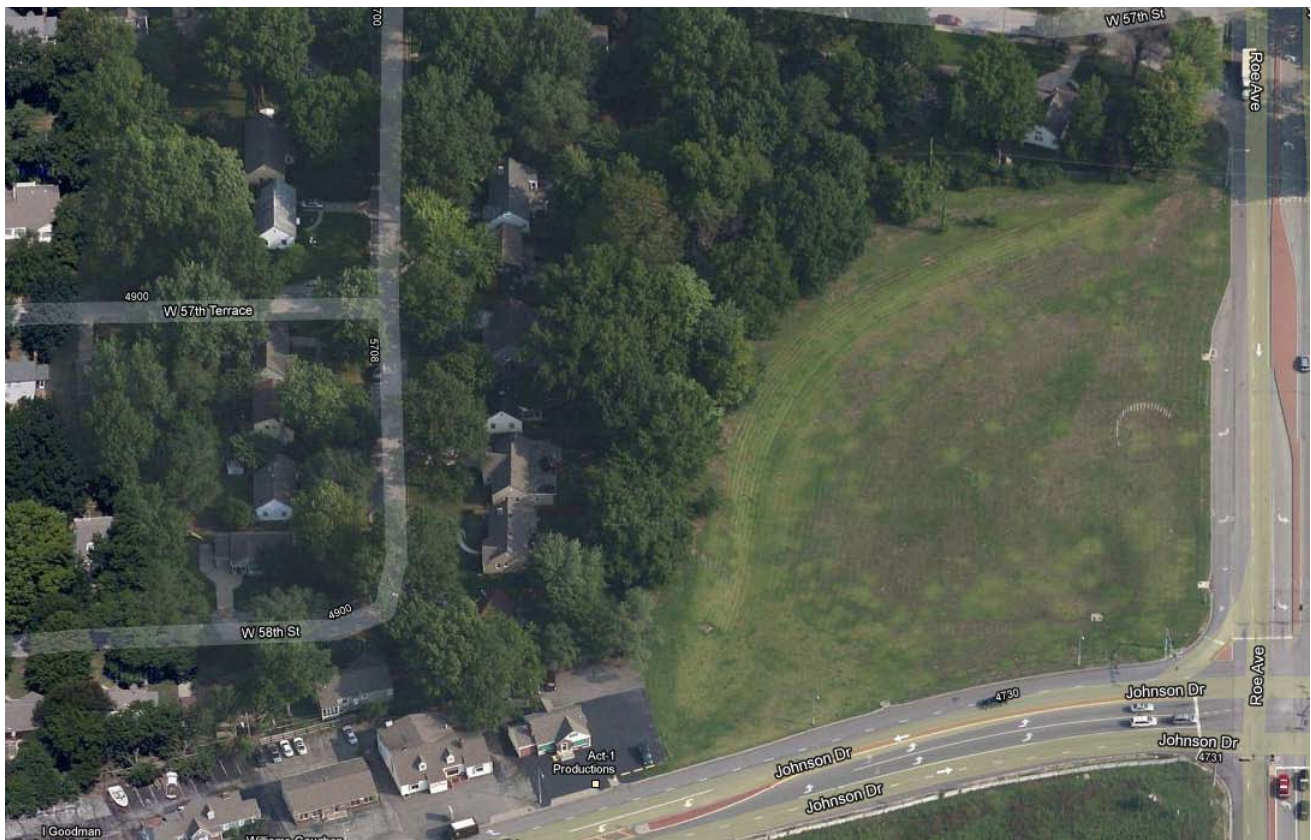
SITE 1 - West Cloverleaf

Goals and Objectives for consideration:

- **Preserve adjacent single family residential neighborhoods**
- **Create a prominent south gateway entrance into Roeland Park**

A mixed use and/or planned business district development should be explored on the City owned West Cloverleaf site.

The West Cloverleaf property was purchased by Commerce Bank in 2012 and subsequently rezoned to Mixed Use Development (MXD). Commerce Bank's original plans were to construct a new bank with drive through facility and sell a portion of the property for retail development. In 2016, the bank announced new plans to construct a 2,300 square foot bank with drive through and plans to sell the west section of the property to a small hospital facility which intends to build a 17,000 square foot building.



Proposed Development at the West Cloverleaf at Roe Boulevard and Johnson Drive

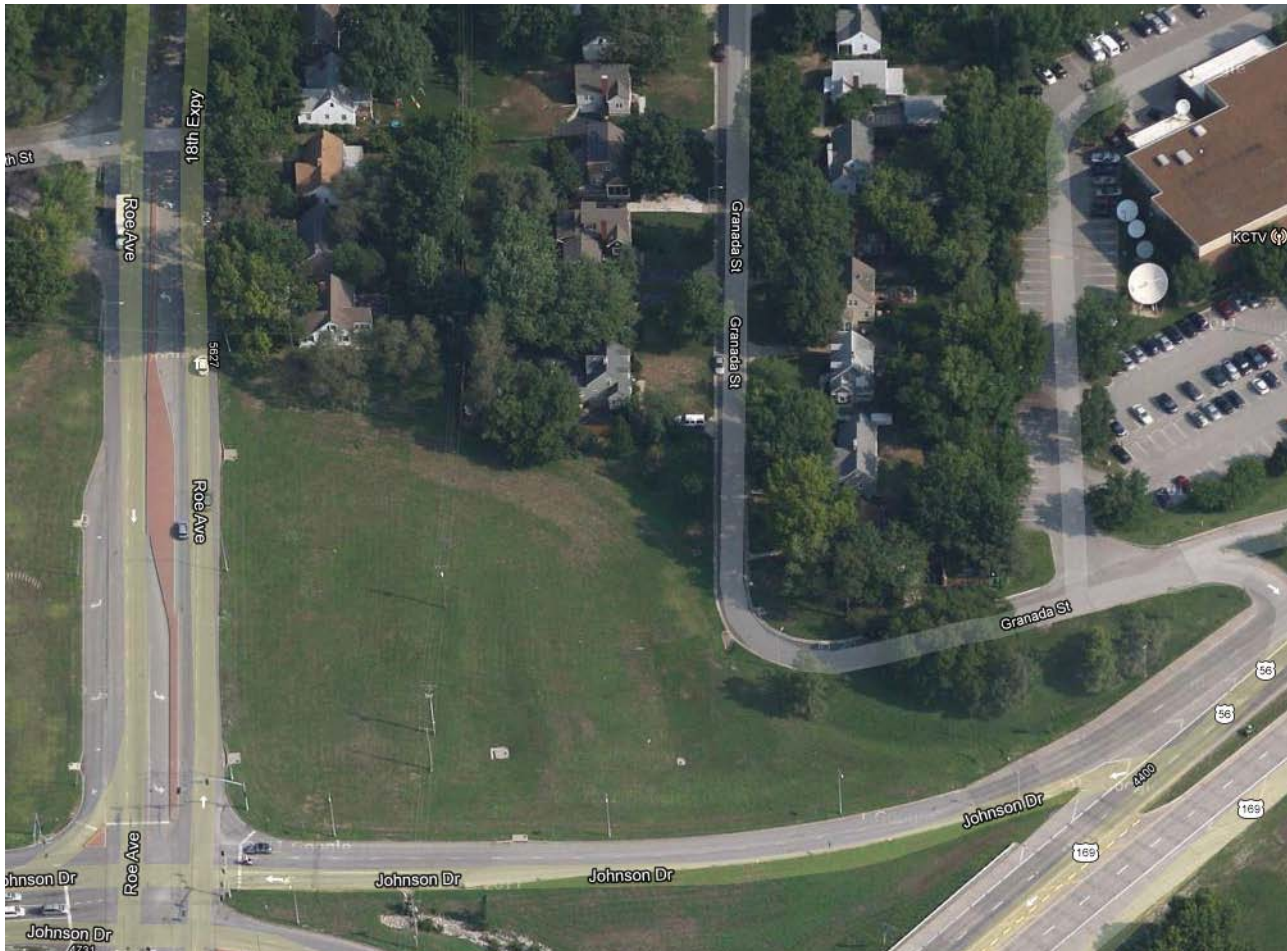


SITE 2 - East Cloverleaf

Goals and Objectives:

- **Create a prominent south gateway entrance into Roeland Park**
- **Enhanced City beautification with trail connection and prominent green space**

Development that occurs on the east cloverleaf should be the result of an assessment of the highest and best use of the property taking into consideration its size, the neighboring homes and accessibility. Roeland Park and the City of Mission have partnered to work toward a development plan for this property largely owned by the City of Roeland Park. Staff is working with the Right-of-Way acquisitions team at the Kansas Department of Transportation to acquire that property for future development.



SITE 3 - North side of Johnson Drive Redevelopment

Goals and Objectives:

- **Promote the economic development**
- **Promote quality redevelopment with various mix of residential, office and/or retail**
- **Create a landmark to promote a positive image of Roeland Park.**

The privately-owned sites north of Johnson Drive between the West Cloverleaf and ½ block west of Roeland Drive were included in the East Gateway Redevelopment Plan study area.



The City has created Johnson Drive Corridor Design Guidelines, see Appendix 8.1.

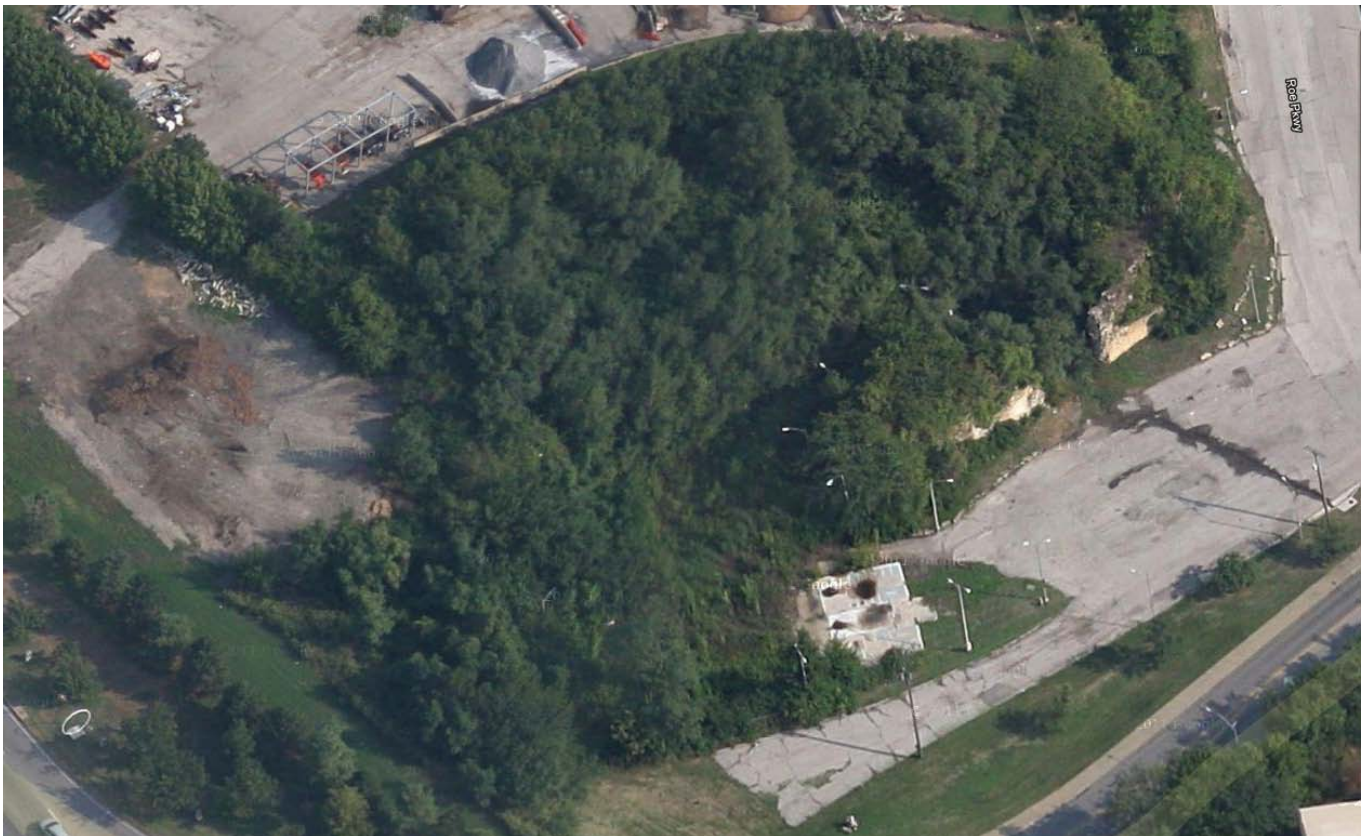
SITE 4 - Caves Site Redevelopment

Goals and Objectives:

- **Promote the development of single or multi-story buildings**
- **Promote quality redevelopment with various mix of residential, office and/or retail**
- **Create a landmark to promote a positive image of Roeland Park.**

Though it occupies a prominent position in relation to the Bella Roe commercial development, the City owned site definitely has its challenges. In 2014, the City combined TIF 3A and 3B into one development district. The TIF for the former pool/caves site is set to expire in February 2018. In response, the City embarked on an intensive redevelopment effort in 2015 by forming an Ad-Hoc Development Committee consisting of three council members and the mayor. The City also hired a development consultant and enlisting the support of City engineers to determine the structural integrity of the caves. After a geotechnical review, experts determined the remaining caves were no longer structurally sound and must be filled or demolished. In 2016, the City entered into an agreement with a contractor to fill the caves and bring the property to grade. In addition, City officials are seeking to relocate the Public Works Department from the industrial park site to a new building off-site so the land will be available for further redevelopment. The City intends to use funds from the TIF District to prepare the site for development as much as possible before the 2018 TIF expiration date.

Site goals include creating a regional landmark with an anchor tenant, a mix of lodging and restaurants.



The City has created Former City Pool Site Design Guidelines, see Appendix 8.2.

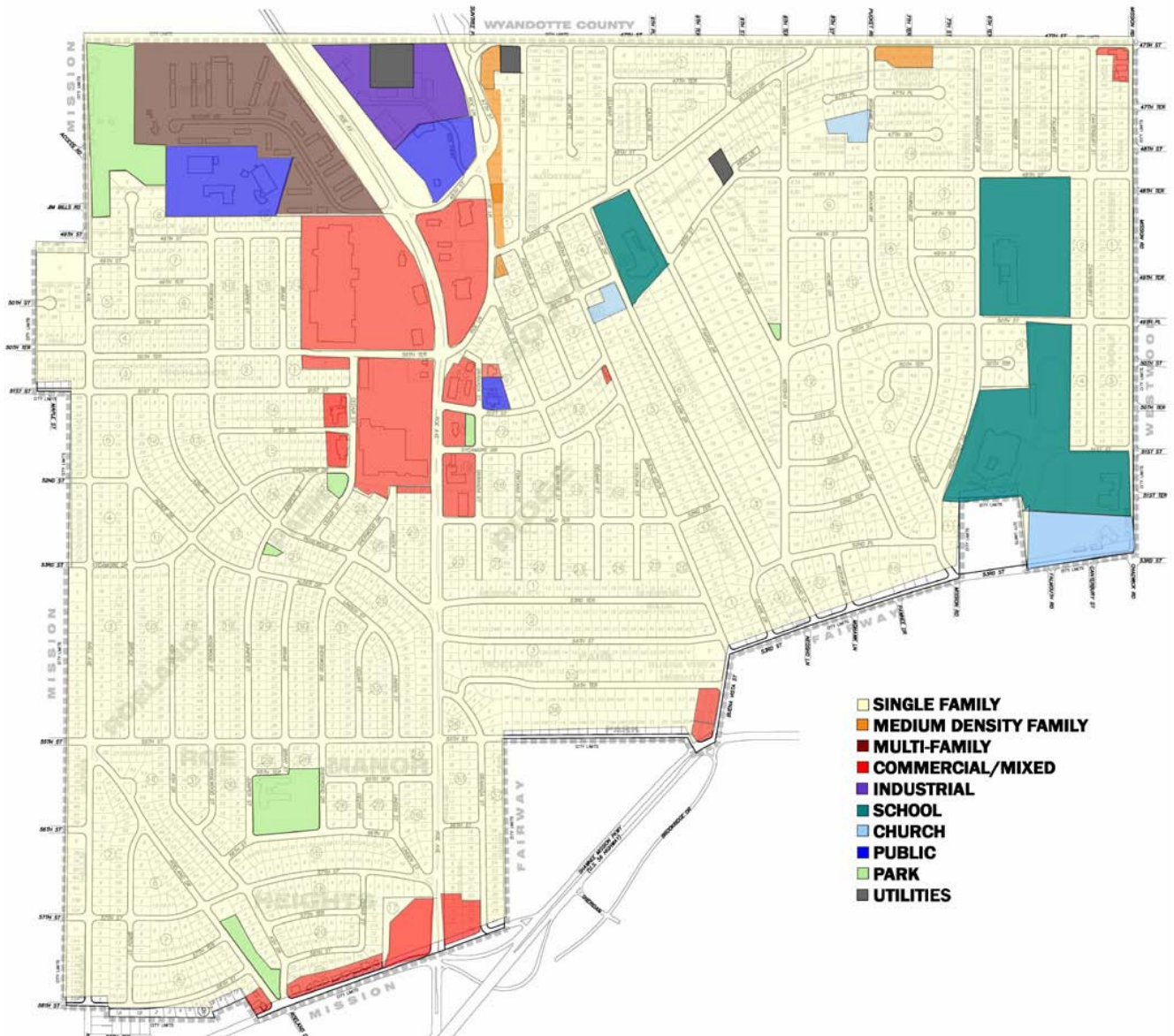
5.4 Future Land Use

The future Land Use Map has been updated to reflect recommendations of this Comprehensive Plan.

The vision for future land use in Roeland Park is guided by the ideas illustrated in the *Village Centers* concept plan shown in Section 5.2. The focus of the future land use should be to accomplish the following:

- Preserve and enhance the existing single family residential neighborhoods
- Create a quality retail destination by transforming existing commercial from auto-oriented to pedestrian friendly development
- Promote owner occupied higher density uses, such as townhouses and senior citizen facilities, within and adjacent to the village centers
- Use existing churches, government institutions and other semi-public uses as anchors for the centers
- Connect neighborhoods to other neighborhoods and to commercial activities through a pedestrian/bicycle trail system
- Minimize the physical and perceived divide that Roe Boulevard creates through such means as pedestrian crosswalks, landscaping and other traffic calming methods stated in this plan

Future Land Use Map



5.5 Housing & Neighborhoods

The residential neighborhoods of Roeland Park make up the cornerstone of the community. Through the “community survey” residents of Roeland Park stated that preservation of existing housing and neighborhoods is one of the most important future issues. This section discusses various ways in which citizens and city officials can preserve their present neighborhoods by planning for the future.

Residential Transition Zone - Townhouses

Townhouses is a type of medium-density residential that the comprehensive plan suggests, in certain areas, for the future Roeland Park. Townhouses can be incorporated into the mixed-use category used in the future land use map (Section 5.4). Located adjacent to the outer limits of the mixed-use centers, along busy roadways or adjacent to more intense land uses, this medium density housing type acts as a buffer between single family residential areas and more intense land uses. This protects and preserves the residential neighborhoods by limiting noise pollution, light pollution and by stopping commercial encroachment. Higher density, such as townhouses, must occur in designated areas with a minimum of eight units, or approximately 1/2 block. This is intended to maintain a sense of order and to discourage the use of higher density in small infill projects.

Residential Transition Zones are conceptual in nature. The intention of the zone is to preserve neighborhoods by protecting established residential areas from encroachment of adjacent uses of higher intensity. This plan deems appropriate the use of townhouses in transition zones, providing the proposed development fits the style and character of the adjacent neighborhood. Areas deemed as “Residential Transition Zones” may be subject to change as the community evolves and the extent of their application will be monitored and evaluated by the city on a case by case basis.



Senior Housing

Senior housing is another higher density residential use. Senior housing can be a solid anchor to a mixed-use center. The pedestrian scale of a mixed-use center is well suited for the elderly. The aesthetics and open space that often accompanies a mixed-use center is desirable to senior housing residents.

Building Codes/ Enforcement

Building codes and the fair and proper enforcement of existing building codes can be a great tool to maintain preservation and foster improvements. Roeland Park must continue to have equitable enforcement of existing codes and implement future codes that adhere to the vision and goals of the plan as developed in the community participation process.

Streets & Sidewalks

Proper upkeep and maintenance of existing streets and sidewalks is crucial to the continued preservation of residential neighborhoods. Additional sidewalks between neighborhoods and commercial centers will create a more walkable community and encourage pedestrian traffic.

Pedestrian Crossings - Roe Boulevard

In an attempt to minimize the divide created by Roe Boulevard, create better pedestrian access to neighborhoods and the proposed town center, and to create a safe and friendly environment for pedestrians the city should examine and identify key pedestrian crossings for Roe Boulevard. These future crossings should take advantage of existing signalization and should avoid adding additional traffic stops. Incorporation of the pedestrian-friendly crossings to a future trail system is encouraged.

Possible key pedestrian intersections are:

1. Roe Boulevard & Roe Lane
2. Roe Boulevard & 51st Street
3. Roe Boulevard & 55th Street
4. Roe Boulevard & Johnson Drive

These intersections should be evaluated further prior to determining the most appropriate crossings.



5.6 Transportation

Transportation planning needs to incorporate all forms of transportation. These forms of transportation can include automobile, pedestrian, bicycle and public transit. Roeland Park has been designed around the automobile. Strip commercial, large parking lots and multi-lane streets were all designed with the motorist in mind. The following suggests a future for Roeland Park designed with the pedestrian in mind. Through a multi-modal approach to transportation citizens of Roeland Park can enjoy a renewed quality of life while maintaining the convenience of the automobile.

Roe Boulevard

Roe Boulevard is a major north/south roadway that connects eastern Johnson County to I-35 and the 18th Street Expressway and Kansas City, Kansas. Thousands of cars travel daily on this 5-lane road which divides Roeland Park in half. Roeland Park has limited influence in changing the physical attributes of Roe Boulevard, such as vehicle capacity and number of lanes. However, Roeland Park can influence future growth and change in the land adjacent to Roe Boulevard. An effort should be made to promote and implement traffic calming techniques that are consistent with roadway characteristics. Such techniques as altered speed limits, additional landscaping and smaller building setbacks can go a long way in calming traffic. Calming traffic in turn will promote a more pedestrian friendly environment, create greater ease at ped-crossings, make motorists more prone to stop at the adjacent commercial center, and help bridge the community divide that was created by Roe Boulevard.

Road Network

Roeland Park has a road network that was formed from a compilation of neighboring subdivisions. As a result connecting streets are rare, making travel between neighborhoods somewhat difficult. East/west access is limited. Fifty-fifth Street is the only true east/west through street in Roeland Park. Both 50th Street & 51st Street are impeded by the existing commercial center. Improvement to east/west vehicular traffic movement should be encouraged in the redevelopment of the town center district. Since Roeland Park is a landlocked community built to its borders, future expansion of the road network is not likely. A focus should be made on continued upkeep and maintenance. Aesthetics and impact on adjacent neighborhoods should also be taken into account.

Trail System

The Preferred Plan discussed in Section 5.2 envisions a community wide pedestrian/bicycle trail system connecting existing parks and open space to surrounding neighborhoods and destinations such as: village centers, parks, local schools, the community center; and the public library. The trail system would bring continuity to Roeland Park by connecting neighborhoods. The trail system would be used as a form of recreation and as a means of getting to and from community activities. Trails may be associated with existing sidewalks and streets or, in some instances, build on those existing assets. Landscaping, vegetation and public art would be incorporated; taking into account the feasibility and availability of land and right-of-way.

Transit

Transit is an important component of any community. Currently Roeland Park is serviced by the regional transit authority, KCATA. Currently, Johnson County is exploring the possibility of commuter rail that connects Johnson County to downtown Kansas City, Missouri. The proposed route is planned to run parallel to neighboring I-35. KCATA added additional stops in Roeland Park in 2016 through a new transit line traveling through Kansas City, KS. Roeland Park should pursue their relationship with a potential train stop and/or a bus line connecting the City to the rail line.

Funded in part by the County Assistance Road System (CARS) program and the Surface Transportation Program (STP), Roeland Park intends to redesign Roe Boulevard starting in 2018. The project will include new streetscape to include lighting and landscaping, sidewalk extensions, street resurfacing, and new signals. The Pedestrian and Bicycle Safety Ad Hoc Committee report will help guide the redevelopment of Roe Boulevard. The project will help create an identity for Roeland Park and provide landmark elements for the City.

5.7 Public Facilities/ Infrastructure

Public facilities and infrastructure are general terms that refer to a broad array of services that communities provide their citizens. Safety, education, culture, government, recreation, transportation and water are just a few of the many services provided. These daily conveniences are often taken for granted. Citizens pay for these services, daily, through local property and sales tax. Many times families and individuals compare communities' public facilities before deciding to purchase a home or start up a business.



Library/ Community Recreation Campus/ City Hall

A library, community recreation campus and city hall are among the public buildings in Roeland Park. These local facilities provide Roeland Park with centers for learning, recreation, arts and culture. They also house important offices such as the local government and police. The library and community center are located in proximity to the new Bella Roe commercial center. The library and community center anchor the **Town Center** zone of the Land Use Plan, enhancing ongoing residential and retail growth of this area.



Stormwater

In the early 1990's the City created one of its first benefit districts to construct storm water improvements in the Elledge Drive / Fontana Drive (Turkey Creek Drainage areas). To date nine benefit districts have been created encompassing approximately 2260 properties or 80% of the City. The purpose of any storm water improvement project is to reduce flooding and potentially redefine certain properties that are no longer in designated flood zones.

Sidewalk & Park Master Plan

A well maintained park and trail system is important to the growth and preservation of any community. Parks and trails provide communities a place for recreation and relaxation. Parks and trails also create a central point, add to community aesthetics and encourage pedestrian traffic. When local parks and trails are planned in a comprehensive manner, the trail system links existing and future greenspaces together. Better pedestrian access between neighborhoods and to and from village centers is also attained. See Appendix 8.3, 8.4.

SECTION 6 FORM AND FUNCTION

Good design is paramount to the sustained development and longevity of any community. The identity of a community or neighborhood is often times determined by its aesthetics, scale and quality of design. Design is more than simply the face of buildings, but expands to include the quality of materials, the scale of public spaces and neighborhoods, pedestrian linkages between land uses, streetscapes, green spaces and the community's willingness to accept innovation. The following design concepts are intended to incorporate and further these ideas.

6.1 Commercial/Public Places

Site Design

- A defined system of streets should serve the needs of pedestrians and cars equitably, providing multiple routes where possible.
- New and infill development should include open spaces (plaza park, green space) for social activity and recreation.
- Exterior lighting should be provided at a pedestrian scale and should coordinate with building architecture and landscaping.
- Gateway features or monuments can be added to enhance the "sense of place" and creates a visual cue that the area is a distinct, special environment.
- Buildings should be located to front toward and relate to public streets, both functionally and visibly, to the greatest extent possible.
- Streets, sidewalks, neighborhoods and districts should be connected both physically and perceptually to the extent feasible. It is important that a continuous pedestrian link is implemented and maintained throughout the community.
- Schools, churches and/or government buildings shall be used to anchor neighborhood village centers and shall be designed to create visual anchors.
- Building orientation should respect the context of surrounding buildings, existing pedestrian ways and sidewalks, and surrounding streets.
- Landscaping can contribute to community's image and "sense of place". Landscaping provides color, highlights desirable spatial enclosures, framed entrances, and it provides a soft element in the hardscape environment.
- Streetscape improvements on Roe Boulevard within the Bella Roe commercial area should be considered for the length of the Roe Boulevard Corridor in Roeland Park. These improvements enhance both vehicular and pedestrian environments and identify Roe Boulevard as the major roadway linking the North/South Gateways to the City. The improvements include decorative lighting, street trees, decorative pavement, crosswalks, plantings and other amenities, including formal gateway treatments.

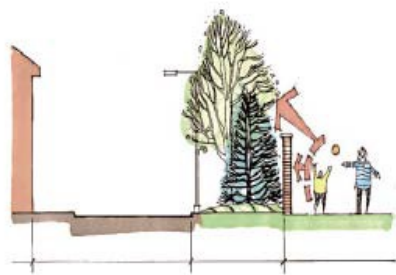
Building Design

- Parking should be located behind or at the side of buildings to the greatest extent possible, and shall be screened.
- Building entrances should be clearly identifiable and directly accessible from a sidewalk.
- Additions to existing significant buildings shall not destroy the materials or design that characterize the property and shall be compatible with the massing, size and architectural features of the existing structure.
- Compatible design need not be created through historic replication, but should reflect a consideration of the scale, material and massing of the adjacent and surrounding buildings.

- Encourage design (building materials, window size and placement, general facade composition) of all sides of buildings with consideration given to views from adjoining lots.
- Non-residential buildings should be designed and located to respect and provide an orderly transition to the scale of adjacent residential buildings.
- All rooftop air conditioning and heating equipment should be screened from view.

6.2 Residential Neighborhoods

- Encourage developments with mixtures of housing types, densities and land uses.
- Streets, sidewalks, neighborhoods and districts should be connected both physically and perceptually to the extent feasible.
- Pedestrian/bicycle links connecting east and west Roeland Park are essential to lessening the divide caused by Roe Boulevard.
- Pedestrian/bicycle links can be used to connect existing and future green spaces.
- Multi-family residential and landscaping can be used to buffer existing single family residential neighborhoods from noise and light pollution caused by surrounding commercial activity and high traffic counts.
- Establish and/or preserve a neighborhood's identity. Identity can be fostered by elements such as a central gathering point, school or interaction between neighbors.



Residential Buffering



Neighborhood Parks



Neighborhood Identity



Multi-family structures in the form of townhouses are envisioned in the Villages Scenario. The townhouses are to be located within proximity to a neighborhood/town center or along high traffic corridors such as Roe Boulevard and 47th Street buffering lower density residential from the arterials and commercial activity. Other types of multi-family encouraged would be senior housing developments that exhibit similar architectural character.

SECTION 7 IMPLEMENTATION

7.1 Development Toolbox

The residents of Roeland Park have a number of implementation tools available. These tools include the following:

<i>Zoning Regulations</i>	A city’s zoning ordinance (establishing use districts and regulating placement, spacing and size of land and buildings) is one of the most flexible, and therefore most important, tools of land development regulation and guidance. The zoning ordinance is a set of instructions for land development and it should include a mix of policy and site-specific layout direction.
<i>Subdivision Regulations</i>	Subdivision regulations address the layout and placement of a new or redeveloped development within a specific zone. Subdivision regulations are typically applicable to non-residential development as well, in the form of office and industrial parks. Subdivision regulations are an appropriate tool for analyzing the design of new development and its impact on existing public facilities and services.
<i>Impact Review</i>	Review of proposed developments at a subdivision or rezoning level should include an analysis of on-site/site design impacts and off-site impacts such as traffic generation, road maintenance, emergency services and open space/park/trail provisions. For projects of a pre-determined size or in specified locations, review could also include environmental, conservation and fiscal impacts.
<i>Landscaping and Buffering</i>	Landscaping and buffering serve a critical function of screening more intense uses from less intense uses as well as adding beauty and interest to individual building sites. With a plan that blends commercial and retail uses as well as density changes across the City, it is necessary to ensure that different categories of use are buffered from each other. It is equally important to ensure that landscaping is integrated into all site development to reflect Roeland Park’s character and provide for a blending of uses in the existing landscape.
<i>Community Aesthetics</i>	A unifying design concept can be an important element in reflecting a community’s character through its built environment. Design at a communitywide scale can be incorporated into site design of commercial centers and new residential site criteria
<i>Request for Proposal Process</i>	The request for development proposal process (RFP) allows the City to identify the specific design, quality and land use requirements for development it desires and to select a developer that is most qualified to meet those requirements. The process allows the City Council to pre-determine its priorities for development and to obligate the developers to meet those standards through agreements other than zoning. This process will be the first step for all city-owned development sites.

7.2 Strategies Matrix

The following strategies are intended to guide the City's implementation of the Roeland Park Comprehensive Plan. They are organized into five categories: physical image; economic development; community identity; infrastructure and public services; and residential preservation and redevelopment. Specific strategies are provided for each category within a phasing plan. There are four suggested phases; short term (0-2 years), medium term (2-5 years), long term (5+ years), and ongoing.

Physical Image Strategies

	Short Term 0-2 Years	Mid Term 2-5 Years	Long term 5 + Years	On going
Consider developing a master plan to improve, enhance and preserve aesthetic qualities in the public right-of-ways (lighting, sidewalks, street landscaping)	X			
Consider creating urban design guidelines (maximum setbacks, rear commercial parking, maximum building sq. footage, facade guidelines, building materials etc.) for the Town Center and Neighborhood Support Center for properties needing development or redevelopment.				X
Prepare a trail, parks, streetscape and landscape master plan to encourage additional green space				X
Identify, evaluate and build gateways at major entrances to the city and neighborhoods		X		
Implement streetscape master plan		X		
Continue to work to minimize the "Roe Boulevard Divide" through various traffic calming methods creating a better foot and bicycle east/west connection while incorporating the Town Center		X		
Create prominent gateway entrance into southern Roeland Park along Roe Boulevard at Johnson Drive and improve northern gateway			X	
Establish a tree planting and trimming program				X
Consider minimum setbacks for commercial/office structures and required parking spaces will need to be reviewed.				X

Economic Development Strategies

	Short Term 0-2 Years	Mid Term 2-5 Years	Long term 5 + Years	On Going
Work with multi-jurisdictional organization to expedite development of the 47th & Mission Road neighborhood center				X
Package incentives and regulatory strategies for Town Center Concept beyond Bella Roe				X
Modify zoning ordinances as required to promote sustainable, mixed-use quality developments	X			

Community Identity Strategies

	Short Term 0-2 Years	Mid Term 2-5 Years	Long Term 5 + Years	On Going
Consider developing specific design guidelines for each development area (caves site, Johnson Drive, Cloverleaf, City Hall, and Roeland Park school site)	X			
Continue to reuse vacant publicly owned buildings to support surrounding uses and activities	X			
Use medium density residential housing as buffers, or transition zones between single family residential neighborhoods and more intense uses				X
Promote the history and significance of the Strang Line and Santa Fe Trail and cooperate with adjacent communities on historic sites				X
Encourage public art through local funds and grants and local public and private funds				X
Ensure that new development appropriately balances hardscape with natural landscaping and adopt measures to reduce off-site stormwater runoff in accordance with Best Management Practices (BMPs)				X
Create a community of destinations (town center, neighborhood center, open spaces, public spaces, etc)				X
Concentrate retail into the designated multi-use town center and neighborhood center				X

Infrastructure and Public Services Strategies

	Short Term 0-2 Years	Mid Term 2-5 Years	Long Term 5 + Years	On Going
Implement methods to ensure that new development shares financial responsibility for impact on City services and facilities				X
Promote pedestrian traffic through community-wide trail system and key Roe Boulevard street crossings				X
Investigate the potential for consolidating public services with adjacent communities for the purposes of economic or functional efficiencies				X
Consider “traffic calming” in neighborhoods and in areas where higher pedestrian concentrations may exist				X
Maintain a current master plan for current and future parks				X
Maintain a current five year Capital improvement Program				X
Continue to communicate with utility companies to reduce duplication of efforts and impact on neighboring uses				X
Assess existing community needs for all forms of public transit and plan for future demands by addressing possible changes in population density and commuter rail				X

Residential Preservation and Redevelopment Strategies

	Short Term 0-2 Years	Mid Term 2-5 Years	Long Term 5 + Years	On Going
Revise zoning ordinance to allow medium density housing to provide secure and appropriate interface between commercial/institutional and residential development, and reflect the unique nature, character and needs of individual subdivisions.		X		
Address “tear-downs” (redevelopment of single family home sites) in Design Guidelines & Zoning amendments	X			
Actively market the City of Roeland Park’s positive differentiators as a prime location for new residents and families	X			
Explore new development and redevelopment for the City of Roeland Park	X			
Explore the idea of developing a consistent branding/marketing strategy for the City of Roeland Park	X			
Ensure ongoing and equitable enforcement of building and property maintenance codes				X
Develop a community-wide educational program promoting residential expansion and renovation. Use the Mid-America Regional Council’s First Suburbs Coalition idea book as a reference				X

SECTION 8 APPENDIX

- 8.1 Johnson Drive Corridor Design Guidelines
- 8.2 Old Pool Site Design Guidelines
- 8.3 Park Master Plan
- 8.4 Sidewalk/Trail Map

MEETING AGENDA

PROJECT:	Roeland Park Comprehensive Plan Update + Design Standards	PROJECT #:	19105
DATE / TIME:	08/27/2019 / 6:00 pm	LOCATION:	Roeland Park City Hall

AGENDA:

1. Introductions + Steering Committee Roles
2. Project Scope + Schedule Overview
3. Project Name
4. Project Survey
5. Key Stakeholder Interviews
6. Demographics + Populations Overview
7. Universal Design
8. Residential Design Standards
9. Goals + Visioning Exercises
10. Next Steps



KICK-OFF MEETING

Roeland Park Comprehensive Plan Update

August 27, 2019

CONFLUENCE



AGENDA

- Introductions + Steering Committee Roles
 - Project Scope + Schedule Overview
 - Project Name
 - Project Survey
 - Key Stakeholder Interviews
 - Demographics + Populations Overview
 - Universal Design
 - Residential Design Standards
 - Goals + Visioning Exercises
 - Next Steps
-

PROJECT TEAM



Chris Cline

ASLA, PLA

Principal-in-Charge



Chris Shires

AICP

Project Manager



Jane Reasoner

AICP, LEED Green Assoc.

Planner II



Marshall Allen

ASLA

Analysis + Design

ICE BREAKER

- Who are you?
 - Where are you from?
 - What is your favorite candy bar?
-

ROLES & RESPONSIBILITIES

- Evaluate public input
 - Review and provide direction
 - 4 meetings planned
-

WHAT IS COMPREHENSIVE PLANNING??

“

The comprehensive plan, also known as a general plan, master plan or land use plan; is a document designed to guide the future actions of a community. It presents a vision for the future; with long-range goals and objectives for all activities that affects the local government.

”

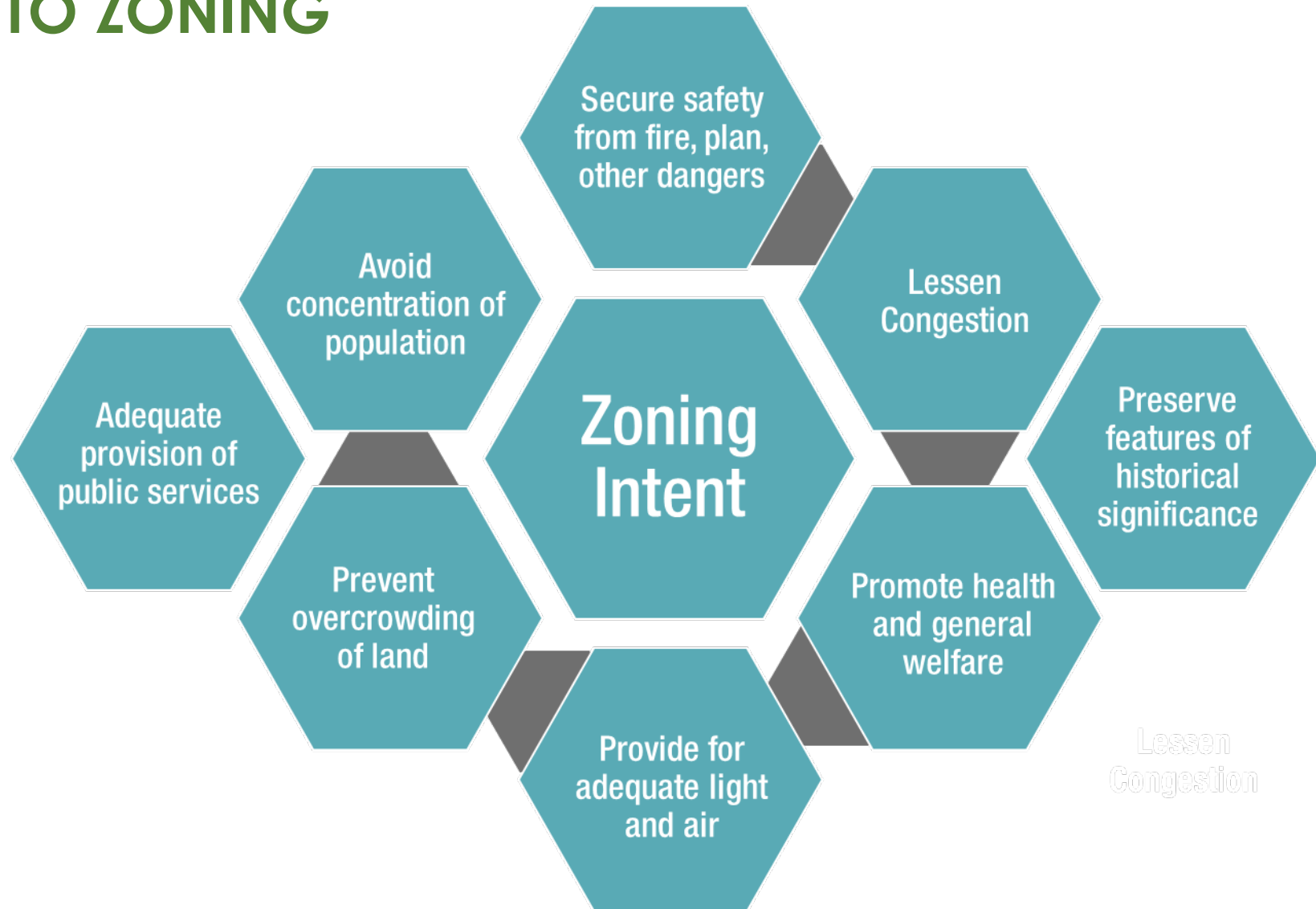
- Gary D. Taylor, Iowa State University



COMPREHENSIVE PLAN - PURPOSE

- 1 Focus Future Development & Public Investment
 - 2 Encourage Strong Economic Base
 - 3 Serve as Information Management Tool
 - 4 Analyze Existing Conditions
 - 5 Evolve as Community Changes
 - 6 Establish Goals
 - 7 Guide and Recommend
 - 8 Encourage Community Engagement
 - 9 Identify and Build upon Community Character
-

RELATIONSHIP TO ZONING



PLAN CHAPTERS / ELEMENTS

- Community Vision
 - Community Profile (Demographics / Population Projections and Economic Development)
 - Public Participation
 - Land Use and Development Plan
 - Implementation (Goals, Policies and Action Items)
 - Development Standards and Guidelines Review and Recommendations (Universal Design Standards)
-

PROJECT SCOPE

Phase 1: Project Kick-Off, Research & Analysis

- *Establish roles / responsibilities, data collection and analysis, identify key stakeholders and desired public input*

Phase 2: Vision, Input & Direction

- *Public engagement via survey, public workshop, interviews, youth workshop, input and goals review*

Phase 3: Draft Plan & Evaluation

- *Draft full comprehensive plan, chapter reviews*

Phase 4: Final Draft Plan & Adoption

- *Final draft, plan review, public hearing with Planning Commission and City Council*

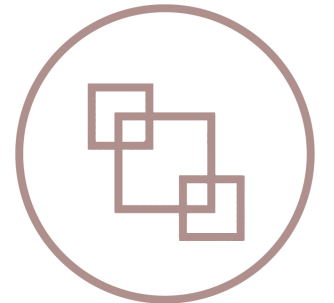
Project Kick-Off,
Research + Analysis



Vision, Input,
+ Direction



Draft Plan
+ Evaluation



Final Draft
Plan + Adoption



PROJECT SCOPE

Approximately 1 Month

Phase 1: Project Kick-Off, Research & Analysis

- *Kick-Off Meeting with Advisory Committee*
- *Data Collection and Analysis*



Project Kick-Off,
Research + Analysis



Project Kick-Off,
Research + Analysis



Vision, Input,
+ Direction



Draft Plan
+ Evaluation



Final Draft
Plan + Adoption

PROJECT SCOPE

Approximately 2 Months

Phase 2: Vision, Input + Direction

- *Project Survey*
- *Public Workshop (Public Meeting #1)*
- *Key Stakeholder Interviews*
- *Youth Workshop*
- *Input, Visioning, and Goals Review Meeting*



Vision, Input,
+ Direction



Project Kick-Off,
Research + Analysis



Vision, Input,
+ Direction



Draft Plan
+ Evaluation



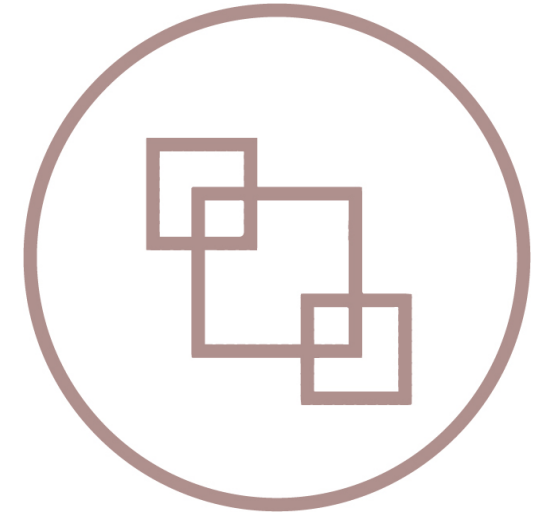
Final Draft
Plan + Adoption

PROJECT SCOPE

Approximately 3 Months

Phase 3: Draft Plan + Evaluation

- *Draft Plan*
- *Draft Plan Presentation with Advisory Committee*
- *Draft Plan Review Workshop with City Council and Planning Commission*



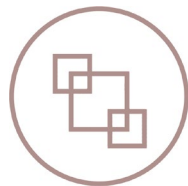
Draft Plan
+ Evaluation



Project Kick-Off,
Research + Analysis



Vision, Input,
+ Direction



Draft Plan
+ Evaluation



Final Draft
Plan + Adoption

PROJECT SCOPE

Approximately 2 Months

Phase 4: Final Draft Plan + Adoption

- *Final Draft Plan*
- *Final Draft Plan Review with Advisory Committee*
- *Planning Commission Public Hearing*
- *City Council Meeting*



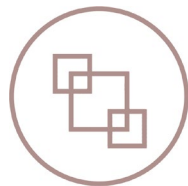
Final Draft
Plan + Adoption



Project Kick-Off,
Research + Analysis



Vision, Input,
+ Direction

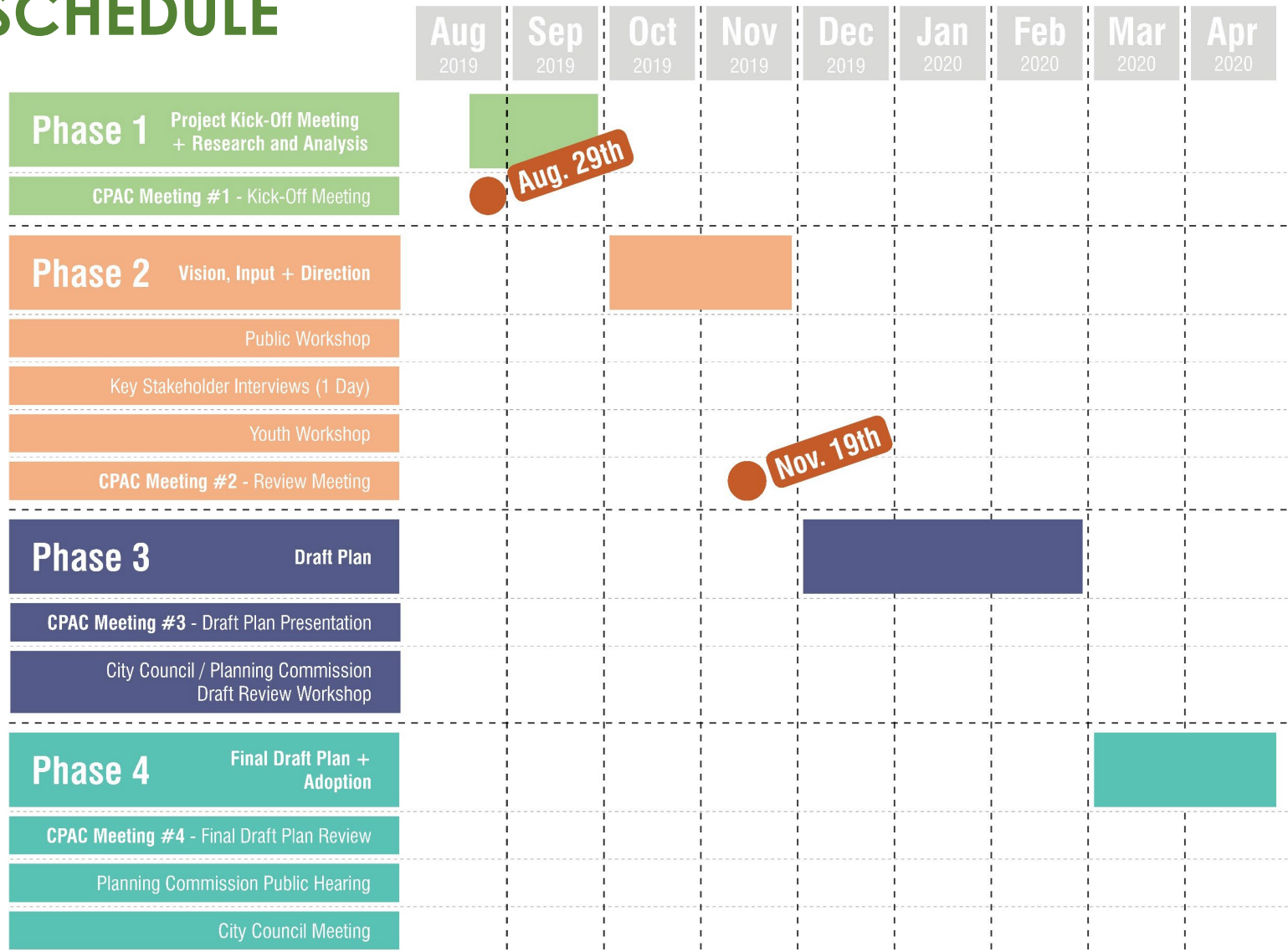


Draft Plan
+ Evaluation



Final Draft
Plan + Adoption

PROJECT SCHEDULE



ICE BREAKER



ROELAND PARK COMPREHENSIVE PLAN

Roeland Park, Kansas

PLACE
STAMP
HERE

Dear Friend/Family,

It is the year 2040 and you should visit me here in Roeland Park because...



PROJECT NAME

Project Name / Branding Ideas?



PROJECT SURVEY

What are special issues to cover in the survey?

Why do you live in Roeland Park?

Quality of Life

Most needed housing / commercial / industry

Desired amenities

Residential Design Standards

What is important to you in the community as you age in place?

Others?

STAKEHOLDER INTERVIEWS

Who are those community stakeholders that we should interview?

Community leaders?

Change makers?

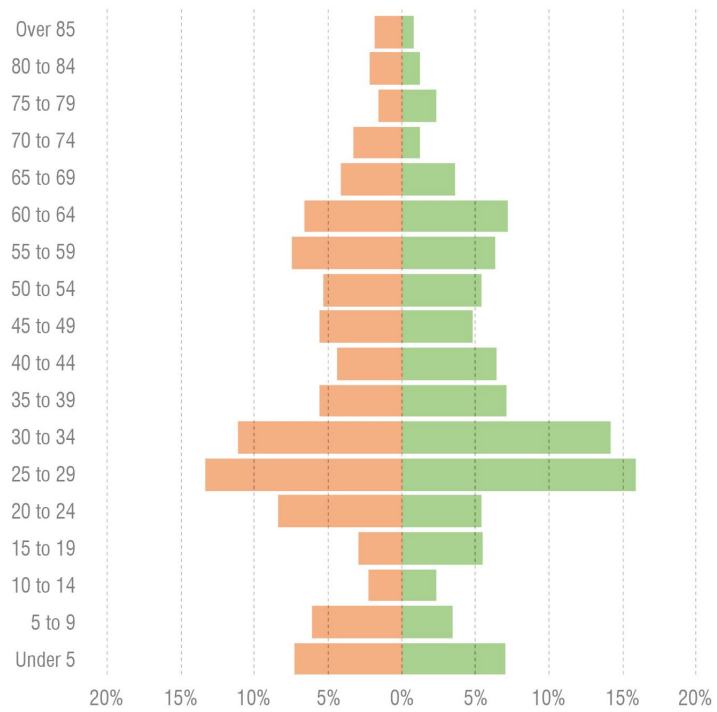
Business owners?

Schools?

Civic organizations?

