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**AMENDED AGENDA
CITY OF SHAWNEE
PLANNING COMMISSION
SEPTEMBER 4TH, 2019 AT 1:30 P.M.
COMMISSION CHAMBERS
CITY HALL, 16 W 9TH ST**

- 1)** Roll Call
- 2)** Consideration of approval of the minutes from the regular meeting of the Planning Commission on August 7th, 2019
- 3)** Swearing in of Rachael Melot as Planning Commission Board Member
- 4)** Citizens' Participation
(A three-minute limit per person)
(A twelve-minute limit per topic)
- 5)** Case #P15-19 – Public hearing and consideration of approval of a rezone request from A-1 (Rural Agricultural) to C-3 (Highway Commercial), located at 306 East 45th Street, Shawnee, Oklahoma, for the purpose of a commercial development
Applicant: Andrew Landes
- 6)** Case #S07-19 – Consideration of approval of an amended final plat for Domino Plaza Addition, Section 2, a 7.74-acre property located on the southeast corner of North Harrison and John C. Bruton Boulevard, Shawnee, Oklahoma, for the purpose of a commercial retail development
Applicant: Shawnee Harrison, LLC
- 7)** Case #S02-19 – Consideration of approval of a preliminary plat for Cardinal Pointe, a 25.16-acre property located north of East 45th Street and immediately adjacent to the west side of the A.T. & S.F. Railroad, Shawnee, Oklahoma, for the purpose of a single-family and commercial development
Applicant: Landes Engineering
- 8)** Consideration and approval of the 2019 Comprehensive Plan
- 9)** Planning Director's Report
- 10)** Commissioners Comments and/or New Business
- 11)** Adjournment

PLANNING COMMISSION MINUTES

DATE: AUGUST 7TH, 2019

The Planning Commission of the City of Shawnee, County of Pottawatomie, State of Oklahoma, met in the Commission Chambers, at City Hall, 9th and Broadway, on Wednesday, August 7th, 2019, at 1:30 p.m., pursuant to notice duly posted as prescribed by law.

AGENDA ITEM NO.1: Roll Call

Upon roll call the following members were present:

Present: Matthews, Walker, Bergsten, Rowell, Kienzle, Melot

Absent: Deem

Meeting was called to Order.

AGENDA ITEM NO.2: Consideration of approval of the minutes from the regular meeting of the Planning Commission on July 3rd, 2019

Chairman Bergsten asked Commissioners for any comments, questions, or a vote. Commissioner Matthews motioned to approve the minutes; seconded by Commissioner Kienzle.

Motion passed:

AYE: Matthews, Rowell, Kienzle

NAY:

ABSTAIN: Walker, Bergsten

OBSERVING: Melot

AGENDA ITEM NO.3: Citizens' Participation

Chairman Bergsten opened the public portion of the meeting and announced that this is an open time for discussion for those with questions on topics not on the Agenda and asked if anyone would like to come forward.

No one came forward and Chairman Bergsten closed the public portion of the meeting.

AGENDA ITEM NO.4: Case #P11-19 – Public hearing and consideration of approval of a rezone request from A-1 (Rural Agricultural) to R-1 (Single-Family Residential), located at 1510 North Elm Avenue, Shawnee, Oklahoma, for the purpose of a single-family home

Applicant: Dale Wiginton

Planning Director Rebecca Blaine presented staff report. She stated the lot is being rezoned to a district for its current use, a single-family home. She stated the Planning Department has a policy of correcting incorrectly zoned lots such as this one, and that they waived the application fee for Mr. Wiginton. She stated staff recommends approval.

Chairman Bergsten opened the public portion of the meeting and asked if anyone speaking against the item would like to come forward.

No one came forward and Chairman Bergsten asked if anyone speaking in favor of the item would like to come forward. No one came forward and Chairman Bergsten closed the public portion of the meeting.

Chairman Bergsten asked if there were any other comments or questions. There were no comments or questions and Chairman Bergsten asked for a motion. Commissioner Kienzle motioned to approve of the rezone; seconded by Commissioner Matthews.

Motion passed:

AYE: Matthews, Walker, Bergsten, Rowell, Kienzle

NAY:

ABSTAIN:

OBSERVING: Melot

AGENDA ITEM NO.5:

Case #P12-19 – Public hearing and consideration of approval of a rezone request from R-1 (Single-Family Residential) to C-3 (Highway Commercial), located at 3914 North Kickapoo Avenue, Shawnee, Oklahoma, for the purpose of a shopping strip center

Applicant: Margaret Davis

Planning Director Rebecca Blaine presented staff report. She stated many rezones are happening in this area due to Kickapoo Avenue being one of the primary commercial arterial streets in Shawnee, and that the Planning Department encourages commercial development in areas like this. She stated staff recommends approval.

Chairman Bergsten opened the public portion of the meeting and asked if anyone speaking against the item would like to come forward.

No one came forward and Chairman Bergsten asked if anyone speaking in favor of the item would like to come forward. No one came forward and Chairman Bergsten closed the public portion of the meeting.

Chairman Bergsten asked if there were any comments or questions. There were no comments or questions and Chairman Bergsten asked for a motion. Commissioner Kienzle motioned to approve of the rezone; seconded by Commissioner Rowell.

Motion passed:

AYE: Matthews, Walker, Bergsten, Rowell, Kienzle

NAY:

ABSTAIN:

OBSERVING: Melot

AGENDA ITEM NO.6:

Case #P13-19 – Public hearing and consideration of approval of a rezone request from C-1 (Neighborhood Commercial) to C-3 (Highway Commercial), located at 1601 North Kickapoo Avenue, Shawnee, Oklahoma, for the purpose of making leasing vacant spaces easier

Applicant: John Brown

Planning Director Rebecca Blaine presented staff report. She stated the applicant property is adjacent to two C-3 zoned properties, and that the applicant desires to broaden the amount of uses tenants can do in the building. She stated staff recommends approval.

Chairman Bergsten opened the public portion of the meeting and asked if anyone speaking against the item would like to come forward.

No one came forward and Chairman Bergsten asked if anyone speaking in favor of the item would like to come forward. The applicant, John Brown, came forward. He stated he is representing his parents. He stated he is here to answer any questions the Commission may have, and thanks the Commission for their service. No one else came forward and Chairman Bergsten closed the public portion of the meeting.

Chairman Bergsten asked if there were any comments or questions. There were no comments or questions and Chairman Bergsten asked for a motion. Commissioner Walker made a motion to approve of the rezone; seconded by Commissioner Kienzle.

Motion passed:

AYE: Matthews, Walker, Bergsten, Rowell, Kienzle

NAY:

ABSTAIN:

OBSERVING: Melot

AGENDA ITEM NO.7:

Case #P14-19 – Public hearing and consideration of approval of a rezone request from RE (Residential Estate) to C-3 (Highway Commercial), located at 39405 West MacArthur Street, Shawnee, Oklahoma, for the purpose of a medical marijuana dispensary

Planning Director Rebecca Blaine presented staff report. She stated that, in the mile stretch of this block, there are eight different zoning classifications from four different districts. She stated the 2005 Comprehensive Plan designates the future land use of this area as residential; however, there have been several rezones to C-3 in this area since the 2005 Comprehensive Plan was adopted, all of which took place in areas it designated as residential. She noted that the City has been working on a new Comprehensive Plan, which will be on the Agenda for the Planning Commission next month, and the City will have a new Comprehensive Plan adopted. She stated the new Comprehensive Plan has the subject property designated as residential; furthermore, the housing study completed by the consulting firm RDG stated the City is low on housing inventory stock. She stated staff recommends approval of this rezone due to the current precedent that has been set for this area.

Chairman Bergsten asked Director Blaine to clarify the date that the Planning Commission will be reviewing the Comprehensive Plan. She stated it would be on September 4th, 2019. Chairman Bergsten stated to the Commission that they have the option to defer the item in order to base the decision of the Commission on either the 2005 Comprehensive Plan or the 2019 Comprehensive Plan to be adopted.

Chairman Bergsten stated to the audience that the Commission may defer the item in order to make a decision on the subject property based upon the soon to be newly adopted Comprehensive Plan, and a motion to defer the item to a later date could be made right now. Commissioner Matthews stated his interest in doing so. He stated the City has put a lot of effort into developing the 2019 Comprehensive Plan. Commissioner Matthews clarified that if the Commission chooses to defer the item right now, they would wait to hold the public portion of the meeting until the next time the item is heard by the Commission. Chairman Bergsten asked for a motion. Commissioner Matthews made a motion to defer the item to the October 2nd, 2019 Planning Commission Meeting; seconded by Commissioner Rowell.

Motion passed:

AYE: Matthews, Walker, Bergsten, Rowell, Kienzle

NAY:

ABSTAIN:

OBSERVING: Melot

AGENDA ITEM NO.8:

Consideration and discussion of an Urban Chicken Ordinance, for the purpose of regulating the keeping and raising of fowl.

Planning Director Rebecca Blaine presented the ordinance. She explained what the origins for the conceptualization of this ordinance was. She stated that the cities of Norman and Edmond have recently adopted new urban chicken ordinances. She briefly summarized the contents of the Ordinance.

Commissioner Walker asked Director Blaine how the enforcement of this Ordinance would be implemented. She stated it would be complaint driven. She stated the other communities with urban chicken ordinances that she has discussed this issue with have stated they have had little issues with their citizenry when it came to this type of regulation. Commissioner Walker stated the ordinance does not state what happens if the City determines a chicken is a nuisance animal. Director Blaine stated their permit for having chickens would be revoked with Director's discretion. She stated additional language could be added to more specifically address this process.

Commissioner Matthews asked if this Ordinance is consistent with Norman and Edmond. Director Blaine stated Edmond's ordinance is unique. She stated their minimum lot size for chickens is 0.68 acres. She stated her ordinance is most in line with Norman, and that she preferred Norman's ordinance.

Chairman Bergsten clarified that enforcement would be complaint driven and that there is no other avenue of enforcement. Director Blaine stated that is correct.

Chairman Bergsten asked if there were any comments or questions. There were no comments or questions and Chairman Bergsten asked for a motion. Commissioner Matthews made a motion to approve of the Urban Chicken Ordinance; seconded by Commissioner Walker.

Motion passed:

AYE: Matthews, Walker, Bergsten, Rowell, Kienzle

NAY:

ABSTAIN:

OBSERVING: Melot

AGENDA ITEM NO.9:

Planning Director's Report

Planning Director Rebecca Blaine stated the final draft of the 2019 Comprehensive Plan that RDG has created for the City.

She stated there was an inquiry about the fencing at the Shawnee Milling Company. She stated they are fixing their fencing, and cleaning up the area.

She stated the APA Quad-State conference is coming up at the end of September in Tulsa, Oklahoma. She told the Commission that they are welcome to come. Commissioner Kienzle stated she is presenting at this conference.

AGENDA ITEM NO. 10:

Commissioners Comments and/or New Business

Commissioner Kienzle expressed her excitement about the sidewalks being created on Harrison Avenue.

Commissioner Walker noted that a vehicle dealer had their wares parked on the sidewalk.

Chairman Bergsten asked what else would be coming to Domino Plaza. Director Blaine stated a clinic is going there. Commissioner Kienzle asked if the clinic was for humans or pets. Director Blaine stated it is for humans. Chairman Bergsten the dog park looks nice.

Commissioner Kienzle asked what the City's regulations on drop-off bins for donating clothing and shoes are. Director Blaine stated she would look into that issue. Commissioner Kienzle stated it is an eye sore. Commissioner Walker stated it looks like an outside storage facility.

Chairman Bergsten asked if there have been any updates on Phase II of the Shawnee Market Place. Director Blaine stated she has no updates on that project.

Chairman Bergsten congratulated Rachael Melot on her appointment to the Planning Commission and expressed his appreciation for her joining the Commission.

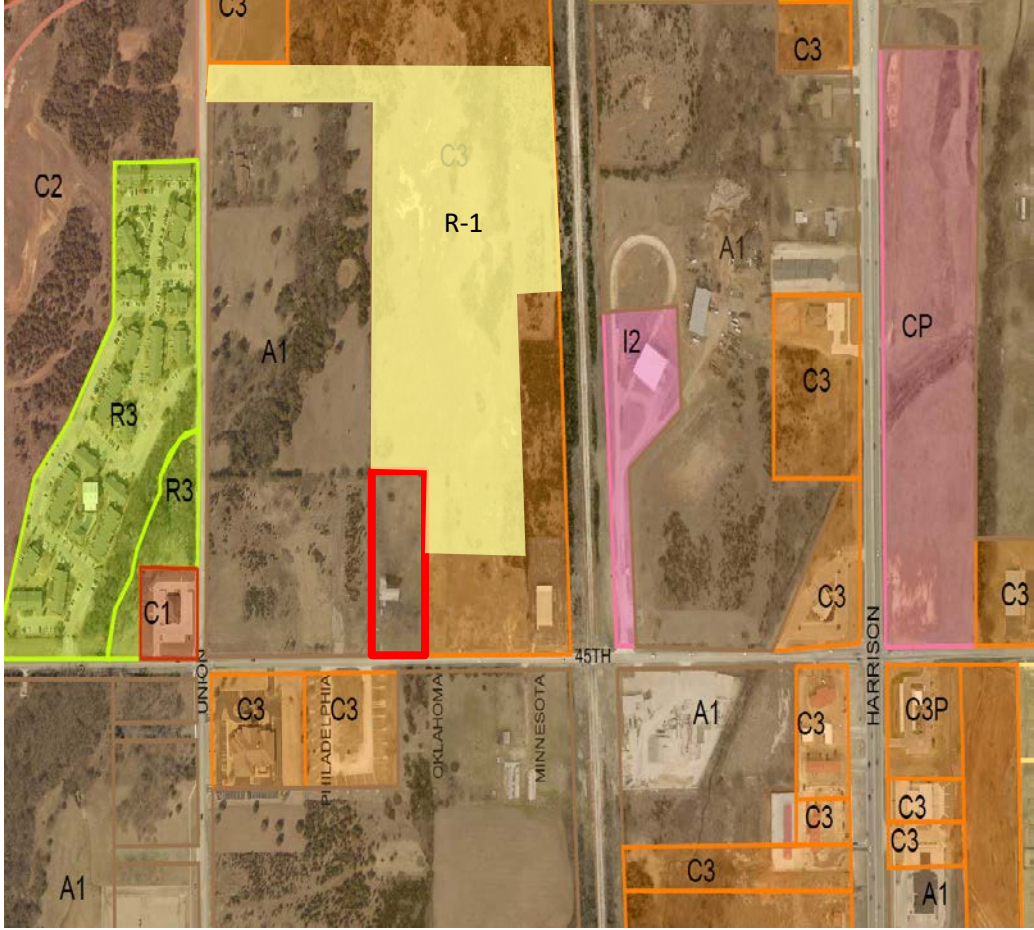
AGENDA ITEM NO.11:

Adjournment

Meeting was adjourned.

Chairman/Vice-Chairman

Joseph Barker
Planning Commission Secretary

City of Shawnee Planning Department 222. N. Broadway Shawnee, OK 74801 (405) 878-1616 Fax: (405) 878-1587 www.ShawneeOK.org			CASE # P15-19 PUBLIC HEARING DATE: September 4th, 2019 CITY COMMISSION DATE: September 16th, 2019	
APPLICANT: Andrew & Katie Landes		1805 Pecan Crossing Shawnee, Oklahoma, 74804		Landes-andrew@yahoo.com
PROPERTY ADDRESS/LOCATION: 306 East 45th Street, Shawnee, Oklahoma, 74804				
The applicants, Andrew and Katie Landes, are requesting a rezone from A-1 to C-3 at 306 East 45th Street, a 4.01-acre parcel. The stated proposed use is for a commercial development.				
EXISTING ZONING: A-1	EXISTING LAND USE: Single-Family Residential	SURROUNDING ZONING & LAND USE: A-1 (Rural Agricultural) R-1 (Single-Family Residential) C-3 (Highway Commercial)	SUBDIVISION: N/A	PROPERTY SIZE: 4.01 acres

STAFF RECOMMENDATION

The applicants have stated they intend to use the lot for a commercial development. The subject site is roughly 4.01 acres in size. Adjacent properties are zoned A-1 (Rural Agricultural), R-1 (Single-Family Residential), and C-3 (Highway Commercial). The 2005 Comprehensive Plan states this area's intended use should be commercial/residential. Therefore, this proposed rezone abides by the intentions of the Comprehensive Plan.

The rezone is required to conform to Section 22-165.2 of the Zoning Code, "Uses [in commercial districts]," which assures that the C-3 zoning district is used to provide for establishments offering accommodations, supplies or services to motorists, and for certain specialized uses such as retail outlets, extensive commercial amusement and service establishments. Because the applicant has not defined a specific use for the rezone, it will be the applicant's responsibility to be informed on what uses are permitted in the C-3 District. The rezone is also required to conform to Section 22-165.4 of the Zoning Code, "Dimensional Standards [in commercial districts]." If rezoned to C-3, it would conform to these standards.

No letters of support or objection have been received regarding this application.

The subject request is in conformance with City Zoning Code and fits the general pattern of development in the area; therefore, Staff hereby recommends approval of the requested rezone from A-1 (Rural Agricultural) to C-3 (Highway Commercial).

APPROVE

APPROVE WITH CONDITIONS

DENY

ATTACHMENTS:
(CIRCLE)

SUBMITTED PLANS

PUBLIC HEARING
PETITION/
APPLICATION
FORM

LEGAL NOTICE

LEGAL DESCRIPTION

PUBLIC COMMENTS

AGENCY COMMENTS

RESPONSE TO STANDARDS



PLANNING COMMISSION APPLICATION

Planning Department

222 N. Broadway
Shawnee, OK 74801
(405) 878-1616 Fax (405) 878-1587
www.ShawneeOK.org

For Office Use Only	
Case Number:	<u>15-19</u>
Project Number:	<u>190682</u>
Date Filed:	<u>8-1-2019</u>
_____ Planning Commission Secretary	

REQUEST:

☒ Rezoning
☐ Conditional Use Permit
☐ Rezoning w/Conditional Use Permit
☐ Planned Unit Development

I, the undersigned, do hereby respectfully make application and petition to the City Commission to amend the zoning map, and to change the zoning district of the Shawnee area, from A-1 District to C-3 District, as hereinafter requested, and in support of this application, the following facts are shown:

PROPERTY LOCATION (STREET ADDRESS): 306 E. 45th St.

LEGAL DESCRIPTION: 93-SU S 4A W 1/2 E 1/2 SW SE

PROPERTY OWNER (S): Royal Land Properties, LLC *Contingent on Rezoning

PROPERTY AGENT (APPLICANT): Andrew and Katie Landes

APPLICANT'S ADDRESS: 1805 Pecan Crossing

CITY: Shawnee STATE: OK ZIP: 74804

EMAIL ADDRESS: landes-andrew@yahoo.com

TELEPHONE NUMBER: (405) 535-3618 CONTACT NUMBER: (405) 535-3618 / 214-0300

DIMENSIONS OF PROPERTY: AREA: _____ WIDTH: _____
LENGTH: _____ FRONTAGE: _____

CURRENT ZONING: A-1 CURRENT USE: A-1

PROPOSED ZONING: C-3 PROPOSED USE: C-3

With the filing of this application, I acknowledge that I have been informed of off-street parking, fencing and paving requirements in regard to the zoning I have requested as witnessed by my signature.

APPLICATION, OFFICIAL OWNERSHIP LIST AND PAYMENT
MUST BE RECEIVED 30 DAYS PRIOR TO MEETING

Andrew Landes
SIGNATURE OF APPLICANT

FOR STAFF USE ONLY

REZONING &/OR C.U.P FEE \$ 280.00

RECEIPT NO. 02323459

PLANNED UNIT DEVELOPMENT FEE \$ 550.00

SIGN DEPOSIT \$ 50.00

(Refundable if Applicant returns 48 hrs. after City Commission Meeting)

PLANNING COMMISSION ACTION: _____ DATE: _____

CITY COMMISSION ACTION: _____ DATE: _____

PLACE ON ZONING MAP: _____ ORDINANCE NO.: _____

RECORD CHECK

LEGAL DESCRIPTION:

SURFACE ONLY:

The South 4 acres of the W/2 E/2 SW SE of Section 31 T11N, R4E

NAMES:

Hubert D. Peery and Annelee M. Peery

Choice Title & Abstracting has reviewed the records of the Office of the County Clerk of Pottawatomie County, and discloses that they find the following record owners to own property within 300 feet of the subject property:

1. Royal Land Properties, LLC
1805 Pecan Crossing Dr.
Shawnee, OK 74804

A tract in the W/2 SW/4 SE/4 Beginning 412.5 feet East of the SW/C of the W/2 SW/4 SE/4; East 247.5 feet; North 526.8 feet; West 247.5 feet; South 526.8 feet to the POB

2. Royal Land Properties, LLC
1805 Pecan Crossing Dr.
Shawnee, OK 74804

A tract Beginning at the SW/C W/2 SW/4 SE/4; East 412.5 feet; North 526.8 feet; West 412.5 feet; South 526.8 feet to POB

3. Margie Ston and Donna Parmer
4731 N. Union
Shawnee, OK 74804

The North 12 acres of the W/2 SW/4 SE/4 Beginning SW/C NW/4 SE/4; North 285 feet; East 660 feet; South 285 feet; West 660 feet to POB

4. Ricky L. & Kimberly S. Floyd
130 Nicholson Rd.
Searcy, AR 72143

Beginning NW/C SE/4 South 60.57 to POB East 1389.72 feet to the West Line of AT&SF RR; S2°44'42"E 890.4 feet; West 1131.44 feet; North 315 feet; West 315 feet; North 567.65 feet to POB

5. Dreamcatchers Dance Company, LLC
650 E. 45th St.
Shawnee, OK 74804

Beginning SE/C SW/4 SE/4 East 151.5 feet to the West R/W of RR Northwesterly 896.6 feet; West 140 feet; Southeasterly 896.6 feet to POB

6. Central Church of Christ
c/o Bob Perry
1936 N. Union
Shawnee, OK 74804

Williams Addition the East 4 acres in Block 5 described as Beginning 33 feet South and 1002 feet East of the NW/C NE thence South 365.5 feet; East 478 feet; NW 365.5 feet; West 475 feet to POB

7. Central Church of Christ
c/o Bob Perry
1936 N. Union
Shawnee, OK 74804

Williams Addition Beginning 33 feet South & 763.7 feet East of the NW/C NE South 365.5 feet;
East 238.3 feet; North 356.5 feet; West 238.3 feet in Section 6 T10N, R4E.

8. John A. Barrett Jr.
1210 Gordon Cooper Dr.
Shawnee, OK 74801

Williams Addition A Part of Block 5 beginning 33 feet South & 406.3 East of the NW/C NE East
357.4 feet; South 365.5 feet; West 357.4 feet; North 365.5 feet to POB

9. Threep LLC
201 E. 45th St.
Shawnee, OK 74804

Williams Addition a Part of Block 5 beginning 33 feet South & 30 feet East of the NW/C NE East
376.30 feet; South 365.60 feet; West 376.30 feet; North 367.50 feet to POB LESS & Except Lots
1-10 and Lots 21-32 all inclusive in Block 53 Armourdale Addition.

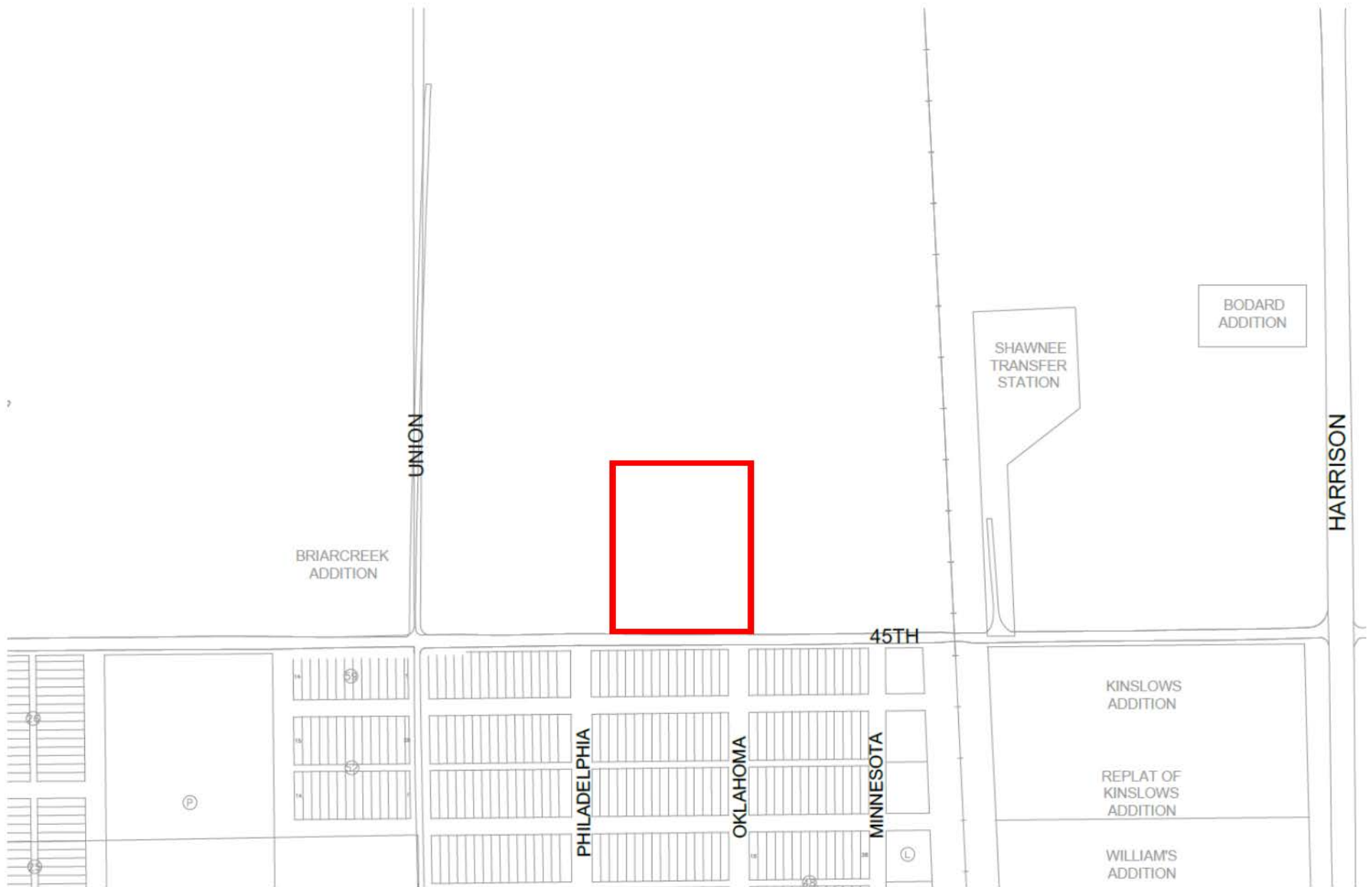
This check covers the 300 feet of surrounding property associated with the subject property.

We have prepared the above summary of our records with the same measure of care used in the preparation of abstracts, however this is the only summary of the instruments on file and of record and is not intended to express or imply an opinion as to the legal effect of those instruments or status of title. We assume no liability in connection with this written interim record check beyond that of due care. Any party using this report as the basis of a real estate transaction does so at their own risk.

CHOICE TITLE & ABSTRACTING


Pamela L. Atyia, No. 4644

Order No.: 9603



City of Shawnee OK
405-878-1616

RECH: 02323459 8/07/2019 10:15 AM
OPER: KG TERM: 020
REF#: 6909
PAID BY:

TRAN: 401.0000 BUILDING PERMIT
190682 280.00CR
LANDES, ANDREW
306 E 45TH ST
Z-REZONING 280.00CR

TENDERED: 280.00 CHECK
APPLIED: 280.00-

CHANGE: 0.00

Visit www.ShawneeOK.org
For More Information

CITY OF SHAWNEE
PUBLIC HEARING NOTICE
CASE #P15-19

Notice is hereby given that the City of Shawnee, Oklahoma, will conduct a public hearing on a proposed rezone of property located within the City of Shawnee.

The property requesting rezoning is described as follows:

The South 4 acres of the W/2 E/2 SW SE of Section 31 T11N, R4E.

General Location Known As:

306 East 45th Street, Shawnee, Oklahoma, 74804

Current Zoning Classification:

A-1 (Rural Agricultural)

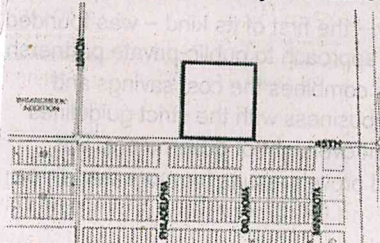
Requested Zoning Classification:

C-3 (Highway Commercial)

Proposed Use of Property: Commercial

Applicant: Andrew Landes

The "Zoning Map of the City of Shawnee,



Oklahoma" will be amended accordingly to reflect such change if approved by the City Commission.

The public hearing will be held in the City Commission Chambers in City Hall, 16 W. 9th St. Shawnee, Oklahoma, as follows:

September 4th, 2019 AT 1:30 P.M.:

CITY OF SHAWNEE PLANNING COMMISSION

September 16th, 2019 AT 6:00 P.M.:

CITY OF SHAWNEE CITY COMMISSION

At this time any interested citizen of Shawnee, Oklahoma will have the opportunity to appear and be heard with regard to the rezone. The Commission reserves the right to limit discussion and debate on the proposed rezone in the public hearing, in which event those persons appearing in support or opposition of the proposed rezone will be allotted equal time. Any formal protest must be filed in writing with the City Clerk during normal working hours before 5:00 p.m. a minimum of three (3) days prior to the hearing. If there are any questions about the proposal, or you need additional information prior to the public hearing, please contact the Planning Department at 405-878-1616. A copy of the application is available for public inspection during normal working hours in the Planning Secretary's office at 222 N. Broadway.

Witness my hand this 14th day of August, 2019.

Lisa Lasyone, City Clerk
(Published in the Shawnee News-Star on Aug. 18th, 2019)

Affidavit of Publication

The Shawnee News-Star
215 N. Bell
Shawnee OK 74801
(405) 273-4200

State of Oklahoma
County of Pottawatomie

I, Wanda Westerman, of lawful age, being duly sworn upon oath, deposes and says that I am the Legal Advertising Account Executive of The Shawnee News-Star, a Daily publication that is a "legal newspaper" as that phrase is defined in 25 O.S. §106 for the City of Shawnee, for the County of Pottawatomie, in the State of Oklahoma, and that the attachment hereto contains a true and correct copy of what was actually published in said legal newspaper in consecutive issues on the following date(s):

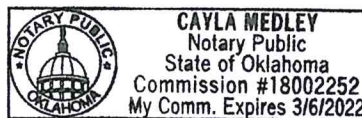
Insertion Date(s): Aug., 18th, 2019

Publishing Fee: \$89.90

Wanda Westerman, Account Executive

Signed and sworn to before me this 19th day of Aug., 2019.

Cayla Medley, Notary Public
My Commission Expires: March 6th, 2022
Commission No. 18002252



Advertising Receipt

Shawnee News Star

P.O. Box 1688
Shawnee, OK 74802-1688

Phone: 405-273-4200

Fax: 405-273-4207

City of Shawnee - LEGALS

P.O. Box 1448
SHAWNEE, OK 74802

Acct #: 05111006

Ad #: 00165704

Phone: (405)273-1250

Date: 08/14/2019

Ad taker: WW

Salesperson:

Classification: 1000

Description	Start	Stop	Ins.	Cost/Day	Extras	Total
PO#19-0301	08/18/2019	08/18/2019	2	42.45	5.00	89.90

Ad Text:

CITY OF SHAWNEE
PUBLIC HEARING NOTICE
CASE #P15-19

Payment Reference:

Notice is hereby given that the City of Shawnee, Oklahoma, will conduct a public hearing on a proposed rezone of property located within the City of Shawnee.

The property requesting rezoning is described as follows:

The South 4 acres of the W/2 E/2 SW SE of Section 31 T11N, R4E.

General Location Known As:

306 East 45th Street Shawnee Oklahoma 74804

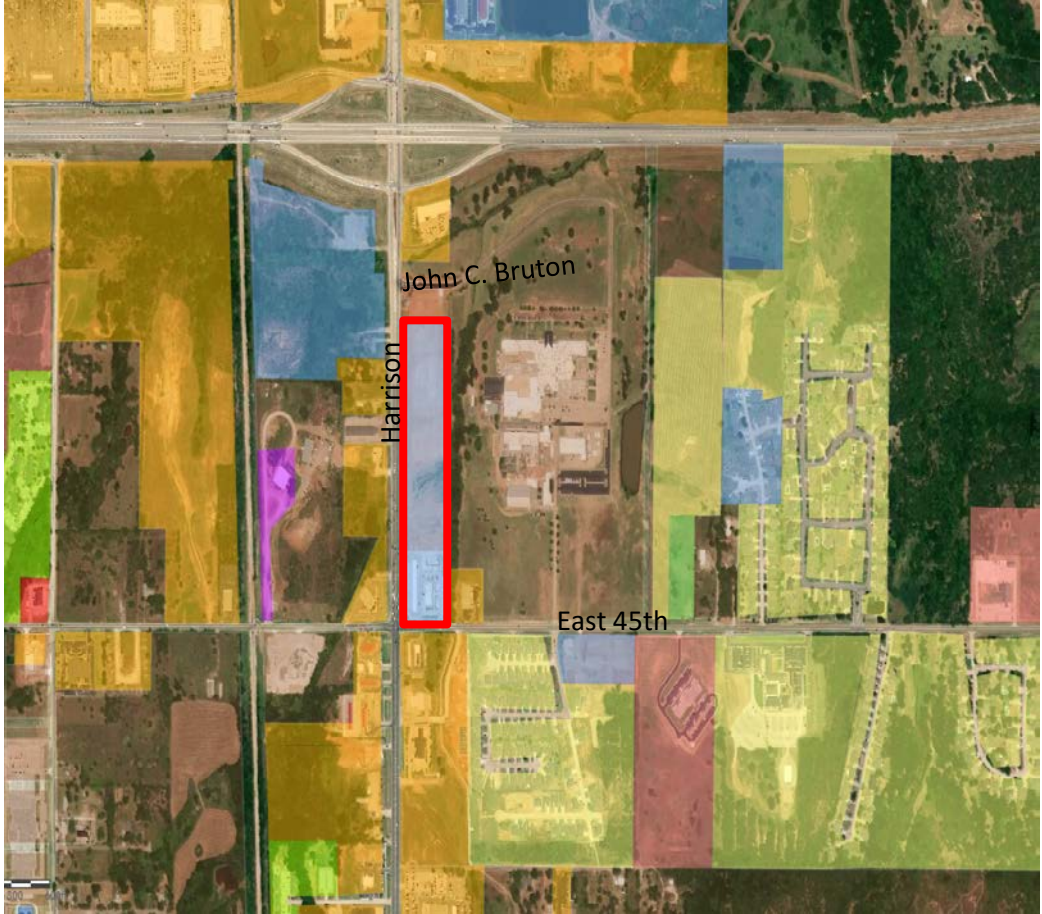
Total: 89.90

Tax: 0.00

Net: 89.90

Prepaid: 0.00

Total Due 89.90

City of Shawnee Planning Department 222. N. Broadway Shawnee, OK 74801 (405) 878-1616 Fax: (405) 878-1587 www.ShawneeOK.org			CASE # S07-19 PUBLIC HEARING DATE: August 7th, 2019 CITY COMMISSION DATE: August 19th, 2019	
APPLICANT: Shawnee Harrison, LLC		1715 South Highway 183 Clinton, Oklahoma, 73601		msmith@elmersmithoil.com
PROPERTY ADDRESS/LOCATION: Southeast Corner of Harrison & John C. Bruton Boulevard				
The applicant, Shawnee Harrison, LLC, is requesting approval for an amended final plat for Domino Plaza Addition, Section 2, a 7.74-acre property. The amended final plat reduces the number of lots in this section from three (3), which is the number the Preliminary Plat had, to two (2).				
EXISTING ZONING: PUD	EXISTING LAND USE: Vacant	SURROUNDING ZONING & LAND USE: A-1 (Rural Agricultural) C-3 (Highway Commercial)	LOTS: 2	PROPERTY SIZE: 7.74 acres

STAFF RECOMMENDATION

In 2016, this property was approved for a rezone to a PUD with an underlying zoning of C-3 with the following restrictions:

- Front yard setbacks for Lots 1 & 5 – 50’;
- Front yard setbacks for Lots 2-4 – 75’;
- Rear yard setbacks for all lots – 30’; and
- Side yard setbacks – All lots – 25’.

Square footage and lot width restrictions are standard for C-3 (10,000’ square feet of area, and 100’ of lot width). The final plat meets all these restrictions.

Final plats are required to abide by the standards of the City of Shawnee Subdivision Regulations. Article VIII, Platting Procedures, Section 3, General Requirements [of Final Plat], Subsection 5, Contents of Final Plat, provides a list of information that must be submitted on the Final Plat for a Final Plat to be approved. The submitted Final Plat meets these requirements.

The 2005 Comprehensive Plan designates the future use of this area to be public/commercial. Being a recently approved PUD, the Final Plat is permissible.

The Planning Department has received the following feedback from the following agencies:

Engineering/Streets:

No issues.

Shawnee Municipal Authority:

No issues.

Fire Department:

No issues.

The subject request is in conformance with the City Zoning Code and Subdivision Code; therefore, Staff hereby recommends approval of the requested amended final plat for Domino Plaza Addition, Section 2.

APPROVE

APPROVE WITH CONDITIONS

DENY

**ATTACHMENTS:
(CIRCLE)**

SUBMITTED PLANS

**PUBLIC HEARING
PETITION/
APPLICATION FORM**

LEGAL NOTICE

LEGAL DESCRIPTION

PUBLIC COMMENTS

AGENCY COMMENTS

RESPONSE TO STANDARDS

AMENDED FINAL PLAT
DOMINO PLAZA ADDITION SECTION 2
A Part of the West Half of the S.W. Quarter, Section 32, T. 11 N., R. 4 E., I.M.
Shawnee, Pottawatomie County, Oklahoma

OWNER'S CERTIFICATE AND DEDICATION

Know All Men By These Presents:

That Shawnee Harrison LLC hereby certify it is the owners of, and the only person, firm corporation, or entity having any ownership rights, title or interest in and to the land shown on the annexed plat of DOMINO PLAZA ADDITION SECTION 2, an Addition to the City of Shawnee, Pottawatomie County, Oklahoma, and has caused the same to be platted into lots, blocks, streets, and easements as shown on said annexed plat.

Shawnee Harrison LLC hereby dedicate all rights of way and easements as shown on said annexed plat to the public for streets, fire protection, utility and drainage easements, for itself, its successors and assigns forever and has caused the same to be released from all rights, easements, and encumbrances except as noted on the Bonded Abstractor's Certificate.

Covenants, Conditions and Restrictions for the annexed plat may be filed under separate instrument.

In witness whereof the undersigned having caused this instrument to be executed this _____ day of _____, 2019.

By:

STATE OF OKLAHOMA
SS
COUNTY OF _____

Before me, a Notary Public in and for said State, on the above stated date, personally appeared _____, to me know to be the identical person who executed the within and foregoing instrument and acknowledge to me that he executed the same as his free and voluntary act and deed for said corporation for the uses and purposes therein set forth.

Notary Public

My Commission Expires: _____ Commission Number: _____

CERTIFICATE OF CITY CLERK

I, _____, City Clerk of the City of Shawnee, Pottawatomie County, Oklahoma, hereby certify that I have examined the records of said City and find that all deferred payments on unmatured installments upon special assessments have been paid in full and that there are no special assessment procedures now pending against the land shown on the annexed plat.

Signed by the City Clerk this _____ day of _____, 2019.

, City Clerk

CITY PLANNING COMMISSION APPROVAL

I, _____, Chairperson of the Planning Commission of the City of Shawnee, Pottawatomie County, Oklahoma, hereby certify the Planning Commission duly approved the annexed plat at a Planning Commission meeting on the _____ day of _____, 2019.

, Chairperson

COUNTY TREASURER'S CERTIFICATE

I, _____, do hereby certify that I am the duly qualified and acting County Treasurer of Pottawatomie County, Oklahoma, that the tax records of said county show that all taxes for the year _____, and prior years are paid on the property outline on the annexed plat and the required statutory security has been deposited in the offices of the Pottawatomie County Treasurer guaranteeing the payment of the current year's taxes.

In witness whereof, said County Treasurer has caused this instrument to be executed this _____ day of _____, 2019.

, County Treasurer

ACCEPTANCE OF DEDICATION

Be it resolved by the City Council of the City of Shawnee, Pottawatomie County, Oklahoma, the dedications shown on the annexed plat are hereby accepted.

Adopted by the Council of the City of Oklahoma City, this _____ day of _____, 2019.

, City Clerk

, Mayor

BONDED ABSTRACTOR'S CERTIFICATE

The undersigned, a duly qualified and lawfully bonded abstractor of titles in and for Pottawatomie County and State of Oklahoma, hereby certifies the records of said county show that title to the land shown on the annexed plat is vested in Shawnee Harrison LLC on this _____ day of _____, 2019, and there are no actions pending or judgments of any nature of any court or on file with the clerk of any court in said county and state against said land or owners thereof, and the taxes are paid for the year of 20_____, and prior years, and there are no outstanding tax sales certificates against said land, and no tax deeds are issued to any person, and there are no liens, or other encumbrances of any kind against the land included in the annexed plat, except, mortgages, rights of way, easements, and mineral conveyances of record.

In witness whereof, said Bonded Abstractor has caused this instrument to be executed this _____ day of _____, 2019.

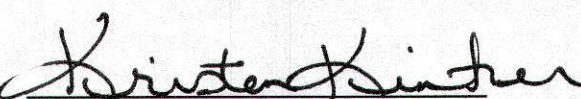
PROFESSIONAL SURVEYOR'S CERTIFICATE

I, Randall A. Mansfield, do hereby certify that I am a Licensed Professional Land Surveyor in the State of Oklahoma, and that the annexed plat, consisting of two (2) sheets, represents a survey made under my supervision on the _____ day of _____, 2019, and that monuments shown thereon exist and their positions are correctly shown and this survey meets the Oklahoma Minimum Standards for the Practice of Land Surveyors as adopted by the Oklahoma State Board of Licensure for Professional Engineers and Land Surveyors and the original media of said annexed plat Final Plat complies with the requirements of Title 11 Section 41-108 of the Oklahoma State Statutes.


Randall A. Mansfield, PLS 1613

STATE OF OKLAHOMA
SS
COUNTY OF OKLAHOMA

This instrument was acknowledged before me on the _____ day of _____, 2019, by Randall A. Mansfield.


Notary Public

My Commission Expires: 2/13/23 Commission Number: 15001535



PLAT PERIMETER DESCRIPTION

A tract of land lying in the West Half of the Southwest Quarter (W/2 SW/4) of Section Thirty-two (32), Township Eleven (11) North, Range Four (4) East of the Indian Meridian, Pottawatomie County, Oklahoma being more particularly described as follows:

COMMENCING at southwest corner of said Southwest Quarter;

THENCE North 89°26'29" East, along the south line of said Southwest Quarter, a distance of 150.08 feet to a point on the east right of way line of Harrison Avenue (State Highway 18) as established by WARRANTY DEED recorded in Book 400, Page 329;

THENCE along said right of way line, the following Five (5) courses:

1. North 00°42'25" West, passing at a distance of 50.00 feet the southwest corner of Lot 1, DOMINO PLAZA ADDITION SECTION 1, recorded in Plat Cabinet C, Page 191, and continuing along the west line of Lot 1 and Lot 2 of said plat for a total distance of 704.00 feet;
2. South 89°17'35" West a distance of 10.00 feet to a point on said right of way line as established by DEDICATION DEED PUBLIC HIGHWAY recorded in Book 164, Page 106;
3. North 00°42'25" West, passing at a distance of 26.77 feet the southwest corner of Common Area 'B' of said DOMINO PLAZA ADDITION SECTION 1, and continuing for a total distance of 190.23 feet to the northwest corner of said Common Area 'B' and the POINT OF BEGINNING;
4. Continuing North 00°42'25" West a distance of 764.29 feet;
5. North 10°13'16" East a distance of 191.27 feet;

THENCE North 89°17'35" East a distance of 278.92 feet to a point of curvature;

THENCE Easterly along a curve to the left having a radius of 458.08 feet (said curve subtended by a chord which bears North 86°07'50" East a distance of 50.54 feet) for an arc distance of 50.57 feet;

THENCE South 00°01'41" West, parallel with the west line of said Southwest Quarter, a distance of 936.91 feet to the northeast corner of said Common Area 'B';

THENCE along the northerly line of said Common Area 'B', the following Three (3) courses:

1. South 89°17'09" West a distance of 100.00 feet;
2. South 00°01'41" West a distance of 18.00 feet;
3. South 89°17'04" West a distance of 253.40 feet to the POINT OF BEGINNING.

Said described tract of land contains an area of 337,114 square feet or 7.7391 acres, more or less.

The bearing of North 89°26'29" East as the south line of the Southwest Quarter of Section 32, Township 11 North, Range 4 East of the Indian Meridian as shown on the plat of DOMINO PLAZA ADDITION SECTION 1 was used as the basis of bearings for this plat.

OWNERS NOTARY

OWNERS NOTARY

OWNERS NOTARY

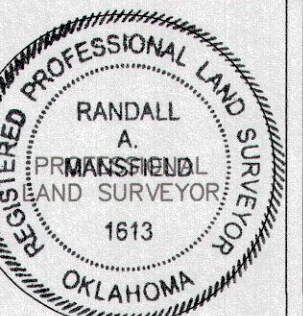
OWNERS NOTARY

CITY CLERK

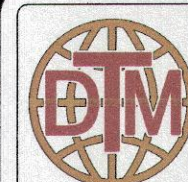
COUNTY TREASURER

ABSTRACTOR

ABSTRACTOR'S NOTARY



SURVEYOR'S NOTARY



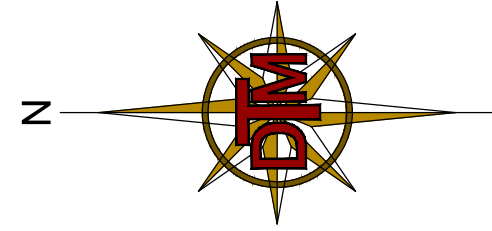
DODSON - THOMPSON - MANSFIELD, PLLC

20 NE 38th Street Phone: 405-601-7402 email: randyn@dtm-ok.com
Oklahoma City, OK 73105 Fax: 405-601-7421

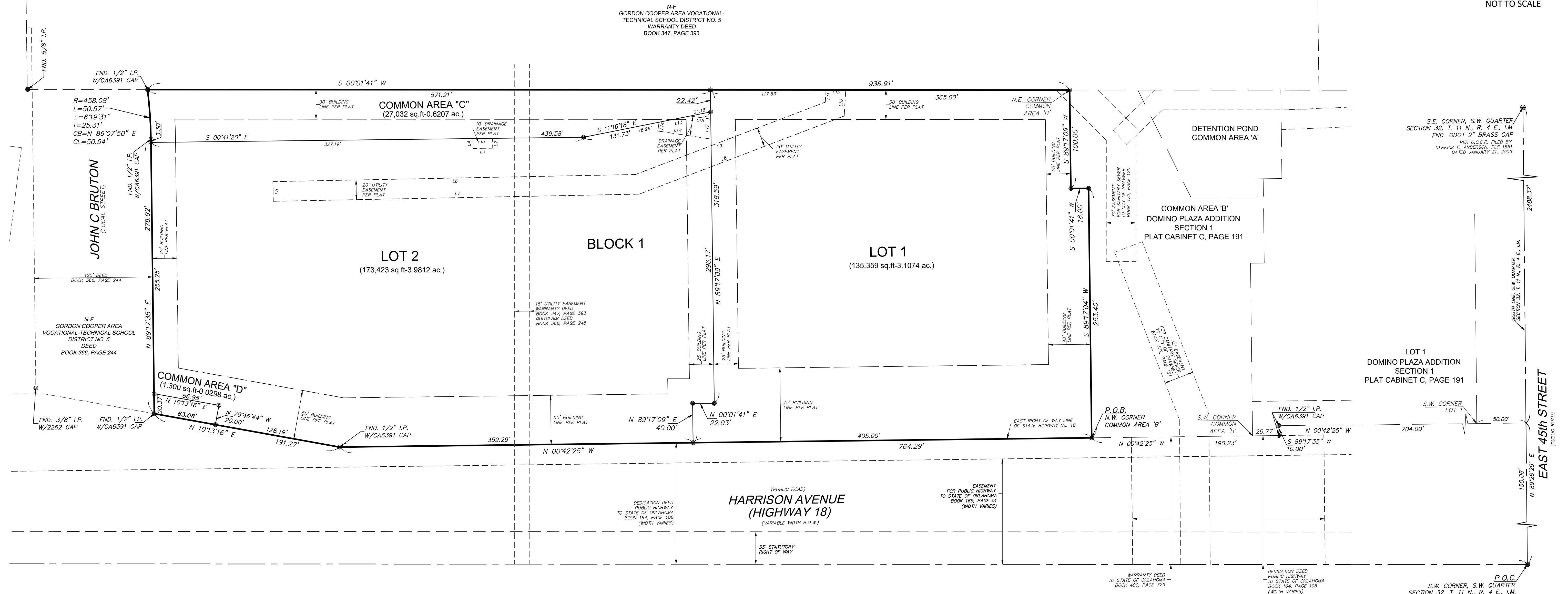
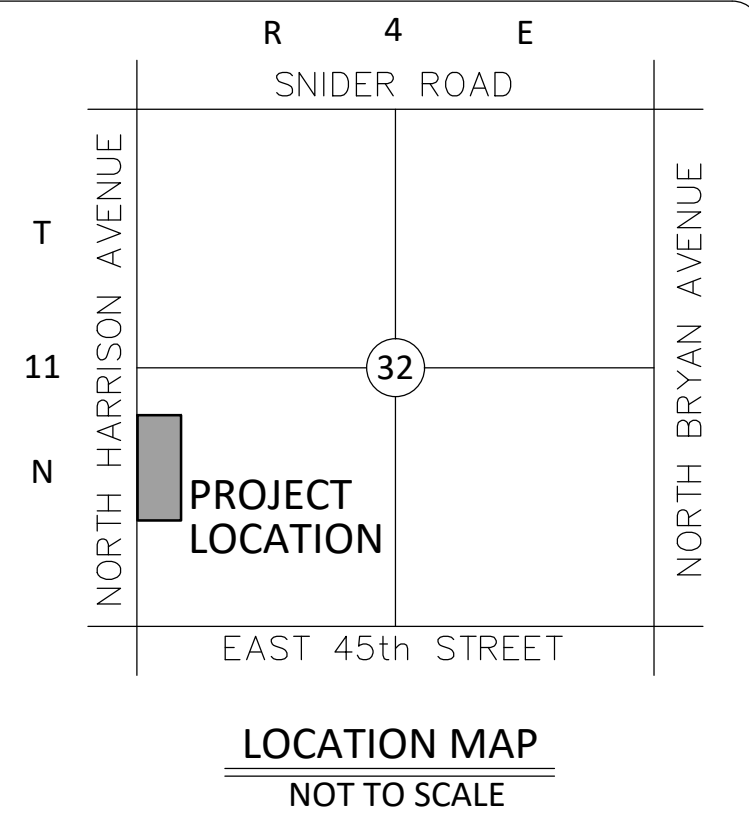
Surveying - Engineering - Earthwork

CERTIFICATE OF AUTHORIZATION NO: 6391 EXPIRES JUNE 30, 2020

Sheet: 1 of 2



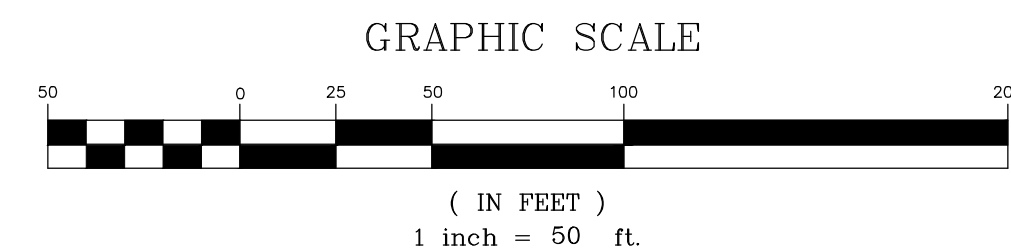
AMENDED FINAL PLAT
DOMINO PLAZA ADDITION SECTION 2
A Part of the West Half of the S.W. Quarter, Section 32, T. 11 N., R. 4 E., I.M.
Shawnee, Pottawatomie County, Oklahoma



Easement Line Table		
Line #	Direction	Length
L1	S 00°41'20" E	20.00
L2	S 89°17'35" W	10.00
L3	N 00°41'20" W	20.00
L4	N 89°17'35" E	10.00
L5	N 88°52'34" E	20.00
L6	S 01°10'26" E	368.55
L7	N 01°10'26" W	372.03
L8	N 20°52'21" W	222.74
L9	S 20°52'21" E	206.39
L10	N 86°25'32" W	26.56

Easement Line Table		
Line #	Direction	Length
L11	S 86°25'32" E	12.44
L12	S 00°10'41" W	20.04
L13	S 11°16'18" E	32.29
L14	S 81°24'52" E	9.03
L15	N 08°35'08" E	54.75
L16	S 08°35'08" W	21.10
L17	S 89°17'09" W	20.27

UNLESS OTHERWISE STATED ALL MONUMENTS ARE SET 1/2" IRON PINS WITH CA6391 CAPS OR SET MAG NAILS WITH CA6391 TAGS



DODSON - THOMPSON - MANSFIELD, PLLC
20 NE 38th Street Phone: 405-601-7402 email: randym@dtm-ok.com
Oklahoma City, OK 73105 Fax: 405-601-7421
Surveying - Engineering - Earthwork
CERTIFICATE OF AUTHORIZATION NO: 6391 EXPIRES JUNE 30, 2020

[illegible][illegible]

A PART OF THE SW/4 OF SEC. 32, T-11-N, R-4-E, I.M.
SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA

A PART OF THE SW/4 OF SEC. 32, T-11-N, R-4-E, I.M.
SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA

3. THE CONTRACTOR SHALL SATISFY HIMSELF CONCERNING THE ACCURACY OF ALL MEASUREMENTS BEFORE COMMENCING ANY PERMANENT STRUCTURE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH SURFACE AND SUB-SURFACE CONDITIONS. THE BASE BID AS SHOWN IN THE PROPOSAL SHALL INCLUDE COSTS FOR UNCLASSIFIED EXCAVATING OF EARTH AND ROCK, FOR DE-WATERING AND STABILIZING UNSUITABLE SOILS SUCH AS QUICKSAND OR OTHER UNSUITABLE MATERIALS AND FOR ANY OTHER HAZARD THAT MAY BE ENCOUNTERED.
3. ALL SANITARY SEWER TRENCHES BETWEEN LOTS AND IN STREET RIGHT-OF-WAY SHALL BE BACKFILLED IN ACCORDANCE WITH CITY OF SHAWNEE STANDARD SPECIFICATIONS FOR SANITARY SEWERS.
4. MANHOLE TOP OF RIM ELEVATIONS SHOWN IN THE PLANS ARE APPROXIMATE ONLY. CONSTRUCT MANHOLES WITH NECESSARY HEIGHT TO LEAVE THE RIM 0.50 FEET ABOVE THE FINISHED GRADE OR 3" ABOVE THE TOP OF CURB.
5. CRUSHED ROCK SHALL BE USED ONLY FOR BEDDING OF ALL PIPES. LOCATIONS WHERE CRUSHED ROCK IS USED MUST BE SHOWN ON THE WYE SHEETS. CRUSHED ROCK TICKETS SHALL BE TURNED INTO CEDAR CREEK CONSULTING IN ORDER TO RECEIVE PAYMENT. THE MAXIMUM PAY QUANTITY FOR CRUSHED ROCK IS THAT QUANTITY REQUIRED TO FILL A NEAT MINIMUM WIDTH DITCH, LISTED IN THE TRENCH WIDTH TABLE, FROM 6" BELOW THE FLOWLINE OF THE PIPE TO 6" ABOVE THE TOP OF PIPE.
6. SAND BACKFILL SHALL BE PLACED IN ALL DITCHES UP TO THE GROUND LEVEL WHERE LINES CROSS UNDER PROPOSED OR EXISTING PAVING. SAND BACKFILL SHALL BE COMPACTED BY WATER CONSOLIDATION. THE MAXIMUM PAY QUANTITY FOR SAND BACKFILL IS THAT QUANTITY REQUIRED TO FILL A NEAT MINIMUM WIDTH DITCH, LISTED IN THE TRENCH WIDTH DETAIL, FROM THE FLOWING OF THE PIPE TO THE PAVEMENT SUBGRADE ELEVATION, TO 5' BACK OF CURB ON EACH SIDE OF THE STREET. ANY ADDITIONAL SAND REQUIREMENTS ARE CONSIDERED INCIDENTAL. IN ORDER TO RECEIVE PAYMENT FOR SAND, THE DELIVERY TICKETS MUST BE ATTACHED TO THE INVOICE FORWARDED TO CEDAR CREEK CONSULTING FOR REVIEW.
7. ALL FILL AREAS TO BE 95% STANDARD PROCTOR DENSITY AND SHALL BE PLACED AND COMPACTED IN SIX (6") INCH LIFTS FOR HAND-TAMPED EQUIPMENT AND THIRTY (30") INCH LIFTS FOR SELF-PROPELLED OR POWER-DRIVEN EQUIPMENT TO THE FOLLOWING MINIMUM PERCENT OF STANDARD PROCTOR DENSITY OR RELATIVE DENSITY AS DETERMINED BY ASTM D-698, "TESTS FOR MOISTURE-DENSITY RELATIONS OF SOILS AND SOIL-AGGREGATE MIXTURES", AND ASTM D-2049, "TESTS FOR RELATIVE DENSITY OF COHESIONLESS SOILS", RESPECTIVELY. ASTM-D698 TEST SHALL BE CONDUCTED ON COHESIVE OR FINE-GRAINED SOILS, WHERE ASTM TEST D-2049 SHALL BE PERFORMED ON COHESIONLESS (GRANULAR) SOILS. COHESIVE BACKFILL MATERIAL SHALL REACH THE INDICATED COMPACTION LEVELS AT PLUS OR MINUS THREE (3%) PERCENT OF OPTIMUM MOISTURE CONTENT. THE LIFT THICKNESS SHALL BE REDUCED, IF NECESSARY, TO MEET THE COMPACTION REQUIREMENTS SPECIFIED HEREIN.
8. ALL WORK AND/OR MATERIALS NOT CLASSIFIED AS A "CONTRACT PAY ITEM" SHALL BE CONSIDERED INCIDENTAL AND THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS WHICH ARE CLASSIFIED FOR PAYMENT.
9. ALL SANITARY SEWER BY-PASS LINES SHALL BE FREE FROM ANY LEAKS AS TO ELIMINATE CONTAMINATION DURING BY-PASS OPERATIONS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL EROSION CONTROL DEVICES DAMAGED DUE TO CONSTRUCTION.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROMPT REPLACEMENT AND/OR REPAIR OF ALL TRAFFIC CONTROL DEVICES AND APPURTENANCES DAMAGED DUE TO CONSTRUCTION.
12. A COPY OF THE EROSION CONTROL SITE PLAN MUST BE ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE INSPECTOR UPON REQUEST.
13. A STORM WATER DISCHARGE PERMIT IS REQUIRED BEFORE ANY LAND DISTURBING ACTIVITY CAN BEGIN.
14. CONSTRUCTION ACTIVITIES THAT RESULT IN LAND DISTURBANCE OF EQUAL TO OR GREATER THAN ONE (1) ACRE, OR LESS THAN ONE (1) ACRE IF IT IS A PART OF A LARGER COMMON PLAN OF DEVELOPMENT OR SALE THAT TOTAL AT LEAST ONE (1) ACRE MUST ALSO OBTAIN A PERMIT FROM ODEQ (FORM 805-0029) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. THIS MEANS THAT LAND DISTURBING OF ONE (1) ACRE OR MORE MUST PERMIT WITH ODEQ AND THE CITY OF SHAWNEE STORM WATER QUALITY.
15. FINAL CLEAN UP - UPON COMPLETION OF THE WORK AND BEFORE ACCEPTANCE AND FINAL PAYMENT WILL BE MADE, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL MACHINERY AND EQUIPMENT, AND ANY SURPLUS AND DISCARD MATERIALS, RUBBISH, TEMPORARY STRUCTURES AND STUMPS OR PORTIONS OF TREES. MATERIALS CLEARED FROM THE SITE MUST BE DISPOSED OF SATISFACTORILY.

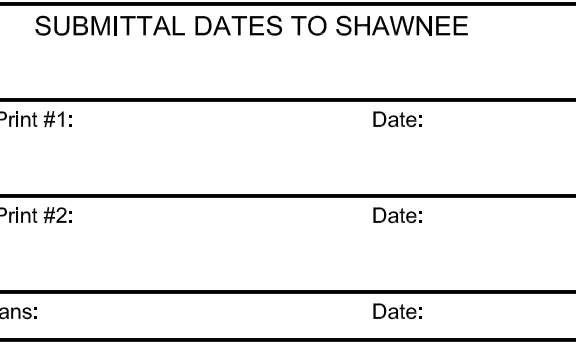
L5 Construction
7725 W Reno Ave #398,
Oklahoma City, OK 73127

LOCATION MAP
SCALE: 1" = 2000'

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
C1.00	COVER SHEET
C4.00	SANITARY SEWER LINE PLAN AND PROFILE
STANDARD SHEET 1	CITY OF SHAWNEE MANHOLE DETAIL

ONE CALL UTILITY LOCATION NUMBER

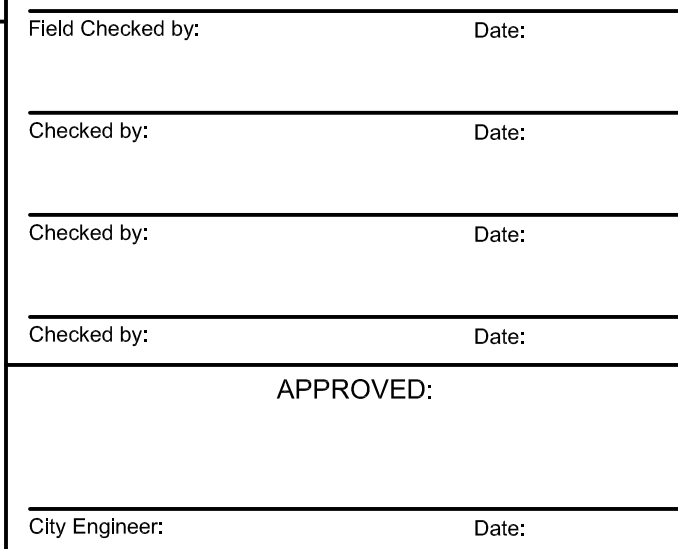
This number is to be used for information on the location of all underground utilities. Contact this number and other numbers specified in the plans prior to any excavation.