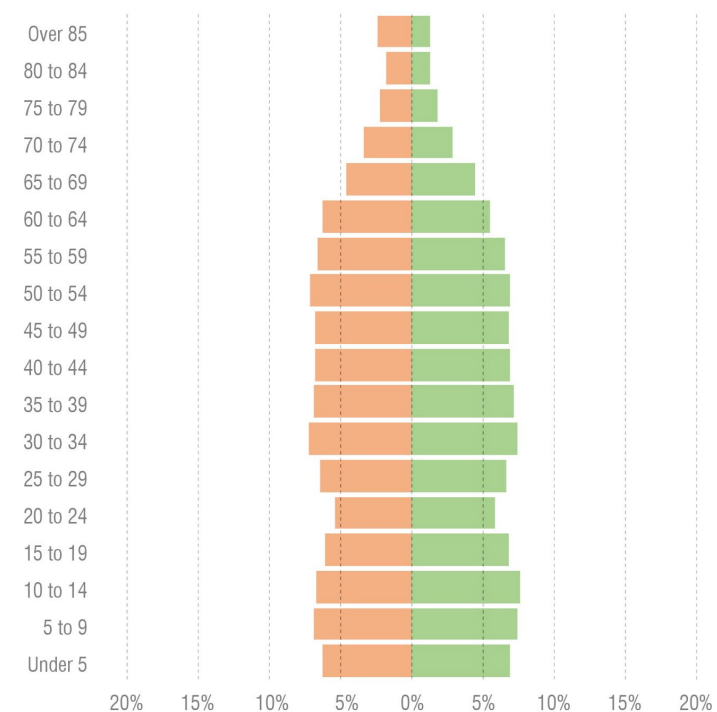
INITIAL DEMOGRAPHIC DATA

Household Size (2017 est.): Roeland Park, KS



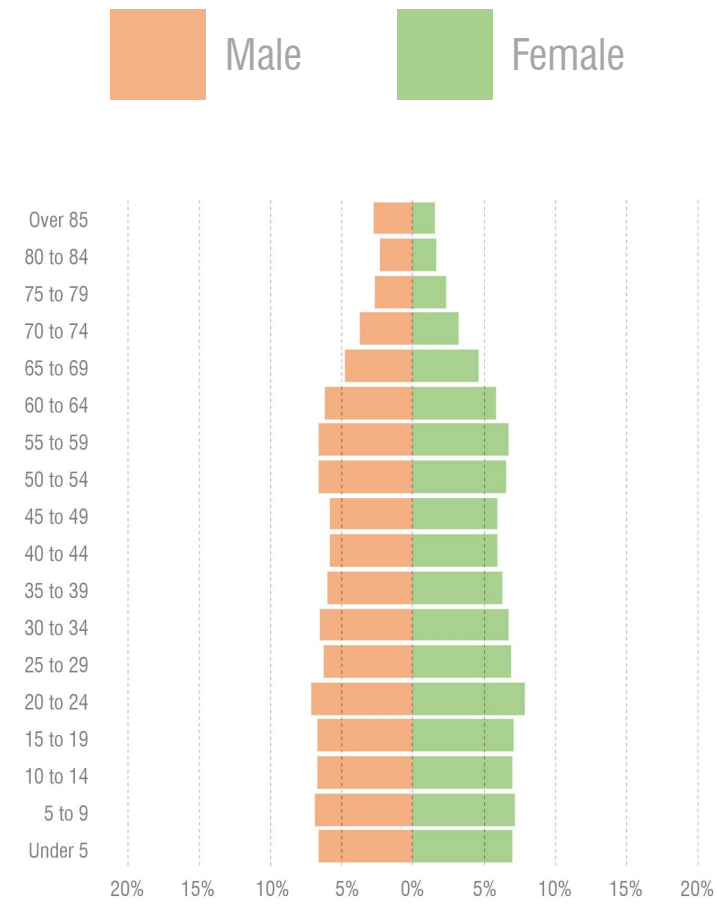
Roeland Park (2017)

Median Age: 33.4



Johnson County (2017)

Median Age: 37.3



State of Kansas (2017)

Median Age: 36.3

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

INITIAL DEMOGRAPHIC DATA

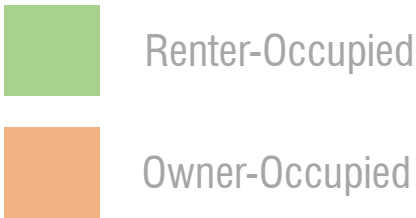
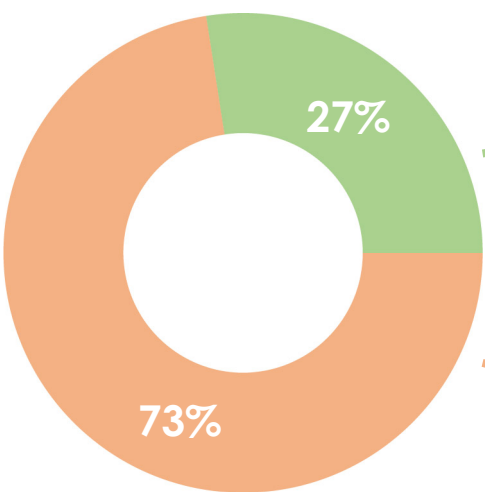
Racial Composition (2017 est.): Roeland Park, KS

Race	Roeland Park Percent	Johnson County Percent	State of Kansas Percent
White Alone	87.6%	86.5%	84.9%
Black Alone	3.7%	4.6%	5.8%
American Indian and Alaska Native Alone	0.1%	0.3%	0.8%
Asian Alone	1.5%	4.8%	2.8%
Native Hawaiian and Other Pacific Islander Alone	0.0%	0.0%	0.1%
Some Other Race Alone	3.8%	0.9%	2.2%
Two or More Races	3.0%	2.9%	3.4%

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

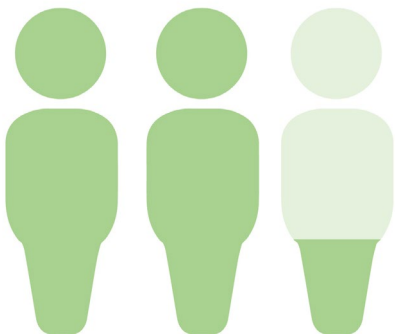
INITIAL DEMOGRAPHIC DATA

Housing Tenure (2017 est.): Roeland Park, KS



Average Household Size (2017 est.):

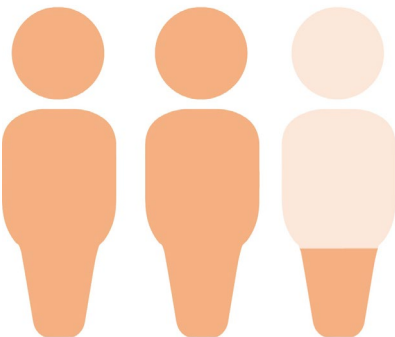
Owner-Occupied



2.27

Average Household Size (2017 est.):

Renter-Occupied

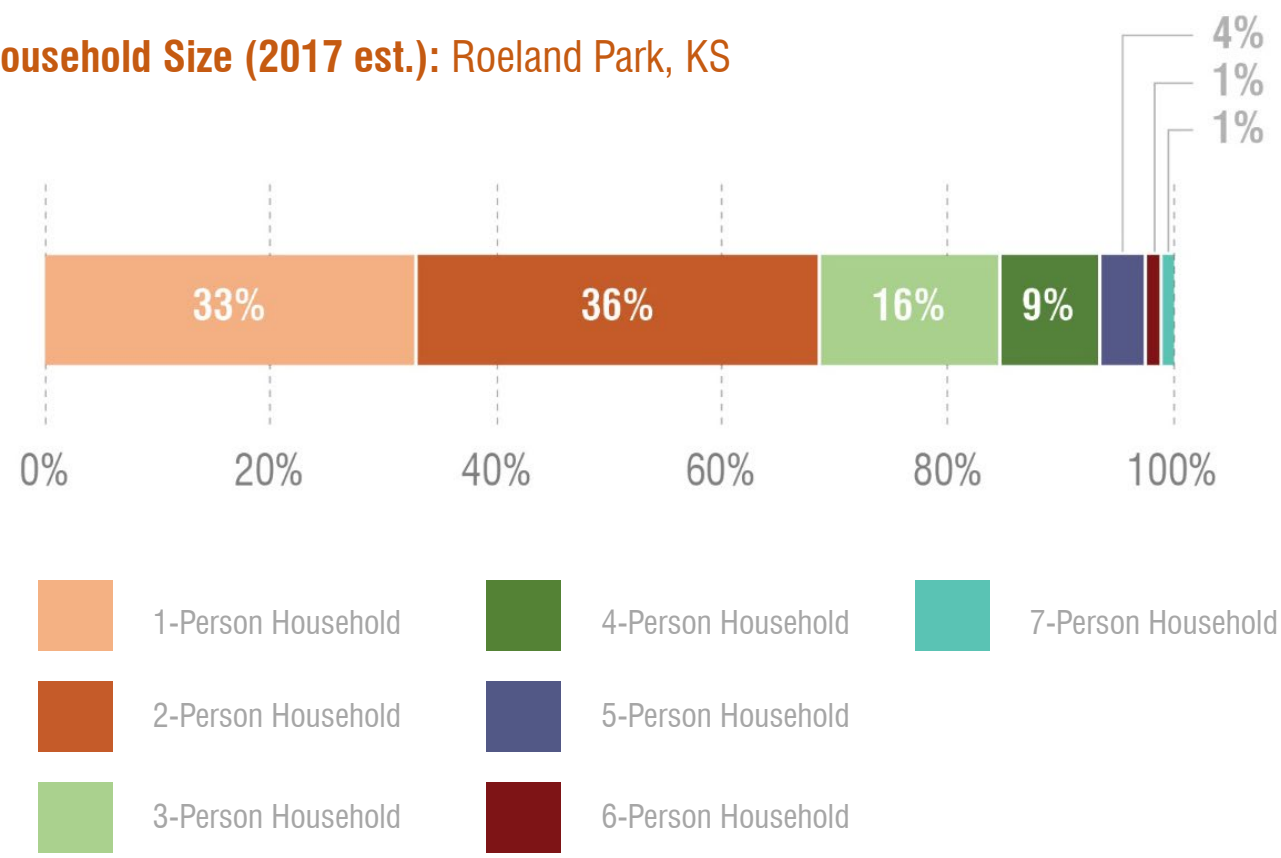


2.29

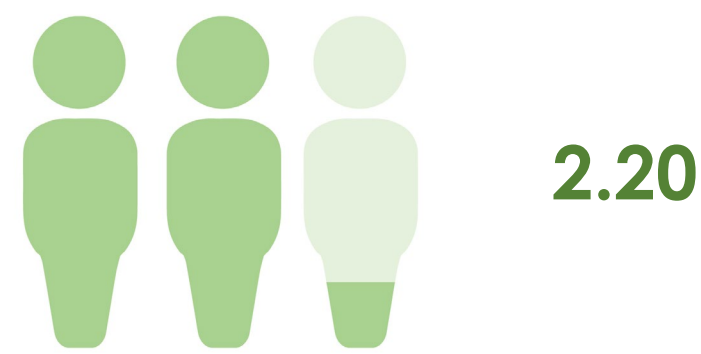
Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

INITIAL DEMOGRAPHIC DATA

Household Size (2017 est.): Roeland Park, KS



Average Household Size (2017 est.): Roeland Park, KS

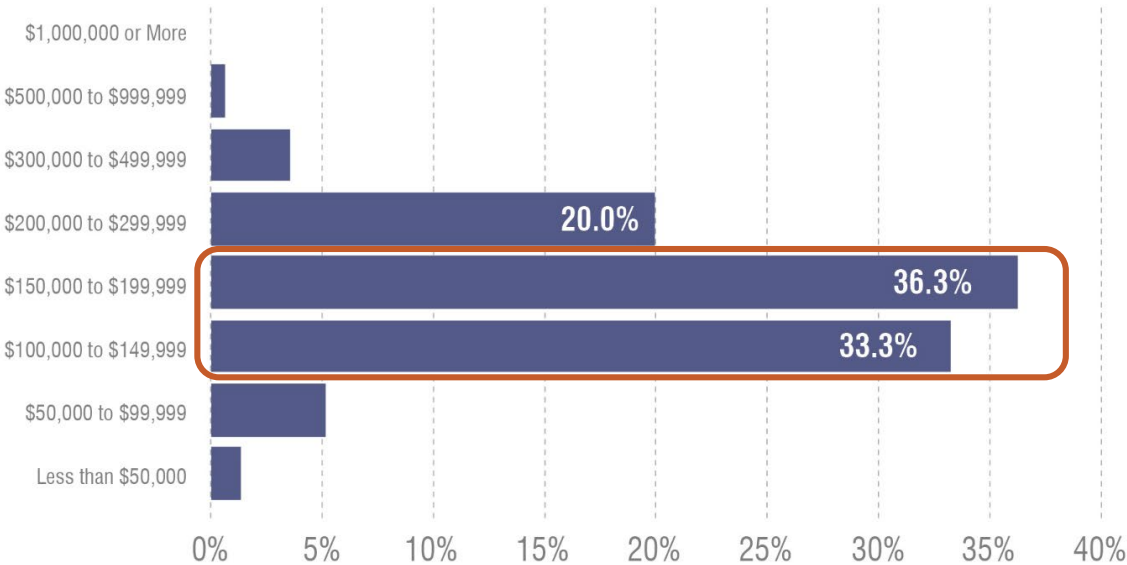


Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

INITIAL DEMOGRAPHIC DATA

Home Values (2017 est.): Roeland Park, KS

Median = \$159,900



Median Home Value (2017 est.): Roeland Park & Comparisons

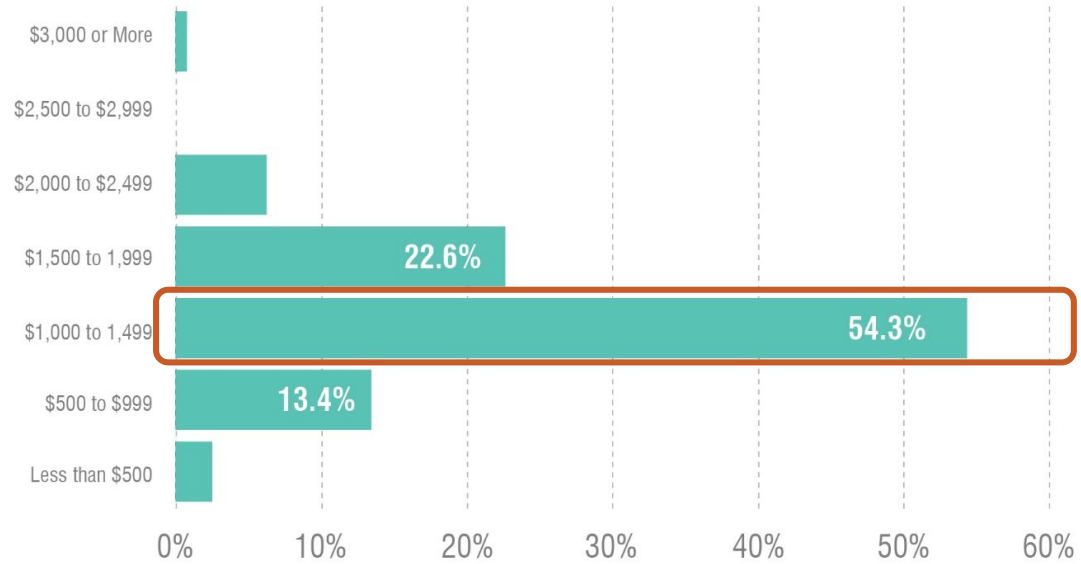


Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

INITIAL DEMOGRAPHIC DATA

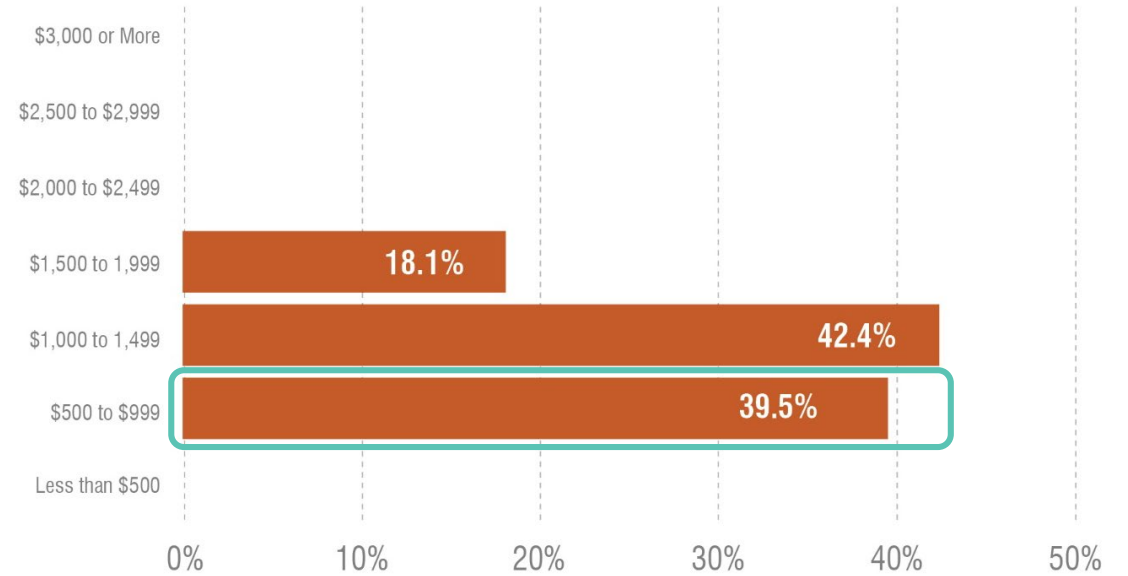
Monthly Housing Costs* (2017 est.): Roeland Park, KS

Median = \$1,314



Gross Rent (2017 est.): Roeland Park, KS

Median = \$1,084

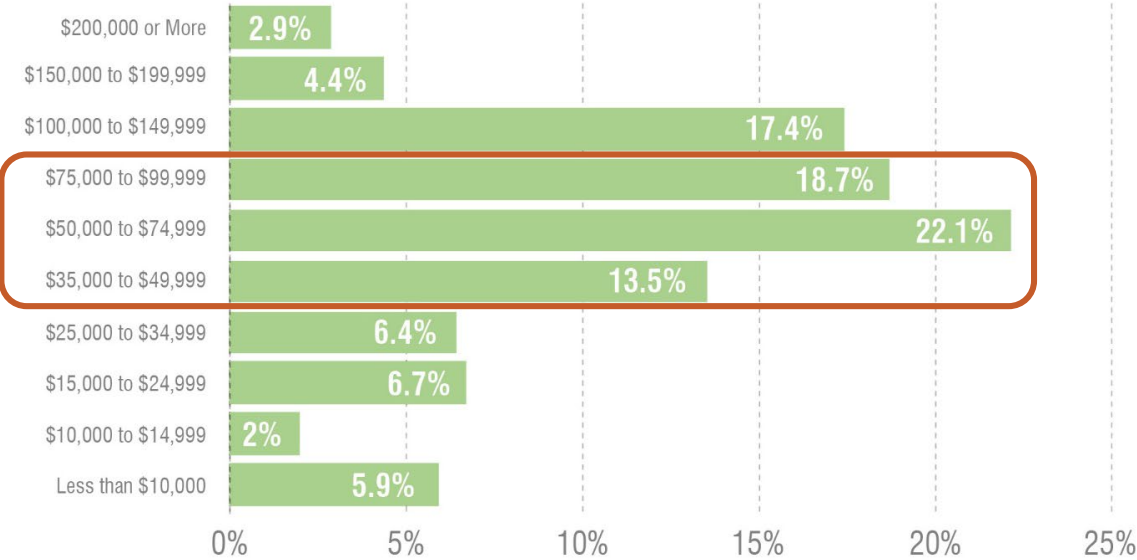


* Owner-Occupied Costs

INITIAL DEMOGRAPHIC DATA

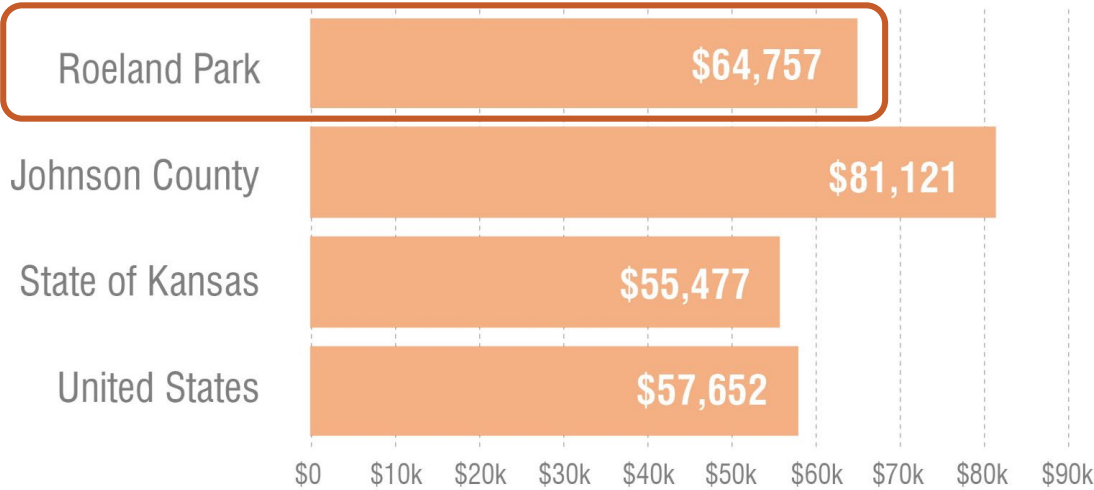
Household Incomes (2017): Roeland Park, KS

Median = \$64,757



Household Incomes (2017): Nearby Communities

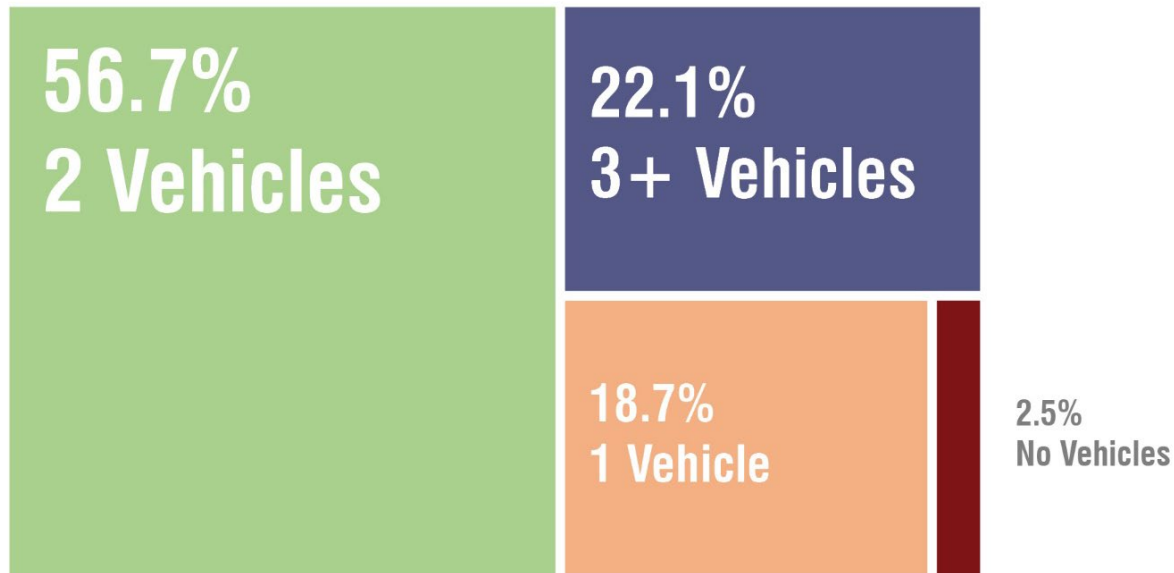
Median = \$64,109



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

INITIAL DEMOGRAPHIC DATA

Vehicles Available (2017): Roeland Park, KS



Mean Travel Time to Work (2017): Roeland Park, KS

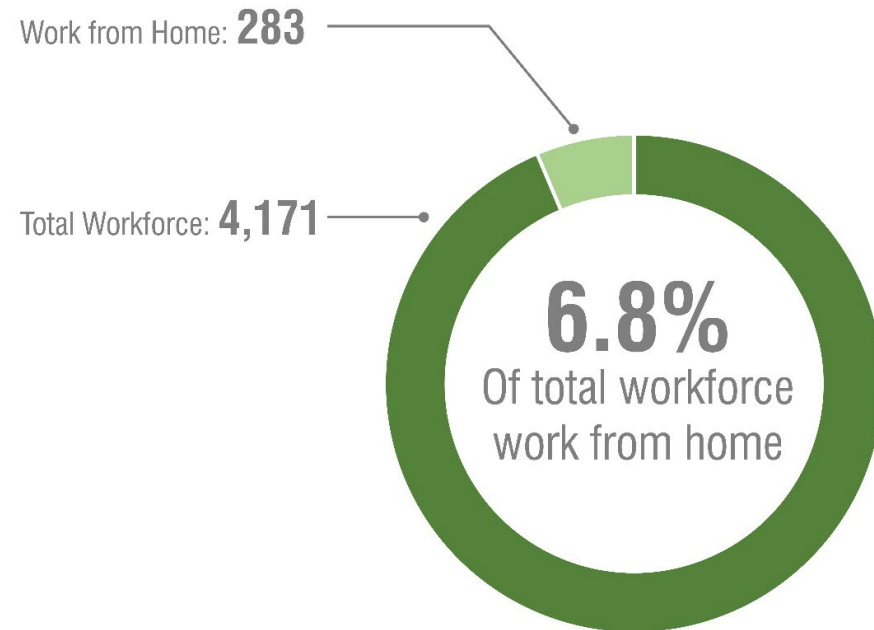
21 Minutes

Means of Transport to Work (2017): Roeland Park, KS

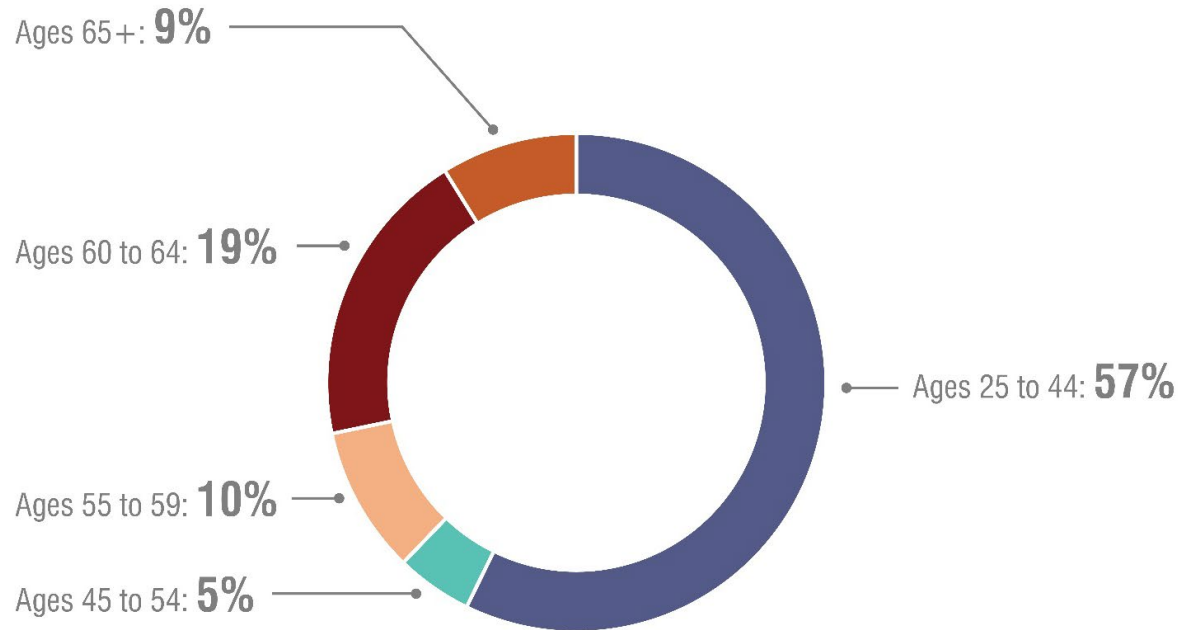
92 Percent
Car, Truck or Van

INITIAL DEMOGRAPHIC DATA

Work from Home (2017): Roeland Park, KS



Work from Home Age Groups (2017): Roeland Park, KS



INITIAL DEMOGRAPHIC DATA

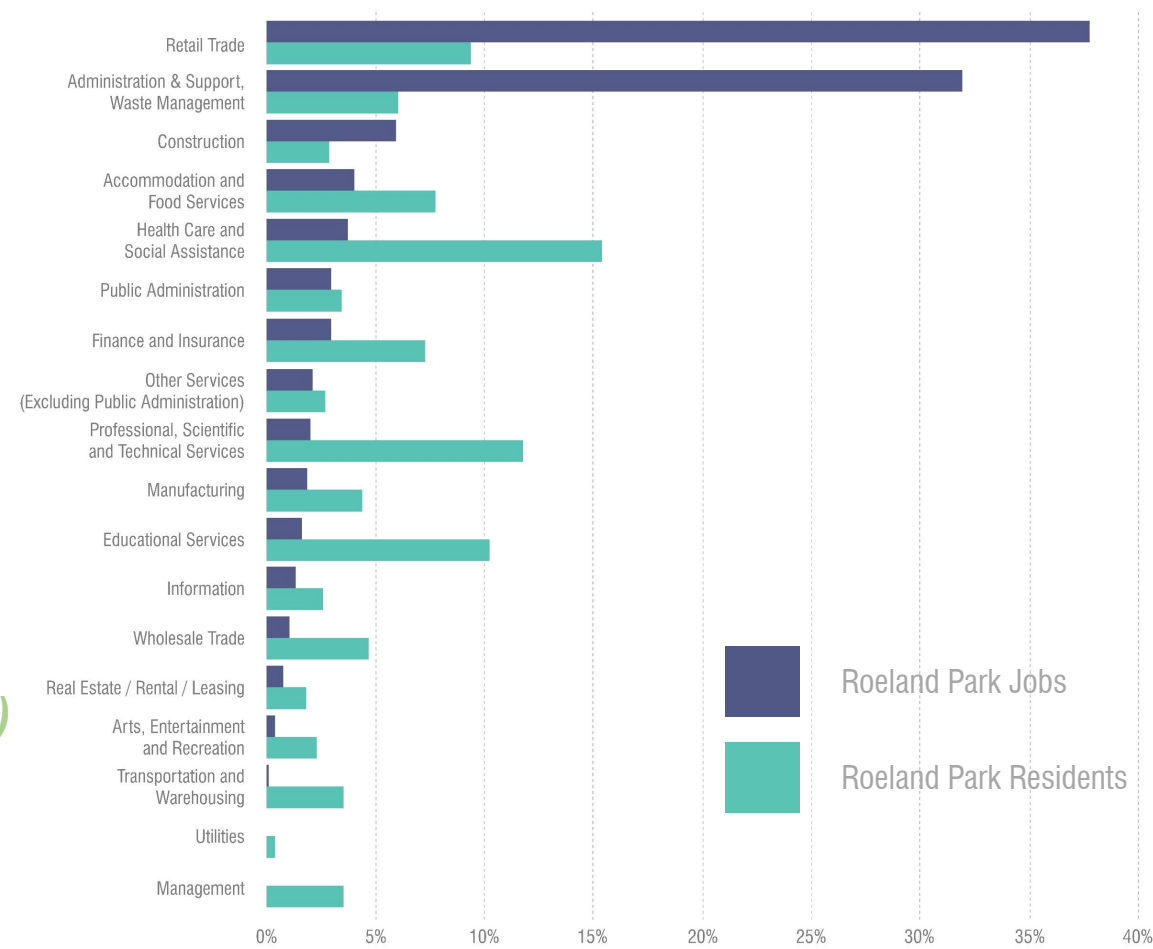
Major Industries in Roeland Park (2015):

- *Retail Trade (37.8%)*
- *Administration & Support, Waste Management (31.9%)*
- *Construction (5.9%)*
- *Accommodation and Food Services (4.0%)*

Major Industries of Roeland Park Residents (2015):

- *Health Care and Social Assistance (15.4%)*
- *Professional, Scientific, and Technical Services (11.8%)*
- *Educational Services (10.2%)*
- *Retail Trade (9.4%)*

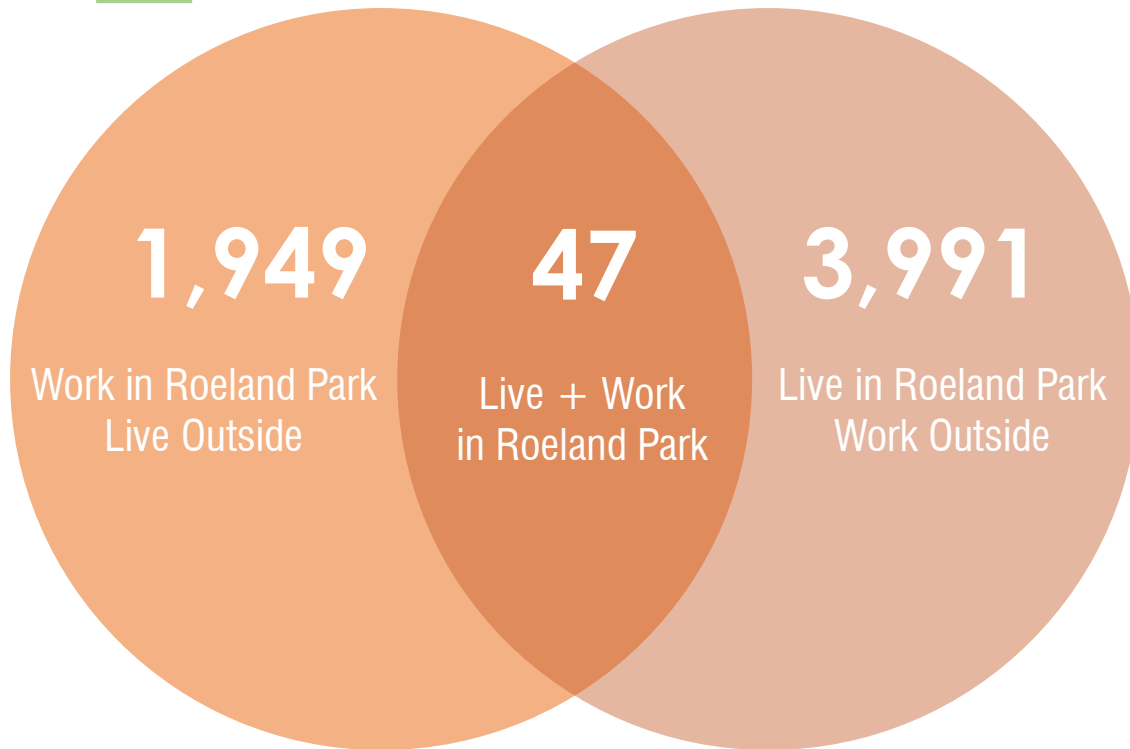
Employment by Industry (2015): Roeland Park, KS



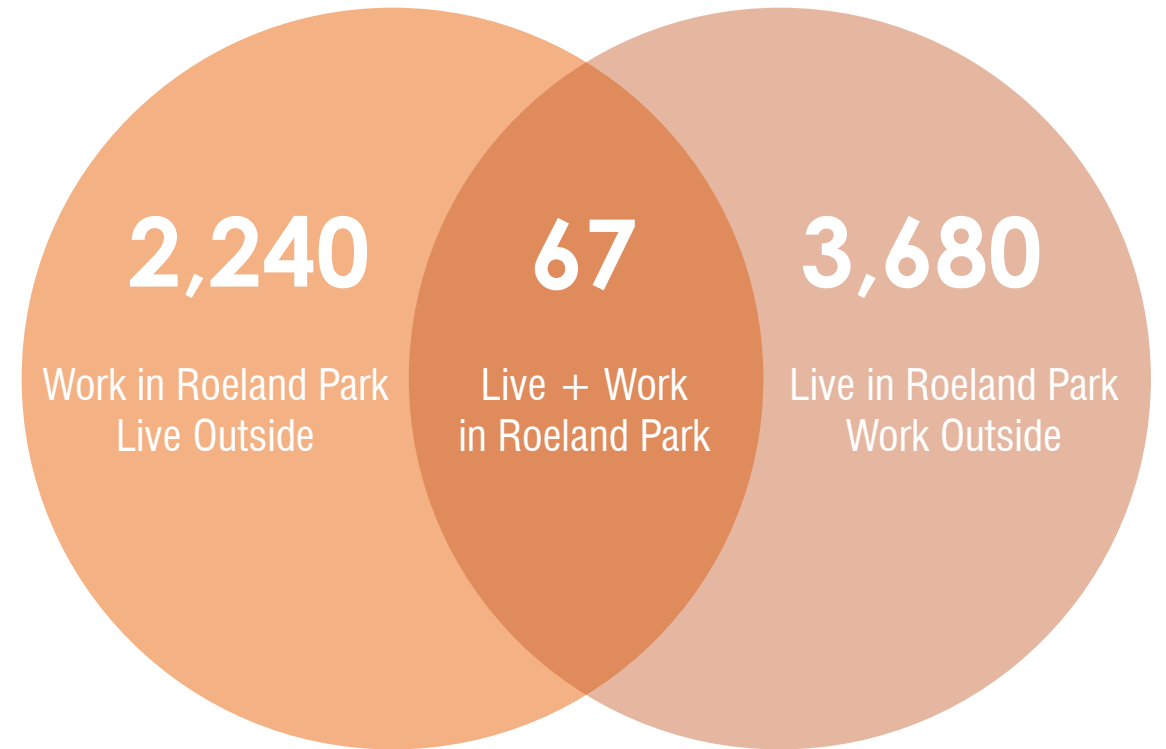
INITIAL DEMOGRAPHIC DATA

Inflow / Outflow Workers (2015/2010):

2015



2010



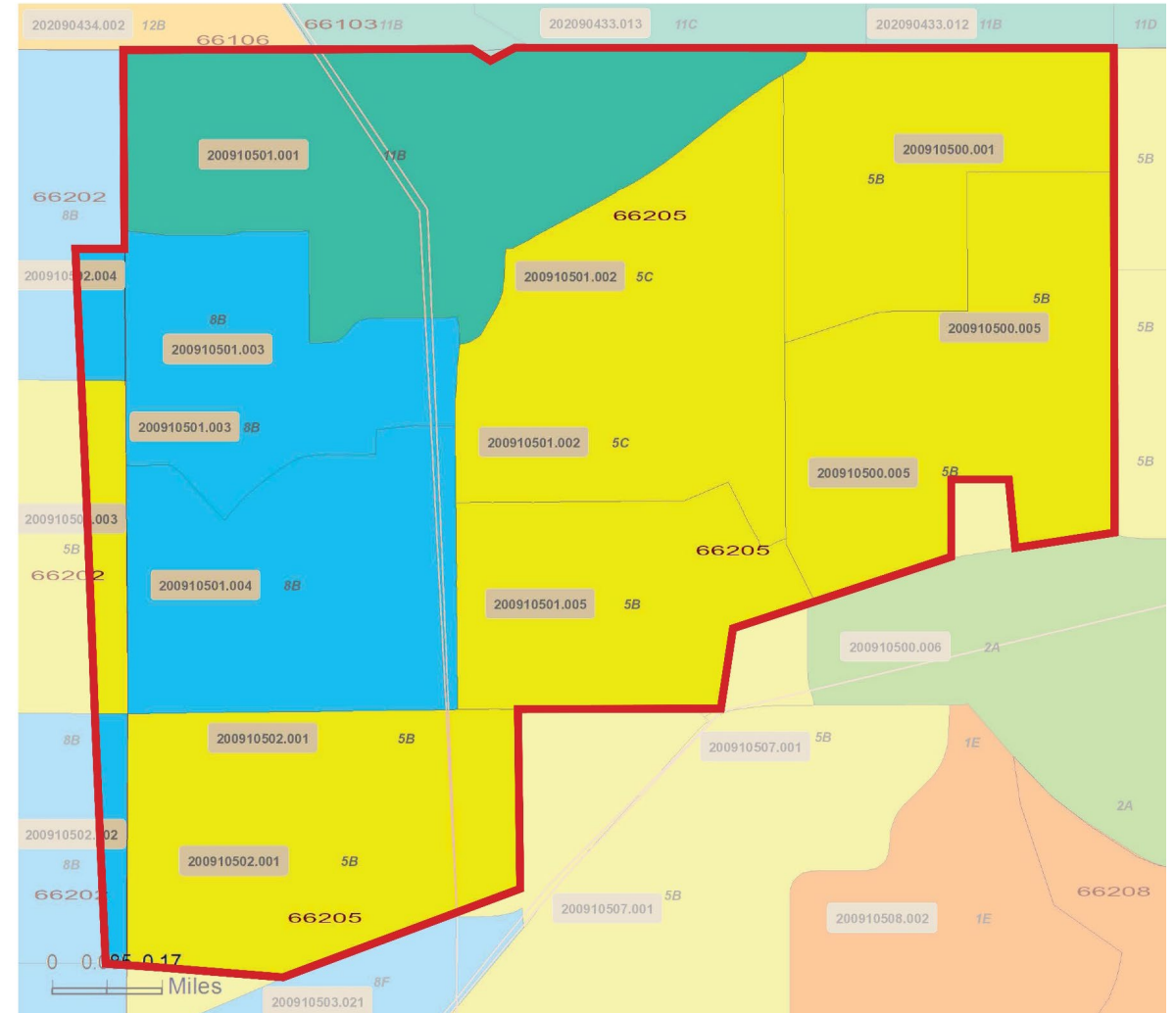
INITIAL DEMOGRAPHIC DATA

ESRI Tapestry Segment Profiles:

- *Classifies U.S. neighborhoods based on their socioeconomic + demographic composition into 68 neighborhoods*

Roeland Park's Top Tapestry Segments:

- ***In Style (44.5%)***
- ***Emerald City (26.8%)***
- ***Young and Restless (16.5%)***
- ***Parks and Rec (12.2%)***



In Style (44.5%)

Average Household Size: 2.35

WHO ARE WE?

In Style denizens embrace an urbane lifestyle that includes support of the arts, travel, and extensive reading. They are connected and make full use of the advantages of mobile devices. Professional couples or single households without children, they have the time to focus on their homes and their interests. The population is slightly older and already planning for their retirement.

Median Age: 42.0

OUR NEIGHBORHOOD

- City dwellers of large metropolitan areas.
- Married couples, primarily with no children (Index 112) or single households (Index 109); average household size at 2.35.
- Home ownership average at 68% (Index 108); nearly half, 47%, mortgaged (Index 114).
- Primarily single-family homes, in older neighborhoods (built before 1980), with a mix of town homes (Index 132) and smaller (5–19 units) apartment buildings (Index 110).
- Median home value at \$243,900.
- Vacant housing units at 8.6%.

Median Household Income: \$73,000

SOCIOECONOMIC TRAITS

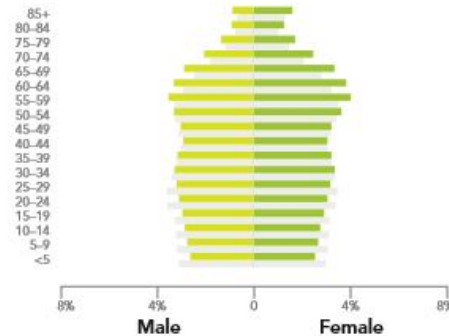
- College educated: 48% are graduates (Index 155); 77% with some college education.
 - Low unemployment is at 3.6% (Index 66); higher labor force participation rate is at 67% (Index 108) with proportionately more 2-worker households (Index 110).
 - Median household income of \$73,000 reveals an affluent market with income supplemented by investments (Index 142) and a substantial net worth (Index 178).
 - Connected and knowledgeable, they carry smartphones and use many of the features.
 - Attentive to price, they use coupons, especially mobile coupons.
-

In Style (44.5%)

AGE BY SEX (Esri data)

Median Age: **42.0** US: 38.2

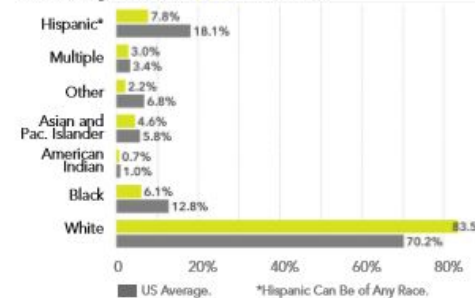
■ Indicates US



RACE AND ETHNICITY (Esri data)

The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: **39.8** US: 64.0



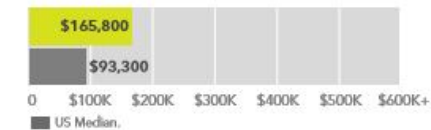
INCOME AND NET WORTH

Net worth measures total household assets (homes, vehicles, investments, etc.) less any debts, secured (e.g., mortgages) or unsecured (credit cards). Household income and net worth are estimated by Esri.

Median Household Income



Median Net Worth



MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Partial to late model SUVs: compact SUVs are gaining popularity.
- Homes integral part of their style; invest in home remodeling/maintenance, DIY or contractors; housekeeping hired.
- Prefer organic foods, including growing their own vegetables.
- Financially active, own a variety of investments often managed by a financial planner.
- Meticulous planners, both well insured and well invested in retirement savings.
- Generous with support of various charities and causes.
- Actively support the arts, theater, concerts, and museums.

HOUSING

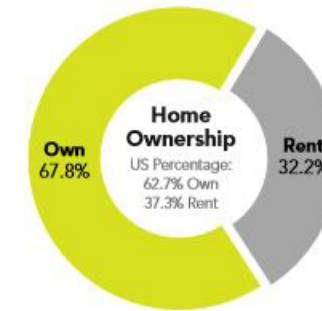
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Single Family

Median Value:
\$243,900

US Median: \$207,300



Emerald City (26.8%)

Average Household Size: 2.06

Median Age: 37.4

Median Household Income: \$59,200

WHO ARE WE?

Emerald City's denizens live in lower-density neighborhoods of urban areas throughout the country. Young and mobile, they are more likely to rent. Well educated and well employed, half have a college degree and a professional occupation. Incomes close to the US median come primarily from wages, investments, and self-employment. This group is highly connected, using the Internet for entertainment and making environmentally friendly purchases. Long hours on the Internet are balanced with time at the gym. Many embrace the "foodie" culture and enjoy cooking adventurous meals using local and organic foods. Music and art are major sources of enjoyment. They travel frequently, both abroad and domestically.

OUR NEIGHBORHOOD

- There are mostly older, established neighborhoods with homes built before 1960; around 30% built before 1940.
- Just over half of all homes are renter occupied.
- Single-person and nonfamily types make up over half of all households.
- Median home value and average rent are slightly above the US levels; around half of owned homes are worth \$150,000–\$300,000.

SOCIOECONOMIC TRAITS

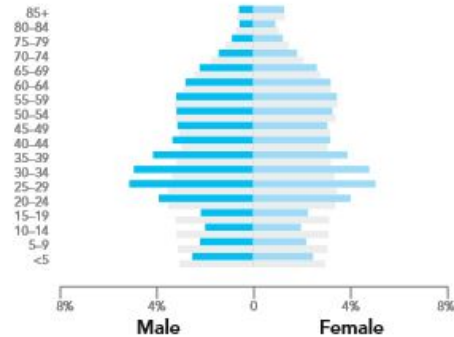
- Well educated, these consumers research products carefully before making purchases.
 - They buy natural, green, and environmentally friendly products.
 - Very conscious of nutrition, they regularly buy and eat organic foods.
 - Cell phones and text messaging are a huge part of everyday life.
 - They place importance on learning new things to keep life fresh and variable.
 - They are interested in the fine arts and especially enjoy listening to music.
-

Emerald City (26.8%)

AGE BY SEX (Esri data)

Median Age: **37.4** US: 38.2

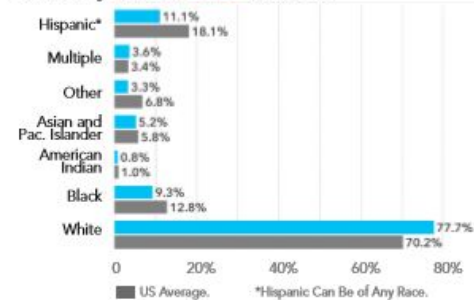
■ Indicates US



RACE AND ETHNICITY (Esri data)

The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: **50.6** US: 64.0



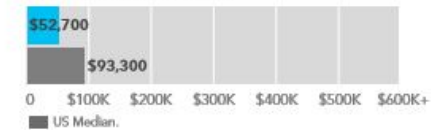
INCOME AND NET WORTH

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Median Household Income



Median Net Worth



MARKET PROFILE

(Consumer preferences are estimated from data by GfK MRI)

- Liberal segment that contributes to NPR and PBS.
- Shop at Trader Joe's and Whole Foods.
- Budget time—utilize home cleaning services so there's time for yoga.
- Use the web for professional networking, blogging, making travel plans, shopping, and sports news.
- Read magazines and books on a tablet, sometimes while exercising at home.
- Attend venues like art galleries, museums, and concerts. At home they like to cook and bake.

HOUSING

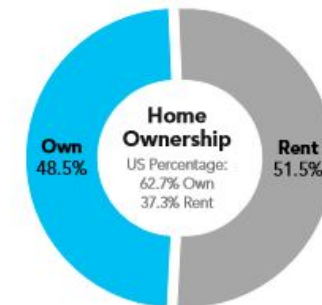
Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.



Typical Housing:
Single Family;
Multi-Units

Average Rent:
\$1,087

US Average: \$1,038



Young and Restless (16.5%)

Average Household Size: 2.04

Median Age: 29.8

Median Household Income: \$40,500

WHO ARE WE?

Gen Y comes of age: Well-educated young workers, some of whom are still completing their education, are employed in professional/technical occupations, as well as sales and office/administrative support roles. These residents are not established yet, but striving to get ahead and improve themselves. This market ranks in the top 5 for renters, movers, college enrollment, and labor force participation rate. Almost 1 in 5 residents move each year. More than half of all householders are under the age of 35, the majority living alone or in shared nonfamily dwellings. Median household income is still below the US. Smartphones are a way of life, and they use the Internet extensively. *Young and Restless* consumers are diverse, favoring densely populated neighborhoods in large

OUR NEIGHBORHOOD

- One of the youngest markets: More than half the householders under age 35; median age 29.8.
- Primarily single-person households (Index 163) with some shared households (Index 201).
- Highly mobile market, beginning careers and changing addresses frequently.
- Naturally, one of the top 5 renter markets (Index 233).
- Apartment rentals popular: 44% in 5–19 unit buildings (Index 487), 27% in 20+ unit buildings (Index 318).
- Majority of housing built in 1970 or later (84%).

SOCIOECONOMIC TRAITS

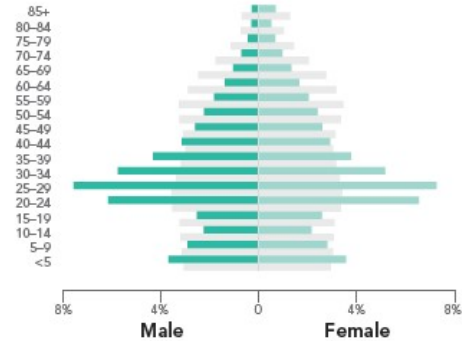
- Education completed: More than 2 out of 3 have some college, an associate's degree, or a bachelor's degree or higher. Almost 14% are still enrolled in college (Index 175).
 - Labor force participation rate is exceptionally high at 75.0%; unemployment is low at 5.2%.
 - These are careful shoppers, aware of prices, and demonstrate little brand loyalty.
 - They like to be the first to try new products, but prefer to do research before buying the latest electronics.
 - Most of their information comes from the Internet and TV, rather than traditional media.
 - Carry their cell phone everywhere they go.
-

Young and Restless (16.5%)

AGE BY SEX (Esri data)

Median Age: **29.8** US: 38.2

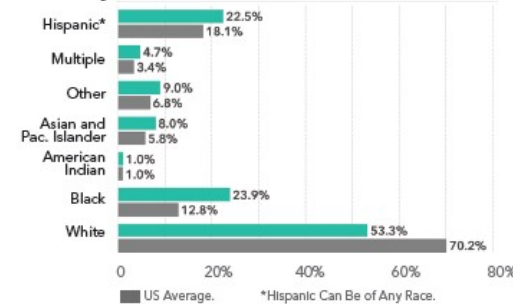
■ Indicates US



RACE AND ETHNICITY (Esri data)

The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: **77.4** US: 64.0



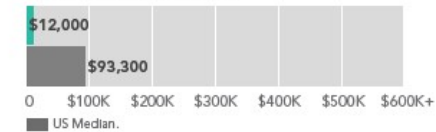
INCOME AND NET WORTH

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Median Household Income



Median Net Worth



MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- No landline telephone for majority of HHs, preferring a cell phone only.
- Use their cell phone to text, listen to music, pay bills, redeem coupons, look up directions, and access financial information.
- Online activities include banking (with paperless statements), purchasing items on eBay, accessing Twitter and Facebook, and watching movies and TV shows.
- Enjoy dancing, playing pool, watching VH1 and Comedy Central programs, and playing basketball and ping pong.
- Listen to contemporary hits, jazz, rap, hip hop, and dance music.
- Purchase natural/organic food, but frequent fast food restaurants.
- Residents like to read magazines, especially digital, covering topics ranging from news, fashion, to music.

HOUSING

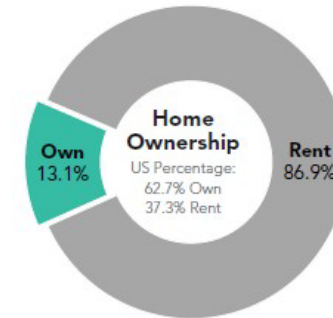
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Typical Housing:
Multi-Unit Rentals

Average Rent:
\$958

US Average: \$1,038



Parks and Rec (12.2%)

Average Household Size: 2.51

Median Age: 40.9

Median Household Income: \$60,000

WHO ARE WE?

These practical suburbanites have achieved the dream of home ownership. They have purchased homes that are within their means. Their homes are older, and town homes and duplexes are not uncommon. Many of these families are two-income married couples approaching retirement age; they are comfortable in their jobs and their homes, budget wisely, but do not plan on retiring anytime soon or moving. Neighborhoods are well established, as are the amenities and programs that supported their now independent children through school and college. The appeal of these kid-friendly neighborhoods is now attracting a new generation of young couples.

OUR NEIGHBORHOOD

- Homes are primarily owner occupied, single-family residences built prior to 1970; town homes and duplexes are scattered through the neighborhoods.
- Both median home value and average rent are close to the national level.
- Households by type mirror the US distribution; married couples, more without children, dominate. Average household size is slightly lower at 2.51, but this market is also a bit older.

SOCIOECONOMIC TRAITS

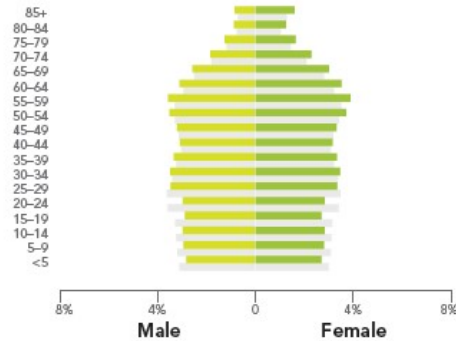
- More than half of the population is college educated.
 - Older residents draw Social Security and retirement income.
 - The work force is diverse: professionals in health care, retail trade, and education, or skilled workers in manufacturing and construction.
 - This is a financially shrewd market; consumers are careful to research their big-ticket purchases.
 - When planning trips, they search for discounted airline fares and hotels and choose to vacation within the US.
 - These practical residents tend to use their cell phones for calls and texting only.
-

Parks and Rec (12.2%)

AGE BY SEX (Esri data)

Median Age: **40.9** US: 38.2

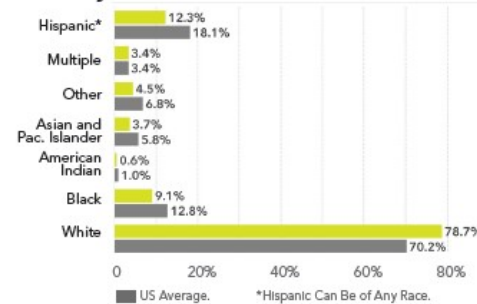
■ Indicates US



RACE AND ETHNICITY (Esri data)

The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: **50.7** US: 64.0



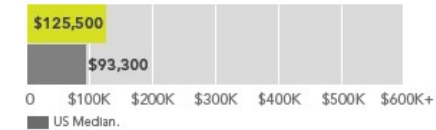
INCOME AND NET WORTH

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Median Household Income



Median Net Worth



MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Cost and practicality come first when purchasing a vehicle; *Parks and Rec* residents are more likely to buy SUVs or trucks over compact or subcompact vehicles.
- Budget-conscious consumers stock up on staples at warehouse clubs.
- Pass time at home watching documentaries on Animal Planet, Discovery, or History channels. For an outing, they choose to dine out at family-style restaurants and attend movies. Between trips to the casinos, they gamble on lottery tickets and practice their blackjack and poker skills online.
- Convenience is important in the kitchen; they regularly use frozen or packaged main course meals. Ground coffee is preferred over coffee beans.
- Residents here take advantage of local parks and recreational activities. Their exercise routine is a balance of home-based exercise; a session at their local community gym; or a quick jog, swim, or run.

HOUSING

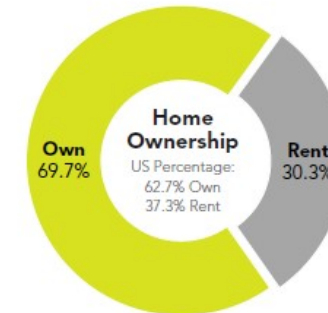
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Typical Housing:
Single Family

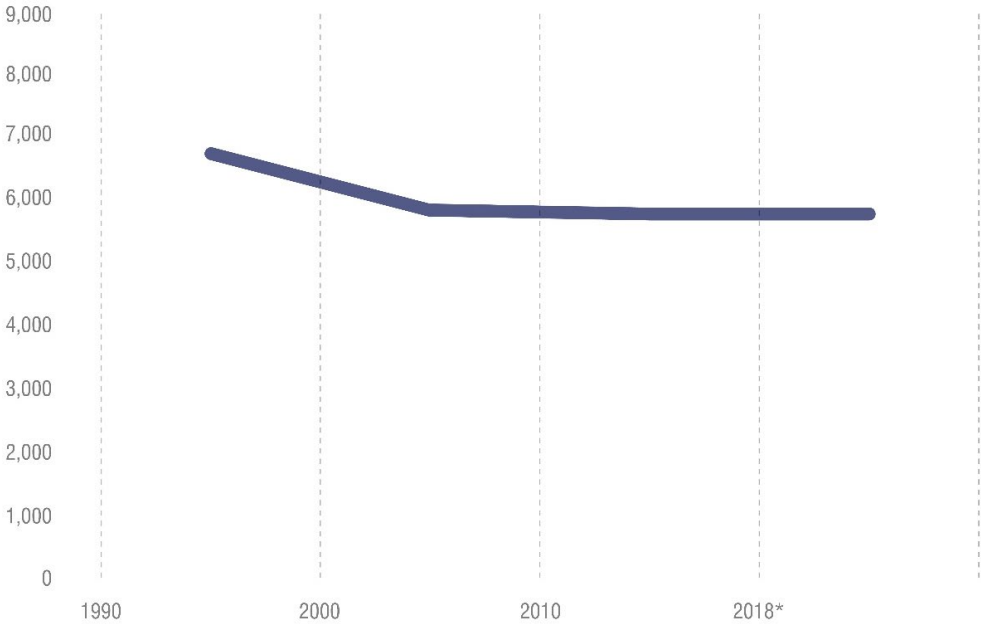
Median Value:
\$198,500

US Median: \$207,300

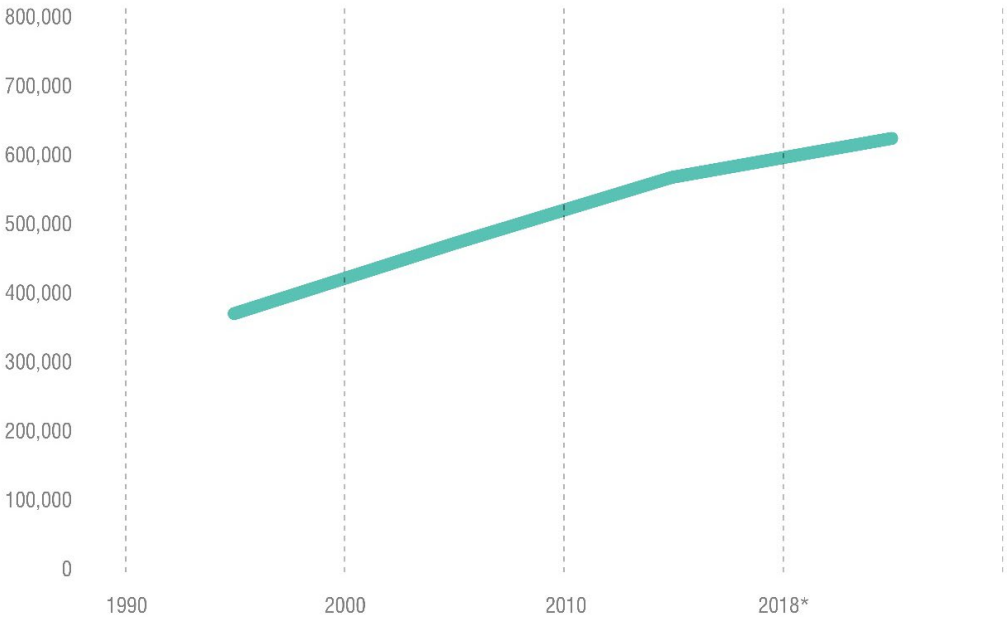


POPULATION

Population Trends: Roeland Park, KS **-0.3%**
2010-2018* (2018 Estimate)



Population Trends: Johnson County **+9.5%**
2010-2018* (2018 Estimate)



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

UNIVERSAL DESIGN STANDARDS – WHAT ARE THEY??

“The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”

- United States Access Board

UNIVERSAL DESIGN STANDARDS – WHAT ARE THEY??

1988 – Fair Housing Amendments Act: Requires accessible units within all new multi-family apartments and condominiums with four or more units.

1990 – American with Disabilities Act (ADA): Requires all government housing to be accessible.

Detached single-family homes and townhomes, where the majority of the population lives, are not covered by federal law in regard to accessibility codes.

COMMUNITIES FOR ALL AGES - MARC

- **January 2015** – Roeland Park passed Resolution 638 to support and promote the Communities for All Ages program
- **April 2019** – City receives the Gold-Level recognition for incorporating Universal Design elements into the R Park Master Plan and the Phased Development Plan
- Applies to city owned properties / parks only



Universal Design in Parks

2016 Report on Universal Design Charrettes
in Blue Springs, Missouri, and Roeland Park, Kansas

INTRODUCTION

Like the rest of the country, the Kansas City region has a rapidly growing population that is 65 years and older. However, the boomer generation does not represent a "flash in the aging pan." Our region's increased aging population is attaining a more permanent status. The millennial generation, Americans born between 1982 and 2000, is estimated at 83.1 million, outnumbering the 75.4 million U.S. baby boomers. Communities that proactively establish age-friendly community policies and practices will better position themselves to attract and retain residents for future generations.

Recognizing these trends, the Mid-America Regional Council (MARC) established the KC Communities for All Ages (KCCFAA) initiative in 2012, providing an organizational home with a regional perspective to build on work started by the Midwest Bioethics Center in 2007. MARC's commitment to this work reflects a growing understanding that successful aging and the maintenance of independent living is as much the result of well-planned local government transportation, housing and built environment practices as it is a function of health and social services.



On Jan. 1, 2011, the first baby boomers turned 65. According to Pew Research Center, starting that day, and every day until 2030, 10,000 boomers will turn 65.

ROELAND PARK CHARRETTE

Snapshot of Roeland Park

Roeland Park, Kansas, is a city located in northeast Johnson County, Kansas. A part of the metropolitan Kansas City region, it was incorporated in 1951 and is a City of the Second Class as defined in Kansas Statutes. Roeland Park has a mayor/council/administrator form of government. In 2015, the U.S. Census Bureau estimated the population at 6,827.

Roeland Park is "built out" (all available land developed) and considered a first-tier suburb, located outside the center cities of Kansas City, Missouri, and Kansas City, Kansas, but inside the outer ring of suburbs that continue to grow in the metropolitan area.

First steps

Teresa Kelly, Roeland Park councilmember and co-chair of the First Suburbs Coalition, began attending Communities for All Ages events geared toward raising awareness and providing information about meeting the needs of the growing population of older adults. She encouraged the city council to increase awareness of demographic changes and how these might impact the city.

Becoming a Community for All Ages

The Roeland Park City Council determined that becoming a Community for All Ages would benefit residents by strengthening the quality of life for all ages and abilities. The council adopted a resolution to proceed with attaining the Bronze Level of Recognition, aimed at building community awareness. The city plans to next seek the Silver and Gold Levels of Recognition, based on assessment of the city's opportunities to become more all-ages friendly and applying an age-lens to a major city plan.



Invitation to participate in the Universal Design Park Charrette

KCCFAA and AARP Missouri approached Kelly about the potential interest of Roeland Park to participate in a UD Park Charrette. Kelly identified the Park Board as the logical group to review the request and make a determination on participation.

Selection of park

Due to demographic shifts, Roeland Park Elementary school was closed in 1994. Considered as a possible development site, residents preferred that the site become a city park, and the site became R Park. The city surveyed residents about the improvements they would like to see, and residents raised funds for park improvements. The city and its residents have actively worked to enhance the park by adding recreational features and other amenities to support community activities.

CHARRETTE ORGANIZING MEETINGS

Six weeks before the charrette, a planning meeting was held to inform the planning committee in more detail about the purposes of the charrette, develop a strategy to recruit participants and professional designers to volunteer their expertise at the charrette, review UD principles, and to define the design problems for the charrette.

Approximately 10 residents attended, including members of the city's Planning Commission, Parks Committee, Community Events Committee, and the Communities for All Ages Committee. The director of public works, representatives from KCCFAA and AARP Missouri, and the charrette facilitator also attended.

18 | Universal Design Park Charrette Report

UNIVERSAL DESIGN STANDARDS

Principle 1			
Equitable Use			
The design is useful and marketable to people with diverse abilities.			

UNIVERSAL DESIGN STANDARDS

Principle 1	Principle 2		
Equitable Use The design is useful and marketable to people with diverse abilities.	Flexibility in Use The design accommodates a wide range of individual preferences and abilities.		

UNIVERSAL DESIGN STANDARDS

Principle 1	Principle 2	Principle 3	
Equitable Use The design is useful and marketable to people with diverse abilities.	Flexibility in Use The design accommodates a wide range of individual preferences and abilities.	Simple and Intuitive Use Use of the design is easy to understand, regardless of the user's experience.	

UNIVERSAL DESIGN STANDARDS

Principle 1	Principle 2	Principle 3	Principle 4
Equitable Use The design is useful and marketable to people with diverse abilities.	Flexibility in Use The design accommodates a wide range of individual preferences and abilities.	Simple and Intuitive Use Use of the design is easy to understand, regardless of the user's experience.	Perceptible Information The design communicates necessary information effectively to the user.

UNIVERSAL DESIGN STANDARDS

Principle 1	Principle 2	Principle 3	Principle 4
Equitable Use The design is useful and marketable to people with diverse abilities.	Flexibility in Use The design accommodates a wide range of individual preferences and abilities.	Simple and Intuitive Use Use of the design is easy to understand, regardless of the user's experience.	Perceptible Information The design communicates necessary information effectively to the user.
Principle 5			
Tolerance of Error The design minimizes hazards and the adverse consequences of unintended actions.			

UNIVERSAL DESIGN STANDARDS

Principle 1	Principle 2	Principle 3	Principle 4
Equitable Use The design is useful and marketable to people with diverse abilities.	Flexibility in Use The design accommodates a wide range of individual preferences and abilities.	Simple and Intuitive Use Use of the design is easy to understand, regardless of the user's experience.	Perceptible Information The design communicates necessary information effectively to the user.
Principle 5	Principle 6		
Tolerance of Error The design minimizes hazards and the adverse consequences of unintended actions.	Low Physical Effort The design can be use efficiently and comfortably and with a minimum of fatigue.		

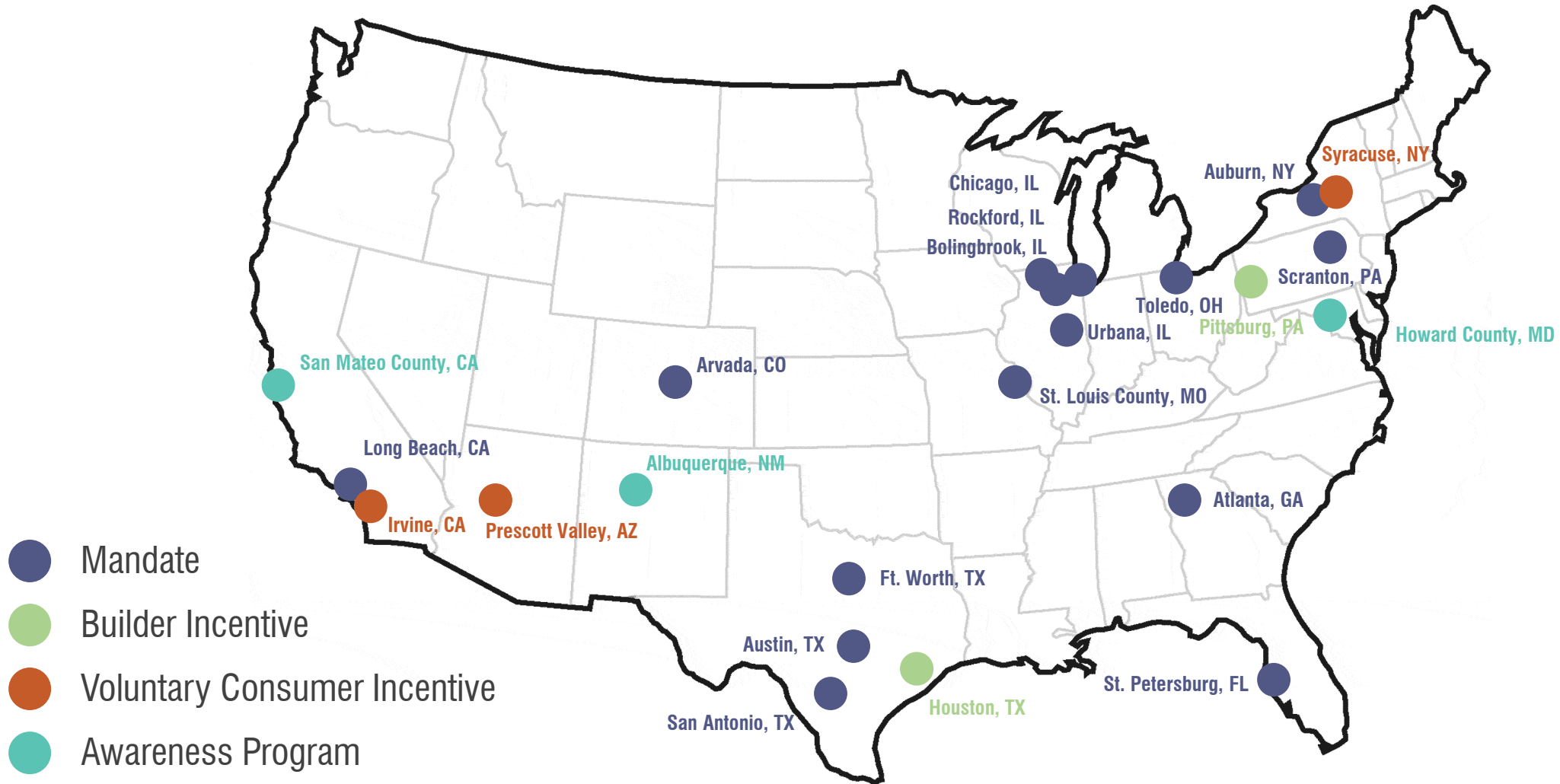
UNIVERSAL DESIGN STANDARDS

Principle 1	Principle 2	Principle 3	Principle 4
Equitable Use The design is useful and marketable to people with diverse abilities.	Flexibility in Use The design accommodates a wide range of individual preferences and abilities.	Simple and Intuitive Use Use of the design is easy to understand, regardless of the user's experience.	Perceptible Information The design communicates necessary information effectively to the user.
Principle 5	Principle 6	Principle 7	
Tolerance of Error The design minimizes hazards and the adverse consequences of unintended actions.	Low Physical Effort The design can be use efficiently and comfortably and with a minimum of fatigue.	Size / Space for Approach / Use Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture or mobility.	

UNIVERSAL DESIGN STANDARDS – HOW??

- **Mandate:** All publicly funded (subsidized) housing is required to meet universal design criteria
 - Austin, TX / Bolingbrook, IL – Mandated for **ALL NEW** construction of single-family homes
 - Chicago, IL – 20% of newly constructed single-family homes
 - St. Louis County, MO – required in all newly constructed affordable housing
 - **Builder Incentive:** Financial incentives, building certification, streamlined permitting, or fee waivers for those who participate in design standards
 - **Voluntary Consumer Incentive:** Designated tax credits / grants, or deferred loan programs to assist with existing home modifications
 - **Consumer Awareness Program:** Committee formed in Albuquerque to begin a “community conversation” about Universal Design. Brochures and informational packages were distributed to residents and Universal Design was made a competitive category in the annual “Parade of Homes.”
-

UNIVERSAL DESIGN STANDARDS – WHERE??



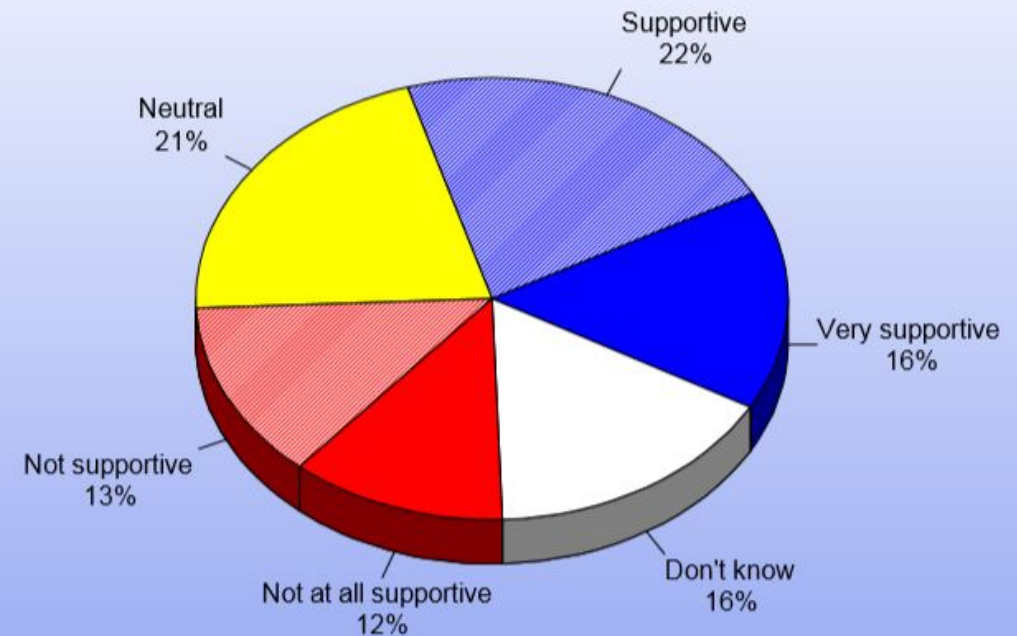
UNIVERSAL DESIGN STANDARDS

City of Roeland Park Community Survey (2019)

- 38% - Supportive
- 21% - Neutral
- 25% - Not Supportive
- 16% - Don't Know

Q26. Level of Support for Increased Authority of the City Government to Incorporate Universal Design Standards in New or Significantly Remodeled Homes

by percentage of respondents



Source: ETC Institute (2019)

RESIDENTIAL DESIGN STANDARDS

Goal: Facilitate redevelopment that maintains and enhances Roeland Park's character and quality

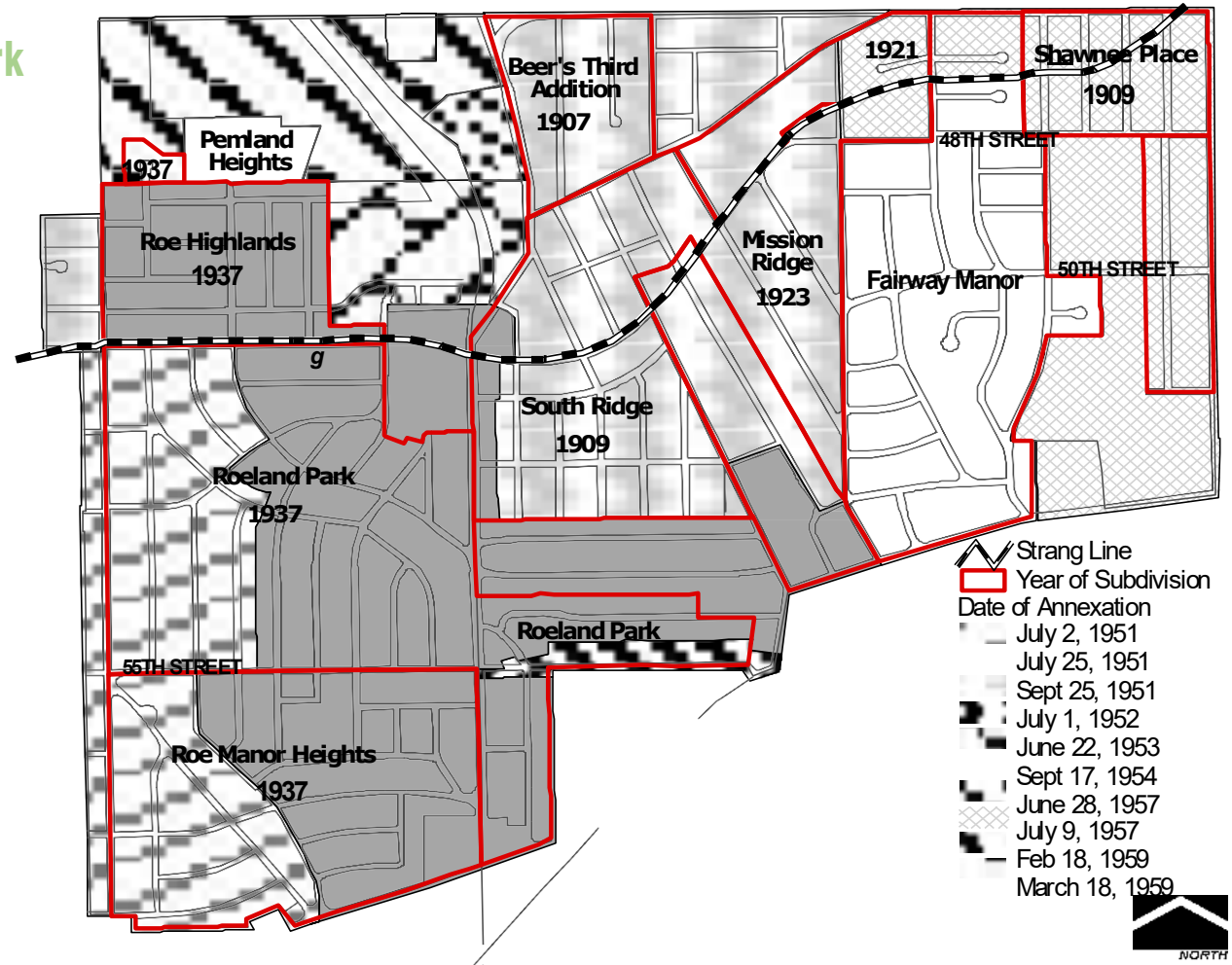
- **Building Setbacks**
- **Building Height / Volume**
- **Design Details**
- **Materials**
- **Greenspace**

Examples in the Kansas City Metro:

- **Prairie Village – Required on any new home construction or addition over 200 SF, as of February 1, 2019**
 - **Fairway – Enforced through zoning ordinances**
 - **Mission Hills – Major home alterations and new homes must be approved by an Architectural Review Board**
-

RESIDENTIAL DESIGN STANDARDS

- **Consistent housing styles throughout Roeland Park**
- **Newest subdivision developed in 1959**
- **Inherent character of homes / neighborhoods**



RESIDENTIAL DESIGN STANDARDS

What could these policies address?



RESIDENTIAL DESIGN STANDARDS

What could these policies address?



RESIDENTIAL DESIGN STANDARDS

What could these policies address?



Google Earth

RESIDENTIAL DESIGN STANDARDS

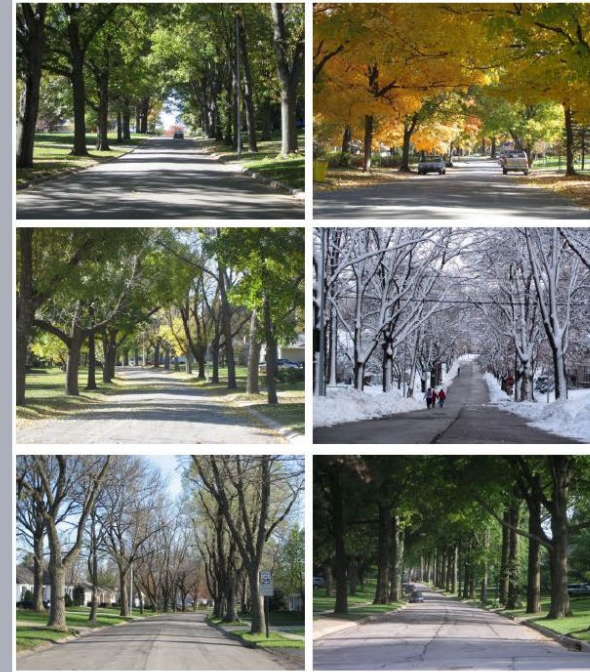
Neighborhood Design Standards Phase II:
Addressing Redevelopment in Prairie Village



RESIDENTIAL DESIGN STANDARDS

Phase II of Design Guidelines – Proposed Changes

- **Greenspace & Streetscape**
 - Greenspace of Entire Lot
 - Greenspace of Lot Frontage
 - Street Trees
- **Lot Standards & Building Massing**
 - Keep lot coverage at 30%
 - Window requirements
 - Wall plane requirements
- **Garages & Curb Appeal**
 - Garage height and width requirements – no larger than 8' tall and 18' wide
 - Garage massing on front elevation – can't be more than 40% or 24'
 - Restrictions on garages in front of building line

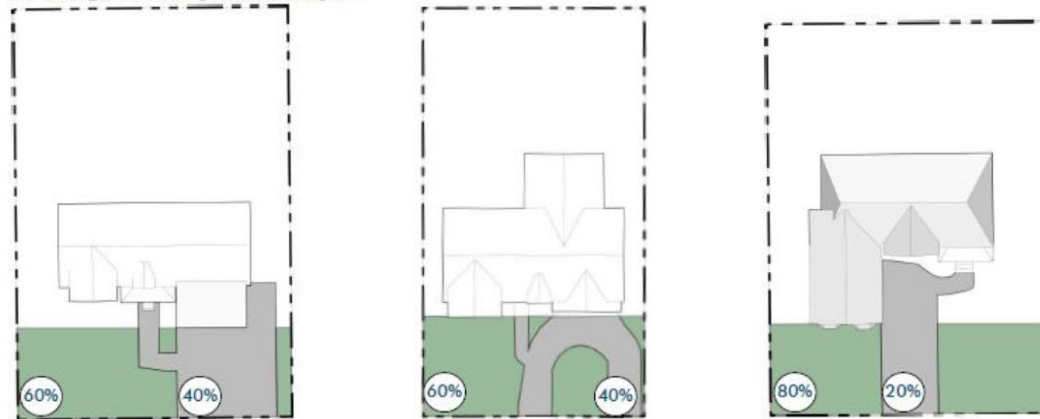


RESIDENTIAL DESIGN STANDARDS

Proposed Changes: Frontage Greenspace Requirements

- Minimum 60% between front building line and front lot line
- Exception: Minimum 50% on lots less than 70' wide on collector or arterial streets (to allow for circular driveways)

Frontage Greenspace Examples



RESIDENTIAL DESIGN STANDARDS

Proposed Changes: Windows & Door Openings

Windows - Proposed Standards



Front Facade:
15% Window Coverage



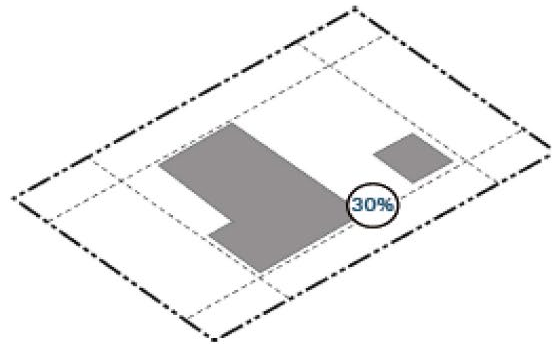
Side: 8% Window Coverage



Street-Facing Side: 15% Window Coverage

RESIDENTIAL DESIGN STANDARDS

Lot Coverage & Setbacks



Lot Coverage – 30%

Setbacks – Front: 30'

Rear: 25'

Side: 6' R-1B; 7' R-1A, and 20% of
total lot width

Street side: 15'

RESIDENTIAL DESIGN STANDARDS

Applicability

- Any new structure
 - Addition of more than 200 square feet of building footprint to existing structure
 - Alterations to the form or massing of the front elevation or roof structure
 - R-1A and R-1B districts only
-

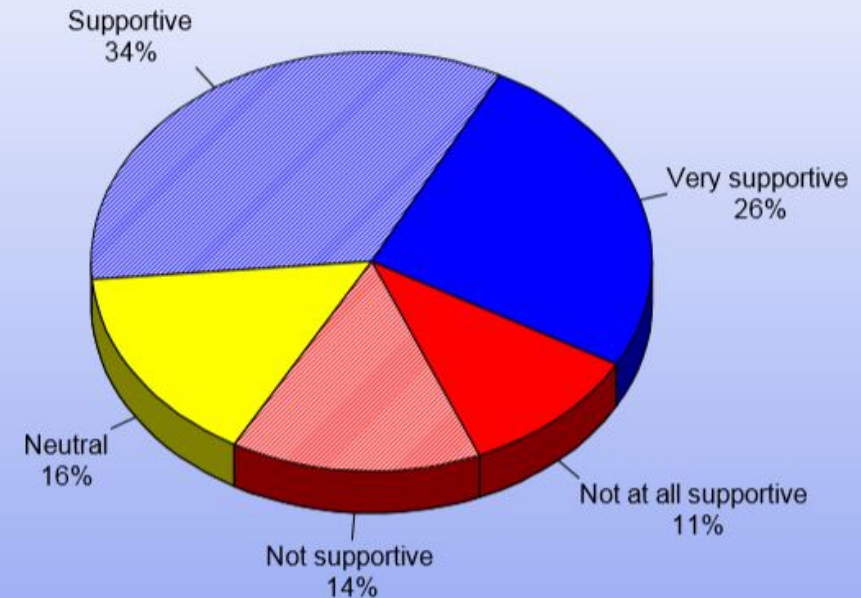
RESIDENTIAL DESIGN STANDARDS

City of Roeland Park Community Survey (2019)

- 60% - Supportive
- 16% - Neutral
- 25% - Not Supportive

Q23. How supportive are you of increased authority of the City government to regulate design aesthetics in new, or significantly remodeled homes in Roeland Park?

by percentage of respondents (without "Don't Know")



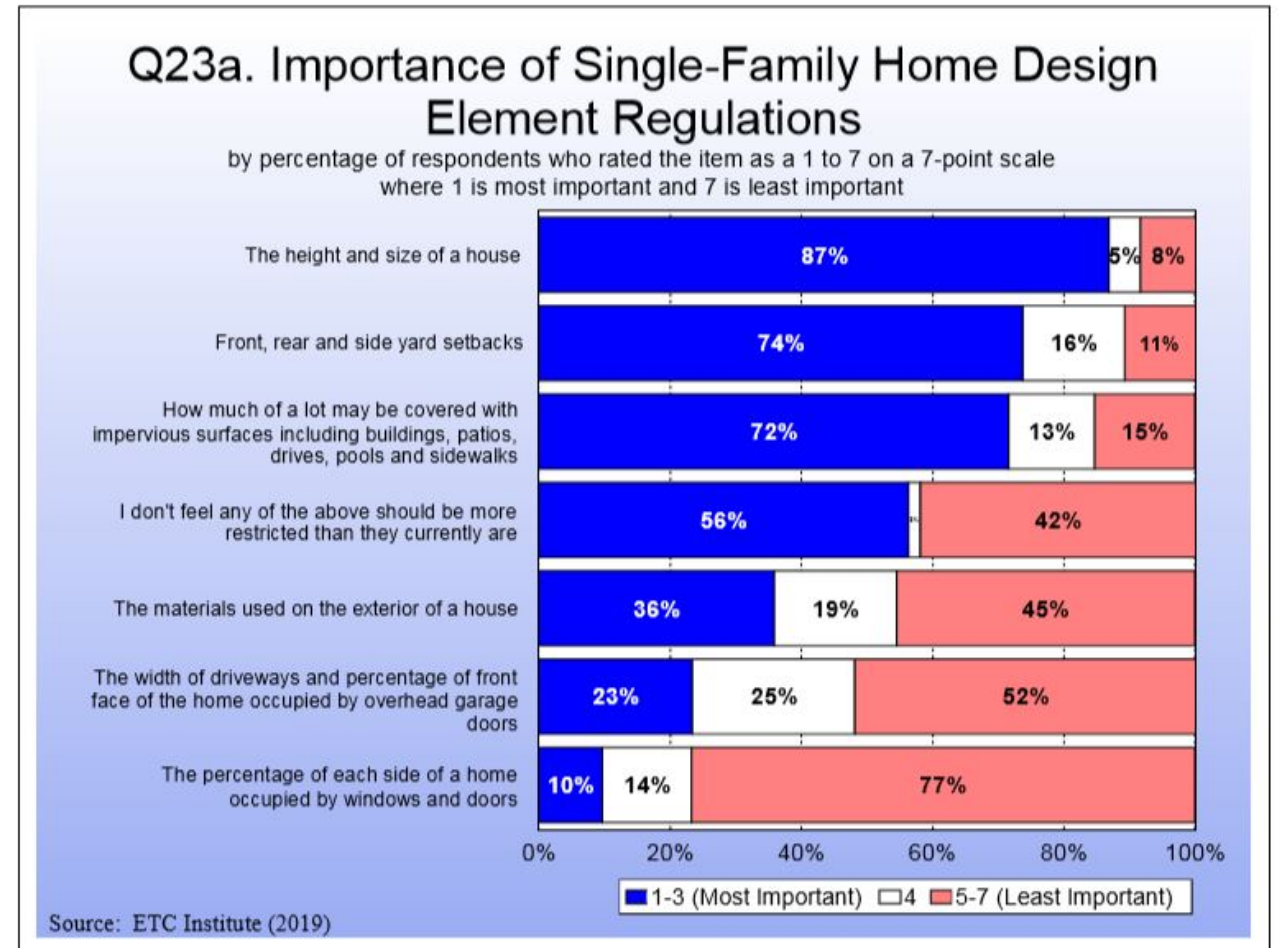
Source: ETC Institute (2019)

RESIDENTIAL DESIGN STANDARDS

City of Roeland Park Community Survey (2019)

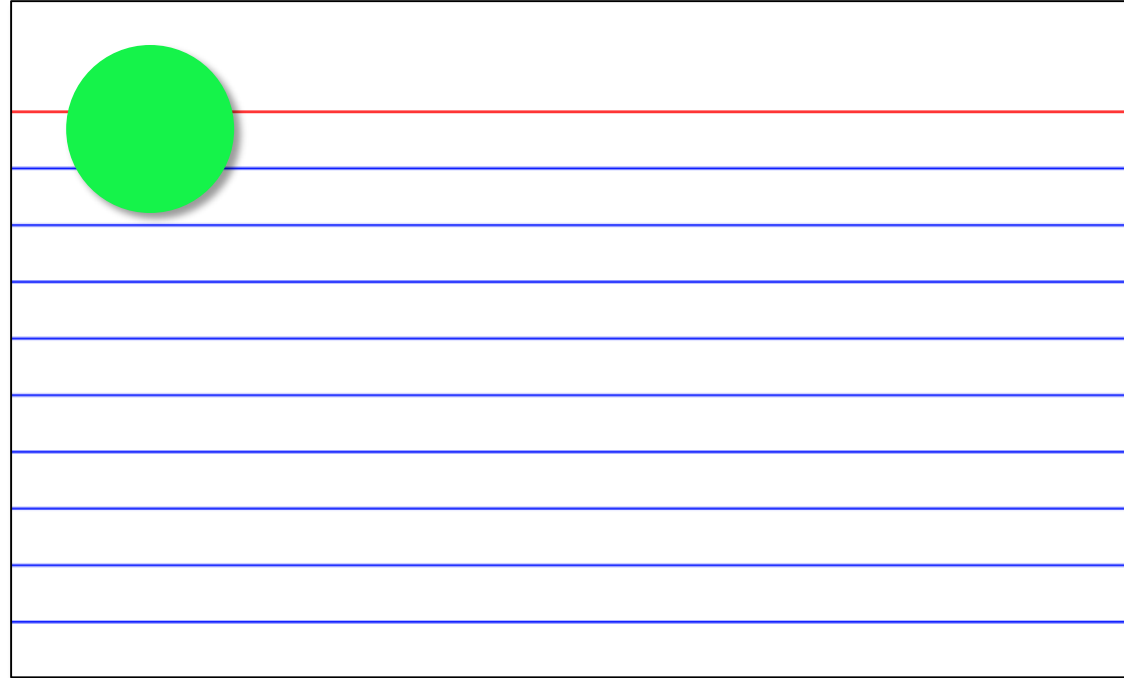
- Most Important Issue
 - #1 - Height and size of a house
 - #2 - Front, rear and side yard setbacks
 - #3 – Impervious Surfaces

56% - Feel Single-Family home design regulations should not be more restricted than they currently are



VISIONING EXERCISE

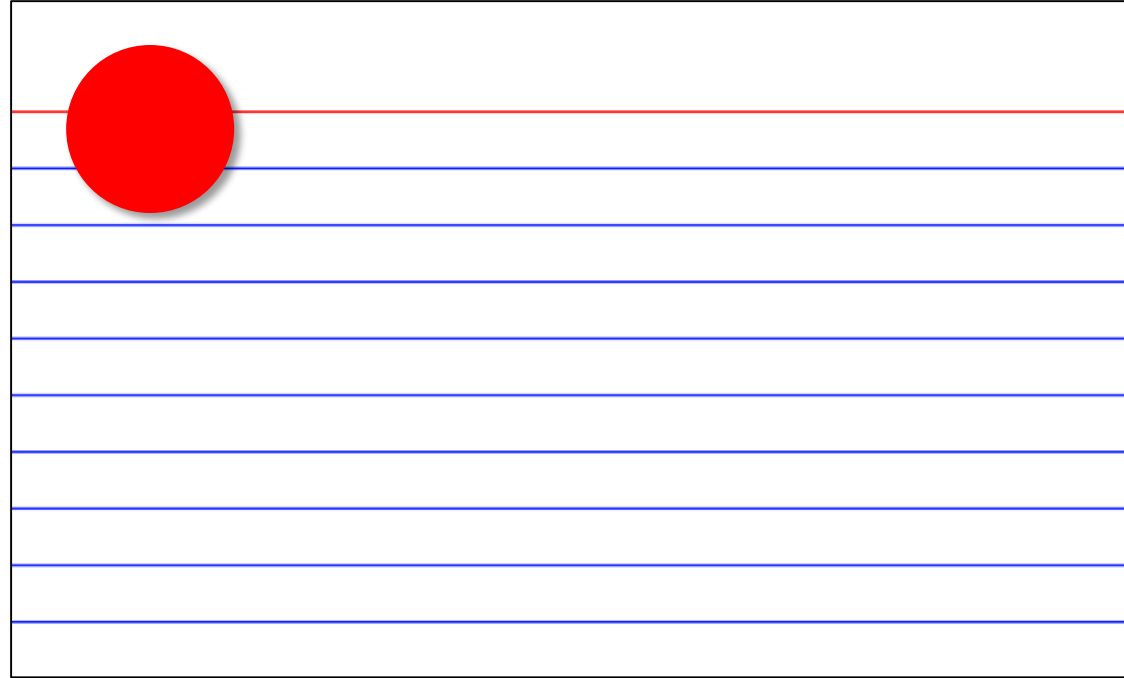
What are the biggest **opportunities** for Roeland Park?



A rectangular box with a black border, containing a red horizontal line at the top and ten blue horizontal lines below it. A green circle is positioned on the red line, partially overlapping the first blue line.

VISIONING EXERCISE

What are the biggest challenges for Roeland Park?

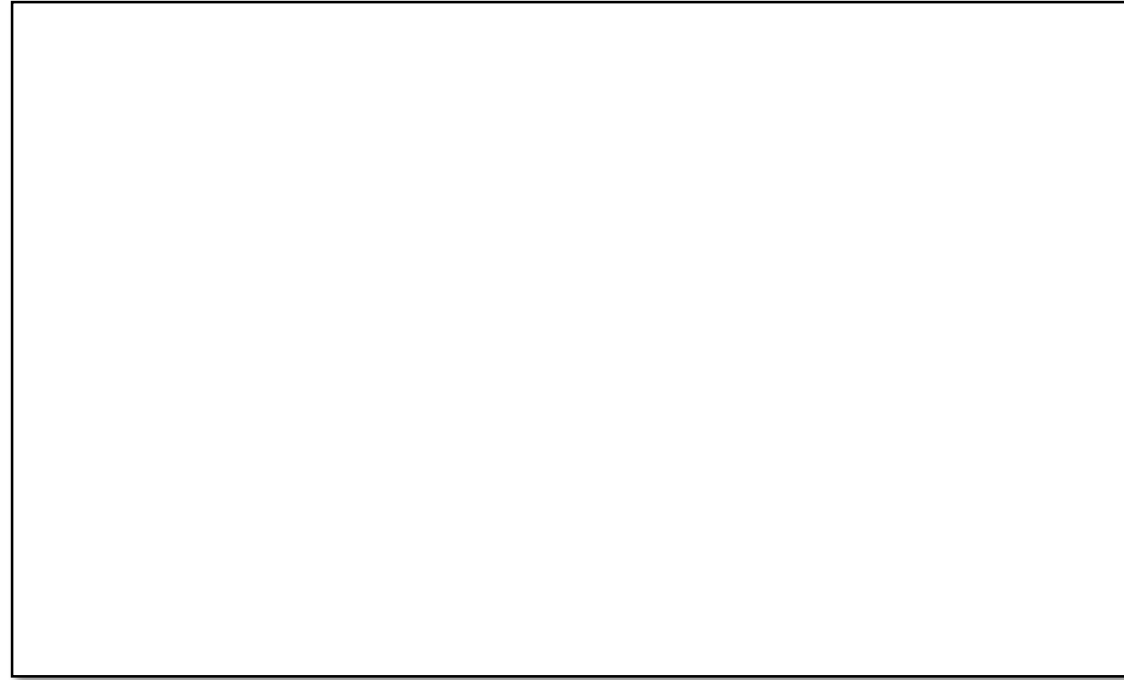
A rectangular box with a black border, containing a red circle in the top left corner and ten horizontal blue lines for writing. The red circle is positioned such that its right edge is aligned with the first blue line. The blue lines are evenly spaced and extend across the width of the box.

VISIONING EXERCISE

What is your **one big dream** for Roeland Park?

VISIONING EXERCISE

What is your **one big fear** for Roeland Park?

A large, empty rectangular box with a thin black border, intended for the user to write their response to the question above.

NEXT STEPS...

November 19 – CPAC Meeting #2 – Analysis Review



Item Number: Other Matters Before the Planning
Commission- VI.-1.
Committee 8/27/2019
Meeting Date:



City of Roeland Park
Action Item Summary

Date: 8/27/2019
Submitted By: Jennifer Jones-Lacy
Committee/Department:
Title: **Preview of NERJ Development**
Item Type:

Recommendation:

For informational purposes only

Details:

Attached are the preliminary plans submitted by the developer for the medical office building located at the northeast corner of Roe and Johnson Drive. The rezoning, platting, preliminary and final development plans are set to have a public hearing before the Planning Commission on September 17th. City Staff recently met with the project managers for the developer to review comments prior to their final submission (see attached). Staff wanted to get these plans in front of you as a preview of what you will see in September. Please keep in mind some of the elevations and other elements will change from this preliminary submission. We plan to get the full complete packet out to you the Thursday or Friday before the Planning Commission meeting so you have time to review.

Financial Impact

Amount of Request:	
Budgeted Item?	Budgeted Amount:
Line Item Code/Description:	

Additional Information

How does item relate to Strategic Plan?

How does item benefit Community for all Ages?

ATTACHMENTS:

Description	Type
📎 Engineer-staff comments for Final Development Plan	Exhibit
📎 Development Applications - NERJ	Exhibit
📎 Final Development Plan	Exhibit
📎 Photometrics Plan	Exhibit
📎 Elevations	Exhibit
📎 Stormwater Drainage Study	Exhibit
📎 Landscaping Plan	Exhibit



City of Roeland Park

4600 W. 51st Street

Roeland Park, KS 66205

(913) 722-2600

Monday August 19, 2019

Andy Gabbert, PLA Renaissance Infrastructure Consulting
132 Abbie Ave.
KCKS 66103

Re: Preliminary Development and Final Development Plan Review

Andy,

We have completed a preliminary review of your proposed project. Please address the comments and resubmit the plans. The review will be broken down into Architectural, Site and Utilities and Public Improvements sections. They are as follows:

Architectural

Since the land sale agreement gives the City architectural approval authority, we have shared the renderings with the City Council, below are some of the comments they have shared:

- "Design does not offend but does not inspire. As for materials, metal panel will help balance out the cost of the brick/stone."
- "This seems to be a barely decorated box. The protruding "eyebrow" on each corner in dark gray is apparently becoming outdated already - it does NOT fit with the idea of "timeless." The "eyebrow" looks stuck on to the side of the building."
- "Other than the eyebrow, there is no relief to the box. No setbacks or undulations to break up the long flat surfaces. The only minor interest comes from the use of various materials."
- "Provision for an architectural "spire" on the south end of the project to provide a gateway to the city that would coincide with the architectural elements to the west."
- "The building looks a little generic. Not really exciting for our gateway. Pull some of the elements from hospital/bank with the stone, etc."
- "The west and east elevations are long runs, add a sun screen to the storefront systems it would give a nice architectural element while providing solar control."

Comments provided by the City Administrator:

- Replace EFIS areas with stone slate, similar to style used on Commerce Bank.
- Add window treatments to provide shade as well as architectural detail to the building.
- Add setbacks and/or bump outs to break up the east and west elevations.
- Add a focal point at the SW or south elevation to add prominence/uniqueness to the building. This is the City's southern Gateway, we want the building to add to the feel of a gateway.
- The area south of the building should be designed to serve as display for public art and employ landscaping and seating to provide a park like setting for the public/patrons/staff of the facility.
- Add trees that flower (crabapple or pink dogwoods) or have dramatic colors (crimson maple, autumn blaze maple) to add character to the site.
- The easement for the City Monument sign should be located at the SW corner of the site (refer to sketch).
- Alignment of the underground power should be moved to the east boarder of the site.
- Sanitary sewer re-alignment should be moved to the east boarder of the site.
- Screening to the north should employ vegetation vs. a fence.
- Mature trees should be saved if possible.

Site and Utility

- 1) Incorporate 8' sidewalks on the south and east ends of the project located 1' inside of the ROW. Reflect a 5' Sidewalk along project limits on Granada. The City Engineer is working on alignment of the sidewalk along Granada as well.
- 2) The extension of public sidewalks is requested under 16-1416 and can be mandated by PC at development approval.
- 3) FDP requires finished grades/contours.
- 4) Will this be the actual name of the plat? PDP and FDP should match platted name.
- 5) Property lines and ownership should be shown within 400' (south and west).
- 6) Dimensions of road surface and location in the ROW and any pertinent structure size should be shown within 400'.
- 7) Signature block for PC chair and City Engineer.
- 8) Structure of maintenance agency.
- 9) Final letters of utility availability.
- 10) Easements for utilities through the site as well proposed vacations on the FDP.
- 11) Exterior building material sample boards.
- 12) Curb cut widths and radii.
- 13) Building setback lines.
- 14) Size of signage and location.
- 15) Proof of filing post action.
- 16) Pedestrian interconnectivity should exist between the public walks and the building access points as well as access to the public art display location.
- 17) Differential paving for pedestrian and vehicle intersections.
- 18) Provide Fire Department equipment accessibility report per email sent from this office on 8/23/19 and developed under FD specific criteria sent in that email.

Public Improvements- Daniel G. Miller, P.E. City Engineer

Final Development Plan Comments:

1. Provide an 8-ft wide sidewalk, extending from Roe Boulevard to Granada Street along the Johnson Drive (off ramp) frontage. Provide accessible route from public sidewalk to perimeter building sidewalk.
2. Granada Lane is currently 20.5-ft wide (back of curb to back of curb). Development will be responsible for costs associated with widening the street to 26-ft back of curb to back of curb section adjacent to the development this cost will be approved by the City Engineer and deposited with the City to be used in completing the improvements in the future. The cost of installing a 5-ft wide sidewalk along Granada adjacent to the site will also be deposited with the City. A 5-ft easement adjacent to Granada Lane shall be provided for future sidewalk improvement.
3. Verify existing sanitary sewer main sizes at southwest and south side of proposed development. The Commerce Bank development extended an 8-inch sanitary sewer, however, a 6-inch sewer is identified on the survey. Each manhole has a stub to support a sanitary sewer main relocation. See attached as-built.
4. Add dimensions of proposed sign easement to General Layout sheet callout and to Site Dimension Plan. Adjust sign easement location so it does not encroach into existing permanent sanitary sewer easement.
5. Add callout and delineate proposed sidewalk easement for sidewalk along Roe Boulevard that encroaches into subject property.
6. Show utility easements for proposed utility relocations and existing utilities to remain.
7. Clarify proposed storm sewer infrastructure in vicinity of the rain garden. Per drainage study, it's understood a portion of the parking lot will be routed to the rain garden for water quality treatment.

Drainage Study

Delineate and identify the offsite drainage area to the north that will be collected and routed through the proposed site stormwater infrastructure and/or routed north of the parking lot improvements. Drainage improvements need to be coordinated with landscape plan improvements along property line.

Construction Document Related Comments (for future Building Permit Submittal):

Development design engineer is responsible for preparing sanitary sewer main relocation plans and accompanying documents for review and approval by Johnson County Wastewater.

Design engineer is responsible for coordinating with Kansas City Power and Light for relocation of overhead facilities to underground facilities as depicted on Final Development Plans.

Signage /Accessibility

1. Identify accessible parking space sign locations. Identify accessible ramp locations and provide enlarged grading plan to verify proposed accessible parking and loading areas are less than 2%.
3. Directional signage / pavement marking may be necessary near the first bay of parking off Roe Boulevard, to facilitate internal traffic circulation.

Please contact me if you have additional questions at 913 722 2600.

Respectfully,

A handwritten signature in blue ink, consisting of a stylized 'J' followed by a horizontal line that extends to the right.

John Jacobson
Building Official
City of Roeland Park Kansas

Fee: _____
 Rec'd By: _____
 Date Paid: _____

APPLICATION FOR REZONING
City of Roeland Park, Kansas
 PLEASE PRINT

Case No.: _____
 Planning Commission
 Date: _____

Applicant/Agent's Name(s) SMG Investments, LLC Phone: 913.432.2080

Mailing Address 5555 W. 58th St. Mission KS 66202
Street City State Zip

Property Owner's Name(s) Same as Above Phone: _____

Mailing Address _____
Street City State Zip

Requested Rezoning From: SFR **to** CP-O
Present Zoning District Proposed Zoning District

Location of property NE Corner; Johnson & Roe

Subdivision: _____ Lot: _____ Block: _____

Legal description See Attached

(Attached legal description must be typed).

Current Land Use Vacant Proposed Land Use: Medical Office

Reasons for requesting zoning The current zoning will not allow for office type use.

Applicant signature  Date 08-07-2019

Note: For rezoning procedure, see application form for Development Plan Approval.

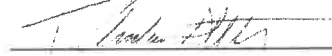
To Be Filled in by the City: Fee Paid \$ _____ Date _____ Received by: _____
 Proof of ownership and/or authorization of agent affidavit(s) submitted. Date: _____
 Technical studies required? ☐ Yes ☐ No If yes, what type and when submitted? _____
 Assurances of adequate public facilities received. ☐ Yes ☐ No If yes, date received _____
 Date application deemed complete: _____
 Surrounding property owners notified: _____ Date of publication: _____ Sign Posted _____
 Date notices sent: _____ Public Hearing date: _____
 Planning Commission recommendation: _____ Date: _____
 City Council Action: _____ Date: _____ Ordinance # _____ Publication Date: _____

REZONING CHECKLIST [CODE 16-317]Date Submitted 08/07/19Name of Project Johnson & Roe Medical Office Building

Case # _____

Description/Type of Project: Medical Office Building

I, Andy Gabbert, (Contact Person's Name - Printed), hereby certify the attached and completed application contains the information as specified in accordance with the Roeland Park City Code. I understand the submission of incomplete or inaccurate information may result in a delay in processing and action on this application.



Signature of Contact Person

08/07/19

Date

NOTE: Some plans, because of their scale and complexity may require additional information not indicated on this checklist. You are encouraged to work closely with the Staff in advance of your actual application submittal. Please submit **ONLY THOSE DRAWINGS** necessary to provide information required by this checklist. Submission of construction drawing's or other nonessential drawings may delay the review process. Please check appropriate boxes (I = Included or N/I = Not Included) as the form is completed.

The following items shall be submitted in support of any application for rezoning:

☐ I ☐ N/I

1. Legal description of the property;
2. A statement of the reasons why rezoning is being requested;
3. ~~The written comments of the Redevelopment Committee on the concept plan, if applicable pursuant to section 16-322;~~
4. A preliminary development plan, except for rezonings to a Single-Family Residence District and Duplex Residence District;
5. All studies as may reasonably be required pursuant to section 16-304;
6. Assurances of adequate public facilities as required by section 16-305.

Legal Description – Johnson & Roe MOB

All of Lots 1 thru 4 and Lots 24 thru 26, ROSELAND COURT, and all that part of the NE 1/4 of Section 9, Township 12, Range 25, all in the City of Roeland Park, Johnson County, Kansas, more particularly described as follows:

Commencing at the Northwest corner of the NE 1/4 of said Section 09; thence S 1° 55' 22" E, along the West line of said NE 1/4, a distance of 1222.46 feet, to a point on the Westerly extension of the North line of said Lot 4; thence N 87° 16' 50" E, along the North line of the Westerly extension of said Lot 4, a distance of 40.00 feet, to the Point of Beginning; thence continuing N 87° 16' 50" E, along the North line of said Lot 4, a distance of 137.74 feet, to the Northeast corner of said Lot 4; thence S 1° 55' 37" E, along the East line of said Lot 4, a distance of 60.00 feet, to the Southeast corner of said Lot 4; thence N 87° 16' 50" E, along the North line of said Lot 24, a distance of 138.39 feet, to the Northeast corner of said Lot 24; thence S 1° 55' 37" E, along said West right of way line of Granada Lane (Platted as Walnut Street), as now established a distance of 130.27 feet, to a point of curvature; thence Southeasterly along a curve to the left having a radius of 80.00 feet, a central angle of 110° 07' 28", an arc distance of 153.76 feet; thence N 67° 56' 55" E, along said South right of way line, a distance of 75.47 feet, to a point on the East line of ROSELAND COURT; thence S 1° 55' 37" E, along the Southerly extension of the East line of said ROSELAND COURT, a distance of 90.54 feet; thence Southwesterly along a curve to the right having an initial tangent bearing of S 59° 37' 01" W, a radius of 475.00 feet, a central angle of 28° 29' 02", an arc distance of 236.14 feet, to a point of tangency; thence S 88° 06' 03" W, a distance of 193.98 feet (193.42 feet Deed), to a point of curvature; thence Northwesterly along a curve to the right having a radius of 34.00 feet, a central angle of 89° 58' 35", an arc distance of 53.39 feet, to a point on the East line Roe Boulevard, as established on said plat of ROSELAND COURT; thence N 1° 55' 22" W, along the West line of said NE 1/4, a distance of 349.43 feet, to the Point of Beginning, as described in Survey by McClure Engineering Co. dated April 12, 2019 as Project No. 190349.

Fee: _____
Rec'd By _____
Date Paid _____

**APPLICATION FOR
DEVELOPMENT PLAN APPROVAL**
City of Roeland Park, Kansas
PLEASE PRINT

Case No.: _____
Planning Commission
Date _____

Requested Action:

- | | <u>Fee</u> |
|--|------------|
| ☒ Preliminary Development Plan | \$150.00 |
| ☐ Revised Preliminary Development Plan | \$100.00 |
| ☐ Final Development Plan | \$200.00 |
| ☐ Revised Final Development Plan | \$200.00 |
| ☐ Landscaping Plan | \$125.00 |
| ☐ Site Plan (non-residential development in residential district) | \$150.00 |

Name of Development: Johnson & Roe Medical Office Building

Location: NE Corner of Johnson & Roe

Range 25E Township 12S Section: 09 Quadrant NE

Existing Zoning: SFR

Present use of Property: Vacant

Is Property subject to rezoning? ☒ Yes ☐ No

Is Property subject to Special Use Permit? Yes ☐ ☒ No

Applicant: SMG Investements, LLC

Address: 5555 W. 58th St

Phone: 913.333.3880

City: Mission

State: KS

Zip: 66202

Property Owner: Same as Applicant

Address: _____

Phone: _____

City: _____

State: _____

Zip: _____

Engineer/Surveyor/Architect: Renaissance Infrastructure Consulting - Andy Gabbert

Address: 5105 NW Canal St.

Phone: 913.333.3880

City: Riverside

State: MO

Zip: 64150

* Applicant signature *[Signature]*

* Date 8-6-19

To be completed by the City:

Fee Paid \$ _____

Date _____

Received by: _____

Proof of ownership and/or authorization of agent affidavit(s) submitted. Date: _____

☐ Rezoning Case No. _____

☐ Special Use Permit No. _____

☐ Previous Plan Approval: _____

☐ City Engineer review and comment submitted

Technical studies required? ☐ Yes ☐ No If yes, what type and when submitted? _____

Assurances of adequate public facilities received. ☐ Yes ☐ No If yes, date received _____

Supporting materials required: _____

Date Submitted: _____

Date application deemed complete: _____

Surrounding property owners notified: _____

Date of publication: _____

Sign Posted _____

Date notices sent: _____

Public Hearing date: _____

Planning Commission recommendation: _____

Date: _____

City Council Action: _____

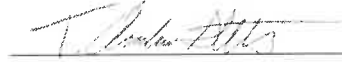
Date: _____

PRELIMINARY DEVELOPMENT PLANS CHECKLIST [CODE 16-323]Date Submitted 08/07/19Name of Project Johnson & Roe Medical Office Building

Case # _____

Description/Type of Project: Medical Office Building

I, Andy Gabbert, (Contact Person's Name - Printed), hereby certify the attached and completed application contains the information as specified in accordance with the Roeland Park City Code. I understand the submission of incomplete or inaccurate information may result in a delay in processing and action on this application.



Signature of Contact Person

08/07/19

Date

NOTE: Some plans, because of their scale and complexity may require additional information not indicated on this checklist. You are encouraged to work closely with the Staff in advance of your actual application submittal. Please submit **ONLY THOSE DRAWINGS** necessary to provide information required by this checklist. Submission of construction drawings or other nonessential drawings may delay the review process. Please check appropriate boxes (I = Included or N/I = Not Included) as the form is completed.

☒ I ☐ N/I

1. Application form
2. Eight copies of the preliminary site development plan that must include the following information:

☒ I ☐ N/I **GENERAL INFORMATION**

- a. North arrow;
- b. Scale;
- c. Date of plan preparation;
- d. Name and address of landowner.

☒ I ☐ N/I **SITE DEVELOPMENT**

- a. Location and dimension of buildings and other structures;
- b. Location and dimensions of parking areas;
- c. Location and dimensions of drives and walks;
- d. Location and dimension of public streets and all easements;
- e. General extent and character of proposed landscaping and screening;
- f. Proposed drainage patterns.
- g. Adjacent development (property within 200 feet) including lot lines, building footprints, access points and parking areas;
- h. Existing topography with contours at 5-foot intervals, and delineating any land areas within the 100-year flood plain;
- i. Location and size of any drainage structures, such as culverts, paved or earthen ditches or storm water sewers and inlets;
- j. Preliminary sketch drawings of elevations and floor plans depicting the general style, size and exterior construction materials of the buildings.

☒ I ☐ N/I **ADDITIONAL INFORMATION**

- a. Schedule indicating total floor area and land area;
- b. Parking Schedule showing the number of space provided and required for all existing buildings, and all spaces required for proposed buildings;
- c. Name and address of architect, landscape architect, planner, engineer, surveyor, or other person involved in the preparation of the plan.

3. All required studies pursuant to section 16-304.

☒ I ☐ N/I **TECHNICAL STUDIES**

- a. Traffic Study;
- ~~b. Parking Study;~~
- c. Lighting Study;
- d. Drainage Study;
- ~~e. Geo-technical Study;~~
- ~~f. Other (specify) _____~~

4. Assurances of adequate public facilities as required by section 16-305.
5. Assurances of proof of ownership and/or authorization of agent as required by section 16-302.

 PROOF OF OWNERSHIP AFFIDAVIT

STATE OF KANSAS)
COUNTY OF JOHNSON) SS

_____, being first duly sworn upon his/her oath deposes and states as follows:

 (1)

[FILL IN ONLY IF APPLICATION SUBMITTED ON BEHALF OF THE LEGAL OWNER]

That Wette Crabtree, managing partner, SM6 Investments LLC
(Name of owner signing Affidavit; if owner is a corporation or business, name of individual signing Affidavit, capacity and exact name and legal status of said corporation or business) is/are the legal owner/authorized official of the legal owner of the property that is the subject of Rezoning No. ____ /Special Use Permit No. ____ / (Other) ____ . (ALL OWNERS OF RECORD MUST FILE AN AFFIDAVIT).

~~(2)~~

~~[FILL IN ONLY IF APPLICATION SUBMITTED ON BEHALF OF A CONTRACT PURCHASER]~~

~~That _____
(Name of contract purchaser signing Affidavit; if a corporation or business, exact name and legal status of said corporation or business) is the holder of a contract to purchase the property that is the subject of Rezoning No. ____ / Special Use Permit No. ____ /
(Other) _____ from the owner(s) and is therefore a "landowner" within the meaning of the Zoning Regulations.~~

 
Signature

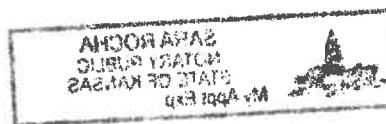
 Subscribed and sworn to before me this 6 day of August, 200


Notary Public

My commission expires:

1/27/21





Andy Gabbert

From: Colin McKee
Sent: Wednesday, August 7, 2019 11:26 AM
To: Andy Gabbert
Subject: Fwd: Will Serve Email - Johnson Dr & Roe Blvd

Get [Outlook for Android](#)

From: Shaw, Alan L
Sent: Wednesday, August 7, 10:08 AM
Subject: RE: Will Serve Email - Johnson Dr & Roe Blvd
To: Baxter, Steven W, Colin McKee

Mr. McKee,
Spectrum does provide cable TV, High Speed and fiber services in this area. It will take me a few days to get you a signed letter.

From: Baxter, Steven W
Sent: Wednesday, August 7, 2019 8:32 AM
To: Shaw, Alan L <Alan.Shaw@charter.com>; Colin McKee <cmckee@ric-consult.com>
Subject: FW: Will Serve Email - Johnson Dr & Roe Blvd

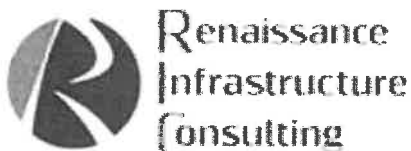
Alan,

Would you be able to forward this to the correct group for a Will Serve Email for an upcoming commercial location. Thanks.

Steve Baxter
Construction Supervisor
Charter Communications
8221 W 119th St
Overland Park, KS 66213
913-643-1901
steven.baxter@charter.com

From: Colin McKee [<mailto:cmckee@ric-consult.com>]
Sent: Tuesday, August 6, 2019 4:23 PM
To: Baxter, Steven W <Steven.Baxter@charter.com>
Subject: Will Serve Email

Colin McKee, A.A.E. , I-ACE
cmckee@ric-consult.com | 913.258.2929 (D) 816.365.3417 (C)





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August 7, 2019

Dear KCP&L Customer:

At KCP&L, we pride ourselves in offering reliable service to our customers. Our goal is to make you a satisfied customer by delivering electric service in a timely manner, and ensuring that your experience with us is a positive one. To assist us in meeting our goal, we need your help. Please submit the "checked" items below to initiate your project:

- ☐ Electric Service or Project Application (attached)
- ☐ Plot Plan and Legal Description
- ☐ Site Plan (including property and Right-of-Way lines)
- ☐ Plan and Profile Descriptions
- ☒ Service Entrance and Preferred Transformer Location(s)
- ☐ Contours and Elevations
- ☐ One-Line Electrical Riser Diagram
- ☒ Electronic and Hard copy of AutoCAD (ver. 2018 or prior) Final Job Plat by a Civil Engineer (preferably indexed) showing building footprints, curbs, paved areas, existing and proposed utilities location. A minimum of two opposing x-y coordinate points based on state plane coordinate system NAD83, or at least one section corner must be identified. (This copy must be a replica of the plat filed at the county courthouse.)
- ☐ Information pertaining to future/previous plats or phases of this project
- ☐ Order Meter for New Construction Form

Once these items have been received, KCP&L will generate a work request and establish a preliminary project schedule to meet your service requirement needs. You will be contacted if any additional information is needed.

As your project nears the construction phase, KCP&L will require additional assistance from you. Before your electrical service can be scheduled for construction, the following requirements must be satisfied

1. All construction related fees due to KCP&L must be paid in full.
2. All customer requirements, listed on your KCP&L supplied construction print, must be completed per KCP&L Standards. This includes any necessary underground inspection(s) of conduit and pad installation(s). Please follow KCP&L's design print and **not** the "proposed" design supplied by your architect or consulting engineer.
3. A stamped, signed survey by a licensed, certified survey company must be submitted if any conduit and concrete pads are installed as part of the project. Surveys must include an exhibit and legal description of the easement.
4. Easements must be signed, notarized, and returned before KCP&L equipment can be set. All plats must be filed and recorded with the proper government entity.
5. A billing account must be set up with KCP&L before a meter can be set for your temporary or permanent service. Please go online at <http://ala.kcpl.com/apps/newmeter/input.cfm>, contact our Customer Care Center at (816) 471-5275, or complete and return the enclosed Order Meter for New Construction Form to your KCP&L representative.
6. A city/county electrical inspection, if applicable, and a KCP&L service inspection must be passed before a meter can be set. Once KCP&L receives the approved city/county inspection, we will inspect the service to ensure our Standards have been met.

Once all aforementioned responsibilities are met, your project will be released to construction. It normally takes a minimum of 3-4 weeks to schedule a KCP&L construction crew and begin construction. However, if any one of the above requirements is not completed in a timely manner, it could delay service to your project.