Jon Doyle

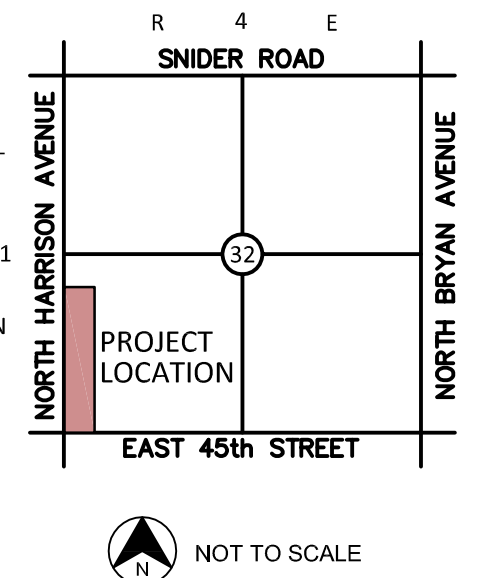
REGISTERED PROFESSIONAL ENGINEER

DATE: 12.31.2017



CEDAR CREEK PROJECT: 15085

LOCATION MAP:



PROJECT:
**DOMINO PLAZA
45TH &
HARRISON**

SHAWNEE, OKLAHOMA

PROJECT NUMBER: 15085
DRAWING DATE: 04.14.17
ISSUE DATE: 04.14.17

SEAL:



SUBMITTAL:

REVIEW SET

REVISIONS:

MARK DATE DESCRIPTION

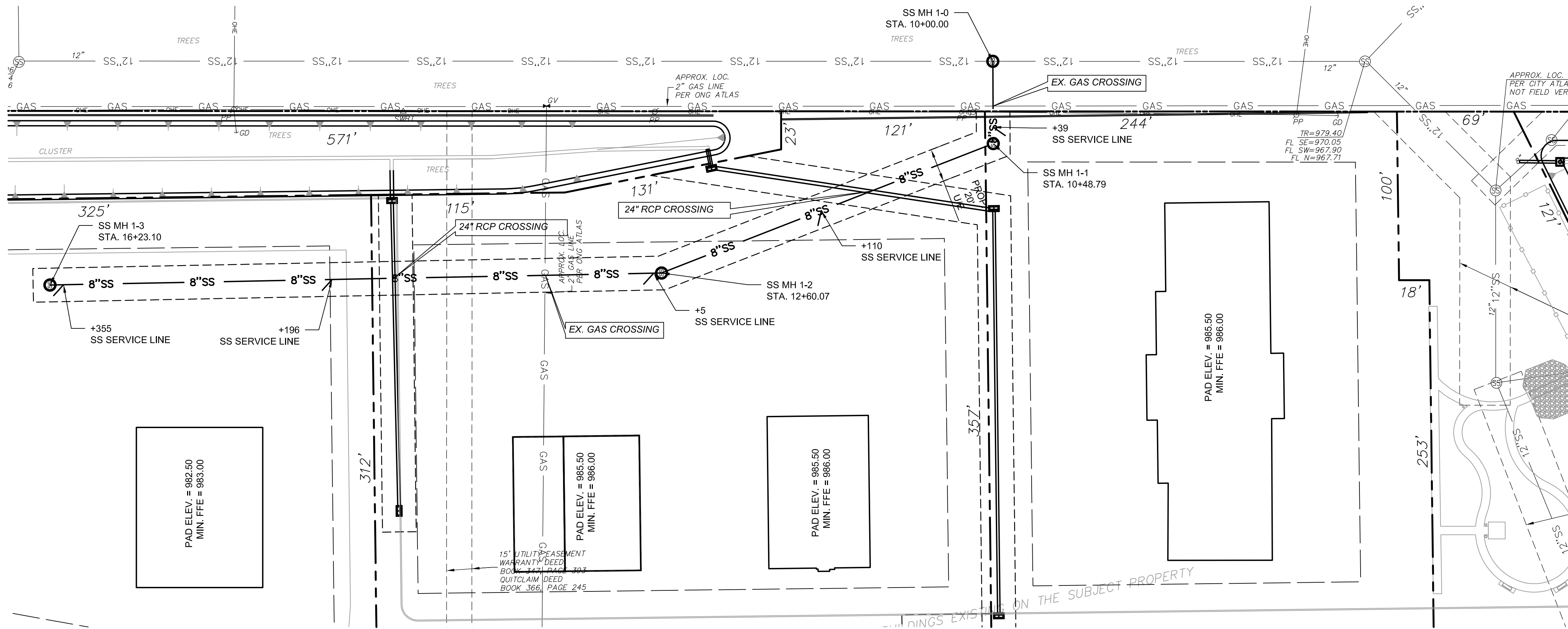
THESE PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER, WHATSOEVER, WITHOUT FIRST OBTAINING THE WRITTEN PERMISSION AND CONSENT OF CEDAR CREEK CONSULTING INC. THIS SHEET IS NOT TO BE USED FOR CONSTRUCTION UNLESS THE ISSUE DATE IN THE TITLE BLOCK COINCIDES WITH OR POST DATES THE DRAWING DATE. ANY CHANGES MADE FROM THESE PLANS WITHOUT CONSENT OF CEDAR CREEK CONSULTING INC. ARE UNAUTHORIZED, AND SHALL RELIEVE CEDAR CREEK CONSULTING OF RESPONSIBILITY FOR ALL CONSEQUENCES ARISING OUT OF SUCH CHANGES.

DRAWING TITLE:

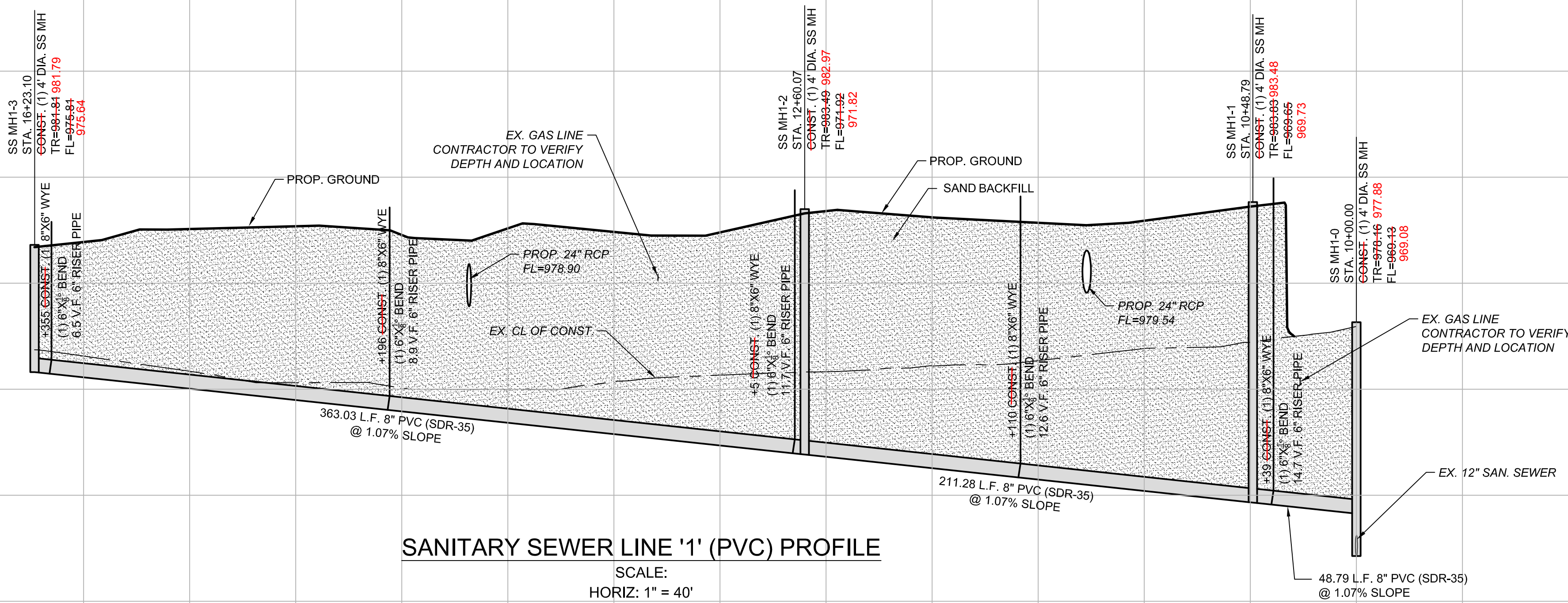
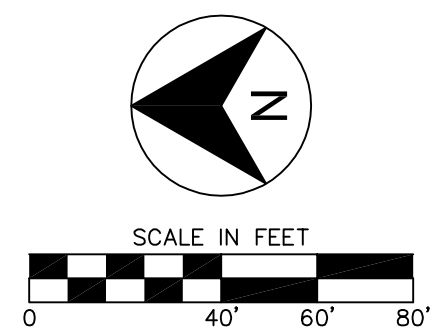
**SANITARY
SEWER
PLAN &
PROFILE**

SHEET:

C4.00

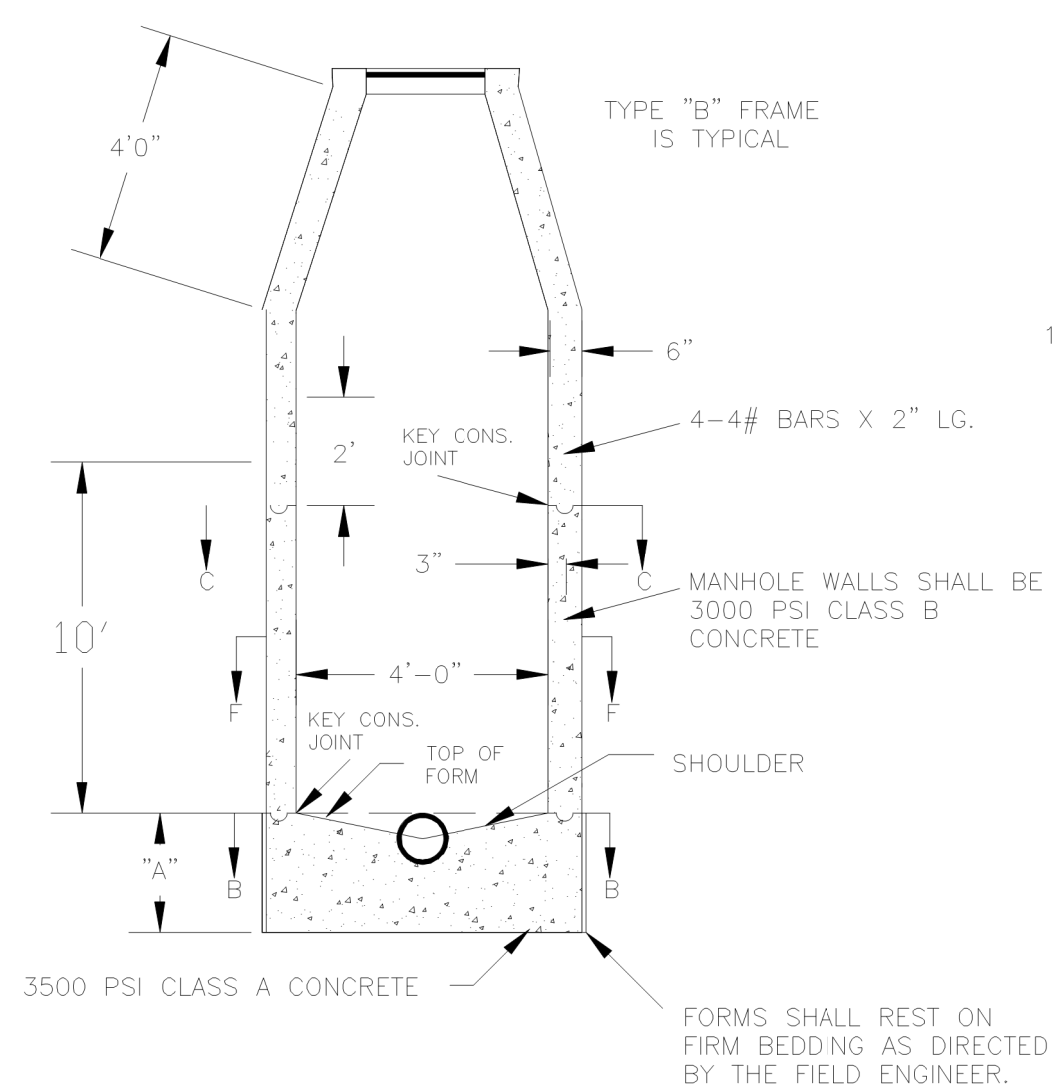


SANITARY SEWER LINE '1' PLAN
SCALE: 1" = 40'

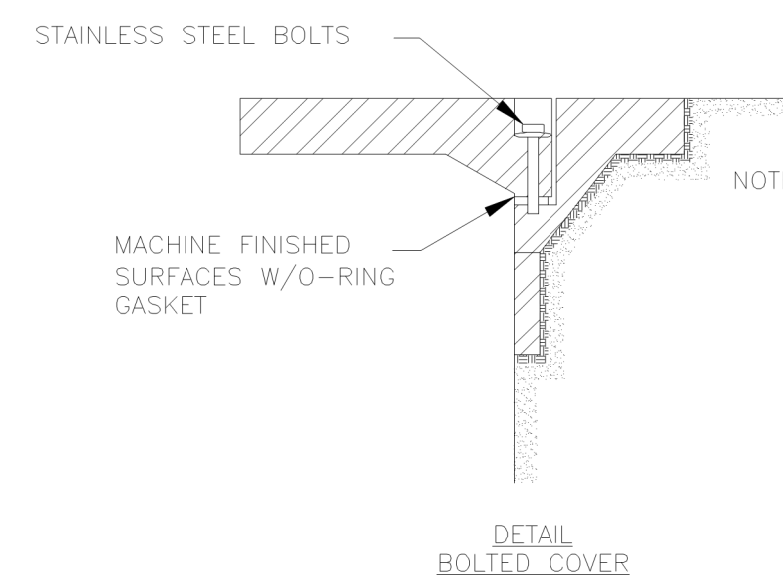
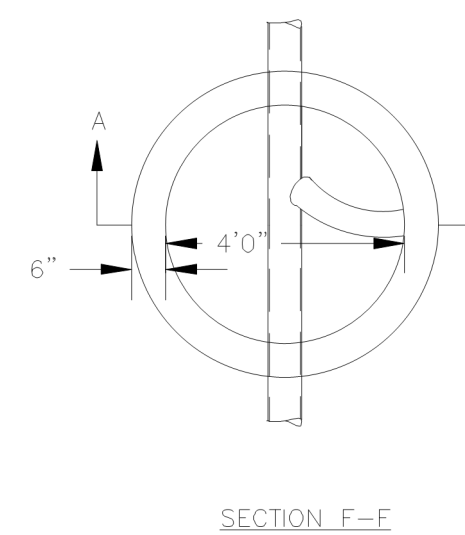
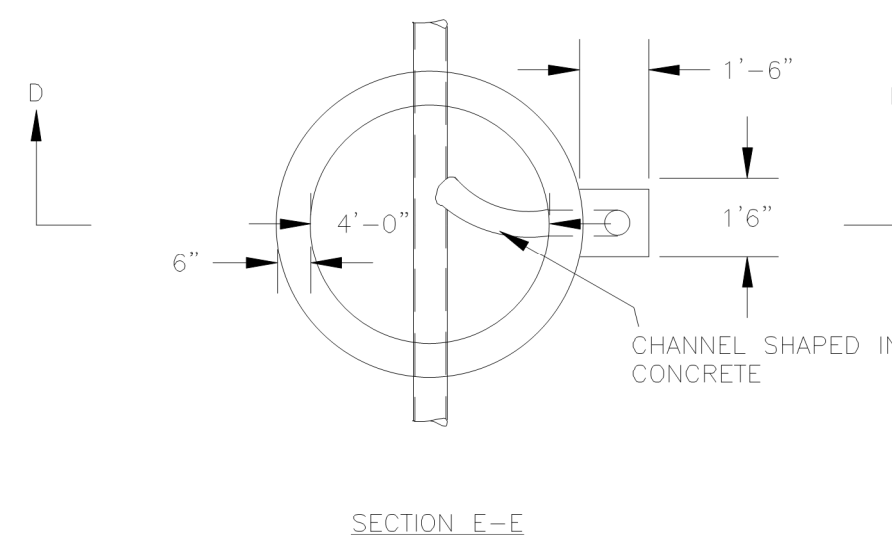
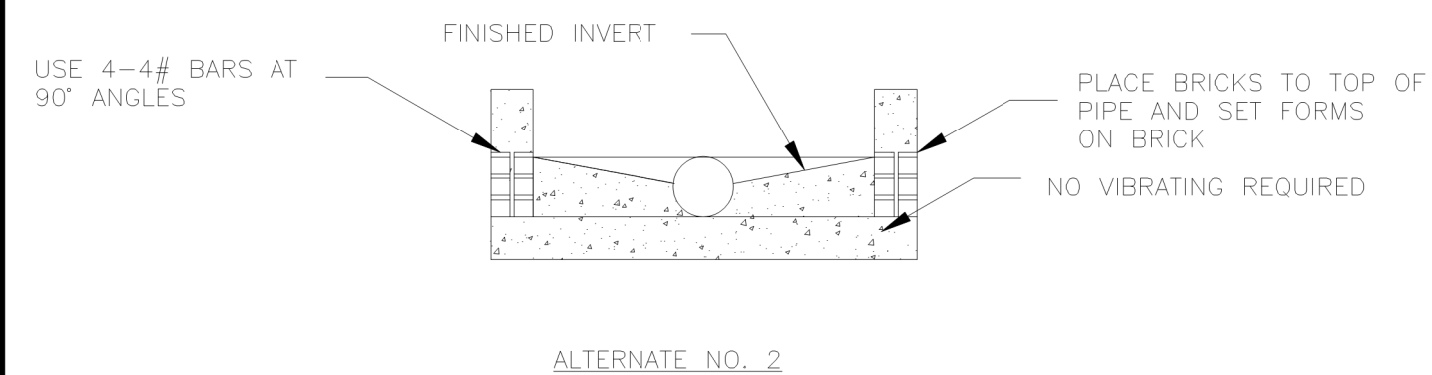
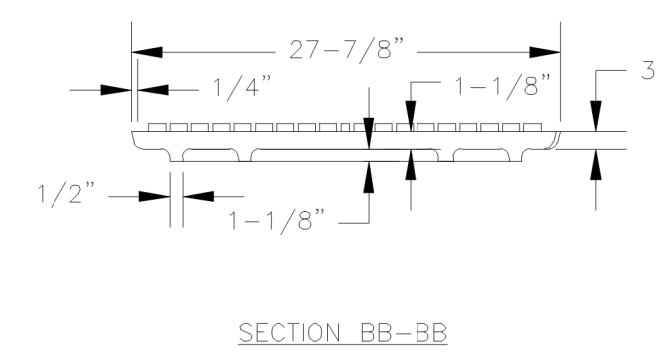
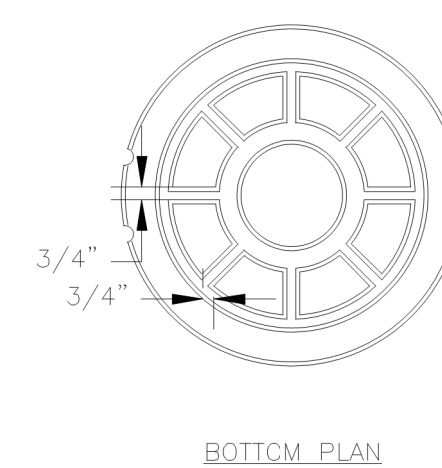
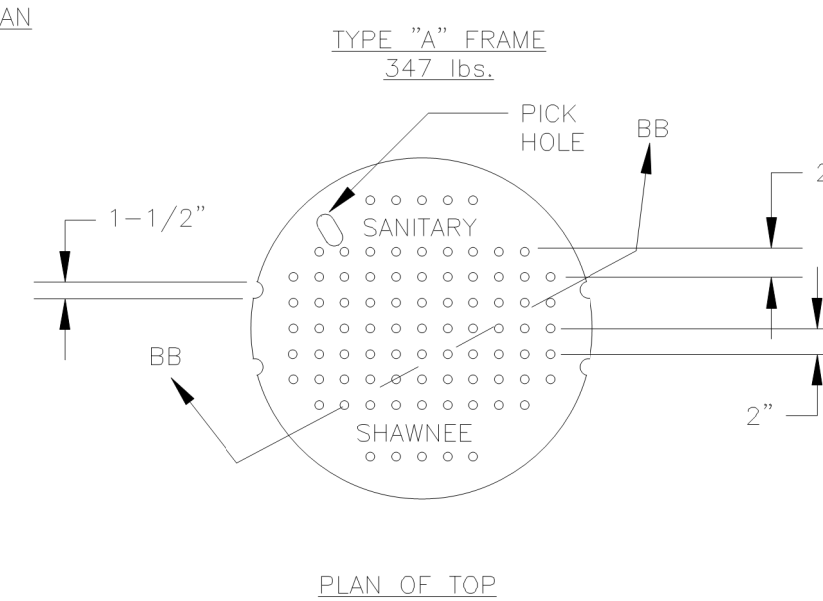
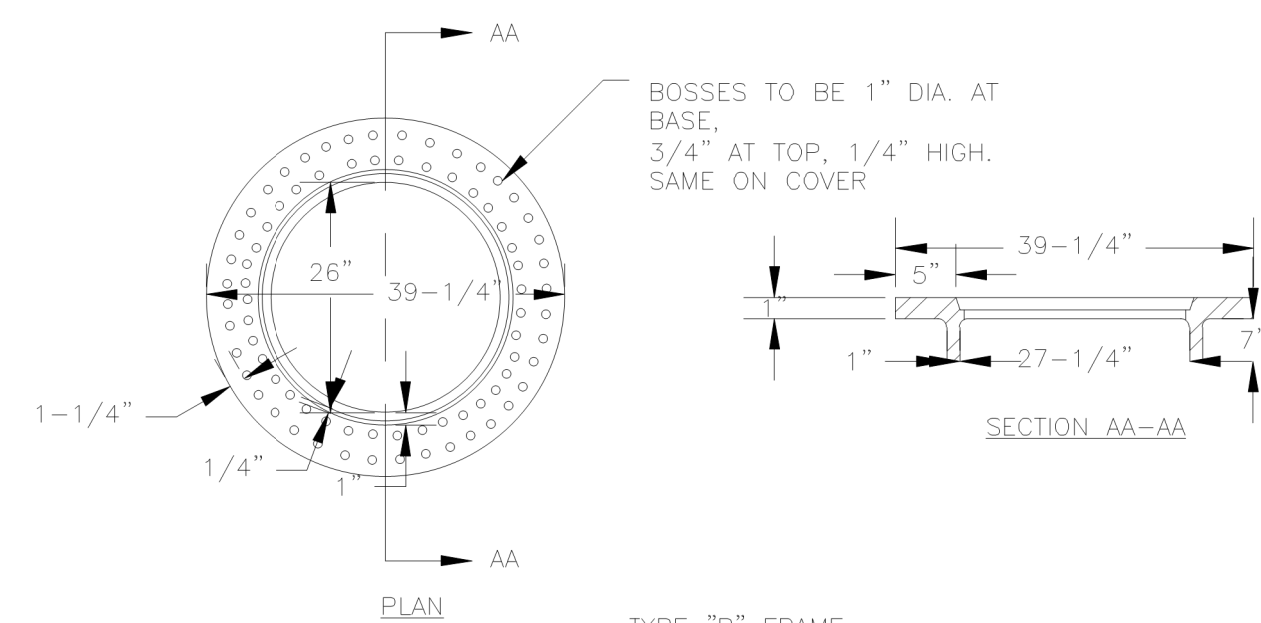
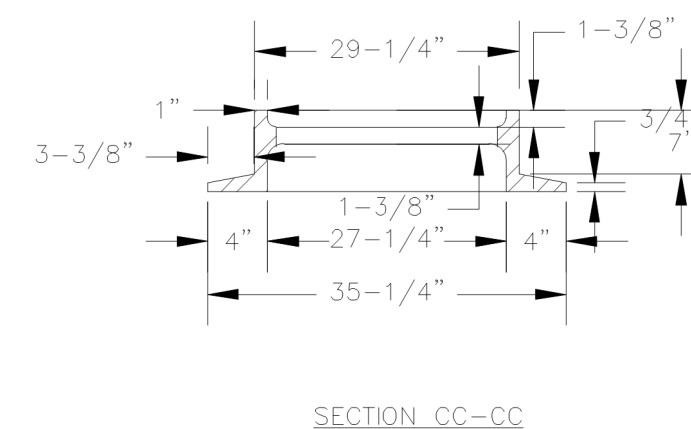
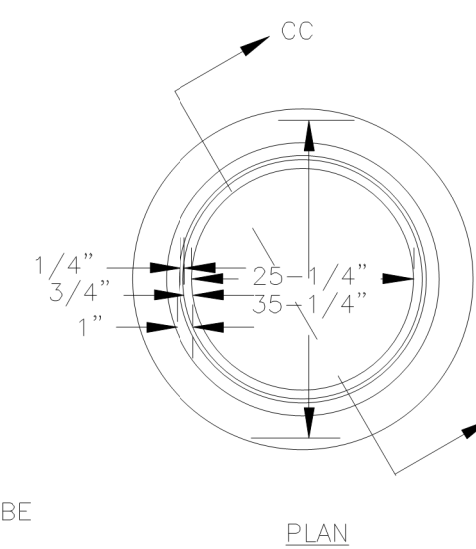


SANITARY SEWER LINE '1' (PVC) PROFILE
SCALE:
HORIZ: 1" = 40'
VERT: 1" = 4'

As-Built 4/29/19

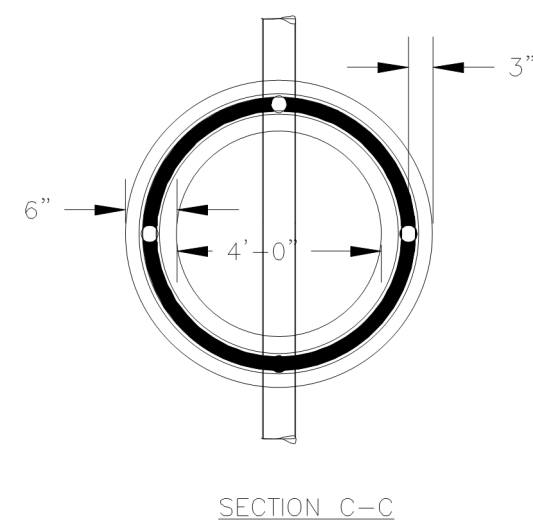
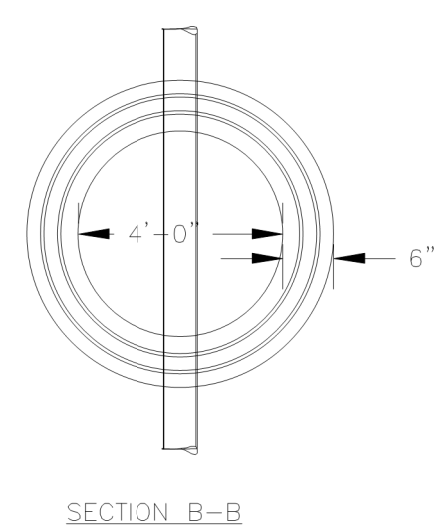
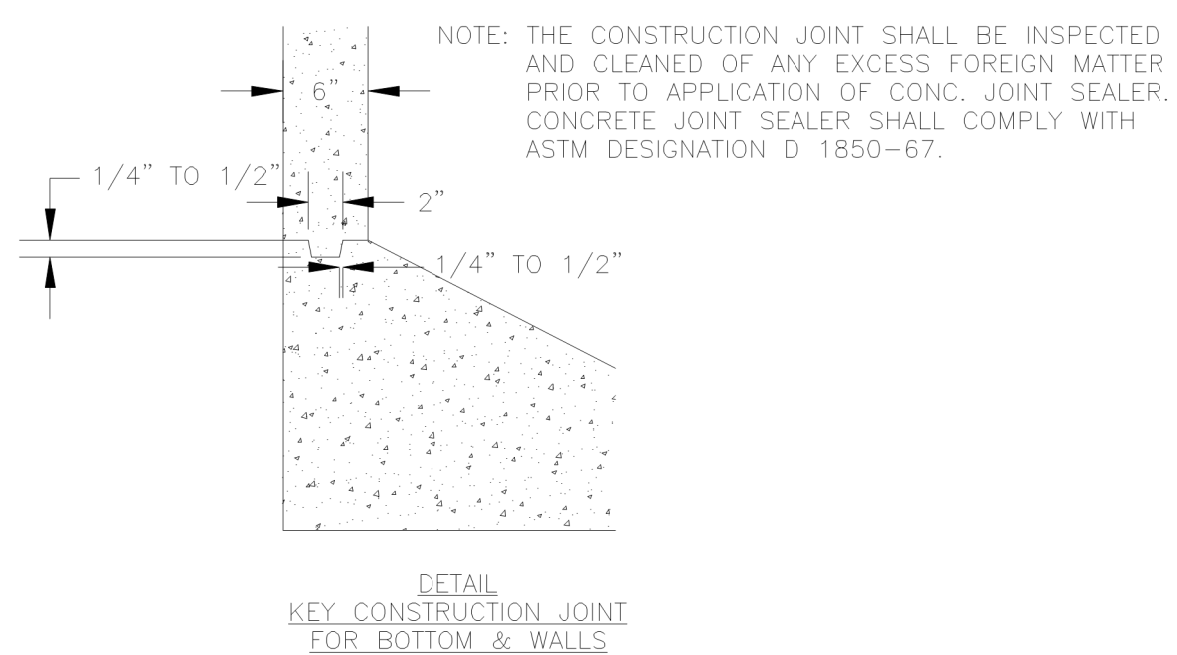


SCHEDULE OF THICKNESS	
PIPE DIA.	DIM. "A"
8"	1'6"
10"	1'8"
12"	1'11"
15"	2'2"
18"	2'6"
21"	2'10"
24"	3'1"

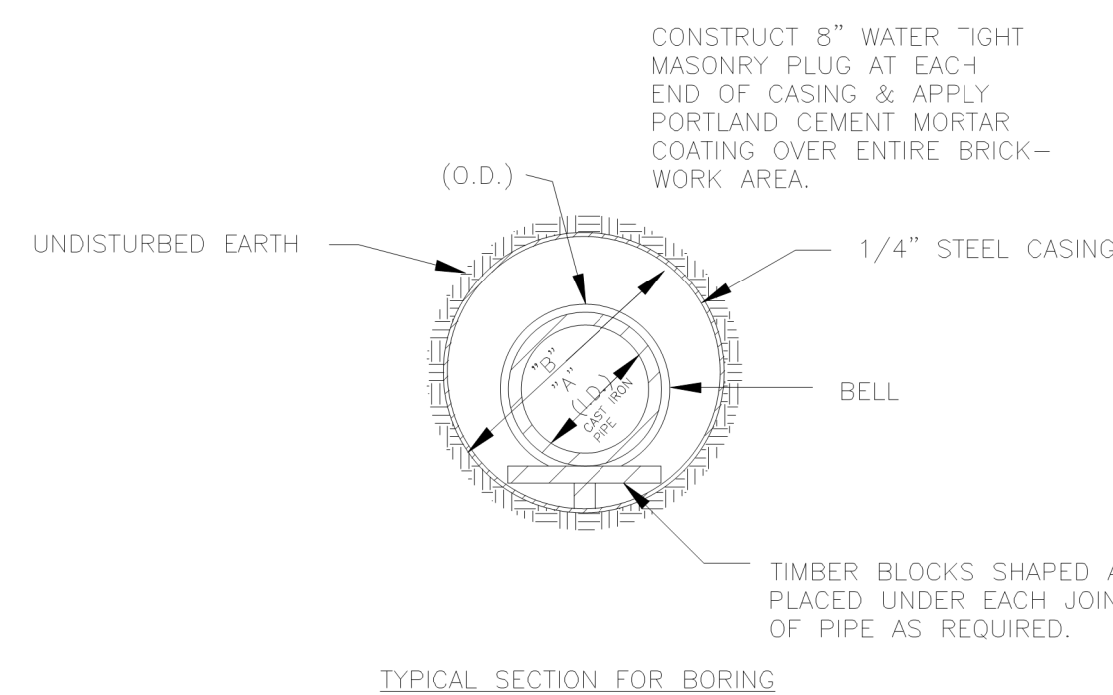
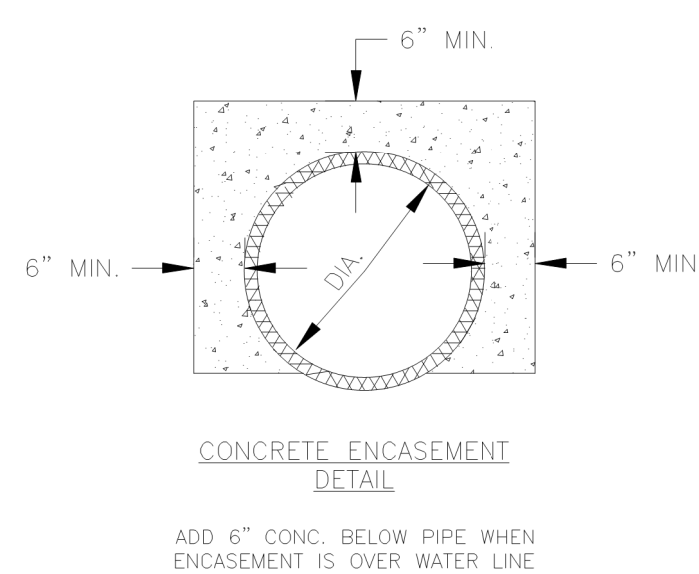


NOTE: MANHOLES WITH BOLTED COVERS SHALL COMPLY WITH THE REQUIREMENTS OF MANHOLE AND COVER TYPE "B."
COVERS SHALL BE FURNISHED WITH SIX EQUALLY SPACED STAINLESS STEEL BOLTS.

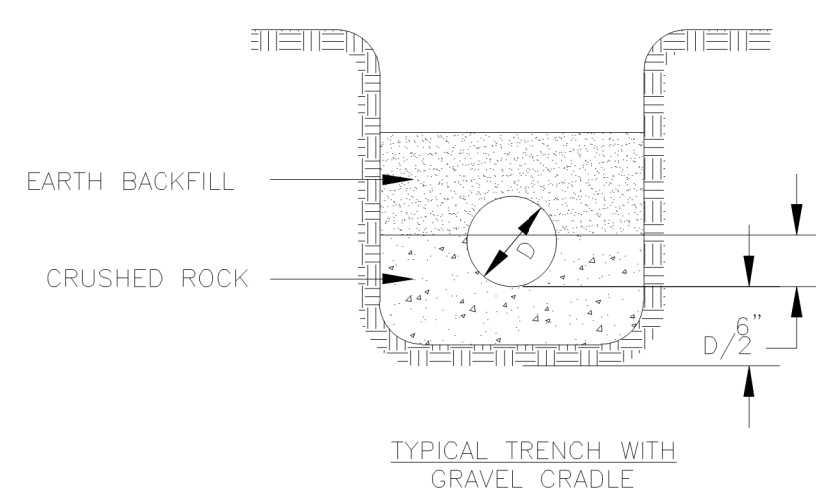
1. THIS MANHOLE IS STANDARD ONLY FOR SEWERS 36" IN DIAMETER OR LESS PROVIDED THAT AT JUNCTION POINTS, SPECIAL MANHOLES MAY BE REQUIRED FOR SEWERS SMALLER THAN 36" IN DIAMETER.
2. INTERIOR SURFACES OF ALL MANHOLE WALLS SHALL RECEIVE TWO COATS OF BLACK SEWER PIPE TYPE PAINT, A MIN. INTERVAL OF 24 HRS. SHALL ELAPSE BETWEEN COATS.
3. FORMS SHALL BE PROVIDED FOR THE SHAPING AND FINISHING OF THE MANHOLE BOTTOM. A MIN. INTERVAL OF 24 HRS. SHALL ELAPSE PRIOR TO POURING OF MANHOLE WALLS.
4. MORTAR FOR FINISHING AND SEALING SHALL BE CLASS "C." ANY HONEY-COMBING OF CONCRETE LESS THAN 2" DEEP IN 6" MANHOLE WALLS MAY BE REPAIRED USING CLASS "D" MORTAR.
5. CONCRETE POURS (ACTUAL VERTICAL DROP OF CONCRETE) FOR HEIGHT OF MANHOLE WALLS SHALL NOT EXCEED 10'. AT THIS INTERVAL A CONSTRUCTION JOINT WILL BE REQUIRED WHEN PLACING THIS MIX.
6. MONOLITHIC POURS OF THE MANHOLE BOTTOM AND WALLS SHALL BE PERMITTED PROVIDED THAT ALL CONCRETE (BOTTOM & WALLS) IS VIBRATED ACCORDING TO THE SPECIFICATIONS FOR THE CONSTRUCTION OF SANITARY SEWERS AND APPURTENANCES.
7. THE FOLLOWING ALTERNATE CONCRETE MIX WILL BE PERMITTED:
MIX DESIGN 3,000 LB. PUMP MIX, 1,460 LB. OF ROCK, 1,700 LB. OF SAND, 5-1/2 BAGS OF CEMENT OR 517 lbs., AND SUFFICIENT WATER TO PRODUCE A 4" SLUMP. NO VIBRATION IS REQUIRED WHEN PLACING THIS MIX.



CONCRETE ENCASEMENT DETAIL	
PIPE SIZE	CU. YD. CONC. PER L.F. ENCASEMENT
8"	0.063
10"	0.075
12"	0.0875
15"	0.106
18"	0.127
21"	0.150
24"	0.175
27"	0.197
30"	0.221
33"	0.246
36"	0.271



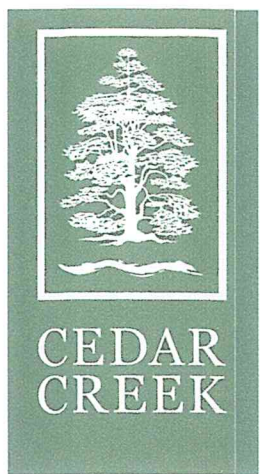
PIPE & STEEL CASING SCHEDULE	
PIPE DIAMETER "A"	CASING DIAMETER "B"
8"	14"
10"	18"
12"	20"
16"	24"
18"	26"
20"	30"
24"	33"



As-Built 4/29/19

MANHOLE DETAIL																			
SURVEY BY: — DRAWN BY: <u>B.H.</u> CHECKED BY: <u>J.R.B.</u>		CITY OF SHAWNEE 222 BROADWAY SHAWNEE, OKLAHOMA																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">REVISED</th> <th style="width: 25%;">DATE</th> <th style="width: 25%;">AS-BUILT</th> <th style="width: 25%;">DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		REVISED	DATE	AS-BUILT	DATE													 ENGINEERING DEPARTMENT	
REVISED	DATE	AS-BUILT	DATE																
ENGINEER	DATE	SCALE	PROJECT NO.																
J.K. —		AS SHOWN	SHEET NO. XX OF XX																

Transmittal



Date: August 2, 2019

Project: Domino Plaza Second Addition

Subject: Amended Final Plat

To: City of Shawnee/ Joseph Barker

We hereby transmit for your:

☐ Approval

☒ Review

☐ Use

The following:

☐ Forms

☒ Report

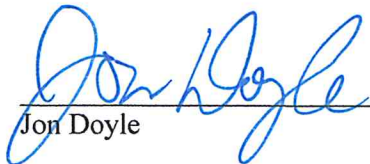
☐ Specifications

☒ Plans

Other

Quantity	Description	No. of Pages
12	Final plat	

Comments:


Jon Doyle

THANK YOU FOR YOUR BUSINESS

FINAL PLAT APPLICATION



City of Shawnee Planning Department

222 N. Broadway
Shawnee, OK 74801
(405) 878-1616 Fax (405) 878-1587
www.ShawneeOK.org

For Office Use Only	
Case Number:	<u>507-19</u>
Project Number:	<u>190413</u>
Date Filed:	<u>5-9-2019</u>
Amount Paid:	<u>231.00</u>
Receipt No.:	<u>02291752</u>

Please provide a submittal letter, 6-24 X 36 maps, 1-8 1/2 x 14 map, 1 electronic map and filing fees upon submitting this application. Please call 878-1616 with any questions.

APPLICANT Shawnee Harrison LLC
APPLICANT ADDRESS 1715 South Hwy 183, Clinton, OK 73601
APPLICANT PHONE NUMBERS 580-331-3711
EMAIL ADDRESS msmith@elmersmithoil.com
NAME OF PLAT Domino Plaza Addition Section 1
LOCATION 45th & Harrison
NUMBER OF ACRES 7.74 NUMBER OF LOTS 2

FOR 2 ACRE LOTS OR GREATER DEVELOPMENTS: FEE: \$225.00
PLUS **\$3.00** PER LOT UP TO FIFTY (50) LOTS NUMBER OF LOTS 2 \$6.00
PLUS **\$1.00** PER LOTS OVER FIFTY (50) LOTS NUMBER OF LOTS _____
TOTAL COST \$231.00

FOR LESS THAN 2 ACRE LOTS: FEE: \$225.00
PLUS **\$2.00** PER LOT UP TO FIFTY (50) LOTS NUMBER OF LOTS _____
PLUS **\$1.00** PER LOTS OVER FIFTY (50) LOTS NUMBER OF LOTS _____
TOTAL COST _____

OWNER/DEVELOPER INFORMATION:

NAME Shawnee Harrison LLC
ADDRESS 1715 South Hwy 183, Clinton, OK 73601
CONTACT NUMBERS 580-331-3711
EMAIL ADDRESS msmith@elmersmithoil.com

PROJECT ENGINEER INFORMATION:

NAME Cedar Creek Engineering (Jon Doyle)
ADDRESS PO Box 14534, Okc, Ok 73113
CONTACT NUMBERS 405-778-3385
EMAIL ADDRESS jdoyle@cedarcreekinc.com

APPLICATION, SITE PLAN, CONSTRUCTION DOCUMENTS, PAYMENT, ETC... MUST BE RECEIVED 30 DAYS PRIOR TO MEETING

CITY of Shawnee OK
405-878-1616

RECH#: 02291752 5/09/2019 11:16 AM
OPER: K6 TERM: 020
REF#: 2453
PAID BY:

TRAN: 401.0000 BUILDING PERMIT
190413 231.00CR
SHAWNEE HARRISON LLC
NONE
X-PLATFIN 231.00CR

TENDERED: 231.00 CHECK
APPLIED: 231.00-

CHANGE: 0.00

Visit www.ShawneeOK.org
For More Information

From: [Joseph A. Barker](#)
To: [Rebecca Blaine](#)
Subject: S07-19 - Staff Report
Date: Wednesday, August 21, 2019 10:33:00 AM
Attachments: [Staff Report - S07-19.docx](#)
[image001.png](#)

Rebecca,

Here is the staff report for Item S07-19. Michael told me earlier this morning that he had Ryan review the sanitary sewer as-built mylar submitted for Domino Plaza, Section 2. Engineering has approved of the Final Plat.

Joseph Barker

Assistant City Planner

[222 N. Broadway](#)

[Shawnee, OK 74801](#)

[\(405\) 878 - 1672](#)

Joseph.Barker@shawneeok.org



From: [Alan Blankenship](#)
To: [Joseph A. Barker](#)
Cc: [Rebecca Blaine](#)
Subject: RE: Domino Plaza Addition, Section 2 Amended Final Plat
Date: Wednesday, August 14, 2019 6:53:31 AM
Attachments: [image001.png](#)

Morning Joseph,

The Domino Plaza amended plat is approved to move forward by the SMA.

From: Joseph A. Barker
Sent: Thursday, August 8, 2019 8:09 AM
To: Alan Blankenship <Alan.Blankenship@shawneeok.org>; Andy Starkey <AStarkey@shawneeok.org>; Brittney Burton <brittney.burton@shawneeok.org>; David Anderson <DAnderson@shawneeok.org>; James Kriwanek <Jkriwanek@shawneeok.org>; Rebecca Blaine <Rebecca.Blaine@shawneeok.org>
Cc: Shalah Black <shalah.black@shawneeok.org>
Subject: Domino Plaza Addition, Section 2 Amended Final Plat

Good morning, everyone,

I have received a digital copy of the most recent revision of the Amended Final Plat of Domino Plaza Addition, Section 2. It is attached to this e-mail.

Joseph Barker

Assistant City Planner
[222 N. Broadway](#)
[Shawnee, OK 74801](#)
[\(405\) 878 - 1672](#)
Joseph.Barker@shawneeok.org



From: [David Anderson](#)
To: [Joseph A. Barker](#)
Subject: RE: Domino Plaza Addition, Section 2 Amended Final Plat
Date: Wednesday, August 14, 2019 4:25:06 PM
Attachments: [image001.png](#)

Joseph,

I'm good with this one also. Thanks.

David

From: Joseph A. Barker <Joseph.Barker@shawneeok.org>
Sent: Thursday, August 8, 2019 8:09 AM
To: Alan Blankenship <Alan.Blankenship@shawneeok.org>; Andy Starkey <AStarkey@shawneeok.org>; Brittney Burton <brittney.burton@shawneeok.org>; David Anderson <DAnderson@shawneeok.org>; James Kriwanek <Jkriwanek@shawneeok.org>; Rebecca Blaine <Rebecca.Blaine@shawneeok.org>
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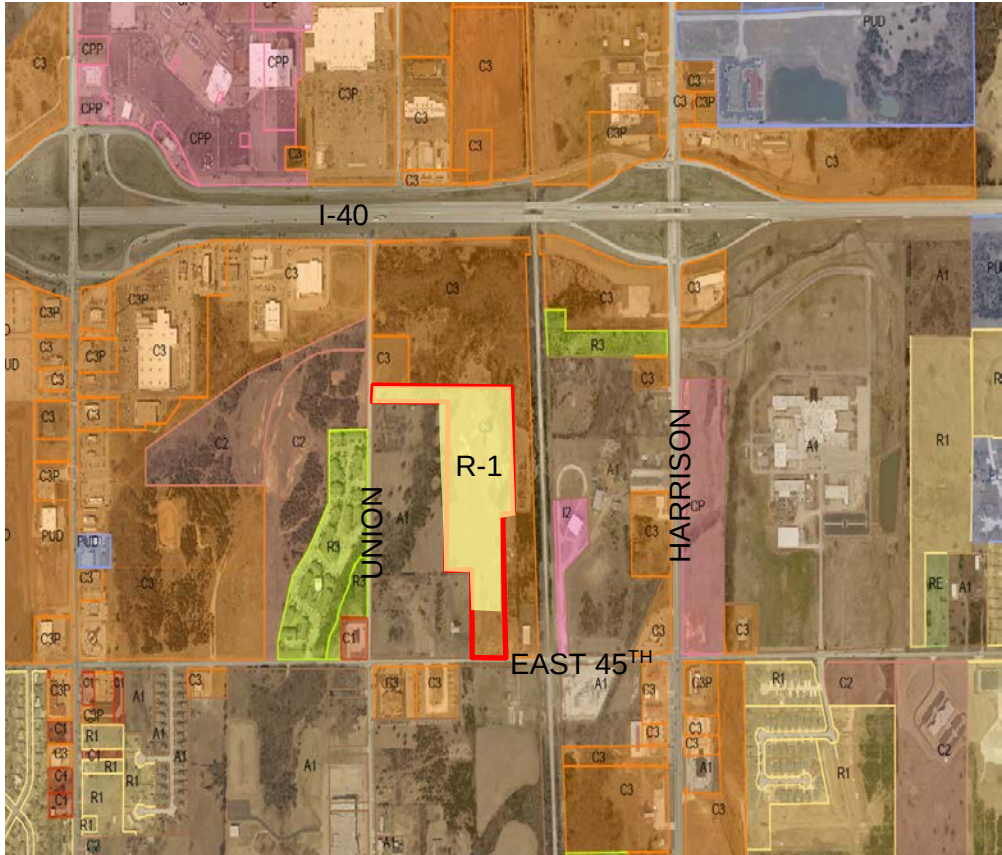
Good morning, everyone,

I have received a digital copy of the most recent revision of the Amended Final Plat of Domino Plaza Addition, Section 2. It is attached to this e-mail.

Joseph Barker

Assistant City Planner
[222 N. Broadway](#)
[Shawnee, OK 74801](#)
[\(405\) 878 - 1672](#)
Joseph.Barker@shawneeok.org



City of Shawnee Planning Department 222. N. Broadway Shawnee, OK 74801 (405) 878-1616 Fax: (405) 878-1587 www.ShawneeOK.org			CASE # S02-19 PUBLIC HEARING DATE: September 4th, 2019 CITY COMMISSION DATE: September 16th, 2019	
APPLICANT: Landes Engineering	903 East 35th Street Shawnee, Oklahoma, 74804		Slandes@landesengineering.net	
PROPERTY ADDRESS/LOCATION: Northeast corner of Union and 45th				
The applicant, Landes Engineering, is requesting preliminary plat approval to divide a 25.16-acre tract of land into 86 lots, 83 of which would be single-family, 2 would be commercial, and 1 would be an outlot for stormwater detention. 23.85 acres of the plat is zoned R-1, and 1.31 acres is zoned C-3. Access would be from East 45th Street. There would be 3.5 dwelling units per acre.				
EXISTING ZONING: R-1 & C-3	EXISTING LAND USE: Vacant	SURROUNDING ZONING & LAND USE: A-1 (Rural Agricultural) C-3 (Highway Commercial)	LOTS: 86	PROPERTY SIZE: 25.16 acres

STAFF RECOMMENDATION

The development is divided into two zones: The roughly south 180 feet of the property will be zoned C-3, while the rest R-1. The R-1 portion of the development is required to abide by the dimensional standards of Table 22-160.4.1, "Density and Dimensional Standards by [Residential] Zone":

- Minimum lot size for each lot is 6,000 square feet – Each proposed lot meets this requirement;
- Minimum lot width for each lot is 60 feet – Each proposed lot meets this requirement;
- Minimum street frontage is 35 feet – Each proposed lot meets this requirement;
- Front yard setbacks are required to be 25 feet (20 feet if a cul de sac lot) – Each proposed lot meets this requirement; and
- Side yard setbacks are required to be 5 feet (15 feet for corner lots) – Each proposed lot meets this requirement.

The lots zoned C-3 are required to abide by the dimensional standards of Table 22-165.4.1, "Density and Dimensional Standards by [Commercial] Zone":

- Minimum lot size for each lot is 10,000 square feet – Each proposed lot meets this requirement;
- Minimum lot width for each lot is 100 feet – Each proposed lot meets this requirement;
- Minimum street frontage is 100 feet – Each proposed lot meets this requirement;
- Front yard setbacks are required to be 25' – Each proposed lot meets this requirement; and
- It should be noted that the side yard setbacks for C-3 lots that abut a residential district is 2' for every 1' of building height.

Preliminary plats are required to abide by the standards of the City of Shawnee Subdivision Regulations. Article VIII, Platting Procedures. Section 2, Preliminary Plat Preparation and Approval Procedure provides a list of documents and information that must be submitted for a preliminary plat to be approved. The submitted plat meets these requirements.

Subsection 2, Certification of Design, requires a preliminary plat to be accompanied by a statement signed by the professional engineer preparing the plat that they have, to the best of their ability, designed the subdivision in accordance with the Comprehensive Plan with which they are completely familiar, and in accordance with the ordinances and regulations governing the subdivision of land. The submitted plat meets this requirement.

Subsection 3, General Requirements, lists basic requirements of a submitted preliminary plat. The submitted plat meets these requirements.

Subsection 4, Contents of Preliminary Plat, provides a list of information required to be shown on any submitted preliminary plat. The submitted plat meets these requirements.

Subsection 5, Statistical Data, lists required statistical data to be provided by the applicant. The submitted plat meets these requirements.

The 2005 Comprehensive Plan designates the future use of this area to be residential and commercial. Thus, the proposed plat aligns with the intentions of the 2005 Comprehensive Plan.

The purpose of the R-1 District is development of single-family dwellings and related recreational, religious, and educational facilities normally required to provide the basic elements of a balanced and attractive residential area. The submitted plat aligns with that purpose. The purpose of the C-3 District is the development of land for establishments

which serve the entire community but do not, and should not necessarily, locate in more restrictive commercial districts. The submitted plat aligns with that purpose.

The Planning Department has received the following feedback from the appropriate agencies:

Engineering/Streets:

No issues.

Shawnee Municipal Authority:

No issues.

Fire Department:

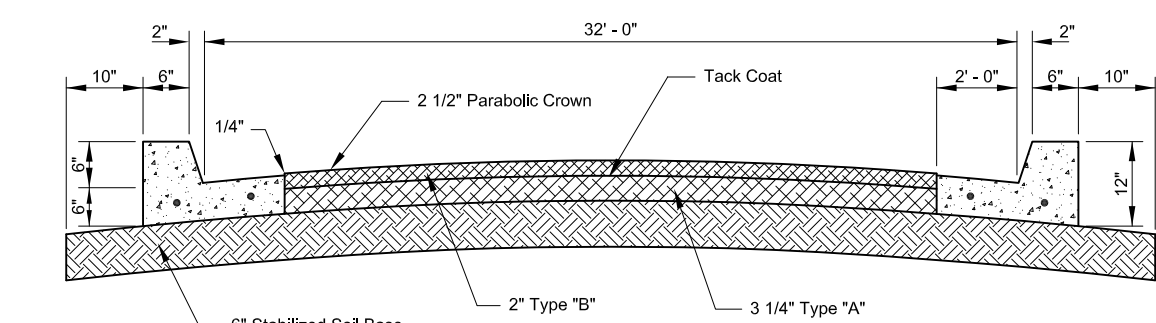
No issues.

The proposed preliminary plat meets all the standards of the City of Shawnee. Staff hereby recommends approval upon the following conditions:

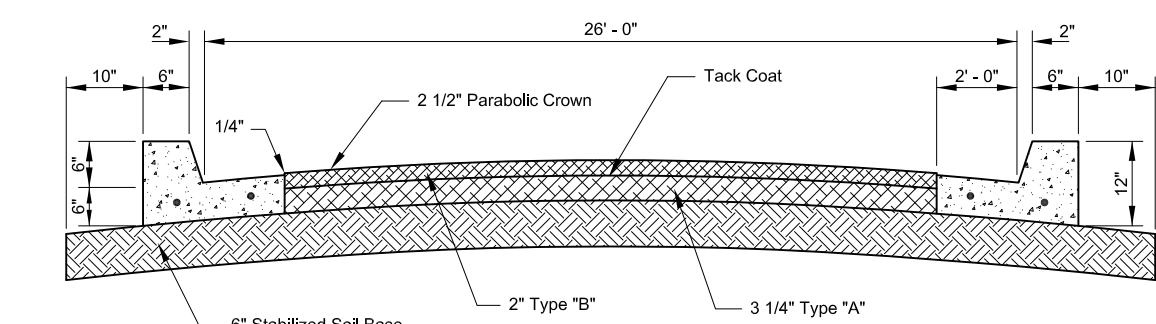
1. Final construction documents must be approved by the City Engineer concurrent with final plat approval;
2. Drainage plans must be approved by the City Engineer concurrent with final plat approval; and
3. All other applicable city standards apply.

APPROVE		APPROVE WITH CONDITIONS		DENY	
ATTACHMENTS: (CIRCLE)	SUBMITTED PLANS	PUBLIC HEARING PETITION/ APPLICATION FORM	LEGAL NOTICE	LEGAL DESCRIPTION	
PUBLIC COMMENTS	AGENCY COMMENTS		RESPONSE TO STANDARDS		

LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (31), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (R4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NORTHWEST CORNER (NW/C) OF SAID SE/4; THENCE S00°54'43"W ALONG THE WEST LINE OF SAID NW/4-SE/4 A DISTANCE OF 943.22 FEET TO THE POINT OF BEGINNING; THENCE S89°05'17"E A DISTANCE OF 315.00 FEET; THENCE N89°41'33"E A DISTANCE OF 1131.44 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE A.T.&S.F. RAILWAY COMPANY RIGHT-OF-WAY; THENCE S02°44'42"E ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 774.83 FEET; THENCE S89°44'50"W A DISTANCE OF 166.70 FEET TO A POINT ON THE EAST LINE OF THE SOUTHWEST QUARTER (SW/4) OF SAID SE/4; THENCE S00°06'05"E ALONG SAID EAST LINE A DISTANCE OF 696.60 FEET TO A POINT ON THE SOUTH LINE OF SAID SW/4-SE/4; THENCE S89°30'53"W ALONG SAID SOUTH LINE A DISTANCE OF 528.58 FEET; THENCE N00°08'29"W A DISTANCE OF 528.68 FEET; THENCE S89°30'54"W A DISTANCE OF 329.95 FEET; THENCE N00°10'54"W A DISTANCE OF 781.72 FEET TO A POINT ON THE NORTH LINE OF SAID SW/4-SE/4; THENCE S89°41'33"W ALONG SAID NORTH LINE A DISTANCE OF 0.98 FEET; THENCE N00°54'43"E A DISTANCE OF 285.00 FEET; THENCE S89°41'33"W A DISTANCE OF 660.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4; THENCE N00°54'43"E ALONG SAID WEST LINE A DISTANCE OF 84.00 FEET TO THE POINT OF BEGINNING, CONTAINING 25.16 ACRES, MORE OR LESS.



TYPICAL SECTION
32' (COLLECTOR) ASPHALTIC CONCRETE PAVING



TYPICAL SECTION
26' (LOCAL) ASPHALTIC CONCRETE PAVING

DEVELOPERS INFORMATION

CURRENTLY ZONED: LOT 1, BLOCK 1 AND LOT 32, BLOCK 1 CURRENTLY ZONED C-3.
REMAINDER OF PROPERTY IS CURRENTLY ZONED AS R-1.

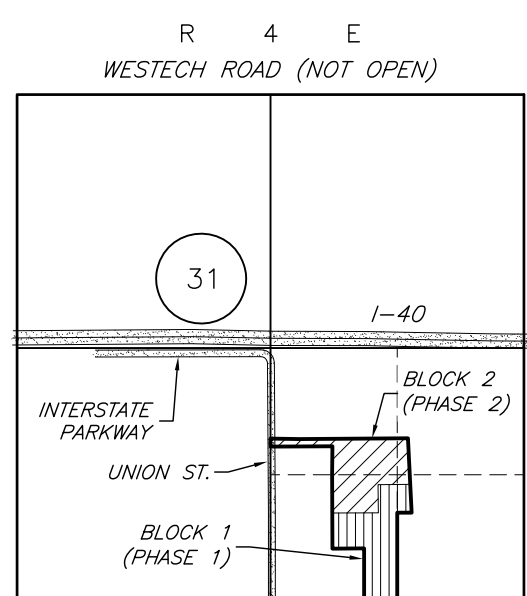
LOCATION: NE CORNER, UNION & 45TH STREET
SHAWNEE, OK. 74804

OWNER & DEVELOPER: CARDINAL POINT DEVELOPMENT, LLC
BRYAN LITTLE, PRINCIPAL
RICK LANDES, PRINCIPAL
P.O. BOX 3503
SHAWNEE, OK. 74802

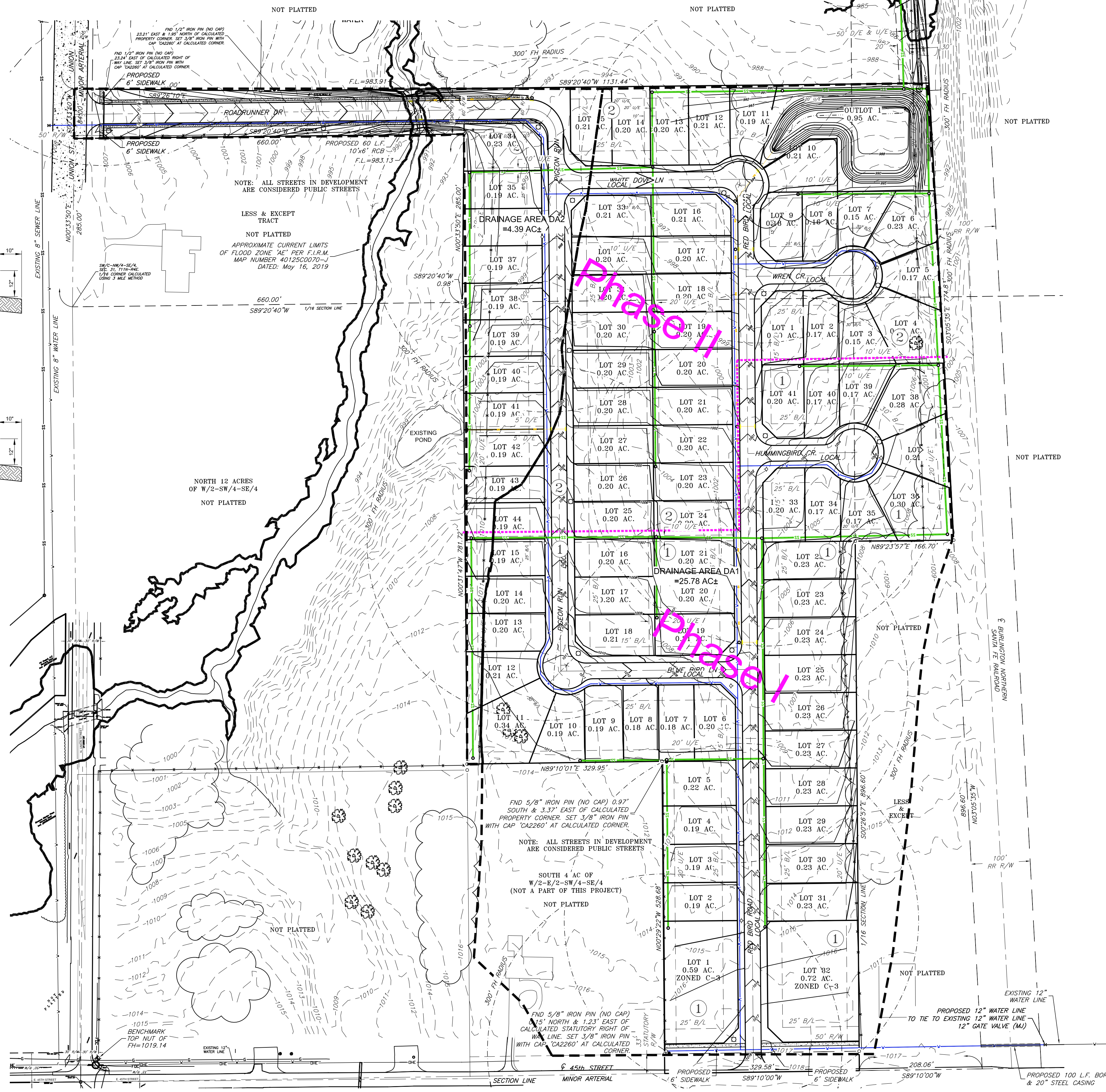
PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35TH ST.
SHAWNEE, OK. 74804
(405) 275-5388

BENCHMARK

BENCHMARK #1 TOP NUT FH
NE CORNER 45TH & UNION
TOP NUT=1019.14

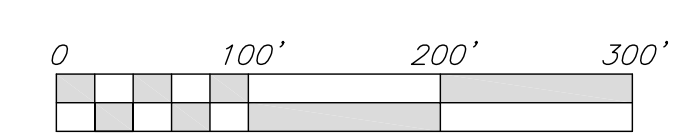
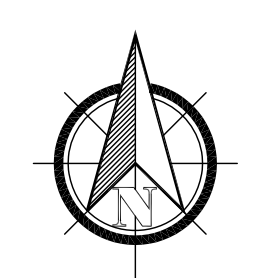


LOCATION MAP
SCALE: 1" = 2000'



PRELIMINARY PLAT
CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



SCALE: 1" = 100'

LEGEND

- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
- (•) INDICATES EXISTING MONUMENT
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- STREET LIGHT
- GUY WIRE
- GAS METER
- VENT PIPE
- TELEPHONE PEDESTAL
- ELECTRIC BOX
- CLEAN OUT
- MANHOLE
- STORM DRAIN
- AIR CONDITIONER UNIT
- SIGN
- BENCHMARK
- TREE
- TUG- TELEPHONE, UNDERGROUND
- USE- UNDERGROUND ELECTRIC
- OHE- OVERHEAD ELECTRIC & CABLE TV
- FOC- FIBER OPTIC CABLE
- CATV- CABLE TV
- PET- PETROLEUM LINE
- C- GAS LINE
- HPG- HIGH PRESSURE GAS LINE
- W- WATER LINE
- SS- SANITARY SEWER LINE
- STS- STORM SEWER
- PSS- PRESSURIZED SANITARY SEWER LINE
- X- FENCE
- FLOW LINE

STATISTICAL DATA

- A. 25.16 TOTAL ACRES
- B. 86 TOTAL LOTS
- 41 LOTS IN BLOCK 1 (PHASE 1)
- 44 LOTS IN BLOCK 2 (PHASE 2)
- 1 OUTLOT (STORMWATER DETENTION AREA)
- C. 83 SINGLE FAMILY DWELLING UNITS
- 23.85 ACRES ZONED R-1
- RESIDENTIAL DENSITY = 1.5 UNITS PER ACRE
- D. 2 COMMERCIAL LOTS, TOTALING 1.31 ACRES
- E. NONE
- F. NONE
- G. 765 L.F. COLLECTOR STREETS
- 1468 L.F. LOCAL STREETS
- H. 0.95 ACRE OUTLOT

STORMWATER FLOW

THE PROPERTY IS TO BE GRADED AND STORMWATER RUNOFF IS TO BE DIRECTED TOWARDS THE PROPOSED DRY STORMWATER DETENTION AREA LOCATED IN THE NORTHEAST CORNER OF THE PROPERTY. THE STORMWATER IS TO BE DETAINED IN THE PROPOSED DETENTION AREA AND DISCHARGED INTO TRIBUTARY #1 TO TRIBUTARY #2 TO ROCK CREEK.