Please view our Electric Service Standards online at:
<http://ss.wr.com/>

We hope that this information will facilitate smooth progress of your electric service project. Please maintain regular communication with your KCP&L Representative as these requirements are completed. **Return the completed forms and requested information to your KCP&L representative below.**

Aaron Brown
Engineer II
16215 W. 108th Street, Lenexa, KS 66219
Phone: 913/894-3074 Fax:
Email: aaron.a.brown@kcpl.com

Internal Use Only



SW
9444 Nall Ave
Suite
Overland Park, KS 66207

T: 9133834940
F: 9133834961
www.att.com

August 07, 2019

Colin McKee
Renaissance Infrastructure Consulting
N/A NE corner of Roe Ave and Johnson Dr
Roeland Park, Kansas 66205

Dear Mr. McKee,

This letter is in response to your request for information on the availability of AT&T service at the NE corner of Roe Ave and Johnson Dr.

Attn: Colin McKee

RE: Medical office building @ NE corner of Roe Ave and Johnson Dr, Roeland Park, KS 66205

This letter acknowledges that the above referenced project is located in an area served by AT&T. Any service arrangements for this location will be subject to later discussions and agreements between the developer and AT&T. Please be advised that this letter is not a commitment by AT&T to provide service to the NE corner of Roe Ave and Johnson Dr but an acknowledgement that we have service in this area.

Please contact me at the phone number included in this letter if you have any questions.

Thank you for contacting AT&T.

Sincerely,

Kenneth Anderson
Manager OSP Engineer

A handwritten signature in cursive script, reading "Kenneth Anderson", is located below the typed name and title.

Andy Gabbert

From: John, Jeena, JCW <Jeena.John@jcw.org>
Sent: Wednesday, August 7, 2019 9:20 AM
To: Andy Gabbert
Cc: Piller, Mike, JCW
Subject: RE: Will Serve letters - NE Corner - Johnson & Roe

Andy,

I can provide you a "Will Serve" letter for this property latest by Friday. Let me know if you need the letter prior to Friday.

Thank you

Regards

Jeena John, PE

Direct: 913- 715-8524 | Office: 913-715-8500

From: Andy Gabbert <agabbert@ric-consult.com>
Sent: Tuesday, August 6, 2019 3:49 PM
To: John, Jeena, JCW <Jeena.John@jcw.org>
Subject: Will Serve letters - NE Corner - Johnson & Roe

This message came from outside of Johnson County Government - please use caution when opening attachments or links.

Hi Jeena,

When we met last week, I meant to ask about a utility assurance or "Will Serve" letter. Is this something that JCW can provide me with? The city of Roeland Park is asking for this as part of our submittal. I believe a simple email stating that service is available will suffice.

Appreciate the help,

Andy Gabbert, PLA

Landscape Architect

Renaissance Infrastructure Consulting

agabbert@ric-consult.com | 913.333.3880 (d) | 913.314.6967 (c)



5015 NW Canal Street, Suite 100 | Riverside, MO 64150

www.ric-consult.com | 816.800.0950 (o)



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Fee: _____
 Rec'd By: _____
 Date Paid: _____

**APPLICATION FOR
 DEVELOPMENT PLAN APPROVAL**
City of Roeland Park, Kansas
 PLEASE PRINT

Case No.: _____
 Planning Commission
 Date: _____

Requested Action:

- | | Fee |
|--|------------|
| ☐ Preliminary Development Plan | \$150.00 |
| ☐ Revised Preliminary Development Plan | \$100.00 |
| ☒ Final Development Plan | \$200.00 |
| ☐ Revised Final Development Plan | \$200.00 |
| ☐ Landscaping Plan | \$125.00 |
| ☐ Site Plan (non-residential development in residential district) | \$150.00 |

Name of Development: Johnson & Roe Medical Office Building

Location: NE Corner of Johnson & Roe

Range 25E Township 12S Section: 09 Quadrant NE

Existing Zoning: SFR Present use of Property: Vacant

Is Property subject to rezoning? Yes No

Is Property subject to Special Use Permit? Yes No

Applicant: SMG Investements, LLC

Address: 5555 W. 58th St Phone: 913.333.3880

City: Mission State: KS Zip: 66202

Property Owner: Same as Applicant

Address: _____ Phone: _____

City: _____ State: _____ Zip: _____

Engineer/Surveyor/Architect: Renaissance Infrastructure Consulting - Andy Gabbert

Address: 5105 NW Canal St. Phone: 913.333.3880

City: Riverside State: MO Zip: 64150

* Applicant signature *Y. Gabbert* * Date 8-6-09

To be completed by the City: Fee Paid \$ _____ Date _____ Received by: _____

Proof of ownership and/or authorization of agent affidavit(s) submitted. Date: _____

☐ Rezoning Case No. _____ ☐ Special Use Permit No. _____ ☐ Previous Plan Approval: _____

☐ City Engineer review and comment submitted

Technical studies required? ☐ Yes ☐ No If yes, what type and when submitted? _____

Assurances of adequate public facilities received. ☐ Yes ☐ No If yes, date received _____

Supporting materials required: _____ Date Submitted: _____

Date application deemed complete: _____

Surrounding property owners notified: _____

Date of publication: _____ Sign Posted _____

Date notices sent: _____

Public Hearing date: _____

Planning Commission recommendation: _____

Date: _____

City Council Action: _____

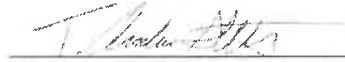
Date: _____

FINAL DEVELOPMENT PLANS CHECKLIST [CODE 16-327]Date Submitted 08/07/19Name of Project Johnson & Roe Medical Office Building

Case # _____

Description/Type of Project: Medical Office Building

I, Andy Gabbert, (Contact Person's Name - Printed), hereby certify the attached and completed application contains the information as specified in accordance with the Roeland Park City Code, I understand the submission of incomplete or inaccurate information may result in a delay in processing and action on this application.



Signature of Contact Person

08/07/19

Date

NOTE: Some plans, because of their scale and complexity may require additional information not indicated on this checklist. You are encouraged to work closely with the Staff in advance of your actual application submittal. Please submit **ONLY THOSE DRAWINGS** necessary to provide information required by this checklist. Submission of construction drawing's or other nonessential drawings may delay the review process. Please check appropriate boxes (I = Included or N/I = Not Included) as the form is completed.

☒ I ☐ N/I

1. Application form.
2. Eight copies of the preliminary site development plan to be drawn to a standard engineer's scale. The actual scale used will depend on the development and shall be subject to the approval of the city engineer. The plans must include the following information:

☒ I ☐ N/I **GENERAL INFORMATION**

- a. North arrow;
- b. Scale;
- c. Date of plan preparation;
- d. Name and address of landowner;
- e. A small key map indicating the location of the property within the City.

☒ I ☐ N/I **SITE DEVELOPMENT**

- a. All existing and proposed adjacent public street right-of-way with centerline location;
- b. All existing and proposed adjacent public street and public drive locations, widths, curb cuts and radii;
- c. Location, width and limits of all existing and proposed sidewalks;
- d. Location, size and radii of all existing and proposed median breaks and turning lanes;
- e. Distance between all buildings. between buildings and property lines and between all parking areas and property lines;
- f. Location of all required building. and parking set backs;
- g. Location, dimensions, number of stories and area in square feet of all proposed buildings;
- h. Area of land on site plan in square feet or acres.

☒ I ☐ N/I **PARKING**

- a. Location and dimensions of all driveways;
- b. Location and dimensions of all parking lots;
- c. Location and dimensions of all parking stalls and aisles;
- d. Location and dimensions of all loading and service areas and docks;
- e. Location, height, candle power and type of outside lighting fixtures for parking lots.

☒ I ☐ N/I **LANDSCAPE AND SCREENING**

- a. Location, size and materials to be used for all screening, including screening of outside trash enclosure areas.

☒ I ☐ N/I **GRADING AND DRAINAGE DESIGN PLAN**

- a. Finished grades or contours for the entire site at 2 foot contour intervals;
- b. Limits, location, size and material to be used in all proposed retaining walls;

☒ I ☐ N/I **ADDITIONAL INFORMATION**

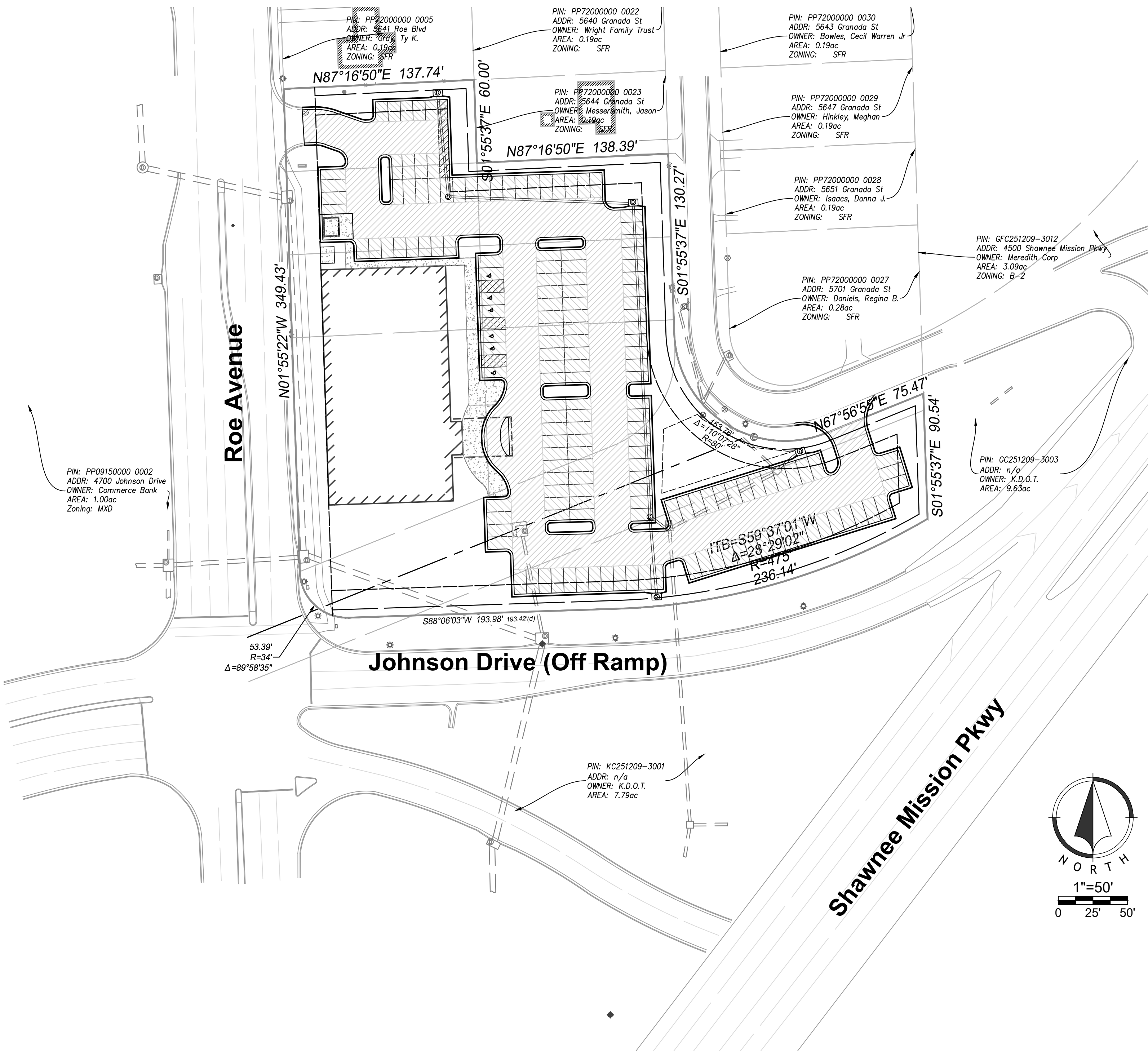
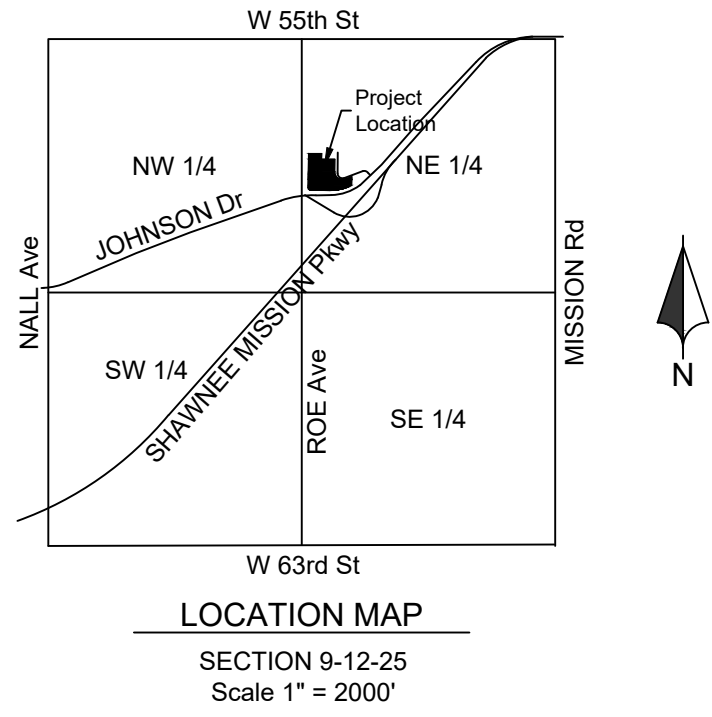
- a. Location, height, candle power and type of outside lighting fixtures for buildings;
- b. Location, size, type of material and message of all proposed monument or detached signs;
- c. Pertinent peripheral information to include adjacent developments, alignment and location of public and private driveways and streets, medians, public and semi-public easements

☒ I ☐ N/I

One copy of the proposed site plan and one copy of the proposed building elevations shall be reduced onto 8-1/2

1. inch by 11 inch bond paper.
2. Assurances of adequate public facilities as required by section 16-305.
3. Proof of filing of the statement required by section 16-325 (a).
4. ~~Deeds of dedication for all rights-of-way or easements required as a result of preliminary development plan approval if conveyance thereof is not to be made by plat or by the filing of the final development plan pursuant to Section 16-329.~~
5. ~~A copy of all covenants and restrictions applicable to the development, if required by the terms of the preliminary development plan.~~
6. ~~Evidence of the establishment of the agency for the ownership and maintenance of any common open space and all assurances of the financial and administrative ability of such agency required pursuant to approval of the preliminary development plan, if required by the terms of the approved preliminary development plan.~~
7. ~~Evidence of satisfaction of any stipulations of the preliminary development plan approval which were conditions precedent to consideration of the final development plan.~~

FINAL DEVELOPMENT PLANS for
Johnson & Roe Medical Office Building
City of Roeland Park, Johnson County, Kansas



LEGEND

	Existing Section Line		Proposed Right-of-Way
	Existing Right-of-Way Line		Proposed Property Line
	Existing Lot Line		Proposed Lot Line
	Existing Easement Line		Proposed Easement
	Existing Curb & Gutter		Proposed Curb & Gutter
	Existing Sidewalk		Proposed Sidewalk
	Existing Storm Sewer		Proposed Storm Sewer
	Existing Storm Structure		Proposed Storm Structure
	Existing Waterline		Proposed Fire Hydrant
	Existing Gas Main		Proposed Waterline
	Existing Sanitary Sewer		Proposed Sanitary Sewer
	Existing Sanitary Manhole		Proposed Sanitary Manhole
	Existing Contour Major		Proposed Contour Major
	Existing Contour Minor		Proposed Contour Minor
	Existing Underground Power Line		Future Curb and Gutter

Index of Sheets

C01.....	TITLE SHEET
C02.....	EXISTING CONDITIONS
C03.....	GENERAL LAYOUT PLAN
C04.....	SITE DIMENSION PLAN
C05.....	UTILITY PLAN
C06.....	GRADING PLAN
C07.....	STORM PLAN
L01.....	LANDSCAPE ARCHITECTURE PLANS
A2.1.....	BUILDING FOOTPRINT
A5.1.....	EXTERIOR ELEVATIONS
LP101.....	PHOTOMETRIC SITE PLANS

APPLICANT/DEVELOPER

SMG Investments, LLC
5555 W 58th St, Mission, KS 66202
(913) 432-2080

CONSULTANT

Renaissance Infrastructure Consulting
ric-consult.com | 816.800.0950
Attn: Dustin Burton, PE
dburton@ric-consult.com
1815 McGee Street, Suite 200
Kansas City, MO 64108

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RECORDING
PURPOSES, OR
IMPLEMENTATION
8/6/2019 8:04:22 AM

ACI
BOLAND
ARCHITECTS

1710 Wyandotte
Kansas City, MO 64108
T: 816.763.9600

ACI/Boland, Inc.
Kansas City | St. Louis
Licensee's Certificate of Authority Number:

CIVIL CONSULTANT

Renaissance Infrastructure Consulting
132 Abbie Ave.
Kansas City, Kansas 66103
Licensee's Certificate of Authority Number:

Phone Number: 913-317-9500

STRUCTURAL CONSULTANT

Bob D. Campbell
4338 Bellevue
Kansas City, Missouri
Licensee's Certificate of Authority Number:

Phone Number: 816-531-4144

MEP CONSULTANT

Smith & Boucher Engineers
25501 Valley Parkway, Suite 200
Olathe, Kansas
Licensee's Certificate of Authority Number:

Phone Number: 913-345-2127

LANDSCAPE CONSULTANT

Renaissance Infrastructure Consulting
132 Abbie Ave.
Kansas City, Kansas 66103
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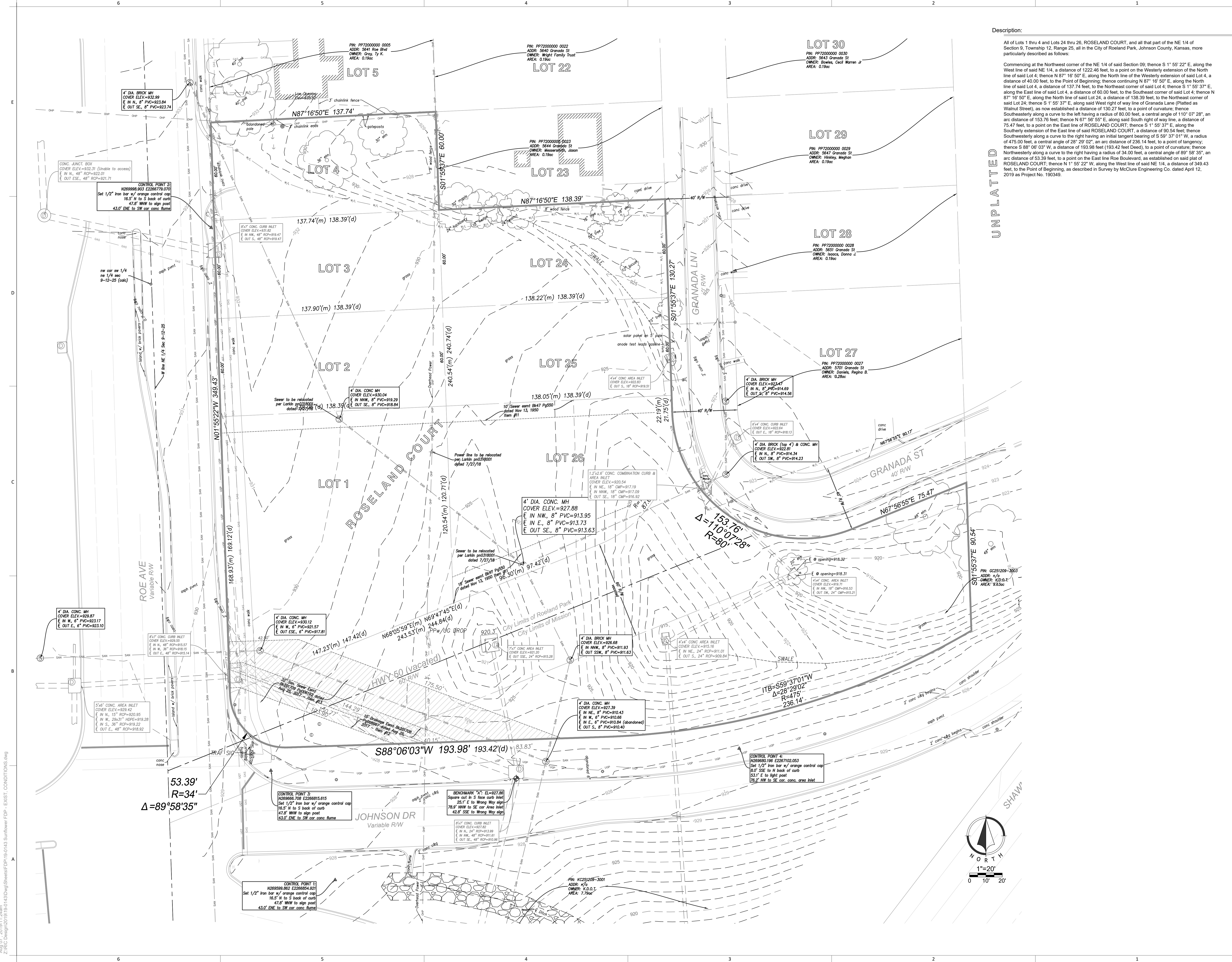
Johnson & Roe Medical Office Building
Roe & Johnson Drive | Roeland Park, KS

Date	Aug 07, 2019
Job Number	19-0143
Drawn By	CR
Checked By	DJB

Revision		
Number	Date	Description
	08/06/19	Original Submittal

C01

Aug 07 2019 11:24am
Z:\RRC Design\2019\19-013\DWG\Sheets\FDP\19-013 Surface FDP - EXIST. CONDITIONS.dwg



Description:
All of Lots 1 thru 4 and Lots 24 thru 26, ROSELAND COURT, and all that part of the NE 1/4 of Section 9, Township 12, Range 25, all in the City of Roeland Park, Johnson County, Kansas, more particularly described as follows:
Commencing at the Northwest corner of the NE 1/4 of said Section 09; thence S 1° 55' 22" E, along the West line of said NE 1/4, a distance of 1222.46 feet, to a point on the Westerly extension of the North line of said Lot 4; thence N 87° 16' 50" E, along the North line of the Westerly extension of said Lot 4, a distance of 40.00 feet, to the Point of Beginning; thence continuing N 87° 16' 50" E, along the North line of said Lot 4, a distance of 137.74 feet, to the Northeast corner of said Lot 4; thence S 1° 55' 37" E, along the East line of said Lot 4, a distance of 60.00 feet, to the Southeast corner of said Lot 4; thence N 87° 16' 50" E, along the North line of said Lot 24, a distance of 138.39 feet, to the Northeast corner of said Lot 24; thence S 1° 55' 37" E, along said West right of way line of Granada Lane (Platted as Walnut Street), as now established a distance of 130.27 feet, to a point of tangency; thence Southeastly along a curve to the left having a radius of 80.00 feet, a central angle of 110° 07' 28", an arc distance of 153.76 feet; thence N 67° 56' 55" E, along said South right of way line, a distance of 75.47 feet, to a point on the East line of ROSELAND COURT; thence S 1° 55' 37" E, along the Southerly extension of the East line of said ROSELAND COURT, a distance of 90.54 feet; thence Southwesterly along a curve to the right having an initial tangent bearing of S 59° 37' 01" W, a radius of 475.00 feet, a central angle of 28° 29' 02", an arc distance of 236.14 feet, to a point of tangency; thence S 88° 06' 03" W, a distance of 193.98 feet (193.42 feet Dead), to a point of curvature; thence Northwesterly along a curve to the right having a radius of 54.00 feet, a central angle of 89° 58' 35", an arc distance of 53.39 feet, to a point on the East line Roe Boulevard, as established on said plat of ROSELAND COURT; thence N 1° 55' 22" W, along the West line of said NE 1/4, a distance of 349.43 feet, to the Point of Beginning, as described in Survey by McClure Engineering Co., dated April 12, 2019 as Project No. 190349.

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PURPOSES, OR
IMPLEMENTATION
8/6/2019 8:04:22 AM

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CIVIL CONSULTANT
Renaissance Infrastructure Consulting
132 Abbie Ave.
Kansas City, Kansas 66103
Licensee's Certificate of Authority Number:

Phone Number: 913-317-9500
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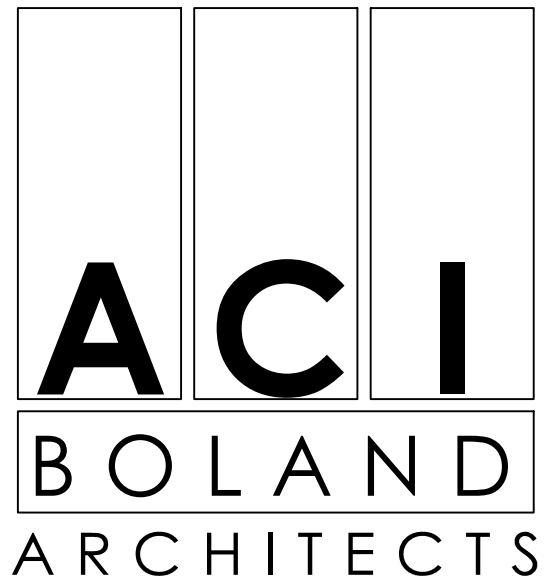
Johnson & Roe Medical Office Building
Roe & Johnson Drive | Roeland Park, KS

Date Aug 07, 2019
Job Number 19-0143
Drawn By CR
Checked By DJB

Revision
Number Date Description
08/06/19 Original Submittal

C02

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EXISTING CONDITIONS



1710 Wyandotte
Kansas City, MO 64108
T: 816.763.9600

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Kansas City | St. Louis
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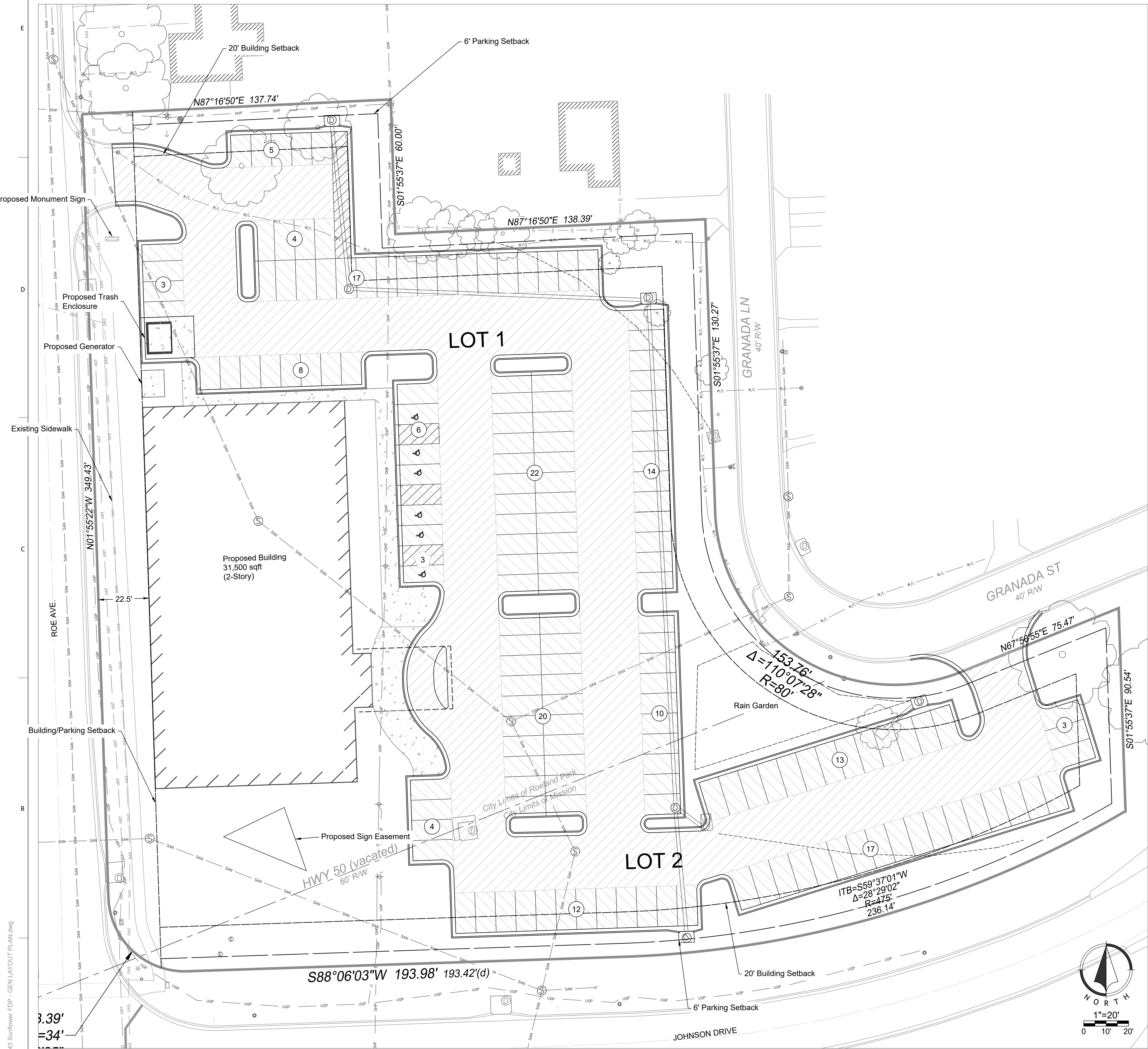
Phone Number: 913-317-9500

Johnson & Roe Medical Office Building
Roe & Johnson Drive | Roeland Park, KS

Date	Aug 07, 2019
Job Number	19-0143
Drawn By	CR
Checked By	DJB

Revision		
Number	Date	Description
	08/06/19	Original Submittal

C03



Parking Count Legend:	
	Parking Stall Count
	ADA Parking Stall Count

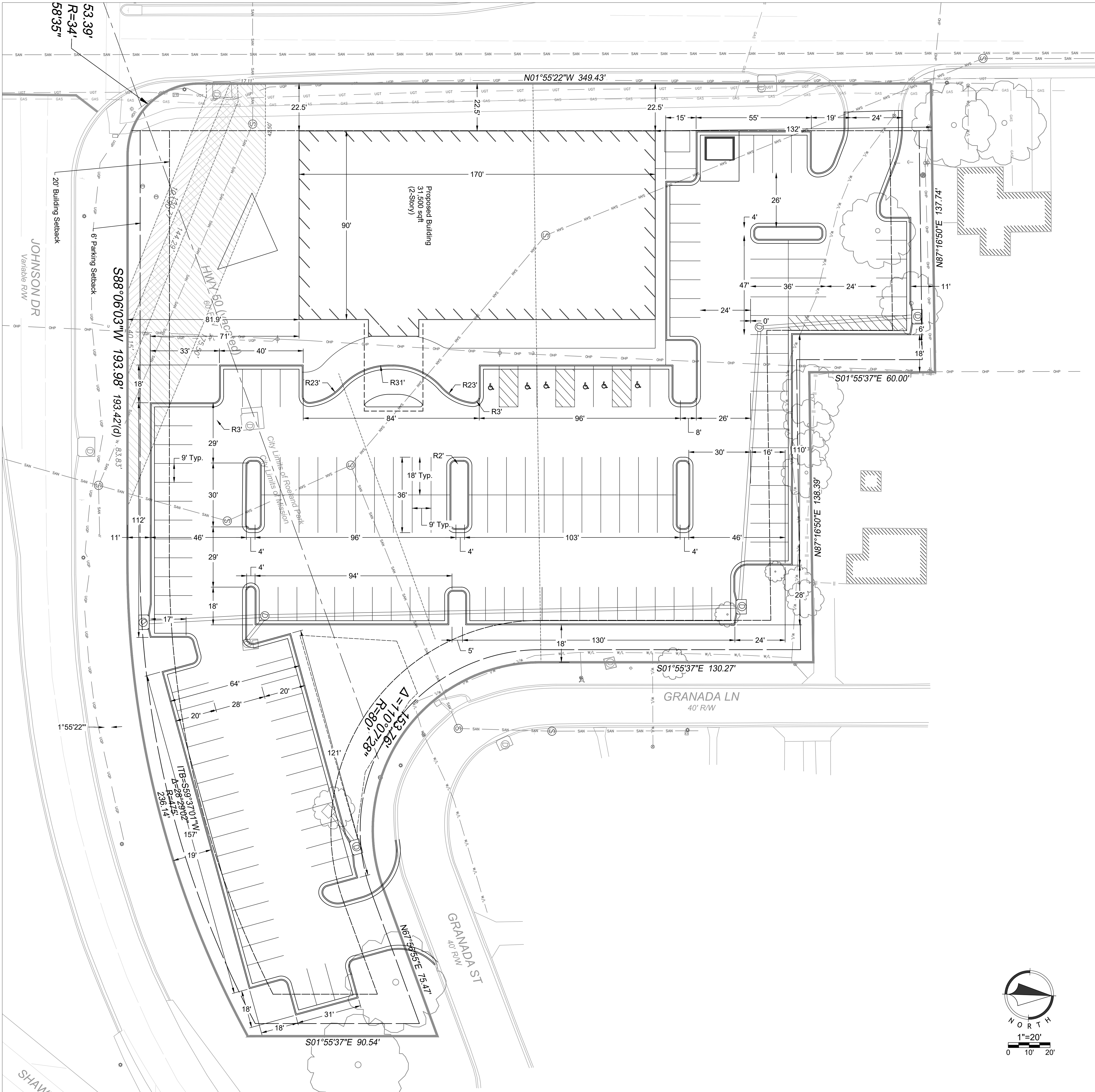
Parking Required	
120 Stalls	
3.8 Stalls per 1,000sqft	
Parking Provided	
153 Typical Stalls	
6 ADA Stalls	
159 Total Stalls Provided	

SITE DATA TABLE	
Existing Zone: R-1	
Proposed Zone: CP-O	
FAR :	(31,500 / 117,217) = 26.9%
Lot Area (sf):	117,217 sf
Total Area (ac):	2.69 ac
Lot 1 Area (Roeland Park):	1.95ac
Lot 2 Area (Mission):	0.74ac
Building Gross Area:	31,500 sf
Paved Area:	60085 sf
Impervious Area:	75,577 sf (64%)
Pervious Area:	41,640 sf (36%)
Front Building Setback: 30'	
Proposed Front Setback: 22.5' (25% reduction)	
Front Parking Setback: 22.5' (25% Reduction)	
Interior Parking Setback: 6'	
Interior Building Setback: 20'	

CURB LEGEND	
	Dry Curb
	Ribbon Curb
	Wet Curb

Pavement Section Details	
	PC Concrete Pavement 7" PC Concrete Pavement (4000 PSI, Air Entrained) KCMMB 4K 4" Compacted Agg. KDOT AB-3 8" Compacted Subgrade (95% Std. Proctor Treated with Lime or Class "C" Flyash)
	Light Duty Asphalt Pavement 2" AC Surface Course (APWA 3-01) 2" AC Base Course (APWA 2-01) 6" Compacted Agg. KDOT AB-3 6" Compacted Subgrade (95% Std. Proctor Treated with Lime or Class "C" Flyash)
	Heavy Duty Asphalt Pavement 2" AC Surface Course (APWA 3-01) 4" AC Base Course (APWA 1-01) 6" Compacted Agg. KDOT AB-3 6" Compacted Subgrade (95% Std. Proctor Treated with Lime or Class "C" Flyash)

Pavement Sections are based on information from a Geotechnical Report, Dated 07/23/2019 Prepared By Cook, Flatt & Strobel Engineers, P.A.



PRELIMINARY,
NOT FOR
CONSTRUCTION,
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PURPOSES, OR
IMPLEMENTATION
8/6/2019 8:04:22 AM

ACI
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1710 Wyandotte
Kansas City, MO 64108
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Renaissance Infrastructure Consulting
132 Abbie Ave.
Kansas City, Kansas 66103
Licensee's Certificate of Authority Number:
Phone Number: 913-317-9500

STRUCTURAL CONSULTANT
Bob. D. Campbell
4338 Bellevue
Kansas City, Missouri
Licensee's Certificate of Authority Number:
Phone Number: 816-531-4144

MEP CONSULTANT
Smith & Boucher Engineers
25501 Valley Parkway, Suite 200
Olathe, Kansas
Licensee's Certificate of Authority Number:
Phone Number: 913-345-2127

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Renaissance Infrastructure Consulting
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Kansas City, Kansas 66103
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Johnson & Roe Medical Office Building
Roe & Johnson Drive | Roeland Park, KS

Date Aug 07, 2019
Job Number 19-0143
Drawn By CR
Checked By DJB

Revision
Number Date Description
08/06/19 Original Submittal

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SITE DIMENSION PLAN

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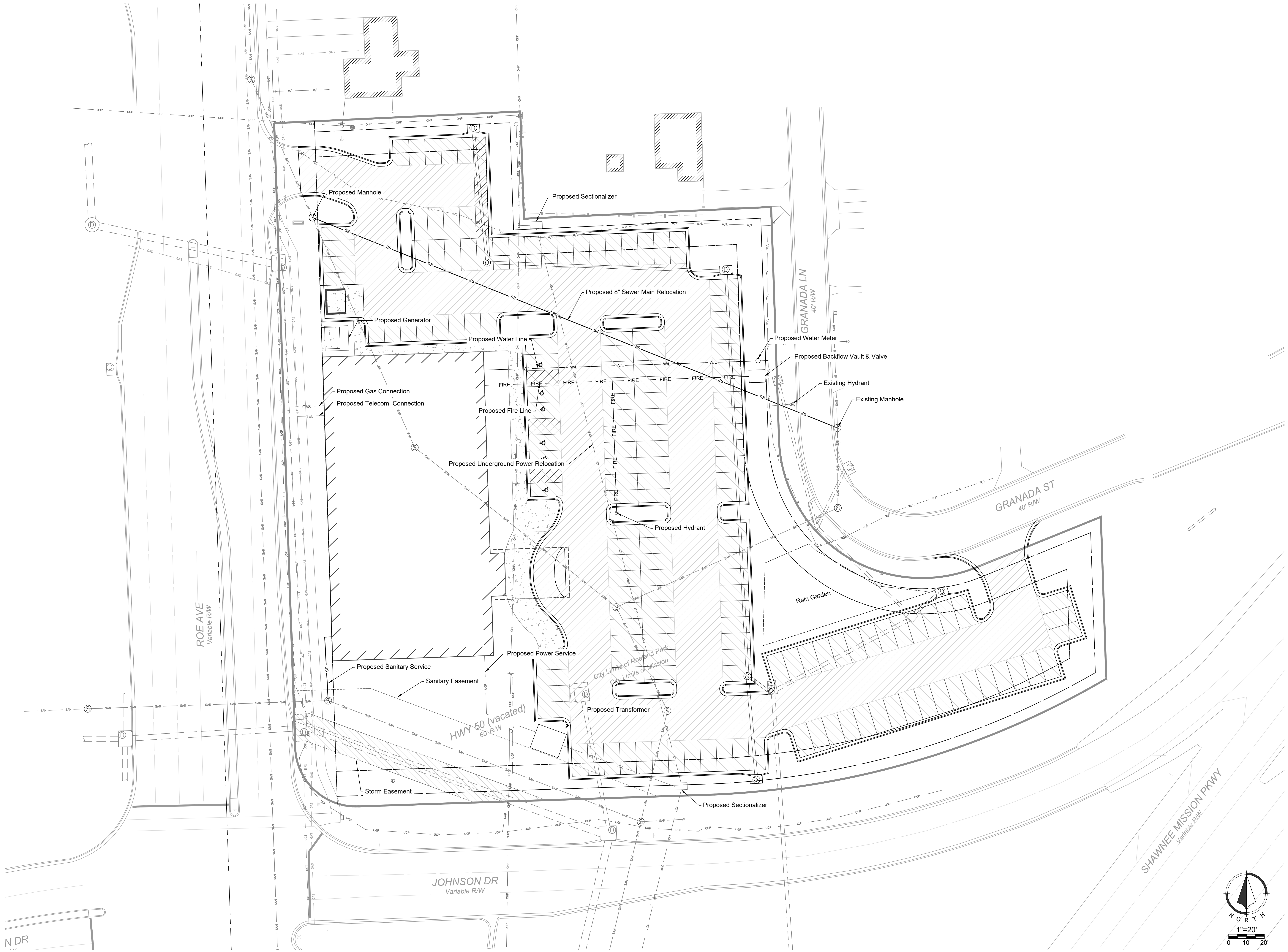
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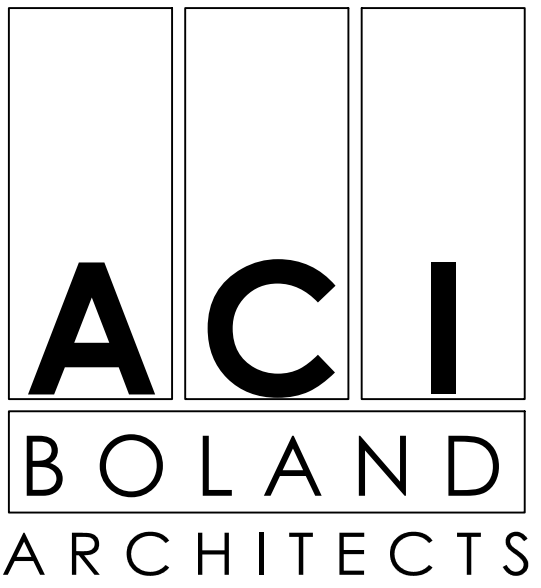
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Bob. D. Campbell
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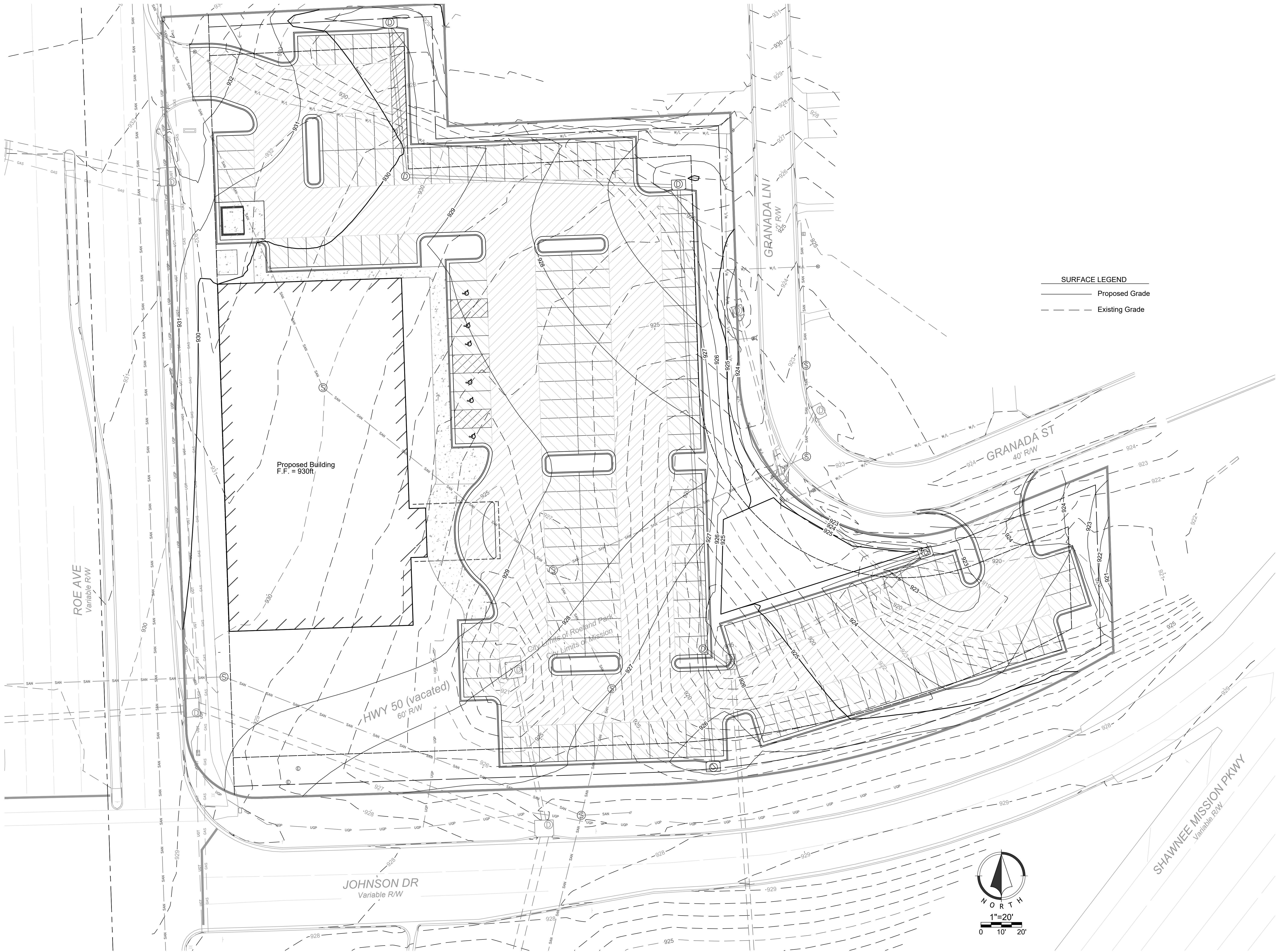
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UTILITY PLAN



SURFACE LEGEND
—— Proposed Grade
--- Existing Grade

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4338 Bellevue
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25501 Valley Parkway, Suite 200
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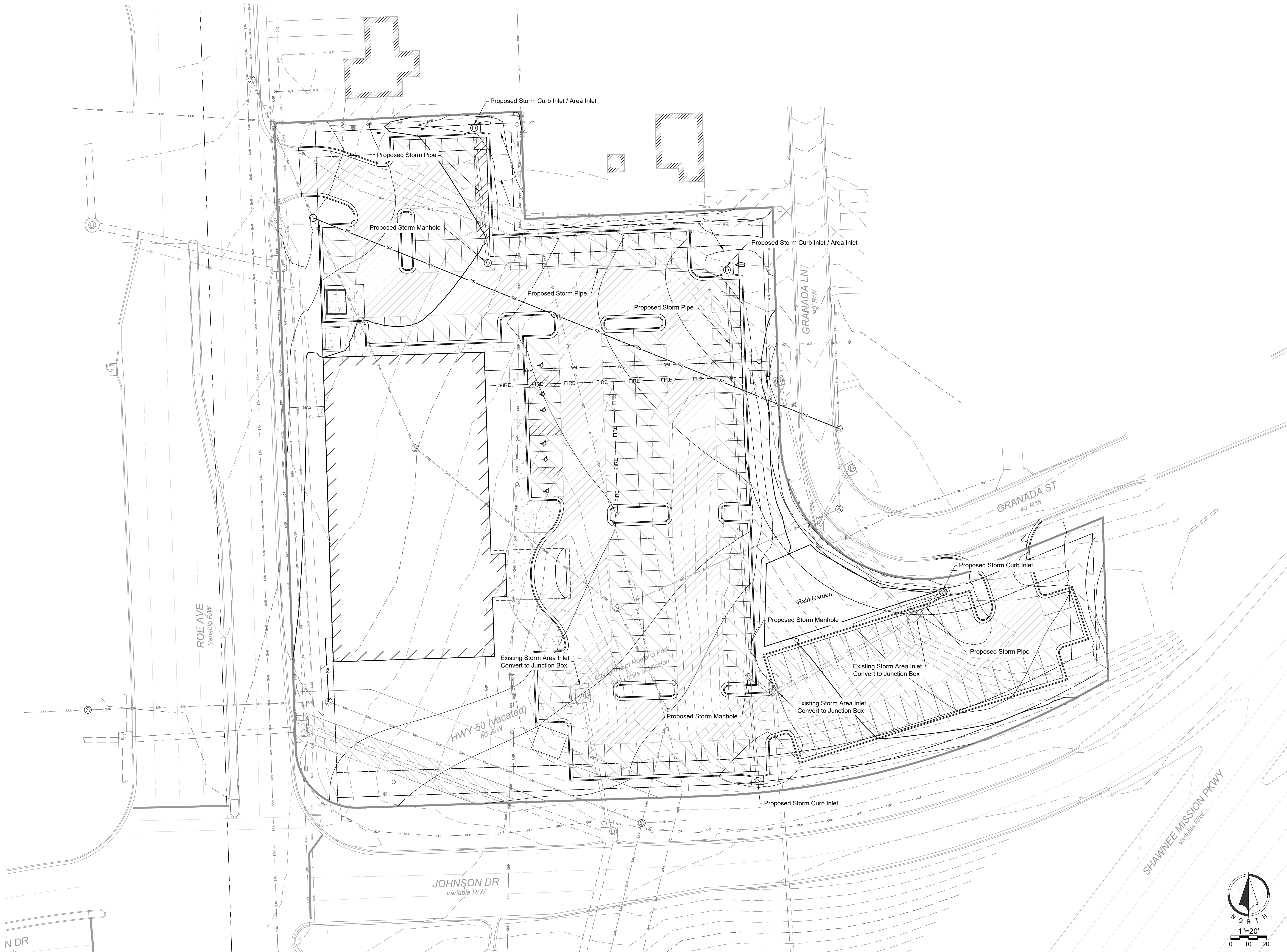
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Bob D. Campbell
4338 Bellevue
Kansas City, Missouri
Licensee's Certificate of Authority Number:

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Smith & Boucher Engineers
25501 Valley Parkway, Suite 200
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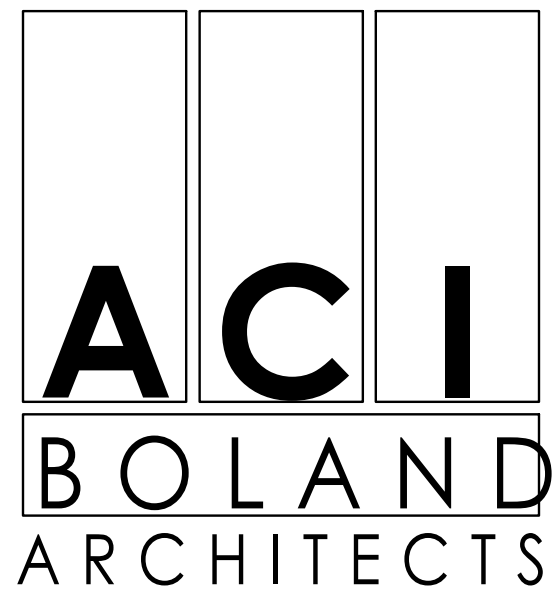
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STORM PLAN



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Bob. D. Campbell
4338 Bellevue
Kansas City, Missouri
Licensee's Certificate of Authority Number:

Phone Number: 816-531-4144
MEP CONSULTANT
Smith & Boucher Engineers
25501 Valley Parkway, Suite 200
Olathe, Kansas
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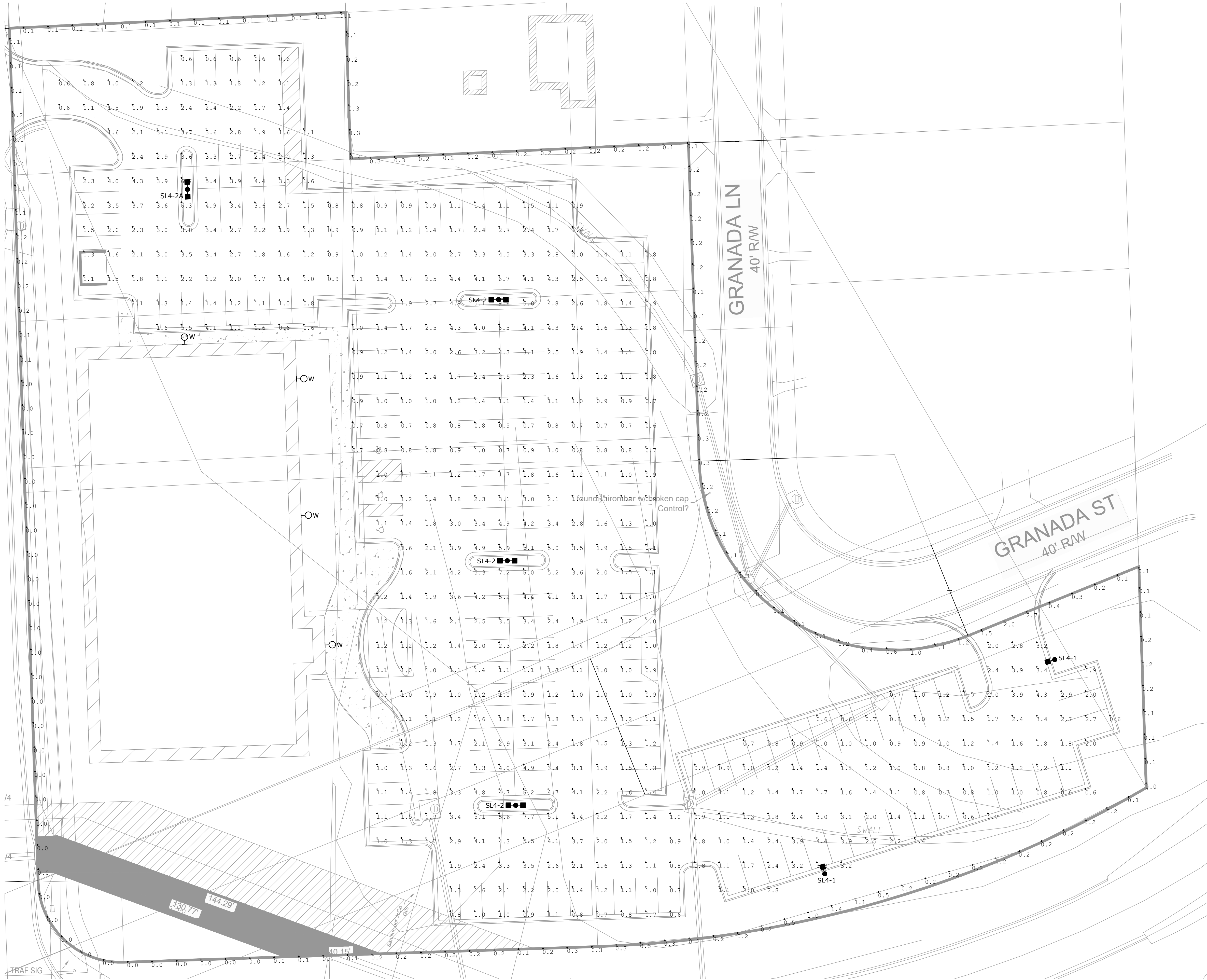
LP101

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PHOTOMETRICS SITE PLAN - LIGHTING

CALCULATION SUMMARY					
AREA NAME	AVE	MAX	MIN	AVG/MIN	MAX/MIN
PROPERTY LINE	0.21	2.7	0.0	N/A	N/A
PARKING LOT	1.96	9.6	0.6	3.3	16.0

NOTES:
1. ILLUMINANCE VALUES ARE IN FOOT-CANDLES.

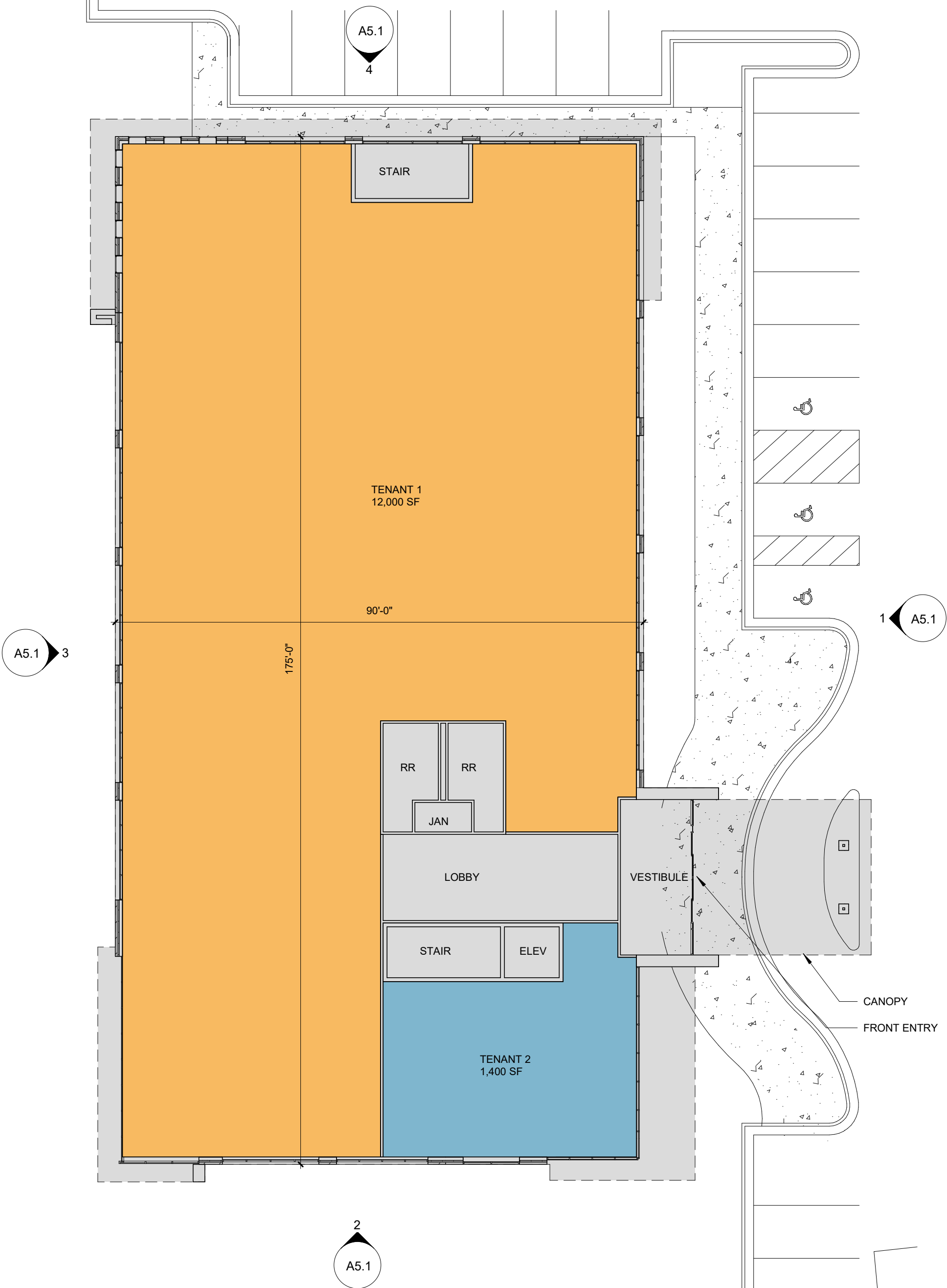
FIXTURE SCHEDULE						
TYPE	IMAGE	DESCRIPTION	MOUNTING	LAMP	VOLTS	MANUFACTURER
SL4-1		1-HEAD PARKING LOT EXTERIOR POLE FIXTURE, TYPE T4FT DISTRIBUTION, 0-10V DIMMING, UL LISTED FOR WET LOCATIONS, ARCHITECT TO SELECT FINISH, 800mA DRIVEN, SPILL CONTROL.	POLE 20'-0"	LED 20,515 LUMENS 4000K 80+ CRI	120/277	McGRAW-EDISON SERIES GLEON
SL4-2		2-HEADS @ 180 DEGREES APART PARKING LOT EXTERIOR POLE FIXTURE, TYPE T4FT DISTRIBUTION, 0-10V DIMMING, UL LISTED FOR WET LOCATIONS, ARCHITECT TO SELECT FINISH, 800mA DRIVEN.	POLE 20'-0"	LED 20,515 LUMENS (PER HEAD) 4000K 80+ CRI	120/277	McGRAW-EDISON SERIES GLEON
SL4-2A		2-HEADS @ 180 DEGREES APART PARKING LOT EXTERIOR POLE FIXTURE, TYPE T4W DISTRIBUTION, 0-10V DIMMING, UL LISTED FOR WET LOCATIONS, ARCHITECT TO SELECT FINISH, 800mA DRIVEN.	POLE 20'-0"	LED 20,249 LUMENS (PER HEAD) 4000K 80+ CRI	120/277	McGRAW-EDISON SERIES GLEON
W		17"W X 8.5"H X 10.5"D EXTERIOR LED WALL PACK, UL LISTED FOR WET LOCATIONS, INTEGRAL 0-10V / 100-10% DIMMABLE DRIVER, VISUAL COMFORT WIDE DISTRIBUTION, ARCHITECT TO SELECT FINISH.	SURFACE WALL	LED 3000 LUMENS 4000K 80+ CRI	120/277	LITHONIA SERIES WST



PHOTOMETRIC SITE PLAN LIGHTING
SCALE: 1" = 20'-0"

Software: MSB Corp & Staff, Roeland Park, KS
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Last Modified: Wednesday, August 7, 2019 8:20:30 AM
Lucido Kelsey

PROJECT NAME: JOHNSON & ROE MEDICAL OFFICE BUILDING
LAST CORRECTION BY: DATE: TIME:
PRINTED BY: DATE: TIME:



1 FIRST FLOOR PLAN
1/16" = 1'-0"



2 SECOND FLOOR PLAN
1/16" = 1'-0"

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132 Abbie Ave
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Phone Number: 913-317-9500

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Bob. D. Campbell
4338 Bellevue
Kansas City, Missouri
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Phone Number: 816-531-4144

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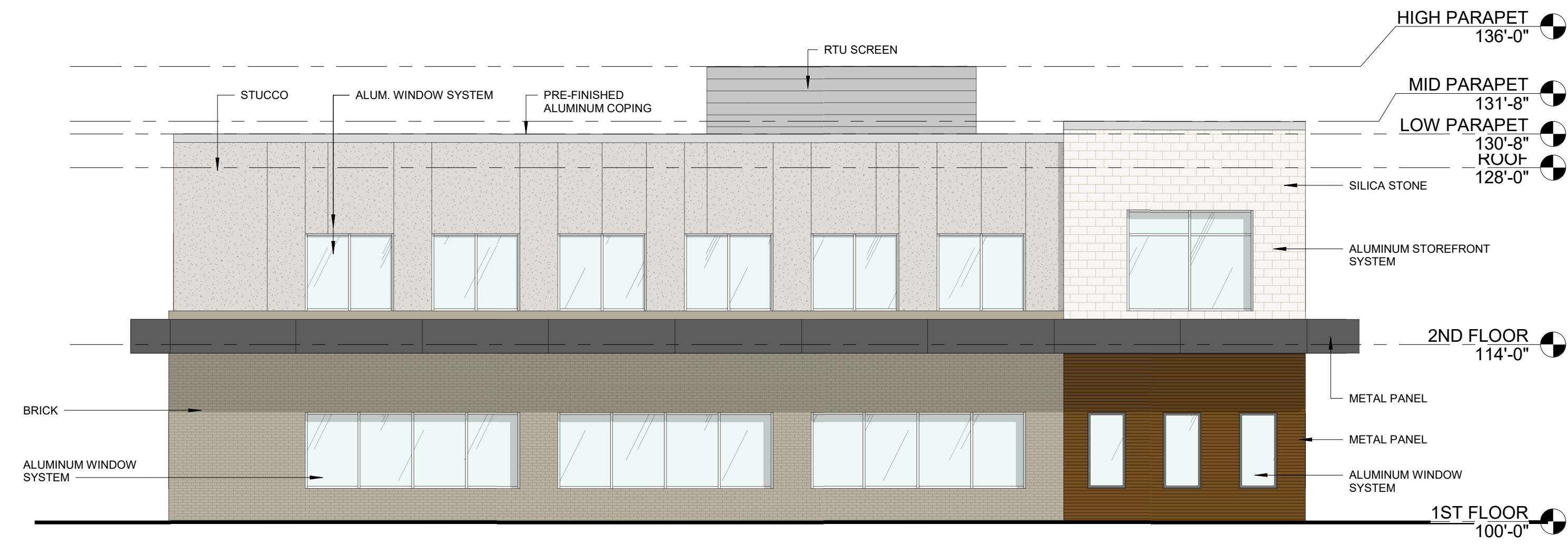
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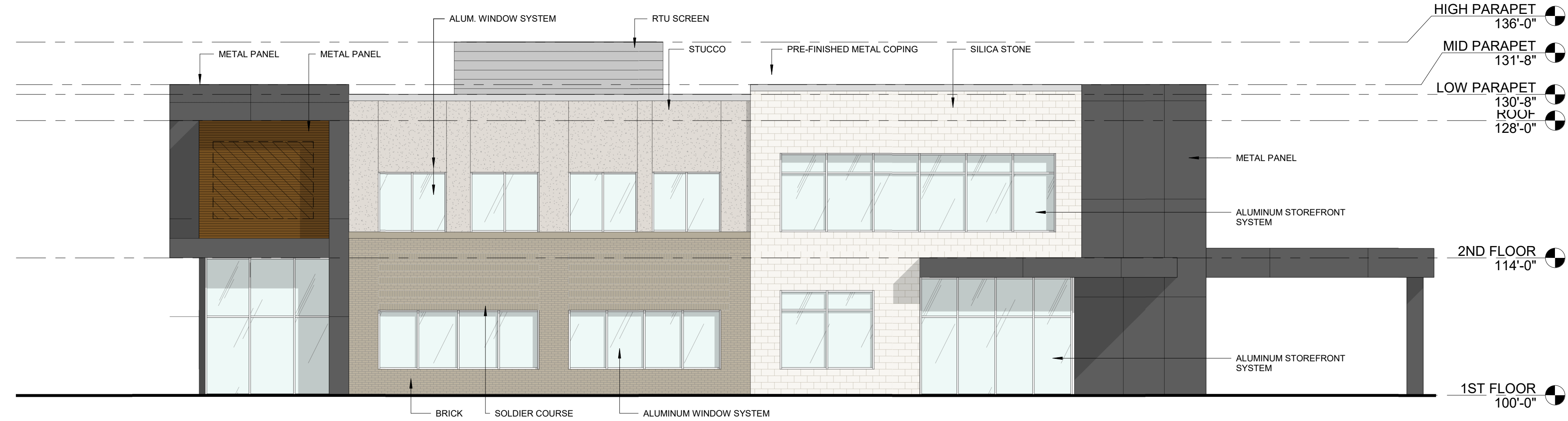
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FLOOR PLANS



4 SOUTH ELEVATION
1/8" = 1'-0"



3 EAST ELEVATION
1/8" = 1'-0"



2 NORTH ELEVATION
1/8" = 1'-0"

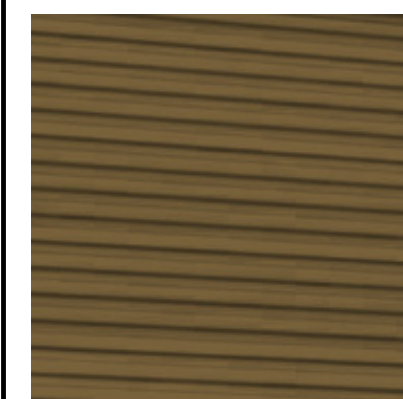


1 WEST ELEVATION
1/8" = 1'-0"

MATERIAL LEGEND



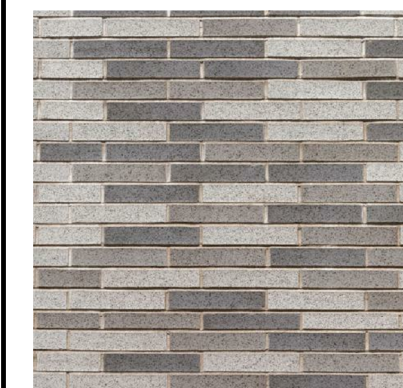
METAL PANEL



METAL PANEL



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132 Abbie Ave.
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Bob. D. Campbell

4338 Bellevue
Kansas City, Missouri
Licensee's Certificate of Authority Number:

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EXTERIOR ELEVATIONS

Storm Water Drainage Study

Sunflower Medical Offices

Roe Boulevard & Johnson Drive, Roeland Park Kansas

Prepared:
July 2019

Prepared by:



5015 NW Canal St. Suite 100 | Riverside, MO 64150
dburton@ric-consult.com
816.800.0950



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BMP Analysis	Exhibit H
Commerce Bank & Embree Hospital Stormwater Report	Exhibit J

General Information

A. Project Description

Sunflower Medical Offices are located at Northwest corner of Roe Boulevard and Johnson Drive in Roeland Park, Johnson county, Kansas. The property is approximately 2.7acre, located in the northeast corner of section 09, Township 12 south, Range 25 east. The proposed development includes the construction of a Medical Office Building with a combined total floor area of approximately 13 thousand square feet along with supporting parking and drive areas. According to the Flood Insurance Rate Map (FIRM) panel number 2009C0024G, revised August 3, 2009, the property lies within OTHER FLOOD AREAS, ZONE X, defined as areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. No base flood elevations have been determined. See Exhibit A for a site location map. See Exhibit B for FEMA FIRM Map.

B. Soil Classification

Soil classifications published by the United States Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) website for Johnson County, KS on September 12, 2018 indicate the existing site is made up of the following soil type:

Table 1: Storm Analysis Table

Map Unit Symbol	Map Unit Name	HSG
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes	c

See Exhibit C for a detailed soil report.

Methodology

This study was prepared in accordance with the provisions of “Section 5600 – Storm Drainage Systems and Facilities” (February 16, 2011) of the Kansas City Metropolitan Chapter of the American Public Works Association (APWA) and the “Manual of Best Management Practices for Stormwater Quality” (October 2012) of the Mid-America Regional Council (MARC). Pre and post development runoff were determined using the curve number method described in SCS (now NRCS) Technical Release No. 55 “Urban Hydrology for Small Watersheds” (2nd Edition, June 1986) as provided for in Sub-section 5602.2. The analyses were performed using the Type II 24-hour storm distribution for 1% (100 year), 10% (10 year) and 100% (1 year) annual probability storm events. The rainfall depths used in the analyses corresponding to those events are shown in the following table 2.

Portions of this study also utilizes information and methodology from the “Preliminary Stormwater Study for Commerce Bank & Embree Hospital” prepared by Olsson Associates and approved in July of 2016. This study analyzes the site directly west of this proposed development and contains relevant analysis due to the adjacency of the two developments.

Table 2: Storm Analysis Table

Storm	Percent	Rainfall Depth (in)
1 Year	100%	3.0
10 Year	10%	5.4
100 Year	1%	7.9

Existing Conditions Analysis

The existing 2.7acre site consist of urban undeveloped zone that was previously a portion of the Johnson Drive and Roe Avenue interchange. The north boundary consists of single-family houses. To the East, West and South, the property is surrounded by paved roads as follow: Granada Lane, Roe Avenue and Johnson Drive. At the time of analysis, the site contained public interchange ramps. Due to the earthwork and construction that had taken place on-site, the Hydrologic soil group was assumed to be D for existing conditions.

The site is composed by one sub-basin which drain to one discharge points located at the perimeter of the property. Exhibit D shows the location of the sub basin and discharge point on the property. The site generally drains to the southwest to an area inlet with a 36" discharge. This pipe flows to the southwest off site and is marked as Discharge Point A.

Curve numbers (CN) used in the TR55 existing conditions analysis were taken from Subsection 2602.2 of the APWA. A CN 84 of was utilized for the undeveloped areas as the site was previously a compacted urban interchange. A CN of 98 was used for the impervious area. Time of concentration calculations were performed using TR55 methodology. Table 3 gives a summary of the results of the existing conditions analysis for all sub-basins. Detailed calculations can be found within Exhibit E.

Table 3: Existing Conditions – Sub-basins

Sub-Basin	Area (Ac.)	CN	Time of Concentration (min)	Downstream Discharge	Q 1-year (cfs)	Q 10-year (cfs)	Q 100-year (cfs)
A1	2.7	88	13.96	Point A	5.33	11.53	20.62

Table 4 gives a summary of the Discharge Points for the 100%, 10%, and 1% annual probability storm events.

Table 4: Existing Conditions – Discharge Points

Name	Q 1-year (cfs)	Q 10-year (cfs)	Q 100-year (cfs)
Point A	5.33	11.53	20.62

Proposed Conditions Analysis

The proposed development will consist of a 2-story medical office building and associated parking features. The site will be regraded and leveled to support this new proposed function. A new storm drainage system will be constructed to

collect stormwater on site and route it out to new stormwater quality BMPs or off site into the existing stormwater system to the south of the site.

The table below shows the summary of the proposed hydrological properties as well as the peak flows generated for each design storm.

Name	Weighted CN Value	Total Area (ac)	Q 1-year (cfs)	Q 10-year (cfs)	Q 100-year (cfs)
Point A	91	2.7	7.3	14.8	22.4

Detention

The proposed development is situated within subarea RC-040 of the Rock Creek watershed in northeast Johnson County. The Olsson Associates report indicates that the existing watershed at this point contains 1766.4 acres of which 737.08 acres is impervious area. This equates to 41.73% impervious area. The Olsson Associates report also states that the 100year peak flow at a point approximately 1,075ft downstream of the proposed site is 5,763 cfs according to the 2012 FEMA LOMAR for Rock Creek.

The proposed medical office at the northeast corner of Roe Ave and Johnson Drive will contribute 0.86ac of additional impervious surface to the Rock Creek watershed. This additional area brings the total impervious area of the upstream watershed of 41.78%. Further, the proposed 100-year peak flow leaving the site is increased by 2.00cfs. This equates to an increase of 0.035% increase from the existing peak flow of the watershed. Finally, as the Olsson Associates reports states, the site is generally in the lower reaches of the Rock Creek tributary. Detention within the lower portions of a watershed have an adverse effect on total peak-flow. Peak-flow from the overall watershed aligns with the attenuated peak-flow from the site therefore increasing the overall peak-flow within the stream.

Due to the minor increase of impervious area, peak flow, and the location the proposed development has on the overall watershed, no detention is required for this development

BMP Analysis

Improvements to the property will increase impervious surface area compared to existing conditions, thus proposed improvements qualify the project to meet

water quality requirements with stormwater treatment facilities (STFs). STFs on the site are proposed to mitigate post-construction runoff pollutant levels. The MARC BMP Manual was utilized to measure the Level of Service (LS) and Value Rating (VR) required for an undeveloped site. The required LS for this site is 5.0. Water quality treatment calculations are available in the Exhibit H.

The STF systems detailed below satisfy water quality treatment requirements for the project as determined by MARC BMP Manual calculations. Site construction documents will fully detail the construction and landscape specifications for all BMPs. The property owner shall be responsible for long term maintenance and upkeep of storm water treatment facilities. As required by Section 15-515 of Ordinance No. 809 of Roeland Park, the owner must complete an annual certification inspection of the stormwater management systems and is subject to City inspection at least once every three years.

A combination of STFs is proposed for the development and will include the following STFs with corresponding VRs:

- Native Vegetation (9.25)
- Rain Garden (9.0)
- Inlet Inserts (4.0).

Calculations, STF drainage maps and other information are available in the Exhibit H.

Summary

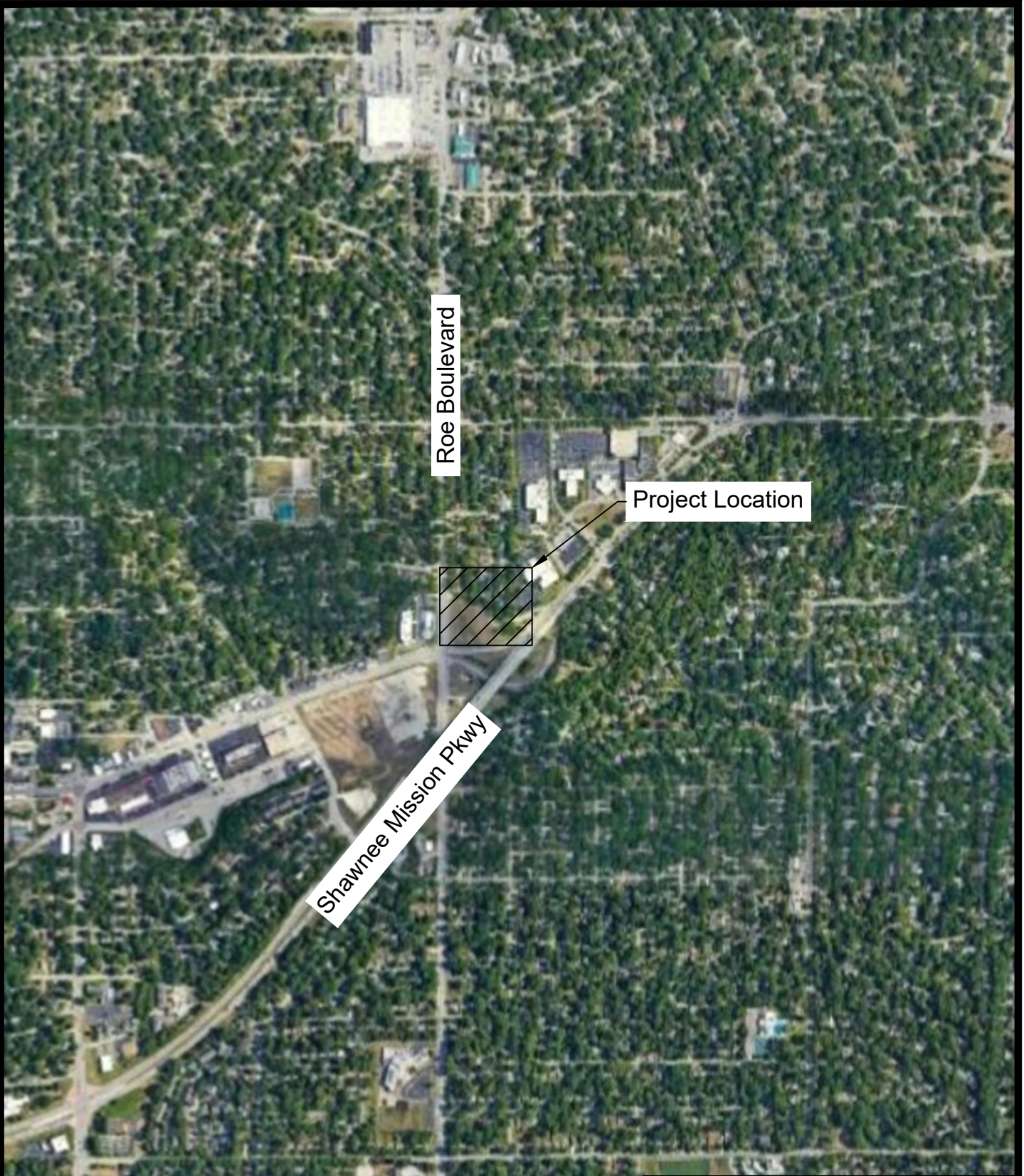
The proposed development has a negligible increase of total peak flow and impervious area when compared to the upstream watershed of Rock Creek. Due to this minor increase, as well as the site being located in the lower reaches of the watershed, no detention is required. The proposed development will be installing native vegetation, pervious pavement, and raingardens to capture the “first flush” of stormwater for treatment and retention. This BMP package complies with the 2012 MARC Level of Service calculations for the site.

Regards,

Dustin Burton, P.E.
Renaissance Infrastructure Consulting

EXHIBIT A

SITE LOCATION MAP



Roe Boulevard

Project Location

Shawnee Mission Pkwy

Site Location Map

Scale: 1"=1000'



**Renaissance
Infrastructure
Consulting**

132 ABBIE AVENUE
KANSAS CITY, KANSAS 66103

913.317.9500
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EXHIBIT B

FEMA FIRM REPORT

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was Kansas State Plane North Zone (FIPS zone 1501). The **horizontal datum** was NAD 83, GRS 80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information about the **bench marks** shown on this map, please contact the Automated Information Mapping System (AIMS) at (913) 715-1600, or visit their website at <http://aims.jocogov.org/>.

Base map information shown on this FIRM was provided for Johnson County by Analytical Surveys, Inc. The vector data was derived from Aerial Photography, dated 1998-2000 and captured at a resolution of .5 feet.

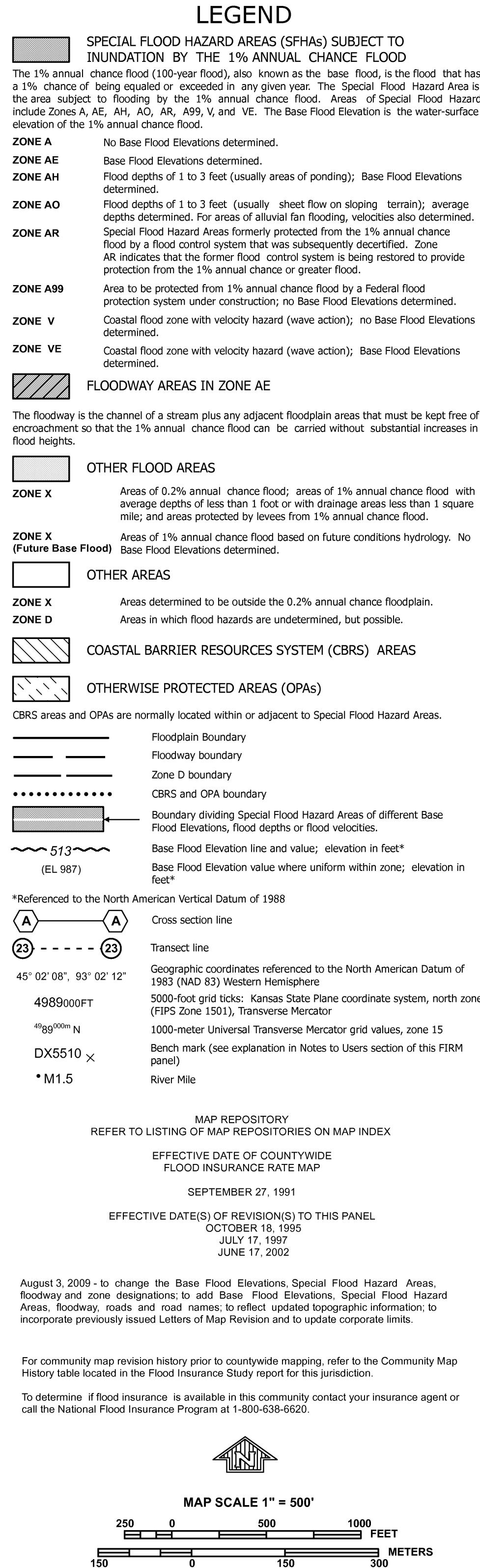
This map reflects more detailed up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and their website at <http://www.msc.fema.gov>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov>.



NATIONAL FLOOD INSURANCE PROGRAM		PANEL 0024G																													
FIRM FLOOD INSURANCE RATE MAP JOHNSON COUNTY, KANSAS AND INCORPORATED AREAS PANEL 24 OF 161 (SEE MAP INDEX FOR FIRM PANEL LAYOUT) <u>CONTAINS:</u> <table border="1"> <thead> <tr> <th>COMMUNITY</th> <th>NUMBER</th> <th>PANEL</th> <th>SUFFIX</th> </tr> </thead> <tbody> <tr> <td>FAIRWAY, CITY OF</td> <td>205185</td> <td>0024</td> <td>G</td> </tr> <tr> <td>MISSION HILLS, CITY OF</td> <td>200171</td> <td>0024</td> <td>G</td> </tr> <tr> <td>MISSION, CITY OF</td> <td>200170</td> <td>0024</td> <td>G</td> </tr> <tr> <td>OVERLAND PARK, CITY OF</td> <td>200174</td> <td>0024</td> <td>G</td> </tr> <tr> <td>PRAIRIE VILLAGE, CITY OF</td> <td>200175</td> <td>0024</td> <td>G</td> </tr> <tr> <td>ROELAND PARK, CITY OF</td> <td>200176</td> <td>0024</td> <td>G</td> </tr> </tbody> </table> Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.  MAP NUMBER 20091C0024G MAP REVISED AUGUST 3, 2009 Federal Emergency Management Agency				COMMUNITY	NUMBER	PANEL	SUFFIX	FAIRWAY, CITY OF	205185	0024	G	MISSION HILLS, CITY OF	200171	0024	G	MISSION, CITY OF	200170	0024	G	OVERLAND PARK, CITY OF	200174	0024	G	PRAIRIE VILLAGE, CITY OF	200175	0024	G	ROELAND PARK, CITY OF	200176	0024	G
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ROELAND PARK, CITY OF	200176	0024	G																												

EXHIBIT C

NRCS WEB SOIL SURVEY



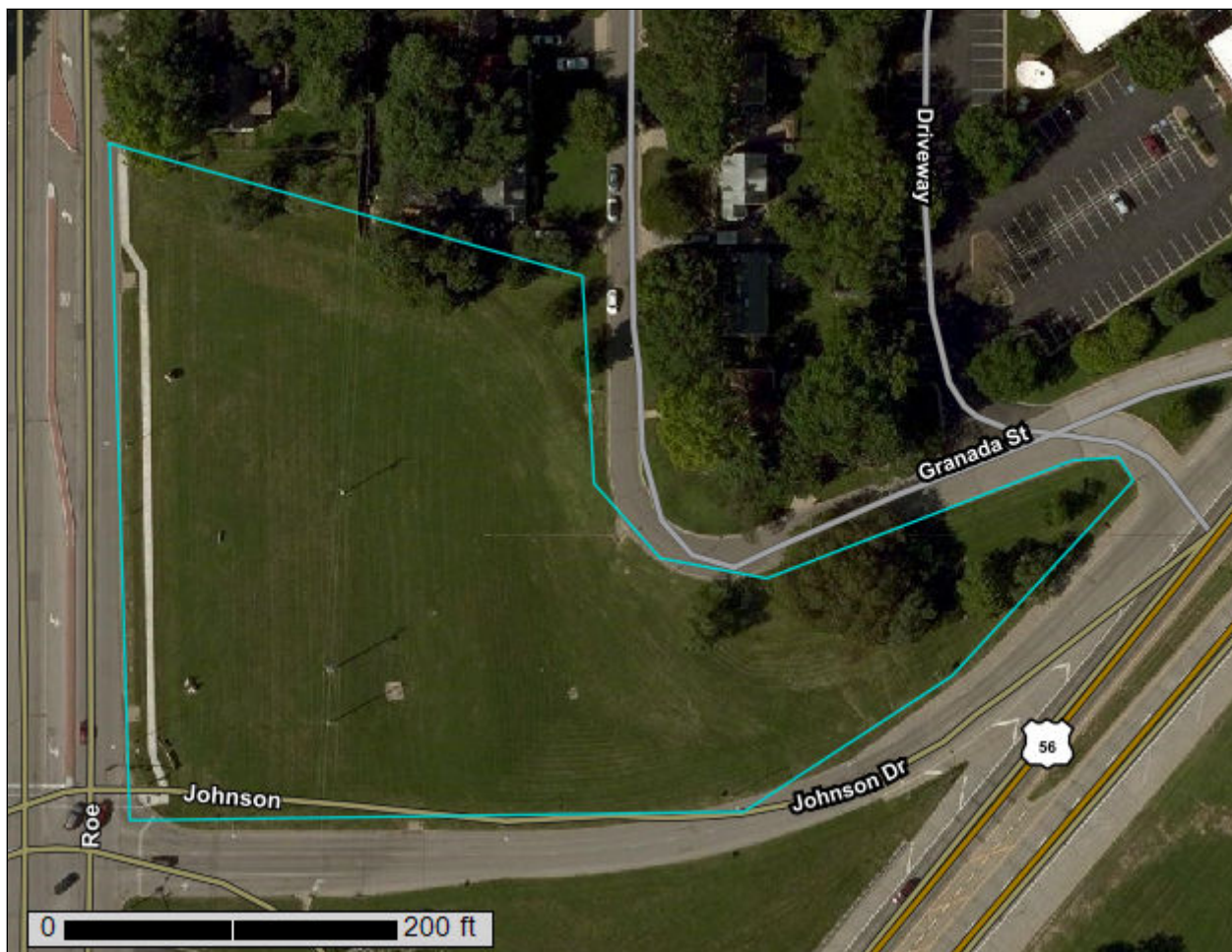
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Johnson County, Kansas**



July 26, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Johnson County, Kansas
Survey Area Data: Version 17, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 23, 2014—Sep 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes	3.2	100.0%
Totals for Area of Interest		3.2	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Johnson County, Kansas

7545—Sharpsburg-Urban land complex, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: tq4z

Elevation: 1,000 to 1,300 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 45 to 64 degrees F

Frost-free period: 185 to 255 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Sharpsburg and similar soils: 55 percent

Urban land: 45 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharpsburg

Setting

Landform: Hillslopes

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Silty and clayey loess

Typical profile

A - 0 to 9 inches: silt loam

AB - 9 to 13 inches: silty clay loam

Bt - 13 to 35 inches: silty clay loam

BC - 35 to 60 inches: silty clay loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 36 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Hydric soil rating: No

Description of Urban Land

Setting

Landform: Hillslopes

Down-slope shape: Convex

Across-slope shape: Convex

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission

rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group

Custom Soil Resource Report

index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

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Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties—Johnson County, Kansas														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>
7545—Sharpsburg-Urban land complex, 4 to 8 percent slopes														
Sharpsburg	55	C	0-9	Silt loam	CL	A-7, A-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	100-100 -100	95-98-1 00	33-43 -46	12-18-1 9
			9-13	Silty clay loam, silt loam	CH, CL	A-7-6, A-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	100-100 -100	95-98-1 00	39-45 -52	17-21-2 5
			13-35	Silty clay loam, silty clay	CH, CL	A-7-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	100-100 -100	95-98-1 00	49-53 -57	26-28-3 0
			35-60	Silty clay loam, silt loam	CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	100-100 -100	95-98-1 00	36-41 -45	17-20-2 3

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EXHIBIT D

EXISTING DRAINAGE MAP

EXHIBIT E

EXISTING CONDITIONS ANALYSIS

Project Description

File Name Storm Analysis Existing.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Jul 25, 2019 00:00:00
End Analysis On Jul 26, 2019 00:00:00
Start Reporting On Jul 25, 2019 00:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

Qty
Rain Gages 3
Subbasins..... 1
Nodes..... 1
 Junctions 0
 Outfalls 1
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
Links..... 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
Pollutants 0
Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	100yr	Time Series	100 yr	Intensity	inches	Kansas	Johnson	100	7.90	SCS Type II 24-hr
2	10yr	Time Series	10 yr	Intensity	inches	Kansas	Johnson	10	5.40	SCS Type II 24-hr
3	1yr	Time Series	1 yr	Intensity	inches	Kansas	Johnson	1	3.00	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Existing	2.69	88.37	7.90	6.51	17.52	20.96	0 00:13:57

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Existing

Input Data

Area (ac) 2.69
Weighted Curve Number 88.37
Rain Gage ID 100yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Pasture, grassland, or range, Fair	1.85	D	84.00
Paved parking & roofs	0.84	D	98.00
Composite Area & Weighted CN	2.69		88.37

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$
R = Aq / Wp
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

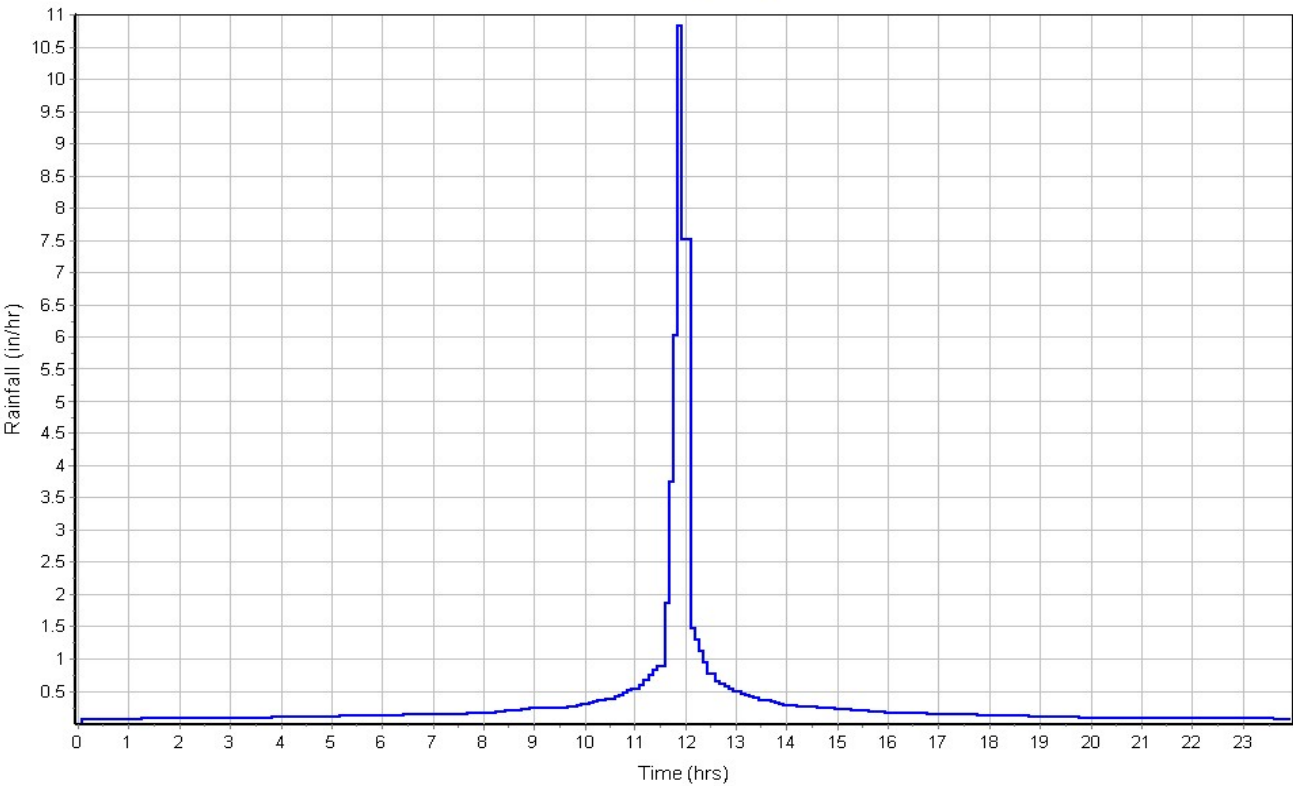
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.18	0.00	0.00
Computed Flow Time (min) :	9.24	0.00	0.00
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	334	267	0.00
Slope (%) :	4.5	.5	0.00
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	3.42	1.44	0.00
Computed Flow Time (min) :	1.63	3.09	0.00
Total TOC (min)	13.96		

Subbasin Runoff Results

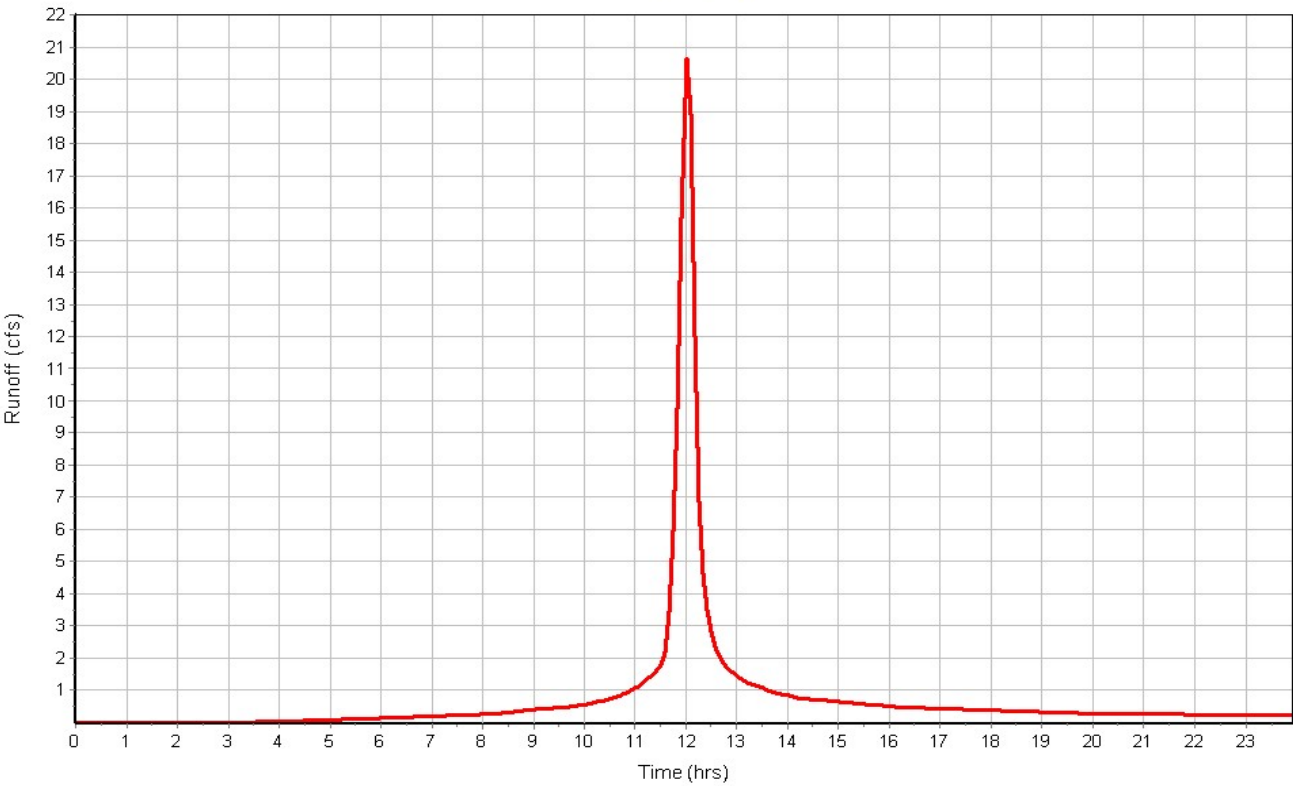
Total Rainfall (in)	7.90
Total Runoff (in)	6.51
Peak Runoff (cfs)	20.96
Weighted Curve Number	88.37
Time of Concentration (days hh:mm:ss)	0 00:13:58

Subbasin : Existing

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name Storm Analysis Existing.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Jul 25, 2019 00:00:00
End Analysis On Jul 26, 2019 00:00:00
Start Reporting On Jul 25, 2019 00:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

Qty
Rain Gages 3
Subbasins..... 1
Nodes..... 1
 Junctions 0
 Outfalls 1
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
Links..... 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
Pollutants 0
Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	100yr	Time Series	100 yr	Intensity	inches	Kansas	Johnson	100	7.90	SCS Type II 24-hr
2	10yr	Time Series	10 yr	Intensity	inches	Kansas	Johnson	10	5.40	SCS Type II 24-hr
3	1yr	Time Series	1 yr	Intensity	inches	Kansas	Johnson	1	3.00	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Existing	2.69	88.37	5.40	4.09	11.00	13.48	0 00:13:57

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Existing

Input Data

Area (ac) 2.69
Weighted Curve Number 88.37
Rain Gage ID 10yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Pasture, grassland, or range, Fair	1.85	D	84.00
Paved parking & roofs	0.84	D	98.00
Composite Area & Weighted CN	2.69		88.37

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$
R = Aq / Wp
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

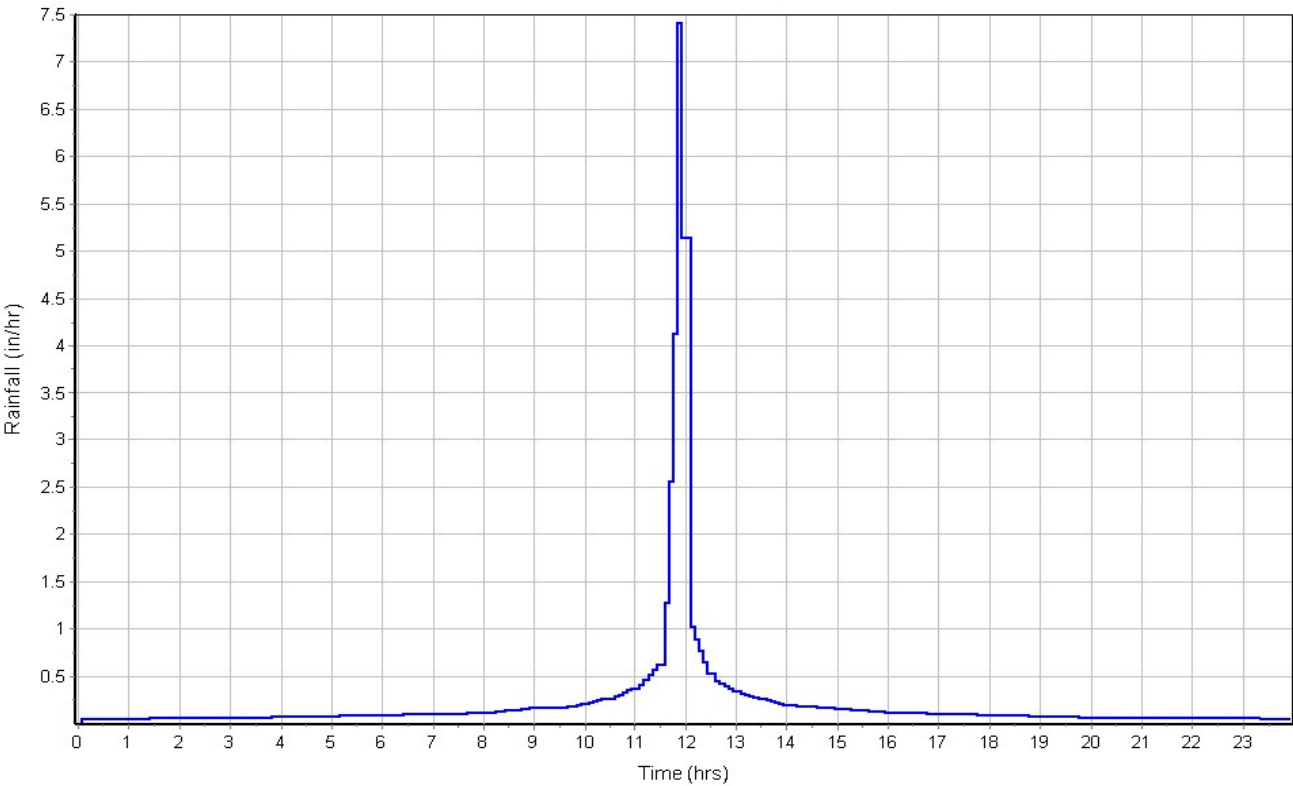
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.18	0.00	0.00
Computed Flow Time (min) :	9.24	0.00	0.00
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	334	267	0.00
Slope (%) :	4.5	.5	0.00
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	3.42	1.44	0.00
Computed Flow Time (min) :	1.63	3.09	0.00
Total TOC (min)	13.96		

Subbasin Runoff Results

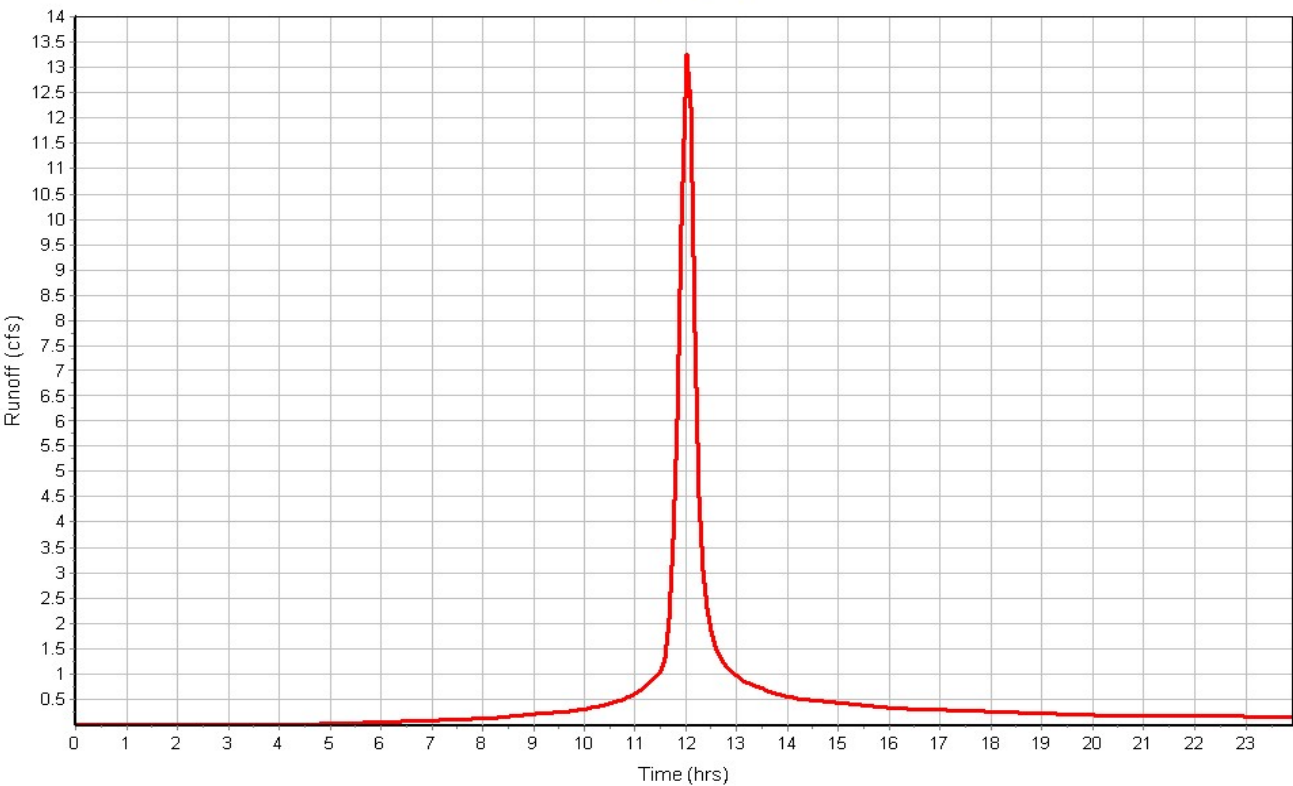
Total Rainfall (in)	5.40
Total Runoff (in)	4.09
Peak Runoff (cfs)	13.48
Weighted Curve Number	88.37
Time of Concentration (days hh:mm:ss)	0 00:13:58

Subbasin : Existing

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Existing	2.69	88.37	5.40	4.09	11.00	13.48	0 00:13:57

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Existing

Input Data

Area (ac) 2.69
Weighted Curve Number 88.37
Rain Gage ID 10yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Pasture, grassland, or range, Fair	1.85	D	84.00
Paved parking & roofs	0.84	D	98.00
Composite Area & Weighted CN	2.69		88.37

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

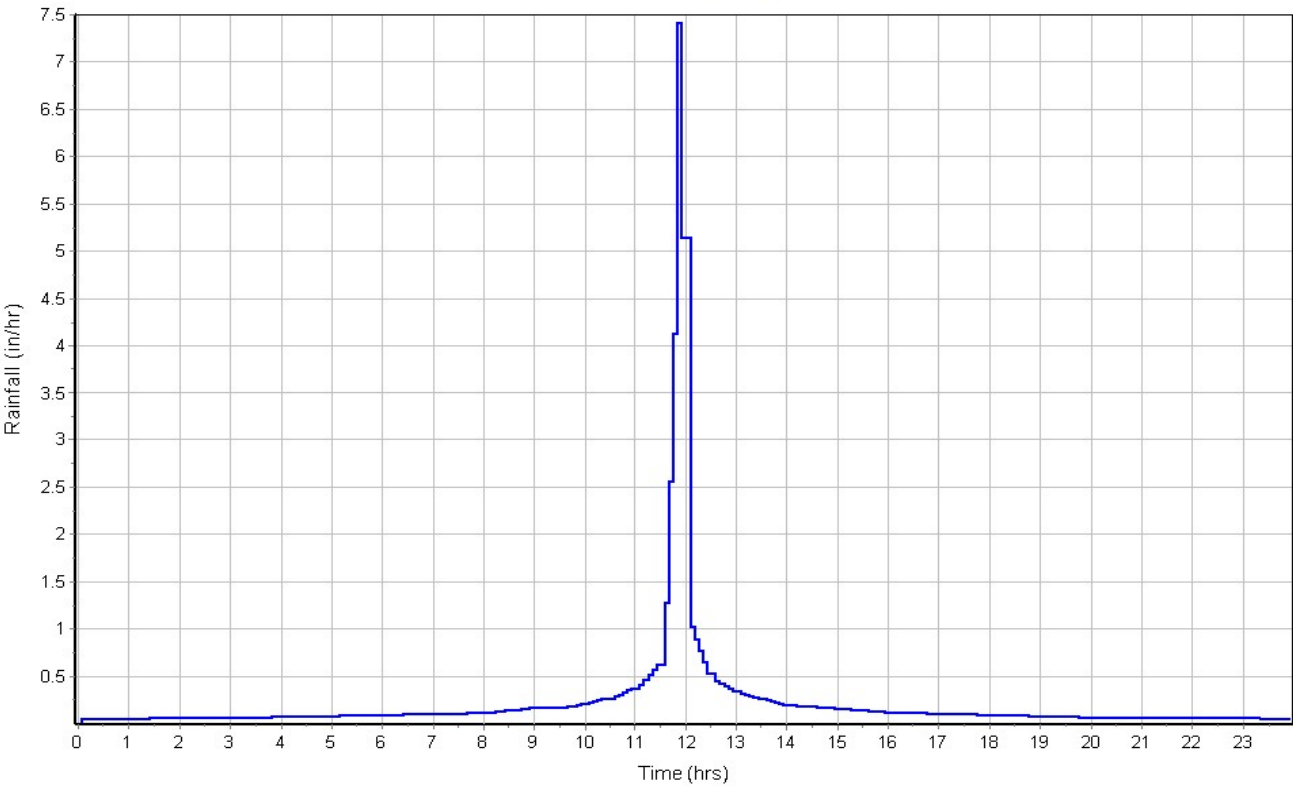
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.18	0.00	0.00
Computed Flow Time (min) :	9.24	0.00	0.00
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	334	267	0.00
Slope (%) :	4.5	.5	0.00
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	3.42	1.44	0.00
Computed Flow Time (min) :	1.63	3.09	0.00
Total TOC (min)	13.96		

Subbasin Runoff Results

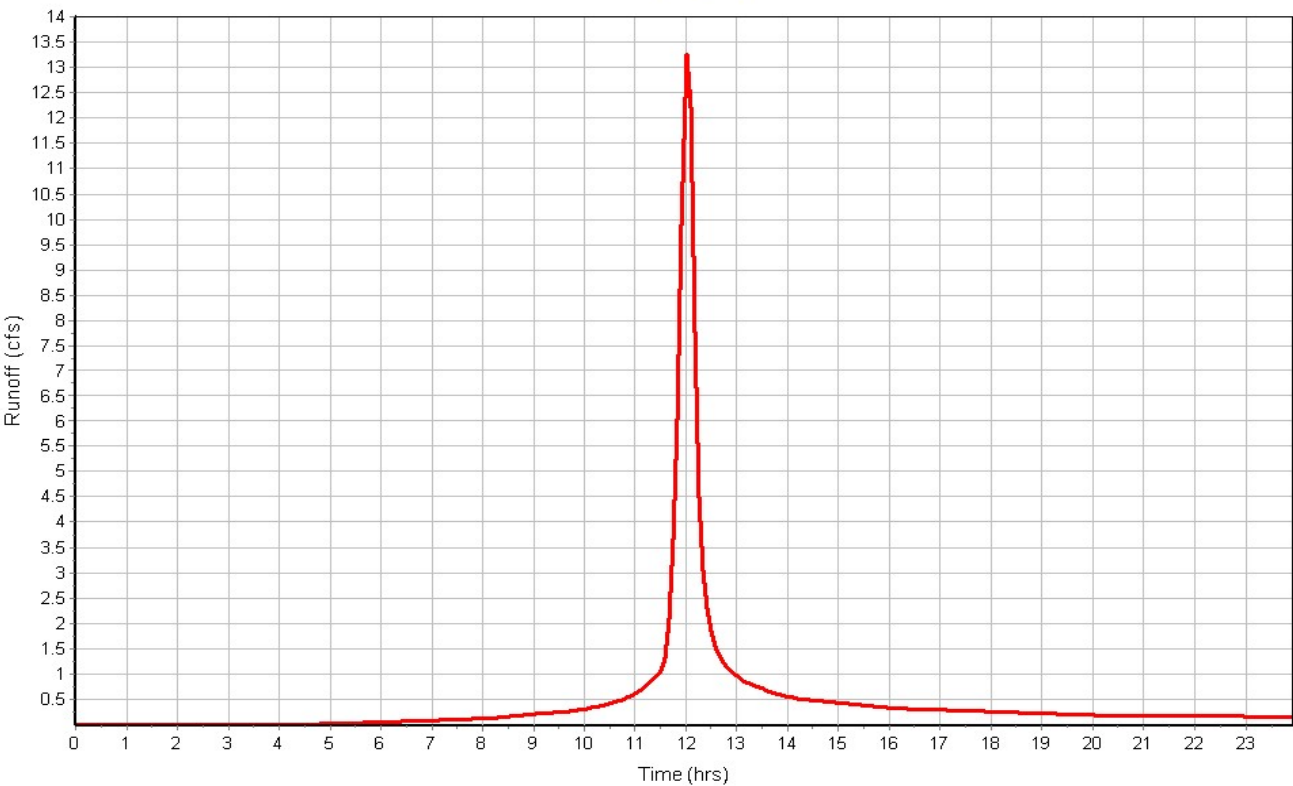
Total Rainfall (in)	5.40
Total Runoff (in)	4.09
Peak Runoff (cfs)	13.48
Weighted Curve Number	88.37
Time of Concentration (days hh:mm:ss)	0 00:13:58

Subbasin : Existing

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name Storm Analysis Existing.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Jul 25, 2019 00:00:00
End Analysis On Jul 26, 2019 00:00:00
Start Reporting On Jul 25, 2019 00:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

Qty
Rain Gages 3
Subbasins..... 1
Nodes..... 1
 Junctions 0
 Outfalls 1
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
Links..... 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
Pollutants 0
Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	100yr	Time Series	100 yr	Intensity	inches	Kansas	Johnson	100	7.90	SCS Type II 24-hr
2	10yr	Time Series	10 yr	Intensity	inches	Kansas	Johnson	10	5.40	SCS Type II 24-hr
3	1yr	Time Series	1 yr	Intensity	inches	Kansas	Johnson	1	3.00	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Existing	2.69	88.37	7.90	6.51	17.52	20.96	0 00:13:57

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Existing

Input Data

Area (ac) 2.69
Weighted Curve Number 88.37
Rain Gage ID 1yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Pasture, grassland, or range, Fair	1.85	D	84.00
Paved parking & roofs	0.84	D	98.00
Composite Area & Weighted CN	2.69		88.37

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{2/3})) * (S_f^{0.5}) / n$
R = Aq / Wp
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

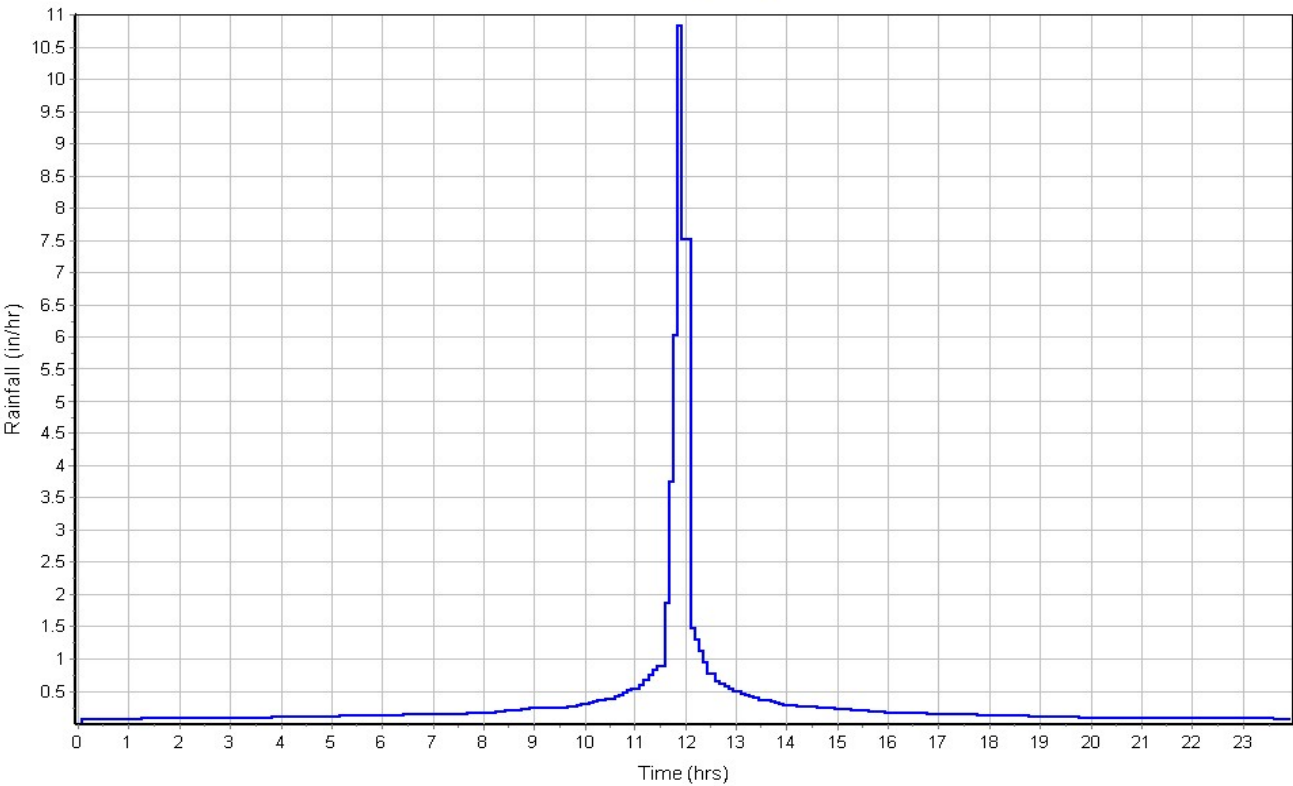
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.18	0.00	0.00
Computed Flow Time (min) :	9.24	0.00	0.00
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	334	267	0.00
Slope (%) :	4.5	.5	0.00
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	3.42	1.44	0.00
Computed Flow Time (min) :	1.63	3.09	0.00
Total TOC (min)	13.96		