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE "AE" PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40125C0070-1, MAP REVISED 5-16-2019.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

THE PRELIMINARY PLAT HAS BEEN PREPARED TO THE BEST OF OUR ABILITIES IN ACCORDANCE WITH THE COMPREHENSIVE PLAN WITH WHICH WE ARE FAMILIAR, AND IN ACCORDANCE WITH THE ORDINANCES AND REGULATIONS GOVERNING THE SUBDIVISION OF LAND EXCEPT WHERE VARIANCES ARE BEING REQUESTED.

BASIS OF BEARING

BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, 11N-R4E, I.M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

DWG FILE: P:\ENGINEERING\2019\UNION\CARDINAL SOUTH.DWG

Cardinal Point Development, LLC

LANDES ENGINEERING L.L.C.



Revisions		Date	
No.	Desc	Mark-ups	Per City Review
1	04/11/2019	MARK-UPS PER CITY REVIEW	
2	07/12/2019	MARK-UPS PER CITY REVIEW	
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4	08/22/2019	MARK-UPS PER CITY REVIEW	

Cardinal Point
Preliminary Plat

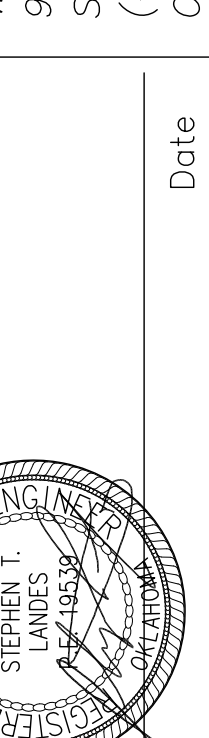
903 E. 35th Street * P.O. BOX 1032
Shawnee, OK 74802-1032
(405) 275-5388 * Fax (405) 275-9047
CA # 2260 EXP. 6-30-21

STEPHEN T. LANDES
Professional Engineer
State of Oklahoma
License No. 14539

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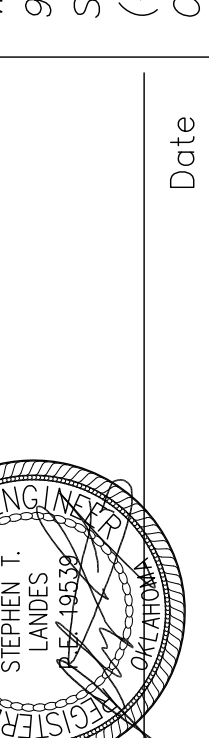
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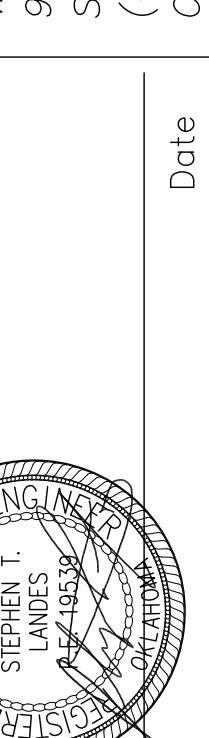
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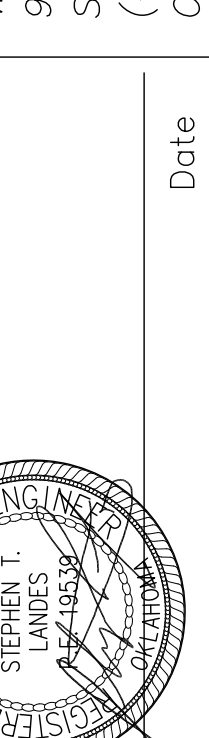
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LANDES ENGINEERING L.L.C.



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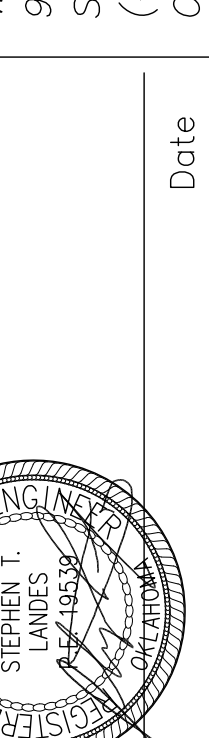
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Shawnee, OK 74802-1032
(405) 275-5388 * Fax (405) 275-9047
CA # 2260 EXP. 6-30-21

STEPHEN T. LANDES
Professional Engineer
State of Oklahoma
License No. 14539

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Cardinal Point Development, LLC

LANDES ENGINEERING L.L.C.



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Cardinal Point
Preliminary Plat

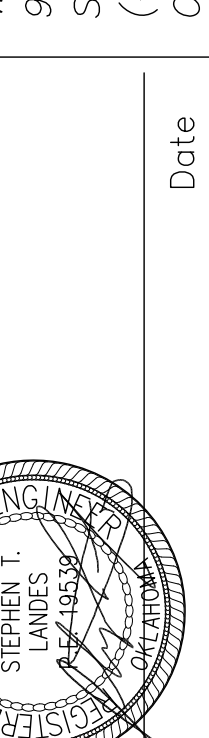
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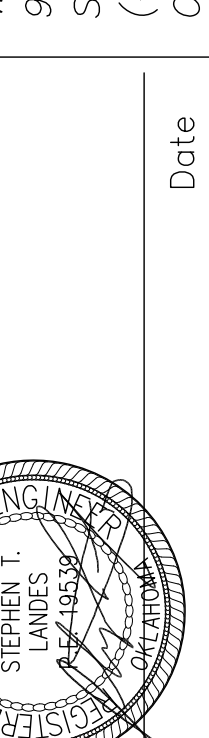
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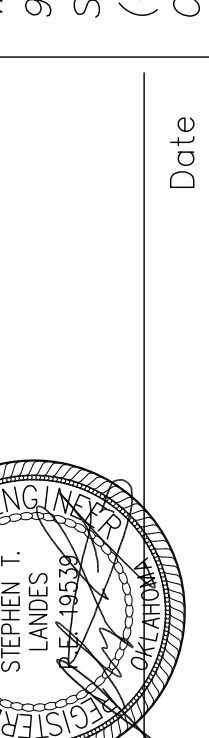
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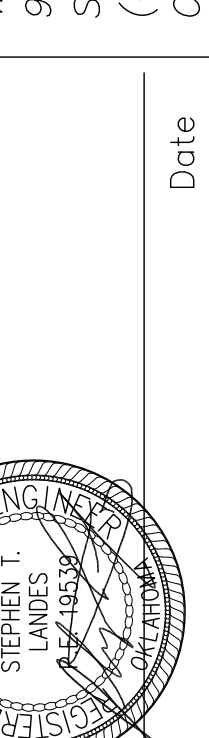
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Cardinal Point Development, LLC

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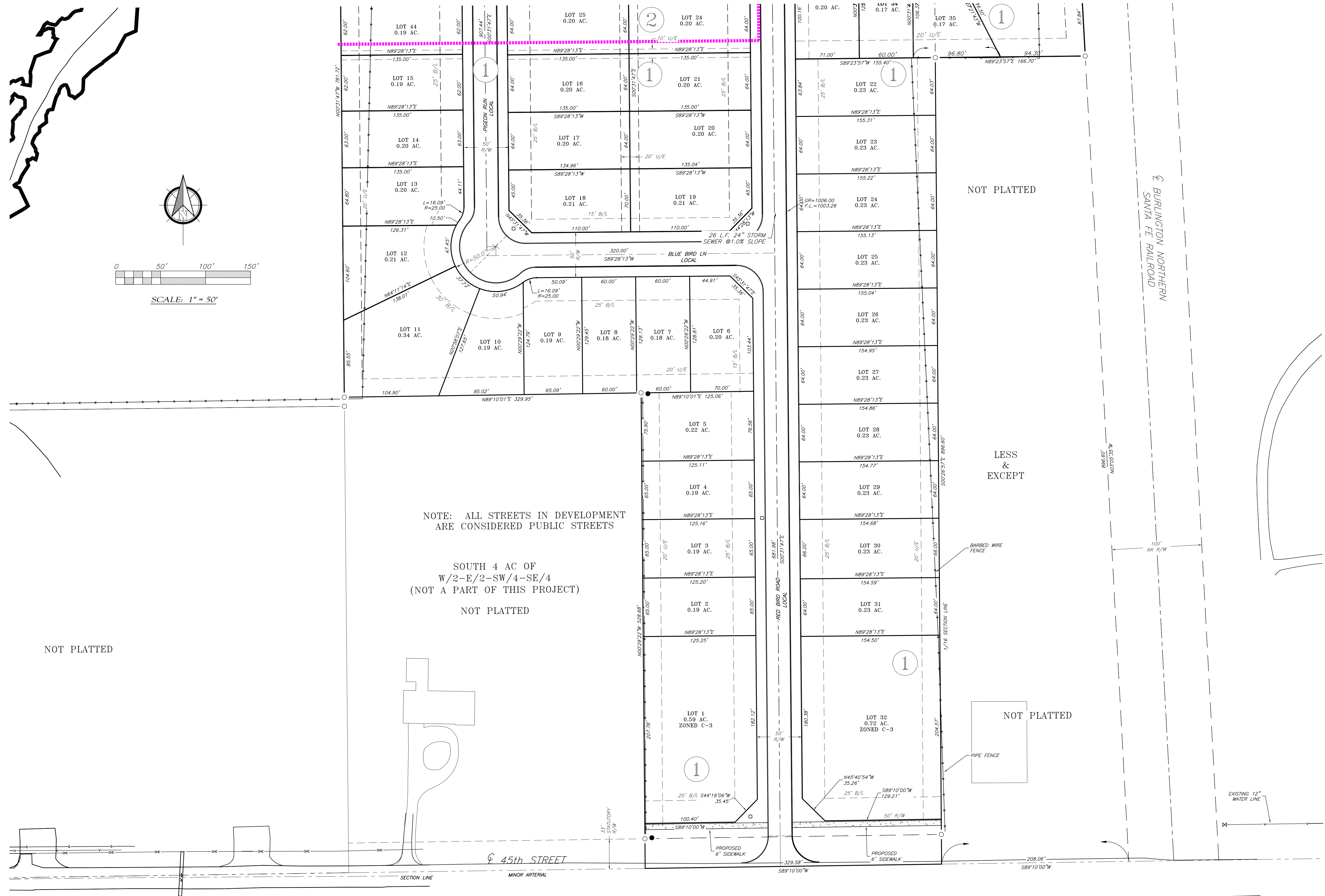
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Cardinal Point
Preliminary Plat

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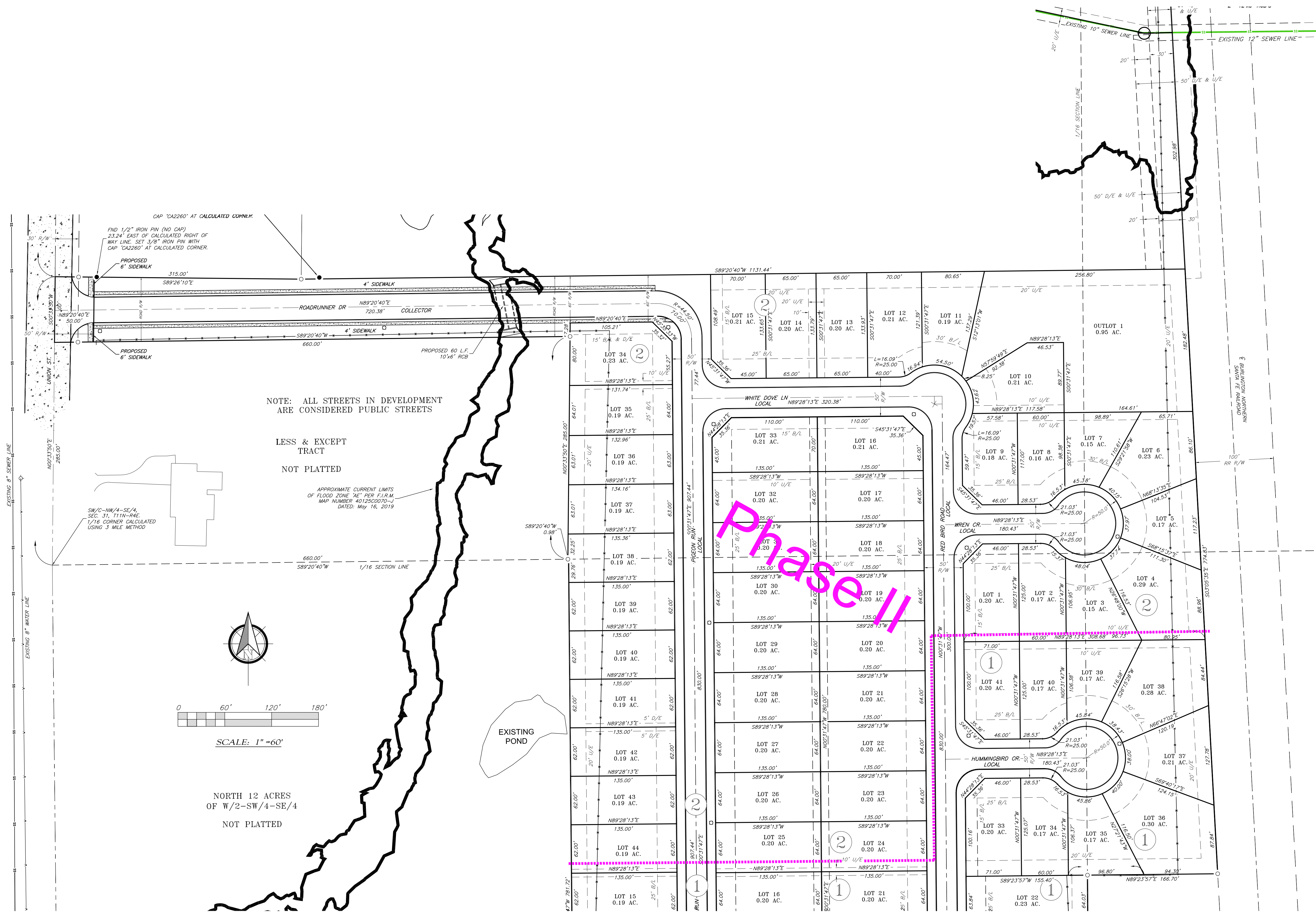
Client Cardinal Point Development, LLC

Project Cardinal Point

Sheet Title Preliminary Plat

<i>Designs</i> STL	<i>Drawn</i> rml	<i>STL</i>
		<i>Date</i> 03/05/2019

Sheet 2 of 7



Revisions

No.	Date	Desc
1	04/11/2019	MARK-UPS PER CITY REVIEW
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4	08/22/2019	MARK-UPS PER CITY REVIEW

Cardinal Point Development, LLC

Cardinal Point

Preliminary Plat

03/05/2019

3 of 7

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CA # 2260 EXP. 6-30-21

Professional Engineer

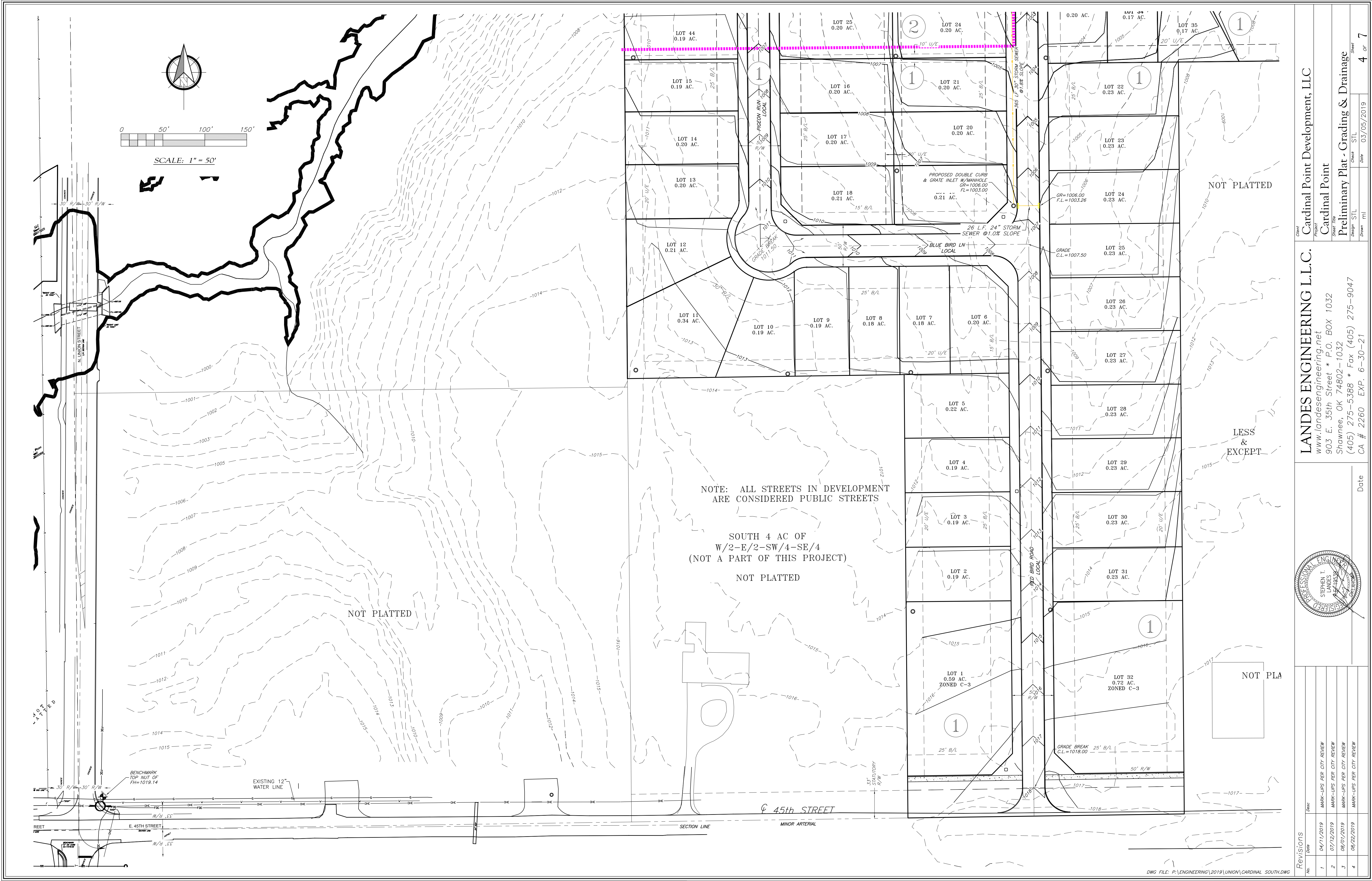
STEPHEN T. LANDES

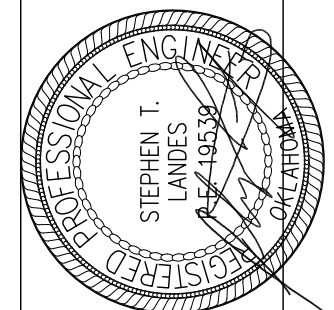
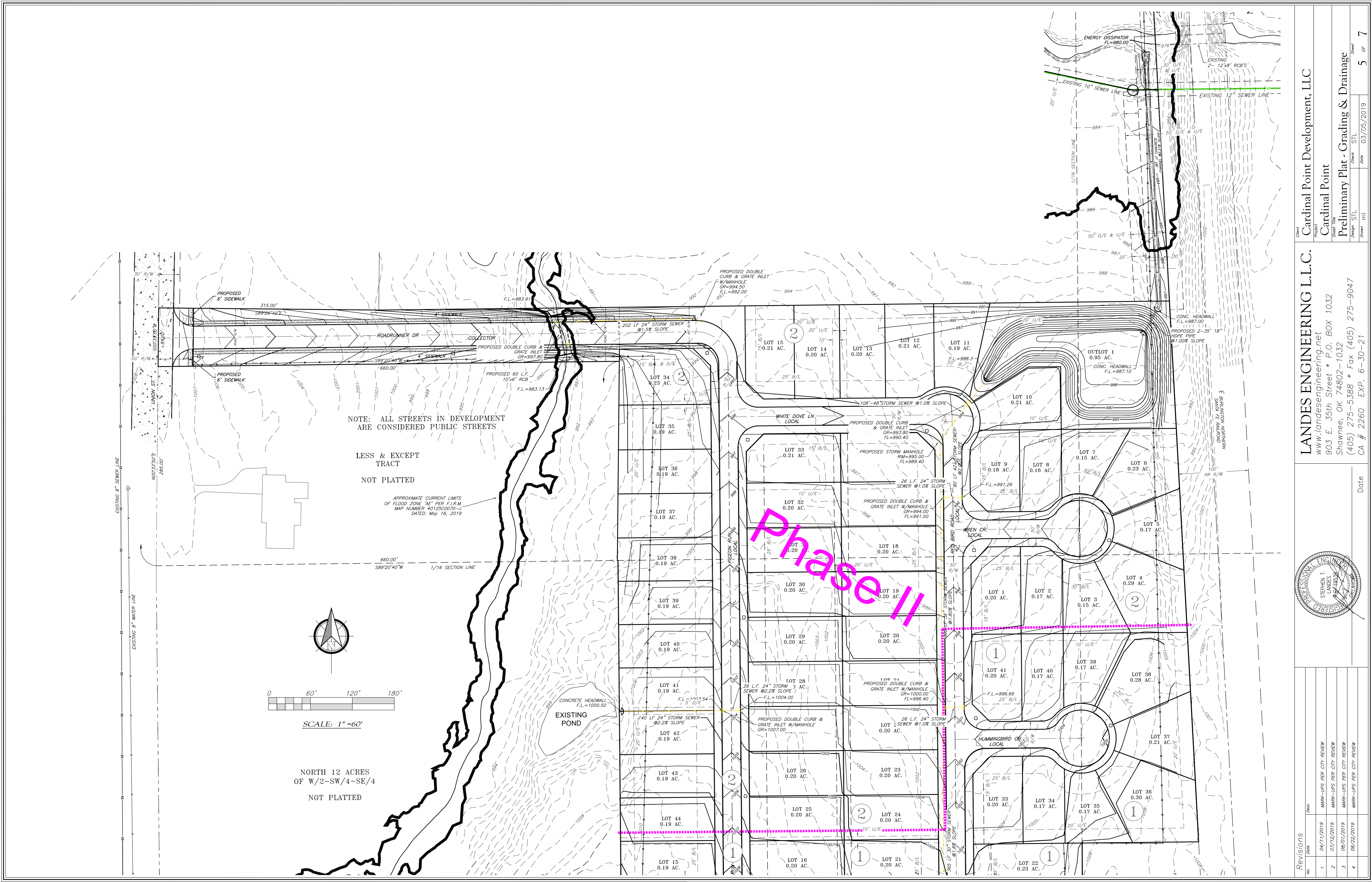
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04/11/2019

Date

03/05/2019



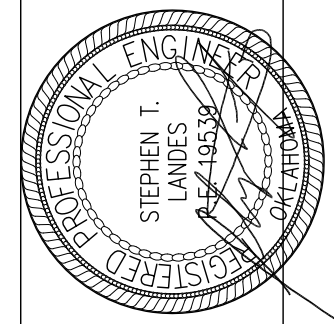
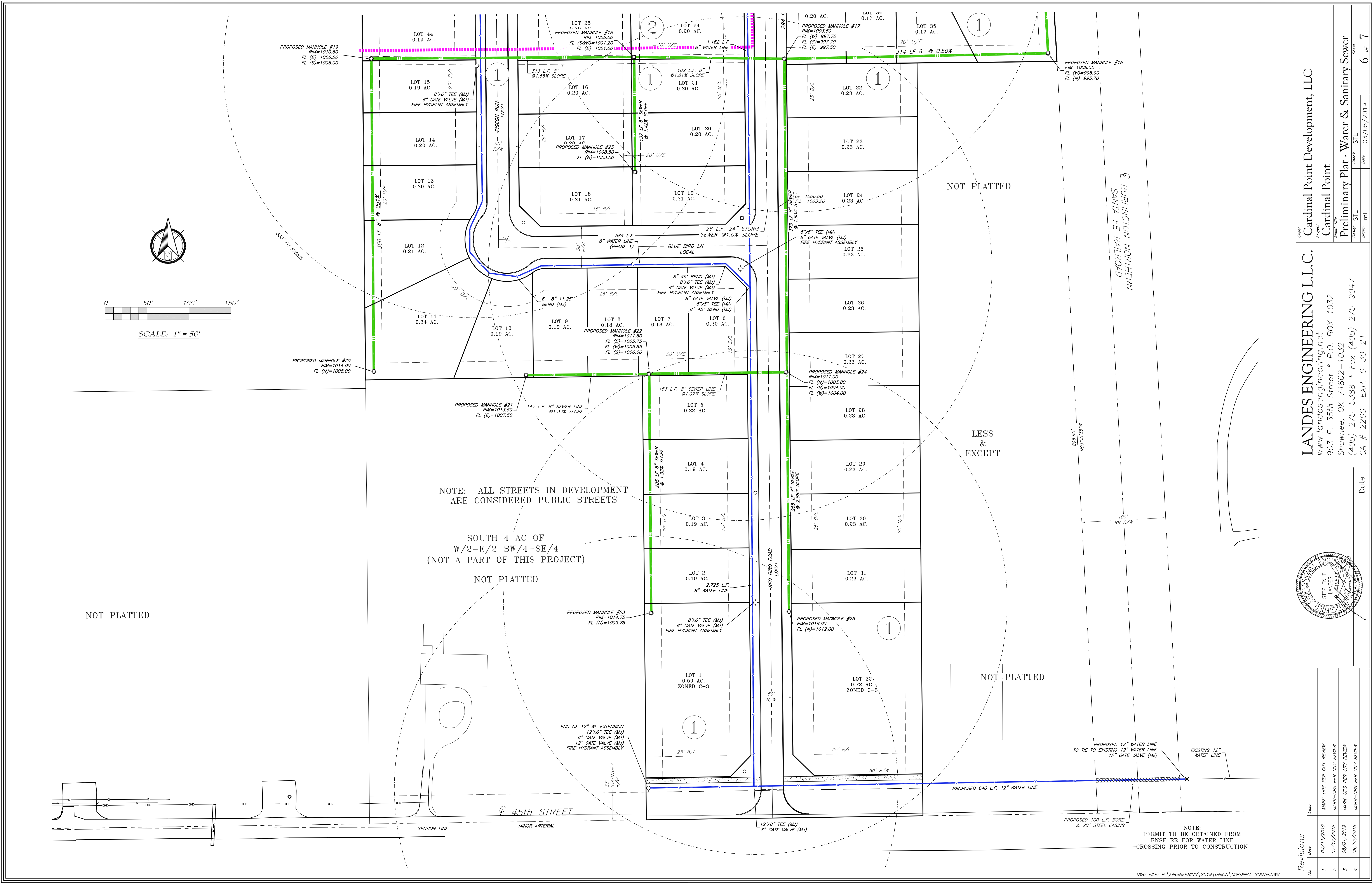


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(405) 275-5388 * Fax (405) 275-9047
CA # 2260 EXP. 6-30-21

Cardinal Point Development, LLC
Cardinal Point
Preliminary Plat - Grading & Drainage

Revisions		Date		By		Check		Date		By	
No.	Date	Drawn	Checked	Design	STL	Design	STL	Date	STL	Design	STL
1	04/11/2019	MARK-UPS PER CITY REVIEW									
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4	08/22/2019	MARK-UPS PER CITY REVIEW									

Cardinal Point Development, LLC
Cardinal Point
Preliminary Plat - Grading & Drainage
Design STL
Date 03/05/2019
Drawn ml
5 of 7



Revisions		Landes Engineering L.L.C.		Cardinal Point Development, LLC	
No.	Date	Drawn	Checked	Project	Sheet
1	04/11/2019	MARK-UPS PER CITY REVIEW		Cardinal Point	6 OF 7
2	07/12/2019	MARK-UPS PER CITY REVIEW		Preliminary Plat - Water & Sanitary Sewer	
3	08/01/2019	MARK-UPS PER CITY REVIEW			
4	08/22/2019	MARK-UPS PER CITY REVIEW			

CA # 2260 EXP. 6-30-21

(405) 275-5388 * Fax (405) 275-9047

Shawnee, OK 74802-1032

903 E. 35th Street * P.O. BOX 1032

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LANDS ENGINEERING L.L.C.

Professional Engineer

STEPHEN T. LANDES

12153

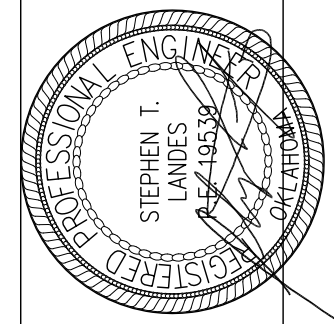
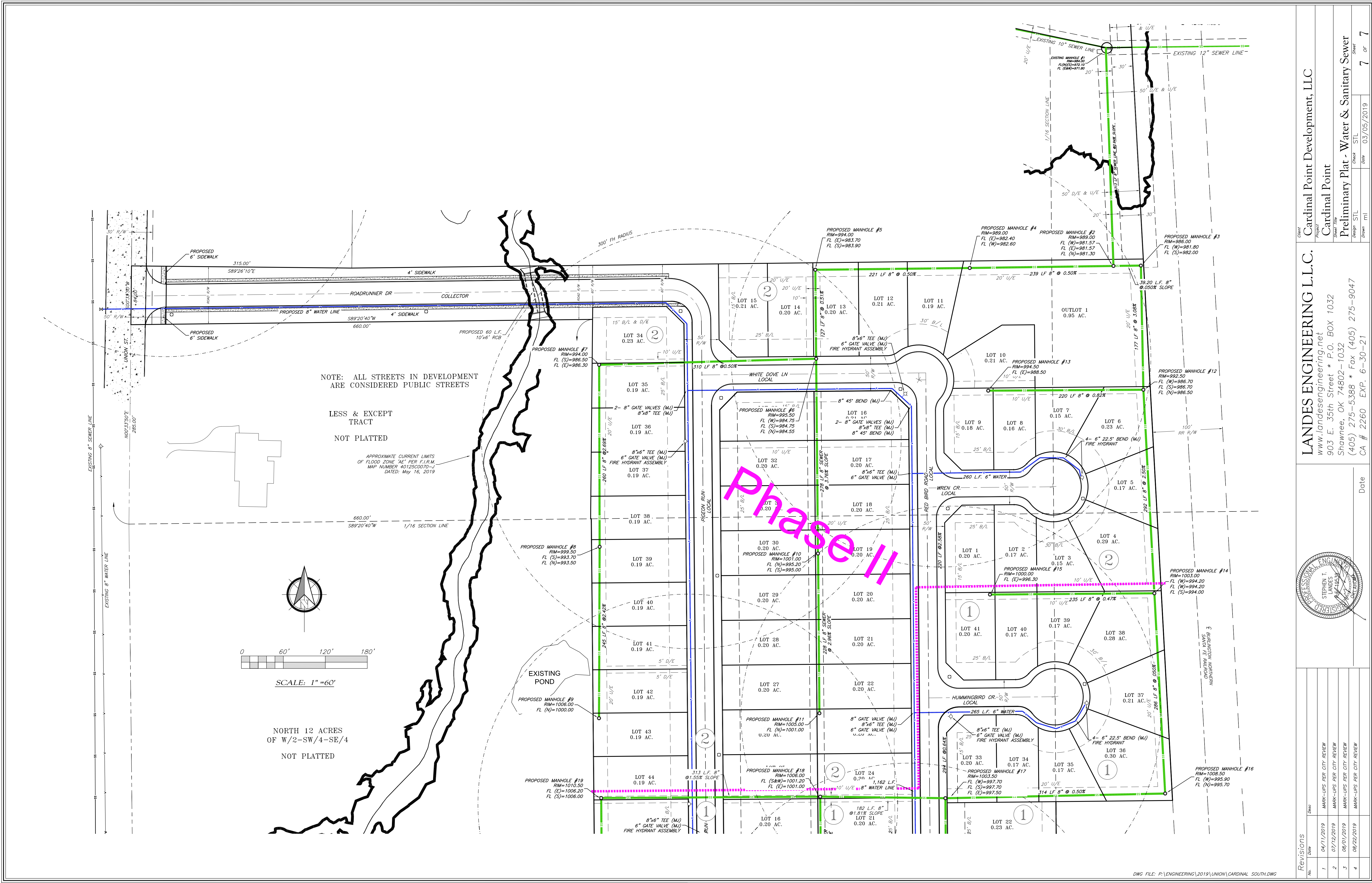
03/05/2019

DATE

03/05/2019

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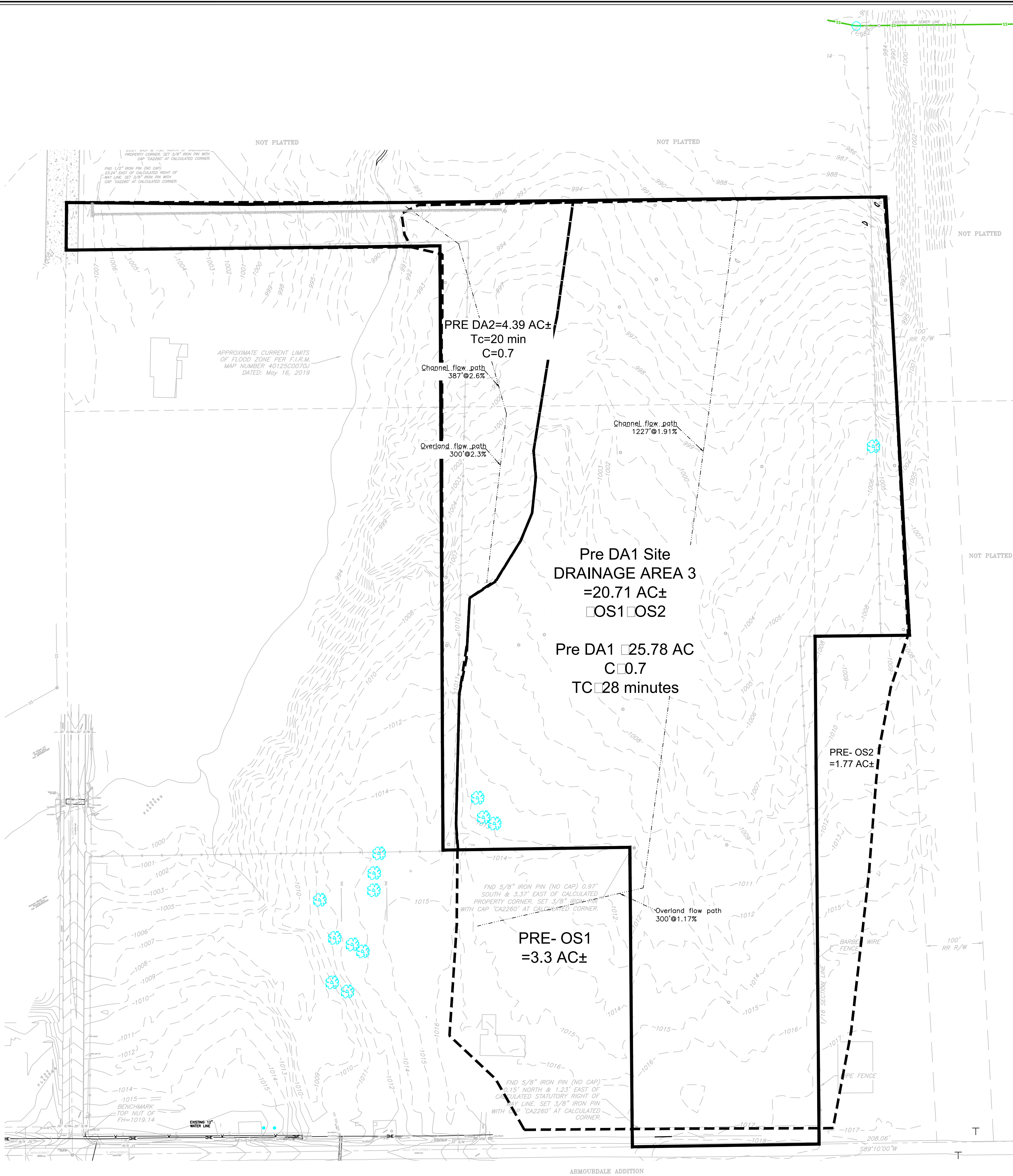
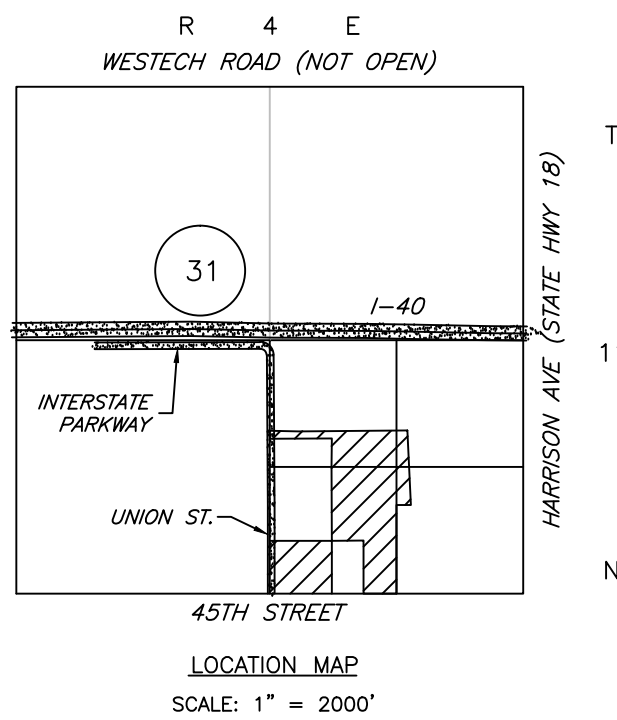
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LANDS ENGINEERING L.L.C.		Cardinal Point	
www.landesengineering.net		Preliminary Plat - Water & Sanitary Sewer	
903 E. 35th Street * P.O. BOX 1032		Design: STL	
Shawnee, OK 74802-1032		Date: 03/05/2019	
(405) 275-5388 * Fax (405) 275-9047		Sheet: 7 of 7	
CA # 2260 EXP. 6-30-21		Drawn: ml	

LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (31), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NORTHWEST CORNER (NW/C) OF SAID SE/4; THENCE S00°54'43"W ALONG THE WEST LINE OF SAID NW/4-SE/4 A DISTANCE OF 943.22 FEET TO THE POINT OF BEGINNING; THENCE S89°05'17"E A DISTANCE OF 315.00 FEET; THENCE N89°41'33"E A DISTANCE OF 1131.44 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE A.T.&S.F. RAILWAY COMPANY RIGHT-OF-WAY; THENCE S02°44'42"E ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 774.53 FEET; THENCE S89°44'50"W A DISTANCE OF 169.70 FEET TO A POINT ON THE EAST LINE OF THE SOUTHWEST QUARTER (SW/4) OF SAID SE/4; THENCE S00°08'05"E ALONG SAID EAST LINE A DISTANCE OF 896.60 FEET TO A POINT ON THE SOUTH LINE OF SAID SW/4-SE/4; THENCE S89°30'53"W ALONG SAID SOUTH LINE A DISTANCE OF 129.58 FEET; THENCE N00°08'29"W A DISTANCE OF 528.68 FEET; THENCE S89°30'54"W A DISTANCE OF 329.95 FEET; THENCE N00°10'54"W A DISTANCE OF 781.72 FEET TO A POINT ON THE NORTH LINE OF SAID SW/4-SE/4; THENCE S89°41'33"W ALONG SAID NORTH LINE A DISTANCE OF 0.98 FEET; THENCE N00°54'43"E A DISTANCE OF 285.00 FEET; THENCE S89°41'33"W A DISTANCE OF 660.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4; THENCE N00°54'43"E ALONG SAID WEST LINE A DISTANCE OF 84.00 FEET TO THE POINT OF BEGINNING, CONTAINING 25.16 ACRES, MORE OR LESS.
AND
A TRACT OF LAND DESCRIBED AS BEGINNING AT THE SOUTHWEST CORNER (SW/C) OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN; THENCE EAST 412.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 412.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING,
AND
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FOR A GROSS TOTAL OF 33.03 ACRES, MORE OR LESS.

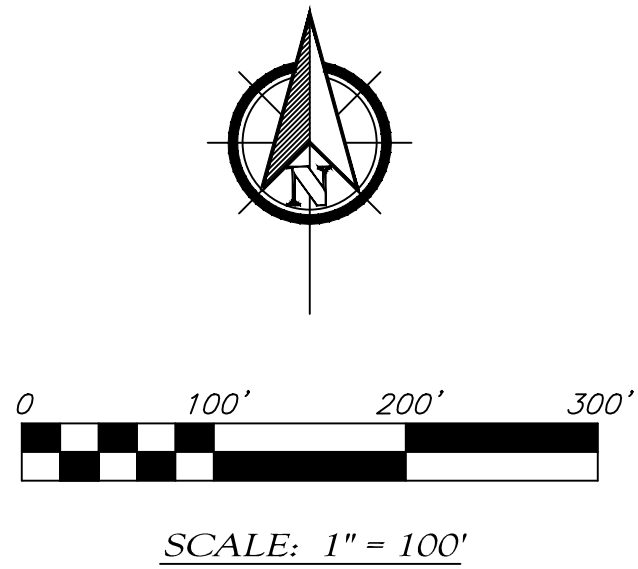
DEVELOPERS INFORMATION

CURRENTLY ZONED: C-3 & A-1
LOT 1, BLOCK 1 CURRENTLY ZONED A-1. TO BE RE-ZONED TO C-3.
LOT 20 IN BLOCK 2, & LOT 26 IN BLOCK 3 CURRENTLY ZONED C-3. TO REMAIN C-3.
REMAINDER OF PROPERTY IS CURRENTLY ZONED C-3. TO BE RE-ZONED AS R-1.
LOCATION: NE CORNER, UNION & 45TH STREET SHAWNEE, OK. 74804
OWNER & DEVELOPER: RICK LANDES
903 E. 35th STREET
SHAWNEE, OK. 74804
(405) 627-5219
PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35th ST.
SHAWNEE, OK. 74801
(405) 275-5388



PRE-DEVELOPMENT HYDROLOGY
CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



- LEGEND
- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
 - (•) INDICATES EXISTING MONUMENT
 - WATER METER
 - WATER VALVE
 - FIRE HYDRANT
 - POWER POLE
 - LIGHT POLE
 - GUY WIRE
 - GAS METER
 - VENT PIPE
 - TELEPHONE PEDESTAL
 - ELECTRIC BOX
 - CLEAN OUT
 - MANHOLE
 - STORM DRAIN
 - AIR CONDITIONER UNIT
 - SIGN
 - BENCHMARK
 - TREE
 - TUG TELEPHONE, UNDERGROUND
 - USE UNDERGROUND ELECTRIC
 - OHE OVERHEAD ELECTRIC & CABLE TV
 - FOC FIBER OPTIC CABLE
 - CATV CABLE TV
 - PET PETROLEUM LINE
 - G GAS LINE
 - HPG HIGH PRESSURE GAS LINE
 - W WATER LINE
 - SS SANITARY SEWER LINE
 - STS STORM SEWER
 - PSS PRESSURIZED SANITARY SEWER LINE
 - X FENCE
 - FLOW LINE

STATISTICAL DATA

- A. 33.03 TOTAL ACRES
- B. 89 LOTS
- C. 86 SINGLE FAMILY DWELLING UNITS
- D. 3 COMMERCIAL LOTS, TOTALING 9.18 ACRES
- E. NONE
- F. NONE
- G. 4520 L.F. LOCAL STREETS
- H. NONE

STORMWATER FLOW

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE 'A' (NO BASE FLOOD ELEVATIONS DETERMINED) PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40125C0070-H, MAP REVISED 9-3-2010.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

BASIS OF BEARING

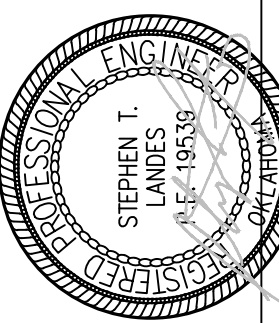
BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, T11N-R4E, 1M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

BENCHMARK

BENCHMARK #1 TOP NUT FH NE/CORNER 45TH & UNION TOP NUT=1019.14

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(405) 275-5388 * Fax (405) 275-9047
CA # 2260 EXP. 6-30-21



Revisions

Date Description
04/11/2019 MARK-UP'S PER CITY REVIEW

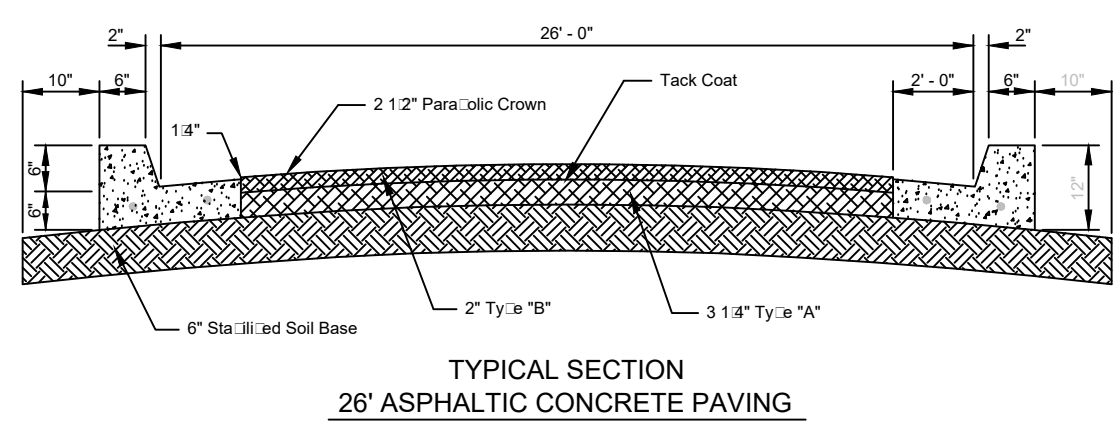
Cardinal Point Development, LLC

Cardinal Pointe

Pre Development Prelim-Drairage Area

Sheet H1 H3
Date 08/01/2019
Drawn by STL

LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (21), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
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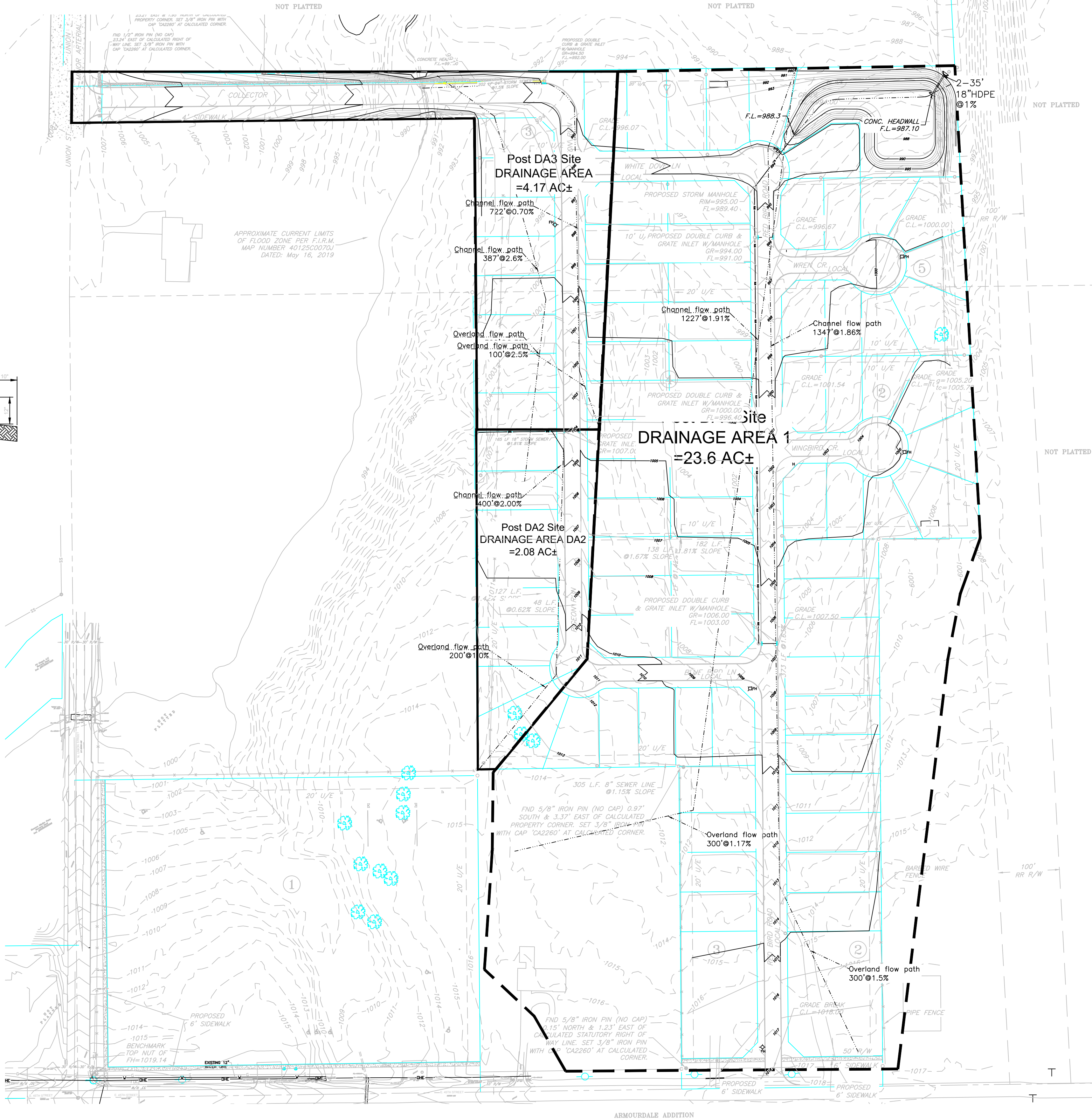
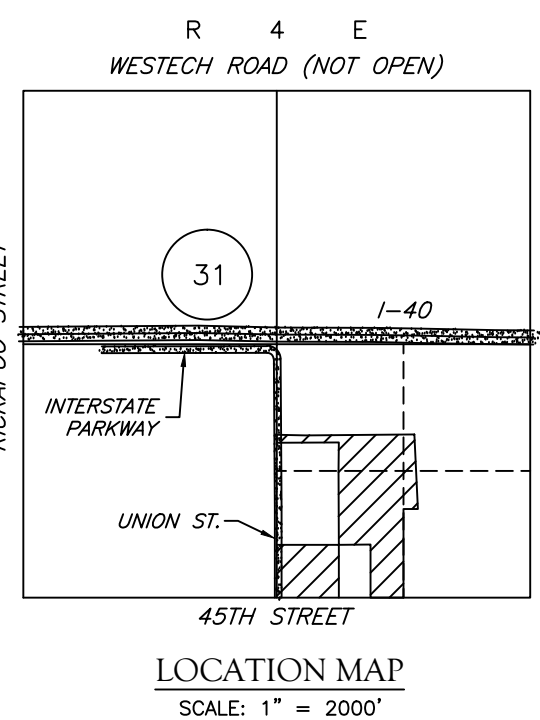


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LOCATION: NE CORNER, UNION & 45TH STREET SHAWNEE, OK. 74804

OWNER & DEVELOPER: RICK LANDES
903 E. 35th STREET
SHAWNEE, OK. 74804
(405) 627-5219

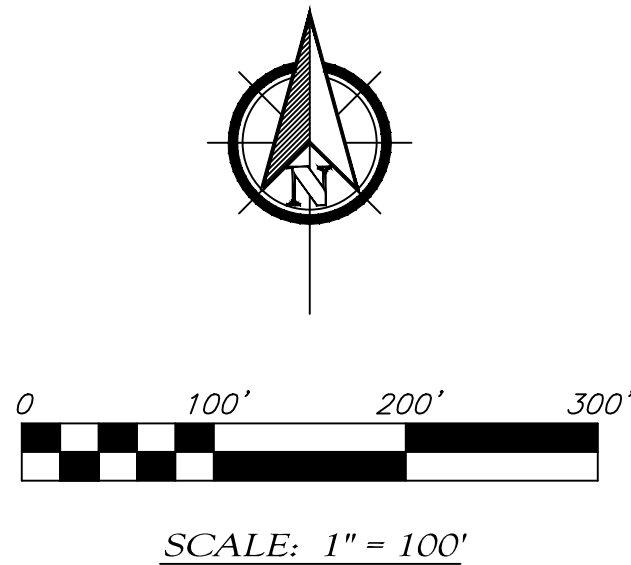
PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35th ST.
SHAWNEE, OK. 74801
(405) 275-5388



POST-DEVELOPMENT HYDROLOGY

CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



LEGEND

- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
- (•) INDICATES EXISTING MONUMENT
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- LIGHT POLE
- GUY WIRE
- GAS METER
- VENT PIPE
- TELEPHONE PEDESTAL
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- G GAS LINE
- HPG HIGH PRESSURE GAS LINE
- W WATER LINE
- SS SANITARY SEWER LINE
- STS STORM SEWER
- PSS PRESSURIZED SANITARY SEWER LINE
- X FENCE
- FLOW LINE

STATISTICAL DATA

- A. 33.03 TOTAL ACRES
- B. 89 LOTS
- C. 86 SINGLE FAMILY DWELLING UNITS
- D. 3 COMMERCIAL LOTS, TOTALING 9.18 ACRES
- E. NONE
- F. NONE
- G. 4520 L.F. LOCAL STREETS
- H. NONE

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE 'A' (NO BASE FLOOD ELEVATIONS DETERMINED) PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40125C0070-H, MAP REVISED 9-3-2010.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

BASIS OF BEARING

BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, T11N-R4E, 1M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

BENCHMARK

BENCHMARK #1 TOP NUT FH NE/CORNER 45TH & UNION TOP NUT=1019.14

LANDES ENGINEERING L.L.C.

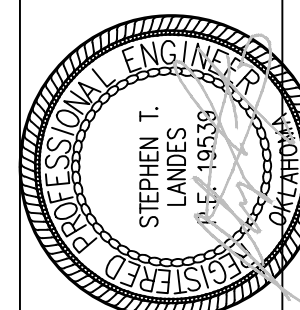
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Shawnee, OK 74802-1032

(405) 275-5388 * Fax (405) 275-9047

CA # 2260 EXP. 6-30-21



Revisions	Date	Description
1	04/11/2019	MARK-UPS PER CITY REVIEW
2	08/22/2019	MARK-UPS PER CITY REVIEW

Cardinal Point Development, LLC

Cardinal Point

Post-Dev Prelim-Hydrology-Derention

Sheet H2 H3

Design: STL Date: 08/01/2019

Drawn: STL

Scale: 1" = 100'

Project: Cardinal Point

Client: Cardinal Point Development, LLC

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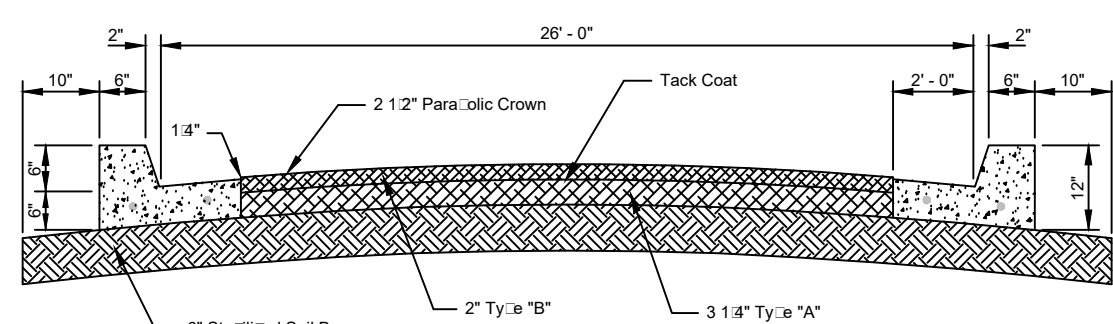
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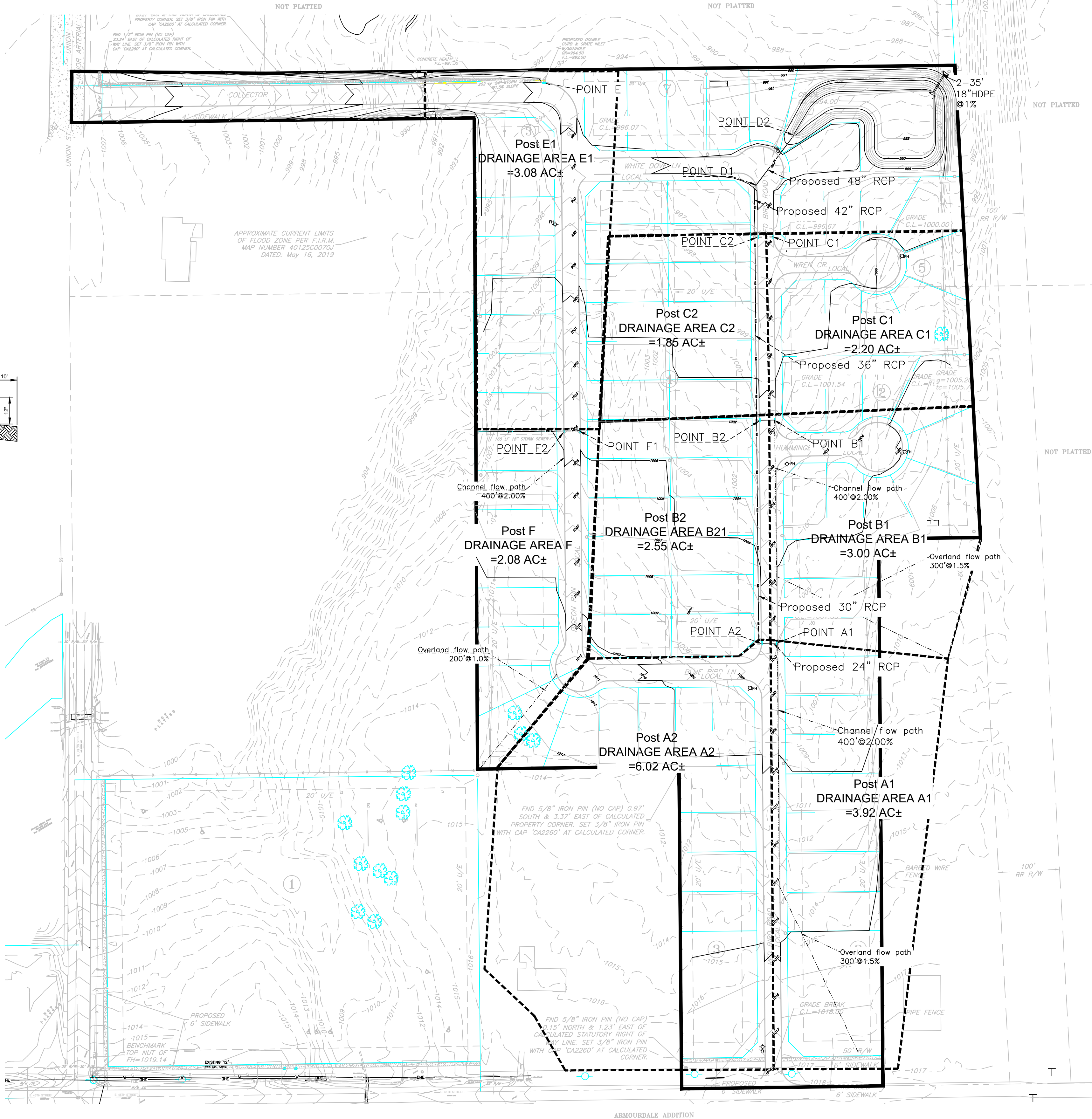
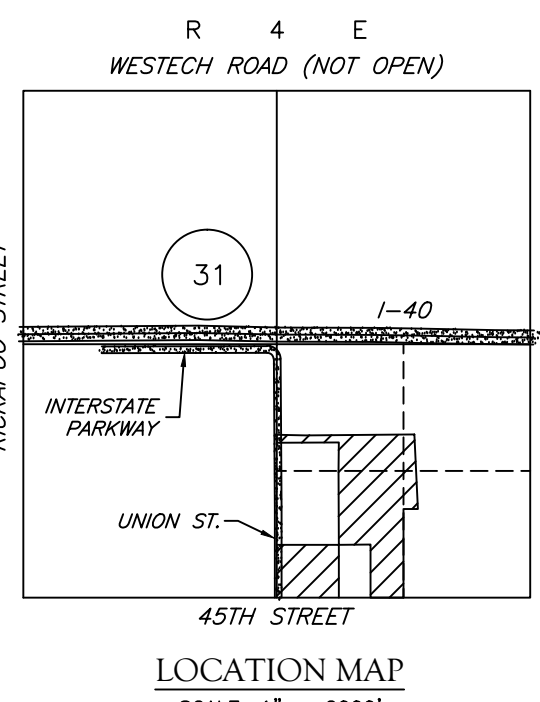
LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (21), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NORTHWEST CORNER (NW/C) OF SAID SE/4; THENCE S00°54'43"W ALONG THE WEST LINE OF SAID NW/4-SE/4 A DISTANCE OF 943.22 FEET TO THE POINT OF BEGINNING; THENCE S89°05'17"E A DISTANCE OF 315.00 FEET; THENCE N89°11'33"E A DISTANCE OF 1131.44 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE A.T.&S.F. RAILWAY COMPANY RIGHT-OF-WAY; THENCE S02°44'42"E ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 774.53 FEET; THENCE S89°44'50"W A DISTANCE OF 169.70 FEET TO A POINT ON THE EAST LINE OF THE SOUTHWEST QUARTER (SW/4) OF SAID SE/4; THENCE S00°08'05"E ALONG SAID EAST LINE A DISTANCE OF 896.60 FEET TO A POINT ON THE SOUTH LINE OF SAID SW/4-SE/4; THENCE S89°30'53"W ALONG SAID SOUTH LINE A DISTANCE OF 129.58 FEET; THENCE N00°08'29"W A DISTANCE OF 528.68 FEET; THENCE S89°30'54"W A DISTANCE OF 329.95 FEET; THENCE N00°10'54"W A DISTANCE OF 781.72 FEET TO A POINT ON THE NORTH LINE OF SAID SW/4-SE/4; THENCE S89°41'33"W ALONG SAID NORTH LINE A DISTANCE OF 0.98 FEET; THENCE N00°54'43"E A DISTANCE OF 285.00 FEET; THENCE S89°41'33"W A DISTANCE OF 660.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4; THENCE N00°54'43"E ALONG SAID WEST LINE A DISTANCE OF 84.00 FEET TO THE POINT OF BEGINNING, CONTAINING 25.16 ACRES, MORE OR LESS.
AND
A TRACT OF LAND DESCRIBED AS BEGINNING AT THE SOUTHWEST CORNER (SW/C) OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN, THENCE EAST 412.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 412.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING,
AND
A TRACT OF LAND IN THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN, DESCRIBED AS BEGINNING 412.5 FEET EAST OF THE SOUTHWEST CORNER (SW/C) OF SAID W/2-SW/4-SE/4; THENCE EAST 247.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 247.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING, CONTAINING 3 ACRES, MORE OR LESS.
FOR A GROSS TOTAL OF 33.03 ACRES, MORE OR LESS.



DEVELOPERS INFORMATION

CURRENTLY ZONED: C-3 & A-1
LOT 1, BLOCK 1 CURRENTLY ZONED A-1. TO BE RE-ZONED TO C-3.
LOT 20 IN BLOCK 2, & LOT 26 IN BLOCK 3 CURRENTLY ZONED C-3. TO REMAIN C-3.
REMAINDER OF PROPERTY IS CURRENTLY ZONED C-3. TO BE RE-ZONED AS R-1.
LOCATION: NE CORNER, UNION & 45TH STREET SHAWNEE, OK. 74804

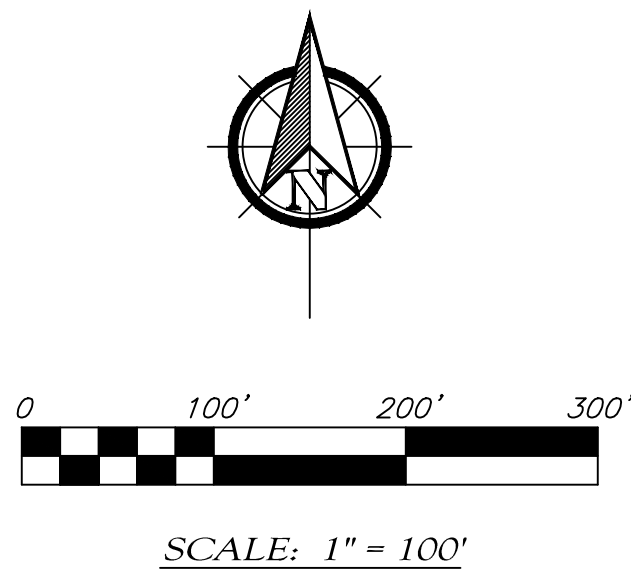
OWNER & DEVELOPER: RICK LANDES
903 E. 35TH STREET
SHAWNEE, OK. 74804
(405) 627-5219
PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35TH ST.
SHAWNEE, OK. 74801
(405) 275-5388



POST DEVELOPMENT PRELIMINARY DRAINAGE DESIGN

CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



LEGEND

- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
- (•) INDICATES EXISTING MONUMENT
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- WATER VALVE
- FIRE HYDRANT
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- CLEAN OUT
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- TUG TELEPHONE, UNDERGROUND
- USE UNDERGROUND ELECTRIC
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- W WATER LINE
- SS SANITARY SEWER LINE
- STS STORM SEWER
- PSS PRESSURIZED SANITARY SEWER LINE
- X FENCE
- FLOW LINE

STATISTICAL DATA

- A. 33.03 TOTAL ACRES
- B. 89 LOTS
- C. 86 SINGLE FAMILY DWELLING UNITS
- D. 3 COMMERCIAL LOTS, TOTALING 9.18 ACRES
- E. NONE
- F. NONE
- G. 4520 L.F. LOCAL STREETS
- H. NONE

STORMWATER FLOW

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE 'A' (NO BASE FLOOD ELEVATIONS DETERMINED) PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40125C0070-H, MAP REVISED 9-3-2010.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

BASIS OF BEARING

BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, T11N-R4E, 1M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

BENCHMARK

BENCHMARK #1 TOP NUT FH NE/CORNER 45TH & UNION TOP NUT=1019.14

LANDES ENGINEERING L.L.C.

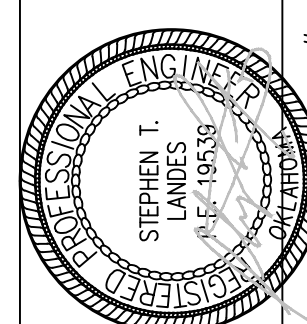
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Shawnee, OK 74802-1032

(405) 275-5388 * Fax (405) 275-9047

CA # 2260 EXP. 6-30-21



Revisions

Date	By	Remarks
04/11/2019	MARK-UPS	PER CITY REVIEW
04/22/2019	MARK-UPS	PER CITY REVIEW
08/22/2019	STEPHEN T. LANDES	FINAL REVIEW

Cardinal Point Development, LLC

Cardinal Point

Post-Development Prelim-Drainage Design

Design	Drawn	Check	Date
STL	STL	STL	08/01/2019

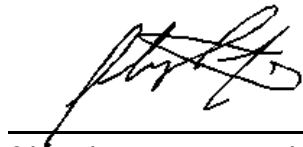
H3 H3

DWG FILE: P:\ENGINEERING\2019\UNION\HYDROLOGY\CARDINAL SOUTH-H3.DWG

SUB-DIVISION DEVELOPMENT

CARDINAL POINTE, SHAWNEE, OK

HYDROLOGY/DETENTION STUDY REPORT



Stephen T. Landes, P.E. #19539

LANDES ENGINEERING LLC & Associates

903 E. 35th Street

Shawnee, OK 74802-1032

(405) 275-5388 * Fax (405) 275-9047



TABLE OF CONTENTS

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APPENDIX B: PRE-DEVELOPMENT HYDROLOGY

APPENDIX C: POST-DEVELOPMENT HYDROLOGY & HYDRAULICS

STORMWATER MANAGEMENT REPORT

Report Background

The purpose of this report is to assess and minimize the environmental impacts of storm water runoff due to construction of a subdivision of 86 lots with average lot size of 0.2 acres of 25.11 acres. The said development is located in a part of the Southeast Quarter (SE/4) of section Thirty One (31) Township Eleven North (T11N), Range Four East (R4E) of the Indian Meridian, Shawnee, Pottawatomie County, Oklahoma. More specifically the development is located between N Union Ave and Harrison Avenue along the E 45th Street West of Existing Rail road tracks. Pre & Post-Development hydrologic conditions (peak flow) within this report were modeled using the Modified Rational method with HydroCad 8.5 software. The modified rational method was used to calculate the maximum storage required for the detention purposes.

The

Precipitation

Rainfall Intensity was obtained using the following equation:

$$R = a / (T_c + b)^c$$

Where:

R = Intensity

T_c = Time of Concentration in minutes

B, D, E = Parameters defined in Figure 7.6-P for Zone 4 IDF CURVE (Pottawatomie County) Rainfall Intensity parameters obtained from Oklahoma Department of Transportation (ODOT) Roadway Drainage Manual, Nov, 2014.

Parameters	Return Period					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
a	46	59	69	81	106	116
b	10	11	12	12	15	15
c	0.79	0.78	0.78	0.78	0.80	0.80

Table 1: IDF Curve Coefficients

Pre-Development

Under Pre-Development conditions, a ridge at the west side running south to north splits the site into two drainage basins. The runoff from the east drainage (Pre-DA1) area drains from south to north towards the Tributary No 1 to Tributary No. 2 to Rock Creek. The runoff from the west drainage area (Pre-DA2) drains towards the Tributary No. 1-A to Tributary No. 2 to Rock Creek.

Pre-DA1

Pre Development Drainage Area Pre-DA1 consists of of 20.71 acres of the site and offsite drainage area of Pre-OS1 at the west side of the site with drainage area of 3.3 Acres and offsite drainage area Pre-OS2 at the east side of the site with drainage area of 1.77 Acres. The total Pre-DA1 with the offsite drainage areas is 25.78 Acres.

Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lo=300 ft, So=3.5/300=1.17%, Using K as Woodland, Thin Grass 0.942

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 18.9 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lf=1227.0 ft, So=23.6/1227=1.91%, Using K' as Average stream, few obstruction 0.00835

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=9.1 minutes

Tc=To+Tf=18.9+9.1=28 minutes.

Storm Event	Runoff (cfs)
2-yr	33.56
5-yr	43.75
10-yr	50.16
25-yr	58.89
50-yr	67.56
100-yr	73.93

Table 2 Pre-Development DA-1 Runoff Summary

Pre-DA2

Pre Development Drainage Area Pre-DA2 consists of 4.39 acres draining towards Tributary No. 1-A to Tributary No. 2 to Rock Creek.

Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lo=300 ft, So=7/300=2.3%, Using K as Woodland, Thin Grass 0.942

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 16.6 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lf=387.0 ft, So=10/387=2.6%, Using K' as Average stream, few obstruction 0.00835

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=3.4 minutes

Tc=To+Tf=16.6+3.4=20 minutes.

Storm Event	Runoff (cfs)
2-yr	6.87
5-yr	8.89
10-yr	10.14
25-yr	11.90
50-yr	13.53
100-yr	14.81

Table 3: Pre-Development DA2 Runoff Summary

Post Development

The post-development drainage area consists of three drainage area Post-DA1 and Post-DA2, Post-DA3.

The Post-DA1 consists of drainage area flowing towards a proposed detention pond at the north east corner of the property. Area=23.59.

Area consists of 23.59 acres draining towards Tributary No. 1 to Tributary No. 2 to Rock Creek. Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.
Lo=300 ft, So=4.5/300=1.5%, Using K as Residential, 0.511

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 10 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.
Lf=1347.0 ft, So=25/1347=1.86%, Using K' as Average stream, few obstruction 0.00835

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=10 minutes

Tc=To+Tf=10+10=20 minutes.

Storm Event	Runoff (cfs)
2-yr	51.69
5-yr	66.87
10-yr	76.29
25-yr	89.55
50-yr	101.78
100-yr	111.38

Table 4

The Post-DA2 consists of drainage area flowing towards the curb inlet which flows towards the existing pond at the western side.

Area consists of 2.08 acres draining towards the curb inlet which flows towards the existing pond at the western side.

Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lo=200 ft, So=2/200=1.0%, Using K as Residential, 0.511

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 9 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lf=400 ft, So=8/400=2%, Using K' as Average stream, few obstruction 0.00835

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=4 minutes

Tc=To+Tf=10+10=14 minutes. Q=CIA, C=0.7, I=Intensity at Tc=14 min

Storm Event	Intensity	Runoff (cfs)
2-yr	3.736	5.439
5-yr	4.791	6.976
10-yr	5.435	7.913
25-yr	6.38	9.289
50-yr	7.168	10.436
100-yr	7.844	11.421

Table 5: Runoff Summary from Post-DA2

The runoff from Post-DA3 flows towards the existing channel at the north western corner of the drainage area.

The Post-Development Drainage Area consists of 4.17 acres draining towards the curb inlet which flows towards the existing pond at the western side.

Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lo=100 ft, So=2.5/100=2.5%, Using K as Residential, 0.511

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 6 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lf=722 ft, So=5/722=0.7%, Using K' as Average stream, few obstruction 0.00835

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=6 minutes

Tc=To+Tf=6+6=12 minutes. Q=CIA, C=0.7, I=Intensity of Tc=12 min

Storm Event	Intensity	Runoff (cfs)
2-yr	4.002	5.826
5-yr	5.113	7.445
10-yr	5.785	8.423
25-yr	6.791	9.887
50-yr	7.590	11.050
100-yr	8.306	12.093

Table 6: Runoff Summary from Post DA3

Storm Event	Runoff Post DA1 (cfs)	Runoff Post-DA2(cfs)	Runoff Post-DA3(cfs)	Post Dev Runoff (cfs)
2-yr	51.69	5.439	5.826	62.955
5-yr	66.87	6.976	7.445	81.291
10-yr	76.29	7.913	8.423	92.626
25-yr	89.55	9.289	9.887	108.726
50-yr	101.78	10.436	11.050	123.266
100-yr	111.38	11.421	12.093	134.894

Table 7: Post-Development Runoff Summary

Detention

All storm durations were considered, as shown in the charts below, for the different storm events to determine the maximum storage needed. The 100-year pre-developed peak flow rate, 73.93 cfs was used as the release rate and was compared to the post-developed 100 year storm event flow rates. All intensities were then modeled to determine which duration would produce the largest storage volume. The detention required for the Post-DA1

100 YEAR					
Storm Duration	Units	Rainfall Intensity	Inflow rate	Release rate	Req Storage
		in/hr	cfs	cfs	acre-ft
10		9.137538906	150.88818	73.93	1.06003
11		8.8552855	146.227329	73.93	1.095414
12		8.5919202	141.878378	73.93	1.123114
13		8.345547262	137.810022	73.93	1.143857
14		8.114520238	133.995073	73.93	1.15828
15		7.897401943	130.409798	73.93	1.166938
16		7.692931954	127.033385	73.93	1.170323
17		7.5	123.8475	73.93	1.168867
18		7.317624062	120.835926	73.93	1.162957
19		7.144932206	117.984266	73.93	1.152935

Design Storage	Design Storage
acre-feet	ft^3
1.170322542	50979.24993

As shown from the table above, comparing the pre-developed conditions 100-year storm to the post developed conditions 100-year storm the 16 minute duration for the 100-year produced the largest storage volume of 1.17 acre-ft.

Post Development Drainage Area

The detention for the stormwater runoff from the post development drainage area shall be provided by a dry detention pond located in the northeast side of the property. As shown in the stage storage report, the detention pond will store 76513 cu. Ft. at an elevation of 992.99 ft or the 100-year high water elevation. There shall be a 2' wide bank on the north east corner at an elevation of 994' to be used as an emergency spillway.

The table below shows the storm events and the storage provided at the detention pond.

Outlet Structure: The outlet structure shall be 2- 45'long 18" HDPE pipe at an invert elevation of 987.40' discharging to the existing ditch line at an elevation of 987.0'.

Storm Event	Inflow (cfs)	Outflow (cfs)	Elevation (ft)	Storage (cu. Ft.)
2-yr	57.78	24.64	990.30	27708
5-yr	74.34	28.55	991.00	38959
10-yr	84.51	30.63	991.42	46172
25-yr	99.21	33.35	992.00	56920
50-yr	111.96	35.48	992.50	66499
100-yr	122.52	37.11	992.90	74588

Table 8: Stormwater Detention flow summary

Conclusion

The results of the Pre and Post development peak discharge obtained from the analysis are shown in table below. As the tabulated results indicate, the Post-Development conditions with the construction of the proposed subdivision at Shawnee, OK will not increase the peak runoff compared to that of the pre development conditions

Storm Event	Pre Dev-DA1	Pre Dev-DA2	Pre Dev cfs	Post Dev cfs (Outflow from Det Pond)	POST DA2	POST DA3	Post Development Runoff cfs ((Outflow from Det Pond)+PostDA-2+Post DA-3)
2-yr	33.56	6.87	40.43	24.64	5.439	5.826	35.91
5-yr	43.75	8.89	52.64	28.55	6.976	7.445	42.97
10-yr	50.16	10.14	60.30	30.63	7.913	8.423	46.97
25-yr	58.89	11.90	70.79	33.35	9.289	9.887	52.53
50-yr	67.56	13.53	81.09	35.48	10.436	11.050	56.97
100-yr	73.93	14.81	88.74	37.11	11.421	12.093	60.62

PRELIMINARY DRAINAGE DESIGN

Please See Sheet H-3 Prelim Drainage Map for the Inlet locations and dimensions.

A1&A2

The preliminary drainage design for the proposed development consists of 5, points, points A through E. See below for description of each respective point.

The runoff of the post Drainage area A1 will drain towards the curb inlet. The drainage area at point A1= 3.92 acres.

Street runoff capacity (gutter)

Area consists of 3.92 acres draining towards the curb inlet.

Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lo=300 ft, So=4.5/300=1.5%, Using K as Residential, 0.511

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 10 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

Lf=400 ft, So=5.5/400=1.27%, Using K' as Average stream, few obstruction 0.00835

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=5 minutes

Tc=To+Tf=10+5=15 minutes. Q=CIA, C=0.7, I=Intensity of Tc=15 min

Storm Event	I	Runoff (cfs)
2-yr	4.002	9.926
5-yr	5.113	12.751
10-yr	5.785	14.480
25-yr	6.791	16.998
50-yr	7.590	19.142
100-yr	8.306	20.948

Table 9

Street runoff capacity(gutter)

$$Q = \frac{0.56}{n} S_x^{1.67} S^{0.5} T^{2.67}$$

Where,

Sx=cross slope, 0.04

S=longitudinal slope, 0.015

T=width of flow, 13'

$$Q_{A1(\text{capacity})} = 18.73 \text{ cfs}$$

$$Q_{A1(\text{capacity})} > Q_{25}$$

Similarly for A2

$$Q_{A2(\text{capacity})} > Q_{25}$$

CAPACITY OF CURB INLETS

2-Design 2-1 Curb Inlets

$$\text{Capacity of 2 Design 2-1 Inlets} = 13.2 * 2 = 26.4 \text{ cfs} > Q_{50}$$

PIPE Underneath street sizing

24" RCP

$$n = 0.013$$

$$R = 0.5$$

$$S = 1.5\%$$

$$A = 3.14 \text{ ft}^2$$

$$Q = 1.49 / n * A * R^{(2/3)} * S^{(1/2)} = 27.76 > Q_{100}$$

PIPE FROM A2 to B2

$$\text{Capacity of curb inlets} = 26.4 * 2 = 52.8 \text{ cfs}$$

30" RCP

$$n = 0.013$$

$$\text{Slope} = 1.80\%$$

$$Q_{\text{pipe}} = 89.73 \text{ cfs} > (Q_{\text{capacity of Curb inlets}})$$

B1&B2

B1

The runoff of the post Drainage area B1 will drain towards the curb inlet. The drainage area being 3.00 acres

Street runoff capacity (gutter)

Area consists of 3.00 acres draining towards the curb inlet.

Time of concentration for the overland flow is computed by Equation 7.6(3) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

$$L_o = 300 \text{ ft}, S_o = 6/300 = 2.0\%, \text{ Using } K \text{ as Residential, } 0.511$$

$$T_o = \frac{k(L_o^{0.37})}{S_o^{0.20}}$$

To was calculated as 9.3 minutes

Time of concentration for the channel flow is computed by Equation 7.6(4) of the (ODOT) Roadway Drainage Manual, Nov, 2014.

$$L_f = 256 \text{ ft}, S_o = 3.5/266 = 1.31\%, \text{ Using } K' \text{ as Average stream, few obstruction } 0.00835$$

$$T_o = \frac{k'(L_o^{0.77})}{S_o^{0.385}}$$

Tf=3.3 minutes

Tc=To+Tf=9.3+3.3=12.6. Q=CIA, C=0.7, I=Intensity of Tc=13 min

Storm Event	I	Runoff (cfs)
2-yr	3.864	8.114
5-yr	4.946	10.387
10-yr	5.603	11.767
25-yr	6.578	13.814
50-yr	7.372	15.481
100-yr	8.067	16.941

Table 10

Street runoff capacity (gutter)

$$Q = \frac{0.56}{n} S_x^{1.67} S^{0.5} T^{2.67}$$

Where,

Sx=cross slope, 0.04

S=longitudinal slope, 0.015

T=width of flow, 13'

QA1(capacity)=18.73 cfs

QA1(capacity)>Q25

Similarly for B2

QA2(capacity)>Q25

CAPACITY OF CURB INLETS

2-Design 2-1 Curb Inlets

Capacity of 2 Design 2-1 Inlets = 8.2*2=16.4 cfs>Q50

PIPE Underneath street sizing

24" RCP

n=0.013

R=0.5

S=1.5%

A=3.14 ft²

Q=1.49/n*A*R^(2/3)*S^(1/2)=27.76>Q₁₀₀

PIPE FROM B2 to C2

Capacity of curb inlets =13.2*2+13.2*2+8.2*4=85.6 cfs

36" RCP

n=0.013

Slope=1.8%

Q pipe=89.73 cfs>(Qcapacity of Curb inlets)

C1&C2

Since the Post Drainage Area C1 & C2 are smaller than B1 & B2
2-Design 2-1 Curb Inlets area adequate at Point C1 and C2

PIPE FROM C2 to D1

Capacity of curb inlets $= 13.2 \times 2 + 13.2 \times 2 + 8.2 \times 4 + 8.2 \times 4 = 118.4$ cfs

42" RCP

$n = 0.013$

Slope = 2.0%

$Q_{\text{pipe}} = 142.70 \text{ cfs} > (Q_{\text{capacity of Curb inlets}})$

PIPE Underneath street sizing

24" RCP

PIPE FROM D1 to D2

Capacity of curb inlets $= 26.4 \times 6 = 158.4$ cfs

48" RCP

$n = 0.013$

Slope = 1.0%

$Q_{\text{pipe}} = 176.4 > (Q_{\text{capacity of Curb inlets}})$

E1

Since the Post Drainage Area E1 is smaller than A1
2-Design 2-1 Curb Inlets area adequate at Point E

PIPE FROM E to channel

Capacity of curb inlets $= 26.4 \times 2 = 52.8$ cfs

24" RCP

$n = 0.013$

Slope = 1.5%

$Q_{\text{pipe}} = 58.16 > (Q_{\text{capacity of Curb inlets}})$

F1&F2

Since the Post Drainage Area F1 & F2 are smaller than C1 & C2
2-Design 2-0 Curb Inlets area adequate at Point B1 and B2

Similarly for A2

$Q_{F(\text{capacity})} > Q_{25}$

PIPE Underneath street sizing

18" RCP

PIPE FROM F2 to Pond

Capacity of curb inlets $= 8.2 \times 2 + 8.2 \times 2 = 32.8$ cfs

24" RCP

$n = 0.013$

Slope = 2.2%

$Q_{\text{pipe}} = 33.64 > (Q_{\text{capacity of Curb inlets}})$

CONCLUSION

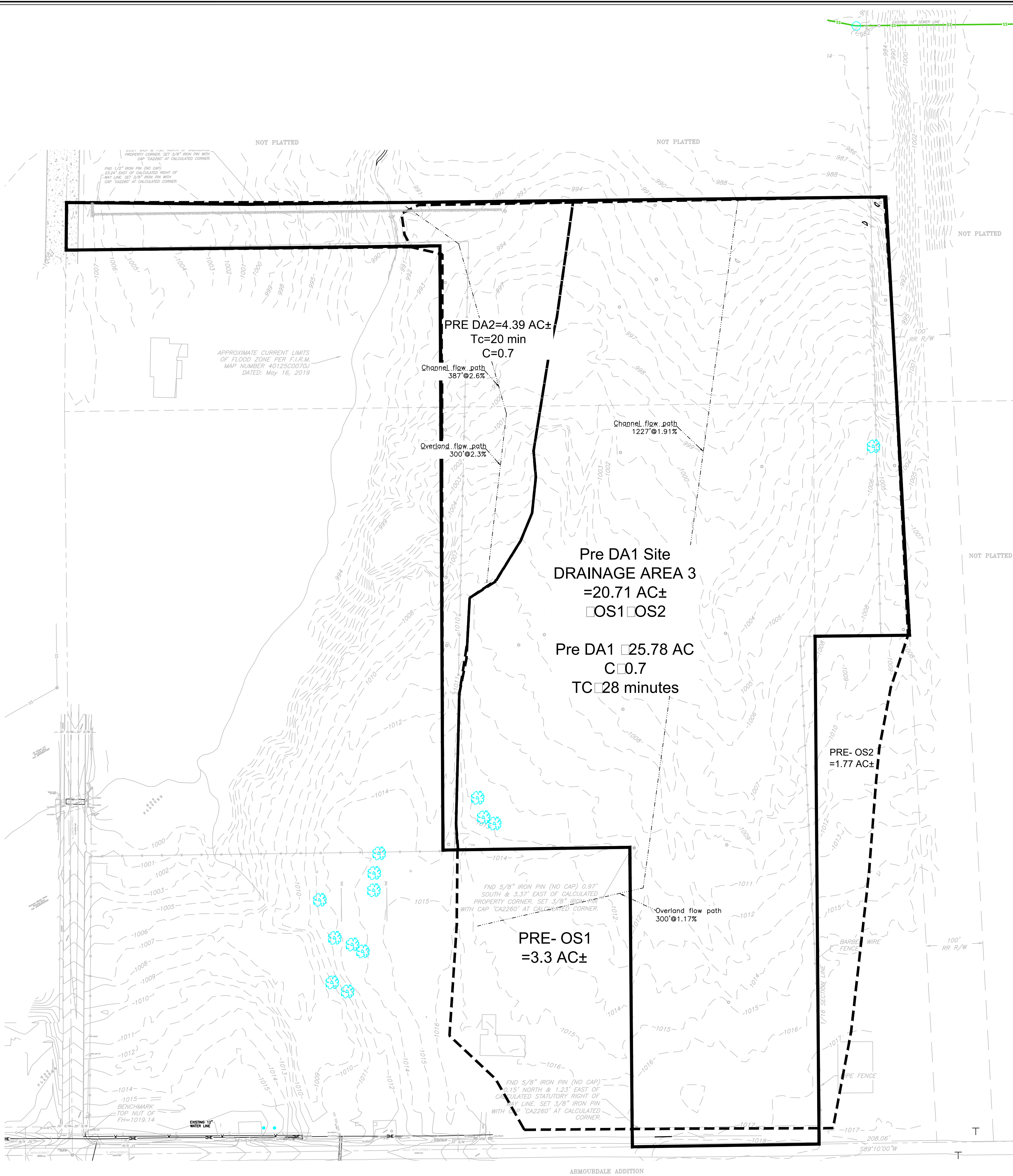
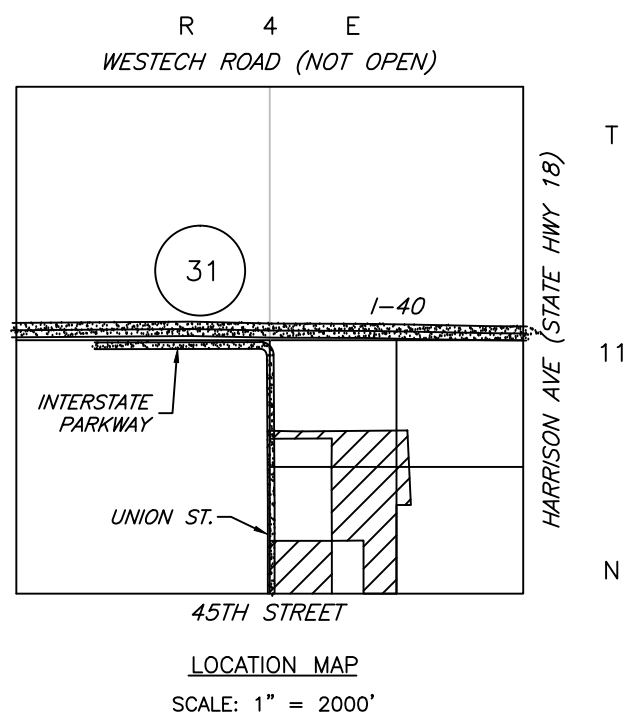
All drainage design and computations were performed in accordance with the City of Shawnee Drainage Ordinance and Subdivision Regulations. All the design either equal or exceed the requirement as indicated by City of Shawnee Drainage Ordinance and Subdivision Regulations.

**APPENDIX A: PRE-DEVELOPMENT
AND POST-DEVELOPMENT
HYDRAULIC MAPS (SEE PLANS
SHEET H1-H3)**

LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (21), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NORTHWEST CORNER (NW/C) OF SAID SE/4; THENCE S00°54'43"W ALONG THE WEST LINE OF SAID NW/4-SE/4 A DISTANCE OF 943.22 FEET TO THE POINT OF BEGINNING; THENCE S89°05'17"E A DISTANCE OF 315.00 FEET; THENCE N89°41'33"E A DISTANCE OF 1131.44 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE A.T.&S.F. RAILWAY COMPANY RIGHT-OF-WAY; THENCE S02°44'42"E ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 774.53 FEET; THENCE S89°44'50"W A DISTANCE OF 169.70 FEET TO A POINT ON THE EAST LINE OF THE SOUTHWEST QUARTER (SW/4) OF SAID SE/4; THENCE S00°08'05"E ALONG SAID EAST LINE A DISTANCE OF 896.60 FEET TO A POINT ON THE SOUTH LINE OF SAID SW/4-SE/4; THENCE S89°30'53"W ALONG SAID SOUTH LINE A DISTANCE OF 129.58 FEET; THENCE N00°08'29"W A DISTANCE OF 528.68 FEET; THENCE S89°30'54"W A DISTANCE OF 329.95 FEET; THENCE N00°10'54"W A DISTANCE OF 781.72 FEET TO A POINT ON THE NORTH LINE OF SAID SW/4-SE/4; THENCE S89°41'33"W ALONG SAID NORTH LINE A DISTANCE OF 0.98 FEET; THENCE N00°54'43"E A DISTANCE OF 285.00 FEET; THENCE S89°41'33"W A DISTANCE OF 660.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4; THENCE N00°54'43"E ALONG SAID WEST LINE A DISTANCE OF 84.00 FEET TO THE POINT OF BEGINNING, CONTAINING 25.16 ACRES, MORE OR LESS.
AND
A TRACT OF LAND DESCRIBED AS BEGINNING AT THE SOUTHWEST CORNER (SW/C) OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN; THENCE EAST 412.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 412.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING,
AND
A TRACT OF LAND IN THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN, DESCRIBED AS BEGINNING 412.5 FEET EAST OF THE SOUTHWEST CORNER (SW/C) OF SAID W/2-SW/4-SE/4; THENCE EAST 247.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 247.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING, CONTAINING 3 ACRES, MORE OR LESS.
FOR A GROSS TOTAL OF 33.03 ACRES, MORE OR LESS.

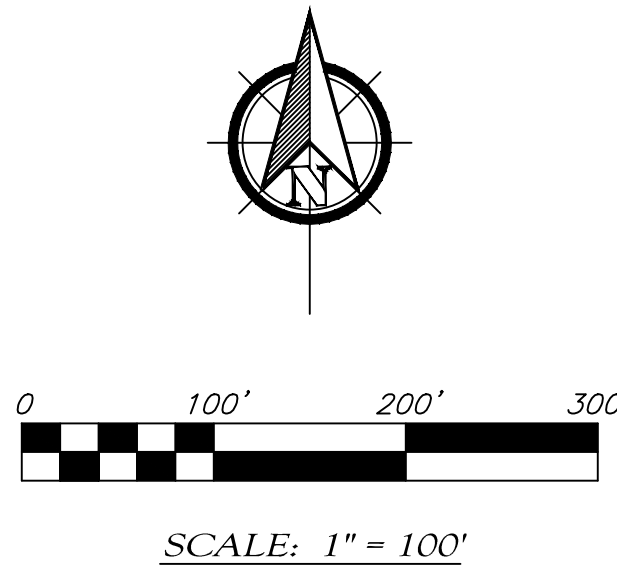
DEVELOPERS INFORMATION

CURRENTLY ZONED: C-3 & A-1
LOT 1, BLOCK 1 CURRENTLY ZONED A-1. TO BE RE-ZONED TO C-3.
LOT 20 IN BLOCK 2, & LOT 26 IN BLOCK 3 CURRENTLY ZONED C-3. TO REMAIN C-3.
REMAINDER OF PROPERTY IS CURRENTLY ZONED C-3. TO BE RE-ZONED AS R-1.
LOCATION: NE CORNER, UNION & 45TH STREET SHAWNEE, OK. 74804
OWNER & DEVELOPER: RICK LANDES
903 E. 35th STREET
SHAWNEE, OK. 74804
(405) 627-5219
PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35th ST.
SHAWNEE, OK. 74801
(405) 275-5388



PRE-DEVELOPMENT HYDROLOGY
CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



- LEGEND
- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
 - (•) INDICATES EXISTING MONUMENT
 - WATER METER
 - WATER VALVE
 - FIRE HYDRANT
 - POWER POLE
 - LIGHT POLE
 - GUY WIRE
 - GAS METER
 - VENT PIPE
 - TELEPHONE PEDESTAL
 - ELECTRIC BOX
 - CLEAN OUT
 - MANHOLE
 - STORM DRAIN
 - AIR CONDITIONER UNIT
 - SIGN
 - BENCHMARK
 - TREE
 - TUG TELEPHONE, UNDERGROUND
 - USE UNDERGROUND ELECTRIC
 - OHE OVERHEAD ELECTRIC & CABLE TV
 - FCC FIBER OPTIC CABLE
 - CATV CABLE TV
 - PET PETROLEUM LINE
 - G GAS LINE
 - HPG HIGH PRESSURE GAS LINE
 - W WATER LINE
 - SS SANITARY SEWER LINE
 - STS STORM SEWER
 - PSS PRESSURIZED SANITARY SEWER LINE
 - X FENCE
 - FLOW LINE

STATISTICAL DATA

- A. 33.03 TOTAL ACRES
- B. 89 LOTS
- C. 86 SINGLE FAMILY DWELLING UNITS
- D. 3 COMMERCIAL LOTS, TOTALING 9.18 ACRES
- E. NONE
- F. NONE
- G. 4520 L.F. LOCAL STREETS
- H. NONE

STORMWATER FLOW

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE 'A' (NO BASE FLOOD ELEVATIONS DETERMINED) PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40125C0070-H, MAP REVISED 9-3-2010.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

BASIS OF BEARING

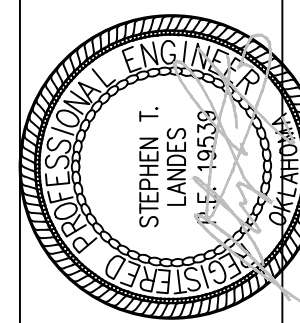
BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, T11N-R4E, 1M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

BENCHMARK

BENCHMARK #1 TOP NUT FH NE/CORNER 45TH & UNION TOP NUT=1019.14

LANDES ENGINEERING L.L.C.

www.landesengineering.net
903 E. 35th Street * P.O. BOX 1032
Shawnee, OK 74802-1032
(405) 275-5388 * Fax (405) 275-9047
CA # 2260 EXP. 6-30-21



Revisions

Date	Description
04/11/2019	MARK-UP'S PER CITY REVIEW

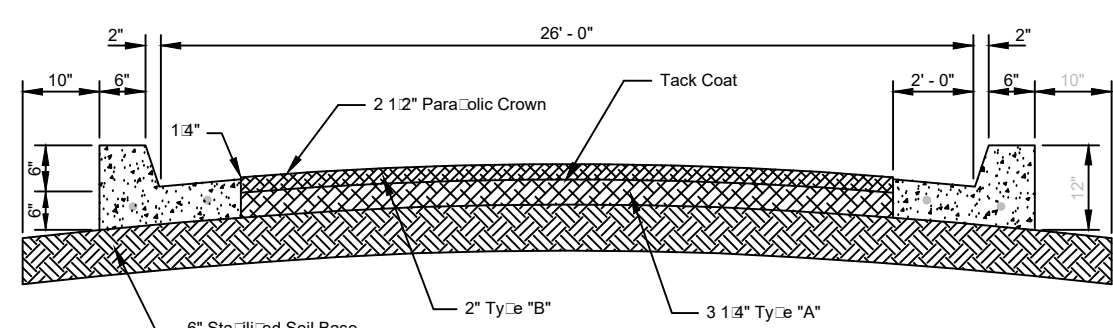
Cardinal Point Development, LLC

Cardinal Pointe

Pre Development Prelim-Drairage Area

Sheet Title
Design STL
Drawn STL
Date 08/01/2019
Sheet H1
H3

LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (21), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NORTHWEST CORNER (NW/C) OF SAID SE/4; THENCE S00°54'43"W ALONG THE WEST LINE OF SAID NW/4-SE/4 A DISTANCE OF 943.22 FEET TO THE POINT OF BEGINNING; THENCE S89°05'17"E A DISTANCE OF 315.00 FEET; THENCE N84°13'32"E A DISTANCE OF 1131.44 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE A.T.&S.F. RAILWAY COMPANY RIGHT-OF-WAY; THENCE S02°44'42"E ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 774.53 FEET; THENCE S89°44'50"W A DISTANCE OF 169.70 FEET TO A POINT ON THE EAST LINE OF THE SOUTHWEST QUARTER (SW/4) OF SAID SE/4; THENCE S00°06'05"E ALONG SAID EAST LINE A DISTANCE OF 896.60 FEET TO A POINT ON THE SOUTH LINE OF SAID SW/4-SE/4; THENCE S88°30'53"W ALONG SAID SOUTH LINE A DISTANCE OF 129.58 FEET; THENCE N00°08'29"W A DISTANCE OF 528.68 FEET; THENCE S89°30'54"W A DISTANCE OF 328.95 FEET; THENCE N00°10'54"W A DISTANCE OF 781.72 FEET TO A POINT ON THE NORTH LINE OF SAID SW/4-SE/4; THENCE S89°41'33"W ALONG SAID NORTH LINE A DISTANCE OF 0.98 FEET; THENCE N00°54'43"E A DISTANCE OF 285.00 FEET; THENCE S89°41'33"W A DISTANCE OF 660.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4; THENCE N00°54'43"E ALONG SAID WEST LINE A DISTANCE OF 84.00 FEET TO THE POINT OF BEGINNING, CONTAINING 25.16 ACRES, MORE OR LESS.
AND
A TRACT OF LAND DESCRIBED AS BEGINNING AT THE SOUTHWEST CORNER (SW/C) OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN; THENCE EAST 412.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 412.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING,
AND
A TRACT OF LAND IN THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN, DESCRIBED AS BEGINNING 412.5 FEET EAST OF THE SOUTHWEST CORNER (SW/C) OF SAID W/2-SW/4-SE/4; THENCE EAST 247.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 247.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING, CONTAINING 3 ACRES, MORE OR LESS.
FOR A GROSS TOTAL OF 33.03 ACRES, MORE OR LESS.

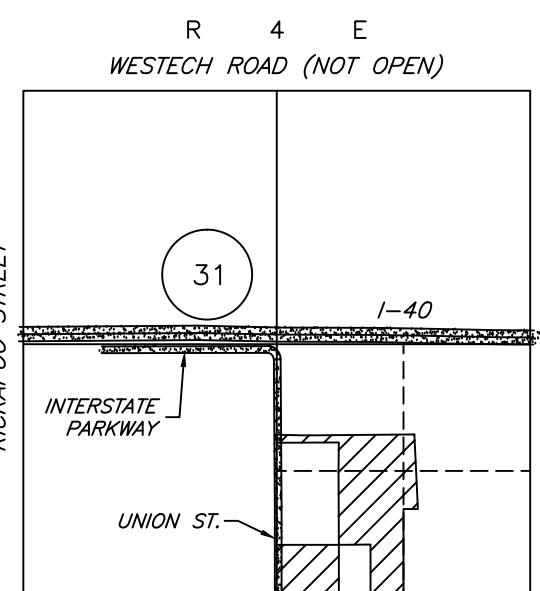


DEVELOPERS INFORMATION

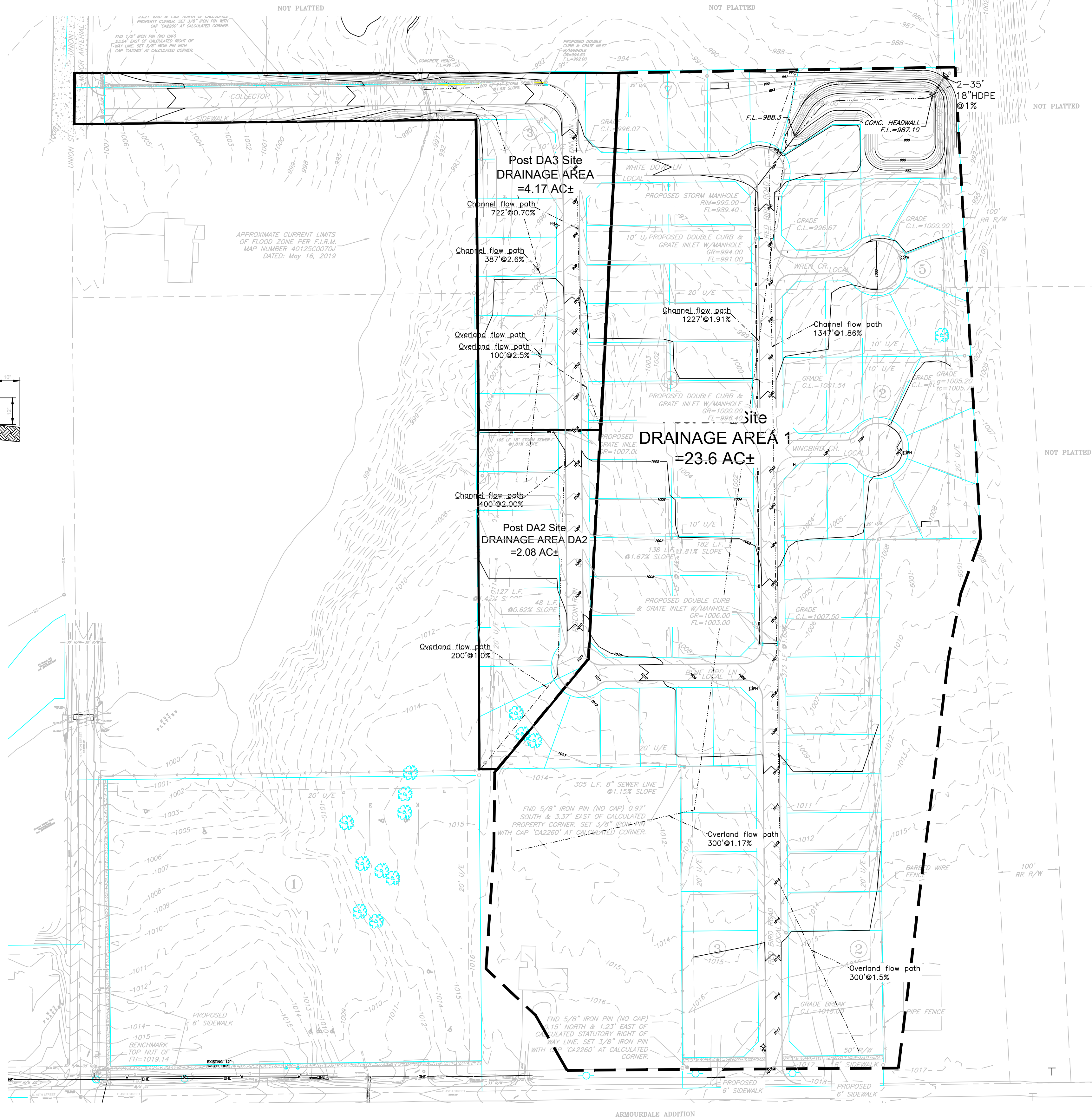
CURRENTLY ZONED: C-3 & A-1
LOT 1, BLOCK 1 CURRENTLY ZONED A-1. TO BE RE-ZONED TO C-3.
LOT 20 IN BLOCK 2, & LOT 26 IN BLOCK 3 CURRENTLY ZONED C-3. TO REMAIN C-3.
REMAINDER OF PROPERTY IS CURRENTLY ZONED C-3. TO BE RE-ZONED AS R-1.
LOCATION: NE CORNER, UNION & 45TH STREET SHAWNEE, OK. 74804

OWNER & DEVELOPER: RICK LANDES
903 E. 35th STREET
SHAWNEE, OK. 74804
(405) 627-5219

PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35th ST.
SHAWNEE, OK. 74801
(405) 275-5388



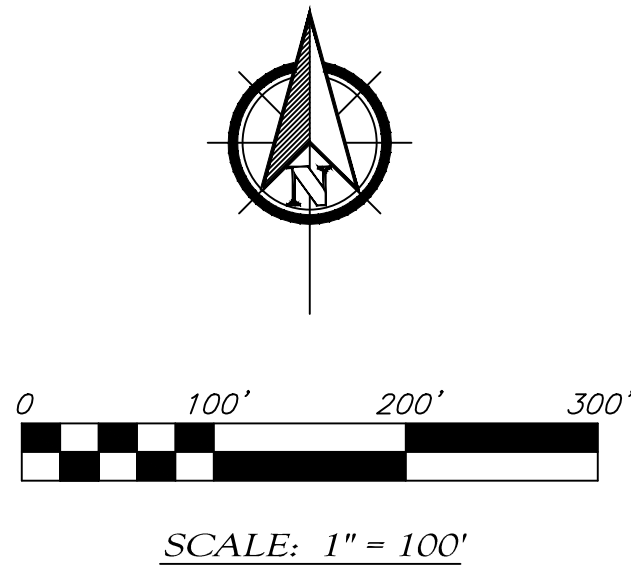
LOCATION MAP
SCALE: 1" = 2000'



POST-DEVELOPMENT HYDROLOGY

CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



LEGEND

- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
- (•) INDICATES EXISTING MONUMENT
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- LIGHT POLE
- GUY WIRE
- GAS METER
- VENT PIPE
- TELEPHONE PEDESTAL
- ELECTRIC BOX
- CLEAN OUT
- MANHOLE
- STORM DRAIN
- AIR CONDITIONER UNIT
- SIGN
- BENCHMARK
- TREE
- TUG TELEPHONE, UNDERGROUND
- USE UNDERGROUND ELECTRIC
- OHE OVERHEAD ELECTRIC & CABLE TV
- FCC FIBER OPTIC CABLE
- CATV CABLE TV
- PET PETROLEUM LINE
- G GAS LINE
- HPG HIGH PRESSURE GAS LINE
- W WATER LINE
- SS SANITARY SEWER LINE
- STS STORM SEWER
- PSS PRESSURIZED SANITARY SEWER LINE
- X FENCE
- FLOW LINE

STATISTICAL DATA

- A. 33.03 TOTAL ACRES
- B. 89 LOTS
- C. 86 SINGLE FAMILY DWELLING UNITS
- D. 3 COMMERCIAL LOTS, TOTALING 9.18 ACRES
- E. NONE
- F. NONE
- G. 4520 L.F. LOCAL STREETS
- H. NONE

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE 'A' (NO BASE FLOOD ELEVATIONS DETERMINED) PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40123C0070-H, MAP REVISED 9-3-2010.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

BASIS OF BEARING

BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, T11N-R4E, 1M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

BENCHMARK

BENCHMARK #1 TOP NUT FH NE/CORNER 45TH & UNION TOP NUT=1019.14

LANDES ENGINEERING L.L.C.

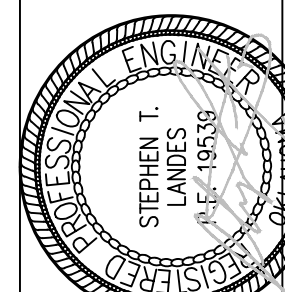
www.landesengineering.net

903 E. 35th Street * P.O. BOX 1032

Shawnee, OK 74802-1032

(405) 275-5388 * Fax (405) 275-9047

CA # 2260 EXP. 6-30-21

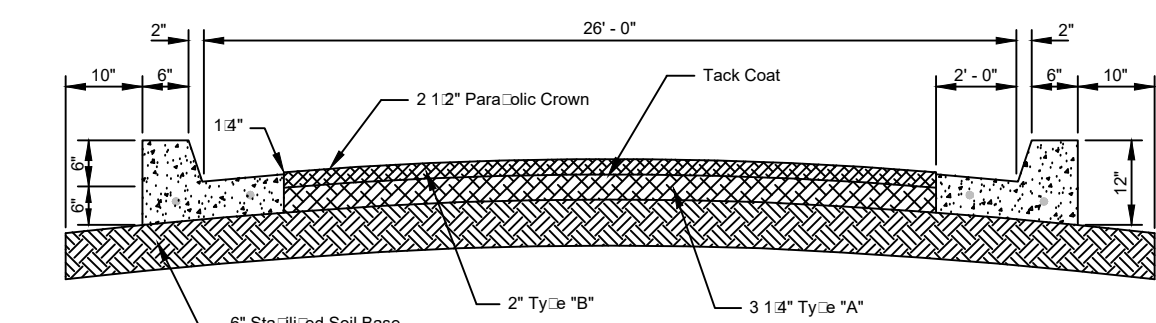


Stephen T. Landes, P.E. #19539

Revisions	Date	Description
1	04/11/2019	MARK-UPS PER CITY REVIEW
2	08/22/2019	MARK-UPS PER CITY REVIEW
3	08/22/2019	MARK-UPS PER CITY REVIEW
4	08/22/2019	MARK-UPS PER CITY REVIEW
5	08/22/2019	MARK-UPS PER CITY REVIEW
6	08/22/2019	MARK-UPS PER CITY REVIEW
7	08/22/2019	MARK-UPS PER CITY REVIEW
8	08/22/2019	MARK-UPS PER CITY REVIEW
9	08/22/2019	MARK-UPS PER CITY REVIEW
10	08/22/2019	MARK-UPS PER CITY REVIEW

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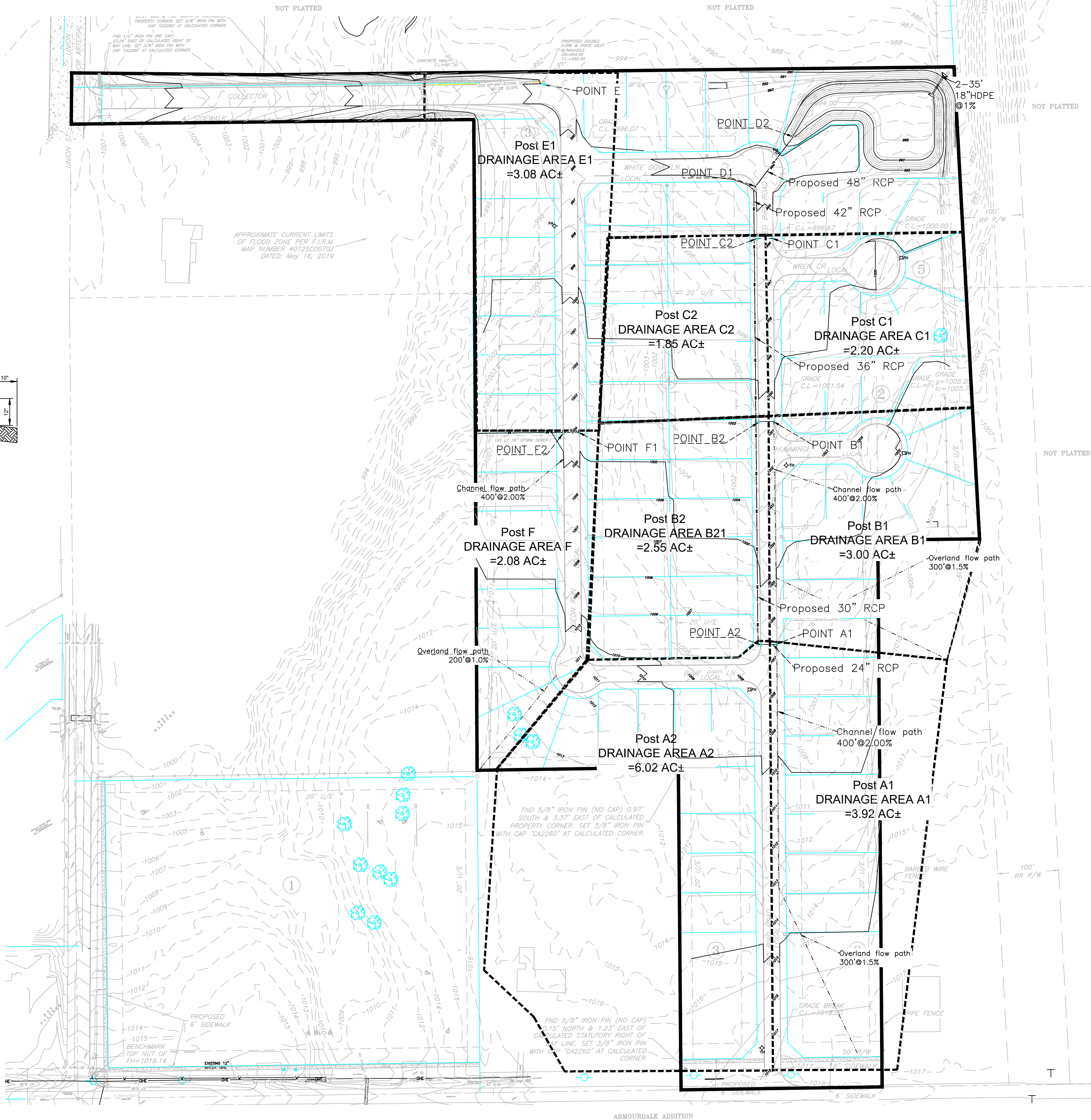
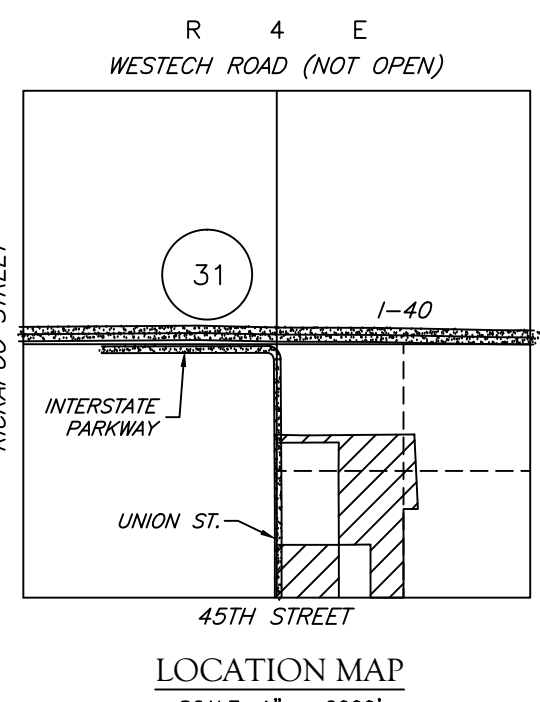
LEGAL DESCRIPTION:
A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TWENTY (21), TOWNSHIP ELEVEN NORTH (11N), RANGE FOUR EAST (4E) OF THE INDIAN MERIDIAN, SHAWNEE, POTTAWATOMIE COUNTY, OKLAHOMA, WITH A BASIS OF BEARING OF N00°54'43"E ALONG THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4, AND MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NORTHWEST CORNER (NW/C) OF SAID SE/4; THENCE S00°54'43"W ALONG THE WEST LINE OF SAID NW/4-SE/4 A DISTANCE OF 943.22 FEET TO THE POINT OF BEGINNING; THENCE S89°05'17"E A DISTANCE OF 315.00 FEET; THENCE N89°41'33"E A DISTANCE OF 1131.44 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE A.T.&S.F. RAILWAY COMPANY RIGHT-OF-WAY; THENCE S02°44'42"E ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 774.53 FEET; THENCE S89°44'50"W A DISTANCE OF 169.70 FEET TO A POINT ON THE EAST LINE OF THE SOUTHWEST QUARTER (SW/4) OF SAID SE/4; THENCE S00°08'05"E ALONG SAID EAST LINE A DISTANCE OF 896.60 FEET TO A POINT ON THE SOUTH LINE OF SAID SW/4-SE/4; THENCE S89°30'53"W ALONG SAID SOUTH LINE A DISTANCE OF 129.58 FEET; THENCE N00°08'29"W A DISTANCE OF 528.68 FEET; THENCE S89°30'54"W A DISTANCE OF 329.95 FEET; THENCE N00°10'54"W A DISTANCE OF 781.72 FEET TO A POINT ON THE NORTH LINE OF SAID SW/4-SE/4; THENCE S89°41'33"W ALONG SAID NORTH LINE A DISTANCE OF 0.98 FEET; THENCE N00°54'43"E A DISTANCE OF 285.00 FEET; THENCE S89°41'33"W A DISTANCE OF 660.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHWEST QUARTER (NW/4) OF SAID SE/4; THENCE N00°54'43"E ALONG SAID WEST LINE A DISTANCE OF 84.00 FEET TO THE POINT OF BEGINNING, CONTAINING 25.16 ACRES, MORE OR LESS.
AND
A TRACT OF LAND DESCRIBED AS BEGINNING AT THE SOUTHWEST CORNER (SW/C) OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN; THENCE EAST 412.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 412.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING,
AND
A TRACT OF LAND IN THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (W/2-SW/4-SE/4) OF SECTION THIRTY-ONE (31), TOWNSHIP ELEVEN (11) NORTH, RANGE FOUR (4) EAST OF THE INDIAN MERIDIAN, DESCRIBED AS BEGINNING 412.5 FEET EAST OF THE SOUTHWEST CORNER (SW/C) OF SAID W/2-SW/4-SE/4; THENCE EAST 247.5 FEET; THENCE NORTH 526.80 FEET; THENCE WEST 247.5 FEET; THENCE SOUTH 526.80 FEET TO THE POINT OF BEGINNING, CONTAINING 3 ACRES, MORE OR LESS.
FOR A GROSS TOTAL OF 33.03 ACRES, MORE OR LESS.



DEVELOPERS INFORMATION

CURRENTLY ZONED: C-3 & A-1
LOT 1, BLOCK 1 CURRENTLY ZONED A-1. TO BE RE-ZONED TO C-3.
LOT 20 IN BLOCK 2, & LOT 26 IN BLOCK 3 CURRENTLY ZONED C-3. TO REMAIN C-3.
REMAINDER OF PROPERTY IS CURRENTLY ZONED C-3. TO BE RE-ZONED AS R-1.
LOCATION: NE CORNER, UNION & 45TH STREET SHAWNEE, OK. 74804

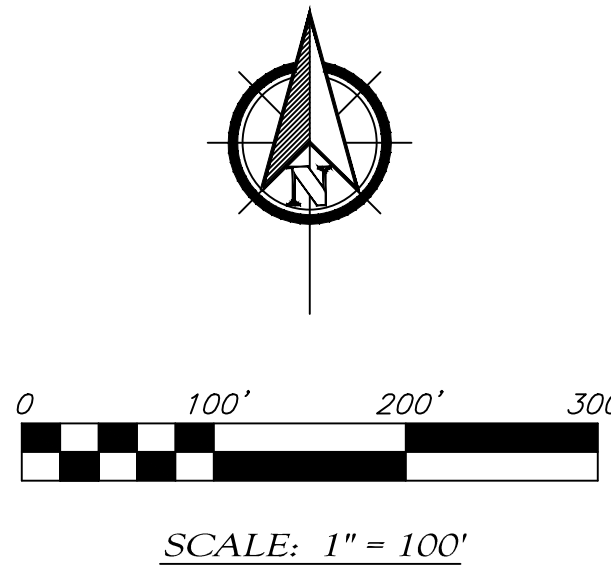
OWNER & DEVELOPER: RICK LANDES
903 E. 35th STREET
SHAWNEE, OK. 74804
(405) 627-5219
PROJECT ENGINEER: STEPHEN T. LANDES
903 E. 35th ST.
SHAWNEE, OK. 74801
(405) 275-5388



POST DEVELOPMENT PRELIMINARY DRAINAGE DESIGN

CARDINAL POINT

A SUBDIVISION OF A PART OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 31, TOWNSHIP 11 NORTH, RANGE 4 EAST OF THE INDIAN MERIDIAN, POTTAWATOMIE COUNTY, OKLAHOMA



LEGEND

- (o) INDICATES 3/8" IRON PIN SET, W/CAP "CA 2260" (UNLESS OTHERWISE NOTED)
- (•) INDICATES EXISTING MONUMENT
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- LIGHT POLE
- GUY WIRE
- GAS METER
- VENT PIPE
- TELEPHONE PEDESTAL
- ELECTRIC BOX
- CLEAN OUT
- MANHOLE
- STORM DRAIN
- AIR CONDITIONER UNIT
- SIGN
- BENCHMARK
- TREE
- TUG TELEPHONE, UNDERGROUND
- USE UNDERGROUND ELECTRIC
- OHE OVERHEAD ELECTRIC & CABLE TV
- FOC FIBER OPTIC CABLE
- CATV CABLE TV
- PET PETROLEUM LINE
- C GAS LINE
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- SS SANITARY SEWER LINE
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- FLOW LINE

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- D. 3 COMMERCIAL LOTS, TOTALING 9.18 ACRES
- E. NONE
- F. NONE
- G. 4520 L.F. LOCAL STREETS
- H. NONE

STORMWATER FLOW

FLOOD STATEMENT

THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE 'A' (NO BASE FLOOD ELEVATIONS DETERMINED) PER F.I.R.M. POTTAWATOMIE COUNTY, OKLAHOMA AND INCORPORATED AREAS, PANEL 70 OF 550, MAP NUMBER 40125C0070-H, MAP REVISED 9-3-2010.

UNDERGROUND UTILITIES NOTES

SOURCE INFORMATION FROM PLANS AND MARKINGS HAVE BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

PRELIMINARY PLAT NOTE

BASIS OF BEARING

BASIS OF BEARING OF S89°10'00"W ALONG THE SOUTH LINE OF THE SE/4 OF SECTION 31, T11N-R4E, 1M. BASED ON OKLAHOMA SOUTH STATE PLANE COORDINATE SYSTEM.

BENCHMARK

BENCHMARK #1 TOP NUT FH NE/CORNER 45TH & UNION TOP NUT=1019.14

LANDES ENGINEERING L.L.C.