Subbasin Runoff Results

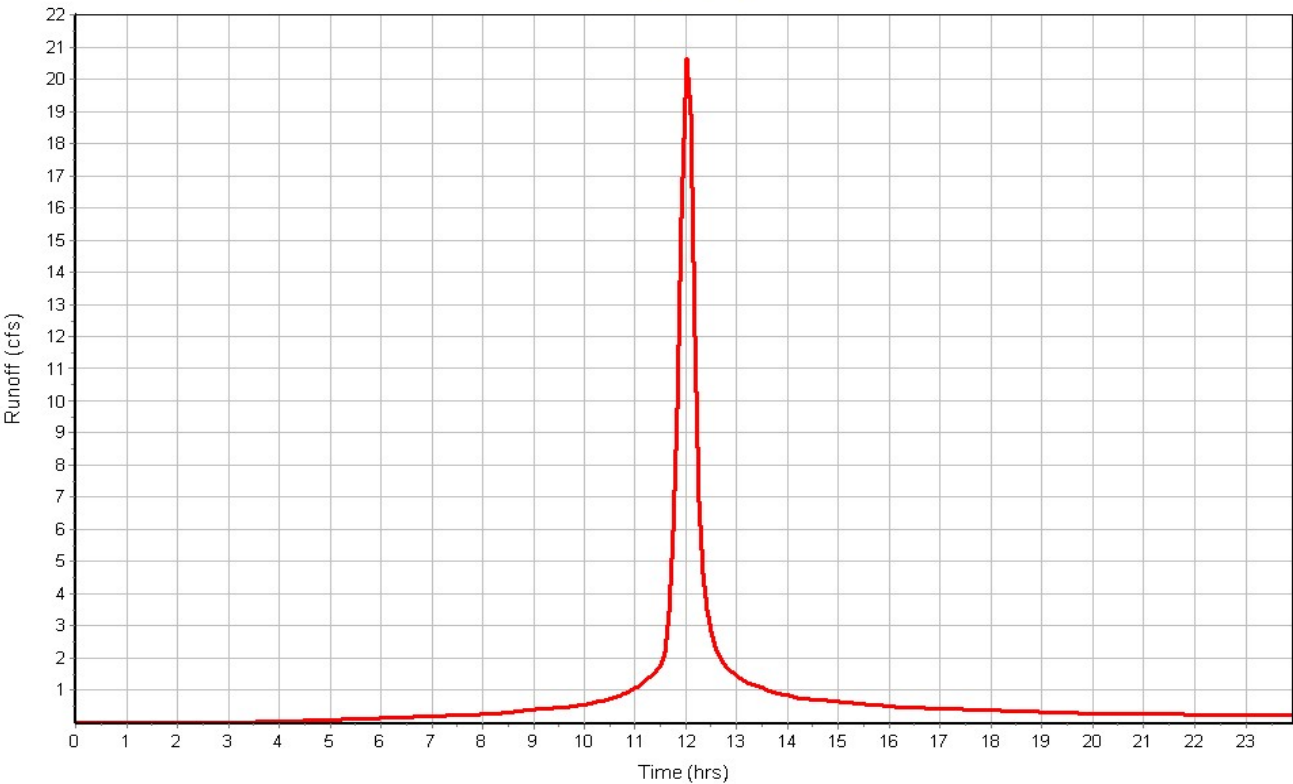
Total Rainfall (in)	7.90
Total Runoff (in)	6.51
Peak Runoff (cfs)	20.96
Weighted Curve Number	88.37
Time of Concentration (days hh:mm:ss)	0 00:13:58

Subbasin : Existing

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Existing	2.69	88.37	7.90	6.51	17.52	20.96	0 00:13:57

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Existing

Input Data

Area (ac) 2.69
Weighted Curve Number 88.37
Rain Gage ID 1yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Pasture, grassland, or range, Fair	1.85	D	84.00
Paved parking & roofs	0.84	D	98.00
Composite Area & Weighted CN	2.69		88.37

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

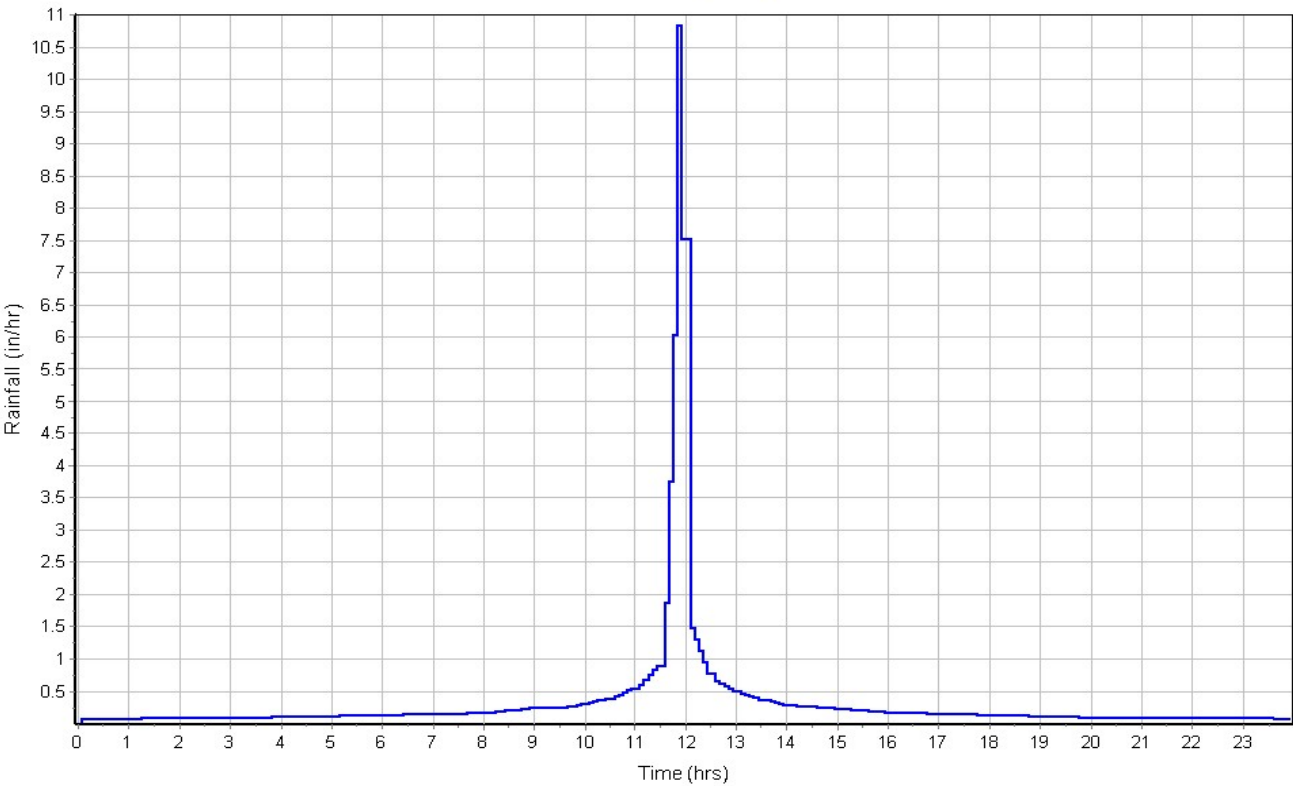
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.18	0.00	0.00
Computed Flow Time (min) :	9.24	0.00	0.00
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	334	267	0.00
Slope (%) :	4.5	.5	0.00
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	3.42	1.44	0.00
Computed Flow Time (min) :	1.63	3.09	0.00
Total TOC (min)	13.96		

Subbasin Runoff Results

Total Rainfall (in)	7.90
Total Runoff (in)	6.51
Peak Runoff (cfs)	20.96
Weighted Curve Number	88.37
Time of Concentration (days hh:mm:ss)	0 00:13:58

Subbasin : Existing

Rainfall Intensity Graph



Runoff Hydrograph

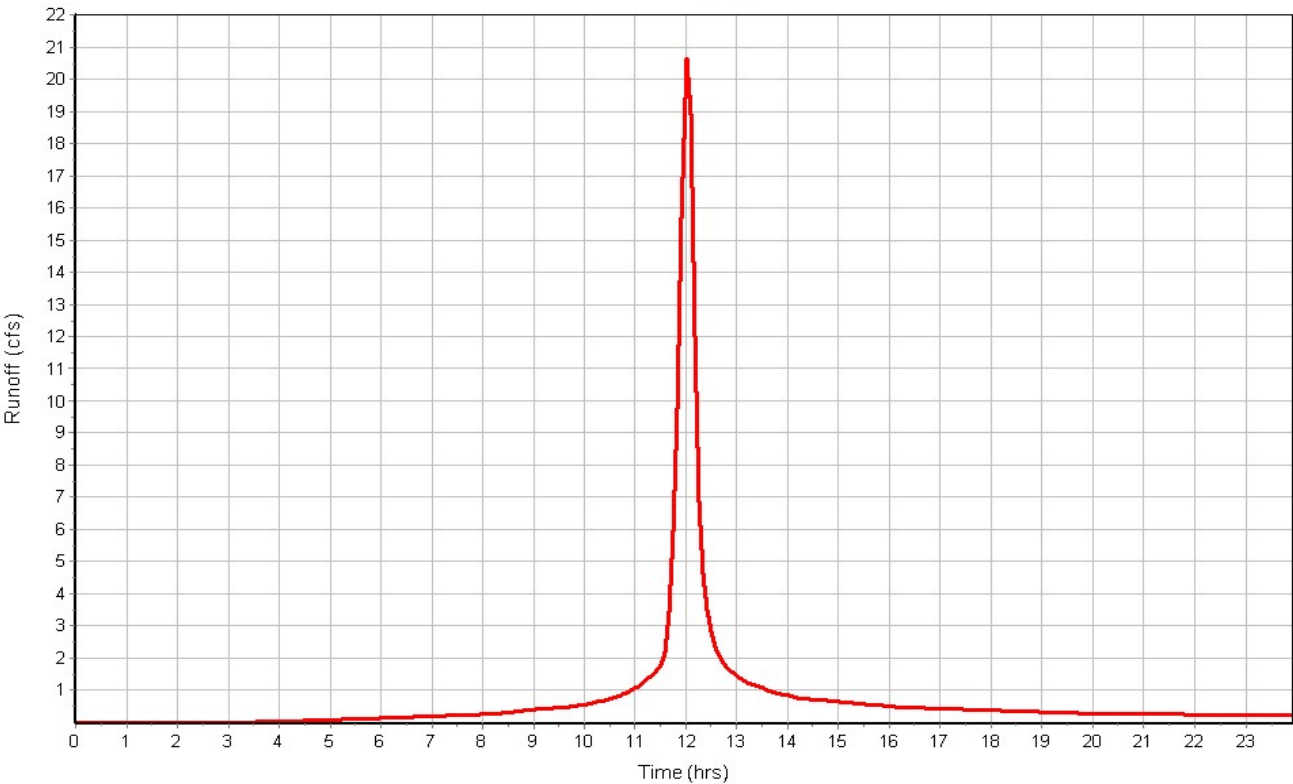
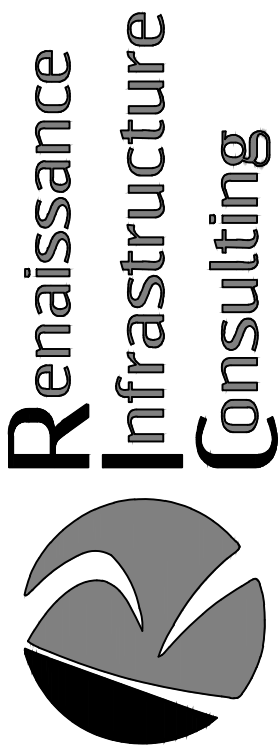


EXHIBIT F
PROPOSED DRAINAGE MAP

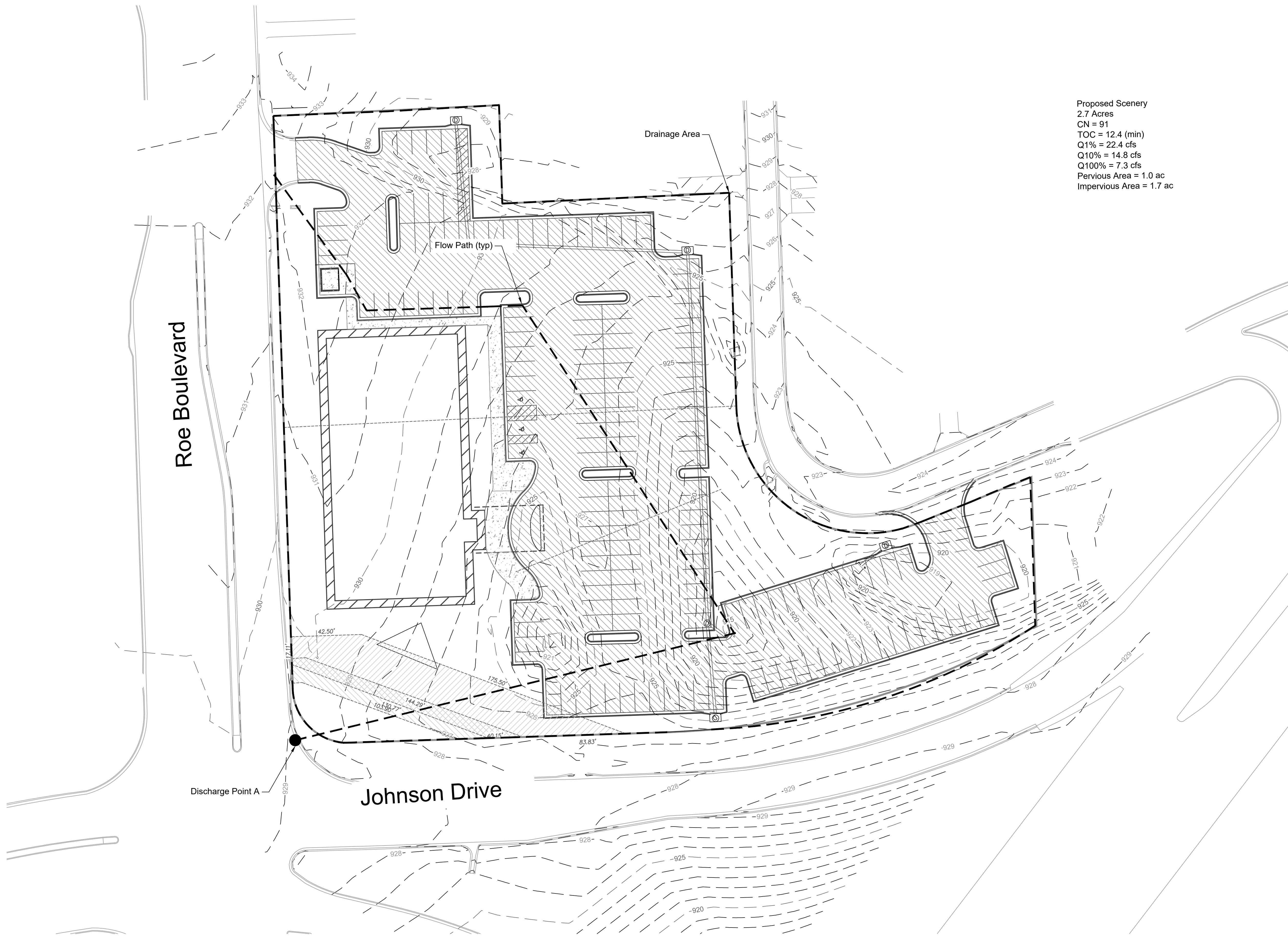
Proposed Drainage Area

[illegible]

1815 MCGEE STREET, SUITE. 200
KANSAS CITY, MISSOURI 64108
816.800.0950
WWW.RIC-CONSULT.COM

KS Certificate of Authority: E-1814

KS Certificate of Authority: E-1814



Proposed Scenery
2.7 Acres
CN = 91
TOC = 12.4 (min)
Q1% = 22.4 cfs
Q10% = 14.8 cfs
Q100% = 7.3 cfs
Pervious Area = 1.0 ac
Impervious Area = 1.7 ac



EXHIBIT G

PROPOSED CONDITIONS ANALYSIS

Project Description

File Name Storm Analysis Future.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Jul 25, 2019 00:00:00
End Analysis On Jul 26, 2019 00:00:00
Start Reporting On Jul 25, 2019 00:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

Qty
Rain Gages 3
Subbasins..... 1
Nodes..... 1
 Junctions 0
 Outfalls 1
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
Links..... 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
Pollutants 0
Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	100yr	Time Series	100 yr	Intensity	inches	Kansas	Johnson	100	7.90	SCS Type II 24-hr
2	10yr	Time Series	10 yr	Intensity	inches	Kansas	Johnson	10	5.40	SCS Type II 24-hr
3	1yr	Time Series	1 yr	Intensity	inches	Kansas	Johnson	1	3.00	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Future	2.70	91.48	3.00	2.11	5.71	7.34	0 00:12:25

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-02	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Future

Input Data

Area (ac) 2.70
Weighted Curve Number 91.48
Rain Gage ID 1yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.70	C	98.00
Pasture, grassland, or range, Fair	0.40	D	84.00
Meadow, non-grazed	0.60	D	78.00
Composite Area & Weighted CN	2.70		91.48

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{(2/3)}) * (S_f^{0.5})) / n$
 $R = A_q / W_p$
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

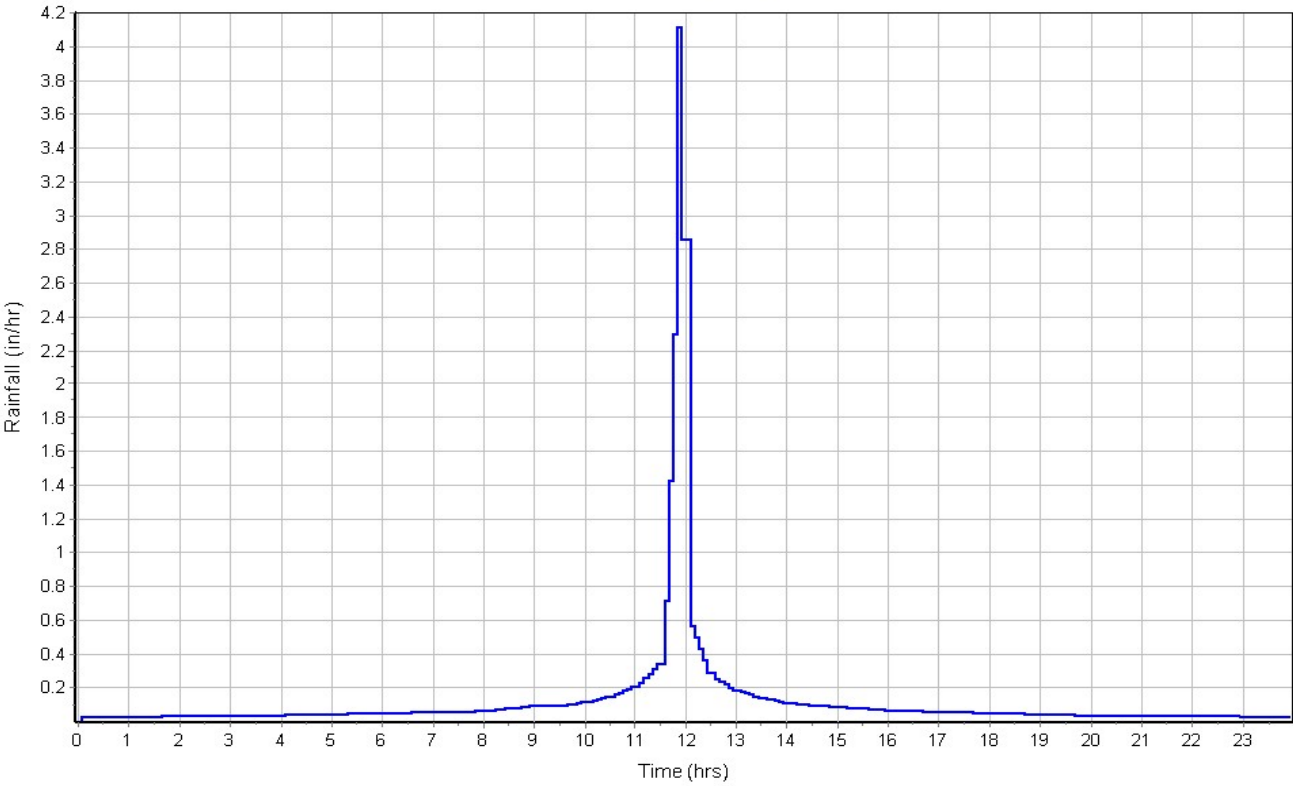
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	50	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.12	0.00	0.00
Computed Flow Time (min) :	7.00	0.00	0.00
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	383	276	0.00
Slope (%) :	2	.5	0.00
Surface Type :	Paved	Paved	Unpaved
Velocity (ft/sec) :	2.87	1.44	0.00
Computed Flow Time (min) :	2.22	3.19	0.00
Total TOC (min)	12.42		

Subbasin Runoff Results

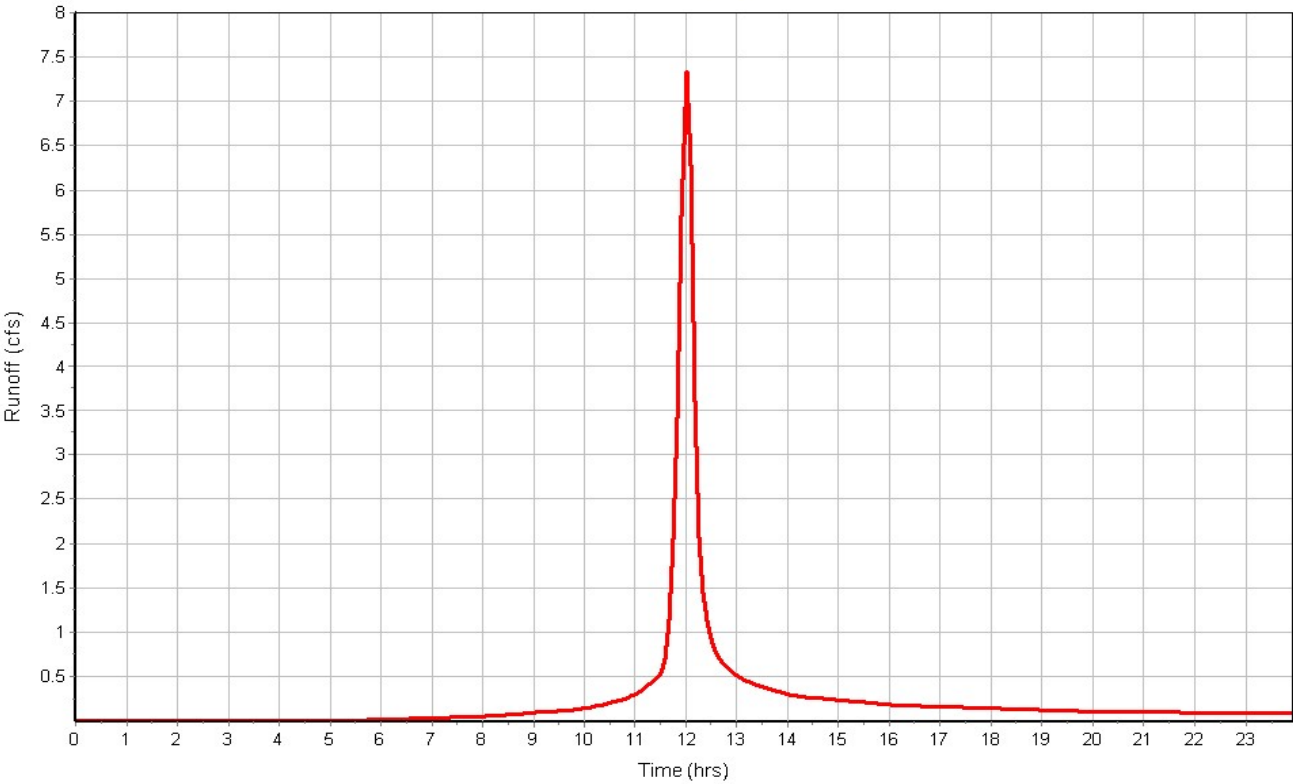
Total Rainfall (in)	3.00
Total Runoff (in)	2.11
Peak Runoff (cfs)	7.34
Weighted Curve Number	91.48
Time of Concentration (days hh:mm:ss)	0 00:12:25

Subbasin : Future

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name Storm Analysis Future.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Jul 25, 2019 00:00:00
End Analysis On Jul 26, 2019 00:00:00
Start Reporting On Jul 25, 2019 00:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

Qty
Rain Gages 3
Subbasins..... 1
Nodes..... 1
 Junctions 0
 Outfalls 1
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
Links..... 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
Pollutants 0
Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	100yr	Time Series	100 yr	Intensity	inches	Kansas	Johnson	100	7.90	SCS Type II 24-hr
2	10yr	Time Series	10 yr	Intensity	inches	Kansas	Johnson	10	5.40	SCS Type II 24-hr
3	1yr	Time Series	1 yr	Intensity	inches	Kansas	Johnson	1	3.00	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Future	2.70	91.48	5.40	4.42	11.94	14.81	0 00:12:25

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-02	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Future

Input Data

Area (ac) 2.70
Weighted Curve Number 91.48
Rain Gage ID 10yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.70	C	98.00
Pasture, grassland, or range, Fair	0.40	D	84.00
Meadow, non-grazed	0.60	D	78.00
Composite Area & Weighted CN	2.70		91.48

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{(2/3)}) * (S_f^{0.5})) / n$
 $R = A_q / W_p$
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

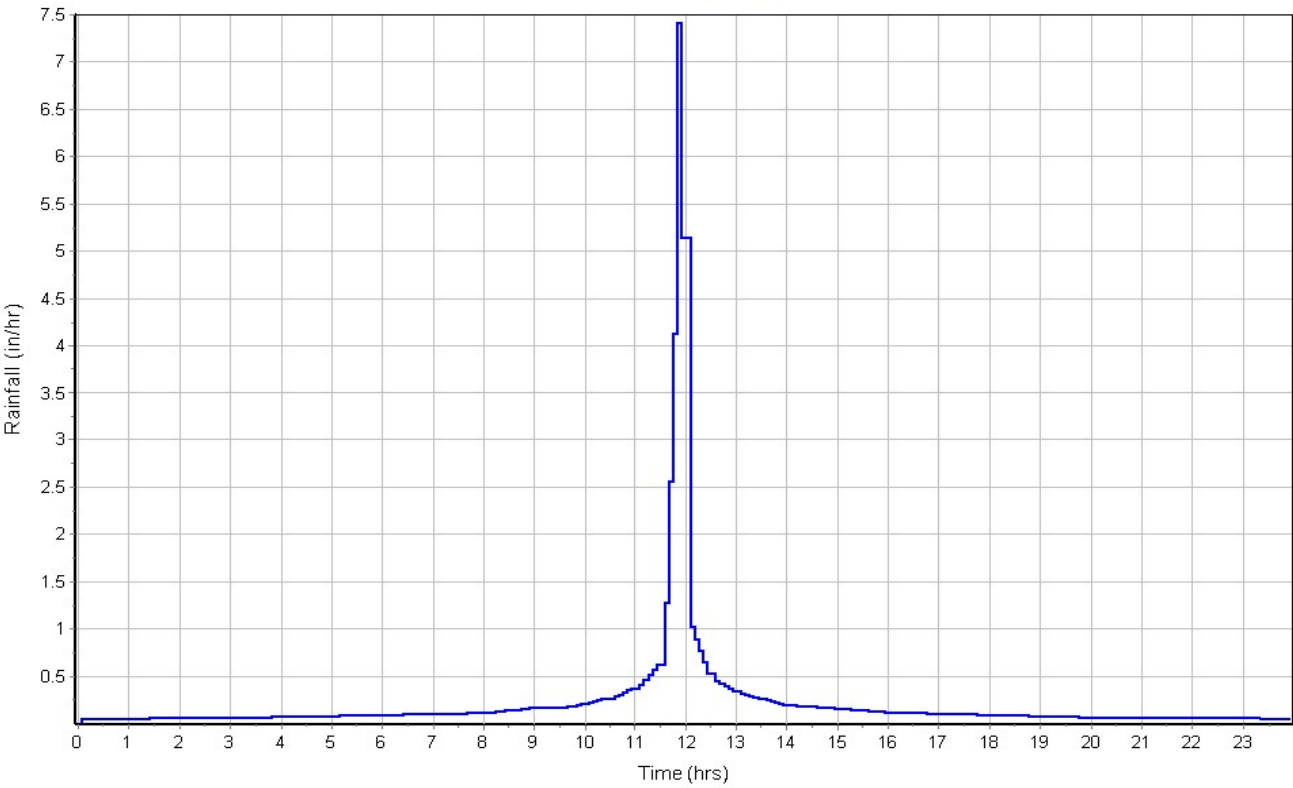
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	50	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.12	0.00	0.00
Computed Flow Time (min) :	7.00	0.00	0.00
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	383	276	0.00
Slope (%) :	2	.5	0.00
Surface Type :	Paved	Paved	Unpaved
Velocity (ft/sec) :	2.87	1.44	0.00
Computed Flow Time (min) :	2.22	3.19	0.00
Total TOC (min)	12.42		

Subbasin Runoff Results

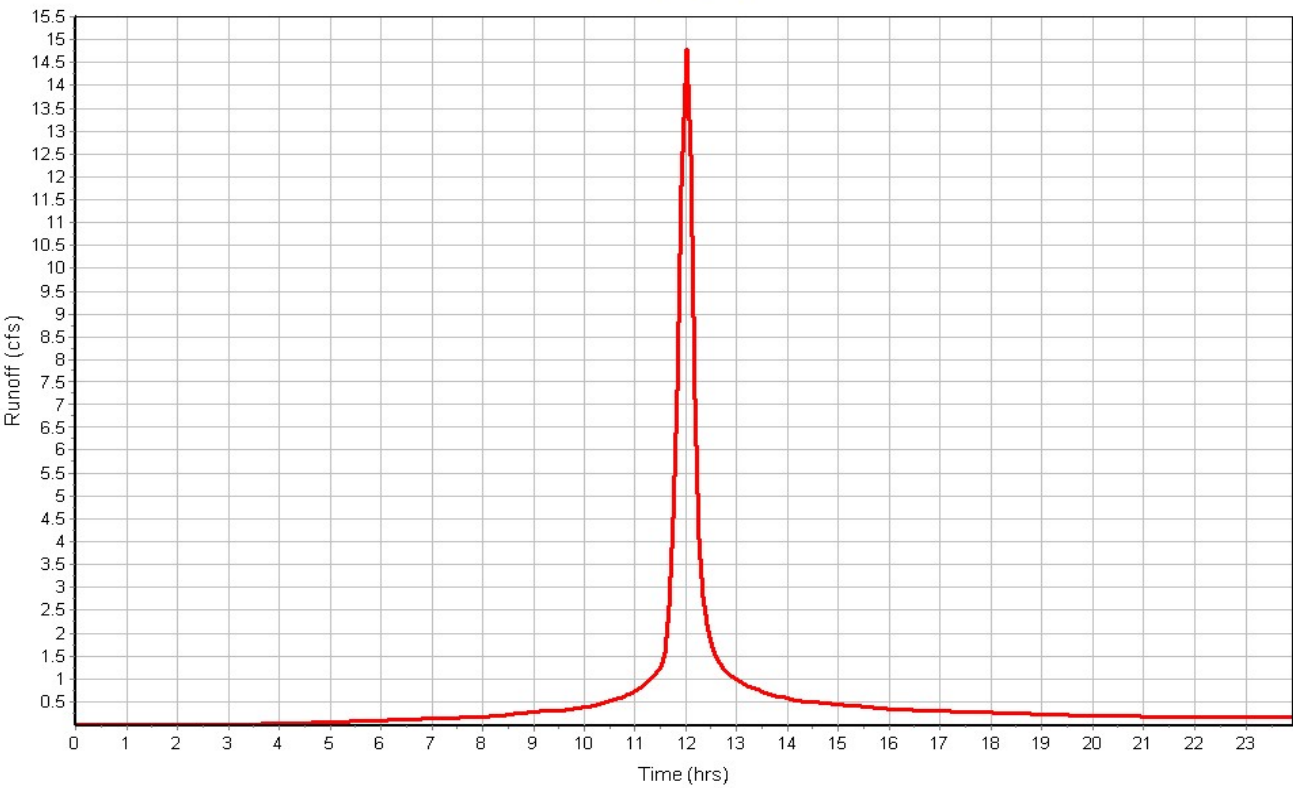
Total Rainfall (in)	5.40
Total Runoff (in)	4.42
Peak Runoff (cfs)	14.81
Weighted Curve Number	91.48
Time of Concentration (days hh:mm:ss)	0 00:12:25

Subbasin : Future

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name Storm Analysis Future.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Jul 25, 2019 00:00:00
End Analysis On Jul 26, 2019 00:00:00
Start Reporting On Jul 25, 2019 00:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

Qty
Rain Gages 3
Subbasins..... 1
Nodes..... 1
 Junctions 0
 Outfalls 1
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
Links..... 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
Pollutants 0
Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	100yr	Time Series	100 yr	Intensity	inches	Kansas	Johnson	100	7.90	SCS Type II 24-hr
2	10yr	Time Series	10 yr	Intensity	inches	Kansas	Johnson	10	5.40	SCS Type II 24-hr
3	1yr	Time Series	1 yr	Intensity	inches	Kansas	Johnson	1	3.00	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Future	2.70	91.48	7.90	6.88	18.58	22.46	0 00:12:25

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-02	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Future

Input Data

Area (ac) 2.70
Weighted Curve Number 91.48
Rain Gage ID 100yr

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.70	C	98.00
Pasture, grassland, or range, Fair	0.40	D	84.00
Meadow, non-grazed	0.60	D	78.00
Composite Area & Weighted CN	2.70		91.48

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{(2/3)}) * (S_f^{0.5})) / n$
 $R = A_q / W_p$
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

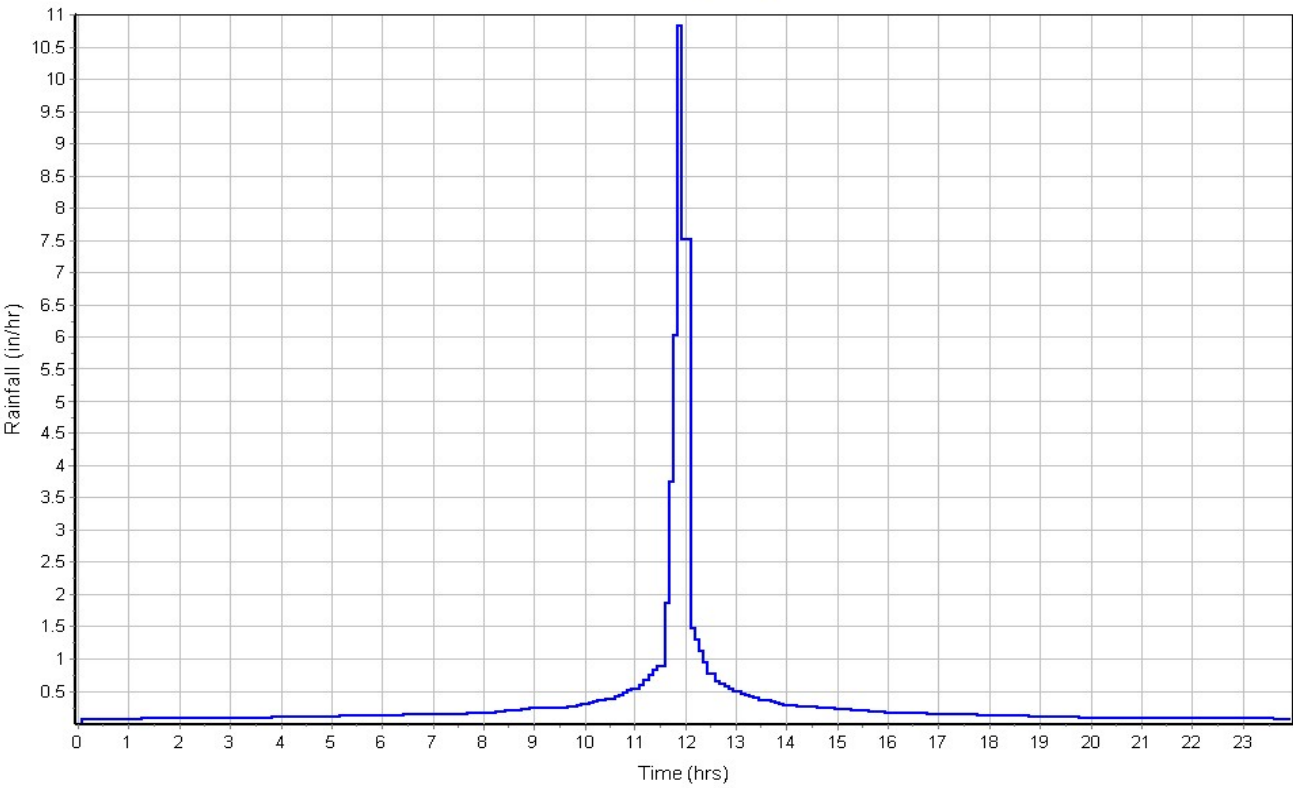
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	.15	0.00	0.00
Flow Length (ft) :	50	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.60	0.00	0.00
Velocity (ft/sec) :	0.12	0.00	0.00
Computed Flow Time (min) :	7.00	0.00	0.00
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	383	276	0.00
Slope (%) :	2	.5	0.00
Surface Type :	Paved	Paved	Unpaved
Velocity (ft/sec) :	2.87	1.44	0.00
Computed Flow Time (min) :	2.22	3.19	0.00
Total TOC (min)	12.42		

Subbasin Runoff Results

Total Rainfall (in)	7.90
Total Runoff (in)	6.88
Peak Runoff (cfs)	22.46
Weighted Curve Number	91.48
Time of Concentration (days hh:mm:ss)	0 00:12:25

Subbasin : Future

Rainfall Intensity Graph



Runoff Hydrograph

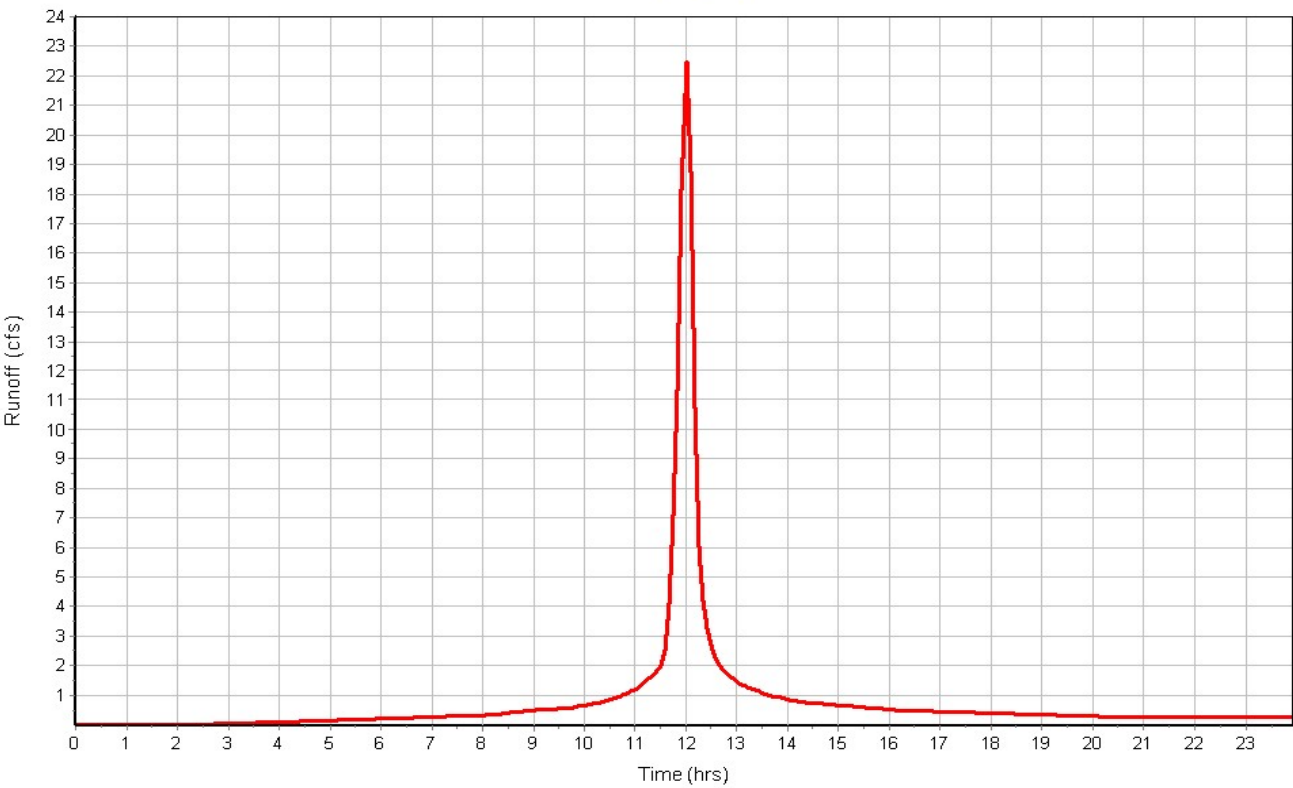


EXHIBIT H
BMP ANALYSIS



WORKSHEET 1: REQUIRED LEVEL OF SERVICE - UNDEVELOPED SITE

Project: 19-0143 Medical Office Building
Location: Roeland Park, Kansas

By: CMK Date: 8/6/2019
Checked: Date:

1. Runoff Curve Number

A. Predevelopment CN

Cover Description	Soil HSG	CN	Area (ac.)	Product of CN x Area
Pasture, Fair	D	84.0	1.9	155.4
Parking lots, roofs, streets w/ sewer, water, etc	C	98.0	0.8	82.3
Totals:			2.7	237.7

Area-Weighted CN = total product/total area =

88.0

B. Postdevelopment CN

Cover Description	Soil HSG ¹	CN	Area (ac.)	Product of CN x Area
Pasture, Fair	D	84.0	0.4	33.6
Parking lots, roofs, streets w/ sewer, water, etc	C	98.0	1.7	166.6
Native grass	D	78.0	0.6	46.8
Totals:			2.7	247.0

¹ Postdevelopment CN is one HSG higher for all cover types except preserved vegetation, absent documentation showing how postdevelopment soil structure will be preserved.

Area-Weighted CN = total product/total area =

91.0

C. Level of Service (LS) Calculation

Predevelopment CN: 88

Postdevelopment CN: 91

Difference: 3

LS Required (see scale at right): 5



WORKSHEET 2: DEVELOP MITIGATION PACKAGE(S) THAT MEET THE REQUIRED LS

Project 19-0143 Medical Office Building

By:

Date:

7/31/2019

Location Roeland Park, Kansas

Checked:

Date:

Sheet 1 of 1

1. Required LS (New Development, Wksht 1) or Total VR (Redevelopment, Wksht 1A):

5.00

Note: Various BMPs may alter CN of proposed development, and LS; recalculate both if applicable.

2. Proposed BMP Option Package No. 1

Cover/BMP Description	Treatment Area	VR	Product of VR x Area
Native Vegetation	0.6	9.3	5.7
Rain Garden	0.4	9.0	3.6
Pavement	0.6	-	-
Proprietary System	1.1	4.0	4.4
.			
Total²:	2.7	Total:	13.7

***Weighted VR:** 5.1 = total product/total area

¹ VR calculated for final BMP only in Treatment Train

² Total treatment area cannot exceed 100 percent of the actual site area

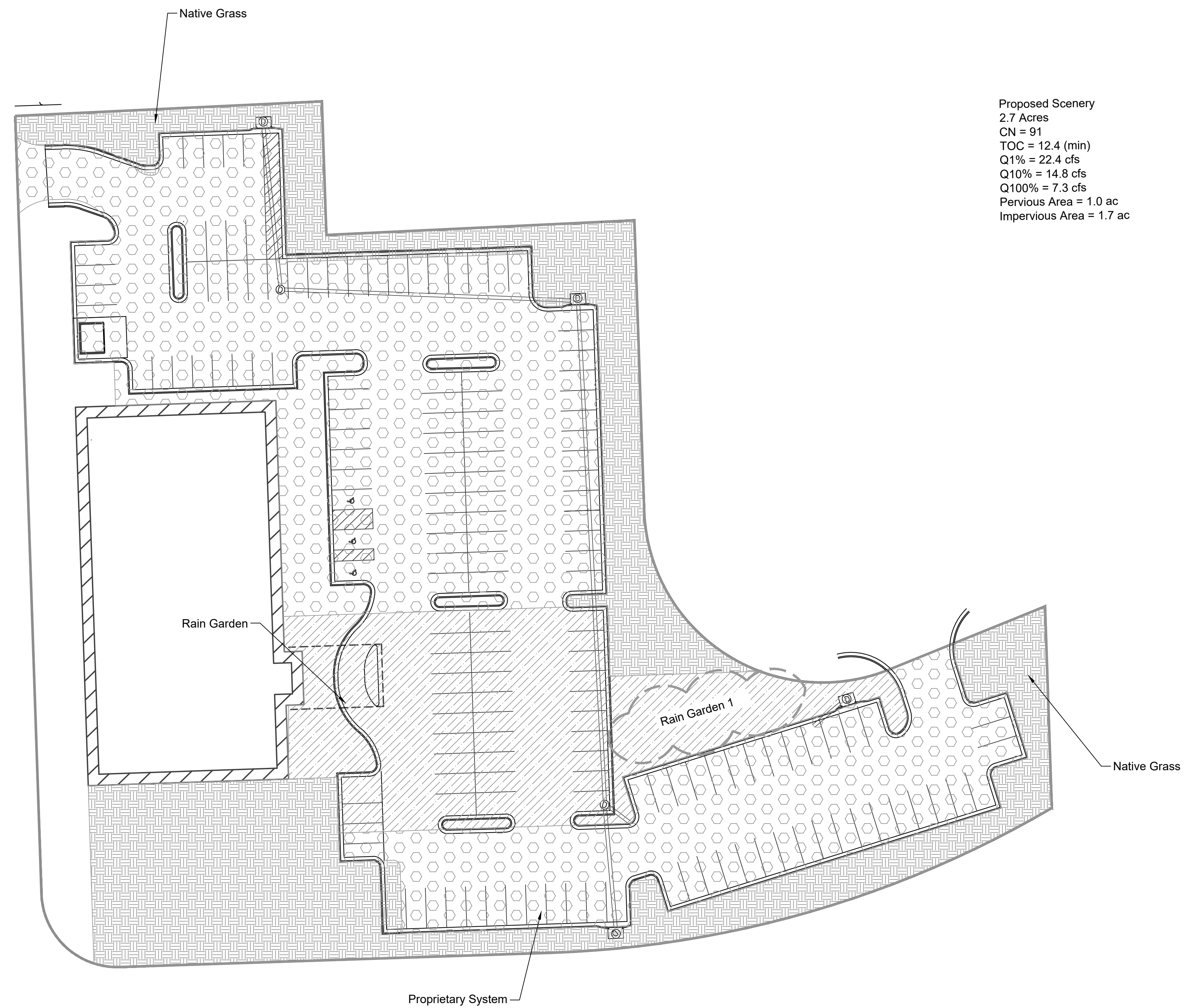
* Blank in Redevelopment

Meets required LS (Yes/No)?

Yes

(If No, or if additional options are being tested, proceed below)

BMP Analysis

[illegible]

LEGEND

Native Vegetation Area = 0.6 ac	
Rain Garden Area = 0.4 ac	
Proprietary System Area = 1.1 ac	

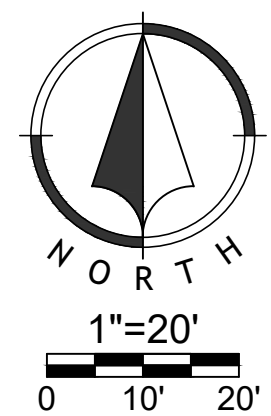


EXHIBIT J

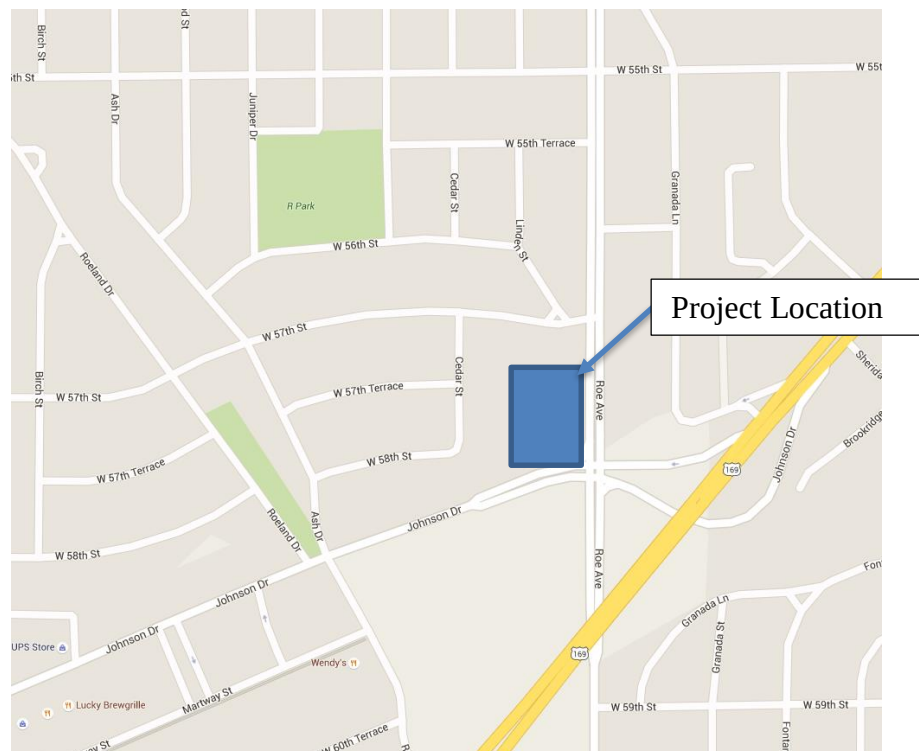
COMMERCE BANK & EMBREE
HOSPITAL STORMWATER REPORT

PRELIMINARY STORMWATER STUDY

COMMERCE BANK & EMBREE HOSPITAL ROELAND PARK, KS

PREPARED FOR:
COMMERCE BANK AND EMBREE

PREPARED BY:
OLSSON ASSOCIATES
1300 BURLINGTON ST. STE. 100
KANSAS CITY, MO 64116



JULY 2016
OA PROJECT NUMBER: 016-1960

Commerce Bank & Embree
Stormwater Report

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- Appendix A: Figures
- Appendix B: FEMA LOMR/ Soils Report
- Appendix C: Supporting Information & Calculations

Commerce Bank & Embree Stormwater Report

GENERAL INFORMATION

This micro stormwater management study is being submitted on behalf of Commerce Bank and Embree for the proposed Commerce Bank and Hospital in Roeland Park, Kansas.

Project Location and Description

The proposed site lies within the northwest ¼ of Section 9, Township 12 South, Range 25 East, in Johnson County, Roeland Park, Kansas and includes approximately 2.65 acres. The site is located at the northwest corner of Johnson Drive and Roe Boulevard (See Appendix A for Site Maps).

Study Purpose and Criteria

The purpose of this study is to explain that the proposed development of the Commerce Bank and Embree Hospital sites are in conformance with the City of Roeland Park Ordinances and Procedures. This document utilizes the Standard Specifications and Design Criteria, "Division V – Design Criteria, Section 5600 - Storm Drainage Systems and Facilities" of the American Public Works Association, Kansas City Metropolitan Chapter (APWA) adopted February 15, 2006 and the Mid-America Regional Council, Manual of Best Management Practices For Stormwater Quality October 2012, referred to hereafter as "2012 MARC BMP Manual". This study will analyze the post-development peak stormwater discharges from the site to ensure there are no adverse impacts on downstream receiving stormwater systems or properties and discuss best management practices to mitigate impacts to storm water quality.

FEMA Flood Classification

The site is classified as a "Zone X" Area according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Johnson County, Kansas and Incorporated Areas Map Number 20091C0024G dated August 3, 2009 with Revision to Reflect LOMR Effective February 8, 2012. According to the FEMA FIRM, Zone X corresponds to areas determined to be outside the 0.2% annual chance floodplain. See the FEMA LOMR in Appendix B. No FEMA permitting or submittals will be required for this site.

Soils Descriptions

Soil classifications were obtained from the Natural Resource Conservation Service's website by utilizing the Web Soil Survey feature. The site soil composition and classification can be viewed in the chart below. These soil properties are shown in Table 1.

Commerce Bank & Embree

Stormwater Report

Table 1: Soil Classifications

Soil Description	Hydrologic Soil Group
Sharpsburg Urban land complex	C

A more detailed printout from the online Web Soil Survey is included in Appendix B.

HYDROLOGIC/HYDRAULIC ANALYSES

Existing Conditions Analysis

Per the Preliminary Stormwater Study, the existing conditions of the site will be analyzed per the conditions in the Northeast Johnson County Watershed Study of November 20, 2006. At the time of analysis, the site contained public interchange ramps that connected Johnson Drive and Roe Avenue. Due to the earthwork and construction that had taken place on-site, the Hydrologic soil group was assumed to be D for existing conditions. The site generally drains to the southeast to an area inlet that connects to a 36" RCP (Outfall A) that flows east under Roe Boulevard, eventually combining with Rock Creek. The site is part of the Rock Creek watershed. See the exhibit in Appendix A which shows existing drainage boundaries and impervious area. The values used for the calculation were attained from the 2012 MARC BMP Manual. The existing conditions will generate a runoff of 26.37 cfs for the 100-year storm event (See Appendix C for Calculations). Pre-development flows are summarized in Table 2.

Table 2: Existing Peak Flows

	WEIGHTED CN VALUE	TOTAL AREA	1-YR STORM (CFS)	10-YR STORM (CFS)	100-YR STORM (CFS)
Outfall A	87	2.65	7.70	16.87	26.37

Proposed Conditions Analysis

The proposed development will consist of a hospital building, a bank and associated parking facilities. Drainage patterns for the proposed conditions will remain similar to the existing conditions. The site will drain overland to proposed storm sewer designed to fully convey the 100-year storm event. Detailed storm sewer design information will be included in the storm sewer plans. The weighted CN value for proposed onsite conditions was found to be 90. (See Appendix A Figure 3 for proposed conditions). The values used for the calculation were attained from the 2012 MARC BMP Manual. The proposed conditions will

Commerce Bank & Embree Stormwater Report

generate a runoff of 27.21 cfs for the 100-year storm event (See Appendix C for Calculations).

Table 3: Proposed Peak Flows

	WEIGHTED CN VALUE	TOTAL AREA	1-YR STORM (CFS)	10-YR STORM (CFS)	100-YR STORM (CFS)
Outfall A	90	2.65	8.66	17.81	27.21

STORMWATER TREATMENT REQUIREMENTS

Detention

Using the Northeast Johnson County Watershed Study, the subarea for this site and all upstream subareas in the Rock Creek watershed were analyzed (see appendix for Subarea Map). The total area from subarea RC-040 and all upstream subareas is 1766.4 acres with 737.08 acres impervious. This results in 41.73% impervious area. After the proposed site is improved, an additional 0.62 acres of impervious area will be added to make the total impervious area 41.78%.

The existing flow for the 100 year storm approximately 1,075 feet upstream of Sheridan Drive is 5,763 cfs (see appendix for FEMA LOMR). With the proposed improvements to the Commerce Bank and Embree site an increase of 0.84 cfs will be added to the 100 year storm. This adds 0.01% to the existing flow for the 100 year storm event.

The project site is approximately 600 feet from Rock Creek. At the point the project site contributes to the creek, it is very low in the tributary area. Detaining sub-watersheds that are low in the overall tributary area has the effect of increasing the time of concentration for that sub-watershed. This results in more flow being added to the overall tributary area's peak flows, actually increasing peak runoff rates and volumes that will occur farther downstream. The best solution is to get the peak flows from the project site into the creek and downstream ahead of the total tributary area's peak flows.

Therefore, although we are aware of downstream flooding, the addition of 0.01% of flow for the 100 year storm event and an increase in 0.05% of impervious area will be insignificant, and detaining this water could increase the peak flow downstream. Because of these factors, the increase in 0.99 acres of impervious area is negligible and detention for this site will not be required.

Commerce Bank & Embree

Stormwater Report

BMP Analysis

Improvements to the property will increase impervious surface area compared to existing conditions, thus proposed improvements qualify the project to meet water quality requirements with stormwater treatment facilities (STFs). STFs on the site are proposed to mitigate post-construction runoff pollutant levels. The MARC BMP Manual was utilized to measure the Level of Service (LOS) and Value Rating (VR) required for an undeveloped site. The required LOS for this site is 5.0. Water quality treatment calculations are available in the Appendix.

The STF systems detailed below satisfy water quality treatment requirements for the project as determined by MARC BMP Manual calculations. Site construction documents will fully detail the construction and landscape specifications for all BMPs. The property owner shall be responsible for long term maintenance and upkeep of storm water treatment facilities. As required by Section 15-515 of Ordinance No. 809 of Roeland Park, the owner must complete an annual certification inspection of the stormwater management systems and is subject to City inspection at least once every three years.

A combination of STFs is proposed for the development and will include the following STFs with corresponding VRs:

- Native Vegetation (9.25)
- Bioretention (8.50)
- Proprietary Systems (4.0).

A Value Rating of 4.0 was used for Proprietary Systems in accordance with TRI/Environmental, Inc.'s study entitled, "Large-Scale Sediment Retention Device Testing: Representing Exposure to 'Post Construction' Sediment Load" of *Flexstorm PC Inlet Filters*. The study determined the *Flexstorm PC Inlet Filter* showed a downstream TSS concentration of 30 mg/L at maximum sediment levels. Using the Value Rating Calculations in Table 4.5 of the MARC BMP Manual the Water Quality Value Rating "A" would fall under the Value Rating of 2. The Oils/Floatables Reduction Rating "D" would remain at 2 equaling a total Value Rating of 4 for the Proprietary System.

Utilizing the above STFs, the site's Level of Service calculates to 5.0, meeting the required LOS of 5. Calculations, STF drainage maps and other information are available in the Appendix.

CONCLUSIONS AND RECOMMENDATIONS

There are no floodplain issues, stream setbacks needed or Section 404 permitting required. The 10 year storm will be routed through private storm sewer and will connect to existing public storm sewer following the existing drainage pattern for the site. The slight increase in impervious area is a negligible amount and detention will not be required for the site. A comprehensive package of BMP's has been provided to ensure that stormwater quality will be maintained.

Commerce Bank & Embree Stormwater Report

Based on the information provided herein, we request approval of this preliminary stormwater management study for improvements proposed with the Commerce Bank and Embree development.

If you have any questions or comments or need additional information, please do not hesitate to contact me at (816) 587-4320

OLSSON ASSOCIATES

Appendix A

Maps

Appendix B

FEMA Flood Classification Firmette/Soils Report

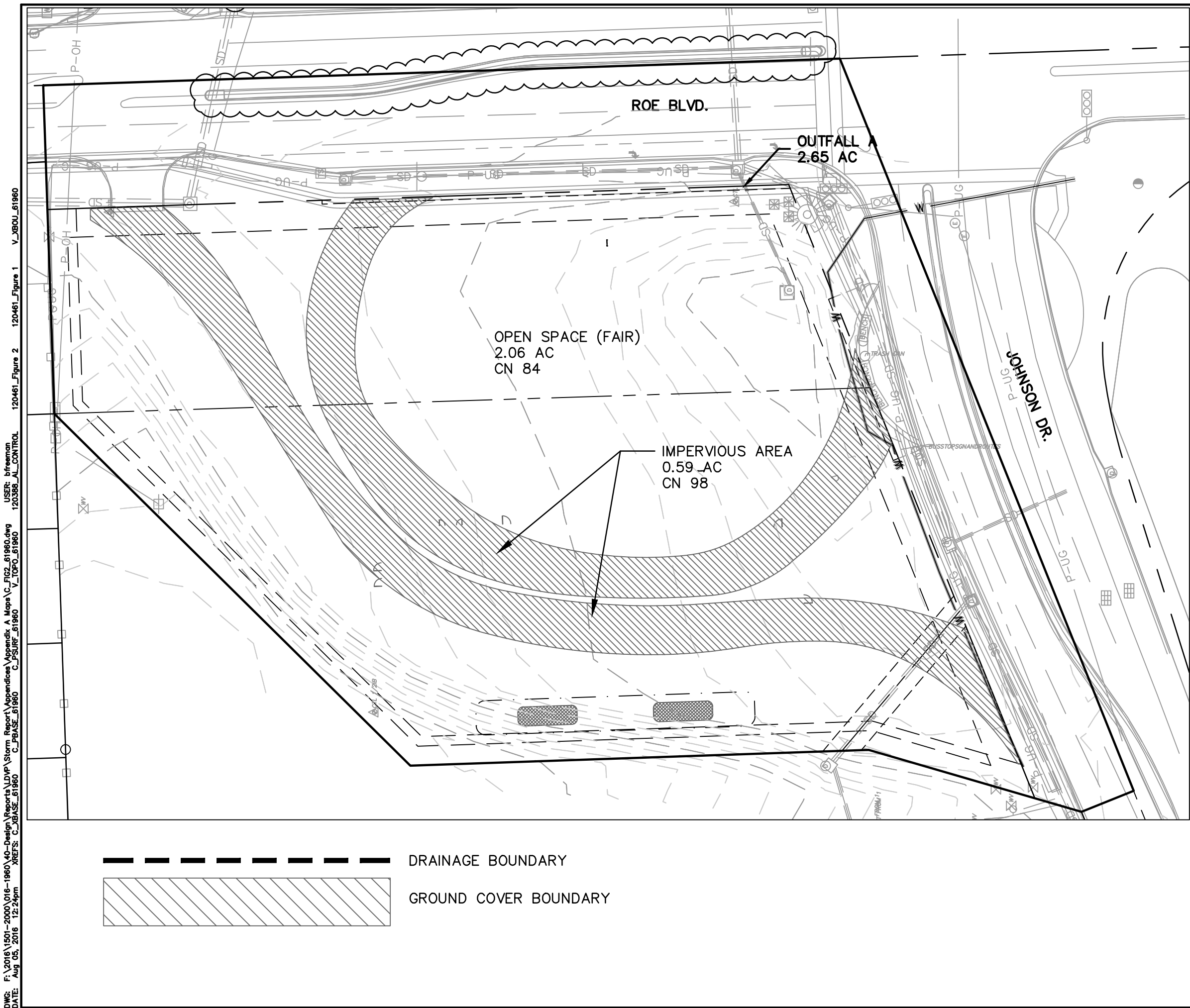
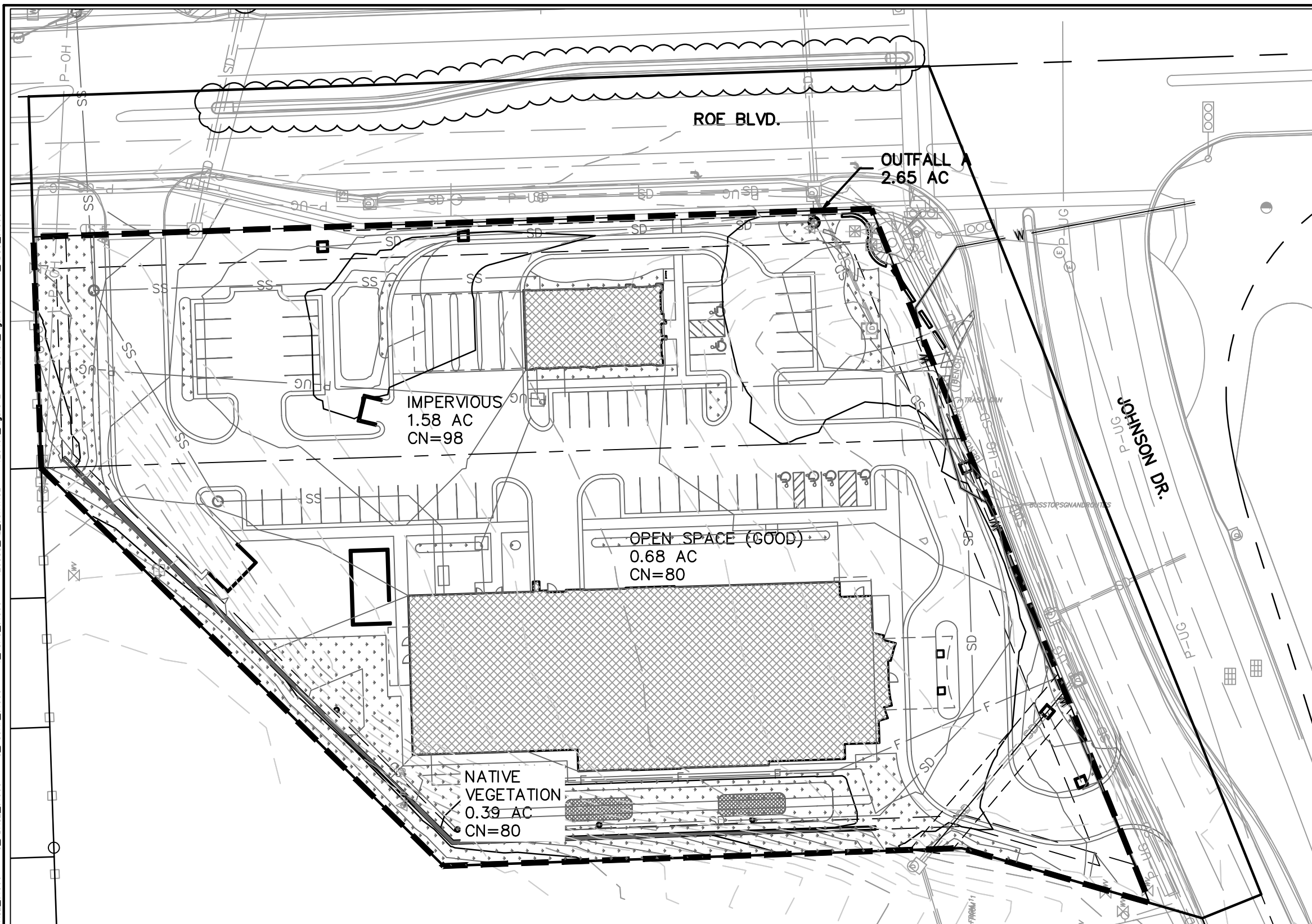
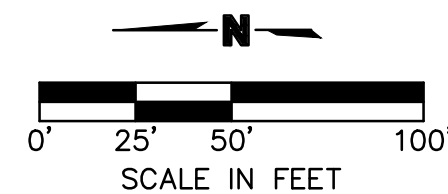


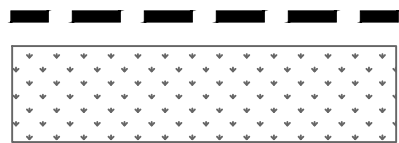
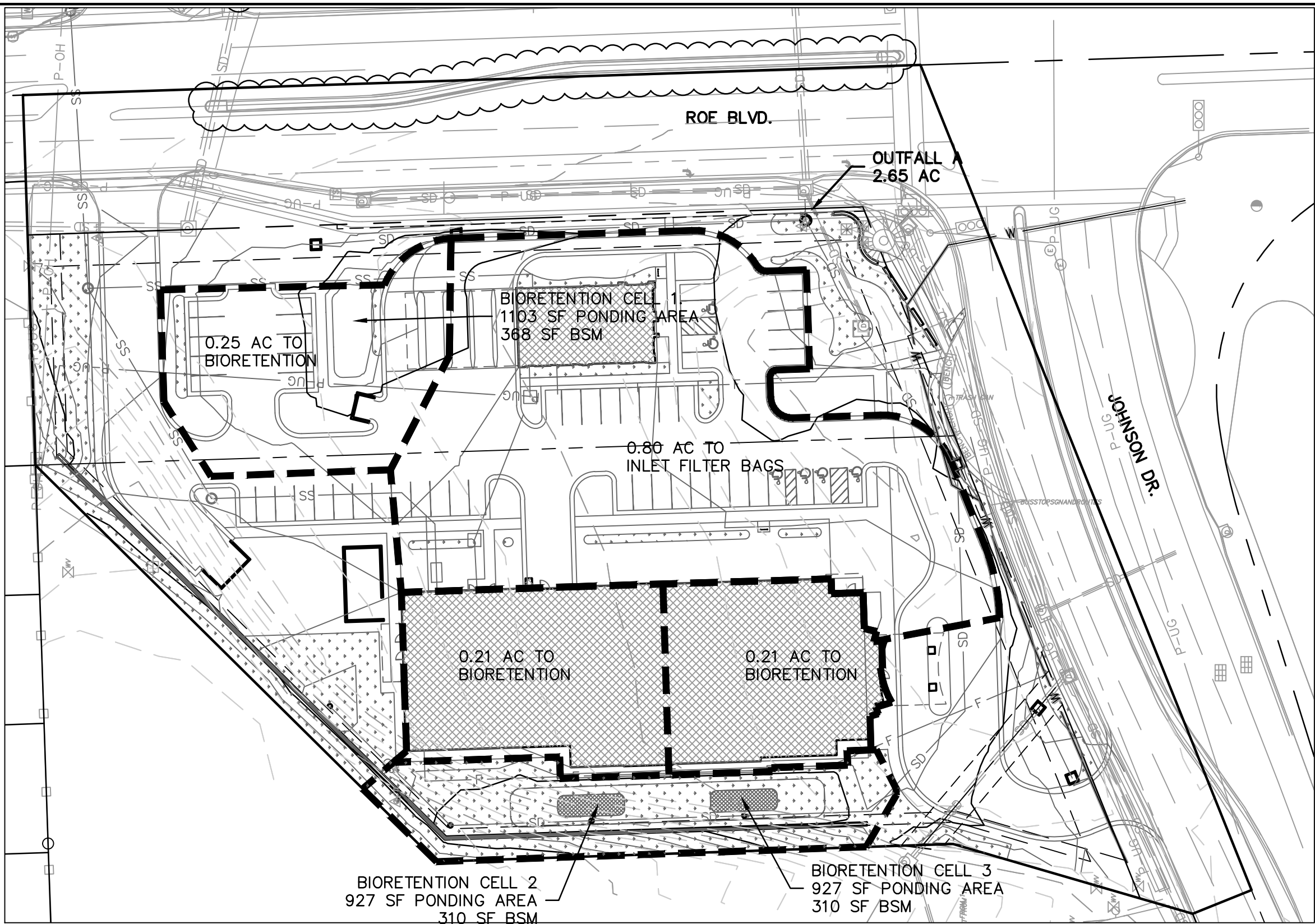
FIGURE 1 EXISTING CONDITIONS		REV. NO.	DATE	REVISIONS DESCRIPTION
COMMERCE BANK AND EMBREE JOHNSON DR. & ROE BLVD.				
ROELAND PARK, KS		2016	REVISIONS	
drawn by: _____ JK				
checked by: _____ DE				
approved by: _____ DE				
project no.: 016-1960				
drawing no.: FIGURES				
SHEET				
FIG 1				

DWG: F:\2016\1501-2000\016-1960\40-Design\Reports\LDWP\Storm Report\Appendices\Appendix A Maps\C_FIG2_61960.dwg
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120358_AL_CONTROL 120461_Figure 2 120461_Figure 1 V_XBOU_61960

 DRAINAGE BOUNDARY

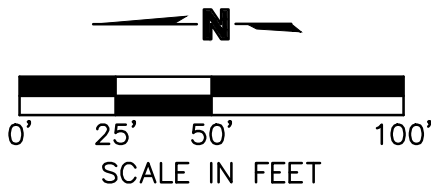
drawn by: _____ BF checked by: _____ DE approved by: _____ DE project no.: _____ 016-1960 drawing no.: _____ FIGURES	FIGURE 2 PROPOSED CONDITIONS		REV. NO.	DATE	REVISIONS DESCRIPTION
	COMMERCE BANK AND EMBREE JOHNSON DR. & ROE BLVD.				
	ROELAND PARK, KS 2016		REVISIONS		

DWG: F:\2016\1501-2000\016-1960\40-Design\Reports\LDVP\Storm Report\Appendices\Appendix A Maps\C_FIG2_61960.dwg
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USER: bfreeman 120388_AL_CONTROL 120461_Figure 2 120461_Figure 1



DRAINAGE BOUNDARY

NATIVE VEGETATION - 0.47 AC



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FIGURE 3
BMP PLAN

COMMERCE BANK AND EMBREE
JOHNSON DR. & ROE BLVD.

ROELAND PARK, KS

REV. NO.	DATE	REVISIONS DESCRIPTION

2016

drawn by: JJK
checked by: DFR
approved by: DFR
project no.: 016-1960
drawing no.: FIGURES

SHEET
FIG 3



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Johnson County, Kansas**



July 11, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

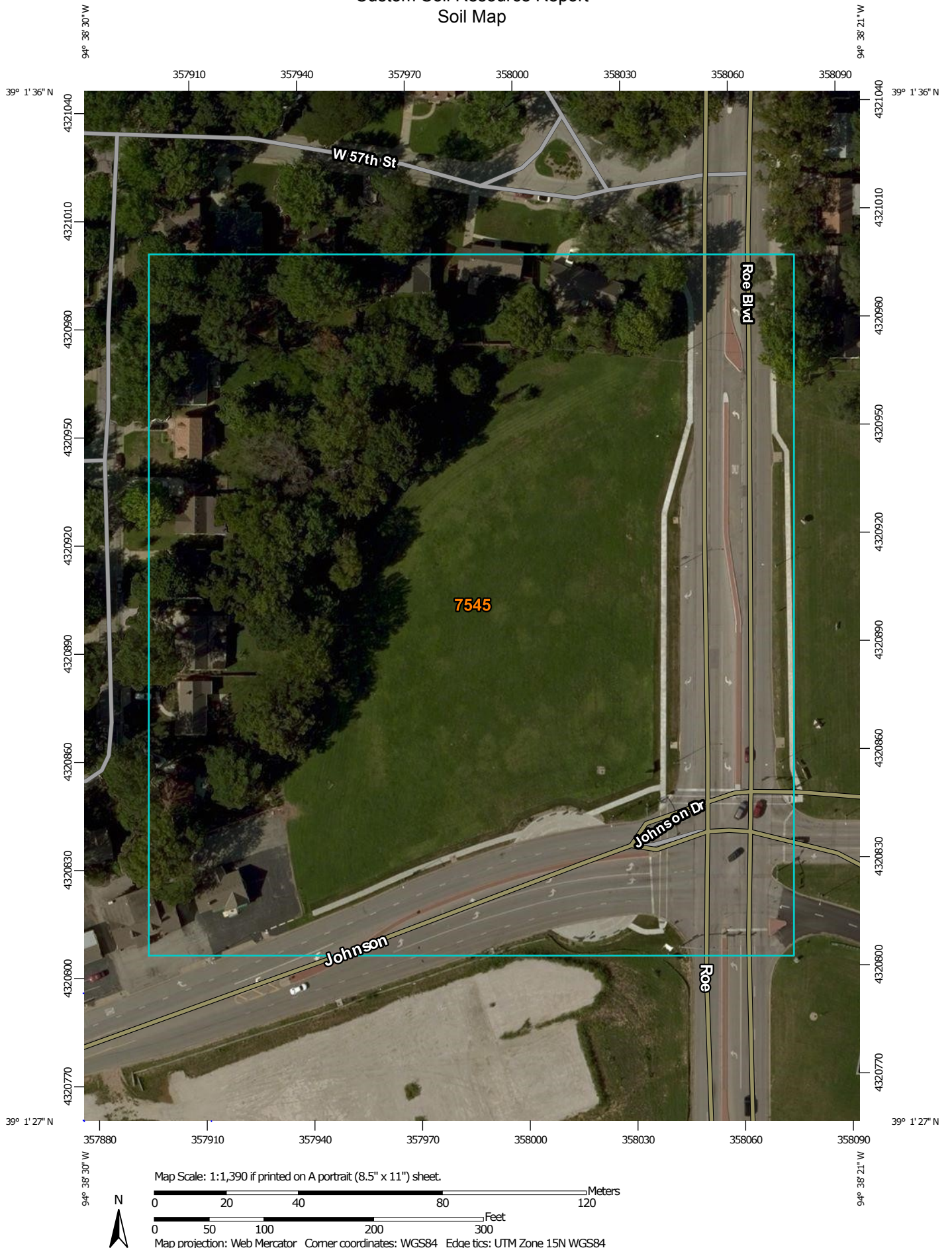
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Johnson County, Kansas
Survey Area Data: Version 14, Sep 9, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 23, 2014—Sep 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Johnson County, Kansas (KS091)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes	8.7	100.0%
Totals for Area of Interest		8.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Johnson County, Kansas

7545—Sharpsburg-Urban land complex, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: tq4z

Elevation: 1,000 to 1,300 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 45 to 64 degrees F

Frost-free period: 185 to 255 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Sharpsburg and similar soils: 55 percent

Urban land: 45 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharpsburg

Setting

Landform: Hillslopes

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Silty and clayey loess

Typical profile

A - 0 to 9 inches: silt loam

AB - 9 to 13 inches: silty clay loam

Bt - 13 to 35 inches: silty clay loam

BC - 35 to 60 inches: silty clay loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 36 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Description of Urban Land

Setting

Landform: Hillslopes

Down-slope shape: Convex

Across-slope shape: Convex

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Custom Soil Resource Report

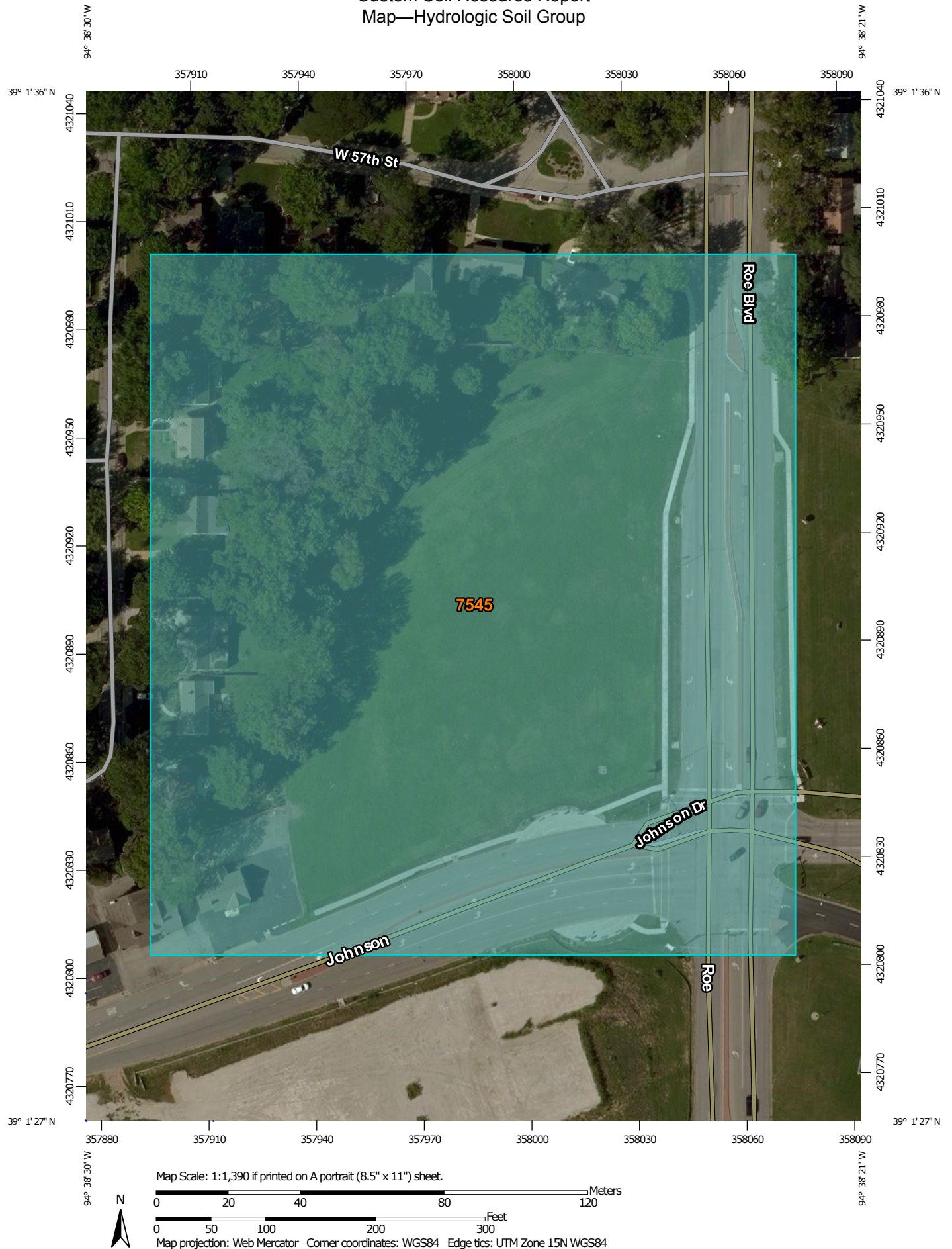
Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report

Map—Hydrologic Soil Group



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Johnson County, Kansas
Survey Area Data: Version 14, Sep 9, 2015

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Date(s) aerial images were photographed: Jul 23, 2014—Sep 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Johnson County, Kansas (KS091)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes	C	8.7	100.0%
Totals for Area of Interest			8.7	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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Federal Emergency Management Agency

Washington, D.C. 20472

JUN 15 2012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Adrienne Foster
Mayor, City of Roeland Park
4600 West 51st Street
Roeland Park, KS 66205

IN REPLY REFER TO:

Case No.: 11-07-3422P
Community Name: City of Roeland Park, KS
Community No.: 200176
Effective Date of
This Revision: November 7, 2012

91 7108 2133 3938 6364 7080

Dear Mayor Foster:

The Flood Insurance Study Report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Kansas City, Missouri, at (816) 283-7002, or the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Sincerely,

Siamak Esfandiary, Ph.D., P.E., CFM,
Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

For: Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

List of Enclosures:

Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map
Annotated Flood Insurance Study Report

cc: Mr. Curtis Talcott, P.E.
Larkin Group, Inc.
9200 Ward Parkway, Suite 400
Kansas City, MO 64114

Mr. Mike Flickinger,
Building Inspector
4600 West 51st Street
Roeland Park, KS 66205

Mr. Tom Morey, CFM
Kansas Dept. of Agriculture
109 SW 9th St. 2nd Floor
Topeka, KS 66612



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Roeland Park Johnson County Kansas	CHANNELIZATION CULVERT OTHER	FLOODWAY HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 200176		
IDENTIFIER	RC12-14 Storm Drainage Improvements	APPROXIMATE LATITUDE & LONGITUDE: 39.032, -94.641 SOURCE: Other DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM* NO.: 20091C0009G DATE: August 3, 2009 TYPE: FIRM* NO.: 20091C0024G DATE: August 3, 2009		DATE OF EFFECTIVE FLOOD INSURANCE STUDY: August 03, 2009 PROFILE(S): 348P FLOODWAY DATA TABLE: 6 SUMMARY OF DISCHARGES TABLE: 3	

Enclosures reflect changes to flooding sources affected by this revision.

* FIRM - Flood Insurance Rate Map

FLOODING SOURCE(S) & REVISED REACH(ES)

See Page 2 for Additional Flooding Sources

Rock Creek Tributary D - from just upstream of West 55th Street to approximately 90 feet downstream of Juniper Street

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Rock Creek Tributary D	Zone AE	Zone AE	NONE	YES
	BFEs	BFEs	NONE	YES
	Zone AE	Zone AO	YES	NONE
	Floodway	Floodway	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the Engineering Library, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

11-07-3422P

102-D-A



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

OTHER FLOODING SOURCES AFFECTED BY THIS REVISION

FLOODING SOURCE(S) & REVISED REACH(ES)

Rock Creek Tributary D - from just upstream of West 55th Street to approximately 90 feet downstream of Juniper Street

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Rock Creek Tributary D	Zone X (unshaded)	Zone X (unshaded)	YES	YES
* BFEs - Base Flood Elevations				

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the Engineering Library, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the Engineering Library, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

A handwritten signature in black ink, appearing to read "S. Esfandiary".

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

11-07-3422P

102-D-A



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Robert G. Bissell
Director, Mitigation Division
Federal Emergency Management Agency, Region VII
9221 Ward Parkway, Suite 300
Kansas City, MO 64114-3372
(816) 283-7002

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the Engineering Library, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NAVD 88)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Rock Creek Tributary D	approximately 100 feet upstream of Sherwood Drive	961	958	20091C0009G

A notice of changes will be published in the *Federal Register*. This information will be published in your local newspaper on or about the dates listed below and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp.

LOCAL NEWSPAPER Name: *The Legal Record*
 Dates: July 3, 2012 and July 10, 2012

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard information presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the Engineering Library, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
 Engineering Management Branch
 Federal Insurance and Mitigation Administration

Table 3 - Summary of Discharges (Continued)

Flooding Source and Location	Drainage Area (square miles)	10-Percent- Annual- Chance	Peak Discharges (cubic feet per second)			
			2-Percent- Annual- Chance	1-Percent-Annual- Chance		0.2-Percent- Annual- Chance
				Existing	Future	
REVISED TO REFLECT LOMR EFFECTIVE: November 7, 2012						
NORTH BRANCH INDIAN CREEK TRIBUTARY B						
Approximately 1,150 feet upstream of the confluence with North Branch Indian Creek	1.64	1,969	3,013	3,552	3,682	4,753
At Westgate Road	1.20	1,775	2,706	3,125	3,238	4,071
Approximately 550 feet upstream of Hauser Street	1.07	1,675	2,494	2,887	2,998	3,767
PICKERING CREEK						
At West 159th Street	3.89	1,485	3,879	4,622	5,840	6,471
At West 167th Street	1.49	798	2,316	2,752	3,593	3,821
PICKERING CREEK TRIBUTARY A						
At the confluence of Pickering Creek Tributary AA	1.34	1,179	2,545	2,938	3,534	3,871
Approximately 3,200 feet upstream of the confluence of Pickering Creek Tributary AA	0.80	699	1,591	1,845	2,279	2,449
ROCK CREEK						
Approximately 1,100 feet upstream of the confluence with Brush Creek	4.47	4,684	7,552	8,103	*	10,418
Just upstream of the confluence of Rock Creek Tributary B	3.56	4,515	6,906	7,386	*	9,319
Approximately 1,075 feet upstream of Sheridan Drive	2.76	3,673	5,552	5,894	*	7,329
At the confluence of Rock Creek Tributary G	0.44	850	1,275	1,357	*	1,718
At Lamar Avenue	0.26	420	639	681	*	867
ROCK CREEK TRIBUTARY A						
At Shawnee Mission Parkway	0.53	916	1,409	1,506	*	1,967
At West 53rd Street	0.26	466	735	787	*	1,020
Approximately 1,300 feet upstream of West 52nd Place	0.16	292	456	488	*	629
ROCK CREEK TRIBUTARY B						
At Shawnee Mission Parkway	0.13	199	314	336	*	435
ROCK CREEK TRIBUTARY D						
At West 55th Street	0.28	467	685	781	*	1,008
Approximately 200 feet downstream of West 54th Terrace	0.25	413	605	690	*	891
Approximately 250 feet downstream of Sherwood drive	0.21	349	511	582	*	751
Approximately 300 feet downstream of Juniper Street	0.17	288	421	480	*	619

* Data not available

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION				
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	EXISTING CONDITIONS (FEET NAVD)	FUTURE CONDITIONS (FEET NAVD)	EXISTING CONDITIONS WITHOUT FLOODWAY (FEET NAVD)	EXISTING CONDITIONS WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
ROCK CREEK (CONTINUED)									
H	10,838 ¹	365	1,719	2.6	932.5	*	932.5	932.5	0.0
I	12,154 ¹	298	793	3.9	936.2	*	936.2	936.2	0.0
J	12,873 ¹	245	751	3.7	944.2	*	944.2	944.3	0.1
K	13,571 ¹	137	425	6.1	948.0	*	948.0	948.0	0.0
L	15,008 ¹	39	167	12.5	956.9	*	956.9	957.0	0.1
ROCK CREEK TRIBUTARY A					AREA REVISED BY LOMR DATED MAY 28, 2010				
A	830 ²	80	287	5.1	891.1	*	891.1	891.1	0.0
B	1,672 ²	54	102	7.7	902.4	*	902.4	902.5	0.1
C	2,716 ²	83	138	3.6	924.5	*	924.5	924.7	0.2
ROCK CREEK TRIBUTARY B									
A	1,008 ²	25	30	5.6	913.9	*	913.9	914.0	0.1
B	1,667 ²	17	25	6.7	932.2	*	932.2	932.6	0.4
ROCK CREEK TRIBUTARY D									
A	308 ³	18	72	9.5	932.8	*	932.8	933.4	0.6
B	902 ³	50	196	3.5	944.3	*	944.3	944.3	0.0
C	1,446 ³	27	75	7.8	948.1	*	948.1	948.1	0.0
D	2,196 ³	34	66	7.3	958.6	*	958.6	958.6	0.0

¹Feet above confluence with Brush Creek

²Feet above confluence with Rock Creek

³Feet above West 55th Street

*Data not available

**REVISED TO
REFLECT LOMR
EFFECTIVE: November 7, 2012**

REVISED AREA

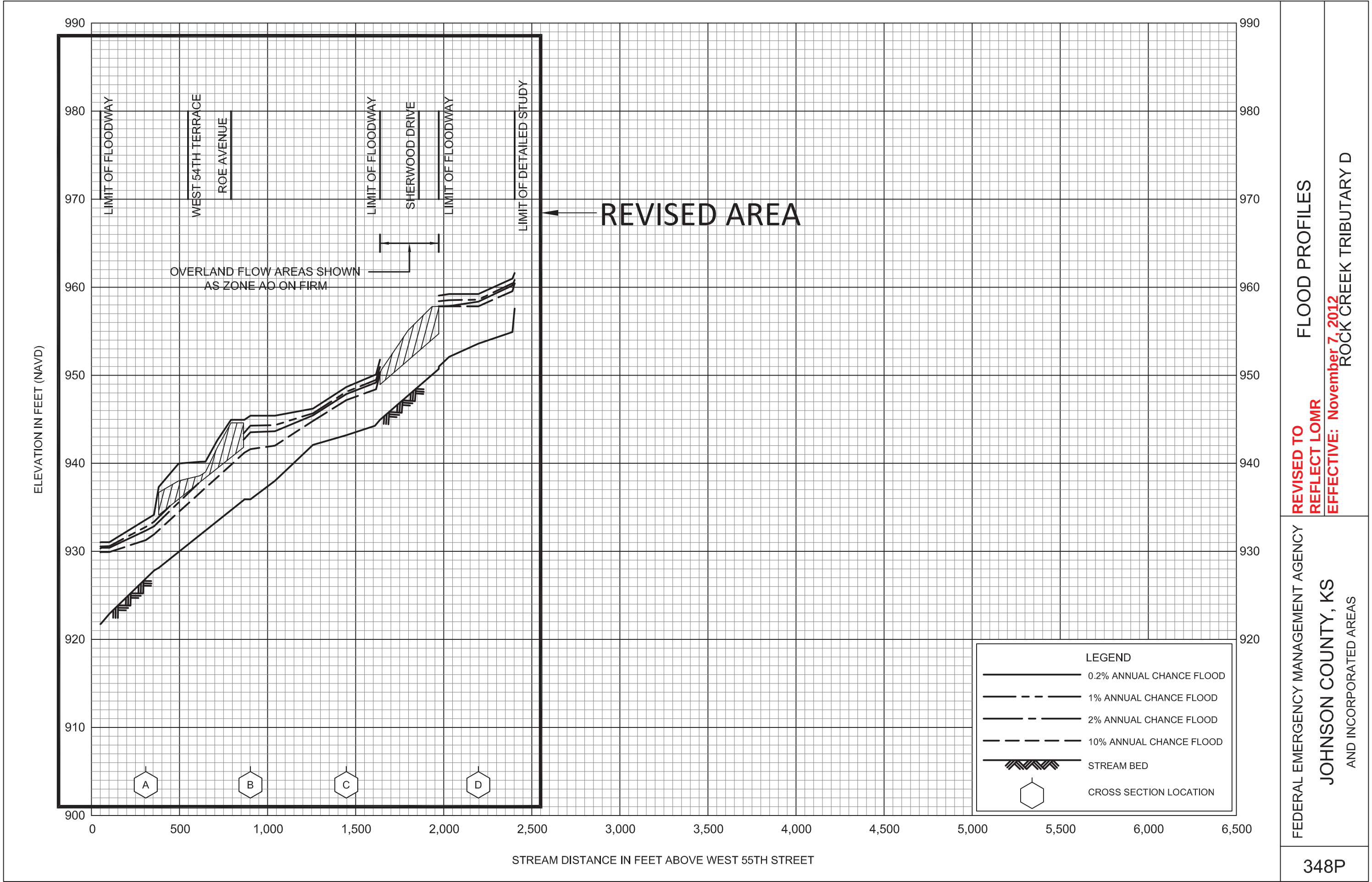
TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

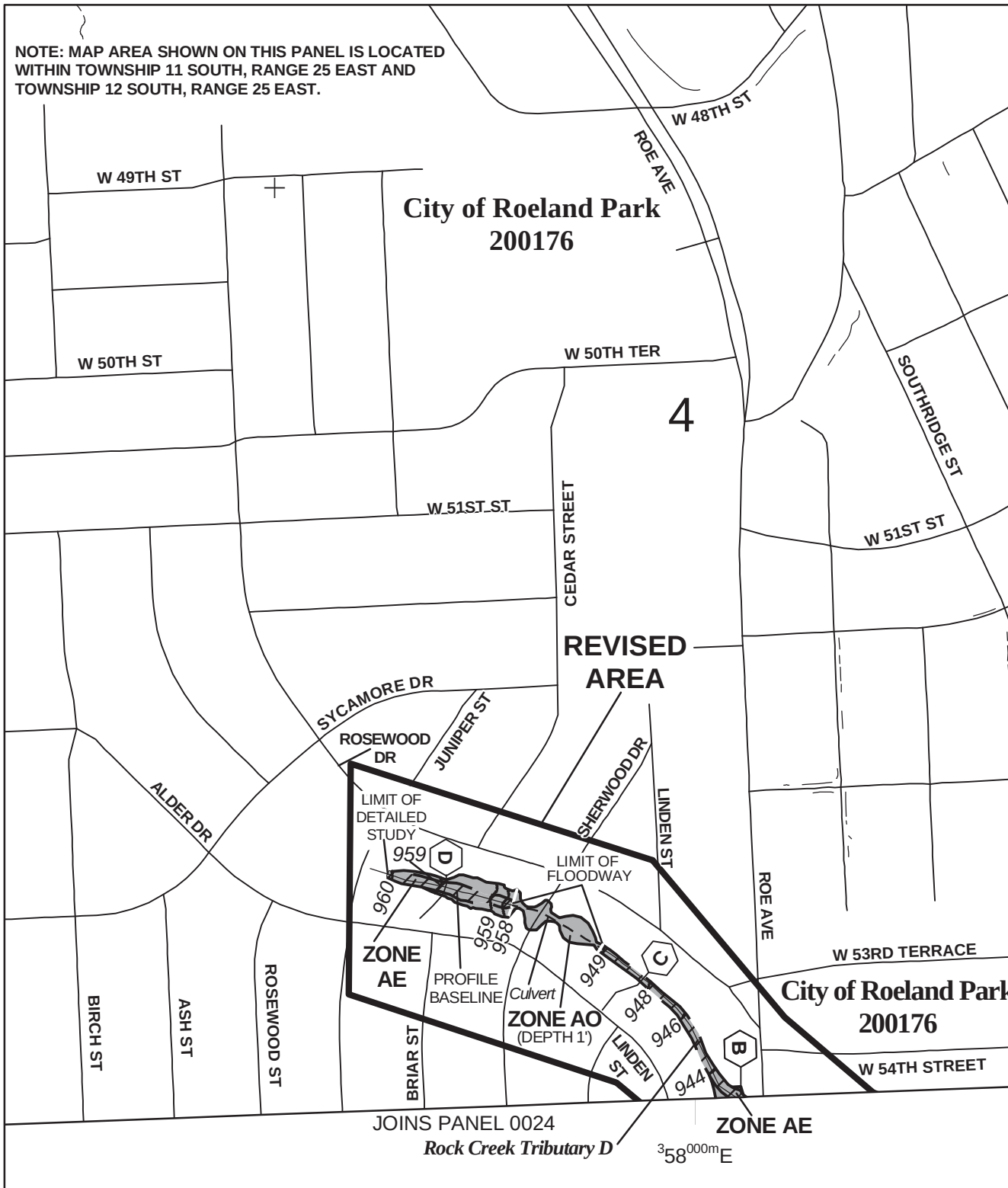
**JOHNSON COUNTY, KS
AND INCORPORATED AREAS**

FLOODWAY DATA

**ROCK CREEK – ROCK CREEK TRIBUTARY A – ROCK
CREEK TRIBUTARY B – ROCK CREEK TRIBUTARY D**



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED
WITHIN TOWNSHIP 11 SOUTH, RANGE 25 EAST AND
TOWNSHIP 12 SOUTH, RANGE 25 EAST.



Legend

-  1% annual chance (100-Year) Floodplain
-  1% annual chance (100-Year) Floodway
-  0.2% annual chance (500-Year) Floodplain



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0009G

FIRM

FLOOD INSURANCE RATE MAP
JOHNSON COUNTY,
KANSAS
AND INCORPORATED AREAS

PANEL 9 OF 161

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FAIRWAY, CITY OF	205185	0009	G
MISSION, CITY OF	200170	0009	G
ROELAND PARK, CITY OF	200176	0009	G

**REVISED TO
REFLECT LOMR
EFFECTIVE:
November 7, 2012**

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

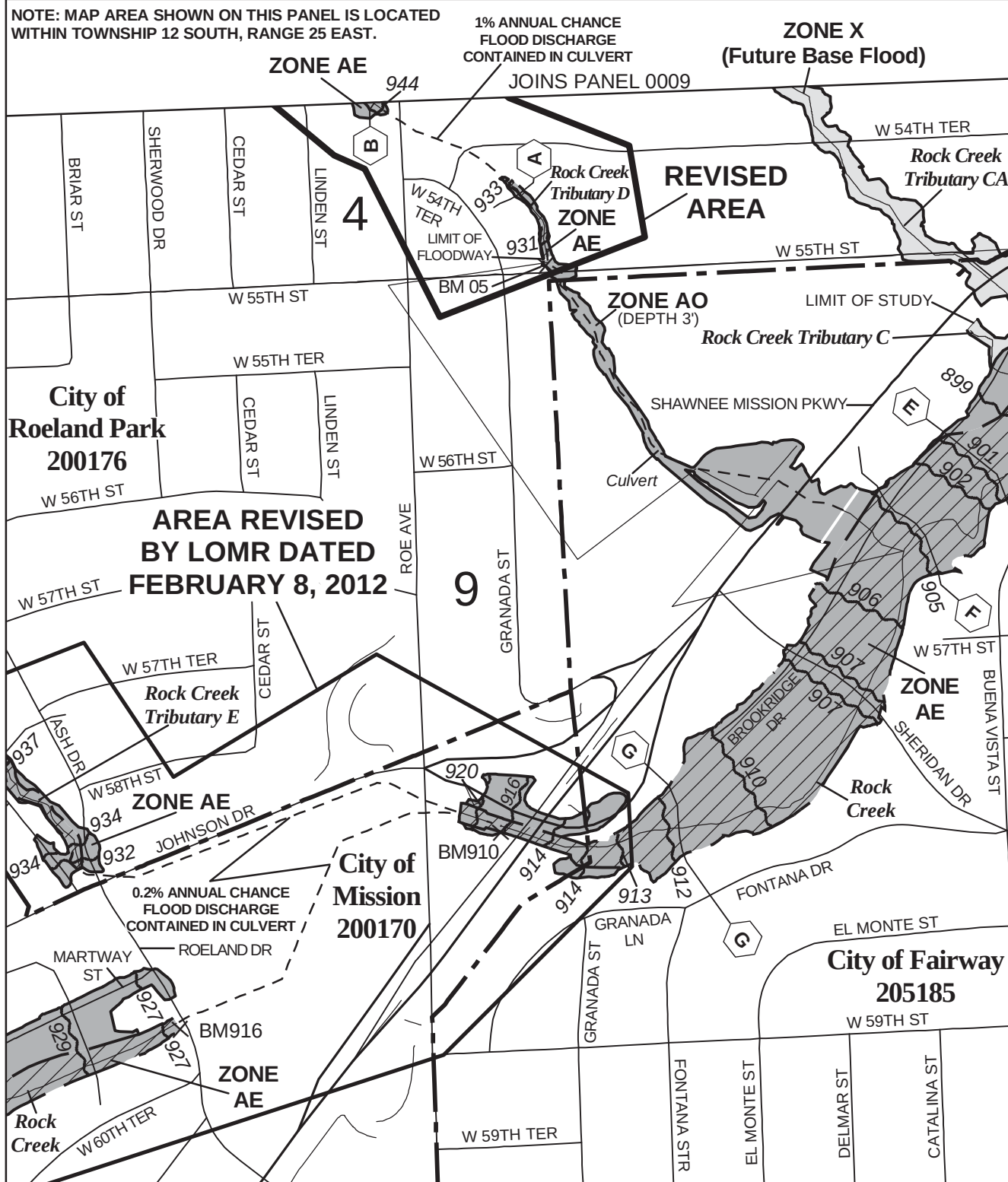


MAP NUMBER
20091C0009G

MAP REVISED
AUGUST 3, 2009

Federal Emergency Management Agency

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 25 EAST.

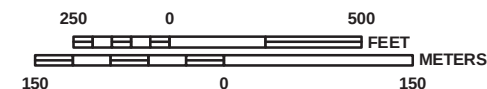


Legend

-  1% annual chance (100-Year) Floodplain
-  1% annual chance (100-Year) Floodway
-  0.2% annual chance (500-Year) Floodplain



MAP SCALE 1" = 500'



NEIR

PANEL 0024G

FIRM

FLOOD INSURANCE RATE MAP JOHNSON COUNTY, KANSAS AND INCORPORATED AREAS

PANEL 24 OF 161

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFFIX</u>
FAIRWAY, CITY OF	205185	0024	G
MISSION HILLS, CITY OF	200171	0024	G
MISSION, CITY OF	200170	0024	G
OVERLAND PARK, CITY OF	200174	0024	G
PRAIRIE VILLAGE, CITY OF	200175	0024	G
ROELAND PARK, CITY OF	200176	0024	G

**REVISED TO
REFLECT LOMR
EFFECTIVE:
November 7, 2012**

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
20091C0024G

MAP REVISED
AUGUST 3, 2009

Federal Emergency Management Agency

Appendix C

Supporting Information & Calculations

WORKSHEET 1: REQUIRED LEVEL OF SERVICE - UNDEVELOPED SITE
Project : Commerce Bank and Embree

Location: Roeland Park, KS

By:
Date:

8/5/2016

Checked:
Date:
1. Runoff Curve Number
A. Predevelopment CN

Cover Description	Soil HSG	CN	Area (ac.)	Product of CN x Area
Pasture (Fair)	D	84	2.06	173.04
Impervious - Pavement & Buildings	D	98	0.59	57.82
		0		0
		0		0
		0		0
		0		0
Totals:			2.65	230.86

Area-Weighted CN = total product/total area =

87.116981

87

B. Postdevelopment CN

Cover Description	Soil HSG	CN	Area (ac.)	Product of CN x Area
Parking Lot	D	98	1.19	116.62
Building Coverage	D	98	0.39	38.22
Open space (turf), good	D	80	0.60	48
Native Grass	D	78	0.47	36.66
		0		0
		0		0
Totals:			2.65	240

Area-Weighted CN = total product/total area =

90.377358

90

C. Level of Service (LS) Calculation

Predevelopment CN: 87

Postdevelopment CN: 90

Difference: 3

LS Required: 5

Change in CN LS

17+ 8

7 to 16 7

4 to 6 6

1 to 3 5

0 4

-7 to -1 3

-8 to -17 2

-18 to -21 1

-22 - 0

WORKSHEET 2: DEVELOP MITIGATION PACKAGE(S) THAT MEET THE REQUIRED LS
Project : Commerce Bank and Embree

Location: Roeland Park, KS

By: 0

Date: 8/5/2016

Checked: 0

1. Required LS (from Table 1 or 1A or Worksheet 1 or 1A, as appropriate): 5 **VR =** 13.25

2. Proposed BMP Option Package No. 1

<u>Plan ID</u>	<u>BMP #</u>	<u>Cover/BMP Description</u>	<u>Treatment Area</u>	<u>VR from Table 5 or 6</u>	<u>Product of VR x Area</u>
	1	Native Vegetation	0.47	9.25	4.35
	2	Bioretention	0.67	8.50	5.70
	3	Catch Basin Inserts	0.80	4.00	3.20
	4				0.00
	5				0.00
	6				0.00
	7				0.00
		Untreated Area	0.71		0.00
Total:			2.65	VR	13.24
				Total:	5.0

Meets required LS (Yes/No)?
☒ **YES** (if No, or if additional options are being tested, proceed below)

3. Proposed BMP Option Package No. 2

<u>Plan ID</u>	<u>BMP #</u>	<u>Cover/BMP Description</u>	<u>Treatment Area</u>	<u>VR from Table 5 or 6</u>	<u>Product of VR x Area</u>
	1			0.00	0.00
	2			0.00	0.00
	3			0.00	0.00
	4			0.00	0.00
	5				
	6			0.00	0.00
				0.00	0.00
			0.00	Total:	0.00

Meets required LS (Yes/No)?
☐ **NO** (if No, or if additional options are being tested, proceed below)

Design Procedure Form: Bioretention WQ1
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

I. Basin Water Quality Volume

Step 1: Tributary area to bioretention area, A_T (ac) A_T (ac) = 0.25

Step 2: Calculate WQ_V using methodology in Section 6 WQ_V (ac) = 0.03

IIa. Pretreatment

Step 1: Specify type of inflow to Bioretention facility Inflow Type = 2.00
Type 1 = sheet flow
Type 2 = concentrated or channelized

Step 2: Pretreatment no

Step 3: Proceed to Part IIb, IIc, or IId for design guidance on different pretreatment options

IIb. Vegetated Pretreatment Strip

Step 1: Type of land cover contributing area: Land cover type =
Type 1 = Impervious (e.g., parking lot)
Type 2 = Pervious (e.g., residential lawn)

Step 2: Maximum inflow approach length, $L_{Approach}$ (ft) $L_{Approach}$ (ft) =

Step 3: Average slope of pretreatment strip, S_{VS} (%) S_{VS} (%) =
Maximum slope of 6%

Step 4: Vegetated pretreatment strip minimum length, L_{FS} (ft) L_{FS} (%) =
From table 8.2

IIb. Vegetated Pretreatment Strip

Step 1: Percent imperviousness of contributing area, % imp % imp =

Step 3: Average slope of vegetated channel, S_{VC} (%) S_{VC} (%) =
Maximum slope of 6%

Step 4: Vegetated pretreatment channel minimum length, L_{FC} (ft) L_{FC} (%) =
From table 8.3

Design Procedure Form: Bioretention WQ1
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

IId. Other Pretreatment Devices

Other methods of pretreatment may be utilized upstream of a bioretention facility to settle out suspended solids and reduce runoff velocity. Several proprietary devices are available that will achieve these results. Most such devices install below ground and accept inflow from a piped stormwater management system or from sufrac sheet flow via drop inlets. These devices should be selected and sized based on site specific conditions for each project.

III. Planting Soil Bed and Ponding Area

- Step 1: Planting bed soil depth, d_f (ft) d_f (ft) = 2.50
(d_f should be between 2.5 feet and 4 feet)
- Step 2: Coefficient of permeability for planting soil bed, k (ft/day) k (ft/day) = 1.00
(k should be at least 1 ft/day)
- Step 3: Maximum ponding depth, h_{max} (ft) h_{max} (ft) = 1.00
(h_{max} should be between 0.25 ft and 1.0 ft)
- Step 4: Average height of water above bioretention bed, h_{avg} (ft) h_{avg} (ft) = 0.50
 $h_{avg} = h_{max}/2$
- Step 5: Time required for WQ_V to filter through the planting soil bed, t_f (days) t_f (days) = 2.50
(t_f of 1 to 3 days is recommended)
- Step 6: Required filter bed surface area, A_f (ft²) A_f (ft²) = 367.59
 $A_f = (WQ_V * d_f) / (k * t_f * (h_{avg} + d_f))$
- Step 7: Approximate filter bed length, L_f (ft) L_f (ft) = 40.00
assuming a length to width ratio of 2:1
(L_f should be at least 40 ft)
- Step 8: Approximate filter bed width, W_f (ft) W_f (ft) = 9.19
assuming a length to width ratio of 2:1
(W_f should be at least 15 ft, and optimally half of L_f)
- Step 9: Required Ponding Area, A_p (ft²) A_p (ft²) = 1102.78
 $A_p = WQ_V / h_{max}$

Design Procedure Form: Bioretention WQ1
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

IV. Underdrain

Step 1:	Underdrain pipe diameter, D_U (in) (D_U should be at least 4 inches)	D_U (in) = <u>4.00</u>
Step 2:	Depth of gravel blanket, Z_{gravel} (in) (Z_{gravel} should be at least 8 inches, and at least 2 inches greater than D_U)	Z_{gravel} (in) = <u>8.00</u>
Step 3:	Set underdrain perforation diameters to 0.375 inches	D_{perf} (in) = <u>0.38</u>
Step 4:	Longitudinal center-to-center underdrain perforation spacing, S_{perf} (in)	S_{perf} (in) = <u>6.00</u>
Step 5:	Number of perforations per row (around circumference of underdrain) (n_{perf} should be at least 4)	n_{perf} (in) = <u>4.00</u>
Step 6:	Are transverse collector pipes required perpendicular to main pipe? (Yes, if width of bioretention area is greater than 10 feet)	Yes/No = <u>No</u>
Step 7:	Underdrain transverse collector pipe spacing center-to-center, S_U (ft) (S_U should be a maximum of 10 feet)	S_U (ft) = <u>10.00</u>
Step 8:	Required number of underdrain transverse collector pipes, n_{pipe}	n_{pipe} = <u>0.00</u>
Step 9:	Pipe grade, G_{pipe} (%), for main pipe and transverse collector pipes (G_{pipe} should be at least 0.5%)	G_{pipe} (%) = <u>0.50</u>
Step 10:	Providing at least one cleanout per pipe run?	Yes/No = <u>Yes</u>

V. Overflow

The bioretention overflow shall be designed to safely pass runoff flows from events up to and including the 1 percent event unless the facility is designed with a bypass around the facility for larger storm events. If the 1 percent event is to pass through the facilities, the maximum velocity shall be kept below 3 feet per second to avoid erosion of the soil matrix. If facilities are designed with a bypass, it shall be designed to safely pass runoff flows from events up to and including the 1 percent event. The overflow shall be designed as vegetated or stabilized channel of a yard inlet catch basin. Vegetated or stabilized channels shall be designed using one of the methods presented in APWA Section 5603 and shall conform to the design criteria presented in APWA Section 5607. Methods presented in APWA Section 5604 shall be used for inlet design.

Design Procedure Form: Bioretention WQ1

Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

VI. Vegetation

Describe mix and density of vegetation to be placed in the bioretention facility. Follow specifications given under Plant Materials in Appendix A. It is beneficial to plant variable types and species of plants in a bioretention facility. Such variability prevents single-species susceptibility to disease and insect infestation and provides a more aesthetic appearance. Native species should be used because they are more likely to thrive in the local climate. A minimum of three native species of shrubs and three native species of trees recommended. Plants should also be selected for their ability to withstand extended dry conditions (which are likely to occur in parking lot island bioretention facilities) and periodic inundation.

Design Procedure Form: Bioretention WQ2

Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

I. Basin Water Quality Volume

Step 1: Tributary area to bioretention area, A_T (ac) A_T (ac) = 0.21
Step 2: Calculate WQ_V using methodology in Section 6 WQ_V (ac) = 0.02

IIa. Pretreatment

Step 1: Specify type of inflow to Bioretention facility Inflow Type = 2.00
Type 1 = sheet flow
Type 2 = concentrated or channelized
Step 2: Pretreatment no
Step 3: Proceed to Part IIb, IIc, or IId for design guidance on different pretreatment options

IIb. Vegetated Pretreatment Strip

Step 1: Type of land cover contributing area: Land cover type =
Type 1 = Impervious (e.g., parking lot)
Type 2 = Pervious (e.g., residential lawn)
Step 2: Maximum inflow approach length, $L_{Approach}$ (ft) $L_{Approach}$ (ft) =
Step 3: Average slope of pretreatment strip, S_{VS} (%) S_{VS} (%) =
Maximum slope of 6%
Step 4: Vegetated pretreatment strip minimum length, L_{FS} (ft) L_{FS} (%) =
From table 8.2

IIb. Vegetated Pretreatment Strip

Step 1: Percent imperviousness of contributing area, % imp % imp =
Step 3: Average slope of vegetated channel, S_{VC} (%) S_{VC} (%) =
Maximum slope of 6%
Step 4: Vegetated pretreatment channel minimum length, L_{FC} (ft) L_{FC} (%) =
From table 8.3

Design Procedure Form: Bioretention WQ2
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

IId. Other Pretreatment Devices

Other methods of pretreatment may be utilized upstream of a bioretention facility to settle out suspended solids and reduce runoff velocity. Several proprietary devices are available that will achieve these results. Most such devices install below ground and accept inflow from a piped stormwater management system or from sufrac sheet flow via drop inlets. These devices should be selected and sized based on site specific conditions for each project.

III. Planting Soil Bed and Ponding Area

- Step 1: Planting bed soil depth, d_f (ft) d_f (ft) = 2.50
(d_f should be between 2.5 feet and 4 feet)
- Step 2: Coefficient of permeability for planting soil bed, k (ft/day) k (ft/day) = 1.00
(k should be at least 1 ft/day)
- Step 3: Maximum ponding depth, h_{max} (ft) h_{max} (ft) = 1.00
(h_{max} should be between 0.25 ft and 1.0 ft)
- Step 4: Average height of water above bioretention bed, h_{avg} (ft) h_{avg} (ft) = 0.50
 $h_{avg} = h_{max}/2$
- Step 5: Time required for WQ_V to filter through the planting soil bed, t_f (days) t_f (days) = 2.50
(t_f of 1 to 3 days is recommended)
- Step 6: Required filter bed surface area, A_f (ft²) A_f (ft²) = 308.78
 $A_f = (WQ_V * d_f) / (k * t_f * (h_{avg} + d_f))$
- Step 7: Approximate filter bed length, L_f (ft) L_f (ft) = 30.00
assuming a length to width ratio of 2:1
(L_f should be at least 40 ft)
- Step 8: Approximate filter bed width, W_f (ft) W_f (ft) = 10.29
assuming a length to width ratio of 2:1
(W_f should be at least 15 ft, and optimally half of L_f)
- Step 9: Required Ponding Area, A_p (ft²) A_p (ft²) = 926.34
 $A_p = WQ_V / h_{max}$

Design Procedure Form: Bioretention WQ2
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

IV. Underdrain

Step 1:	Underdrain pipe diameter, D_U (in) (D_U should be at least 4 inches)	D_U (in) = <u>4.00</u>
Step 2:	Depth of gravel blanket, Z_{gravel} (in) (Z_{gravel} should be at least 8 inches, and at least 2 inches greater than D_U)	Z_{gravel} (in) = <u>8.00</u>
Step 3:	Set underdrain perforation diameters to 0.375 inches	D_{perf} (in) = <u>0.38</u>
Step 4:	Longitudinal center-to-center underdrain perforation spacing, S_{perf} (in)	S_{perf} (in) = <u>6.00</u>
Step 5:	Number of perforations per row (around circumference of underdrain) (n_{perf} should be at least 4)	n_{perf} (in) = <u>4.00</u>
Step 6:	Are transverse collector pipes required perpendicular to main pipe? (Yes, if width of bioretention area is greater than 10 feet)	Yes/No = <u>No</u>
Step 7:	Underdrain transverse collector pipe spacing center-to-center, S_U (ft) (S_U should be a maximum of 10 feet)	S_U (ft) = <u>10.00</u>
Step 8:	Required number of underdrain transverse collector pipes, n_{pipe}	n_{pipe} = <u>0.00</u>
Step 9:	Pipe grade, G_{pipe} (%), for main pipe and transverse collector pipes (G_{pipe} should be at least 0.5%)	G_{pipe} (%) = <u>0.50</u>
Step 10:	Providing at least one cleanout per pipe run?	Yes/No = <u>Yes</u>

V. Overflow

The bioretention overflow shall be designed to safely pass runoff flows from events up to and including the 1 percent event unless the facility is designed with a bypass around the facility for larger storm events. If the 1 percent event is to pass through the facilities, the maximum velocity shall be kept below 3 feet per second to avoid erosion of the soil matrix. If facilities are designed with a bypass, it shall be designed to safely pass runoff flows from events up to and including the 1 percent event. The overflow shall be designed as vegetated or stabilized channel of a yard inlet catch basin. Vegetated or stabilized channels shall be designed using one of the methods presented in APWA Section 5603 and shall conform to the design criteria presented in APWA Section 5607. Methods presented in APWA Section 5604 shall be used for inlet design.

Design Procedure Form: Bioretention WQ2

Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

VI. Vegetation

Describe mix and density of vegetation to be placed in the bioretention facility. Follow specifications given under Plant Materials in Appendix A. It is beneficial to plant variable types and species of plants in a bioretention facility. Such variability prevents single-species susceptibility to disease and insect infestation and provides a more aesthetic appearance. Native species should be used because they are more likely to thrive in the local climate. A minimum of three native species of shrubs and three native species of trees recommended. Plants should also be selected for their ability to withstand extended dry conditions (which are likely to occur in parking lot island bioretention facilities) and periodic inundation.