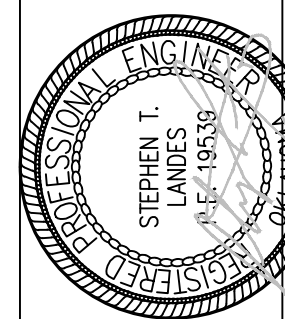
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903 E. 35th Street * P.O. BOX 1032

Shawnee, OK 74802-1032

(405) 275-5388 * Fax (405) 275-9047

CA # 2260 EXP. 6-30-21



Stephen T. Landes, P.E. #19539

Revisions

Date	By	Remarks
04/11/2019	MARK-UPS	PER CITY REVIEW
04/22/2019	MARK-UPS	PER CITY REVIEW

Design

Drawn

Check

Date

Scale

Sheet

Project

Client

Drawn

Check

Date

Scale

Sheet

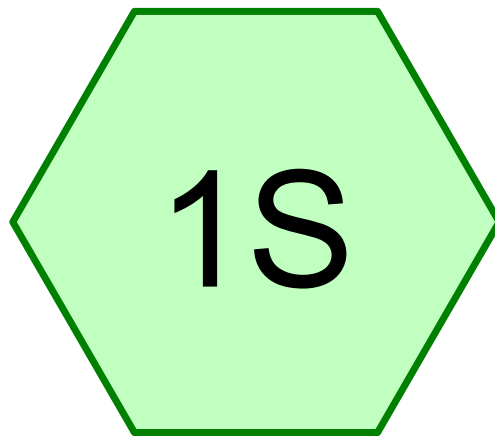
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Client

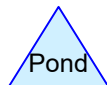
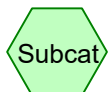
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APPENDIX B: PRE DEVELOPMENT HYDROLOGY



Pre Dev Drainage Area DA1



Drainage Diagram for PRE DEVELOPMENT DRAINAGE AREA DA1
Prepared by LANDES ENGINEERING LLC
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PRE DEVELOPMENT DRAINAGE AREA DA1

Prepared by LANDES ENGINEERING LLC

HydroCAD® 8.50 s/n 002876 © 2007 HydroCAD Software Solutions LLC

Page 2

Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
25.780	0.50	GRASS (1S)

PRE DEVELOPMENT DRAINAGE AREA DA1

Shawnee 2-Year Duration=28 min, Inten=2.60 in/hr

Prepared by LANDES ENGINEERING LLC

HydroCAD® 8.50 s/n 002876 © 2007 HydroCAD Software Solutions LLC

Page 3

Summary for Subcatchment 1S: Pre Dev Drainage Area DA1

Runoff = 33.56 cfs @ 0.47 hrs, Volume= 1.303 af, Depth= 0.61"

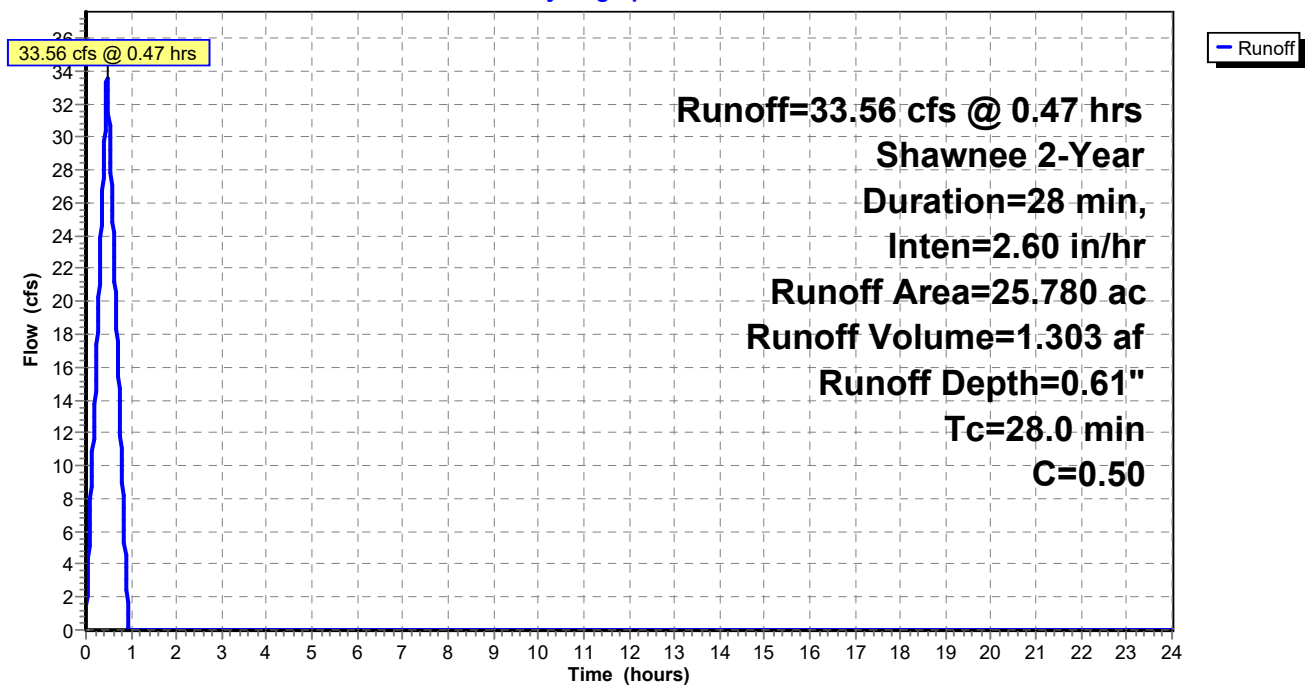
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Shawnee 2-Year Duration=28 min, Inten=2.60 in/hr

Area (ac)	C	Description
25.780	0.50	GRASS
25.780		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					Direct Entry,

Subcatchment 1S: Pre Dev Drainage Area DA1

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA1

Shawnee 5-Year Duration=28 min, Inten=3.39 in/hr

Prepared by LANDES ENGINEERING LLC

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Page 4

Summary for Subcatchment 1S: Pre Dev Drainage Area DA1

Runoff = 43.75 cfs @ 0.47 hrs, Volume= 1.698 af, Depth= 0.79"

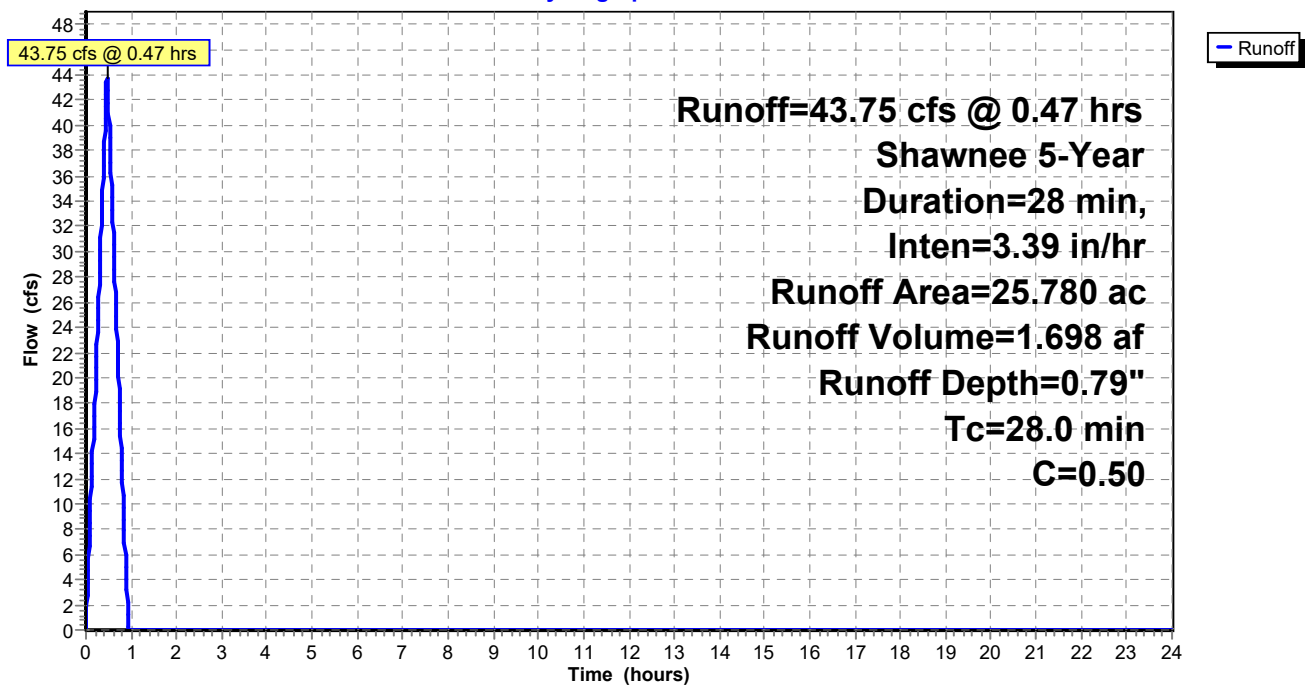
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Shawnee 5-Year Duration=28 min, Inten=3.39 in/hr

Area (ac)	C	Description
25.780	0.50	GRASS
25.780		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					Direct Entry,

Subcatchment 1S: Pre Dev Drainage Area DA1

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA1

Shawnee 10-Year Duration=28 min, Inten=3.88 in/hr

Prepared by LANDES ENGINEERING LLC

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Page 5

Summary for Subcatchment 1S: Pre Dev Drainage Area DA1

Runoff = 50.16 cfs @ 0.47 hrs, Volume= 1.947 af, Depth= 0.91"

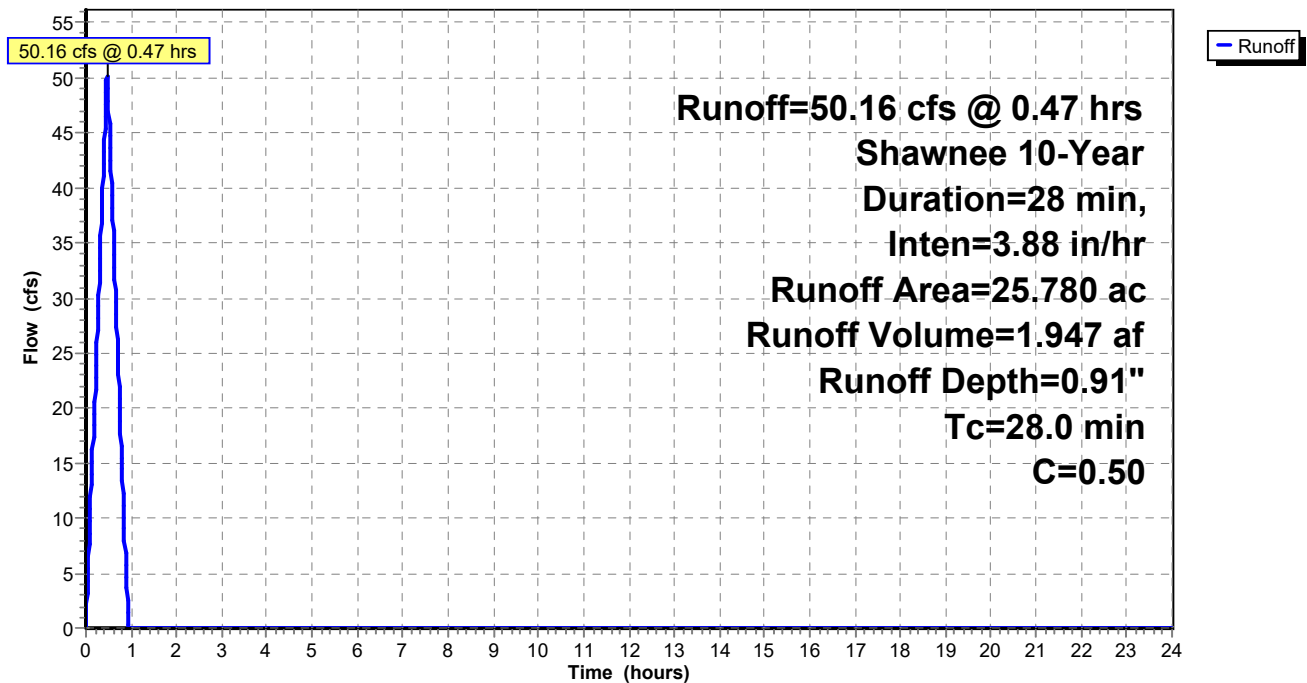
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Shawnee 10-Year Duration=28 min, Inten=3.88 in/hr

Area (ac)	C	Description
25.780	0.50	GRASS
25.780		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					Direct Entry,

Subcatchment 1S: Pre Dev Drainage Area DA1

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA1

Shawnee 25-Year Duration=28 min, Inten=4.56 in/hr

Prepared by LANDES ENGINEERING LLC

HydroCAD® 8.50 s/n 002876 © 2007 HydroCAD Software Solutions LLC

Page 6

Summary for Subcatchment 1S: Pre Dev Drainage Area DA1

Runoff = 58.89 cfs @ 0.47 hrs, Volume= 2.285 af, Depth= 1.06"

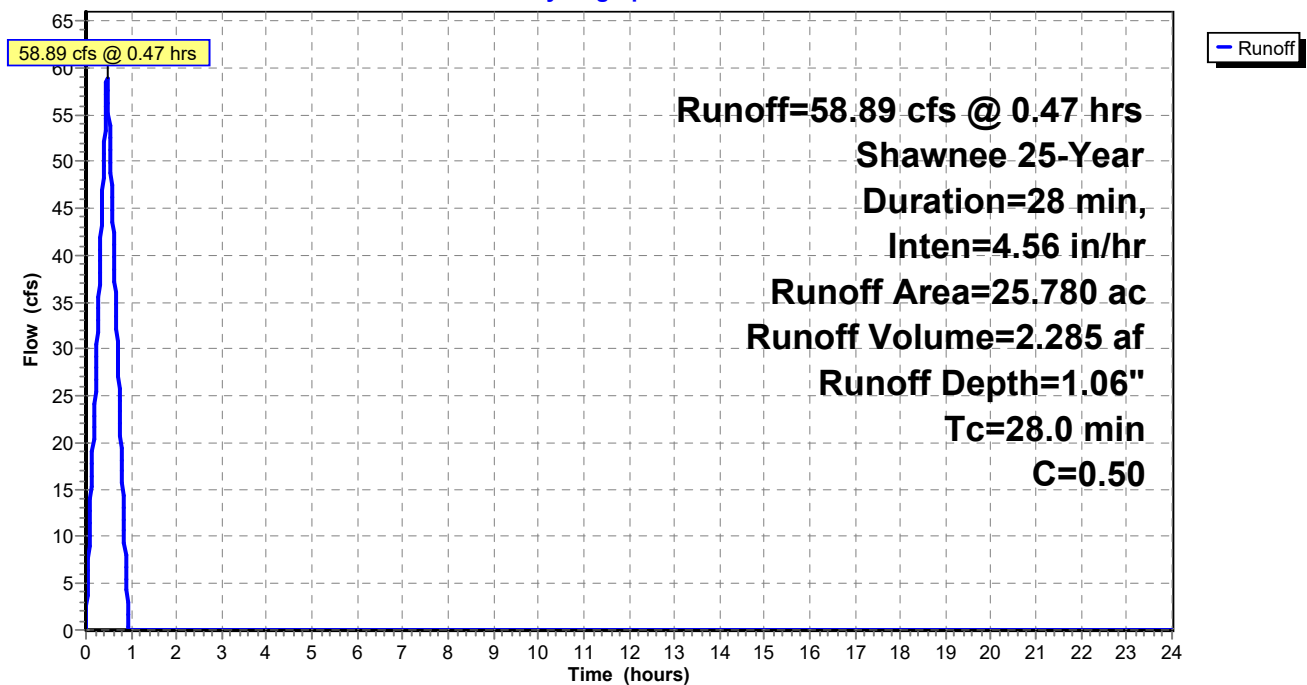
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Shawnee 25-Year Duration=28 min, Inten=4.56 in/hr

Area (ac)	C	Description
25.780	0.50	GRASS
25.780		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					Direct Entry,

Subcatchment 1S: Pre Dev Drainage Area DA1

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA1

Shawnee 50-Year Duration=28 min, Inten=5.23 in/hr

Prepared by LANDES ENGINEERING LLC

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Page 7

Summary for Subcatchment 1S: Pre Dev Drainage Area DA1

Runoff = 67.56 cfs @ 0.47 hrs, Volume= 2.622 af, Depth= 1.22"

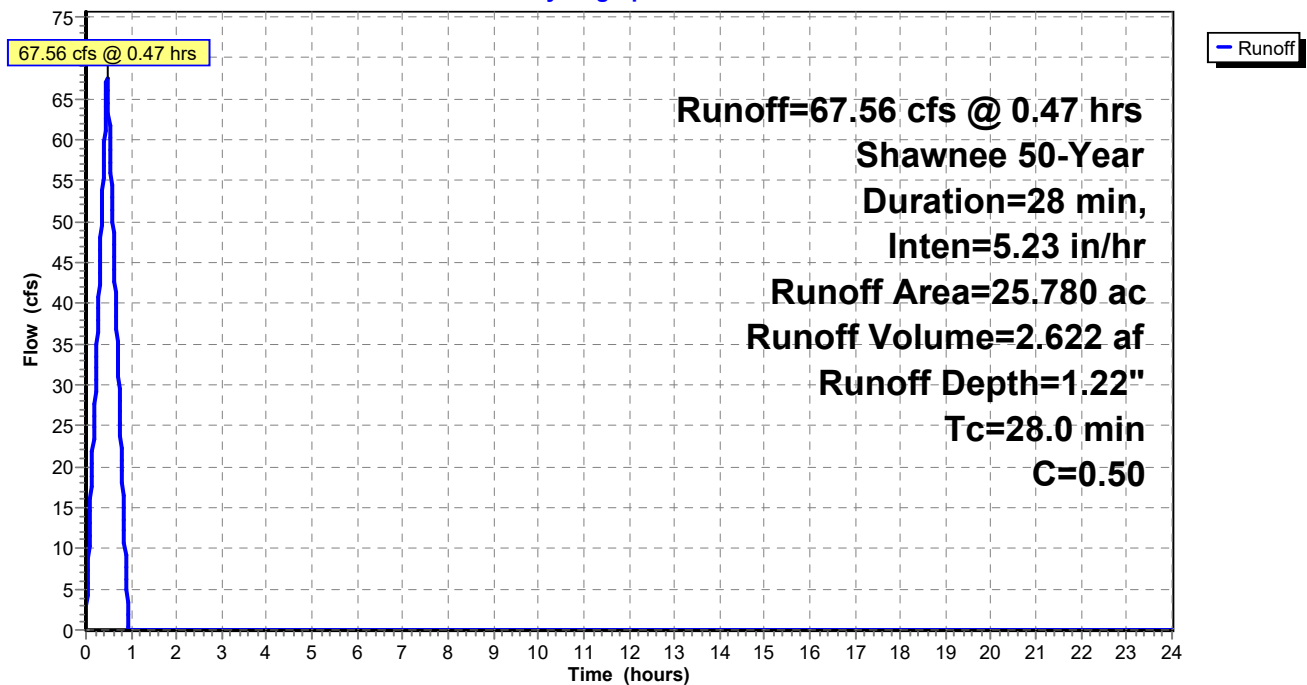
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Shawnee 50-Year Duration=28 min, Inten=5.23 in/hr

Area (ac)	C	Description
25.780	0.50	GRASS
25.780		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					Direct Entry,

Subcatchment 1S: Pre Dev Drainage Area DA1

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA1

Shawnee 100-Year Duration=28 min, Inten=5.72 in/hr

Prepared by LANDES ENGINEERING LLC

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Page 8

Summary for Subcatchment 1S: Pre Dev Drainage Area DA1

Runoff = 73.93 cfs @ 0.47 hrs, Volume= 2.869 af, Depth= 1.34"

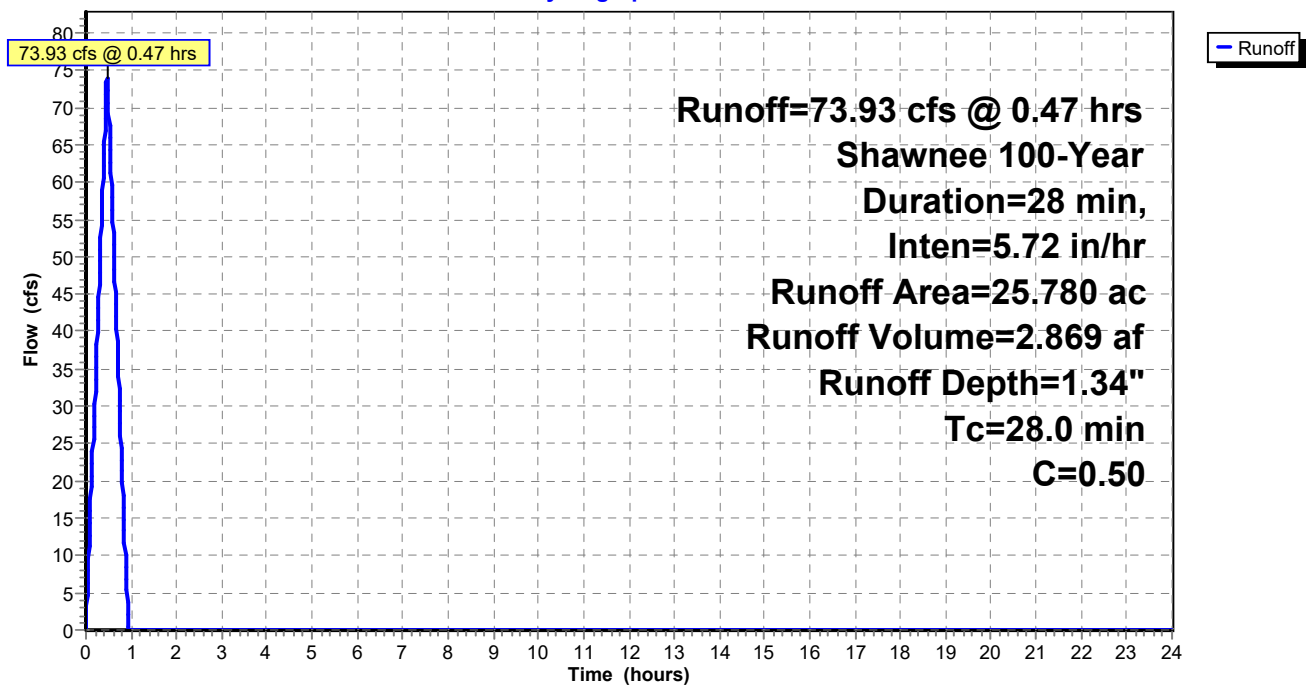
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Shawnee 100-Year Duration=28 min, Inten=5.72 in/hr

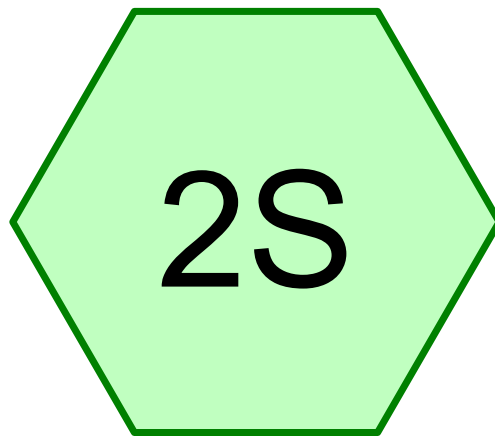
Area (ac)	C	Description
25.780	0.50	GRASS
25.780		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					Direct Entry,

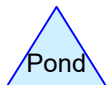
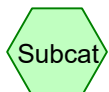
Subcatchment 1S: Pre Dev Drainage Area DA1

Hydrograph





Pre Dev Drainage Area-DA2



Drainage Diagram for PRE DEVELOPMENT DRAINAGE AREA DA2
Prepared by LANDES ENGINEERING LLC
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PRE DEVELOPMENT DRAINAGE AREA DA2

Prepared by LANDES ENGINEERING LLC

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Page 2

Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
4.390	0.50	GRASS (2S)

Summary for Subcatchment 2S: Pre Dev Drainage Area-DA2

Runoff = 6.87 cfs @ 0.33 hrs, Volume= 0.191 af, Depth= 0.52"

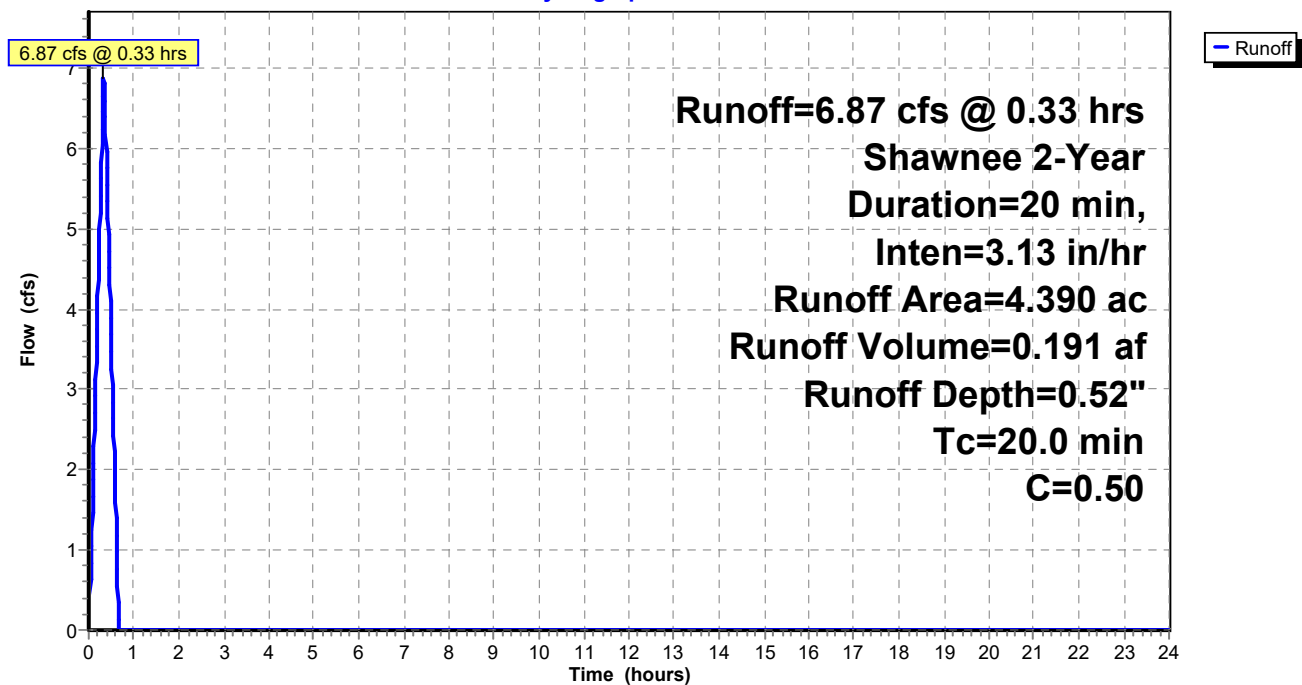
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Shawnee 2-Year Duration=20 min, Inten=3.13 in/hr

Area (ac)	C	Description
4.390	0.50	GRASS
4.390		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Subcatchment 2S: Pre Dev Drainage Area-DA2

Hydrograph



Summary for Subcatchment 2S: Pre Dev Drainage Area-DA2

Runoff = 8.89 cfs @ 0.33 hrs, Volume= 0.247 af, Depth= 0.68"

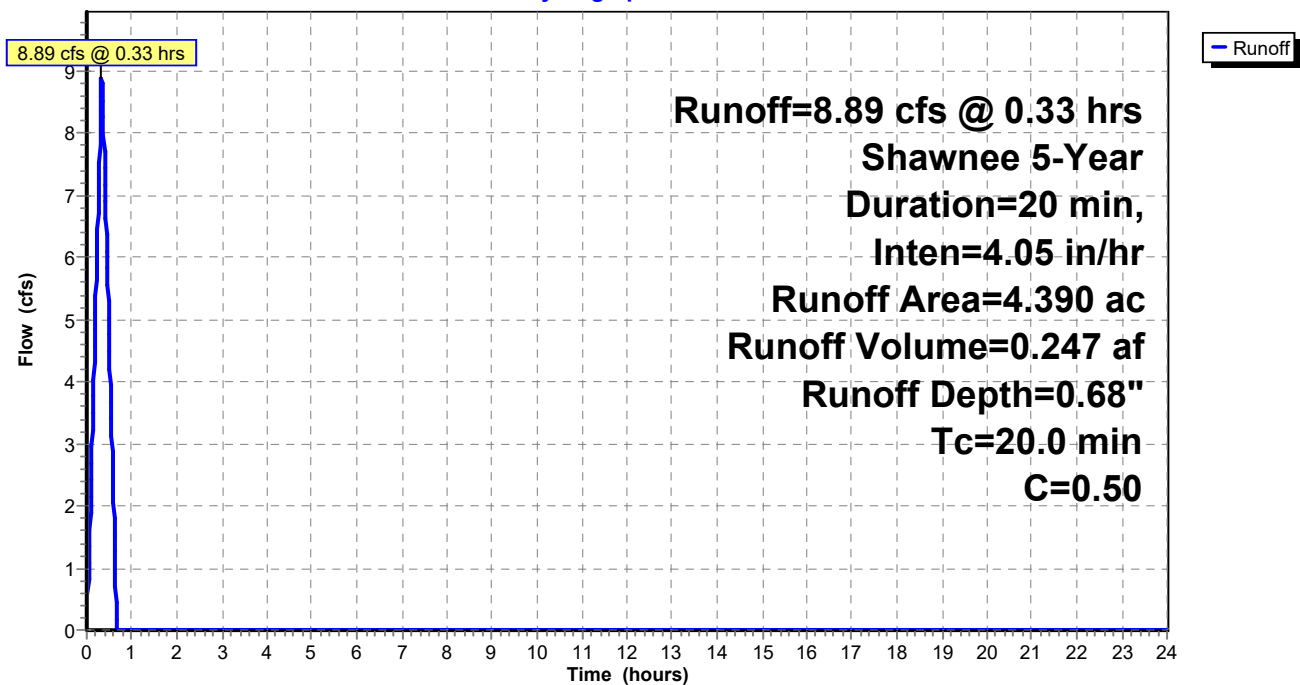
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Shawnee 5-Year Duration=20 min, Inten=4.05 in/hr

Area (ac)	C	Description
4.390	0.50	GRASS
4.390		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Subcatchment 2S: Pre Dev Drainage Area-DA2

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA2

Shawnee 10-Year Duration=20 min, Inten=4.62 in/hr

Prepared by LANDES ENGINEERING LLC

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Page 5

Summary for Subcatchment 2S: Pre Dev Drainage Area-DA2

Runoff = 10.14 cfs @ 0.33 hrs, Volume= 0.282 af, Depth= 0.77"

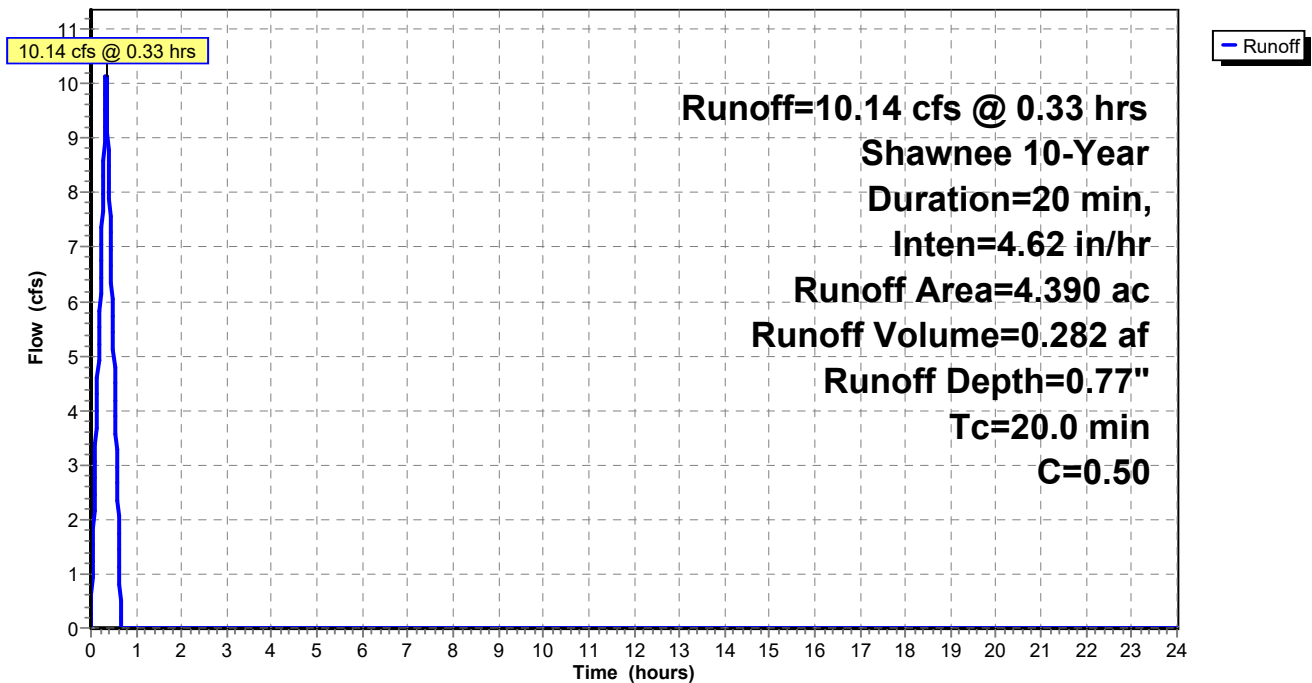
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Shawnee 10-Year Duration=20 min, Inten=4.62 in/hr

Area (ac)	C	Description
4.390	0.50	GRASS
4.390		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Subcatchment 2S: Pre Dev Drainage Area-DA2

Hydrograph



Summary for Subcatchment 2S: Pre Dev Drainage Area-DA2

Runoff = 11.90 cfs @ 0.33 hrs, Volume= 0.331 af, Depth= 0.90"

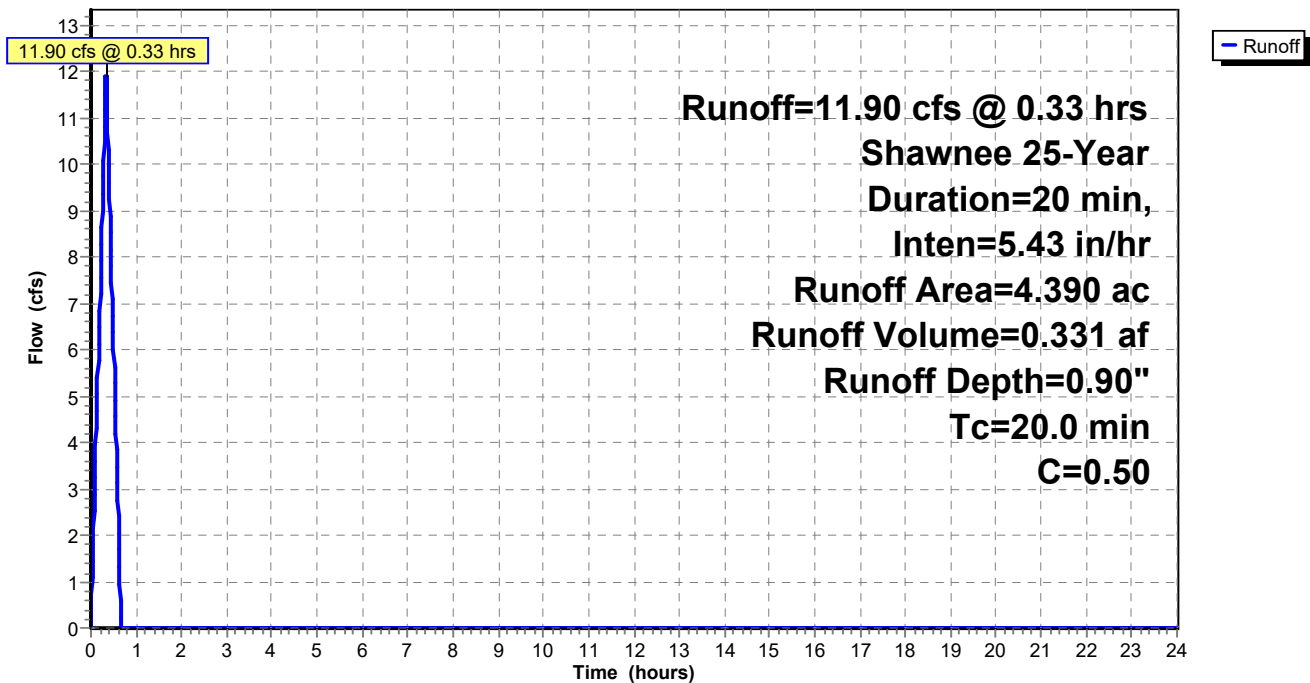
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Shawnee 25-Year Duration=20 min, Inten=5.43 in/hr

Area (ac)	C	Description
4.390	0.50	GRASS
4.390		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Subcatchment 2S: Pre Dev Drainage Area-DA2

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA2

Shawnee 50-Year Duration=20 min, Inten=6.17 in/hr

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Summary for Subcatchment 2S: Pre Dev Drainage Area-DA2

Runoff = 13.53 cfs @ 0.33 hrs, Volume= 0.376 af, Depth= 1.03"

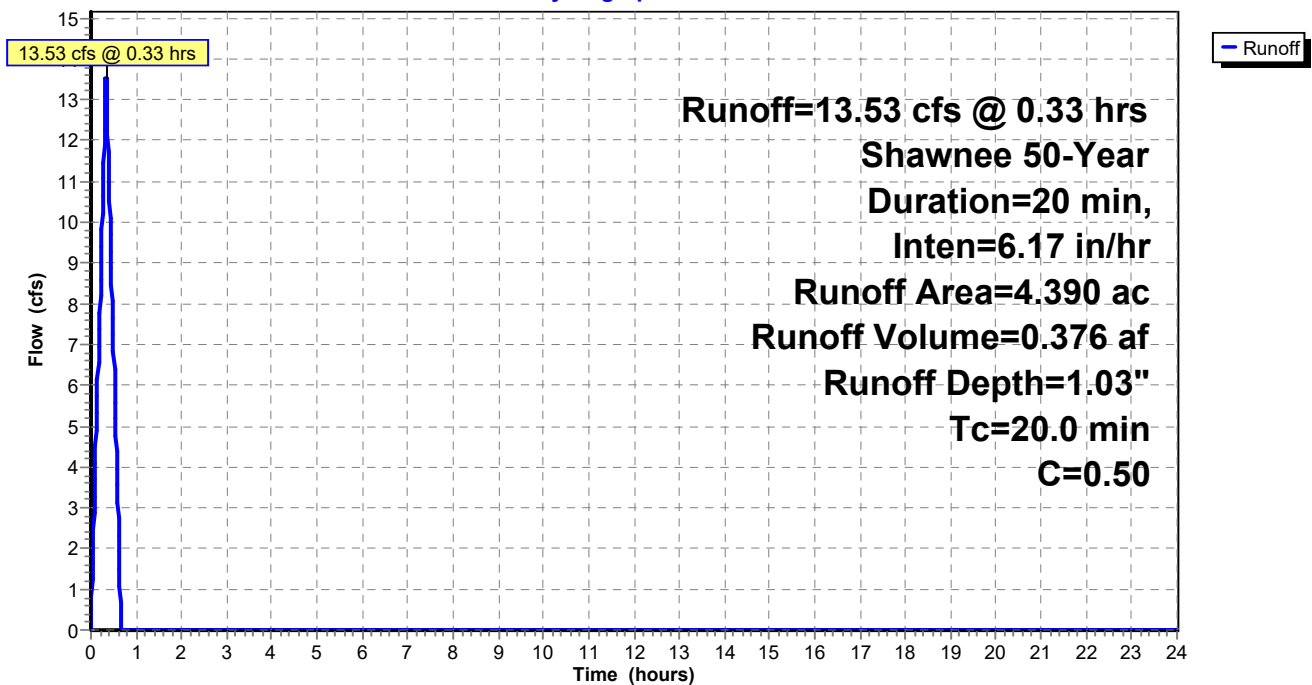
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Shawnee 50-Year Duration=20 min, Inten=6.17 in/hr

Area (ac)	C	Description
4.390	0.50	GRASS
4.390		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Subcatchment 2S: Pre Dev Drainage Area-DA2

Hydrograph



PRE DEVELOPMENT DRAINAGE AREA DA2

Shawnee 100-Year Duration=20 min, Inten=6.75 in/hr

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Summary for Subcatchment 2S: Pre Dev Drainage Area-DA2

Runoff = 14.81 cfs @ 0.33 hrs, Volume= 0.411 af, Depth= 1.12"

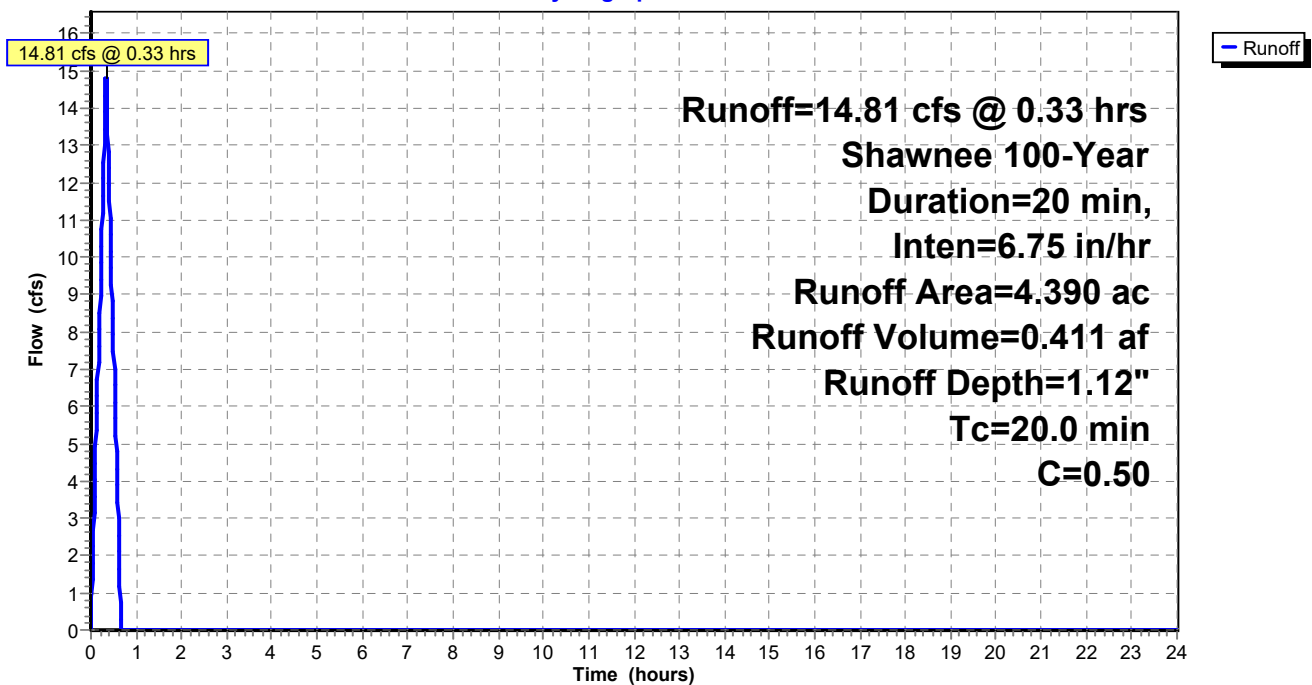
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Shawnee 100-Year Duration=20 min, Inten=6.75 in/hr

Area (ac)	C	Description
4.390	0.50	GRASS
4.390		Pervious Area

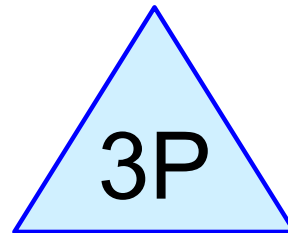
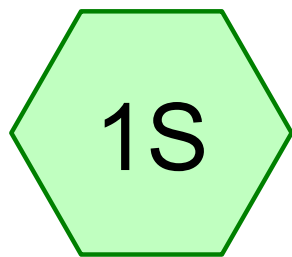
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Subcatchment 2S: Pre Dev Drainage Area-DA2

Hydrograph

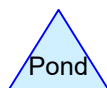
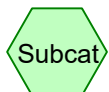


APPENDIX C: POST-DEVELOPMENT HYDROLOGY AND HYDRAULICS



Post-Dev Drainage Area
DA1

(new Pond)



Drainage Diagram for Post DEVELOPMENT DRAINAGE AREA DA1
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Post DEVELOPMENT DRAINAGE AREA DA1

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Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
23.600	0.70	GRASS (1S)

Summary for Subcatchment 1S: Post-Dev Drainage Area DA1

Runoff = 57.78 cfs @ 0.27 hrs, Volume= 1.287 af, Depth= 0.65"

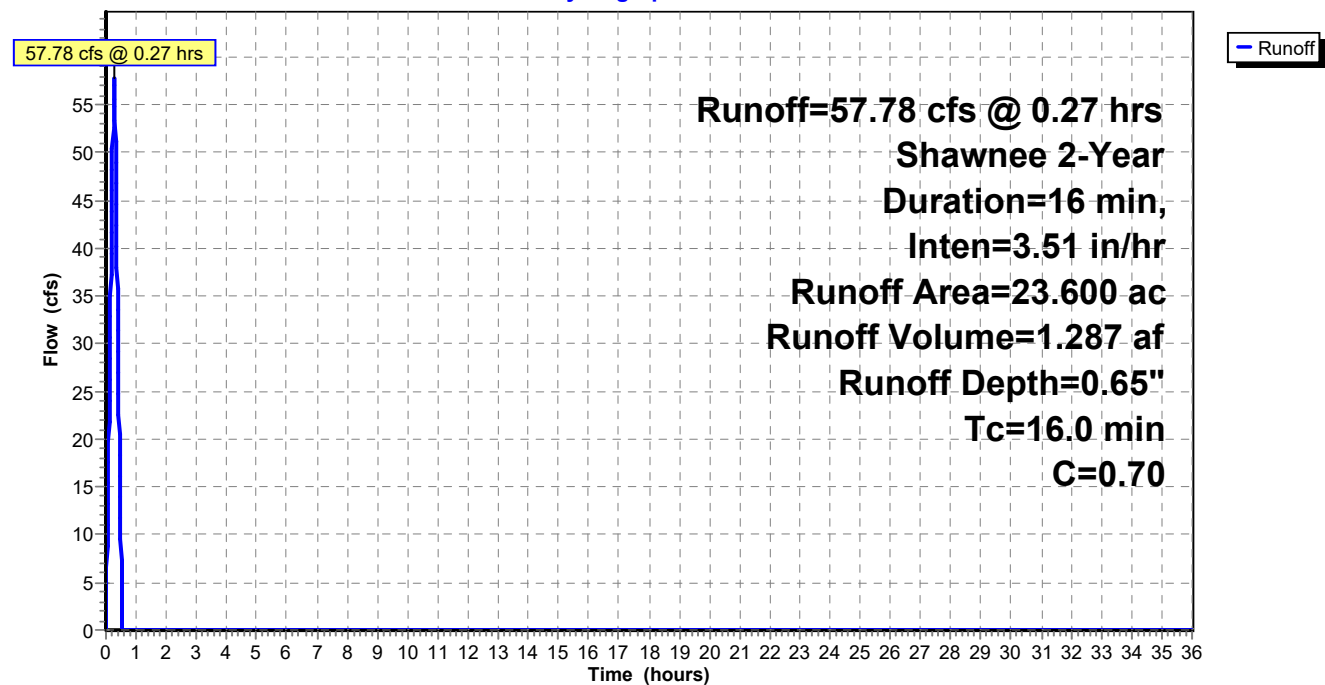
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Shawnee 2-Year Duration=16 min, Inten=3.51 in/hr

Area (ac)	C	Description
23.600	0.70	GRASS
23.600		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0					Direct Entry,

Subcatchment 1S: Post-Dev Drainage Area DA1

Hydrograph



Hydrograph for Subcatchment 1S: Post-Dev Drainage Area DA1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	10.20	0.00	20.40	0.00	30.60	0.00
0.20	43.81	10.40	0.00	20.60	0.00	30.80	0.00
0.40	29.21	10.60	0.00	20.80	0.00	31.00	0.00
0.60	0.00	10.80	0.00	21.00	0.00	31.20	0.00
0.80	0.00	11.00	0.00	21.20	0.00	31.40	0.00
1.00	0.00	11.20	0.00	21.40	0.00	31.60	0.00
1.20	0.00	11.40	0.00	21.60	0.00	31.80	0.00
1.40	0.00	11.60	0.00	21.80	0.00	32.00	0.00
1.60	0.00	11.80	0.00	22.00	0.00	32.20	0.00
1.80	0.00	12.00	0.00	22.20	0.00	32.40	0.00
2.00	0.00	12.20	0.00	22.40	0.00	32.60	0.00
2.20	0.00	12.40	0.00	22.60	0.00	32.80	0.00
2.40	0.00	12.60	0.00	22.80	0.00	33.00	0.00
2.60	0.00	12.80	0.00	23.00	0.00	33.20	0.00
2.80	0.00	13.00	0.00	23.20	0.00	33.40	0.00
3.00	0.00	13.20	0.00	23.40	0.00	33.60	0.00
3.20	0.00	13.40	0.00	23.60	0.00	33.80	0.00
3.40	0.00	13.60	0.00	23.80	0.00	34.00	0.00
3.60	0.00	13.80	0.00	24.00	0.00	34.20	0.00
3.80	0.00	14.00	0.00	24.20	0.00	34.40	0.00
4.00	0.00	14.20	0.00	24.40	0.00	34.60	0.00
4.20	0.00	14.40	0.00	24.60	0.00	34.80	0.00
4.40	0.00	14.60	0.00	24.80	0.00	35.00	0.00
4.60	0.00	14.80	0.00	25.00	0.00	35.20	0.00
4.80	0.00	15.00	0.00	25.20	0.00	35.40	0.00
5.00	0.00	15.20	0.00	25.40	0.00	35.60	0.00
5.20	0.00	15.40	0.00	25.60	0.00	35.80	0.00
5.40	0.00	15.60	0.00	25.80	0.00	36.00	0.00
5.60	0.00	15.80	0.00	26.00	0.00		
5.80	0.00	16.00	0.00	26.20	0.00		
6.00	0.00	16.20	0.00	26.40	0.00		
6.20	0.00	16.40	0.00	26.60	0.00		
6.40	0.00	16.60	0.00	26.80	0.00		
6.60	0.00	16.80	0.00	27.00	0.00		
6.80	0.00	17.00	0.00	27.20	0.00		
7.00	0.00	17.20	0.00	27.40	0.00		
7.20	0.00	17.40	0.00	27.60	0.00		
7.40	0.00	17.60	0.00	27.80	0.00		
7.60	0.00	17.80	0.00	28.00	0.00		
7.80	0.00	18.00	0.00	28.20	0.00		
8.00	0.00	18.20	0.00	28.40	0.00		
8.20	0.00	18.40	0.00	28.60	0.00		
8.40	0.00	18.60	0.00	28.80	0.00		
8.60	0.00	18.80	0.00	29.00	0.00		
8.80	0.00	19.00	0.00	29.20	0.00		
9.00	0.00	19.20	0.00	29.40	0.00		
9.20	0.00	19.40	0.00	29.60	0.00		
9.40	0.00	19.60	0.00	29.80	0.00		
9.60	0.00	19.80	0.00	30.00	0.00		
9.80	0.00	20.00	0.00	30.20	0.00		
10.00	0.00	20.20	0.00	30.40	0.00		

Summary for Pond 3P: (new Pond)

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth = 0.65" for 2-Year event
 Inflow = 57.78 cfs @ 0.27 hrs, Volume= 1.287 af
 Outflow = 24.64 cfs @ 0.42 hrs, Volume= 1.287 af, Atten= 57% Lag= 9.2 min
 Primary = 24.64 cfs @ 0.42 hrs, Volume= 1.287 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 990.30' @ 0.42 hrs Surf.Area= 15,227 sf Storage= 27,707 cf

Plug-Flow detention time= 13.2 min calculated for 1.287 af (100% of inflow)
 Center-of-Mass det. time= 13.2 min (29.2 - 16.0)

Volume	Invert	Avail.Storage	Storage Description
#1	988.00'	123,172 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
988.00	7,354	425.0	0	0	7,354
989.00	12,425	660.5	9,779	9,779	27,704
990.00	14,533	669.0	13,465	23,245	28,822
991.00	16,909	681.0	15,706	38,951	30,278
992.00	18,873	693.0	17,882	56,833	31,759
993.00	20,959	717.0	19,907	76,739	34,542
994.00	23,154	738.0	22,047	98,787	37,080
995.00	25,637	765.0	24,385	123,172	40,396

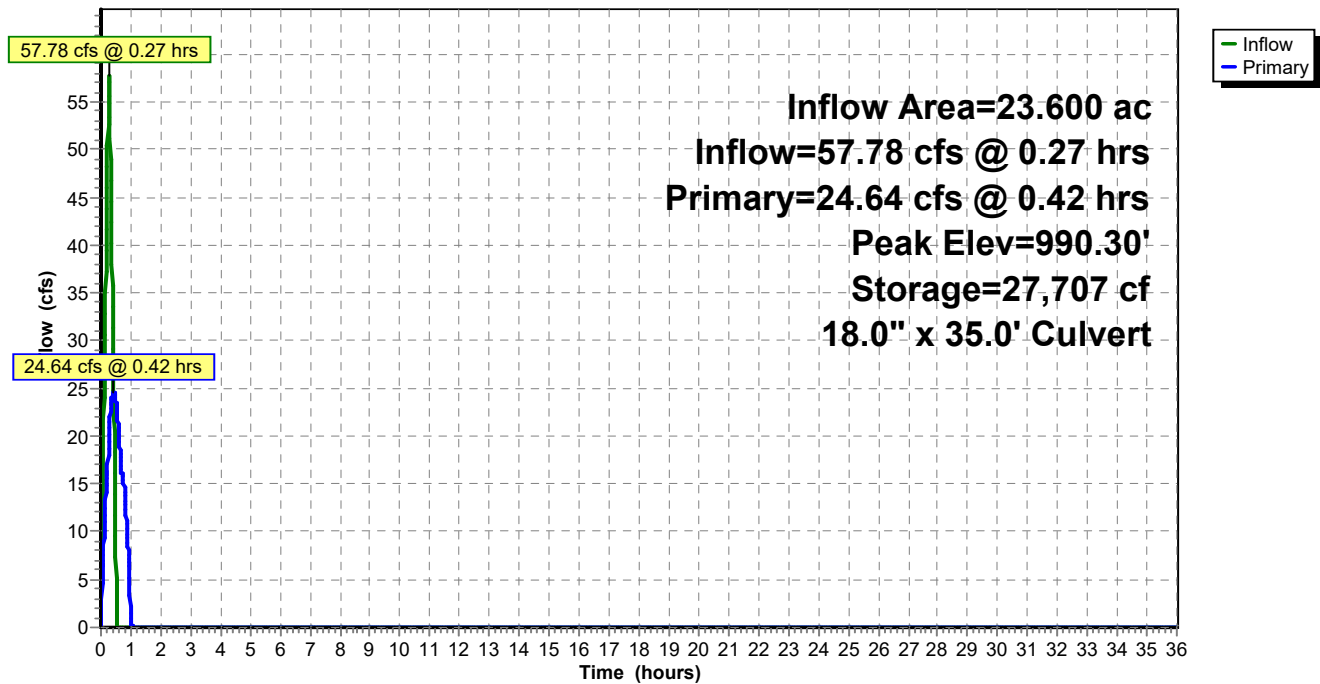
Device	Routing	Invert	Outlet Devices
#1	Primary	987.10'	18.0" x 35.0' long Culvert X 2.00 Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Outlet Invert= 986.75' S= 0.0100 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=24.64 cfs @ 0.42 hrs HW=990.30' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 24.64 cfs @ 6.97 fps)

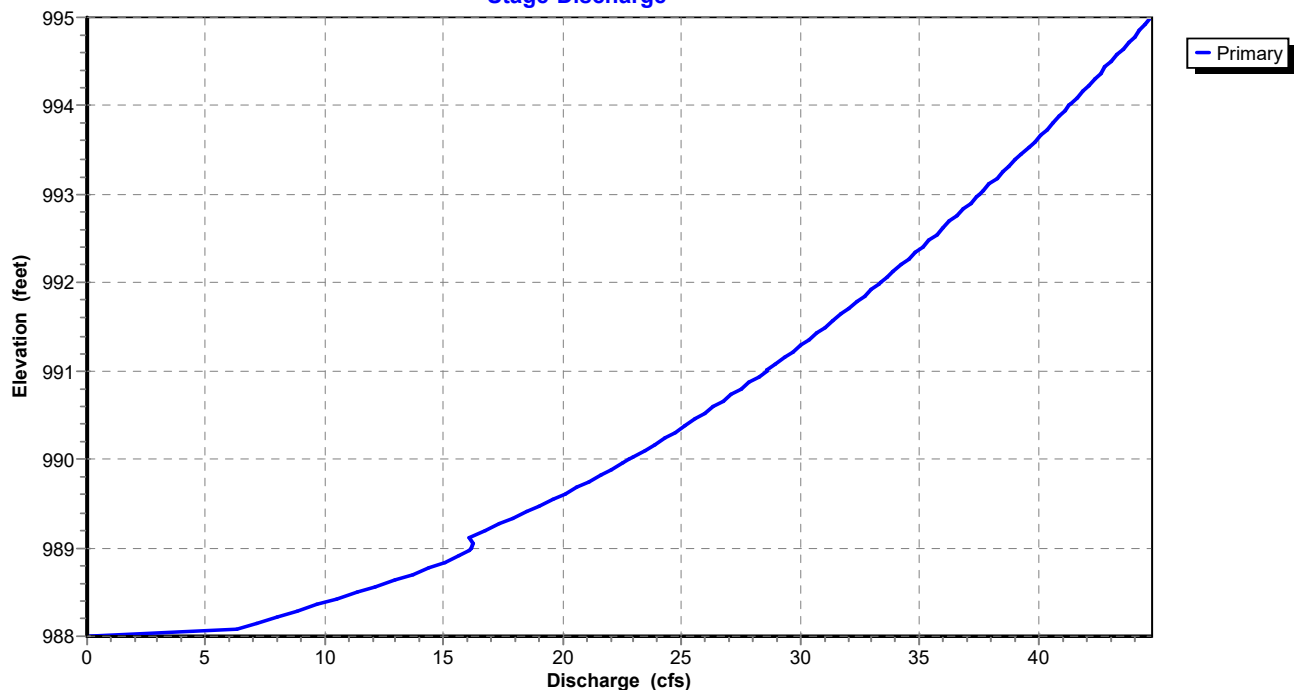
Pond 3P: (new Pond)

Hydrograph



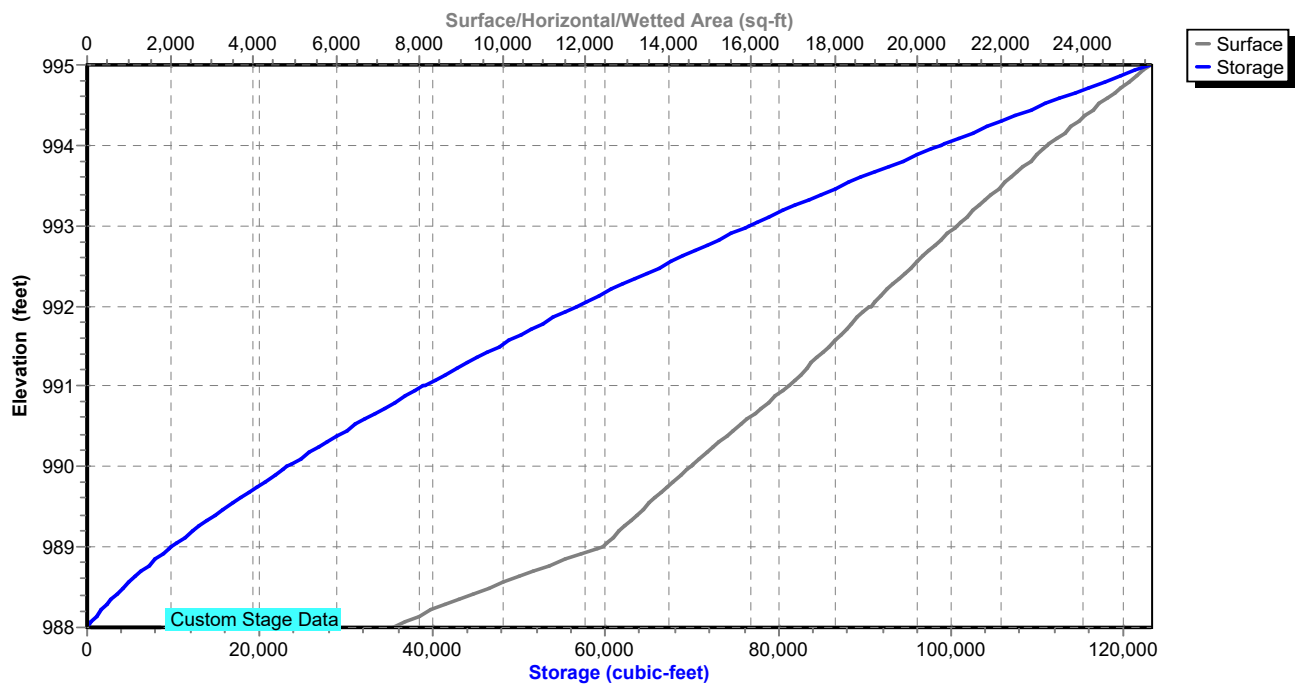
Pond 3P: (new Pond)

Stage-Discharge



Pond 3P: (new Pond)

Stage-Area-Storage



Hydrograph for Pond 3P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	988.00	0.00
1.00	0.00	74	988.01	0.90
2.00	0.00	0	988.00	0.00
3.00	0.00	0	988.00	0.00
4.00	0.00	0	988.00	0.00
5.00	0.00	0	988.00	0.00
6.00	0.00	0	988.00	0.00
7.00	0.00	0	988.00	0.00
8.00	0.00	0	988.00	0.00
9.00	0.00	0	988.00	0.00
10.00	0.00	0	988.00	0.00
11.00	0.00	0	988.00	0.00
12.00	0.00	0	988.00	0.00
13.00	0.00	0	988.00	0.00
14.00	0.00	0	988.00	0.00
15.00	0.00	0	988.00	0.00
16.00	0.00	0	988.00	0.00
17.00	0.00	0	988.00	0.00
18.00	0.00	0	988.00	0.00
19.00	0.00	0	988.00	0.00
20.00	0.00	0	988.00	0.00
21.00	0.00	0	988.00	0.00
22.00	0.00	0	988.00	0.00
23.00	0.00	0	988.00	0.00
24.00	0.00	0	988.00	0.00
25.00	0.00	0	988.00	0.00
26.00	0.00	0	988.00	0.00
27.00	0.00	0	988.00	0.00
28.00	0.00	0	988.00	0.00
29.00	0.00	0	988.00	0.00
30.00	0.00	0	988.00	0.00
31.00	0.00	0	988.00	0.00
32.00	0.00	0	988.00	0.00
33.00	0.00	0	988.00	0.00
34.00	0.00	0	988.00	0.00
35.00	0.00	0	988.00	0.00
36.00	0.00	0	988.00	0.00

Stage-Discharge for Pond 3P: (new Pond)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
988.00	0.00	990.04	23.03	992.08	33.69	994.12	41.70
988.04	5.99	990.08	23.29	992.12	33.86	994.16	41.85
988.08	6.44	990.12	23.54	992.16	34.04	994.20	41.99
988.12	6.90	990.16	23.79	992.20	34.21	994.24	42.13
988.16	7.36	990.20	24.04	992.24	34.38	994.28	42.27
988.20	7.83	990.24	24.28	992.28	34.56	994.32	42.41
988.24	8.31	990.28	24.53	992.32	34.73	994.36	42.55
988.28	8.79	990.32	24.77	992.36	34.90	994.40	42.69
988.32	9.27	990.36	25.00	992.40	35.07	994.44	42.83
988.36	9.75	990.40	25.24	992.44	35.23	994.48	42.96
988.40	10.24	990.44	25.47	992.48	35.40	994.52	43.10
988.44	10.72	990.48	25.70	992.52	35.57	994.56	43.24
988.48	11.20	990.52	25.93	992.56	35.74	994.60	43.38
988.52	11.67	990.56	26.16	992.60	35.90	994.64	43.51
988.56	12.14	990.60	26.39	992.64	36.07	994.68	43.65
988.60	12.60	990.64	26.61	992.68	36.23	994.72	43.78
988.64	13.04	990.68	26.83	992.72	36.39	994.76	43.92
988.68	13.48	990.72	27.05	992.76	36.56	994.80	44.05
988.72	13.90	990.76	27.27	992.80	36.72	994.84	44.19
988.76	14.31	990.80	27.49	992.84	36.88	994.88	44.32
988.80	14.69	990.84	27.70	992.88	37.04	994.92	44.46
988.84	15.05	990.88	27.92	992.92	37.20	994.96	44.59
988.88	15.38	990.92	28.13	992.96	37.36	995.00	44.72
988.92	15.67	990.96	28.34	993.00	37.52		
988.96	15.92	991.00	28.54	993.04	37.67		
989.00	16.11	991.04	28.75	993.08	37.83		
989.04	16.21	991.08	28.96	993.12	37.99		
989.08	16.17	991.12	29.16	993.16	38.14		
989.12	16.06	991.16	29.36	993.20	38.30		
989.16	16.42	991.20	29.56	993.24	38.45		
989.20	16.78	991.24	29.76	993.28	38.61		
989.24	17.13	991.28	29.96	993.32	38.76		
989.28	17.47	991.32	30.16	993.36	38.91		
989.32	17.81	991.36	30.36	993.40	39.06		
989.36	18.14	991.40	30.55	993.44	39.21		
989.40	18.46	991.44	30.74	993.48	39.37		
989.44	18.78	991.48	30.94	993.52	39.52		
989.48	19.09	991.52	31.13	993.56	39.67		
989.52	19.40	991.56	31.32	993.60	39.81		
989.56	19.70	991.60	31.51	993.64	39.96		
989.60	20.00	991.64	31.69	993.68	40.11		
989.64	20.29	991.68	31.88	993.72	40.26		
989.68	20.58	991.72	32.06	993.76	40.41		
989.72	20.87	991.76	32.25	993.80	40.55		
989.76	21.15	991.80	32.43	993.84	40.70		
989.80	21.43	991.84	32.61	993.88	40.84		
989.84	21.71	991.88	32.80	993.92	40.99		
989.88	21.98	991.92	32.98	993.96	41.13		
989.92	22.24	991.96	33.15	994.00	41.28		
989.96	22.51	992.00	33.33	994.04	41.42		
990.00	22.77	992.04	33.51	994.08	41.56		

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
988.00	7,354	0	993.10	21,174	78,846
988.10	7,802	758	993.20	21,389	80,974
988.20	8,262	1,561	993.30	21,606	83,124
988.30	8,736	2,411	993.40	21,824	85,295
988.40	9,224	3,308	993.50	22,043	87,489
988.50	9,724	4,256	993.60	22,263	89,704
988.60	10,238	5,254	993.70	22,484	91,941
988.70	10,765	6,304	993.80	22,706	94,201
988.80	11,305	7,407	993.90	22,930	96,483
988.90	11,858	8,565	994.00	23,154	98,787
989.00	12,425	9,779	994.10	23,397	101,114
989.10	12,628	11,032	994.20	23,640	103,466
989.20	12,833	12,305	994.30	23,886	105,843
989.30	13,040	13,599	994.40	24,132	108,243
989.40	13,248	14,913	994.50	24,380	110,669
989.50	13,458	16,248	994.60	24,629	113,119
989.60	13,670	17,605	994.70	24,879	115,595
989.70	13,883	18,982	994.80	25,130	118,095
989.80	14,098	20,382	994.90	25,383	120,621
989.90	14,315	21,802	995.00	25,637	123,172
990.00	14,533	23,245			
990.10	14,763	24,709			
990.20	14,994	26,197			
990.30	15,227	27,708			
990.40	15,462	29,243			
990.50	15,699	30,801			
990.60	15,937	32,382			
990.70	16,177	33,988			
990.80	16,419	35,618			
990.90	16,663	37,272			
991.00	16,909	38,951			
991.10	17,101	40,651			
991.20	17,293	42,371			
991.30	17,487	44,110			
991.40	17,682	45,868			
991.50	17,878	47,646			
991.60	18,074	49,444			
991.70	18,272	51,261			
991.80	18,472	53,098			
991.90	18,672	54,955			
992.00	18,873	56,833			
992.10	19,077	58,730			
992.20	19,281	60,648			
992.30	19,487	62,586			
992.40	19,694	64,545			
992.50	19,902	66,525			
992.60	20,111	68,526			
992.70	20,322	70,548			
992.80	20,533	72,590			
992.90	20,745	74,654			
993.00	20,959	76,739			

Summary for Subcatchment 1S: Post-Dev Drainage Area DA1

Runoff = 74.34 cfs @ 0.27 hrs, Volume= 1.656 af, Depth= 0.84"

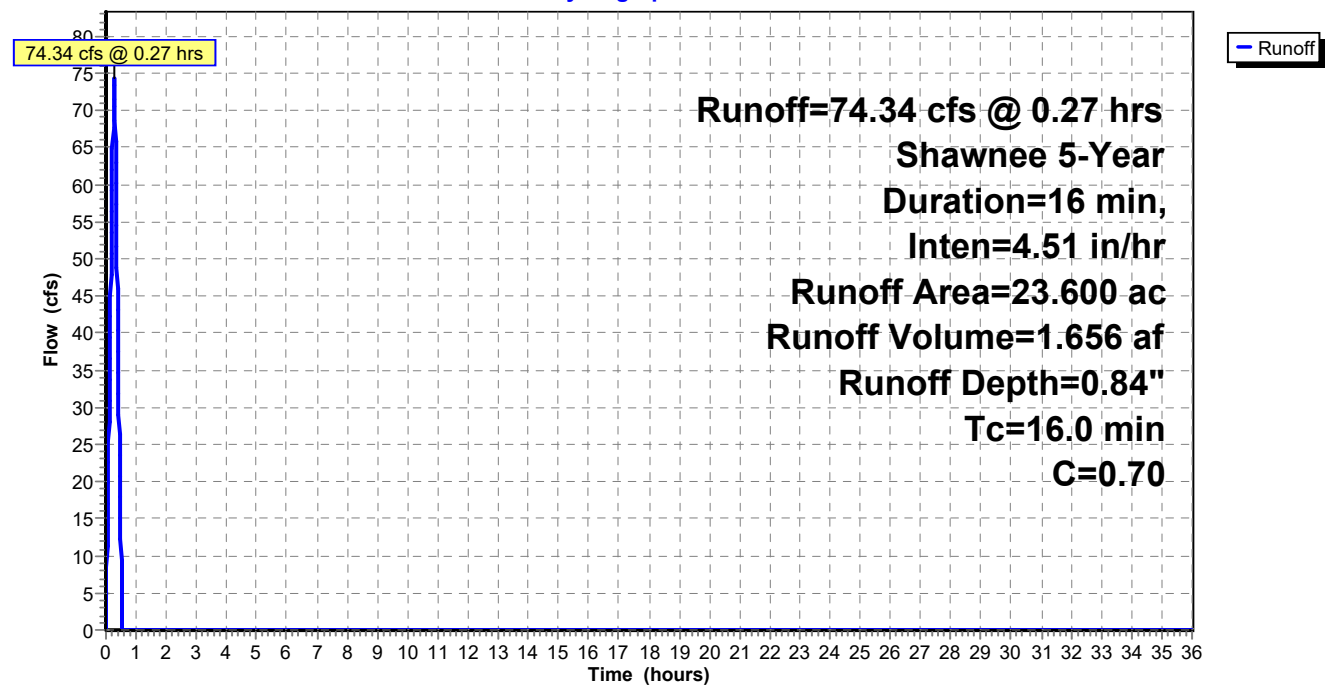
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Shawnee 5-Year Duration=16 min, Inten=4.51 in/hr

Area (ac)	C	Description
23.600	0.70	GRASS
23.600		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0					Direct Entry,

Subcatchment 1S: Post-Dev Drainage Area DA1

Hydrograph



Hydrograph for Subcatchment 1S: Post-Dev Drainage Area DA1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	10.20	0.00	20.40	0.00	30.60	0.00
0.20	56.37	10.40	0.00	20.60	0.00	30.80	0.00
0.40	37.58	10.60	0.00	20.80	0.00	31.00	0.00
0.60	0.00	10.80	0.00	21.00	0.00	31.20	0.00
0.80	0.00	11.00	0.00	21.20	0.00	31.40	0.00
1.00	0.00	11.20	0.00	21.40	0.00	31.60	0.00
1.20	0.00	11.40	0.00	21.60	0.00	31.80	0.00
1.40	0.00	11.60	0.00	21.80	0.00	32.00	0.00
1.60	0.00	11.80	0.00	22.00	0.00	32.20	0.00
1.80	0.00	12.00	0.00	22.20	0.00	32.40	0.00
2.00	0.00	12.20	0.00	22.40	0.00	32.60	0.00
2.20	0.00	12.40	0.00	22.60	0.00	32.80	0.00
2.40	0.00	12.60	0.00	22.80	0.00	33.00	0.00
2.60	0.00	12.80	0.00	23.00	0.00	33.20	0.00
2.80	0.00	13.00	0.00	23.20	0.00	33.40	0.00
3.00	0.00	13.20	0.00	23.40	0.00	33.60	0.00
3.20	0.00	13.40	0.00	23.60	0.00	33.80	0.00
3.40	0.00	13.60	0.00	23.80	0.00	34.00	0.00
3.60	0.00	13.80	0.00	24.00	0.00	34.20	0.00
3.80	0.00	14.00	0.00	24.20	0.00	34.40	0.00
4.00	0.00	14.20	0.00	24.40	0.00	34.60	0.00
4.20	0.00	14.40	0.00	24.60	0.00	34.80	0.00
4.40	0.00	14.60	0.00	24.80	0.00	35.00	0.00
4.60	0.00	14.80	0.00	25.00	0.00	35.20	0.00
4.80	0.00	15.00	0.00	25.20	0.00	35.40	0.00
5.00	0.00	15.20	0.00	25.40	0.00	35.60	0.00
5.20	0.00	15.40	0.00	25.60	0.00	35.80	0.00
5.40	0.00	15.60	0.00	25.80	0.00	36.00	0.00
5.60	0.00	15.80	0.00	26.00	0.00		
5.80	0.00	16.00	0.00	26.20	0.00		
6.00	0.00	16.20	0.00	26.40	0.00		
6.20	0.00	16.40	0.00	26.60	0.00		
6.40	0.00	16.60	0.00	26.80	0.00		
6.60	0.00	16.80	0.00	27.00	0.00		
6.80	0.00	17.00	0.00	27.20	0.00		
7.00	0.00	17.20	0.00	27.40	0.00		
7.20	0.00	17.40	0.00	27.60	0.00		
7.40	0.00	17.60	0.00	27.80	0.00		
7.60	0.00	17.80	0.00	28.00	0.00		
7.80	0.00	18.00	0.00	28.20	0.00		
8.00	0.00	18.20	0.00	28.40	0.00		
8.20	0.00	18.40	0.00	28.60	0.00		
8.40	0.00	18.60	0.00	28.80	0.00		
8.60	0.00	18.80	0.00	29.00	0.00		
8.80	0.00	19.00	0.00	29.20	0.00		
9.00	0.00	19.20	0.00	29.40	0.00		
9.20	0.00	19.40	0.00	29.60	0.00		
9.40	0.00	19.60	0.00	29.80	0.00		
9.60	0.00	19.80	0.00	30.00	0.00		
9.80	0.00	20.00	0.00	30.20	0.00		
10.00	0.00	20.20	0.00	30.40	0.00		

Summary for Pond 3P: (new Pond)

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth = 0.84" for 5-Year event
 Inflow = 74.34 cfs @ 0.27 hrs, Volume= 1.656 af
 Outflow = 28.55 cfs @ 0.43 hrs, Volume= 1.656 af, Atten= 62% Lag= 9.9 min
 Primary = 28.55 cfs @ 0.43 hrs, Volume= 1.656 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 991.00' @ 0.43 hrs Surf.Area= 16,910 sf Storage= 38,959 cf

Plug-Flow detention time= 15.9 min calculated for 1.656 af (100% of inflow)
 Center-of-Mass det. time= 15.9 min (31.9 - 16.0)

Volume	Invert	Avail.Storage	Storage Description
#1	988.00'	123,172 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
988.00	7,354	425.0	0	0	7,354
989.00	12,425	660.5	9,779	9,779	27,704
990.00	14,533	669.0	13,465	23,245	28,822
991.00	16,909	681.0	15,706	38,951	30,278
992.00	18,873	693.0	17,882	56,833	31,759
993.00	20,959	717.0	19,907	76,739	34,542
994.00	23,154	738.0	22,047	98,787	37,080
995.00	25,637	765.0	24,385	123,172	40,396

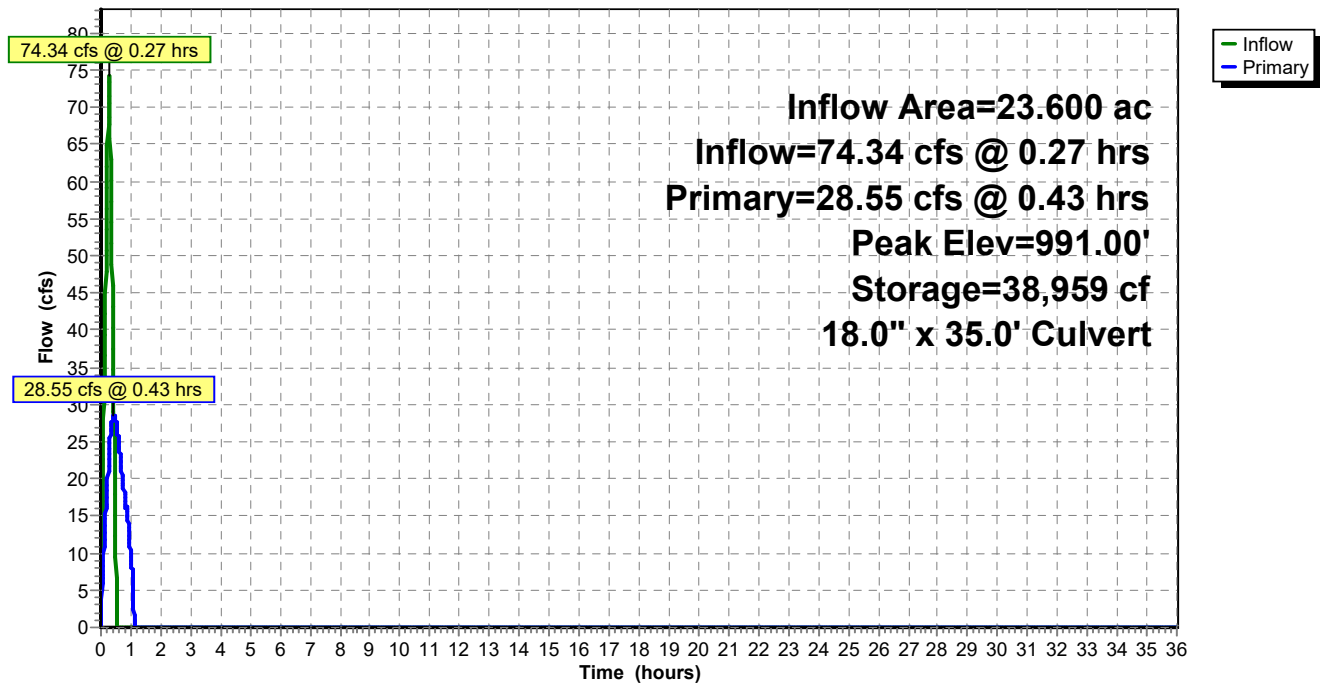
Device	Routing	Invert	Outlet Devices
#1	Primary	987.10'	18.0" x 35.0' long Culvert X 2.00 Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Outlet Invert= 986.75' S= 0.0100 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=28.54 cfs @ 0.43 hrs HW=991.00' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 28.54 cfs @ 8.08 fps)

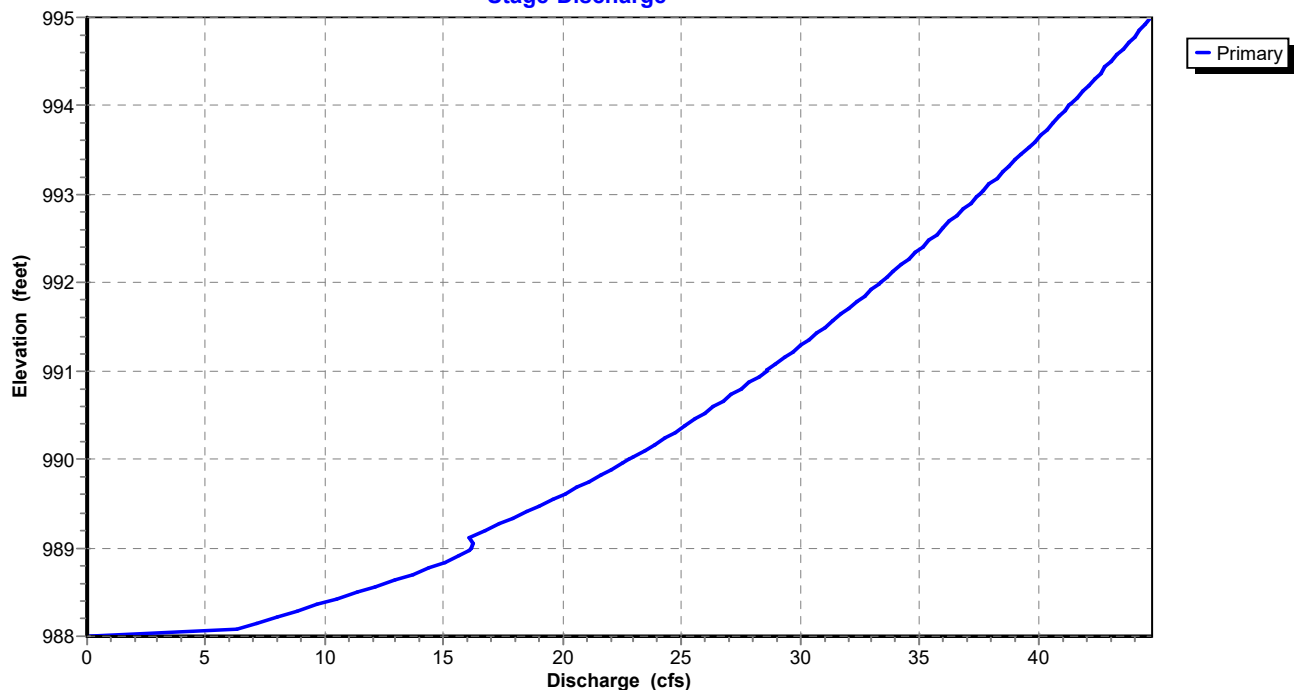
Pond 3P: (new Pond)

Hydrograph



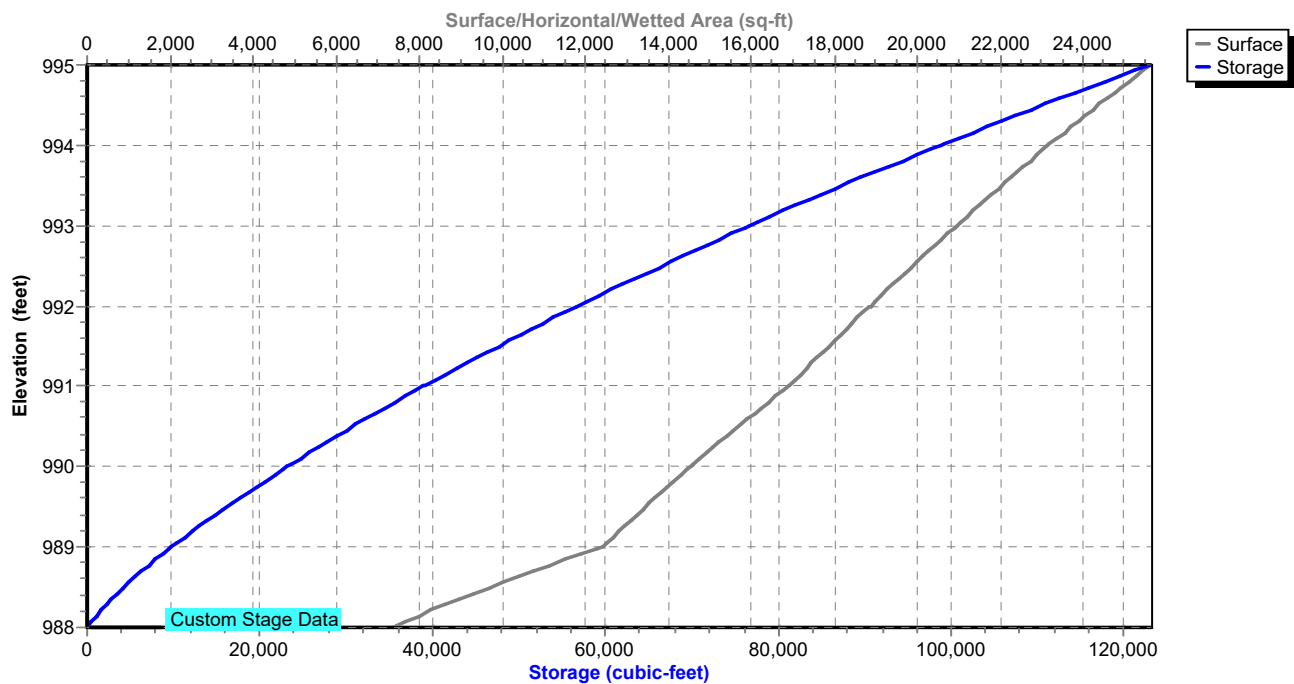
Pond 3P: (new Pond)

Stage-Discharge



Pond 3P: (new Pond)

Stage-Area-Storage



Hydrograph for Pond 3P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	988.00	0.00
1.00	0.00	2,709	988.33	9.43
2.00	0.00	0	988.00	0.00
3.00	0.00	0	988.00	0.00
4.00	0.00	0	988.00	0.00
5.00	0.00	0	988.00	0.00
6.00	0.00	0	988.00	0.00
7.00	0.00	0	988.00	0.00
8.00	0.00	0	988.00	0.00
9.00	0.00	0	988.00	0.00
10.00	0.00	0	988.00	0.00
11.00	0.00	0	988.00	0.00
12.00	0.00	0	988.00	0.00
13.00	0.00	0	988.00	0.00
14.00	0.00	0	988.00	0.00
15.00	0.00	0	988.00	0.00
16.00	0.00	0	988.00	0.00
17.00	0.00	0	988.00	0.00
18.00	0.00	0	988.00	0.00
19.00	0.00	0	988.00	0.00
20.00	0.00	0	988.00	0.00
21.00	0.00	0	988.00	0.00
22.00	0.00	0	988.00	0.00
23.00	0.00	0	988.00	0.00
24.00	0.00	0	988.00	0.00
25.00	0.00	0	988.00	0.00
26.00	0.00	0	988.00	0.00
27.00	0.00	0	988.00	0.00
28.00	0.00	0	988.00	0.00
29.00	0.00	0	988.00	0.00
30.00	0.00	0	988.00	0.00
31.00	0.00	0	988.00	0.00
32.00	0.00	0	988.00	0.00
33.00	0.00	0	988.00	0.00
34.00	0.00	0	988.00	0.00
35.00	0.00	0	988.00	0.00
36.00	0.00	0	988.00	0.00

Stage-Discharge for Pond 3P: (new Pond)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
988.00	0.00	990.04	23.03	992.08	33.69	994.12	41.70
988.04	5.99	990.08	23.29	992.12	33.86	994.16	41.85
988.08	6.44	990.12	23.54	992.16	34.04	994.20	41.99
988.12	6.90	990.16	23.79	992.20	34.21	994.24	42.13
988.16	7.36	990.20	24.04	992.24	34.38	994.28	42.27
988.20	7.83	990.24	24.28	992.28	34.56	994.32	42.41
988.24	8.31	990.28	24.53	992.32	34.73	994.36	42.55
988.28	8.79	990.32	24.77	992.36	34.90	994.40	42.69
988.32	9.27	990.36	25.00	992.40	35.07	994.44	42.83
988.36	9.75	990.40	25.24	992.44	35.23	994.48	42.96
988.40	10.24	990.44	25.47	992.48	35.40	994.52	43.10
988.44	10.72	990.48	25.70	992.52	35.57	994.56	43.24
988.48	11.20	990.52	25.93	992.56	35.74	994.60	43.38
988.52	11.67	990.56	26.16	992.60	35.90	994.64	43.51
988.56	12.14	990.60	26.39	992.64	36.07	994.68	43.65
988.60	12.60	990.64	26.61	992.68	36.23	994.72	43.78
988.64	13.04	990.68	26.83	992.72	36.39	994.76	43.92
988.68	13.48	990.72	27.05	992.76	36.56	994.80	44.05
988.72	13.90	990.76	27.27	992.80	36.72	994.84	44.19
988.76	14.31	990.80	27.49	992.84	36.88	994.88	44.32
988.80	14.69	990.84	27.70	992.88	37.04	994.92	44.46
988.84	15.05	990.88	27.92	992.92	37.20	994.96	44.59
988.88	15.38	990.92	28.13	992.96	37.36	995.00	44.72
988.92	15.67	990.96	28.34	993.00	37.52		
988.96	15.92	991.00	28.54	993.04	37.67		
989.00	16.11	991.04	28.75	993.08	37.83		
989.04	16.21	991.08	28.96	993.12	37.99		
989.08	16.17	991.12	29.16	993.16	38.14		
989.12	16.06	991.16	29.36	993.20	38.30		
989.16	16.42	991.20	29.56	993.24	38.45		
989.20	16.78	991.24	29.76	993.28	38.61		
989.24	17.13	991.28	29.96	993.32	38.76		
989.28	17.47	991.32	30.16	993.36	38.91		
989.32	17.81	991.36	30.36	993.40	39.06		
989.36	18.14	991.40	30.55	993.44	39.21		
989.40	18.46	991.44	30.74	993.48	39.37		
989.44	18.78	991.48	30.94	993.52	39.52		
989.48	19.09	991.52	31.13	993.56	39.67		
989.52	19.40	991.56	31.32	993.60	39.81		
989.56	19.70	991.60	31.51	993.64	39.96		
989.60	20.00	991.64	31.69	993.68	40.11		
989.64	20.29	991.68	31.88	993.72	40.26		
989.68	20.58	991.72	32.06	993.76	40.41		
989.72	20.87	991.76	32.25	993.80	40.55		
989.76	21.15	991.80	32.43	993.84	40.70		
989.80	21.43	991.84	32.61	993.88	40.84		
989.84	21.71	991.88	32.80	993.92	40.99		
989.88	21.98	991.92	32.98	993.96	41.13		
989.92	22.24	991.96	33.15	994.00	41.28		
989.96	22.51	992.00	33.33	994.04	41.42		
990.00	22.77	992.04	33.51	994.08	41.56		

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
988.00	7,354	0	993.10	21,174	78,846
988.10	7,802	758	993.20	21,389	80,974
988.20	8,262	1,561	993.30	21,606	83,124
988.30	8,736	2,411	993.40	21,824	85,295
988.40	9,224	3,308	993.50	22,043	87,489
988.50	9,724	4,256	993.60	22,263	89,704
988.60	10,238	5,254	993.70	22,484	91,941
988.70	10,765	6,304	993.80	22,706	94,201
988.80	11,305	7,407	993.90	22,930	96,483
988.90	11,858	8,565	994.00	23,154	98,787
989.00	12,425	9,779	994.10	23,397	101,114
989.10	12,628	11,032	994.20	23,640	103,466
989.20	12,833	12,305	994.30	23,886	105,843
989.30	13,040	13,599	994.40	24,132	108,243
989.40	13,248	14,913	994.50	24,380	110,669
989.50	13,458	16,248	994.60	24,629	113,119
989.60	13,670	17,605	994.70	24,879	115,595
989.70	13,883	18,982	994.80	25,130	118,095
989.80	14,098	20,382	994.90	25,383	120,621
989.90	14,315	21,802	995.00	25,637	123,172
990.00	14,533	23,245			
990.10	14,763	24,709			
990.20	14,994	26,197			
990.30	15,227	27,708			
990.40	15,462	29,243			
990.50	15,699	30,801			
990.60	15,937	32,382			
990.70	16,177	33,988			
990.80	16,419	35,618			
990.90	16,663	37,272			
991.00	16,909	38,951			
991.10	17,101	40,651			
991.20	17,293	42,371			
991.30	17,487	44,110			
991.40	17,682	45,868			
991.50	17,878	47,646			
991.60	18,074	49,444			
991.70	18,272	51,261			
991.80	18,472	53,098			
991.90	18,672	54,955			
992.00	18,873	56,833			
992.10	19,077	58,730			
992.20	19,281	60,648			
992.30	19,487	62,586			
992.40	19,694	64,545			
992.50	19,902	66,525			
992.60	20,111	68,526			
992.70	20,322	70,548			
992.80	20,533	72,590			
992.90	20,745	74,654			
993.00	20,959	76,739			

Summary for Subcatchment 1S: Post-Dev Drainage Area DA1

Runoff = 84.51 cfs @ 0.27 hrs, Volume= 1.883 af, Depth= 0.96"

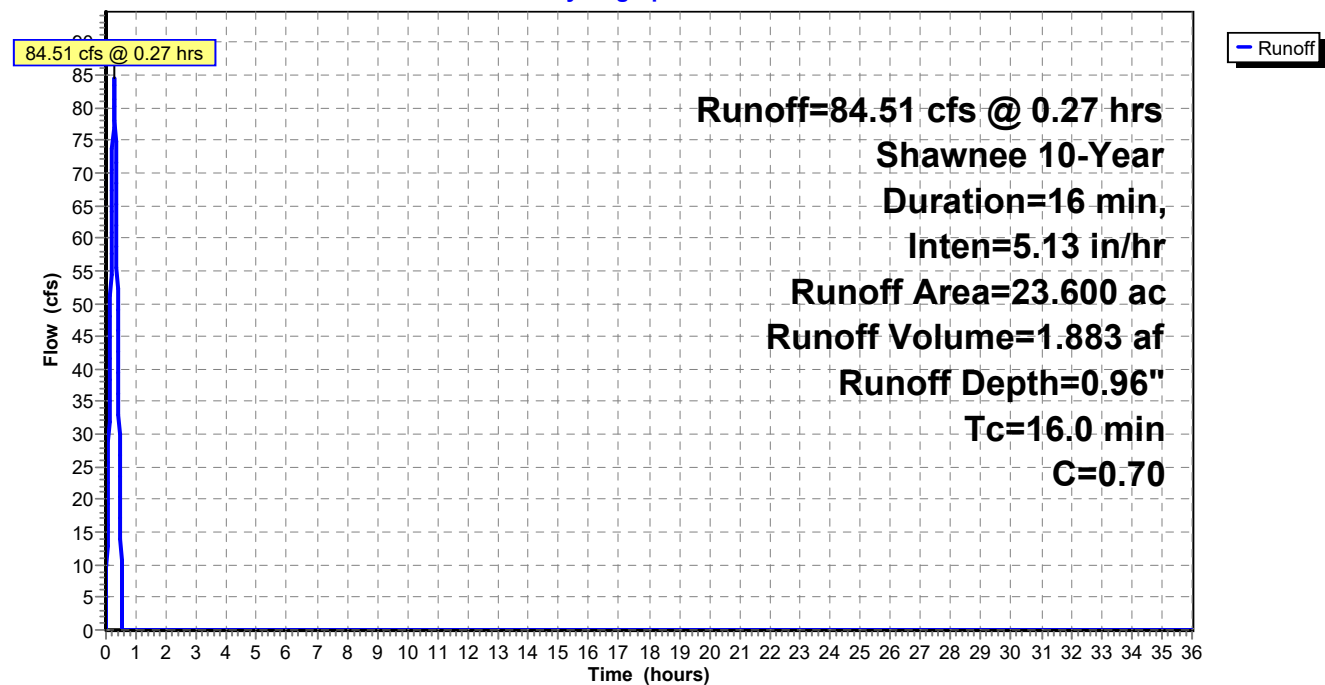
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Shawnee 10-Year Duration=16 min, Inten=5.13 in/hr

Area (ac)	C	Description
23.600	0.70	GRASS
23.600		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0					Direct Entry,

Subcatchment 1S: Post-Dev Drainage Area DA1

Hydrograph



Hydrograph for Subcatchment 1S: Post-Dev Drainage Area DA1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	10.20	0.00	20.40	0.00	30.60	0.00
0.20	64.08	10.40	0.00	20.60	0.00	30.80	0.00
0.40	42.72	10.60	0.00	20.80	0.00	31.00	0.00
0.60	0.00	10.80	0.00	21.00	0.00	31.20	0.00
0.80	0.00	11.00	0.00	21.20	0.00	31.40	0.00
1.00	0.00	11.20	0.00	21.40	0.00	31.60	0.00
1.20	0.00	11.40	0.00	21.60	0.00	31.80	0.00
1.40	0.00	11.60	0.00	21.80	0.00	32.00	0.00
1.60	0.00	11.80	0.00	22.00	0.00	32.20	0.00
1.80	0.00	12.00	0.00	22.20	0.00	32.40	0.00
2.00	0.00	12.20	0.00	22.40	0.00	32.60	0.00
2.20	0.00	12.40	0.00	22.60	0.00	32.80	0.00
2.40	0.00	12.60	0.00	22.80	0.00	33.00	0.00
2.60	0.00	12.80	0.00	23.00	0.00	33.20	0.00
2.80	0.00	13.00	0.00	23.20	0.00	33.40	0.00
3.00	0.00	13.20	0.00	23.40	0.00	33.60	0.00
3.20	0.00	13.40	0.00	23.60	0.00	33.80	0.00
3.40	0.00	13.60	0.00	23.80	0.00	34.00	0.00
3.60	0.00	13.80	0.00	24.00	0.00	34.20	0.00
3.80	0.00	14.00	0.00	24.20	0.00	34.40	0.00
4.00	0.00	14.20	0.00	24.40	0.00	34.60	0.00
4.20	0.00	14.40	0.00	24.60	0.00	34.80	0.00
4.40	0.00	14.60	0.00	24.80	0.00	35.00	0.00
4.60	0.00	14.80	0.00	25.00	0.00	35.20	0.00
4.80	0.00	15.00	0.00	25.20	0.00	35.40	0.00
5.00	0.00	15.20	0.00	25.40	0.00	35.60	0.00
5.20	0.00	15.40	0.00	25.60	0.00	35.80	0.00
5.40	0.00	15.60	0.00	25.80	0.00	36.00	0.00
5.60	0.00	15.80	0.00	26.00	0.00		
5.80	0.00	16.00	0.00	26.20	0.00		
6.00	0.00	16.20	0.00	26.40	0.00		
6.20	0.00	16.40	0.00	26.60	0.00		
6.40	0.00	16.60	0.00	26.80	0.00		
6.60	0.00	16.80	0.00	27.00	0.00		
6.80	0.00	17.00	0.00	27.20	0.00		
7.00	0.00	17.20	0.00	27.40	0.00		
7.20	0.00	17.40	0.00	27.60	0.00		
7.40	0.00	17.60	0.00	27.80	0.00		
7.60	0.00	17.80	0.00	28.00	0.00		
7.80	0.00	18.00	0.00	28.20	0.00		
8.00	0.00	18.20	0.00	28.40	0.00		
8.20	0.00	18.40	0.00	28.60	0.00		
8.40	0.00	18.60	0.00	28.80	0.00		
8.60	0.00	18.80	0.00	29.00	0.00		
8.80	0.00	19.00	0.00	29.20	0.00		
9.00	0.00	19.20	0.00	29.40	0.00		
9.20	0.00	19.40	0.00	29.60	0.00		
9.40	0.00	19.60	0.00	29.80	0.00		
9.60	0.00	19.80	0.00	30.00	0.00		
9.80	0.00	20.00	0.00	30.20	0.00		
10.00	0.00	20.20	0.00	30.40	0.00		

Summary for Pond 3P: (new Pond)

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth = 0.96" for 10-Year event
 Inflow = 84.51 cfs @ 0.27 hrs, Volume= 1.883 af
 Outflow = 30.63 cfs @ 0.44 hrs, Volume= 1.883 af, Atten= 64% Lag= 10.2 min
 Primary = 30.63 cfs @ 0.44 hrs, Volume= 1.883 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 991.42' @ 0.44 hrs Surf.Area= 17,715 sf Storage= 46,172 cf

Plug-Flow detention time= 17.4 min calculated for 1.883 af (100% of inflow)
 Center-of-Mass det. time= 17.4 min (33.4 - 16.0)

Volume	Invert	Avail.Storage	Storage Description
#1	988.00'	123,172 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
988.00	7,354	425.0	0	0	7,354
989.00	12,425	660.5	9,779	9,779	27,704
990.00	14,533	669.0	13,465	23,245	28,822
991.00	16,909	681.0	15,706	38,951	30,278
992.00	18,873	693.0	17,882	56,833	31,759
993.00	20,959	717.0	19,907	76,739	34,542
994.00	23,154	738.0	22,047	98,787	37,080
995.00	25,637	765.0	24,385	123,172	40,396

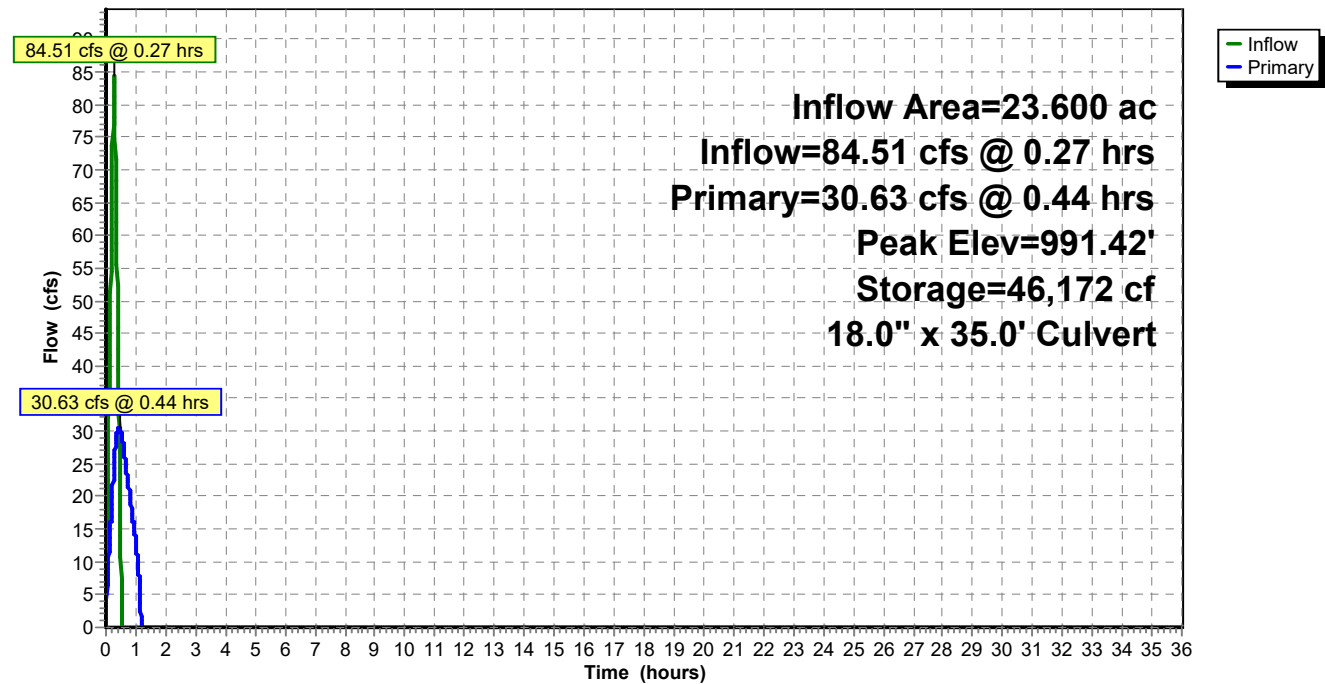
Device	Routing	Invert	Outlet Devices
#1	Primary	987.10'	18.0" x 35.0' long Culvert X 2.00 Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Outlet Invert= 986.75' S= 0.0100 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=30.63 cfs @ 0.44 hrs HW=991.42' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 30.63 cfs @ 8.67 fps)

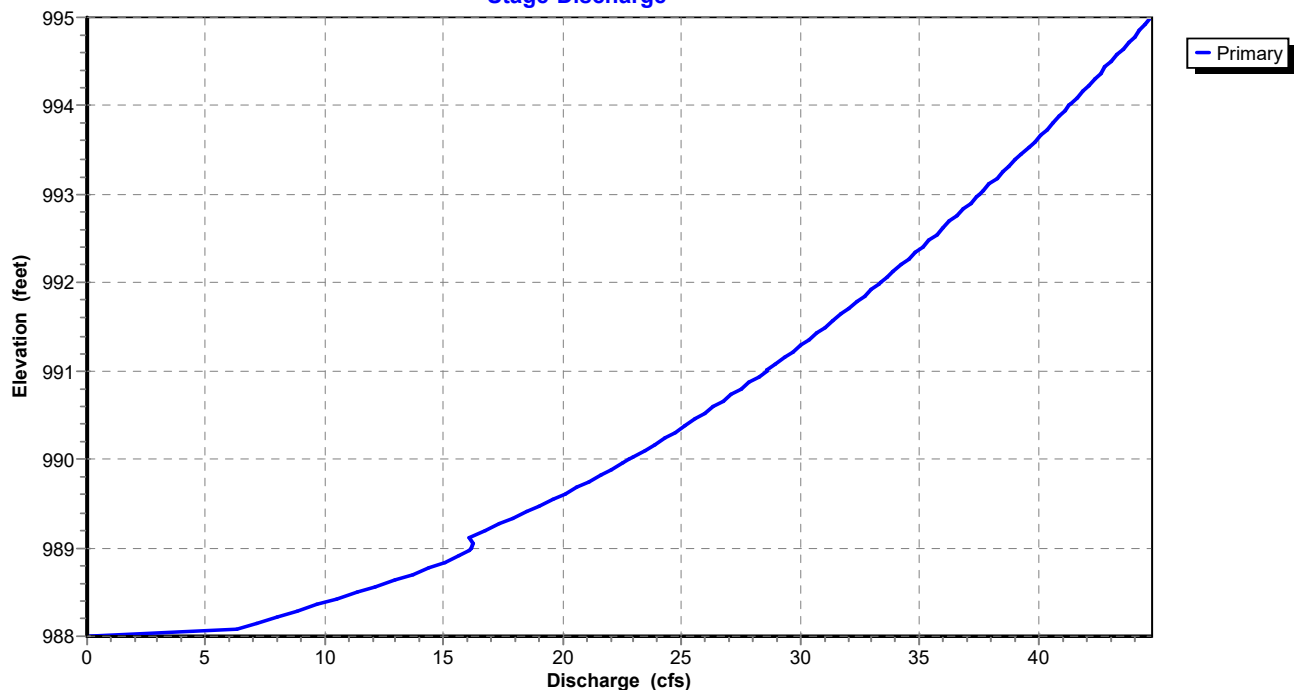
Pond 3P: (new Pond)

Hydrograph



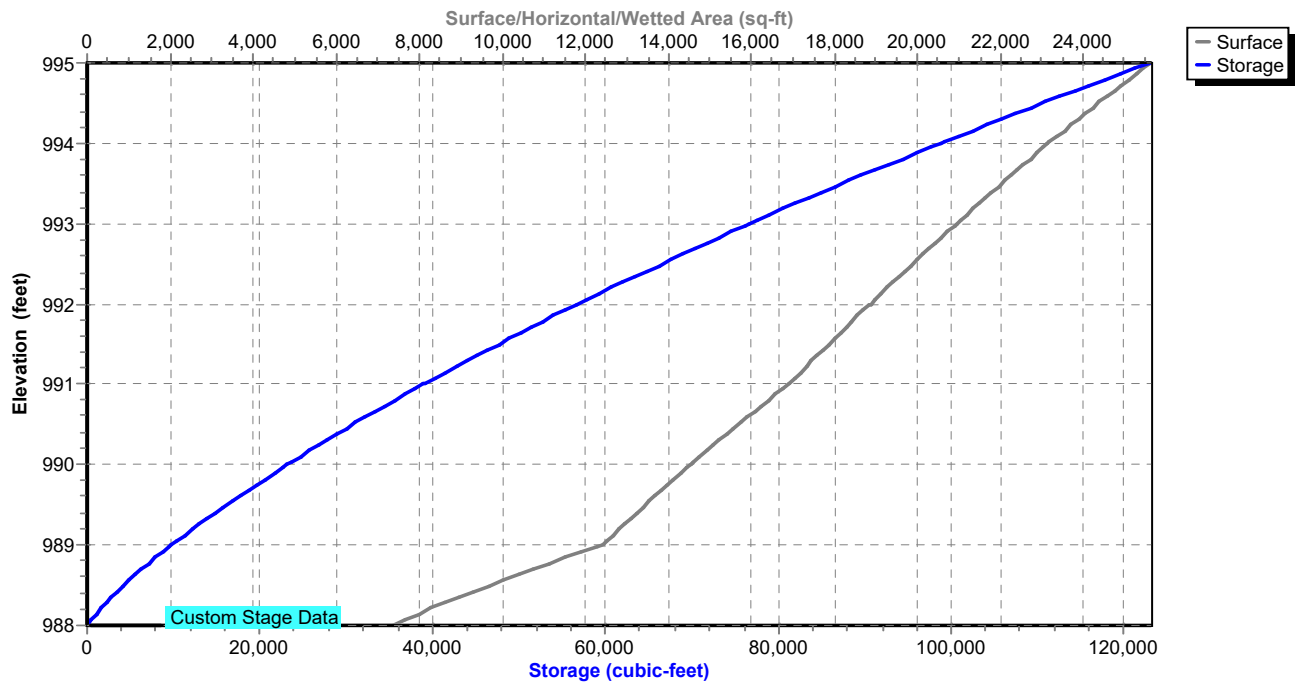
Pond 3P: (new Pond)

Stage-Discharge



Pond 3P: (new Pond)

Stage-Area-Storage



Hydrograph for Pond 3P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	988.00	0.00
1.00	0.00	5,534	988.63	12.90
2.00	0.00	0	988.00	0.00
3.00	0.00	0	988.00	0.00
4.00	0.00	0	988.00	0.00
5.00	0.00	0	988.00	0.00
6.00	0.00	0	988.00	0.00
7.00	0.00	0	988.00	0.00
8.00	0.00	0	988.00	0.00
9.00	0.00	0	988.00	0.00
10.00	0.00	0	988.00	0.00
11.00	0.00	0	988.00	0.00
12.00	0.00	0	988.00	0.00
13.00	0.00	0	988.00	0.00
14.00	0.00	0	988.00	0.00
15.00	0.00	0	988.00	0.00
16.00	0.00	0	988.00	0.00
17.00	0.00	0	988.00	0.00
18.00	0.00	0	988.00	0.00
19.00	0.00	0	988.00	0.00
20.00	0.00	0	988.00	0.00
21.00	0.00	0	988.00	0.00
22.00	0.00	0	988.00	0.00
23.00	0.00	0	988.00	0.00
24.00	0.00	0	988.00	0.00
25.00	0.00	0	988.00	0.00
26.00	0.00	0	988.00	0.00
27.00	0.00	0	988.00	0.00
28.00	0.00	0	988.00	0.00
29.00	0.00	0	988.00	0.00
30.00	0.00	0	988.00	0.00
31.00	0.00	0	988.00	0.00
32.00	0.00	0	988.00	0.00
33.00	0.00	0	988.00	0.00
34.00	0.00	0	988.00	0.00
35.00	0.00	0	988.00	0.00
36.00	0.00	0	988.00	0.00

Stage-Discharge for Pond 3P: (new Pond)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
988.00	0.00	990.04	23.03	992.08	33.69	994.12	41.70
988.04	5.99	990.08	23.29	992.12	33.86	994.16	41.85
988.08	6.44	990.12	23.54	992.16	34.04	994.20	41.99
988.12	6.90	990.16	23.79	992.20	34.21	994.24	42.13
988.16	7.36	990.20	24.04	992.24	34.38	994.28	42.27
988.20	7.83	990.24	24.28	992.28	34.56	994.32	42.41
988.24	8.31	990.28	24.53	992.32	34.73	994.36	42.55
988.28	8.79	990.32	24.77	992.36	34.90	994.40	42.69
988.32	9.27	990.36	25.00	992.40	35.07	994.44	42.83
988.36	9.75	990.40	25.24	992.44	35.23	994.48	42.96
988.40	10.24	990.44	25.47	992.48	35.40	994.52	43.10
988.44	10.72	990.48	25.70	992.52	35.57	994.56	43.24
988.48	11.20	990.52	25.93	992.56	35.74	994.60	43.38
988.52	11.67	990.56	26.16	992.60	35.90	994.64	43.51
988.56	12.14	990.60	26.39	992.64	36.07	994.68	43.65
988.60	12.60	990.64	26.61	992.68	36.23	994.72	43.78
988.64	13.04	990.68	26.83	992.72	36.39	994.76	43.92
988.68	13.48	990.72	27.05	992.76	36.56	994.80	44.05
988.72	13.90	990.76	27.27	992.80	36.72	994.84	44.19
988.76	14.31	990.80	27.49	992.84	36.88	994.88	44.32
988.80	14.69	990.84	27.70	992.88	37.04	994.92	44.46
988.84	15.05	990.88	27.92	992.92	37.20	994.96	44.59
988.88	15.38	990.92	28.13	992.96	37.36	995.00	44.72
988.92	15.67	990.96	28.34	993.00	37.52		
988.96	15.92	991.00	28.54	993.04	37.67		
989.00	16.11	991.04	28.75	993.08	37.83		
989.04	16.21	991.08	28.96	993.12	37.99		
989.08	16.17	991.12	29.16	993.16	38.14		
989.12	16.06	991.16	29.36	993.20	38.30		
989.16	16.42	991.20	29.56	993.24	38.45		
989.20	16.78	991.24	29.76	993.28	38.61		
989.24	17.13	991.28	29.96	993.32	38.76		
989.28	17.47	991.32	30.16	993.36	38.91		
989.32	17.81	991.36	30.36	993.40	39.06		
989.36	18.14	991.40	30.55	993.44	39.21		
989.40	18.46	991.44	30.74	993.48	39.37		
989.44	18.78	991.48	30.94	993.52	39.52		
989.48	19.09	991.52	31.13	993.56	39.67		
989.52	19.40	991.56	31.32	993.60	39.81		
989.56	19.70	991.60	31.51	993.64	39.96		
989.60	20.00	991.64	31.69	993.68	40.11		
989.64	20.29	991.68	31.88	993.72	40.26		
989.68	20.58	991.72	32.06	993.76	40.41		
989.72	20.87	991.76	32.25	993.80	40.55		
989.76	21.15	991.80	32.43	993.84	40.70		
989.80	21.43	991.84	32.61	993.88	40.84		
989.84	21.71	991.88	32.80	993.92	40.99		
989.88	21.98	991.92	32.98	993.96	41.13		
989.92	22.24	991.96	33.15	994.00	41.28		
989.96	22.51	992.00	33.33	994.04	41.42		
990.00	22.77	992.04	33.51	994.08	41.56		

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
988.00	7,354	0	993.10	21,174	78,846
988.10	7,802	758	993.20	21,389	80,974
988.20	8,262	1,561	993.30	21,606	83,124
988.30	8,736	2,411	993.40	21,824	85,295
988.40	9,224	3,308	993.50	22,043	87,489
988.50	9,724	4,256	993.60	22,263	89,704
988.60	10,238	5,254	993.70	22,484	91,941
988.70	10,765	6,304	993.80	22,706	94,201
988.80	11,305	7,407	993.90	22,930	96,483
988.90	11,858	8,565	994.00	23,154	98,787
989.00	12,425	9,779	994.10	23,397	101,114
989.10	12,628	11,032	994.20	23,640	103,466
989.20	12,833	12,305	994.30	23,886	105,843
989.30	13,040	13,599	994.40	24,132	108,243
989.40	13,248	14,913	994.50	24,380	110,669
989.50	13,458	16,248	994.60	24,629	113,119
989.60	13,670	17,605	994.70	24,879	115,595
989.70	13,883	18,982	994.80	25,130	118,095
989.80	14,098	20,382	994.90	25,383	120,621
989.90	14,315	21,802	995.00	25,637	123,172
990.00	14,533	23,245			
990.10	14,763	24,709			
990.20	14,994	26,197			
990.30	15,227	27,708			
990.40	15,462	29,243			
990.50	15,699	30,801			
990.60	15,937	32,382			
990.70	16,177	33,988			
990.80	16,419	35,618			
990.90	16,663	37,272			
991.00	16,909	38,951			
991.10	17,101	40,651			
991.20	17,293	42,371			
991.30	17,487	44,110			
991.40	17,682	45,868			
991.50	17,878	47,646			
991.60	18,074	49,444			
991.70	18,272	51,261			
991.80	18,472	53,098			
991.90	18,672	54,955			
992.00	18,873	56,833			
992.10	19,077	58,730			
992.20	19,281	60,648			
992.30	19,487	62,586			
992.40	19,694	64,545			
992.50	19,902	66,525			
992.60	20,111	68,526			
992.70	20,322	70,548			
992.80	20,533	72,590			
992.90	20,745	74,654			
993.00	20,959	76,739			

Summary for Subcatchment 1S: Post-Dev Drainage Area DA1

Runoff = 99.21 cfs @ 0.27 hrs, Volume= 2.210 af, Depth= 1.12"

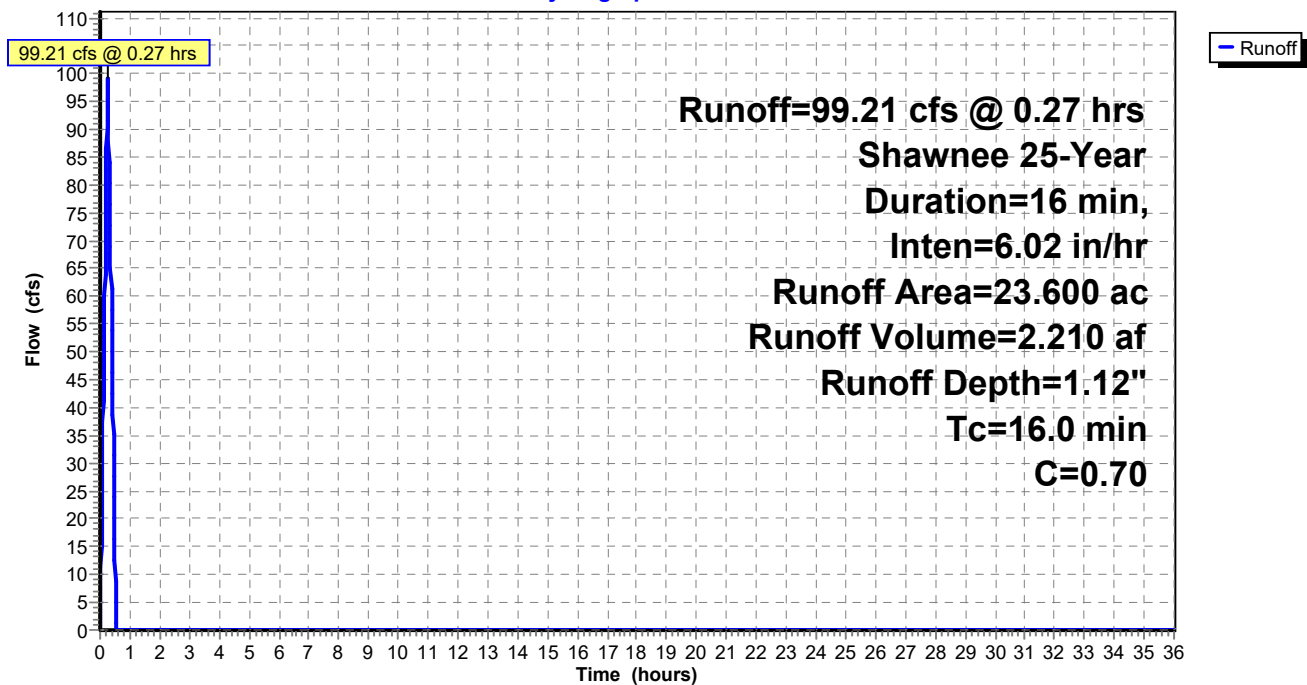
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Shawnee 25-Year Duration=16 min, Inten=6.02 in/hr

Area (ac)	C	Description
23.600	0.70	GRASS
23.600		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0					Direct Entry,

Subcatchment 1S: Post-Dev Drainage Area DA1

Hydrograph



Hydrograph for Subcatchment 1S: Post-Dev Drainage Area DA1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	10.20	0.00	20.40	0.00	30.60	0.00
0.20	75.23	10.40	0.00	20.60	0.00	30.80	0.00
0.40	50.15	10.60	0.00	20.80	0.00	31.00	0.00
0.60	0.00	10.80	0.00	21.00	0.00	31.20	0.00
0.80	0.00	11.00	0.00	21.20	0.00	31.40	0.00
1.00	0.00	11.20	0.00	21.40	0.00	31.60	0.00
1.20	0.00	11.40	0.00	21.60	0.00	31.80	0.00
1.40	0.00	11.60	0.00	21.80	0.00	32.00	0.00
1.60	0.00	11.80	0.00	22.00	0.00	32.20	0.00
1.80	0.00	12.00	0.00	22.20	0.00	32.40	0.00
2.00	0.00	12.20	0.00	22.40	0.00	32.60	0.00
2.20	0.00	12.40	0.00	22.60	0.00	32.80	0.00
2.40	0.00	12.60	0.00	22.80	0.00	33.00	0.00
2.60	0.00	12.80	0.00	23.00	0.00	33.20	0.00
2.80	0.00	13.00	0.00	23.20	0.00	33.40	0.00
3.00	0.00	13.20	0.00	23.40	0.00	33.60	0.00
3.20	0.00	13.40	0.00	23.60	0.00	33.80	0.00
3.40	0.00	13.60	0.00	23.80	0.00	34.00	0.00
3.60	0.00	13.80	0.00	24.00	0.00	34.20	0.00
3.80	0.00	14.00	0.00	24.20	0.00	34.40	0.00
4.00	0.00	14.20	0.00	24.40	0.00	34.60	0.00
4.20	0.00	14.40	0.00	24.60	0.00	34.80	0.00
4.40	0.00	14.60	0.00	24.80	0.00	35.00	0.00
4.60	0.00	14.80	0.00	25.00	0.00	35.20	0.00
4.80	0.00	15.00	0.00	25.20	0.00	35.40	0.00
5.00	0.00	15.20	0.00	25.40	0.00	35.60	0.00
5.20	0.00	15.40	0.00	25.60	0.00	35.80	0.00
5.40	0.00	15.60	0.00	25.80	0.00	36.00	0.00
5.60	0.00	15.80	0.00	26.00	0.00		
5.80	0.00	16.00	0.00	26.20	0.00		
6.00	0.00	16.20	0.00	26.40	0.00		
6.20	0.00	16.40	0.00	26.60	0.00		
6.40	0.00	16.60	0.00	26.80	0.00		
6.60	0.00	16.80	0.00	27.00	0.00		
6.80	0.00	17.00	0.00	27.20	0.00		
7.00	0.00	17.20	0.00	27.40	0.00		
7.20	0.00	17.40	0.00	27.60	0.00		
7.40	0.00	17.60	0.00	27.80	0.00		
7.60	0.00	17.80	0.00	28.00	0.00		
7.80	0.00	18.00	0.00	28.20	0.00		
8.00	0.00	18.20	0.00	28.40	0.00		
8.20	0.00	18.40	0.00	28.60	0.00		
8.40	0.00	18.60	0.00	28.80	0.00		
8.60	0.00	18.80	0.00	29.00	0.00		
8.80	0.00	19.00	0.00	29.20	0.00		
9.00	0.00	19.20	0.00	29.40	0.00		
9.20	0.00	19.40	0.00	29.60	0.00		
9.40	0.00	19.60	0.00	29.80	0.00		
9.60	0.00	19.80	0.00	30.00	0.00		
9.80	0.00	20.00	0.00	30.20	0.00		
10.00	0.00	20.20	0.00	30.40	0.00		

Summary for Pond 3P: (new Pond)

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth = 1.12" for 25-Year event
 Inflow = 99.21 cfs @ 0.27 hrs, Volume= 2.210 af
 Outflow = 33.35 cfs @ 0.44 hrs, Volume= 2.210 af, Atten= 66% Lag= 10.6 min
 Primary = 33.35 cfs @ 0.44 hrs, Volume= 2.210 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 992.00' @ 0.44 hrs Surf.Area= 18,882 sf Storage= 56,920 cf

Plug-Flow detention time=19.5 min calculated for 2.210 af (100% of inflow)
 Center-of-Mass det. time=19.6 min (35.6 - 16.0)

Volume	Invert	Avail.Storage	Storage Description
#1	988.00'	123,172 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
988.00	7,354	425.0	0	0	7,354
989.00	12,425	660.5	9,779	9,779	27,704
990.00	14,533	669.0	13,465	23,245	28,822
991.00	16,909	681.0	15,706	38,951	30,278
992.00	18,873	693.0	17,882	56,833	31,759
993.00	20,959	717.0	19,907	76,739	34,542
994.00	23,154	738.0	22,047	98,787	37,080
995.00	25,637	765.0	24,385	123,172	40,396

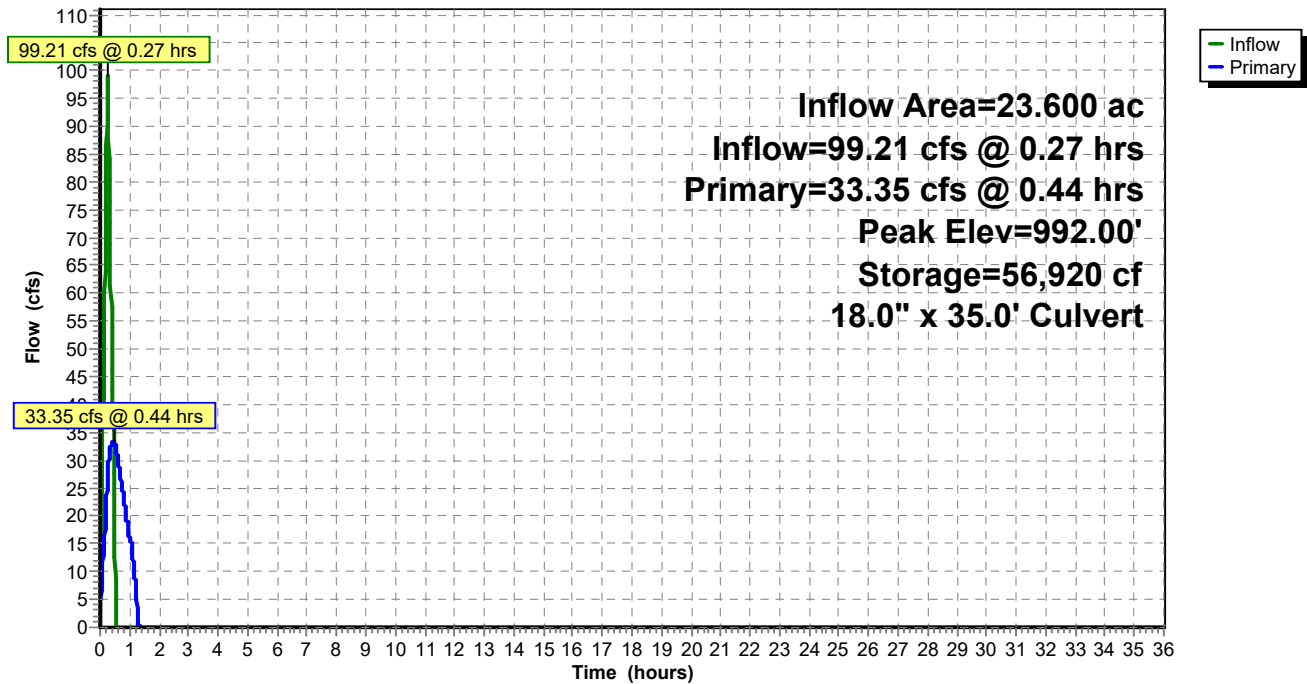
Device	Routing	Invert	Outlet Devices
#1	Primary	987.10'	18.0" x 35.0' long Culvert X 2.00 Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Outlet Invert= 986.75' S= 0.0100 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=33.35 cfs @ 0.44 hrs HW=992.00' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 33.35 cfs @ 9.44 fps)

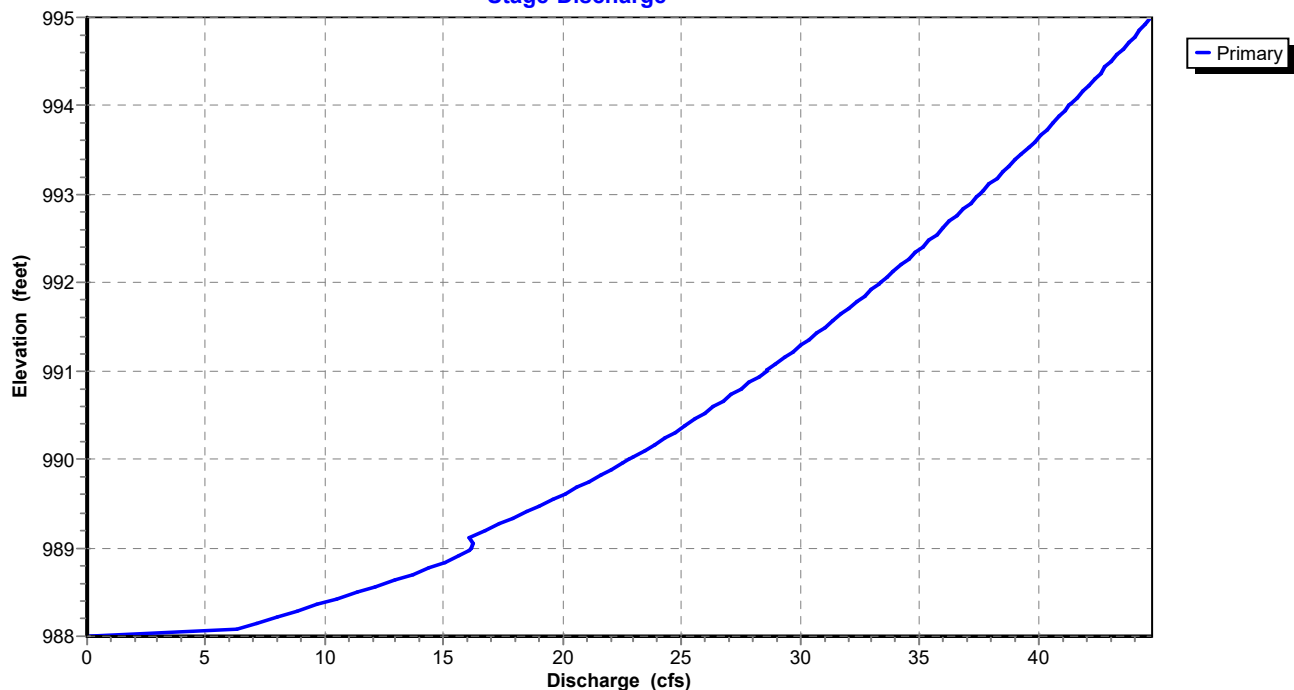
Pond 3P: (new Pond)