Design Procedure Form: Bioretention WQ3
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

I. Basin Water Quality Volume

Step 1: Tributary area to bioretention area, A_T (ac) A_T (ac) = 0.21

Step 2: Calculate WQ_V using methodology in Section 6 WQ_V (ac) = 0.02

IIa. Pretreatment

Step 1: Specify type of inflow to Bioretention facility Inflow Type = 2.00
Type 1 = sheet flow
Type 2 = concentrated or channelized

Step 2: Pretreatment no

Step 3: Proceed to Part IIb, IIc, or IId for design guidance on different pretreatment options

IIb. Vegetated Pretreatment Strip

Step 1: Type of land cover contributing area: Land cover type =
Type 1 = Impervious (e.g., parking lot)
Type 2 = Pervious (e.g., residential lawn)

Step 2: Maximum inflow approach length, $L_{Approach}$ (ft) $L_{Approach}$ (ft) =

Step 3: Average slope of pretreatment strip, S_{VS} (%) S_{VS} (%) =
Maximum slope of 6%

Step 4: Vegetated pretreatment strip minimum length, L_{FS} (ft) L_{FS} (%) =
From table 8.2

IIb. Vegetated Pretreatment Strip

Step 1: Percent imperviousness of contributing area, % imp % imp =

Step 3: Average slope of vegetated channel, S_{VC} (%) S_{VC} (%) =
Maximum slope of 6%

Step 4: Vegetated pretreatment channel minimum length, L_{FC} (ft) L_{FC} (%) =
From table 8.3

Design Procedure Form: Bioretention WQ3

Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

IId. Other Pretreatment Devices

Other methods of pretreatment may be utilized upstream of a bioretention facility to settle out suspended solids and reduce runoff velocity. Several proprietary devices are available that will achieve these results. Most such devices install below ground and accept inflow from a piped stormwater management system or from sufrac sheet flow via drop inlets. These devices should be selected and sized based on site specific conditions for each project.

III. Planting Soil Bed and Ponding Area

- Step 1: Planting bed soil depth, d_f (ft) d_f (ft) = 2.50
(d_f should be between 2.5 feet and 4 feet)
- Step 2: Coefficient of permeability for planting soil bed, k (ft/day) k (ft/day) = 1.00
(k should be at least 1 ft/day)
- Step 3: Maximum ponding depth, h_{max} (ft) h_{max} (ft) = 1.00
(h_{max} should be between 0.25 ft and 1.0 ft)
- Step 4: Average height of water above bioretention bed, h_{avg} (ft) h_{avg} (ft) = 0.50
 $h_{avg} = h_{max}/2$
- Step 5: Time required for WQ_V to filter through the planting soil bed, t_f (days) t_f (days) = 2.50
(t_f of 1 to 3 days is recommended)
- Step 6: Required filter bed surface area, A_f (ft²) A_f (ft²) = 308.78
 $A_f = (WQ_V * d_f) / (k * t_f * (h_{avg} + d_f))$
- Step 7: Approximate filter bed length, L_f (ft) L_f (ft) = 30.00
assuming a length to width ratio of 2:1
(L_f should be at least 40 ft)
- Step 8: Approximate filter bed width, W_f (ft) W_f (ft) = 10.29
assuming a length to width ratio of 2:1
(W_f should be at least 15 ft, and optimally half of L_f)
- Step 9: Required Ponding Area, A_p (ft²) A_p (ft²) = 926.34
 $A_p = WQ_V / h_{max}$

Design Procedure Form: Bioretention WQ3
Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

IV. Underdrain

Step 1:	Underdrain pipe diameter, D_U (in) (D_U should be at least 4 inches)	D_U (in) = <u>4.00</u>
Step 2:	Depth of gravel blanket, Z_{gravel} (in) (Z_{gravel} should be at least 8 inches, and at least 2 inches greater than D_U)	Z_{gravel} (in) = <u>8.00</u>
Step 3:	Set underdrain perforation diameters to 0.375 inches	D_{perf} (in) = <u>0.38</u>
Step 4:	Longitudinal center-to-center underdrain perforation spacing, S_{perf} (in)	S_{perf} (in) = <u>6.00</u>
Step 5:	Number of perforations per row (around circumference of underdrain) (n_{perf} should be at least 4)	n_{perf} (in) = <u>4.00</u>
Step 6:	Are transverse collector pipes required perpendicular to main pipe? (Yes, if width of bioretention area is greater than 10 feet)	Yes/No = <u>No</u>
Step 7:	Underdrain transverse collector pipe spacing center-to-center, S_U (ft) (S_U should be a maximum of 10 feet)	S_U (ft) = <u>10.00</u>
Step 8:	Required number of underdrain transverse collector pipes, n_{pipe}	n_{pipe} = <u>0.00</u>
Step 9:	Pipe grade, G_{pipe} (%), for main pipe and transverse collector pipes (G_{pipe} should be at least 0.5%)	G_{pipe} (%) = <u>0.50</u>
Step 10:	Providing at least one cleanout per pipe run?	Yes/No = <u>Yes</u>

V. Overflow

The bioretention overflow shall be designed to safely pass runoff flows from events up to and including the 1 percent event unless the facility is designed with a bypass around the facility for larger storm events. If the 1 percent event is to pass through the facilities, the maximum velocity shall be kept below 3 feet per second to avoid erosion of the soil matrix. If facilities are designed with a bypass, it shall be designed to safely pass runoff flows from events up to and including the 1 percent event. The overflow shall be designed as vegetated or stabilized channel of a yard inlet catch basin. Vegetated or stabilized channels shall be designed using one of the methods presented in APWA Section 5603 and shall conform to the design criteria presented in APWA Section 5607. Methods presented in APWA Section 5604 shall be used for inlet design.

Design Procedure Form: Bioretention WQ3

Main Worksheet

Project: Commerce Bank & Embree
Location: Roeland Park, KS
Designer: JJK

Date: 8/5/2016
Company: Olsson Associates
Checked: DLE

VI. Vegetation

Describe mix and density of vegetation to be placed in the bioretention facility. Follow specifications given under Plant Materials in Appendix A. It is beneficial to plant variable types and species of plants in a bioretention facility. Such variability prevents single-species susceptibility to disease and insect infestation and provides a more aesthetic appearance. Native species should be used because they are more likely to thrive in the local climate. A minimum of three native species of shrubs and three native species of trees recommended. Plants should also be selected for their ability to withstand extended dry conditions (which are likely to occur in parking lot island bioretention facilities) and periodic inundation.

Hydrograph Return Period Recap

Hydrow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	-----	7.709	-----	-----	-----	16.87	-----	22.96	26.37	EX. SITE
2	SCS Runoff	-----	8.656	-----	-----	-----	17.81	-----	23.84	27.21	PROPOSED SITE
Proj. file: New.gpw										Monday, 07 / 11 / 2016	

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

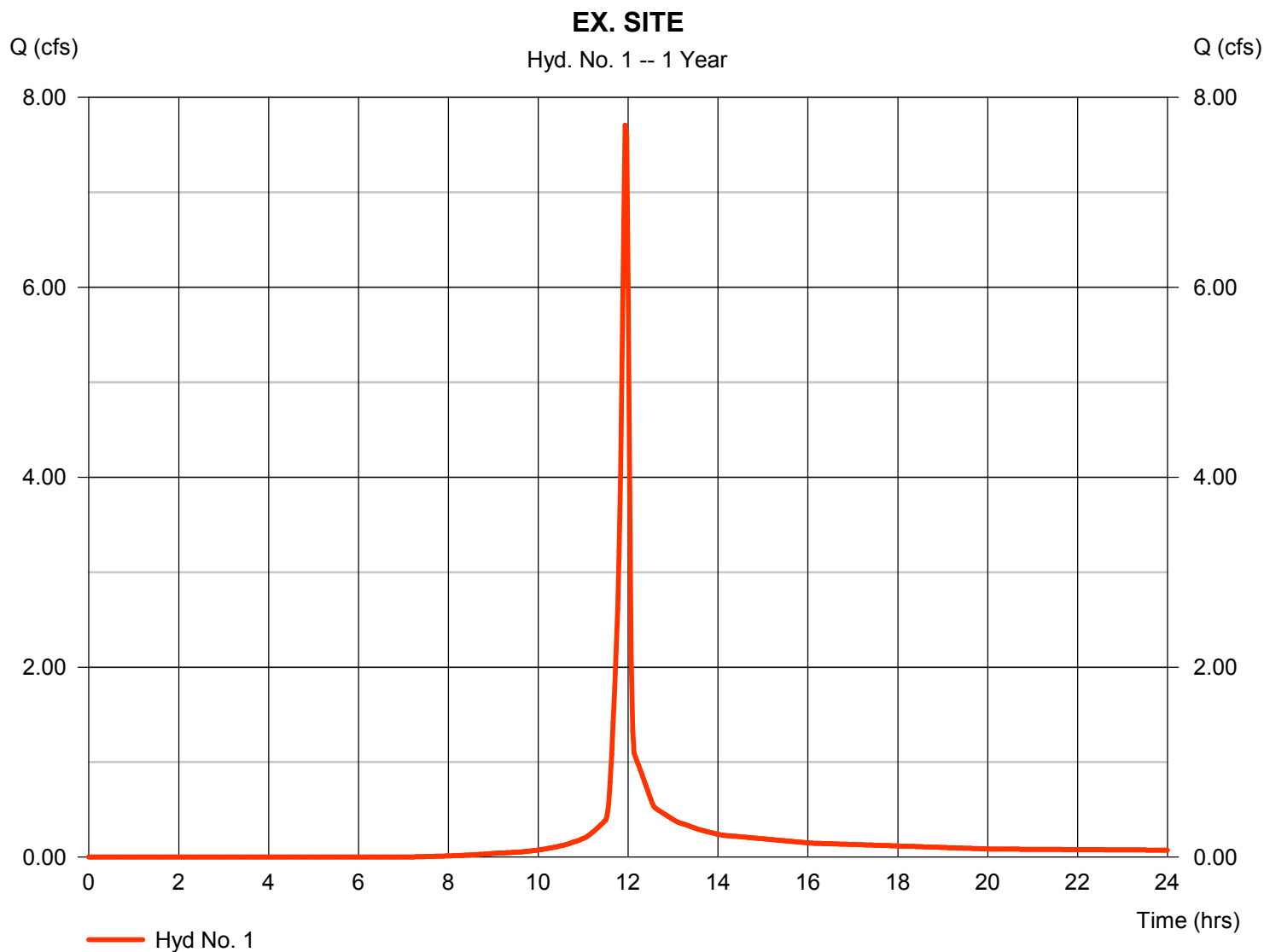
Monday, 07 / 11 / 2016

Hyd. No. 1

EX. SITE

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 2 min
 Drainage area = 2.650 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 3.00 in
 Storm duration = 24 hrs

Peak discharge = 7.709 cfs
 Time to peak = 11.93 hrs
 Hyd. volume = 15,684 cuft
 Curve number = 87
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

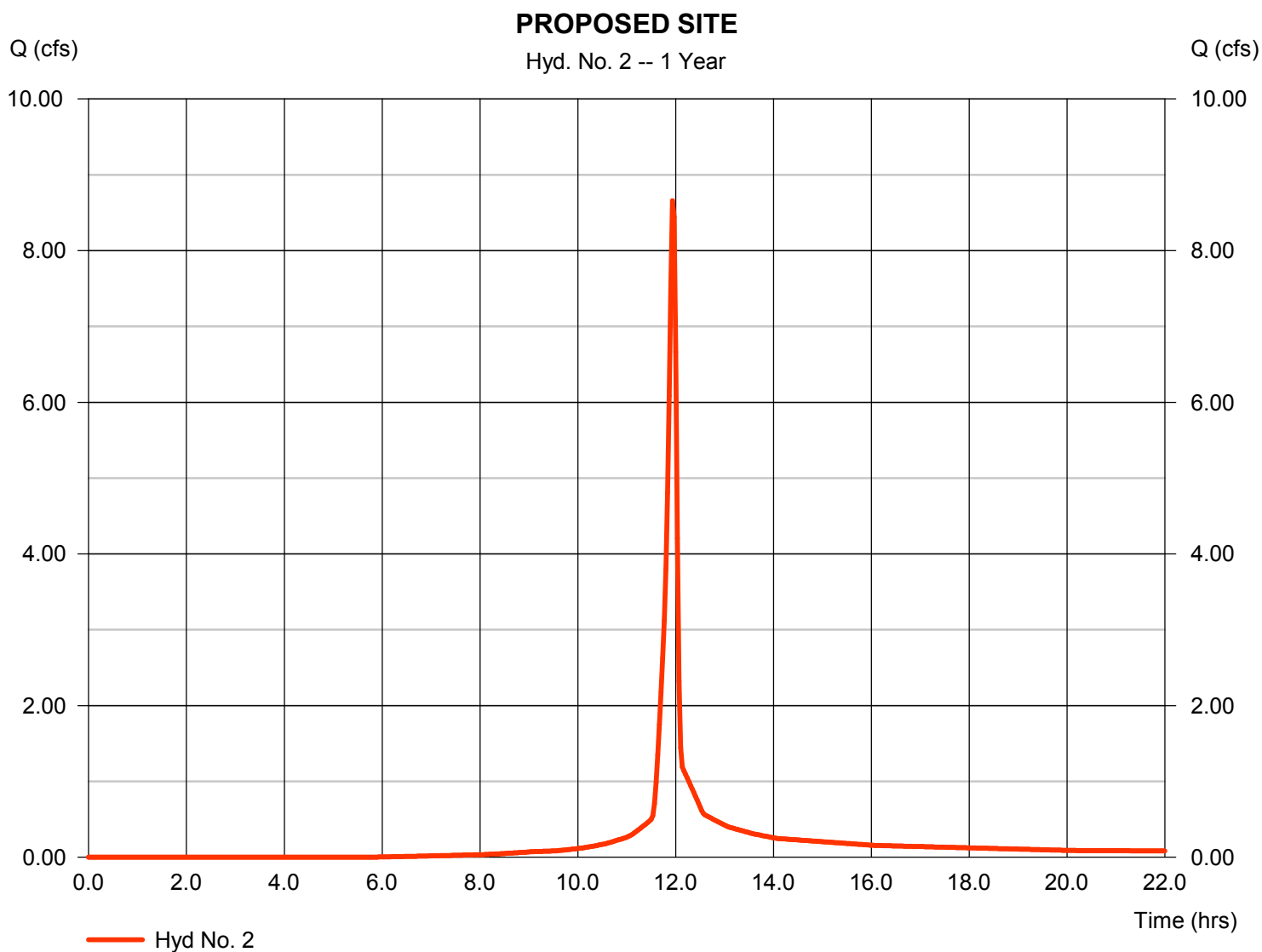
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Monday, 07 / 11 / 2016

Hyd. No. 2

PROPOSED SITE

Hydrograph type	= SCS Runoff	Peak discharge	= 8.656 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 17,893 cuft
Drainage area	= 2.650 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

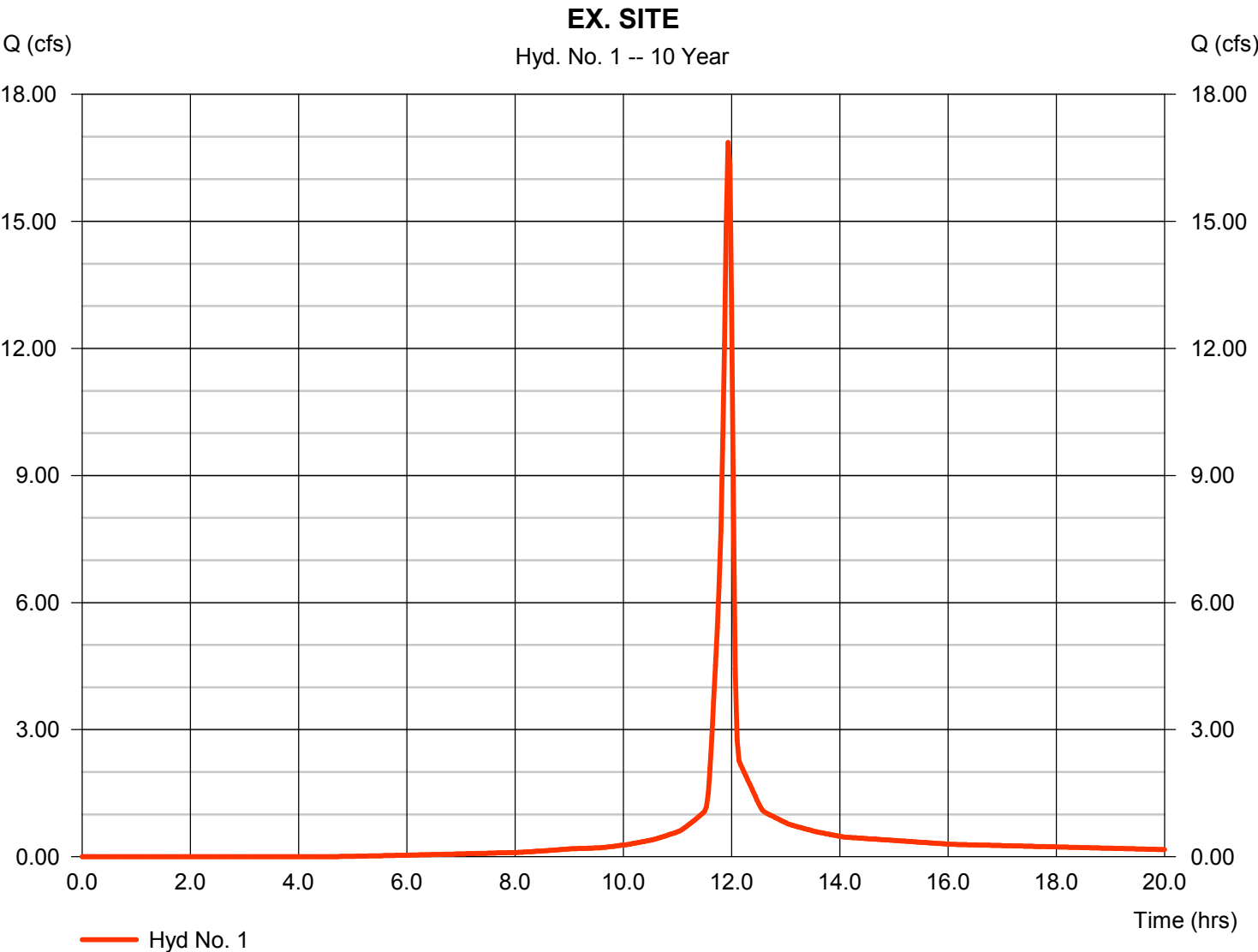


Hydrograph Report

Hyd. No. 1

EX. SITE

Hydrograph type	= SCS Runoff	Peak discharge	= 16.87 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 35,581 cuft
Drainage area	= 2.650 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

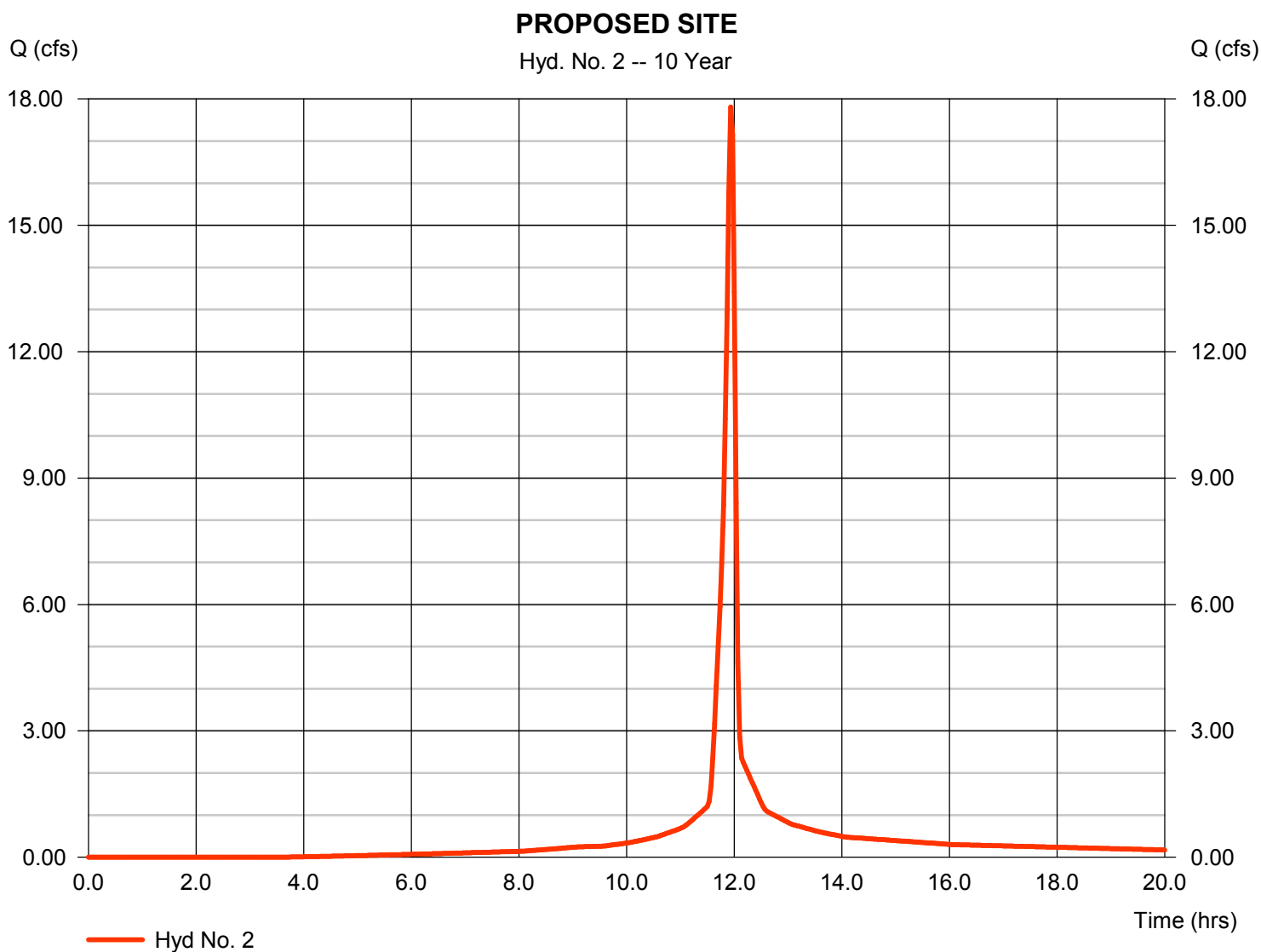
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Monday, 07 / 11 / 2016

Hyd. No. 2

PROPOSED SITE

Hydrograph type	= SCS Runoff	Peak discharge	= 17.81 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 38,445 cuft
Drainage area	= 2.650 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

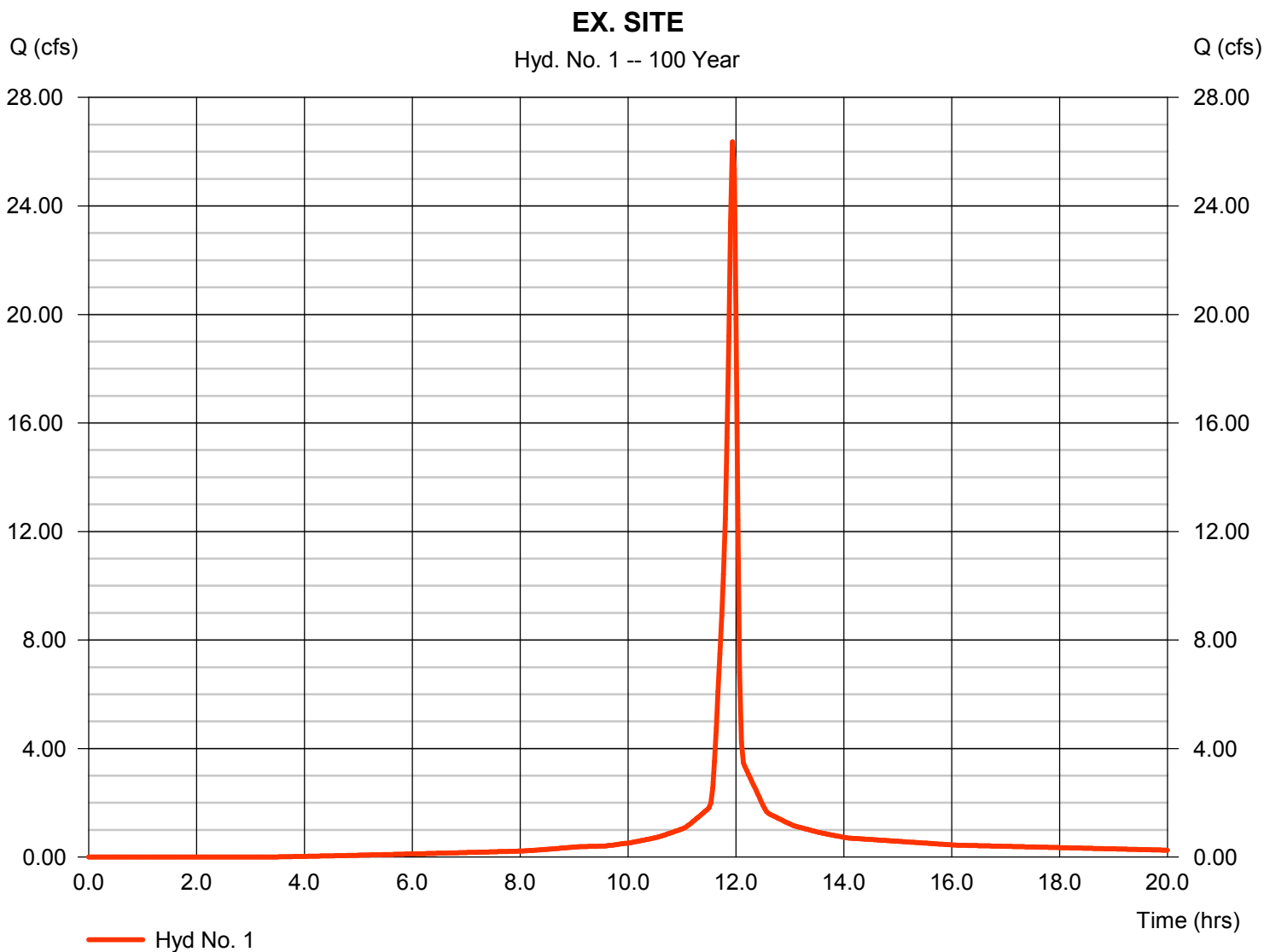
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Monday, 07 / 11 / 2016

Hyd. No. 1

EX. SITE

Hydrograph type	= SCS Runoff	Peak discharge	= 26.37 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 57,288 cuft
Drainage area	= 2.650 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

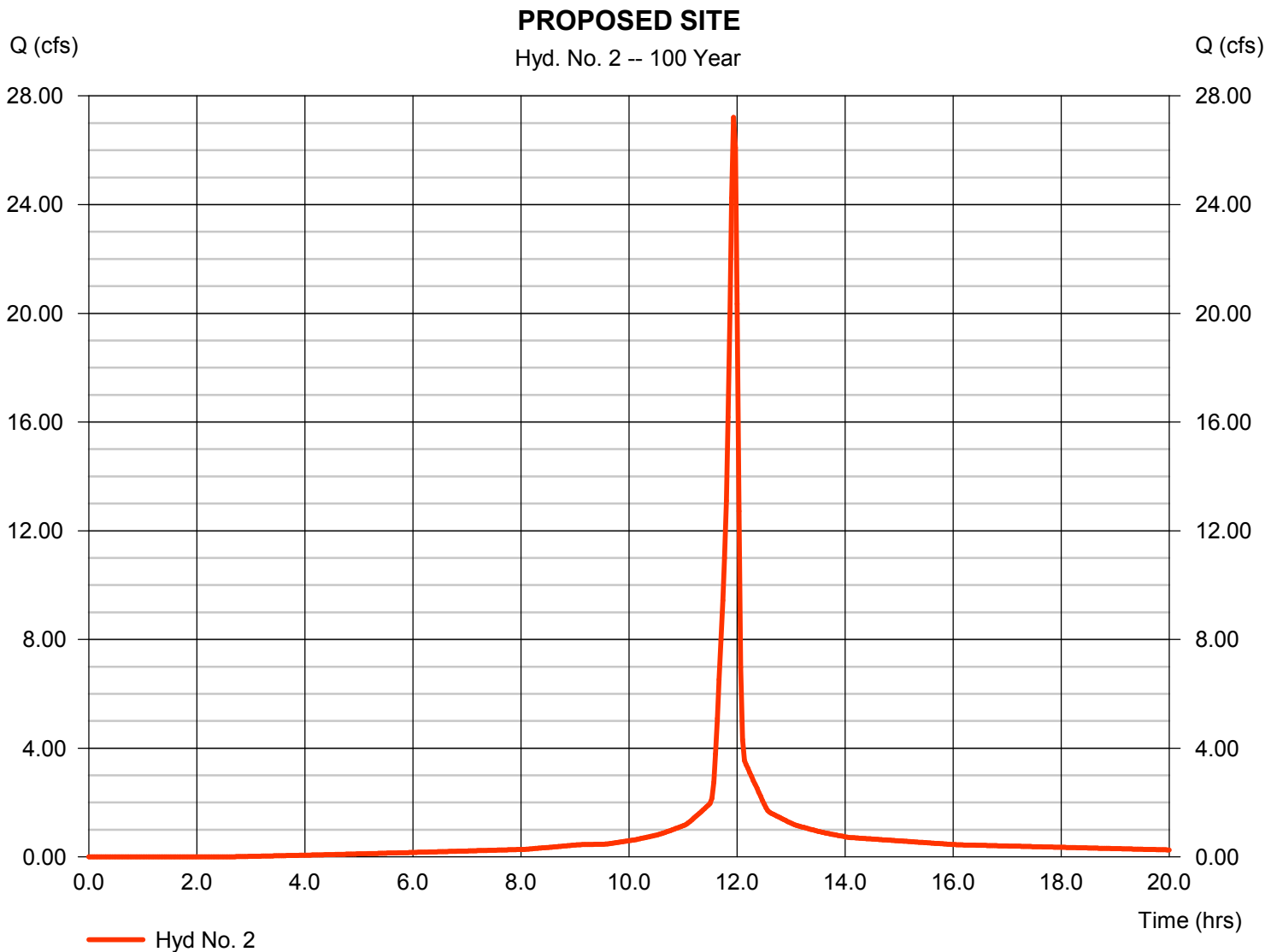
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

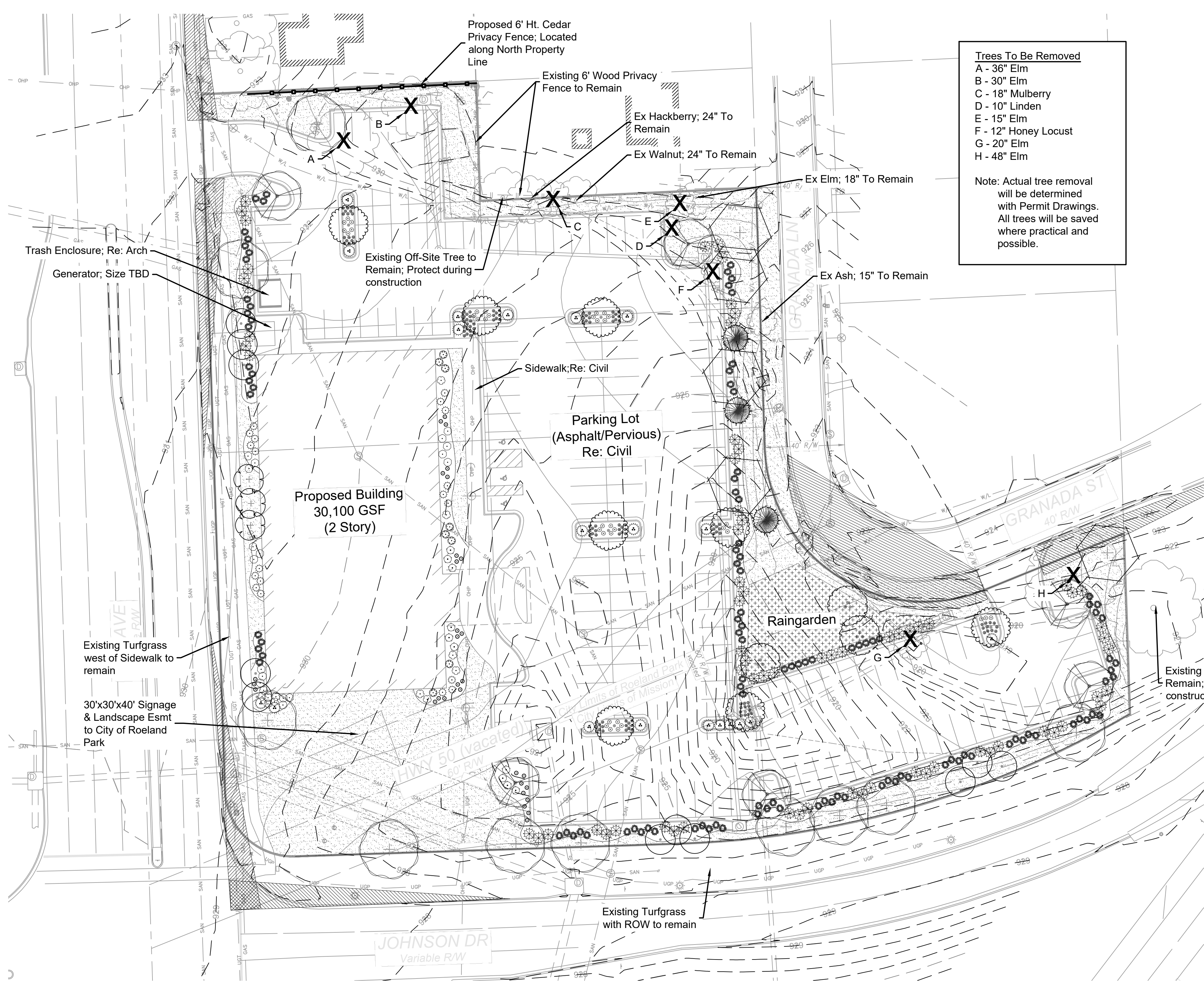
Monday, 07 / 11 / 2016

Hyd. No. 2

PROPOSED SITE

Hydrograph type	= SCS Runoff	Peak discharge	= 27.21 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 60,487 cuft
Drainage area	= 2.650 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484





LANDSCAPE NOTES

1. LOCATE UTILITIES PRIOR TO COMMENCING LANDSCAPE OPERATIONS. ALL TREES SHALL BE FIELD POSITIONED AS TO AVOID CONFLICTS WITH EXISTING AND PROPOSED UTILITIES. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS OR OBSTRUCTIONS.
2. CONTRACTOR SHALL STAKE ALL PLANTING AREAS IN THE FIELD PRIOR TO PLANTING FOR APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.
3. CONTRACTOR SHALL VERIFY ALL PLANT QUANTITIES PRIOR TO PLANTING. ANY DISCREPANCIES WITH THE PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE PLAN QUANTITIES SHALL SUPERCEDE SCHEDULED QUANTITIES.
4. ALL PLANT MATERIAL SHALL BE SPECIMEN QUALITY AND SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 THE 'AMERICAN STANDARD FOR NURSERY STOCK'.
5. ALL PLANTING BEDS & NATIVE GRASS STANDS SHALL BE EDGED AS SHOWN IN PLAN.
6. PREPARE PLANTING BEDS AND INCORPORATE AMENDMENTS ACCORDING TO PLANS.
7. SHREDDED HARDWOOD MULCH, PER SPECIFICATIONS SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL PLANTING BEDS AND AROUND ALL TREES. SINGLE TREES AND SHRUBS SHALL BE MULCHED TO THE OUTSIDE EDGE OF THE SAUCER OR LANDSCAPE ISLAND.
8. ALL TREES SHALL BE STAKED PER DETAIL.
9. ALL PLANT MATERIAL SHALL BE INSTALLED TO ALLOW A ONE FOOT (1') CLEARANCE BETWEEN PLANT AND ADJACENT PAVEMENT.
10. THE LANDSCAPE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE SITE IS FREE OF DEBRIS CAUSED BY ON-GOING CONSTRUCTION OPERATIONS. REMOVAL OF DEBRIS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. LANDSCAPE WORK SHALL NOT BEGIN UNTIL THE LANDSCAPE ARCHITECT AND OWNER HAVE GIVEN WRITTEN APPROVAL FOR SUCH. THERE SHALL BE NO DELAYS DUE TO LACK OF COORDINATION FOR THIS ACTIVITY.
11. THE LANDSCAPE ARCHITECT AND OWNER SHALL APPROVE GRADES AND CONDITION OF SITE PRIOR TO SODDING/SEEDING OPERATIONS.
12. ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED FOR OTHER PLANTINGS OR HARDSCAPE SHALL BE SODDED WITH BUFFALO GRASS. ALL AREAS OUTSIDE OF THE BUFFALO PLANTING ZONE SHALL BE SODDED WITH TURF TYPE TALL FESCUE.
13. ALL SHRUB BED AREAS SHALL BE IRRIGATED BY DRIP IRRIGATION. BUFFALO SOD AREAS SHALL BE IRRIGATED BY QUICK COUPLE ACCESS AT 100 FT O.C OR WITHIN 50' OF A BUILDING HOSE BIB. IRRIGATION SYSTEM SHALL INCLUDE AUTOMATIC RAIN-SENSOR DEVICE. IRRIGATION SHOP DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR FOR APPROVAL PRIOR TO CONSTRUCTION.
14. RAINGARDEN PLANTINGS SHALL BE GROUPED IN NO LESS THAN 10 PLANTS PER GROUP. FINAL DESIGN OF RAINGARDEN SHALL BE PROVIDED WITH PERMIT DRAWINGS.

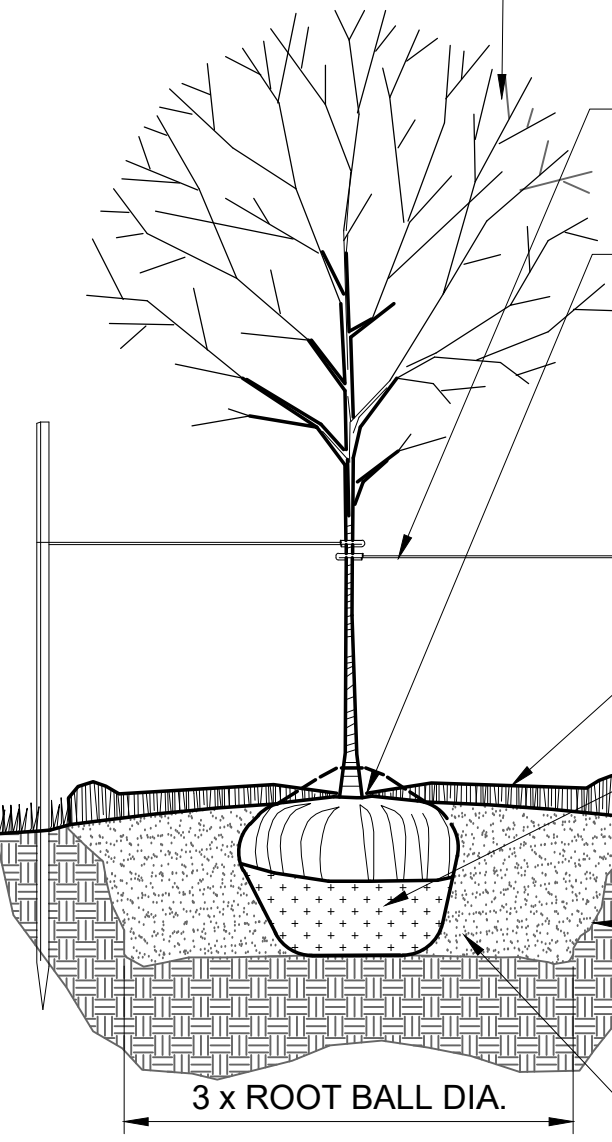
LANDSCAPE REQUIREMENTS

- Proposed Zoning: CP-O
- Minimum Tree Requirements (Sec 16-1005)
- Street Frontage: 1 Tree / 40 lf
 - Open Space: 1 Tree / 3,000 sf Open Space
- Vehicular Use Areas Requirements (Sec 16-1007)
- Min. 6% Interior Of Parking Lot (Spaces x 280)
- Screening Requirements (Sec 16-1010)
- Trash Enclosures shall be screened and appropriately landscaped
 - Exterior ground/building mounted equipment shall be screened from public view
 - Adjacent to Residential (SFR) shall provide a solid screen or wall not less than 6' in height along the rear and side property lines which are common to subject property to the building line. The screening shall not be required where similar screening exists on the abutting residential property.
- Provided Street Trees
- Street Frontage: Roe Blvd: 377 LF / 40 = 9.42 Trees Provided: 10 Trees
 - Street Frontage: Johnson Dr.: 430 LF / 40 = 10.75 Trees Provided: 13 Trees
 - Street Frontage: Grenada: 359 LF / 40 = 8.98 Trees Provided: 9 Trees
- Provided Open Space
- Total Open Space: 36,363.47 sf / 3,000 sf = 12 Trees
 - Open Space Trees (including parking lot trees): 17 Trees
- Provided Vehicular Use Areas
- Total Parking Spaces = 161 x 280 = 45,080 x 6% = 2,704.8 sf
 - Total Area Provided = 3,724 sf

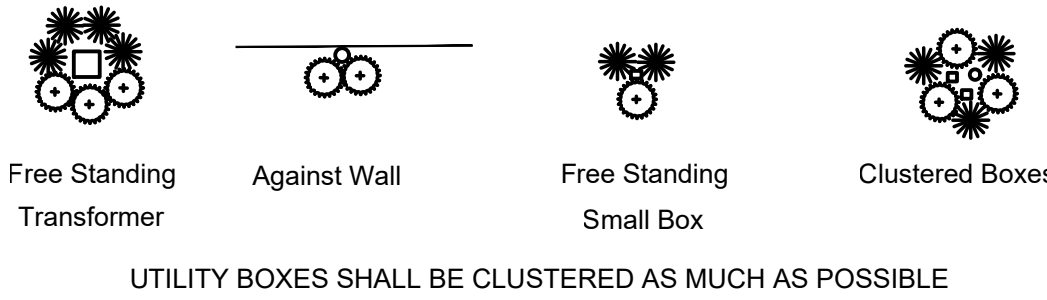
NOTES:

1. TREES THAT DO NOT MEET THE SIZE REQUIREMENT WILL BE REJECTED
2. TREES SHALL BE INSPECTED BY OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.

PRUNE OUT ANY DEAD OR BROKEN BRANCHES AND REMOVE DEBRIS FROM SITE.



DECIDUOUS TREE PLANTING DETAIL - NTS



TYPICAL UTILITY BOX SCREENING DETAILS - NTS

PLANT SCHEDULE

TREES	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	QTY
	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	B&B	1.5" Cal.		11
	Betula nigra 'Heritage' / Heritage River Birch	B&B	2.5" Cal.		3
	Cercis canadensis 'Forest Pansy' TM / Forest Pansy Redbud	B&B	1.5" Cal.		3
	Ginkgo biloba 'Autumn Gold' TM / Maidenhair Tree	B&B	2.5" Cal.		8
	Picea pungens 'Hoopsii' / Hoopsii Blue Spruce	B&B		6' Ht. Min.	3
	Quercus bicolor / Swamp White Oak	B&B	2.5" Cal.		10
	Ulmus americana 'Valley Forge' / American Elm	B&B	2.5" Cal.		5
	Zeikova serrata 'Green Vase' / Sawleaf Zeikova	B&B	2.5" Cal.		6
SHRUBS	BOTANICAL / COMMON NAME	CONT			QTY
	Aronia melanocarpa 'Morton' TM / Iroquis Beauty Black Chokeberry	3 Gal.			17
	Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass	3 Gal.			30
	Cornus stolonifera 'Arctic Fire' / Arctic Fire Dogwood	3 Gal.			12
	Hemerocallis x 'Stella de Oro' / Stella de Oro Daylily	1 Gal.			123
	Hydrangea paniculata 'Little Lime' / Little Lime Hydrangea	3 Gal.			8
	Hypericum frondosum 'Sunburst' / Sunburst Hypericum	3 Gal.			10
	Juniperus chinensis 'Sea Green' / Sea Green Juniper	5 Gal.			60
	Juniperus sabina 'Buffalo' / Buffalo Juniper	3 Gal.			20
	Juniperus virginiana 'Skyrocket' / Skyrocket Juniper	5 Gal.			19
	Miscanthus sinensis 'Gracillimus' / Maiden Grass	5 Gal.			104
	Sedum x 'Autumn Joy' / Autumn Joy Sedum	1 Gal.			36
GROUND COVERS	BOTANICAL / COMMON NAME	CONT		SPACING	QTY
	Bouteloua Dactyloides Cody / Cody Buffalo Sod	SOD			26,768 sf
	Rain Garden See Species List / Rain Garden RE: Notes	D.C.P.		15" o.c.	1,687
Upper Fringe Zone:					
- Prairie Drop Seed - 20%					
- Black Eyed Susan - 10%					
- Blazing Star - 20%					
- Switchgrass - 50%					
Lower Flood Zone:					
- Blue Flag Iris - 25%					
- Soft Rush - 25%					
- Switchgrass - 50%					

SECURE TREE TO STAKES WITH STRAPS (RE: SPECS). STRAPS SHALL BE LOOSE ENOUGH TO ALLOW SOME MOVEMENT OF THE TRUNK WITH THE WIND

SET TREE WITH TOP OF ROOT BALL FLUSH WITH GRADE. TRUNK FLARE MUST BE VISIBLE AT THE TOP OF ROOT BALL. REMOVE EXCESS SOIL TO TOP OF LATERAL ROOTS.

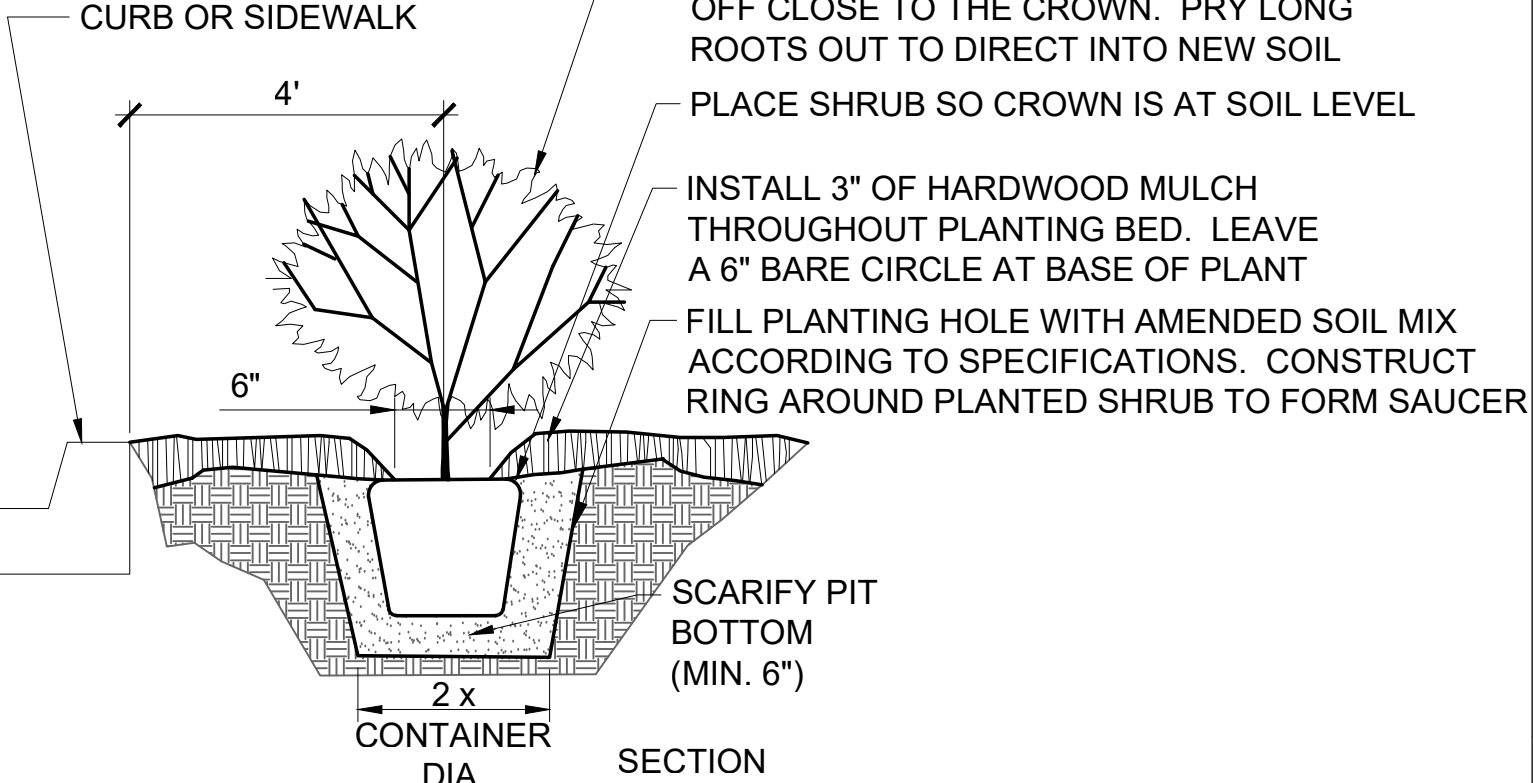
MIN. 8' LONG STEEL STAKES SECURED INTO UNDISTURBED SOIL. PLACE NORTH AND SOUTH OF TREE.

3" MULCH PER SPECIFICATIONS. DO NOT PLACE ON TRUNK OR TRUNK FLARE. BERM AT OUTER EDGES OF RING TO CREATE A SAUCER FORM.

REMOVE TWINE AND CAGE FROM ROOT BALL AND TRUNK. PEEL AND REMOVE BURLAP FROM TO 1/3 OF THE ROOT BALL.

PLANTING HOLE SHALL BE AT LEAST 3 TIMES WIDER THAN THE SPREAD OF ITS ROOTS, BUT NO DEEPER. PLACE ROOT BALL ON UNDISTURBED SOIL WITH ROOT FLARE EVEN WITH OR 1" ABOVE GRADE. SCARIFY SIDES AND BOTTOM OF PIT.

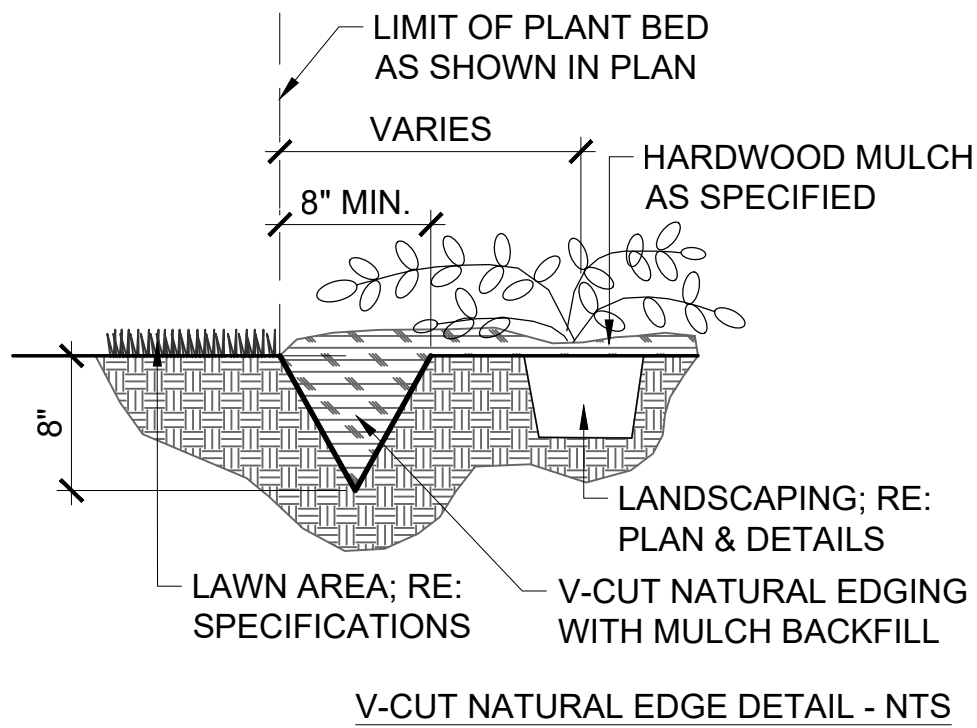
AMEND SOIL ACCORDING TO SPECIFICATIONS.



- NOTES:
1. REFER TO SPECIFICATIONS FOR TOPSOIL BACKFILL MIX.
 2. CONTRACTOR TO WATER THOROUGHLY AFTER PLANTING
 3. INSTALLATION TO BE IN ACCORDANCE WITH PLANTING SPECIFICATIONS

SHRUB PLANTING DETAIL - NTS

- NOTES:
1. CONTRACTOR SHALL LOCATE AND MARK ALL PLANTBED LOCATIONS PRIOR TO EXCAVATING FOR FINAL APPROVAL BY OWNER OR LANDSCAPE ARCHITECT.
 2. TRANSITION TO MULCH CONTAINMENT DETAIL AT ALL LOCATIONS ADJACENT TO CURBS & SIDEWALKS. RE: DETAIL, THIS SHEET.
 3. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS PRIOR TO TRENCHING OR LANDSCAPE INSTALLATION.



V-CUT NATURAL EDGE DETAIL - NTS

CIVIL CONSULTANT

STRUCTURAL CONSULTANT

MEP CONSULTANT

LANDSCAPE CONSULTANT

Item Number: Other Matters Before the Planning
Commission- VI.-2.
Committee Meeting Date: 8/27/2019



City of Roeland Park
Action Item Summary

Date:
Submitted By:
Committee/Department:
Title: **Screening Options at 5000 Johnson Dr.**
Item Type:

Recommendation:

Please see attached screening options/fencing to cover HVAC units at 5000 Johnson Drive and provide feedback.

Details:

Financial Impact

Amount of Request:	
Budgeted Item?	Budgeted Amount:
Line Item Code/Description:	

Additional Information

How does item relate to Strategic Plan?

How does item benefit Community for all Ages?

ATTACHMENTS:

Description	Type
 Fence Images	Cover Memo



PRIVACY FENCE

PRIVACY AND SECURITY THAT'S EASY TO LIVE WITH.

Nothing finishes a property like a Ply Gem privacy fence. Choose Ply Gem with confidence, knowing our privacy fences are the low-maintenance choice, backed by one of the best Limited Lifetime Warranties in the business.

- Hard-working style without the hard work.
- Feels and looks like painted wood, without the upkeep.
- Ultimate peace of mind that's great to look at and **easy** to live with for years to come.



Privacy in Natural Cedar with Convex Top Rails

CLASSIC STYLE, CLASSIC PERFORMANCE.

Ply Gem Fence is the easiest way into the great looks and durability of Ply Gem Fence and Railing's vinyl products. Our fencing includes the most popular privacy fence styles, engineered for affordability with no compromises.



Solid Privacy in White

PRIVATE, STYLISH & MINIMAL MAINTENANCE.

We have made choosing a privacy fence easy by offering our great-looking selection of fence styles and colors in all price ranges. And our privacy fence looks great on both sides because of our routed construction.

- Classic style, engineered for affordability, including many new 7/8" profiles.
- The broadest range of colors including our premier Woodland Select and new Almond.
- And our Limited Lifetime Transferable Warranty means no compromises.



Solid Privacy in Tan



Semi-privacy in Almond ★

STANDARD COLORS ★ NEW



Tan Sandstone Khaki White Almond

WOODLAND SELECT™ COLORS



Natural Cedar Redwood Aged Cedar Weathered Cedar Chestnut Brown



Woodland Select™ in Chestnut Brown

STRENGTH AND STYLE THAT HOLD UP.

Ply Gem Privacy Fencing is a premier line of products designed for home or property offering select and sophisticated designs, accents and colors combined with our legendary durability – all backed by a Limited Lifetime Warranty. combined with Ply Gem Fence and Railing's legendary durability and attention to detail.



Privacy in Natural Cedar



Solid Privacy in Tan and White



Solid Privacy in White



Woodland Select™ in Redwood



Ply Gem Stone Solid Privacy Column Collection
(pictured here with Woodland Select™ in Weathered Cedar)



Privacy with Dropped Rail in White

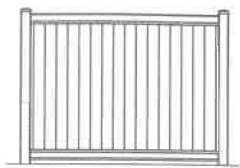
STANDARD COLORS ★ NEW



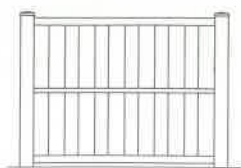
WOODLAND SELECT™ COLORS



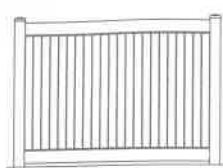
PRIVACY FENCE STYLES



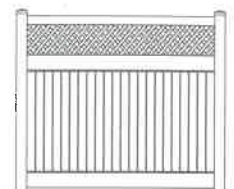
Pre-fabricated
Solid Privacy



Shadow Box



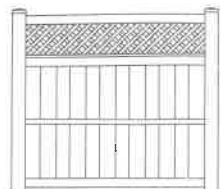
Solid Privacy



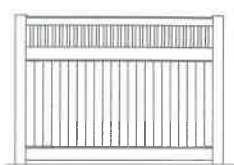
Privacy with Lattice



Semi-Privacy



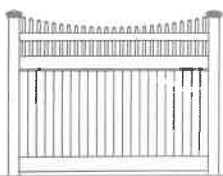
Shadow Box
with Lattice



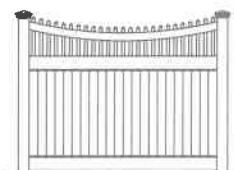
Privacy with
Picket Accent



Privacy with
Rising Rail



Privacy with
Scalloped Picket Accent

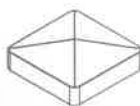


Privacy with
Dropped Rail

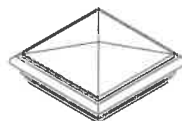


Privacy with
Sunburst Accent

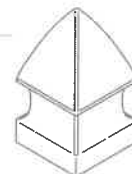
POST CAPS



Pyramid*



Classic*



Gothic



Internal*

DECORATIVE CAPS



Black



Chestnut



Copper



Forrest



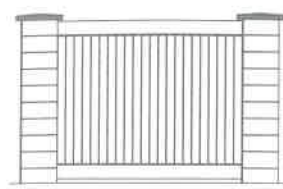
Harvest



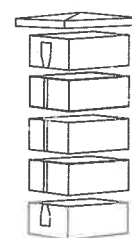
Stainless

* Available in solid and variegated colors to coordinate with Woodland Select™ Variegated Colors.

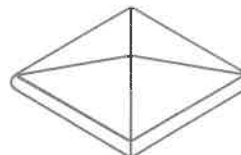
PRIVACY COLUMN COLLECTION



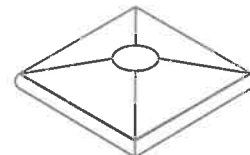
Privacy Column Blocks
Designed for Ply Gem Solid Privacy**



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Closed



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2600 Grand Blvd., Suite 900 • Kansas City, MO 64108
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