Hydrograph



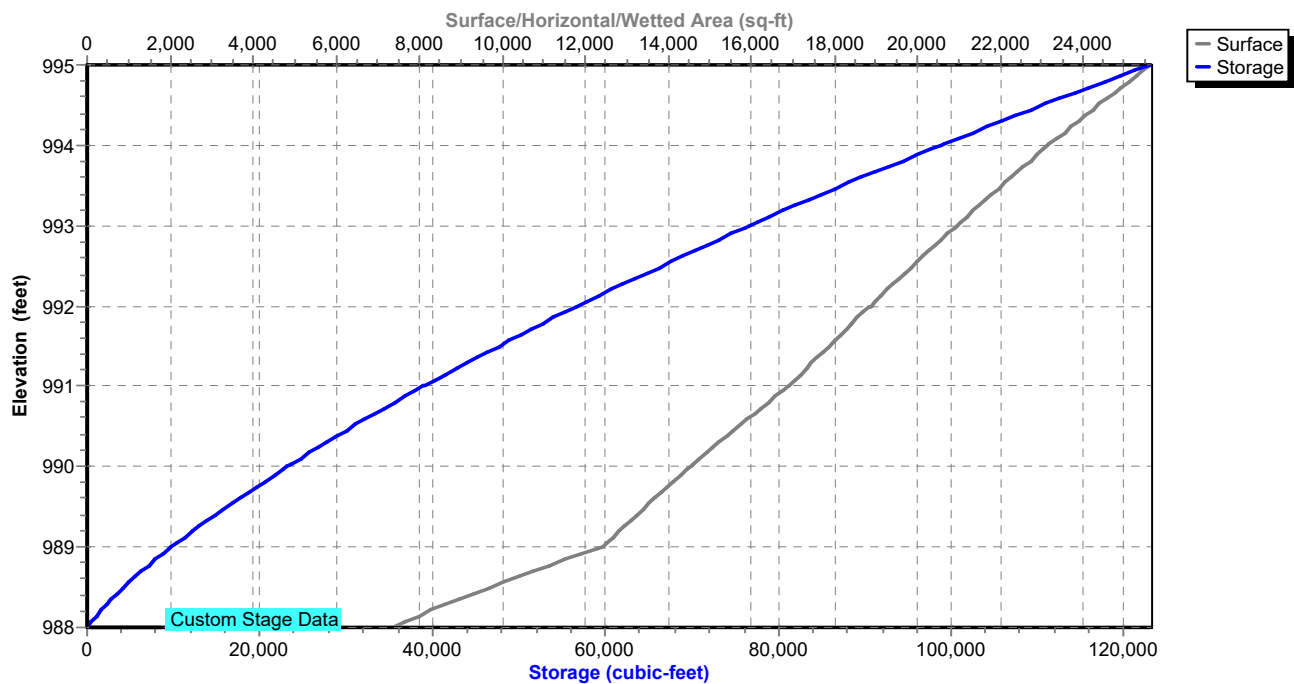
Pond 3P: (new Pond)

Stage-Discharge



Pond 3P: (new Pond)

Stage-Area-Storage



Hydrograph for Pond 3P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	988.00	0.00
1.00	0.00	10,734	989.08	16.16
2.00	0.00	0	988.00	0.00
3.00	0.00	0	988.00	0.00
4.00	0.00	0	988.00	0.00
5.00	0.00	0	988.00	0.00
6.00	0.00	0	988.00	0.00
7.00	0.00	0	988.00	0.00
8.00	0.00	0	988.00	0.00
9.00	0.00	0	988.00	0.00
10.00	0.00	0	988.00	0.00
11.00	0.00	0	988.00	0.00
12.00	0.00	0	988.00	0.00
13.00	0.00	0	988.00	0.00
14.00	0.00	0	988.00	0.00
15.00	0.00	0	988.00	0.00
16.00	0.00	0	988.00	0.00
17.00	0.00	0	988.00	0.00
18.00	0.00	0	988.00	0.00
19.00	0.00	0	988.00	0.00
20.00	0.00	0	988.00	0.00
21.00	0.00	0	988.00	0.00
22.00	0.00	0	988.00	0.00
23.00	0.00	0	988.00	0.00
24.00	0.00	0	988.00	0.00
25.00	0.00	0	988.00	0.00
26.00	0.00	0	988.00	0.00
27.00	0.00	0	988.00	0.00
28.00	0.00	0	988.00	0.00
29.00	0.00	0	988.00	0.00
30.00	0.00	0	988.00	0.00
31.00	0.00	0	988.00	0.00
32.00	0.00	0	988.00	0.00
33.00	0.00	0	988.00	0.00
34.00	0.00	0	988.00	0.00
35.00	0.00	0	988.00	0.00
36.00	0.00	0	988.00	0.00

Stage-Discharge for Pond 3P: (new Pond)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
988.00	0.00	990.04	23.03	992.08	33.69	994.12	41.70
988.04	5.99	990.08	23.29	992.12	33.86	994.16	41.85
988.08	6.44	990.12	23.54	992.16	34.04	994.20	41.99
988.12	6.90	990.16	23.79	992.20	34.21	994.24	42.13
988.16	7.36	990.20	24.04	992.24	34.38	994.28	42.27
988.20	7.83	990.24	24.28	992.28	34.56	994.32	42.41
988.24	8.31	990.28	24.53	992.32	34.73	994.36	42.55
988.28	8.79	990.32	24.77	992.36	34.90	994.40	42.69
988.32	9.27	990.36	25.00	992.40	35.07	994.44	42.83
988.36	9.75	990.40	25.24	992.44	35.23	994.48	42.96
988.40	10.24	990.44	25.47	992.48	35.40	994.52	43.10
988.44	10.72	990.48	25.70	992.52	35.57	994.56	43.24
988.48	11.20	990.52	25.93	992.56	35.74	994.60	43.38
988.52	11.67	990.56	26.16	992.60	35.90	994.64	43.51
988.56	12.14	990.60	26.39	992.64	36.07	994.68	43.65
988.60	12.60	990.64	26.61	992.68	36.23	994.72	43.78
988.64	13.04	990.68	26.83	992.72	36.39	994.76	43.92
988.68	13.48	990.72	27.05	992.76	36.56	994.80	44.05
988.72	13.90	990.76	27.27	992.80	36.72	994.84	44.19
988.76	14.31	990.80	27.49	992.84	36.88	994.88	44.32
988.80	14.69	990.84	27.70	992.88	37.04	994.92	44.46
988.84	15.05	990.88	27.92	992.92	37.20	994.96	44.59
988.88	15.38	990.92	28.13	992.96	37.36	995.00	44.72
988.92	15.67	990.96	28.34	993.00	37.52		
988.96	15.92	991.00	28.54	993.04	37.67		
989.00	16.11	991.04	28.75	993.08	37.83		
989.04	16.21	991.08	28.96	993.12	37.99		
989.08	16.17	991.12	29.16	993.16	38.14		
989.12	16.06	991.16	29.36	993.20	38.30		
989.16	16.42	991.20	29.56	993.24	38.45		
989.20	16.78	991.24	29.76	993.28	38.61		
989.24	17.13	991.28	29.96	993.32	38.76		
989.28	17.47	991.32	30.16	993.36	38.91		
989.32	17.81	991.36	30.36	993.40	39.06		
989.36	18.14	991.40	30.55	993.44	39.21		
989.40	18.46	991.44	30.74	993.48	39.37		
989.44	18.78	991.48	30.94	993.52	39.52		
989.48	19.09	991.52	31.13	993.56	39.67		
989.52	19.40	991.56	31.32	993.60	39.81		
989.56	19.70	991.60	31.51	993.64	39.96		
989.60	20.00	991.64	31.69	993.68	40.11		
989.64	20.29	991.68	31.88	993.72	40.26		
989.68	20.58	991.72	32.06	993.76	40.41		
989.72	20.87	991.76	32.25	993.80	40.55		
989.76	21.15	991.80	32.43	993.84	40.70		
989.80	21.43	991.84	32.61	993.88	40.84		
989.84	21.71	991.88	32.80	993.92	40.99		
989.88	21.98	991.92	32.98	993.96	41.13		
989.92	22.24	991.96	33.15	994.00	41.28		
989.96	22.51	992.00	33.33	994.04	41.42		
990.00	22.77	992.04	33.51	994.08	41.56		

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
988.00	7,354	0	993.10	21,174	78,846
988.10	7,802	758	993.20	21,389	80,974
988.20	8,262	1,561	993.30	21,606	83,124
988.30	8,736	2,411	993.40	21,824	85,295
988.40	9,224	3,308	993.50	22,043	87,489
988.50	9,724	4,256	993.60	22,263	89,704
988.60	10,238	5,254	993.70	22,484	91,941
988.70	10,765	6,304	993.80	22,706	94,201
988.80	11,305	7,407	993.90	22,930	96,483
988.90	11,858	8,565	994.00	23,154	98,787
989.00	12,425	9,779	994.10	23,397	101,114
989.10	12,628	11,032	994.20	23,640	103,466
989.20	12,833	12,305	994.30	23,886	105,843
989.30	13,040	13,599	994.40	24,132	108,243
989.40	13,248	14,913	994.50	24,380	110,669
989.50	13,458	16,248	994.60	24,629	113,119
989.60	13,670	17,605	994.70	24,879	115,595
989.70	13,883	18,982	994.80	25,130	118,095
989.80	14,098	20,382	994.90	25,383	120,621
989.90	14,315	21,802	995.00	25,637	123,172
990.00	14,533	23,245			
990.10	14,763	24,709			
990.20	14,994	26,197			
990.30	15,227	27,708			
990.40	15,462	29,243			
990.50	15,699	30,801			
990.60	15,937	32,382			
990.70	16,177	33,988			
990.80	16,419	35,618			
990.90	16,663	37,272			
991.00	16,909	38,951			
991.10	17,101	40,651			
991.20	17,293	42,371			
991.30	17,487	44,110			
991.40	17,682	45,868			
991.50	17,878	47,646			
991.60	18,074	49,444			
991.70	18,272	51,261			
991.80	18,472	53,098			
991.90	18,672	54,955			
992.00	18,873	56,833			
992.10	19,077	58,730			
992.20	19,281	60,648			
992.30	19,487	62,586			
992.40	19,694	64,545			
992.50	19,902	66,525			
992.60	20,111	68,526			
992.70	20,322	70,548			
992.80	20,533	72,590			
992.90	20,745	74,654			
993.00	20,959	76,739			

Summary for Subcatchment 1S: Post-Dev Drainage Area DA1

Runoff = 111.96 cfs @ 0.27 hrs, Volume= 2.494 af, Depth= 1.27"

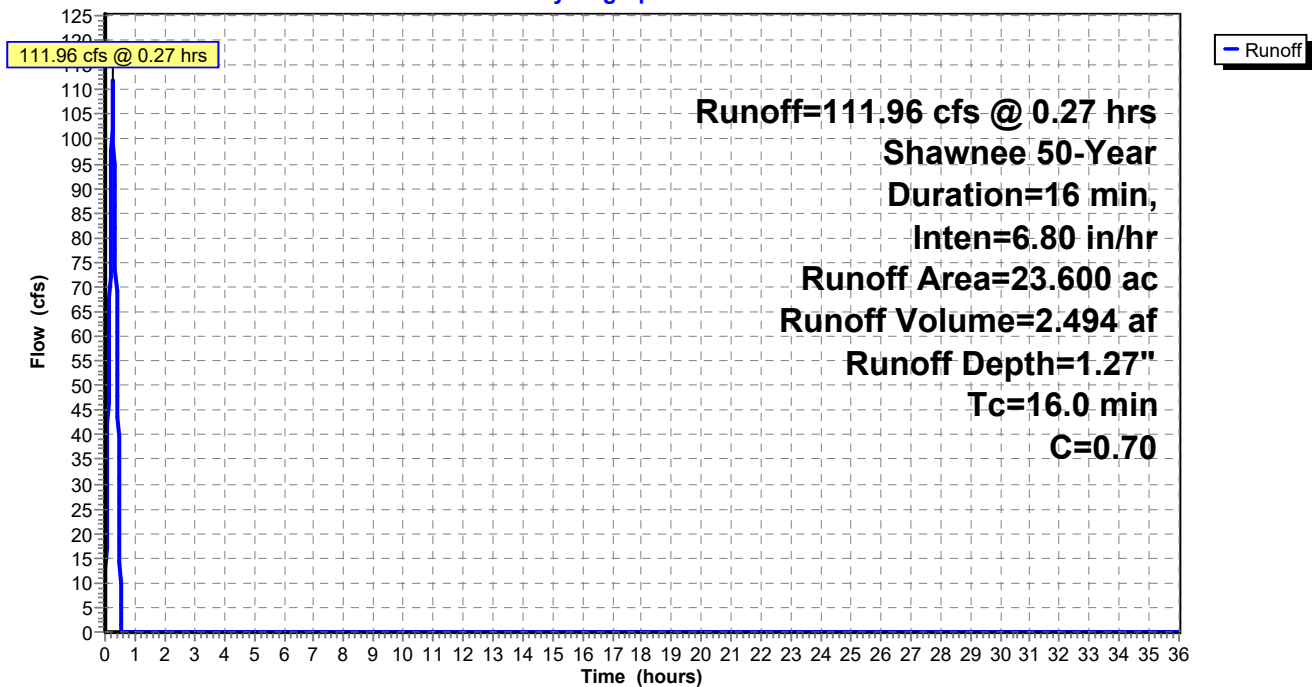
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Shawnee 50-Year Duration=16 min, Inten=6.80 in/hr

Area (ac)	C	Description
23.600	0.70	GRASS
23.600		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0					Direct Entry,

Subcatchment 1S: Post-Dev Drainage Area DA1

Hydrograph



Hydrograph for Subcatchment 1S: Post-Dev Drainage Area DA1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	10.20	0.00	20.40	0.00	30.60	0.00
0.20	84.90	10.40	0.00	20.60	0.00	30.80	0.00
0.40	56.60	10.60	0.00	20.80	0.00	31.00	0.00
0.60	0.00	10.80	0.00	21.00	0.00	31.20	0.00
0.80	0.00	11.00	0.00	21.20	0.00	31.40	0.00
1.00	0.00	11.20	0.00	21.40	0.00	31.60	0.00
1.20	0.00	11.40	0.00	21.60	0.00	31.80	0.00
1.40	0.00	11.60	0.00	21.80	0.00	32.00	0.00
1.60	0.00	11.80	0.00	22.00	0.00	32.20	0.00
1.80	0.00	12.00	0.00	22.20	0.00	32.40	0.00
2.00	0.00	12.20	0.00	22.40	0.00	32.60	0.00
2.20	0.00	12.40	0.00	22.60	0.00	32.80	0.00
2.40	0.00	12.60	0.00	22.80	0.00	33.00	0.00
2.60	0.00	12.80	0.00	23.00	0.00	33.20	0.00
2.80	0.00	13.00	0.00	23.20	0.00	33.40	0.00
3.00	0.00	13.20	0.00	23.40	0.00	33.60	0.00
3.20	0.00	13.40	0.00	23.60	0.00	33.80	0.00
3.40	0.00	13.60	0.00	23.80	0.00	34.00	0.00
3.60	0.00	13.80	0.00	24.00	0.00	34.20	0.00
3.80	0.00	14.00	0.00	24.20	0.00	34.40	0.00
4.00	0.00	14.20	0.00	24.40	0.00	34.60	0.00
4.20	0.00	14.40	0.00	24.60	0.00	34.80	0.00
4.40	0.00	14.60	0.00	24.80	0.00	35.00	0.00
4.60	0.00	14.80	0.00	25.00	0.00	35.20	0.00
4.80	0.00	15.00	0.00	25.20	0.00	35.40	0.00
5.00	0.00	15.20	0.00	25.40	0.00	35.60	0.00
5.20	0.00	15.40	0.00	25.60	0.00	35.80	0.00
5.40	0.00	15.60	0.00	25.80	0.00	36.00	0.00
5.60	0.00	15.80	0.00	26.00	0.00		
5.80	0.00	16.00	0.00	26.20	0.00		
6.00	0.00	16.20	0.00	26.40	0.00		
6.20	0.00	16.40	0.00	26.60	0.00		
6.40	0.00	16.60	0.00	26.80	0.00		
6.60	0.00	16.80	0.00	27.00	0.00		
6.80	0.00	17.00	0.00	27.20	0.00		
7.00	0.00	17.20	0.00	27.40	0.00		
7.20	0.00	17.40	0.00	27.60	0.00		
7.40	0.00	17.60	0.00	27.80	0.00		
7.60	0.00	17.80	0.00	28.00	0.00		
7.80	0.00	18.00	0.00	28.20	0.00		
8.00	0.00	18.20	0.00	28.40	0.00		
8.20	0.00	18.40	0.00	28.60	0.00		
8.40	0.00	18.60	0.00	28.80	0.00		
8.60	0.00	18.80	0.00	29.00	0.00		
8.80	0.00	19.00	0.00	29.20	0.00		
9.00	0.00	19.20	0.00	29.40	0.00		
9.20	0.00	19.40	0.00	29.60	0.00		
9.40	0.00	19.60	0.00	29.80	0.00		
9.60	0.00	19.80	0.00	30.00	0.00		
9.80	0.00	20.00	0.00	30.20	0.00		
10.00	0.00	20.20	0.00	30.40	0.00		

Summary for Pond 3P: (new Pond)

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth = 1.27" for 50-Year event
 Inflow = 111.96 cfs @ 0.27 hrs, Volume= 2.494 af
 Outflow = 35.48 cfs @ 0.45 hrs, Volume= 2.494 af, Atten= 68% Lag= 10.9 min
 Primary = 35.48 cfs @ 0.45 hrs, Volume= 2.494 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 992.50' @ 0.45 hrs Surf.Area= 19,900 sf Storage= 66,498 cf

Plug-Flow detention time=21.3 min calculated for 2.494 af (100% of inflow)
 Center-of-Mass det. time=21.3 min (37.3 - 16.0)

Volume	Invert	Avail.Storage	Storage Description
#1	988.00'	123,172 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
988.00	7,354	425.0	0	0	7,354
989.00	12,425	660.5	9,779	9,779	27,704
990.00	14,533	669.0	13,465	23,245	28,822
991.00	16,909	681.0	15,706	38,951	30,278
992.00	18,873	693.0	17,882	56,833	31,759
993.00	20,959	717.0	19,907	76,739	34,542
994.00	23,154	738.0	22,047	98,787	37,080
995.00	25,637	765.0	24,385	123,172	40,396

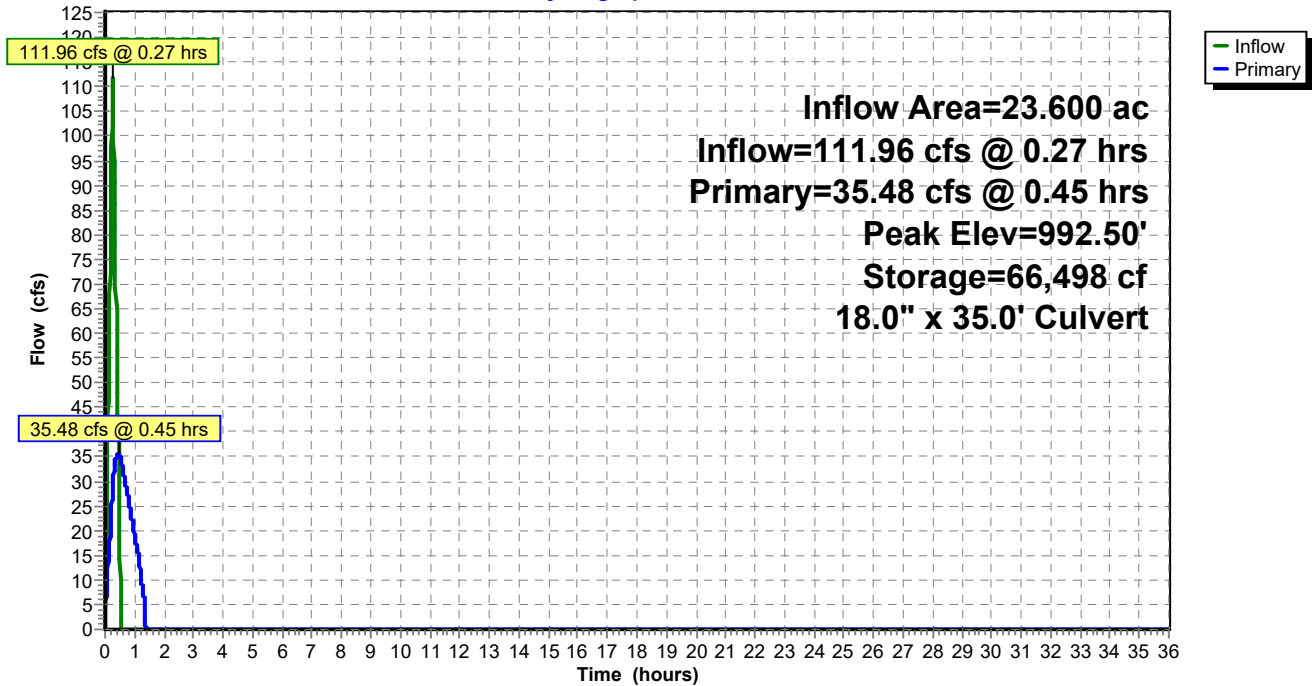
Device	Routing	Invert	Outlet Devices
#1	Primary	987.10'	18.0" x 35.0' long Culvert X 2.00 Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Outlet Invert= 986.75' S= 0.0100 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=35.48 cfs @ 0.45 hrs HW=992.50' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 35.48 cfs @ 10.04 fps)

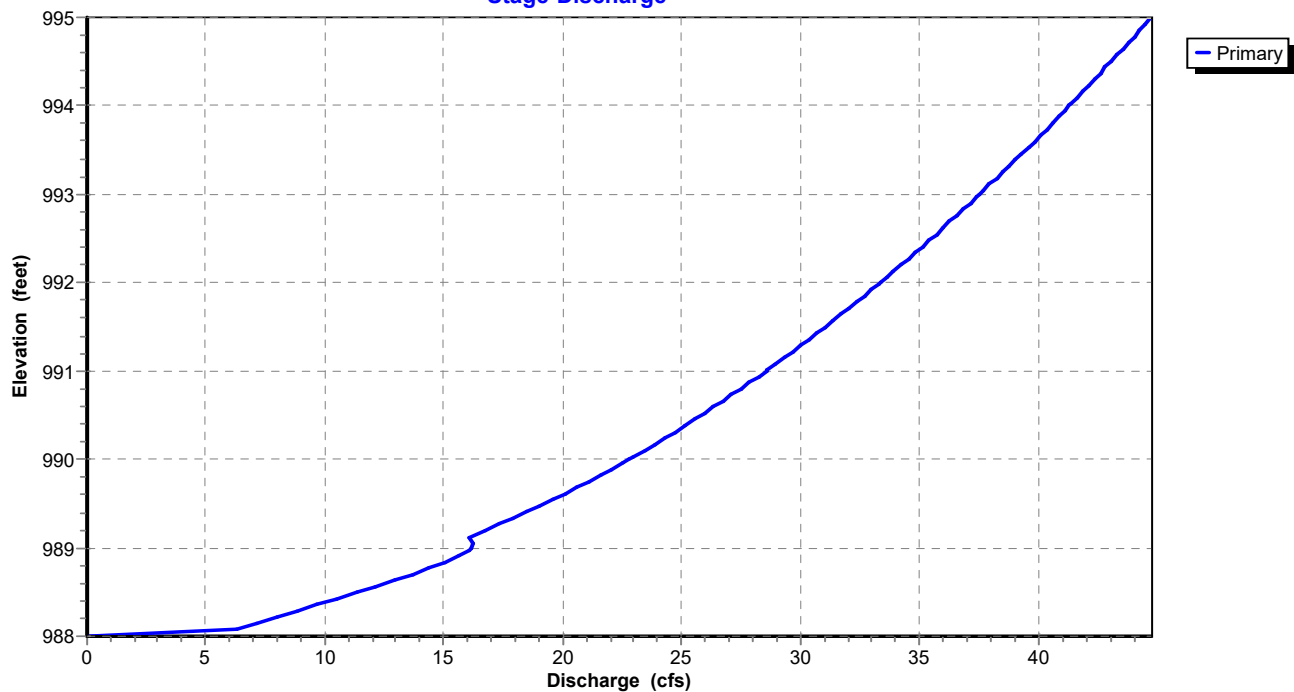
Pond 3P: (new Pond)

Hydrograph



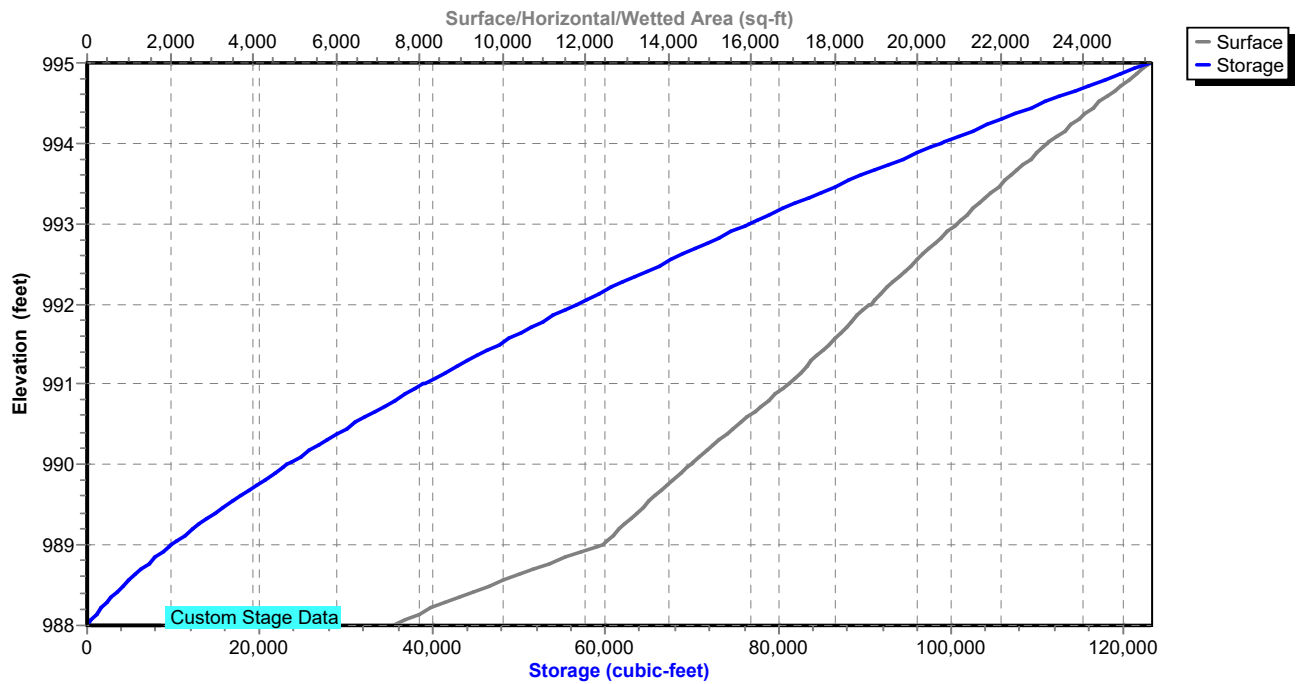
Pond 3P: (new Pond)

Stage-Discharge



Pond 3P: (new Pond)

Stage-Area-Storage



Hydrograph for Pond 3P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	988.00	0.00
1.00	0.00	15,715	989.46	18.93
2.00	0.00	0	988.00	0.00
3.00	0.00	0	988.00	0.00
4.00	0.00	0	988.00	0.00
5.00	0.00	0	988.00	0.00
6.00	0.00	0	988.00	0.00
7.00	0.00	0	988.00	0.00
8.00	0.00	0	988.00	0.00
9.00	0.00	0	988.00	0.00
10.00	0.00	0	988.00	0.00
11.00	0.00	0	988.00	0.00
12.00	0.00	0	988.00	0.00
13.00	0.00	0	988.00	0.00
14.00	0.00	0	988.00	0.00
15.00	0.00	0	988.00	0.00
16.00	0.00	0	988.00	0.00
17.00	0.00	0	988.00	0.00
18.00	0.00	0	988.00	0.00
19.00	0.00	0	988.00	0.00
20.00	0.00	0	988.00	0.00
21.00	0.00	0	988.00	0.00
22.00	0.00	0	988.00	0.00
23.00	0.00	0	988.00	0.00
24.00	0.00	0	988.00	0.00
25.00	0.00	0	988.00	0.00
26.00	0.00	0	988.00	0.00
27.00	0.00	0	988.00	0.00
28.00	0.00	0	988.00	0.00
29.00	0.00	0	988.00	0.00
30.00	0.00	0	988.00	0.00
31.00	0.00	0	988.00	0.00
32.00	0.00	0	988.00	0.00
33.00	0.00	0	988.00	0.00
34.00	0.00	0	988.00	0.00
35.00	0.00	0	988.00	0.00
36.00	0.00	0	988.00	0.00

Stage-Discharge for Pond 3P: (new Pond)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
988.00	0.00	990.04	23.03	992.08	33.69	994.12	41.70
988.04	5.99	990.08	23.29	992.12	33.86	994.16	41.85
988.08	6.44	990.12	23.54	992.16	34.04	994.20	41.99
988.12	6.90	990.16	23.79	992.20	34.21	994.24	42.13
988.16	7.36	990.20	24.04	992.24	34.38	994.28	42.27
988.20	7.83	990.24	24.28	992.28	34.56	994.32	42.41
988.24	8.31	990.28	24.53	992.32	34.73	994.36	42.55
988.28	8.79	990.32	24.77	992.36	34.90	994.40	42.69
988.32	9.27	990.36	25.00	992.40	35.07	994.44	42.83
988.36	9.75	990.40	25.24	992.44	35.23	994.48	42.96
988.40	10.24	990.44	25.47	992.48	35.40	994.52	43.10
988.44	10.72	990.48	25.70	992.52	35.57	994.56	43.24
988.48	11.20	990.52	25.93	992.56	35.74	994.60	43.38
988.52	11.67	990.56	26.16	992.60	35.90	994.64	43.51
988.56	12.14	990.60	26.39	992.64	36.07	994.68	43.65
988.60	12.60	990.64	26.61	992.68	36.23	994.72	43.78
988.64	13.04	990.68	26.83	992.72	36.39	994.76	43.92
988.68	13.48	990.72	27.05	992.76	36.56	994.80	44.05
988.72	13.90	990.76	27.27	992.80	36.72	994.84	44.19
988.76	14.31	990.80	27.49	992.84	36.88	994.88	44.32
988.80	14.69	990.84	27.70	992.88	37.04	994.92	44.46
988.84	15.05	990.88	27.92	992.92	37.20	994.96	44.59
988.88	15.38	990.92	28.13	992.96	37.36	995.00	44.72
988.92	15.67	990.96	28.34	993.00	37.52		
988.96	15.92	991.00	28.54	993.04	37.67		
989.00	16.11	991.04	28.75	993.08	37.83		
989.04	16.21	991.08	28.96	993.12	37.99		
989.08	16.17	991.12	29.16	993.16	38.14		
989.12	16.06	991.16	29.36	993.20	38.30		
989.16	16.42	991.20	29.56	993.24	38.45		
989.20	16.78	991.24	29.76	993.28	38.61		
989.24	17.13	991.28	29.96	993.32	38.76		
989.28	17.47	991.32	30.16	993.36	38.91		
989.32	17.81	991.36	30.36	993.40	39.06		
989.36	18.14	991.40	30.55	993.44	39.21		
989.40	18.46	991.44	30.74	993.48	39.37		
989.44	18.78	991.48	30.94	993.52	39.52		
989.48	19.09	991.52	31.13	993.56	39.67		
989.52	19.40	991.56	31.32	993.60	39.81		
989.56	19.70	991.60	31.51	993.64	39.96		
989.60	20.00	991.64	31.69	993.68	40.11		
989.64	20.29	991.68	31.88	993.72	40.26		
989.68	20.58	991.72	32.06	993.76	40.41		
989.72	20.87	991.76	32.25	993.80	40.55		
989.76	21.15	991.80	32.43	993.84	40.70		
989.80	21.43	991.84	32.61	993.88	40.84		
989.84	21.71	991.88	32.80	993.92	40.99		
989.88	21.98	991.92	32.98	993.96	41.13		
989.92	22.24	991.96	33.15	994.00	41.28		
989.96	22.51	992.00	33.33	994.04	41.42		
990.00	22.77	992.04	33.51	994.08	41.56		

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
988.00	7,354	0	993.10	21,174	78,846
988.10	7,802	758	993.20	21,389	80,974
988.20	8,262	1,561	993.30	21,606	83,124
988.30	8,736	2,411	993.40	21,824	85,295
988.40	9,224	3,308	993.50	22,043	87,489
988.50	9,724	4,256	993.60	22,263	89,704
988.60	10,238	5,254	993.70	22,484	91,941
988.70	10,765	6,304	993.80	22,706	94,201
988.80	11,305	7,407	993.90	22,930	96,483
988.90	11,858	8,565	994.00	23,154	98,787
989.00	12,425	9,779	994.10	23,397	101,114
989.10	12,628	11,032	994.20	23,640	103,466
989.20	12,833	12,305	994.30	23,886	105,843
989.30	13,040	13,599	994.40	24,132	108,243
989.40	13,248	14,913	994.50	24,380	110,669
989.50	13,458	16,248	994.60	24,629	113,119
989.60	13,670	17,605	994.70	24,879	115,595
989.70	13,883	18,982	994.80	25,130	118,095
989.80	14,098	20,382	994.90	25,383	120,621
989.90	14,315	21,802	995.00	25,637	123,172
990.00	14,533	23,245			
990.10	14,763	24,709			
990.20	14,994	26,197			
990.30	15,227	27,708			
990.40	15,462	29,243			
990.50	15,699	30,801			
990.60	15,937	32,382			
990.70	16,177	33,988			
990.80	16,419	35,618			
990.90	16,663	37,272			
991.00	16,909	38,951			
991.10	17,101	40,651			
991.20	17,293	42,371			
991.30	17,487	44,110			
991.40	17,682	45,868			
991.50	17,878	47,646			
991.60	18,074	49,444			
991.70	18,272	51,261			
991.80	18,472	53,098			
991.90	18,672	54,955			
992.00	18,873	56,833			
992.10	19,077	58,730			
992.20	19,281	60,648			
992.30	19,487	62,586			
992.40	19,694	64,545			
992.50	19,902	66,525			
992.60	20,111	68,526			
992.70	20,322	70,548			
992.80	20,533	72,590			
992.90	20,745	74,654			
993.00	20,959	76,739			

Summary for Subcatchment 1S: Post-Dev Drainage Area DA1

Runoff = 122.52 cfs @ 0.27 hrs, Volume= 2.730 af, Depth= 1.39"

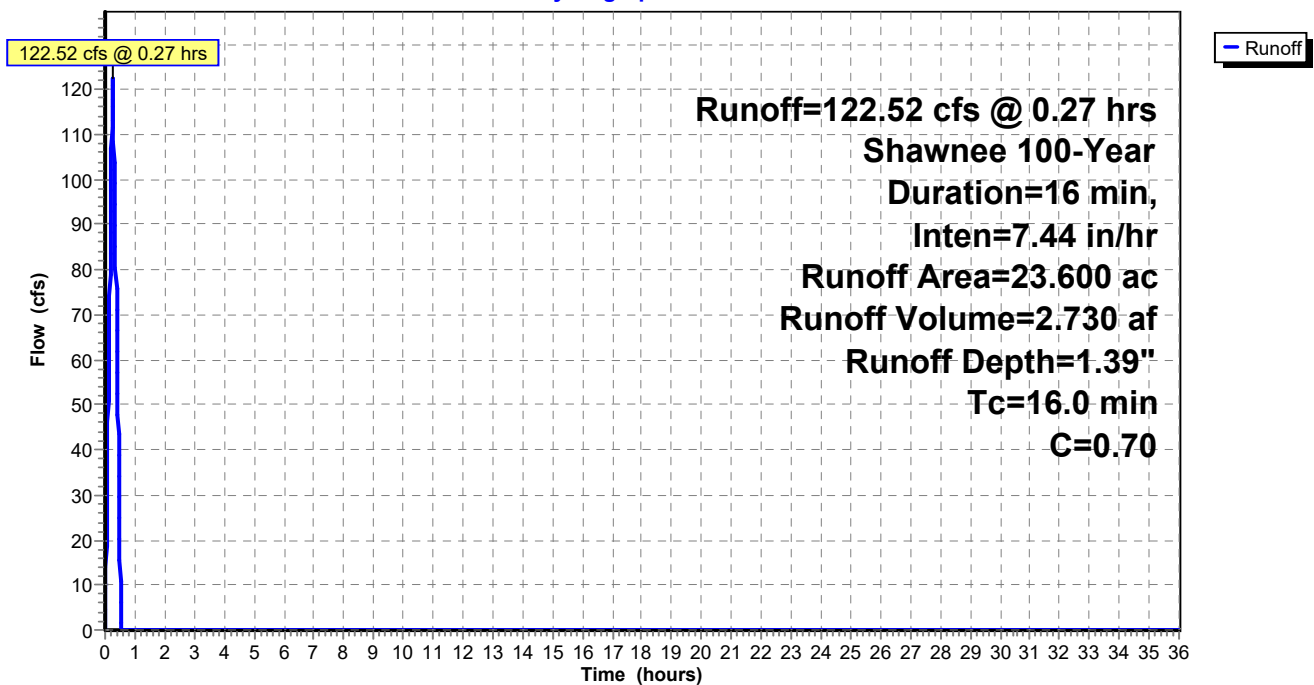
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Shawnee 100-Year Duration=16 min, Inten=7.44 in/hr

Area (ac)	C	Description
23.600	0.70	GRASS
23.600		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0					Direct Entry,

Subcatchment 1S: Post-Dev Drainage Area DA1

Hydrograph



Hydrograph for Subcatchment 1S: Post-Dev Drainage Area DA1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	10.20	0.00	20.40	0.00	30.60	0.00
0.20	92.91	10.40	0.00	20.60	0.00	30.80	0.00
0.40	61.94	10.60	0.00	20.80	0.00	31.00	0.00
0.60	0.00	10.80	0.00	21.00	0.00	31.20	0.00
0.80	0.00	11.00	0.00	21.20	0.00	31.40	0.00
1.00	0.00	11.20	0.00	21.40	0.00	31.60	0.00
1.20	0.00	11.40	0.00	21.60	0.00	31.80	0.00
1.40	0.00	11.60	0.00	21.80	0.00	32.00	0.00
1.60	0.00	11.80	0.00	22.00	0.00	32.20	0.00
1.80	0.00	12.00	0.00	22.20	0.00	32.40	0.00
2.00	0.00	12.20	0.00	22.40	0.00	32.60	0.00
2.20	0.00	12.40	0.00	22.60	0.00	32.80	0.00
2.40	0.00	12.60	0.00	22.80	0.00	33.00	0.00
2.60	0.00	12.80	0.00	23.00	0.00	33.20	0.00
2.80	0.00	13.00	0.00	23.20	0.00	33.40	0.00
3.00	0.00	13.20	0.00	23.40	0.00	33.60	0.00
3.20	0.00	13.40	0.00	23.60	0.00	33.80	0.00
3.40	0.00	13.60	0.00	23.80	0.00	34.00	0.00
3.60	0.00	13.80	0.00	24.00	0.00	34.20	0.00
3.80	0.00	14.00	0.00	24.20	0.00	34.40	0.00
4.00	0.00	14.20	0.00	24.40	0.00	34.60	0.00
4.20	0.00	14.40	0.00	24.60	0.00	34.80	0.00
4.40	0.00	14.60	0.00	24.80	0.00	35.00	0.00
4.60	0.00	14.80	0.00	25.00	0.00	35.20	0.00
4.80	0.00	15.00	0.00	25.20	0.00	35.40	0.00
5.00	0.00	15.20	0.00	25.40	0.00	35.60	0.00
5.20	0.00	15.40	0.00	25.60	0.00	35.80	0.00
5.40	0.00	15.60	0.00	25.80	0.00	36.00	0.00
5.60	0.00	15.80	0.00	26.00	0.00		
5.80	0.00	16.00	0.00	26.20	0.00		
6.00	0.00	16.20	0.00	26.40	0.00		
6.20	0.00	16.40	0.00	26.60	0.00		
6.40	0.00	16.60	0.00	26.80	0.00		
6.60	0.00	16.80	0.00	27.00	0.00		
6.80	0.00	17.00	0.00	27.20	0.00		
7.00	0.00	17.20	0.00	27.40	0.00		
7.20	0.00	17.40	0.00	27.60	0.00		
7.40	0.00	17.60	0.00	27.80	0.00		
7.60	0.00	17.80	0.00	28.00	0.00		
7.80	0.00	18.00	0.00	28.20	0.00		
8.00	0.00	18.20	0.00	28.40	0.00		
8.20	0.00	18.40	0.00	28.60	0.00		
8.40	0.00	18.60	0.00	28.80	0.00		
8.60	0.00	18.80	0.00	29.00	0.00		
8.80	0.00	19.00	0.00	29.20	0.00		
9.00	0.00	19.20	0.00	29.40	0.00		
9.20	0.00	19.40	0.00	29.60	0.00		
9.40	0.00	19.60	0.00	29.80	0.00		
9.60	0.00	19.80	0.00	30.00	0.00		
9.80	0.00	20.00	0.00	30.20	0.00		
10.00	0.00	20.20	0.00	30.40	0.00		

Summary for Pond 3P: (new Pond)

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth = 1.39" for 100-Year event
 Inflow = 122.52 cfs @ 0.27 hrs, Volume= 2.730 af
 Outflow = 37.11 cfs @ 0.45 hrs, Volume= 2.730 af, Atten= 70% Lag= 11.2 min
 Primary = 37.11 cfs @ 0.45 hrs, Volume= 2.730 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 992.90' @ 0.45 hrs Surf.Area= 20,739 sf Storage= 74,588 cf

Plug-Flow detention time=22.7 min calculated for 2.729 af (100% of inflow)
 Center-of-Mass det. time=22.7 min (38.7 - 16.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	988.00'	123,172 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
988.00	7,354	425.0	0	0	7,354
989.00	12,425	660.5	9,779	9,779	27,704
990.00	14,533	669.0	13,465	23,245	28,822
991.00	16,909	681.0	15,706	38,951	30,278
992.00	18,873	693.0	17,882	56,833	31,759
993.00	20,959	717.0	19,907	76,739	34,542
994.00	23,154	738.0	22,047	98,787	37,080
995.00	25,637	765.0	24,385	123,172	40,396

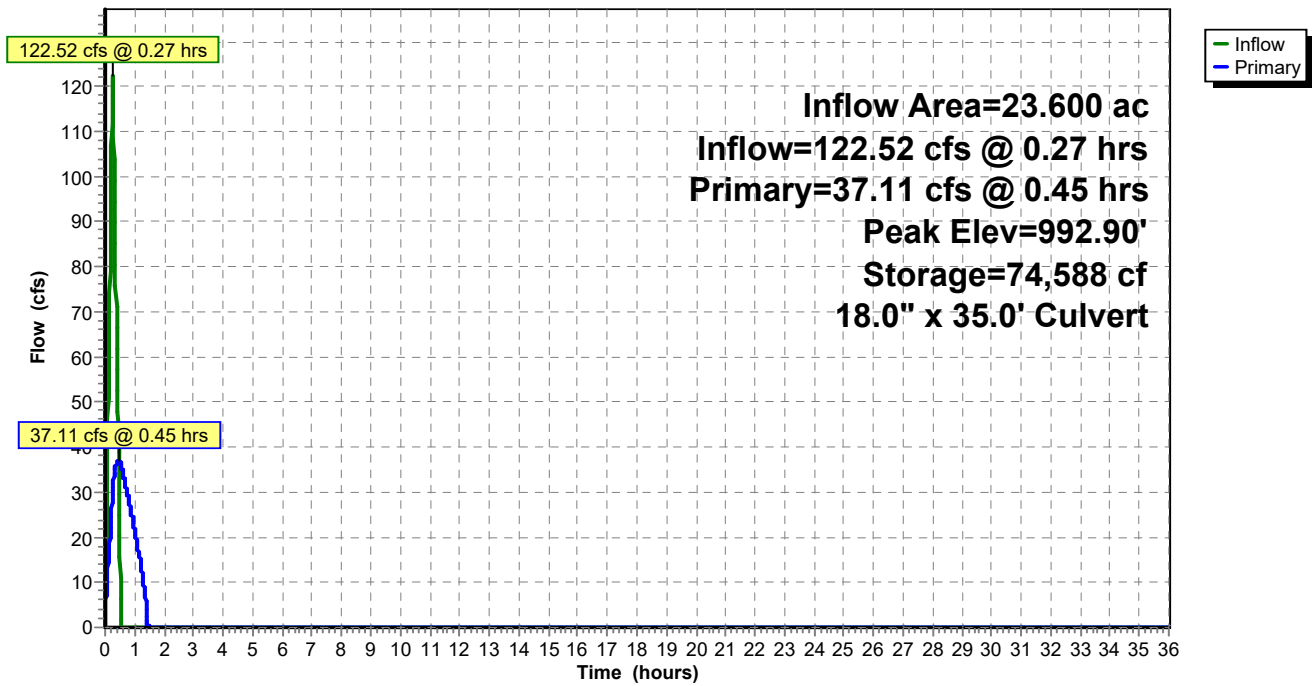
Device	Routing	Invert	Outlet Devices
#1	Primary	987.10'	18.0" x 35.0' long Culvert X 2.00 Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Outlet Invert= 986.75' S= 0.0100 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=37.10 cfs @ 0.45 hrs HW=992.90' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 37.10 cfs @ 10.50 fps)

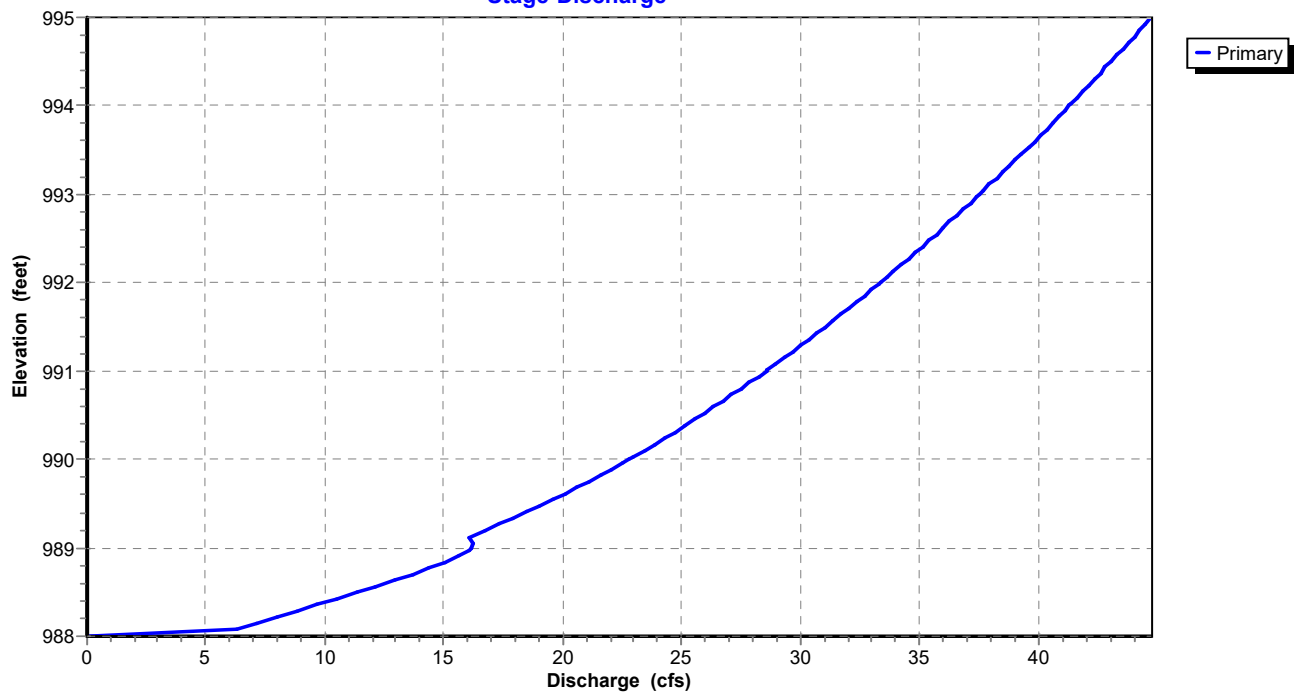
Pond 3P: (new Pond)

Hydrograph



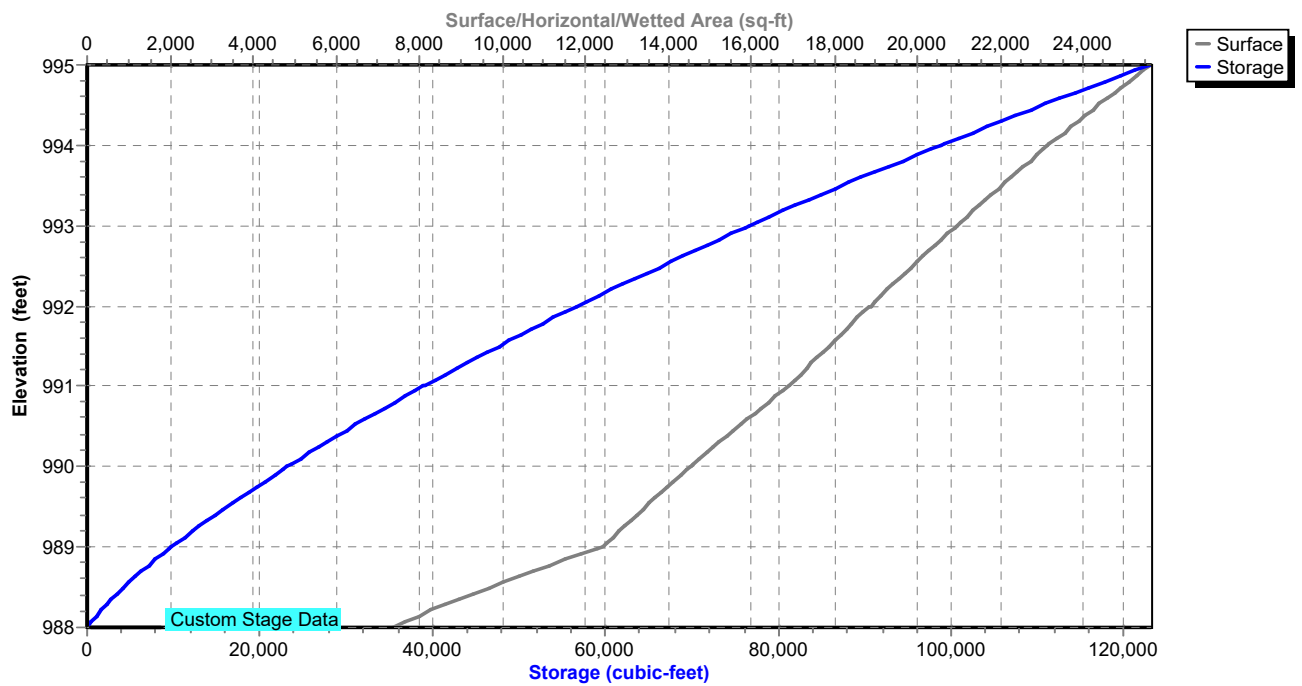
Pond 3P: (new Pond)

Stage-Discharge



Pond 3P: (new Pond)

Stage-Area-Storage



Hydrograph for Pond 3P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	988.00	0.00
1.00	0.00	20,345	989.80	21.41
2.00	0.00	0	988.00	0.00
3.00	0.00	0	988.00	0.00
4.00	0.00	0	988.00	0.00
5.00	0.00	0	988.00	0.00
6.00	0.00	0	988.00	0.00
7.00	0.00	0	988.00	0.00
8.00	0.00	0	988.00	0.00
9.00	0.00	0	988.00	0.00
10.00	0.00	0	988.00	0.00
11.00	0.00	0	988.00	0.00
12.00	0.00	0	988.00	0.00
13.00	0.00	0	988.00	0.00
14.00	0.00	0	988.00	0.00
15.00	0.00	0	988.00	0.00
16.00	0.00	0	988.00	0.00
17.00	0.00	0	988.00	0.00
18.00	0.00	0	988.00	0.00
19.00	0.00	0	988.00	0.00
20.00	0.00	0	988.00	0.00
21.00	0.00	0	988.00	0.00
22.00	0.00	0	988.00	0.00
23.00	0.00	0	988.00	0.00
24.00	0.00	0	988.00	0.00
25.00	0.00	0	988.00	0.00
26.00	0.00	0	988.00	0.00
27.00	0.00	0	988.00	0.00
28.00	0.00	0	988.00	0.00
29.00	0.00	0	988.00	0.00
30.00	0.00	0	988.00	0.00
31.00	0.00	0	988.00	0.00
32.00	0.00	0	988.00	0.00
33.00	0.00	0	988.00	0.00
34.00	0.00	0	988.00	0.00
35.00	0.00	0	988.00	0.00
36.00	0.00	0	988.00	0.00

Stage-Discharge for Pond 3P: (new Pond)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
988.00	0.00	990.04	23.03	992.08	33.69	994.12	41.70
988.04	5.99	990.08	23.29	992.12	33.86	994.16	41.85
988.08	6.44	990.12	23.54	992.16	34.04	994.20	41.99
988.12	6.90	990.16	23.79	992.20	34.21	994.24	42.13
988.16	7.36	990.20	24.04	992.24	34.38	994.28	42.27
988.20	7.83	990.24	24.28	992.28	34.56	994.32	42.41
988.24	8.31	990.28	24.53	992.32	34.73	994.36	42.55
988.28	8.79	990.32	24.77	992.36	34.90	994.40	42.69
988.32	9.27	990.36	25.00	992.40	35.07	994.44	42.83
988.36	9.75	990.40	25.24	992.44	35.23	994.48	42.96
988.40	10.24	990.44	25.47	992.48	35.40	994.52	43.10
988.44	10.72	990.48	25.70	992.52	35.57	994.56	43.24
988.48	11.20	990.52	25.93	992.56	35.74	994.60	43.38
988.52	11.67	990.56	26.16	992.60	35.90	994.64	43.51
988.56	12.14	990.60	26.39	992.64	36.07	994.68	43.65
988.60	12.60	990.64	26.61	992.68	36.23	994.72	43.78
988.64	13.04	990.68	26.83	992.72	36.39	994.76	43.92
988.68	13.48	990.72	27.05	992.76	36.56	994.80	44.05
988.72	13.90	990.76	27.27	992.80	36.72	994.84	44.19
988.76	14.31	990.80	27.49	992.84	36.88	994.88	44.32
988.80	14.69	990.84	27.70	992.88	37.04	994.92	44.46
988.84	15.05	990.88	27.92	992.92	37.20	994.96	44.59
988.88	15.38	990.92	28.13	992.96	37.36	995.00	44.72
988.92	15.67	990.96	28.34	993.00	37.52		
988.96	15.92	991.00	28.54	993.04	37.67		
989.00	16.11	991.04	28.75	993.08	37.83		
989.04	16.21	991.08	28.96	993.12	37.99		
989.08	16.17	991.12	29.16	993.16	38.14		
989.12	16.06	991.16	29.36	993.20	38.30		
989.16	16.42	991.20	29.56	993.24	38.45		
989.20	16.78	991.24	29.76	993.28	38.61		
989.24	17.13	991.28	29.96	993.32	38.76		
989.28	17.47	991.32	30.16	993.36	38.91		
989.32	17.81	991.36	30.36	993.40	39.06		
989.36	18.14	991.40	30.55	993.44	39.21		
989.40	18.46	991.44	30.74	993.48	39.37		
989.44	18.78	991.48	30.94	993.52	39.52		
989.48	19.09	991.52	31.13	993.56	39.67		
989.52	19.40	991.56	31.32	993.60	39.81		
989.56	19.70	991.60	31.51	993.64	39.96		
989.60	20.00	991.64	31.69	993.68	40.11		
989.64	20.29	991.68	31.88	993.72	40.26		
989.68	20.58	991.72	32.06	993.76	40.41		
989.72	20.87	991.76	32.25	993.80	40.55		
989.76	21.15	991.80	32.43	993.84	40.70		
989.80	21.43	991.84	32.61	993.88	40.84		
989.84	21.71	991.88	32.80	993.92	40.99		
989.88	21.98	991.92	32.98	993.96	41.13		
989.92	22.24	991.96	33.15	994.00	41.28		
989.96	22.51	992.00	33.33	994.04	41.42		
990.00	22.77	992.04	33.51	994.08	41.56		

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
988.00	7,354	0	993.10	21,174	78,846
988.10	7,802	758	993.20	21,389	80,974
988.20	8,262	1,561	993.30	21,606	83,124
988.30	8,736	2,411	993.40	21,824	85,295
988.40	9,224	3,308	993.50	22,043	87,489
988.50	9,724	4,256	993.60	22,263	89,704
988.60	10,238	5,254	993.70	22,484	91,941
988.70	10,765	6,304	993.80	22,706	94,201
988.80	11,305	7,407	993.90	22,930	96,483
988.90	11,858	8,565	994.00	23,154	98,787
989.00	12,425	9,779	994.10	23,397	101,114
989.10	12,628	11,032	994.20	23,640	103,466
989.20	12,833	12,305	994.30	23,886	105,843
989.30	13,040	13,599	994.40	24,132	108,243
989.40	13,248	14,913	994.50	24,380	110,669
989.50	13,458	16,248	994.60	24,629	113,119
989.60	13,670	17,605	994.70	24,879	115,595
989.70	13,883	18,982	994.80	25,130	118,095
989.80	14,098	20,382	994.90	25,383	120,621
989.90	14,315	21,802	995.00	25,637	123,172
990.00	14,533	23,245			
990.10	14,763	24,709			
990.20	14,994	26,197			
990.30	15,227	27,708			
990.40	15,462	29,243			
990.50	15,699	30,801			
990.60	15,937	32,382			
990.70	16,177	33,988			
990.80	16,419	35,618			
990.90	16,663	37,272			
991.00	16,909	38,951			
991.10	17,101	40,651			
991.20	17,293	42,371			
991.30	17,487	44,110			
991.40	17,682	45,868			
991.50	17,878	47,646			
991.60	18,074	49,444			
991.70	18,272	51,261			
991.80	18,472	53,098			
991.90	18,672	54,955			
992.00	18,873	56,833			
992.10	19,077	58,730			
992.20	19,281	60,648			
992.30	19,487	62,586			
992.40	19,694	64,545			
992.50	19,902	66,525			
992.60	20,111	68,526			
992.70	20,322	70,548			
992.80	20,533	72,590			
992.90	20,745	74,654			
993.00	20,959	76,739			

LANDES ENGINEERING LLC & ASSOCIATES

ENVIRONMENTAL, ENGINEERING & DEVELOPMENT CONSULTANTS

TRANSMITTAL FORM

DATE: 8-23-19

TO: City of Shawnee

# of Copies	Description
	Preliminary Plat Application
3	Preliminary Plat (Full size)
1	Preliminary Plat (Ledger size)
	Final Plat Application
	Final Plat (Full size)
	Water Plans
	Sewer Plans
	Road Plans
	Drainage Plans
	Construction Plans
	Engineering Report Form
1	Hydraulic Report
	ODOT / NOI Form
	Site Plan
	Easement
	Easement Vacation

RECEIVED BY: _____ DATE: _____

+

City of Shawnee OK
405-878-1616

REC#: 02276378 3/25/2019 10:35 AM
OPER: KG TERM: 020
REF#: 10031
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TRAN: 401.0000 BUILDING PERMIT
190261 280.00CR
LANDES ENGINEERING
NONE
Z-REZONING 280.00CR

TRAN: 401.0000 BUILDING PERMIT
190262 366.00CR
LANDES ENGINEERING
NONE
X-PLATREV 366.00CR

TENDERED: 646.00 CHECK
APPLIED: 646.00-

CHANGE: 0.00

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For More Information

From: [Michael Ludi](#)
To: [Rebecca Blaine](#)
Cc: [Joseph A. Barker](#); [Alan Blankenship](#)
Subject: Cardinal Pointe Preliminary Plat Engineering Review #5
Date: Monday, August 26, 2019 11:37:53 AM

Rebecca,

My comments and concerns have been addressed to a point that they are acceptable to me for the preliminary plat.

I recommend the preliminary plat be placed on the planning commissions next available agenda.

Michael Ludi,

Director of Engineering
Traffic, GIS

From: Michael Ludi
Sent: Wednesday, August 14, 2019 7:58 AM
To: Rebecca Blaine <Rebecca.Blaine@shawneeok.org>
Cc: Joseph A. Barker <Joseph.Barker@shawneeok.org>; Alan Blankenship <Alan.Blankenship@shawneeok.org>
Subject: Cardinal Pointe Preliminary Plat Engineering Review #4

Rebecca,

Below are my review comments for the 4th submittal of the Cardinal Point Preliminary Plat.

- 12. Review #1 comment... Show the locations of all proposed street lights that will be installed.
- 12. Landes response... It can be reviewed and discussed where the city want them. The city pays the bill so I was going to allow them to define during the design stage.
- 12. Review #2... The street lighting will need to be laid out as per sub reg 60.13. The city will review the locations but they first have to be shown so that we have something to review.
- 12. Review #3... No corrections have been made therefore the street lights are still not shown as originally requested.
- 12. Review #4... Add a street light on the west side of Red Bird Rd between lots 3 & 4 of block 1.

I. Review #2... Offsite easements for the sanitary sewer will need to be obtained. For the preliminary plat to be approved we will accept a letter of intent from the adjacent property owners stating that they intend on granting you the easements necessary. The final filed easements will then need to be submitted to us prior to receiving any approval for the construction plans.

I. Review #3... We have not received the previously requested letter of intent. The alignment location and the property owner have changed but due to the necessity of this easement to make this a viable project, it is a requirement that the letter of intent be received prior to this project being placed on an agenda.

I. Review #4... The adjacent property owner to the north has met with engineering department and expressed his willingness to provide an easement across his property therefore a letter of intent will no longer be required although it is still advised as a good measure. The layout of the sanitary needs to be updated to reflect this change.

C3. Review #3... The storm sewer design shown on the preliminary plat does not match the design submitted in the hydro/det report.

C3. Review #4... The data presented on the preliminary plat still does not match the hydro/det report. I understand that this is a preliminary report and that it may change as the design is looked at more closely for a final submittal however, all the pipe sizes, contours and elevations should match between the sheets and the report, even on a preliminary submittal. I did not do an exhaustive review of the hydro/det report as this point but I will list 4 examples of the type of issues I'm speaking about. (1) On the outlet structure of the detention pond the structure in the report is 2 10" pipes, on the hydro/det map it is 2 18" pipes, and on the prelim plat it is shown as a single 24" pipe. (2) The elevations of the outlet structure in the report are 980.00' in and 979.30' out while the prelim plat shows 987.20' in and 987.00' out. That's a difference of over 7' in depth. If the elevations in this report are to be used it means that a 7' deep channel will need to be cut through the adjacent property to the north until it reaches the channel. By my rough grading figures it would set the grade of the channel at around 0.60% which means that it will not drain properly. (3) The contours of the pond don't match from sheet to sheet. (4) The segments of the storm sewer pipe from C2 to D2 are shown as 48" in the report but on the hydro/det map they are shown as 42".

New Comments...

AA1. Due to the significant size that the channel across the property to the north appears to be, show the preliminary contours to ensure constructability within the proposed easement that will be obtained.

BB2. Label all storm sewer pipe sizes on the preliminary plat.

Michael Ludi,

Director of Engineering
Traffic, GIS

From: Michael Ludi

Sent: Thursday, July 25, 2019 4:49 PM

To: Rebecca Blaine <Rebecca.Blaine@shawneeok.org>

Cc: Joseph A. Barker <Joseph.Barker@shawneeok.org>; Alan Blankenship <Alan.Blankenship@shawneeok.org>

Subject: Cardinal Pointe Preliminary Plat Engineering Review #3

Rebecca,

Below are my review comments for the 3rd submittal of the Cardinal Point Preliminary Plat.

11. Review #1 comment... The present right-of-way needs to be clearly shown and labeled along 45th St & Union St.

11. Landes response... That was corrected.

11. Review #2... No visible correction has been made as was indicated.

11. Review #3... No correction has been made along Union.

12. Review #1 comment... Show the locations of all proposed street lights that will be installed.

12. Landes response... It can be reviewed and discussed where the city want them. The city pays the bill so I was going to allow them to define during the design stage.

12. Review #2... The street lighting will need to be laid out as per sub reg 60.13. The city will review the locations but they first have to be shown so that we have something to review.

12. Review #3... No corrections have been made therefore the street lights are still not shown as originally requested.

G. Review #2... Sanitary sewer lines shall not be located directly on the lot lines. They need to be shifted of center so that the manholes don't all end up underneath fences.

G. Review #3... No corrections have been made as previously requested. The specific segments that need corrected are between... MH18 to MH23, MH21 to MH17, MH15 to MH14, MH13 to MH12, MH11 to MH9, MH5 to MH4.

H. Review #2... Label all sanitary sewer line sizes.

H. Review #3... Several locations have not been corrected as previously requested. The specific segments that need corrected are between... MH24 to MH17, MH12 to MH16, MH15 to MH14, MH13 to MH12, MH8 to MH5, MH9 to MH5.

I. Review #2... Offsite easements for the sanitary sewer will need to be obtained. For the preliminary plat to be approved we will accept a letter of intent from the adjacent property owners stating that they intend on granting you the easements necessary. The final filed easements will then need to be submitted to us prior to receiving any approval for the construction plans.

I. Review #3... We have not received the previously requested letter of intent. The alignment location and the property owner have changed but due to the necessity of this easement to make this a viable project, it is a requirement that the letter of intent be received prior to this project being placed on an agenda.

L. Review #2... A 6' sidewalk is required along Union frontage of Roadrunner Dr.

L. Review #3... Add a label listing the width of the sidewalk along Union St. The current submittal measures this to be drawn as a 5' width while 6' is required.

New Comments...

A1. The flood statement on all sheets need to be updated to use current mapping information. It is currently using the old info on both the preliminary plat and the hydro/det report.

B2. The drainage areas shown and labeled on sheet 1 do not match those shown on the hydro/det report.

C3. The storm sewer design shown on the preliminary plat does not match the design submitted in

the hydro/det report.

D4. On the preliminary plat, label the RCB size that is to be constructed under Roadrunner Dr.

E5. On all sheets that show the area previously known as lot 1 block 1 on previous submittals, the proposed 50' right-of-way line is still being shown. Seeing as though this area has been removed from the plat, all items referring to this area should be removed as-well.

F6. The proposed 12" waterline is now showing that it is to be extended from east of the project site. The preliminary plat needs to show the entire proposed utility layout. It currently does not show where to existing line is located that will begin the extension.

G7. The labels calling for the 12" waterline to begin west of the site need to be removed if that is no longer the plan.

H8. The label number for the sanitary sewer manhole located in lot 36 of block 1 needs to be shown on the plans.

I9. The offsite sanitary sewer easement is currently a width of 10' and needs to be a width of 20'.

J10. A 4th review submittal is required.

Michael Ludi,

Director of Engineering
Traffic, GIS

From: Michael Ludi

Sent: Friday, June 14, 2019 11:26 AM

To: Rebecca Blaine <Rebecca.Blaine@shawneeok.org>

Cc: Joseph A. Barker <Joseph.Barker@shawneeok.org>; Alan Blankenship
<Alan.Blankenship@shawneeok.org>

Subject: Cardinal Pointe Preliminary Plat Engineering Review #2

Rebecca,

Below are my review comments for the 2nd submittal of the Cardinal Point Preliminary Plat.

5. Original comment... Roadrunner Dr. is crossing a floodplain. Have you complete the calculations to show that a single 60" pipe will carry the 100 year storm?

5. Landes response... No, that will be completed during the design.

5. New comment... Since we know the creek that Roadrunner Dr. is crossing is flowing nearly 1,000 c.f.s. wouldn't it be more appropriate to show a proposed design that appears to work versus something that does not? At the preliminary plat stage we are not asking for a 100% completed design document but we are asking for a document that has been thought through enough to convey the desired design intent and indicate enough correct information that we can discern that it will work before moving forward.

6. Original comment... There is no storm sewer shown along Roadrunner dr.

6. Landes response... That is correct, when hydraulic calculations are complete & reviewed, they will

be incorporated into the final plans

6. New comment... All proposed storm sewers are required to be shown. Since we know there will need to be storm sewer along Roadrunner Dr. they need to be included in your plan.

8. Original comment... Label the right-of-way along Roadrunner Dr. It has several widths that need to be clarified.

8. Landes response... The area will all be a right of way, additional labels will be provided.

8. New comment... This still needs clarified. No additional labels have been provided as was indicated.

10. Original comment... At the intersection of Roadrunner & Pigeon Run, the north side of the intersection does not appear to be able to be constructed fully.

10. Landes response... That is correct, I can not have it extend to the north but that is what you require.

10. New comment... Roadrunner Dr. will need to be moved south in order for the entire return to be constructed.

11. Original comment... The present right-of-way needs to be clearly shown and labeled along 45th St & Union St.

11. Landes response... That was corrected.

11. New comment... No visible correction has been made as was indicated.

12. Original comment... Show the locations of all proposed street lights that will be installed.

12. Landes response... It can be reviewed and discussed where the city want them. The city pays the bill so I was going to allow them to define during the design stage.

12. New comment... The street lighting will need to be laid out as per sub reg 60.13. The city will review the locations but they first have to be shown so that we have something to review.

13. Original comment... The roadway shown as Red Bird Road will be considered as a collector and therefore will need to be a 32' section. Please add an addition typical section for this width to the sheet.

13. Landes response... This is a local Street

13. New comment... After further consideration I have determined that Red Bird Road should be considered a local street. The additional typical section for the 32' collector is still required due to Roadrunner Dr. being a collector.

18. Original comment... Lot 1 of block 1 is not properly served by sanitary sewer.

18. Landes response... It can be removed, if you'd like, it was requested to include this lot do to city wanting the additional right of way along 45th Street. The sewer can be extended to include.

18. New comment... The lot must have sanitary sewer extended to it to make it a legal lot. Keep in mind that if the sewer serving this lot crosses private property a separate utility easement will need to be granted from the property that you are crossing.

24. Original comment... Lot 24 of block 4 is mislabeled as lot 2.

24. Landes response... No, the 4 was obscured.

24. New comment... The lot is still mislabeled and says lot 2.

25. Original comment... Whippoorwill Cr. can't be constructed as an incomplete cul-de-sac.

25. Landes response... Road was shifted to allow completion of cul-de-sac

25. New comment... Whippoorwill was shifted to the south but was not shifted enough for the road right-of-way to fall solely within this subdivision.

26. Original comment... The 3' trickle channel is shown to be constructed on another property. This needs to be within the boundary of this plat or a separate easement needs to be filed that contains it.

26. Landes response... This is a preliminary plat, before this project is completed or submitted, of-site easements will be obtained.

26. New comment... I have spoken to the adjacent property owner and he has stated to me that this will not be granted. Therefore this trickle channel will need to be removed from the plans.

New comments...

- A. Sheets #2 & #3 are not printed to scale.
- B. Sanitary sewer manhole #8A needs to be moved west in order to properly serve lot 2 of block 5.
- C. Sanitary sewer manhole #12A needs to be moved south in order to properly serve lot 5 of block 2.
- D. Sanitary sewer manhole #13A needs to be moved east in order to properly serve lot 6 of block 2.
- E. Sanitary sewer manhole #6 needs to be moved south in order to properly serve lot 9 of block 3.
- F. Sanitary sewer manhole #20 needs to be moved west in order to properly serve lot 20 of block 2.
- G. Sanitary sewer lines shall not be located directly on the lot lines. They need to be shifted of center so that the manholes don't all end up underneath fences.
- H. Label all sanitary sewer line sizes.
- I. Offsite easements for the sanitary sewer will need to be obtained. For the preliminary plat to be approved we will accept a letter of intent from the adjacent property owners stating that they intend on granting you the easements necessary. The final filed easements will then need to be submitted to us prior to receiving any approval for the construction plans.
- J. A lot of information is not shown in various locations due to text overlaps such as lot numbers, acreage sizes, bearings, distances etc.... these need corrected so that all labels are legible.
- K. Roadrunner Dr. is required to have sidewalks along both sides of the roadway.
- L. A 6' sidewalk is required along Union frontage of Roadrunner Dr.
- M. The location & size of the proposed storm water control system, including the detention ponds, need to be shown. The current plan does not show any detention or location where detention is planned. The plans need to show enough information that it can be discerned that it will work. There have been many comments made by you regarding your plans for a regional detention facility, After speaking with the adjacent property owner he was very clear to me that he has no intention of pursuing your idea and that the engineering firm that he has hired will handle his development completely separate from yours.

N. A 3rd review submittal is required.

Michael Ludi,

Director of Engineering
Traffic, GIS

From: Michael Ludi

Sent: Tuesday, May 07, 2019 7:17 AM

To: Joseph A. Barker <Joseph.Barker@shawneeok.org>

Cc: Rebecca Blaine <Rebecca.Blaine@shawneeok.org>; Alan Blankenship
<Alan.Blankenship@shawneeok.org>; Jared Cooper <JCooper@shawneeok.org>

Subject: Cardinal Pointe Preliminary Plat Engineering Review

Joseph,

Below are my review comments for the Cardinal Point Preliminary Plat,

1. The flood zone map number that is called out will be changed as of May 16, 2019. Please update the callout notes to reference this date and map number 40125C0070J.
2. Storm water detention report & Drainage maps are required. In the current form there is nothing shown to indicate proposed grades or detention location.
3. Storm sewer layout along the streets to the detention pond need to be shown with enough information that it can be discerned that it will work.
4. Storm sewer inlets along the roadways seem to be spaced at a great distance in some areas and picking up a lot of area. Make sure that the storm water spread widths don't get too wide and turn the roadway into a flume.
5. Roadrunner Dr. is crossing a floodplain. Have you complete the calculations to show that a single 60" pipe will carry the 100 year storm?
6. There is no storm sewer shown along Roadrunner dr.
7. A drainage easement will be required along the north side of lot 1 block 3 if the storm sewer remains in this location after detention plans are created.
8. Label the right-of-way along Roadrunner Dr. It has several widths that need to be clarified.
9. Along the north side of Roadrunner Dr. there seems to be a return of some type shown. This needs to be clarified as to what this is (Street or driveway)?
10. At the intersection of Roadrunner & Pigeon Run, the north side of the intersection does not appear to be able to be constructed fully.
11. The present right-of-way needs to be clearly shown and labeled along 45th St & Union St.
12. Show the locations of all proposed street lights that will be installed.
13. The roadway shown as Red Bird Road will be considered as a collector and therefore will need to be a 32' section. Please add an addition typical section for this width to the

sheet.

14. The right-of-way will need to be 60' along Red Bird Road due to it being considered a collector street.
15. Along Red Bird Road 4' sidewalks are required along both sides of the street due to this being a collector street.
16. Label the street classifications IE. Local of Collector.
17. The roadway connection to Union needs to be shown. Currently the street is not show, the street name is not labeled, the proposed road does not show an entrance it just runs the road straight and never ties in.
18. Lot 1 of block 1 is not properly served by sanitary sewer.
19. Lots 2-4 of block 6 are not properly served by sanitary sewer.
20. Sanitary Sewer manhole #17 needs to be moved south in order to properly serve lots 12 & 13 of block 4.
21. Sanitary Sewer manhole #10 needs to be moved north in order to properly serve lots 1 & 24 of block 4.
22. The sanitary sewer main needs to be relocated out from under the roadway along the cul-de-sacs. The sewer should run along the back of the lots.
23. Lots 23-26 of block 3 need to have a sanitary sewer main running along the back of the lots so that the service lines do not have to run underneath the roadway to the east.
24. Lot 24 of block 4 is mislabeled as lot 2.
25. Whippoorwill Cr. can't be constructed as an incomplete cul-de-sac.
26. The 3' trickle channel is shown to be constructed on another property. This needs to be within the boundary of this plat or a separate easement needs to be filed that contains it.
27. The 2" blow offs at the ends of the cul-de-sacs need to be changed to fire hydrants.

Michael Ludi,

Director of Engineering
Traffic, Gis
222 N. Broadway
Shawnee, OK 74802
Phone (405) 878-1760
Fax (405) 878-1719



From: [Alan Blankenship](#)
To: [Joseph A. Barker](#)
Cc: [Rebecca Blaine](#)
Subject: RE: Cardinal Pointe Preliminary Plat - Supplemental Documents
Date: Wednesday, August 14, 2019 6:57:07 AM
Attachments: [image001.png](#)

Morning Joseph,

The Cardinal Point preliminary plat concerns look to have been addressed. The SMA approves this project to move forward to the next phase.

From: Joseph A. Barker
Sent: Tuesday, August 6, 2019 11:48 AM
To: Alan Blankenship <Alan.Blankenship@shawneeok.org>; Andy Starkey <AStarkey@shawneeok.org>; Brittney Burton <brittney.burton@shawneeok.org>; David Anderson <DAnderson@shawneeok.org>; James Kriwanek <Jkriwanek@shawneeok.org>; Rebecca Blaine <Rebecca.Blaine@shawneeok.org>; Shalah Black <shalah.black@shawneeok.org>
Cc: Michael Ludi <MLudi@shawneeok.org>
Subject: Cardinal Pointe Preliminary Plat - Supplemental Documents

Good morning, everyone,

I have attached to this e-mail the following supplemental documents submitted by Landes Engineering for the Cardinal Pointe Preliminary Plat:

- A written response by Landes Engineering to the most recently submitted comments by staff;
- A pipeline-wire line application; and
- A BNSF utility accommodation policy.

Joseph Barker

Assistant City Planner

[222 N. Broadway](#)

[Shawnee, OK 74801](#)

[\(405\) 878 - 1672](#)

Joseph.Barker@shawneeok.org



From: [David Anderson](#)
To: [Joseph A. Barker](#)
Subject: RE: Cardinal Pointe Preliminary Plat - Supplemental Documents
Date: Wednesday, August 14, 2019 4:17:45 PM
Attachments: [image001.png](#)

Joseph,

I'm still good on this one. Thanks.

David

From: Joseph A. Barker <Joseph.Barker@shawneeok.org>
Sent: Tuesday, August 6, 2019 11:48 AM
To: Alan Blankenship <Alan.Blankenship@shawneeok.org>; Andy Starkey <AStarkey@shawneeok.org>; Brittney Burton <brittney.burton@shawneeok.org>; David Anderson <DAnderson@shawneeok.org>; James Kriwanek <Jkriwanek@shawneeok.org>; Rebecca Blaine <Rebecca.Blaine@shawneeok.org>; Shalah Black <shalah.black@shawneeok.org>
Cc: Michael Ludi <MLudi@shawneeok.org>
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Joseph Barker

Assistant City Planner

[222 N. Broadway](#)

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Joseph.Barker@shawneeok.org





SHAWNEE

NEXT HORIZONS

A COMPREHENSIVE PLAN

COMPLETED WITH THE RESIDENTS OF
SHAWNEE, OKLAHOMA

JULY 1, 2019

DRAFT

CONSULTING TEAM



RDG Planning & Design
Omaha and Des Moines
www.RDGUSA.com

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Thomas Dow, AICP

ACKNOWLEDGEMENTS

The project team is grateful for the contributions of the residents of Shawnee who gave their time, ideas, and expertise for the creation of this plan. It is only with their assistance and direction that this plan gained the necessary depth to truly represent the spirit of the community, and it is with their commitment that the plan will be implemented.

MAYOR AND CITY COMMISSION

Richard Finley, Mayor
Ed Bolt, Commissioner
Ron Gillham, Commissioner
James Harrod, Commissioner
Darren Rutherford, Commission
Ben Salter, Commission
Mark Sehorn, Commissioner

PLANNING COMMISSION

David Bersten, Chairman
Daniel Matthews, Commissioner
Cody Deem, Commissioner
Tom Rowell, Commissioner
Craig Walker, Commissioner
Robbie Kienzle, Commissioner

CITY STAFF

Eric Benson, City Manager
Chance Allison, Assistant City Manager
Rebecca Blaine, Planning Director
Joseph Barker, Assistant City Planner

STEERING COMMITTEE

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Ed Bolt, City Commission
Cody Deem, Planning Commission
Daniel Matthews, Planning Commission
Ken Landry, Historic Shawnee Alliance
Will Smallwood, Oklahoma Baptist University
John Barrett, Potawatomi Nation
Edwina Butler-Wolf, Absentee Shawnee Tribe
Tracy Qualls, Shawnee Forward
Jake Clanin, Shawnee Homebuilders Assoc.
Danielle Mason-Rains, Visit Shawnee
Brandon Dyer, Community Renewal
Marty Lewis, Gordon Cooper Technology Center
Rachael Melot, Blue Zones
Greg Brown, Developer
Steve Palmer, Neighboring 101, Inc.

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INTRODUCTION

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WHY PLAN?

The Shawnee Next Horizons Plan serves two fundamental purposes. First, the plan provides the legal basis for land use regulations such as zoning and subdivision regulations. Second, a modern comprehensive plan presents a unified and compelling vision for the community, built from the aspirations of its citizens, with recommended actions to accomplish that vision.

LEGAL ROLE

Communities across the nation adopt comprehensive plans because they serve the legal purpose of enabling the city to regulate the development and management of land resources within its corporate limits and often surrounding areas.

Oklahoma Statute §11-43-103 states that

municipal regulations shall be made in accordance with a comprehensive plan and be designed to accomplish any of the following objectives: 1) to lessen congestion in the streets; 2) to secure safety from fire, panic and other dangers; 3) to promote health and the general welfare, including the peace and quality of life of the district; 4) to provide adequate light and air; 5) to prevent the overcrowding of land; 6) to promote historical preservation; 7) to avoid undue concentration of population; or 8) to facilitate the adequate provision of transportation, water, sewerage, schools, parks and other public requirements.

Land use regulations, such as zoning ordinances, recognize that people in a community live cooperatively and have certain responsibilities to one another. These regulations establish rules that govern how land is developed within a municipality. The comprehensive plan creates a vision for how a community should develop and thus should guide land use decisions.

COMMUNITY BUILDING ROLE

A modern comprehensive plan should serve to unify the community, its residents, and stakeholders in pursuit of a prosperous and equitable future; the Shawnee Next Horizons Plan has been built from a stakeholder engagement process to establish a shared civic vision for the future of Shawnee. This shared vision is something that cannot be achieved by only one party but instead should be accomplished through many partners working in concert where it aligns with their respective missions. In this way, the Shawnee Next Horizons Plan should be a rallying point for those interested in making Shawnee a better place for future generations.

HISTORY OF PLANNING IN SHAWNEE

In the interest of offering credit where it is due, this section pulls content from www.shawneeok.org and its page entitled “History of Shawnee.”

The area surrounding Shawnee was settled after the Civil War by a number of tribes that the federal government had removed to Indian Territory. The Sac and Fox were originally deeded land in the immediate area but were soon followed by the Kickapoo, Shawnee, and Potawatomi Indians. Members of the tribes continue to reside today in and around Shawnee.

Over the course of the 1870s, Texas cattle drovers pushed their herds across Indian Territory with the West Shawnee trail crossing near present-day Kickapoo and Main Streets. With the cattle drives came railroads; as a result, pressure began to build to allow permanent settlements by non-Native Americans in a region that previously had been reserved by treaty to Native Americans. The shift in policy was foreshadowed by the establishment, in 1871, of the Quaker mission near the current Mission Hill Hospital. That first missionary, Joseph Newsom, opened a school in 1872, and by 1876 a post office and trading post had been established a quarter mile west of the mission at what became known as Shawnee Town.

Beginning in April 1889, the United States government succumbed to the pressure to open Indian lands to non-native settlement. Land runs were initiated after tribal property was seized and then allotted individually to tribal members. At high noon on September 22, 1891, Etta B. Ray, John and Lola Beard, J. T. Farrall, and Elijah Ally set off for the site of present-day Shawnee. By Christmas 1891, John Beard had decided that railroads would be the key to Shawnee’s success. With the aid of other settlers, he made overtures to various railroads. The task was considerable since Tecumseh already had been named the county seat. Nevertheless, by the fall of 1894, the Choctaw Railroad was committed to come through Shawnee. Tracks were completed from Oklahoma City to Shawnee by July 4, 1895. In February 1896, terminal facilities for the Choctaw Railroad were built in Shawnee, but it was the decision of the Choctaw to relocate its main repair shops, which formerly had been in McAlester, that promoted significant growth. The shops provided a strong employment base for the city as the work force reached nearly 1,000.

For the first few years of the new century, Shawnee was in the midst of a boom that came close to keeping pace with Oklahoma City's growth. Located in the heart of cotton, potato, and peach country, Shawnee quickly became an agricultural center. Feed stores, wagon yards, a cotton seed mills, and an assortment of other businesses were designed to serve the farmer as he brought his crop to market in Shawnee.

Shawnee's growth was fueled by the railroad industry. By 1902, the Choctaw had been absorbed by the Rock Island, and a station was built at the foot of Union Street. Shortly thereafter, the Santa Fe Railroad built one of the more striking stations in the entire country. The Missouri, Kansas, and Texas Railroad, better known as the Katy, also built a station. By 1907, according to the Chamber of Commerce, there was an average of 42 passenger trains and 65 freight trains arriving in the city each day.

Virtually cupped on three sides by railroad tracks, Shawnee developed its commercial activity around Main Street. With no central square around which to build, retail businesses, garment factories, hotels, cotton gins, convention halls, opera houses, and banking institutions jockeyed for the best position on Main Street and its intersecting arterials. By 1903, the streetcar system was being constructed by a private developer. Tracks stretched from St. Benedict's on Kickapoo up to Broadway at Main. Tracks also ran down the middle of Broadway and turned left on Georgia to make a stop near Oklahoma Baptist University. Another line went east on Main to Pesotum and on to turn around at the country club.

While Shawnee did not possess a town square to focus public activity, the city did have Woodland Park, just two blocks north of Main Street. Constructed with fountains and formal gardens, the park was the building location in 1905 of the Carnegie Library, as well as the site of frequent Chautauqua meetings led by such people as William Jennings Bryan. But it was Benson Park, located approximately midway between Shawnee and Tecumseh, that served the recreational needs of Shawnee residents for most of 30 years. What made the park special was the interurban streetcar that ran between the two towns to the park. Opened in 1907, the park had a swimming pool, skating rink, roller coaster, and large picnic areas.

By 1910, however, it was increasingly clear that while Shawnee would continue to prosper, the city could no longer vie with Oklahoma City for predominance in the region. Between 1910 and 1920, the population increased at a slowed pace from 12,500 to 15,400.

Shawnee's next growth spurt occurred in the 1920s with the onset of the Oklahoma oil boom. Shawnee was located close enough to Earlsboro and Seminole to benefit substantially from the new wealth, but because there was little oil in the immediate vicinity, the city did not suffer from an uncontrollable growth. At the peak of production, Pottawatomie County wells were producing more than 120,000 barrels a day. The Chamber of Commerce advertised itself as "The Hub of the World's Largest Oil Fields." This oil boom stimulated residential construction, oil-related businesses, and the



entertainment industry.

However, there were several negative economic factors in the 1920s that ultimately meant Shawnee would suffer significantly during the Depression. In 1922, the Rock Island experienced a nation-wide strike that resulted in increased tension between strikers and strike breakers. While the economic effect of the strike is difficult to evaluate, the shops ceased to grow as an employer in the city. Perhaps more serious was the decline in agricultural production due in large part to the impact of the boll weevil on the cotton crop.

Ultimately, however, it was the stock market crash and the resulting depression that took a great toll on Shawnee residents, as with the rest of the nation. Shawnee's survival depended upon many factors, but clearly one of the more important was the assistance provided by the New Deal. Funding from the federal government helped construct the new county courthouse, the municipal auditorium, the municipal swimming pool, the high school football stadium, the Deer Creek reservoir, and several elementary schools.

Fairly stagnant until the 1970s, Shawnee's economic climate improved with the addition of several industrial plants north of the city which added approximately 1,000 jobs to the community base.

History is an ever-expanding catalogue of events; this history produced the built character of the city including the downtown, the transportation framework, and residential neighborhoods. The next chapter of Shawnee history should preserve the best of its physical history and generate progress that future generations will look back upon proudly.



WHAT THE READER WILL LEARN IN THE DOCUMENT

The Shawnee Next Horizons Plan is designed as a rallying point for Shawnee's many stakeholders around the community's vision for the future, the actions necessary to make that future a reality, and how to get involved. As such, the plan is written to educate the reader on the basics of land and community development, articulate the vision and recommendations for Shawnee, and provide an implementation framework to identify priorities, partnerships, and potential funding mechanism. The plan is organized as follows:

CHAPTER 1: SHAWNEE TODAY

A review of existing conditions with special attention to demographic, population, and economic trends.

CHAPTER 2: ISSUES, CHALLENGES, AND OPPORTUNITIES

An exploration of issues, challenges, and opportunities pertinent to the growth, development, and investment in Shawnee.

CHAPTER 3: SHAWNEE INTEGRATED LAND USE PLAN

A framework for the physical development of the community with respect to existing neighborhoods and business districts, the transportation system (existing and future), and the creation of amenity nodes.

CHAPTER 4 - 9: ELEMENTS

The element chapters provide the greatest amount of detail on how to implement the vision established through the public engagement process. A chapter is dedicated to each of the following topic areas.

- » Transportation
- » Community Image
- » Downtown
- » Housing & Neighborhoods
- » Quality of Life
- » Public Services

CHAPTER 10: IMPLEMENTATION

A guide on exactly how to begin implementing the plan including priorities, partnerships, and funding mechanisms.

BIG IDEAS / GOALS

The Shawnee Next Horizons Plan is built from a foundation of big ideas laid through the public engagement process and study of physical, demographic, and growth characteristics of the city. These big ideas are carried forward through the plan with special attention to how those big ideas can be brought into reality through projects, policies, and partnerships. The big ideas of the Shawnee Next Horizons Plan are arranged by topic area and follow:



LAND USE

- » Growth to be incremental and connected to existing infrastructure, neighborhoods, and community destinations.
- » New development contributes to the community's character.
- » Growth should preserve environmental features.



TRANSPORTATION

- » Transportation network should provide a safe and efficient means for all users including pedestrians, bicyclists, and drivers.
- » Transportation system should support desirable patterns of community, neighborhood, and economic development.
- » The appearance and role of corridors should elevate the community's image and serve to unite the community.



COMMUNITY IMAGE

- » Shawnee's built and natural environment should be regionally appropriate and well maintained.
- » Partnerships should produce neighborhood and commercial areas that are healthy, inviting, and functional.
- » Develop places where Shawnee residents can gather and socialize to build connections.
- » Incorporate public art to show Shawnee's culture and diversity



QUALITY OF LIFE

- » Encourage neighborhood and community destinations that are family friendly and support strong social networks.
- » Provide park facilities and recreation services accessible to Shawnee's growing population.
- » Expand connections between jobs and housing.
- » Promote cultural assets.



DOWNTOWN

- » Improve visibility of the downtown.
- » Elevate the downtown to be seen as a regional destination for living, working, and entertainment.
- » Offer an urban lifestyle in downtown Shawnee with quality residential options.
- » Ensure that the downtown is included in an overall economic strategy for Shawnee.



HOUSING AND NEIGHBORHOODS

- » Create healthy neighborhoods that offer a range of housing types to accommodate workers and residents at all stages of life.
- » Ensure that Shawnee's future housing stock is affordable to all through conservation of existing housing and new diverse housing options.
- » Create a reinvestment strategy that supports private market investment in older neighborhoods.



PUBLIC SERVICES

- » Provide public services in a manner that balances cost efficiency and levels of service.
- » Guide the extension of water and sewer services in a way that supports efficient patterns of community development.
- » Ensure land use and transportation patterns that support the efficient and cost-effective delivery of emergency services.
- » Expand emergency services to maintain a high level of service to current and future residents.

BEING A HEALTHY CITY

Throughout the public engagement process, many conversations touched on the idea of health and wellness. The city's Blue Zone initiatives provide a detailed and tactical exploration of issues on how projects and programs can make Shawnee a healthier community for its residents. In the same way that the Blue Zones focus on improving the physical health of individuals, this plan is focused on improving the overall health of the community. Together, these plans are stronger.

From the perspective of the Shawnee Next Horizons Plan, there are four facets of health that must be achieved to make a truly healthy community.

ECONOMIC HEALTH

A healthy community is one that is economically strong with: vibrant business districts, neighborhoods with strong property values; and competitive wages for persons in Shawnee. Economic health is achieved through a strong emphasis on business recruitment and retention, workforce development, promotion of cultural assets and policies and project that encourage reinvestment in private properties.

ENVIRONMENTAL HEALTH

A healthy community is one that cares about the health of its environment. This facet means that the environment should not negatively impact residents but also that human interventions do not harm the landscape including drainages, habitats, and the prairie.

CIVIC HEALTH

A healthy community is one where its residents are engaged in the civic functions of the community such as voting, volunteering, creating public art, and helping their neighbors. The best way to increase engagement is to build trust through transparent processes, positive changes sustained over time, and welcoming citizen input throughout city processes.

INDIVIDUAL

A healthy community has healthy residents. From the perspective of this plan, individual health is best achieved by focusing on each of the previous facets; for example, trails which support neighborhood property values also encourage residents to walk or ride their bikes.

The Shawnee Next Horizons will highlight when projects, policies, and big ideas directly align with the above facets of community health.





CHAPTER 01. SHAWNEE TODAY

CONTENTS

- » Population History and Character
- » Land Use Character
- » Environmental Character
- » Housing & Neighborhood Character
- » Economic Conditions
- » Park & Recreation Amenities
- » Transportation
- » Infrastructure

SHAWNEE TODAY: POPULATION HISTORY AND CHARACTER

INTRODUCTION

In its early years, Shawnee experienced surges of rapid population growth because of the railroads and its industries. Since 1960 its population has been relatively stagnant but recent leadership, investments, and a renewed sense of community engagement seem primed to send this trend upward once again. This section will explore the dimensions of population change in Shawnee in terms of geographic area, population dynamics, and population growth forecasts.

KEY TRENDS

POPULATION

- » The City of Shawnee is growing but at a slower rate than Pottawatomie County. While Pottawatomie County contains a small portion of Oklahoma City and Tucumseh, in addition to Shawnee, the majority of this growth has occurred in the rural unincorporated parts of the county. Many of these residents use Shawnee's commercial services because of its role as a regional hub.

RACE AND ETHNICITY

- » Shawnee's diversity increased slightly between 2000 and 2010 with individuals identifying as American Indian (term used by the census), some other race, or more than one race increasing by a total of 4.0% of the total population. It is therefore important that the community continue to actively engage all residents in community decisions and that all residents benefit from those decisions.
- » Native to Pottawatomie County are the following Native American Tribes: Citizen Potawatomi Nation, Absentee Shawnee, Sac and Fox, and Kickapoo.

AGE

By examining the age trends of a population overtime, it is possible to understand migration and population change in a more interesting and informative way. Figure 1.2 examines age data reported in the 2010 Census and the 2016 American Community Survey and extrapolates the 2010 count based on standard birth and death rates.

MAJOR THEMES

SLOW AND STEADY GROWTH PREDICTED

Shawnee has been growing at a relatively slow rate, primarily through in-migration of working age professionals. Based on recent historic growth, housing construction, and a renewed interest and momentum behind quality of life and identity improvements, Shawnee is expected to increase its growth rate to 0.75 percent annually over the next 20 years. This forecast underlies the physical development plan contained later in the Shawnee Next Horizons Plan which explores how and where growth should occur.

INCREASING DIVERSITY

Shawnee is growing increasingly diverse. While the trend is relatively slow, it is important to acknowledge and react to these trends by becoming more inclusive in public outreach, decision making, and ensuring public improvements consider equity to all residents of Shawnee.

GROWTH REQUIRES ACTIVE PARTICIPATION

While the plan forecasts that Shawnee will be able to grow at a 0.75% annual growth rate over the next 20 years, it will not occur without the active participation of community leaders. Community growth occurs through housing production, incentives for choosing to live in Shawnee, and the retention of major employers and the smart recruitment of new jobs. Each of these pillars of growth must be achieved through partnerships and a focus on progress in each dimension.

This provides a baseline assumption of what the population of Shawnee would be if there was no in-migration or out-migration from Shawnee.

- » Shawnee has grown through in-migration (585 more people than predicted).
- » The greatest in-migration occurred in those individuals aged between 15 and 24, a total of 909 more than predicted. This is likely due to enrollment at Oklahoma Baptist University which predictably draws an influx of new students into the community each year.
- » Related to the above in-migration, the community experiences an almost equally predictable out-migration of individuals aged 25-34, a total of 768 fewer than predicted. This is related to graduation rates at Oklahoma Baptist University as graduates leave Shawnee for employment. It is interesting that the influx in younger populations is greater than the exodus and suggests some graduate retention but a need to continue efforts to retain and attract this population.
- » Some volatility in those aged 55 – 85 exists. Shawnee experienced in-migration of individuals aged 55 – 64 (+206 individuals) and 75 – 84 (+122 individuals) while experiencing out-migration of individuals aged 65-74 (-94 residents) and those aged 85 plus (-80 residents). In total, these age cohorts represent a net in-migration of 156 new residents.

FIGURE 1.1: historic population trends

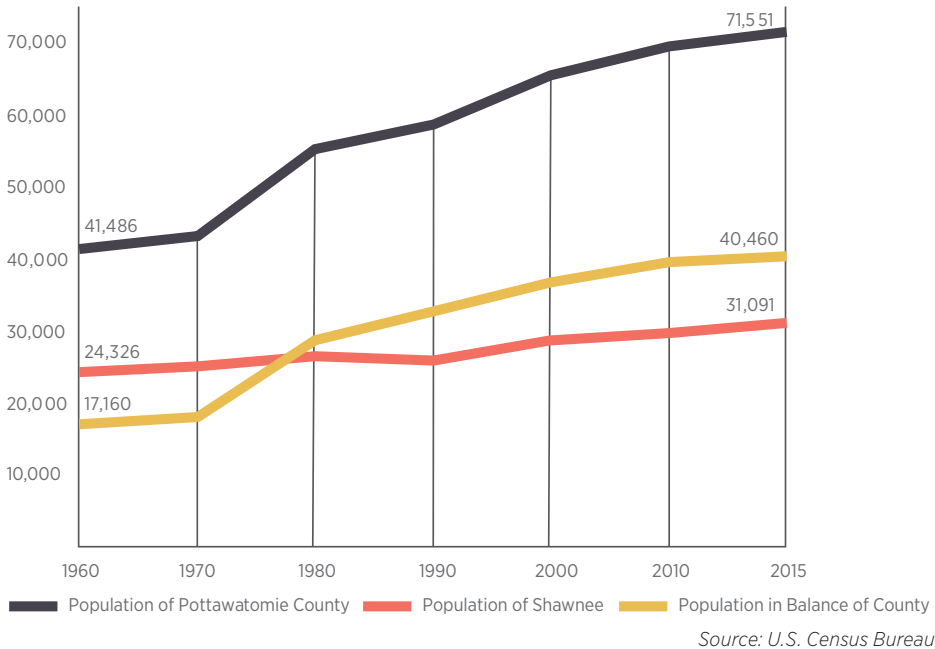
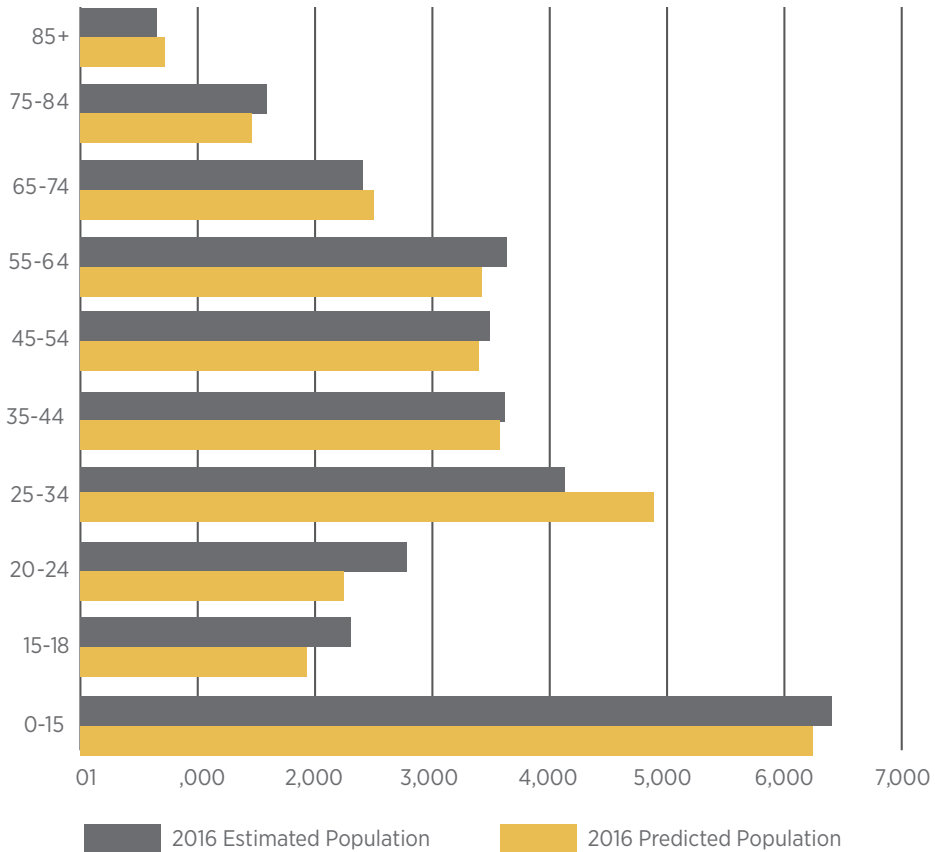


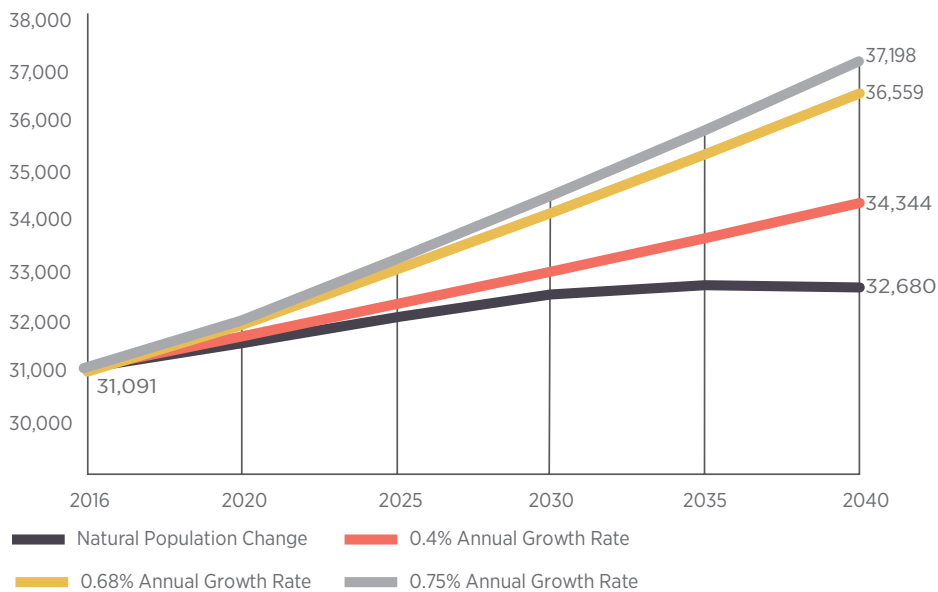
FIGURE 1.2: 2016 Estimated vs. predicted population



POPULATION GROWTH FORECASTS

- » Especially important to planning for the physical growth and character of Shawnee is understanding and forecasting how the city's population will grow in the coming decades. This forecast is the basis for the physical development plan which focuses on the amount of land that will be required to accommodate the future population including where and how that growth should occur.
- » Population forecasts are developed by examining multiple trends including recent historical growth rates, natural population change (no-migration), housing construction, and anecdotal observations. The selected forecast model is that Shawnee will experience a 0.75% annual growth rate. This rate is slightly above the past 20 year trend and estimates a total population of 34,520 by 2030.
- » This growth scenario will be carried forward as the base assumption for how much Shawnee will continue to grow and will underlie the conversations about how and where growth will occur.

FIGURE 1.3: Growth projections



0.68% 1990-2010 Rate; .4% 2000-2010 Rate

Source: RDG Planning & Design

SHAWNEE TODAY: LAND USE CHARACTER

INTRODUCTION

Shawnee's existing land use and development patterns provide the framework for the development of the future land use plan. The physical land use character and change over time is an approximate mirror to the population growth patterns examined in the previous section. Much of the built environment comes from the many periods of prosperity from between 1900 and 1950 followed by much smaller trend of more contemporary development patterns produced during the years of slow population gains.

KEY TRENDS

RESIDENTIAL LANDS

- » Residential land consumes approximately 20 percent of the total developed area of Shawnee. These neighborhoods represent one of the greatest investments from both the public and private sectors. Many of Shawnee's neighborhoods – indicative of their era – include nearby parks, good sidewalk connectivity, and institutions that have traditionally served as a place for residents to gather such as schools and churches. These amenity nodes should be revitalized and replicated in new developments through sidewalk requirements in subdivision regulations to ensure new residents can experience the same access to quality public spaces.

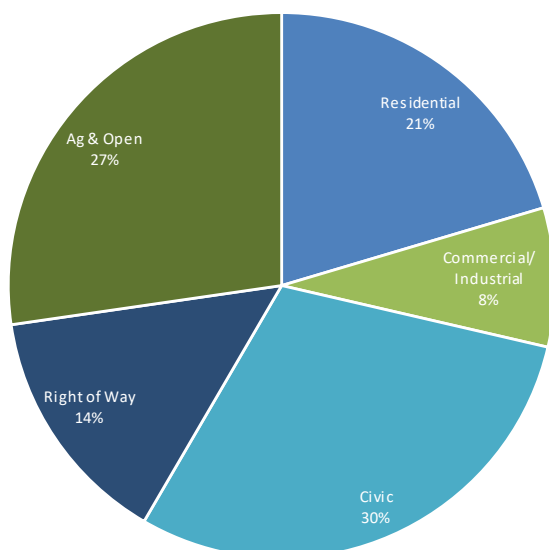


FIGURE 1.4: SHAWNEE LAND USE COMPOSITION

Source: City of Shawnee & RDG Planning & Design

MAJOR THEMES

HISTORIC CHARACTER

The economic prosperity in the first part of the 19th Century gave Shawnee a wealth of historic charm and character. While the economic decisions in the second half of the century allowed many to fall into disrepair, contemporary preferences seem to be shifting. New buyers, residents, and industries are looking for authentic cities and traditional neighborhoods; Shawnee is well positioned to revitalize its neighborhoods and downtown as a catalyst for progress.

REGIONAL HUB FOR COMMERCE AND INDUSTRY

Shawnee's role in the region has allowed its commercial and industrial ventures to remain stable when others have faltered nationally; for example, unlike many communities, the mall is healthy.

OPPORTUNITY FOR BALANCED GROWTH

Shawnee should strive to accommodate its demand for growth through a balanced approach that includes greenfield development, infill development to reinforce neighborhoods and corridors; and downtown investments.

- » Of the total amount of residential land development, the majority is single-family detached dwellings with multi-family units (2-4 units and multi-family complexes) comprising only 1.98% of all residential land. While there is clearly a market for single family detached dwellings as evidenced by recent construction and absorption, additional multi-family projects would provide affordable housing, competitive alternative housing options, and make sections of the city more walkable such as the principal corridors and downtown.

COMMERCIAL AND INDUSTRIAL LANDS

- » Consistent with its role as a regional commercial and employment hub, Shawnee has a relatively large share of land developed for these uses.
- » Commercial uses such as retail and services are generally clustered in the following areas:
 - o The Shawnee Mall; along Interstate 40, Kickapoo and Harrison; at interchanges with U.S. Highway 177 and Kickapoo Spur; and in downtown.
- » Industrial uses tend to follow a similar pattern due to their good access to transportation routes and high visibility. Additionally, industrial ventures situated near downtown perform well due to adjacency to the railroad which remains relevant today.

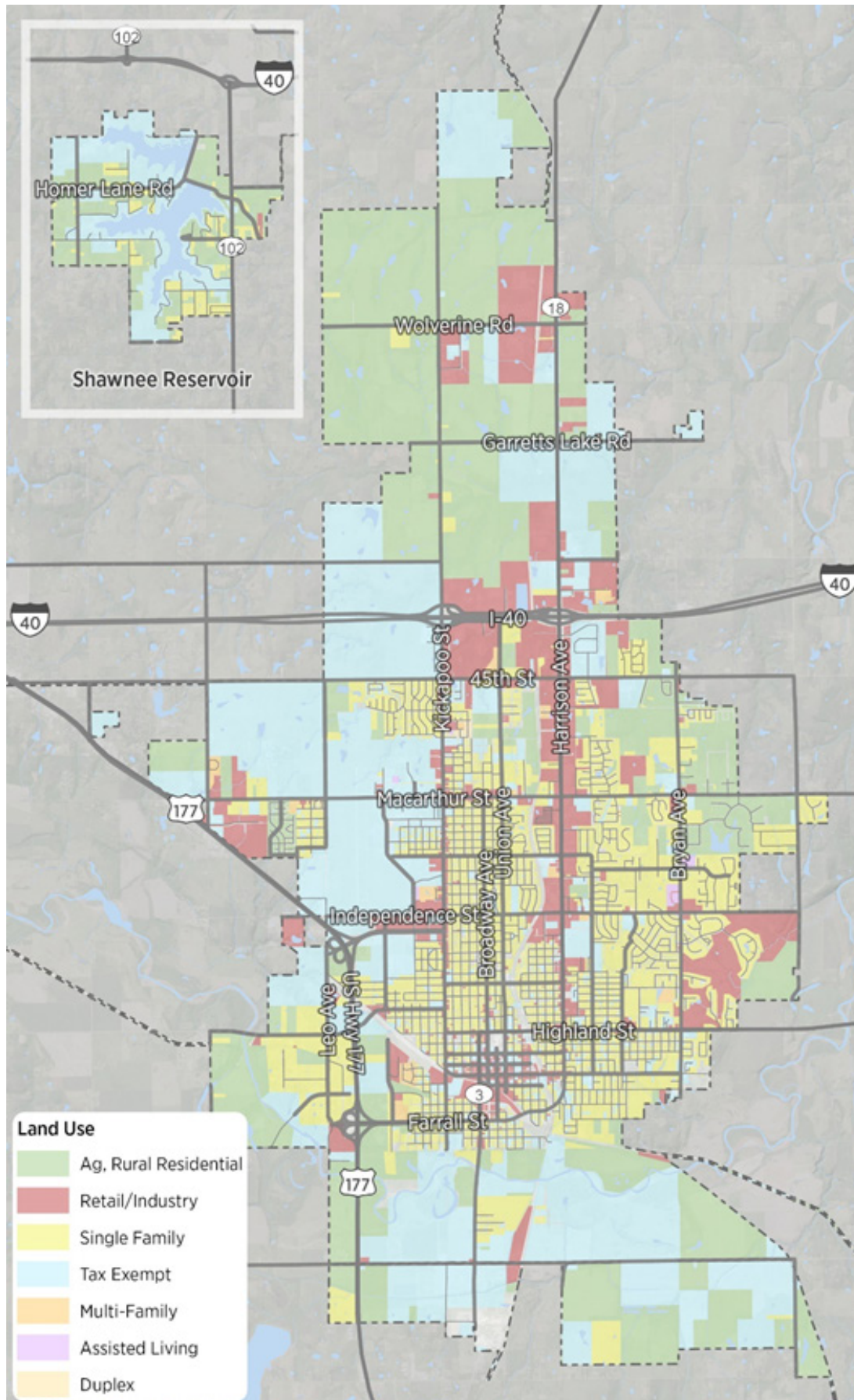
FIGURE 1.5: Shawnee Land Use Composition

LAND USE CATEGORY	ACRES	% OF LAND	ACRES PER 100 PEOPLE
Residential	5988	20%	19.26
Single Family	5839		
2-4 Family	12		
Multi-Family	106		
Commercial/Industrial	2414	8.23%	7.77
Civic	8738	29.77%	28.10
Total Developed Land	17140	--	
Ag/Rural Residential	8011	27.29%	25.77
Right of Way/Other	4200	14.31%	13.51
Total Area inside the City	29352	--	94.41

Source: City of Shawnee; RDG Planning & Design



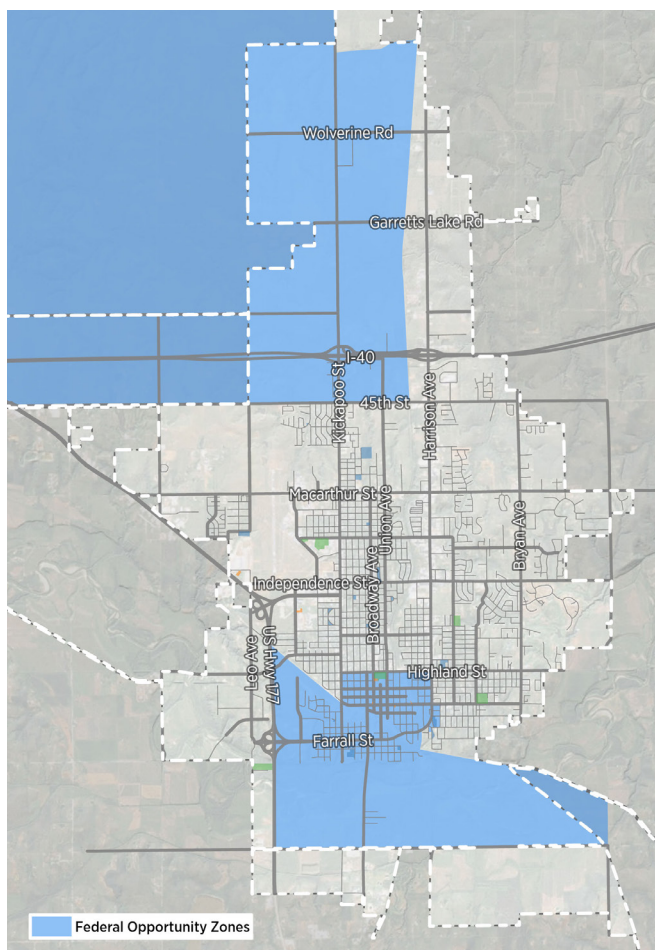
FIGURE 1.6: Current Land Use



Source: City of Shawnee & RDG Planning & Design

GROWTH AREAS (VACANT AND AGRICULTURE LAND)

- » A principal element of a land use plan is to examine the areas that should be considered prime for growth. For the purpose of this plan, growth areas fall into three categories that relate directly to current land use (see those areas identified as ag and tax exempt on Figure 1.6 page 23 and Development Policy areas Page 69):
 - o Vacant / Infill Development. Vacant and infill development opportunities may include: areas undeveloped due to odd and otherwise impractical parcel configurations (ex: deep lots on Harrison); commercial developments with platted outlots that have not yet developed; and land that is otherwise restricted by adjacent development such as land that near the airport or railroad.
 - o Greenfield Development (Agricultural Conversions). Most often, communities experience their greatest amount of growth through greenfield development at the fringe of the city. Greenfield development opportunities should be incremental and geographically contiguous to existing infrastructure and integrate quality of life amenities that both connect it with the rest of the city and serve its new residents.
 - o Redevelopment. While redevelopment is typically a fraction of total growth, it is nonetheless important. Examples of redevelopment include: the adaptive reuse of a former school that is now vacant or demolition and new construction on a site. Especially pertinent to Shawnee is the idea of adaptive reuse for its downtown district.
 - » Adaptive reuse. Adaptive reuse describes a project that repurposes a building or property for a use other than how it was originally intended. Through adaptive reuse that specifically targets the upper stories for housing, Shawnee can likely capture a notable share of its overall housing demand in support of downtown revitalization.



OPPORTUNITY ZONES

There are two opportunity zones within Shawnee (shown in blue to the left). The opportunity zone incentive is a new community investment tool established by the 2017 Tax Cuts and Job Act. The program is designed to encourage long-term investments in low-income urban and rural communities nationwide. Investors can defer capital gains tax liability by investing in property within the zone or an investment fund based in one of the two zones.

SHAWNEE TODAY: ENVIRONMENTAL CHARACTER

INTRODUCTION

Shawnee lies in a relatively flat region of Oklahoma known for its big skies, prairie, savanna, and woodlands. Technically located within the Cross Timbers Eco Region, Shawnee enjoys the benefit of a relatively unique landscape rich in wildlife and diversity. The city of Shawnee has been shaped by natural forces including several drainages that have sculpted the landscape in addition to human interventions that left their mark on the natural systems including flood prevention measures.

KEY TRENDS

WATERCOURSES: THEIR MANY ROLES

Shawnee's landscape is heavily influenced by the flow of water. Otherwise relatively flat, the rivers, tributaries, and unnamed streams continue to sculpt the landscape. These patterns dictate the flow of water from even the smallest development projects across the community, provide a habitat for wildlife, and play a role in determining the severity of flood events.

IMPACT ON URBAN DEVELOPMENT

The flow of water is rightfully a primary concern of cities across the nation; however, only recently have many begun considering the other elements of stormwater runoff, quality of stormwater, and soil erosion. Specifically these include:

- » **Detention and Retention.** Pertaining to the amount of water that can be discharged from a developed site. It is common to ban a developed site from discharging more stormwater than would have been discharged if the site had never been developed. The increase must be retained on site and absorbed by the soil or detained temporarily and released gradually.
- » **Land Disturbance and Erosion Controls.** Pertaining to the state of development sites that disturb natural landcover. These measures focus on reducing the amount of soil erosion from construction sites during rainfall events.
- » **Water Quality.** Pertaining to the quality of the stormwater before it is discharged from the origin site.

MAJOR THEMES

GROW WITHIN ENVIRONMENTAL CONSTRAINTS

The landscape has been sculpted over the years to manage environmental pressures such as major storms through its wetlands, drainageways, and native plants. These constraints should be recognized as assets, be preserved, and be enjoyed by residents as they observe and learn from their landscape.

DRAINAGES AS OPPORTUNITIES

Shawnee's creeks and rivers sculpted the landscape that the community now enjoys which have grown into lush natural landscapes. These linear features are an opportunity for Shawnee to build connections between neighborhoods and to allow its residents to access nature. Drainages, natural wetlands, and stormwater detention systems are ideal for a system of greenways, parks, and trails that serve both their natural flood prevention purpose but also a community amenity.

EMBRACE THE RIVER

Nationally, many communities have turned their backs on their local rivers only to rediscover their value in recent years. The river in Shawnee is no different – once a reason for settlement, it was relegated to the back-burner, but it may now be time for the community to embrace the river once again as an amenity, as a community signature, and as an act of unity with the local tribes.

When implemented across an entire community, responsible stormwater management can mitigate flooding, reduce soil loss, and produce opportunities for the creation of regional facilities such as large ponds, urban lakes, and greenways that both control water and provide recreational opportunities.

HABITAT

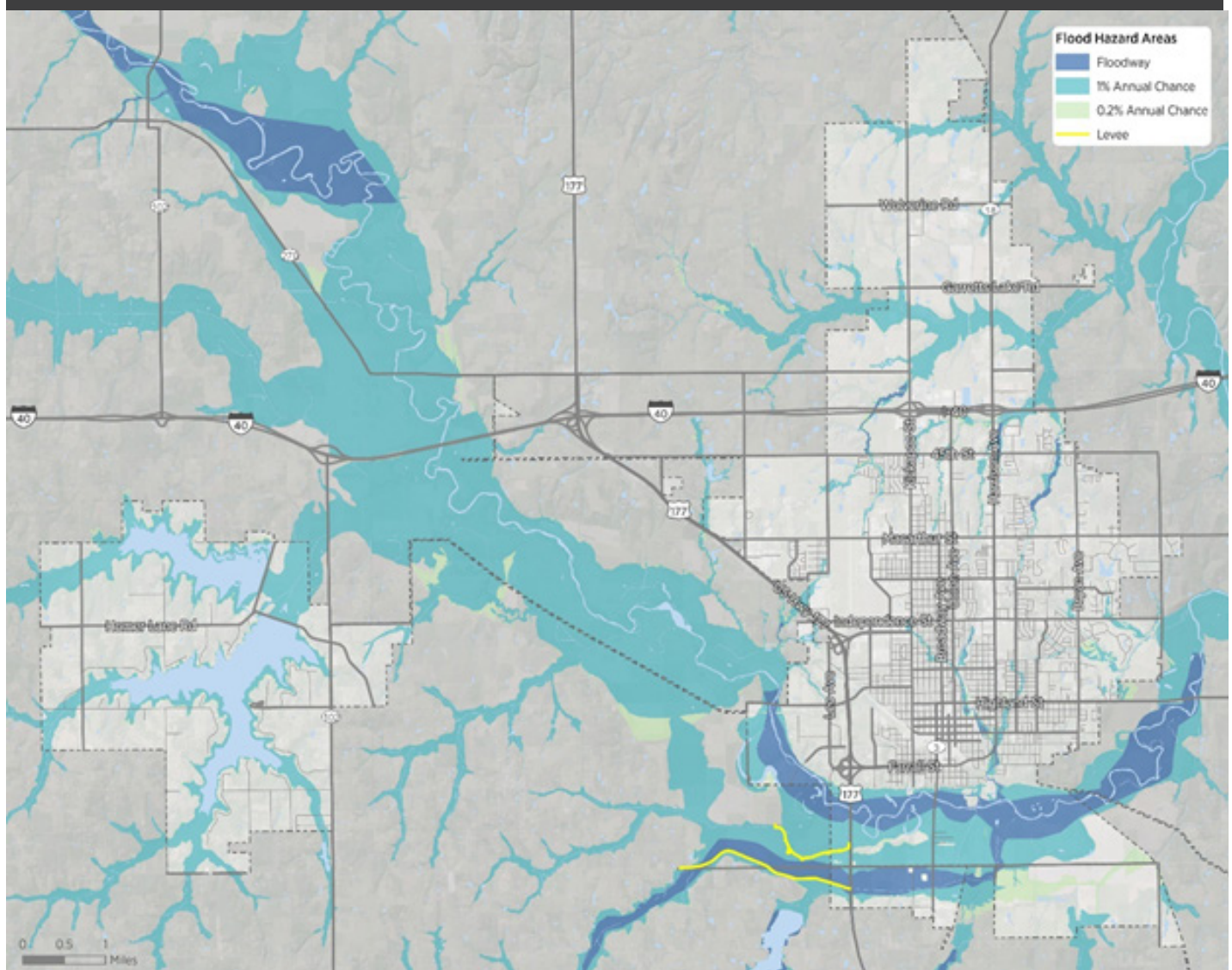
The linear nature of these watercourses and their natural resistance to urban development (flooding) has created rich habitat corridors for the city's wildlife. These corridors would have an even greater benefit as habitat, flood prevention, and community building role if they are preserved, enhanced, and expanded.

FLOOD PLAINS

In the past several decades, local, state, and federal agencies have become more aware of the impact development can have on stormwater erosion and water quality. The management of stormwater and the impact that development has on the city's system of draws should be closely monitored. Development that increases both the volume and velocity of water runoff can create significant flooding and erosion issues both onsite and downstream.

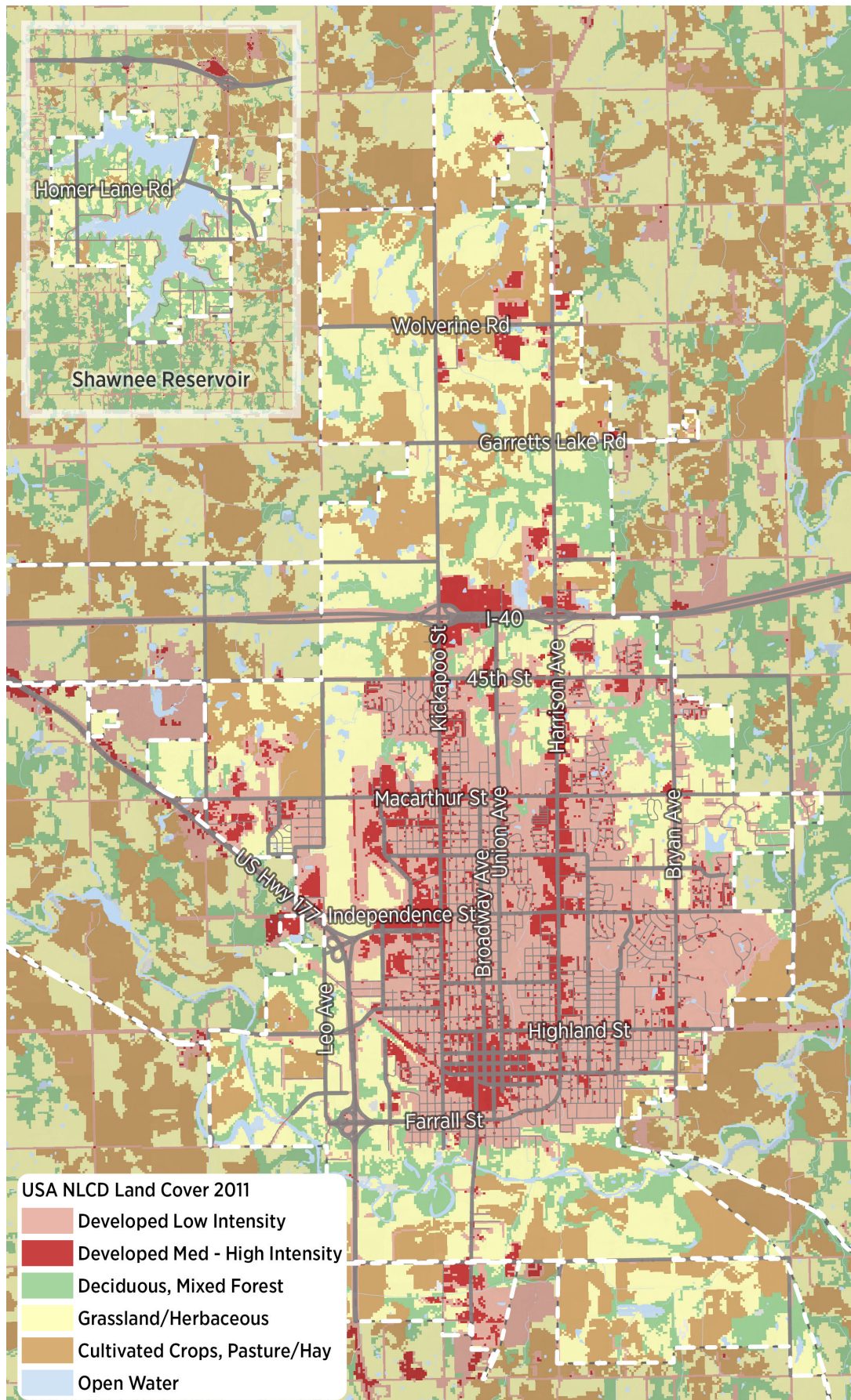
Several areas within Shawnee are located either within the floodway (the channel that holds the floodwaters of a stream or river) or the 1% annual flood (area where there is a 1% chance the area will flood each year) designations.

FIGURE 1.7: Floodplain Analysis (Preliminary Data, 2018)



Source: FEMA

FIGURE 1.8: Land Cover



Source: USA National Land Cover Data

The most obvious area is located adjacent to the North Canadian River at the southern edge of town. There are, however, sizable portions of the watershed at the north end of town and smaller areas within the heart of town that are subject to a 1% annual chance (see Figure 1.7).

Because 1% annual floods (also known as the 100 year flood) are becoming more frequent and causing more damage nationally, steps should be taken to ensure new developments are not increasing runoff from their sites and that existing sites are retrofit to capture additional stormwater to help reduce the impact to the city. Ideally, no new construction would occur within the 100 year flood zone.

LAND COVER

Shawnee's land cover includes not only the developed areas but a mix of forest, grassland, and crops or pasture, especially around the outer edges of the city. Land surrounding the reservoir is primarily grassland and mixed forest, whereas land adjacent to the developed portions of the city is grassland or crops and pasture as shown in Figure 1.8. To protect the watercourses, grassland and mixed forest should remain the primary land cover adjacent to these bodies of water.

SOILS

The North Canadian River has soils that are very deep, sandy and loamy with loamy and sandy soils adjacent to the river bed that are on moderately steep slopes. The remainder of Shawnee is located within the Central Rolling Red Prairies with clayey and humus rich soils on gentle slopes. This type of soil is both good for building because clay is more stable for foundations, but is also rich in nutrients for crop production.

ECO REGIONS

Shawnee is part of the Northern Cross Timbers eco region, a large area that extends just south of Pauls Valley, north into Kansas. This region is characterized by a mix of savanna, woodland, and prairie. It separates the forests of eastern eco regions from the prairies of drier, western eco regions. The Northern Cross Timbers are naturally covered by oak savanna, scrubby oak forest, eastern red cedar, and tall grass prairie. Vegetation is more sparse than in the Eastern Cross Timbers. Livestock and farming are the main use of this eco region and soils are highly erodible if disturbed. Streams tend to be shallow and sandy with low fish counts.

NATURAL OPEN SPACE

A principal of community development is to ensure residents have access to nature. Most people think about parks as serving this need, but natural open spaces can often be better than parks in certain ways. Natural open spaces do not need to be heavily programmed with playgrounds and other features and do not need to be mowed and managed in the same way that an urban park does. When used for trails, these corridors can connect residents and serve as both recreation and transportation needs.



SHAWNEE TODAY: HOUSING AND NEIGHBORHOOD CHARACTER

INTRODUCTION

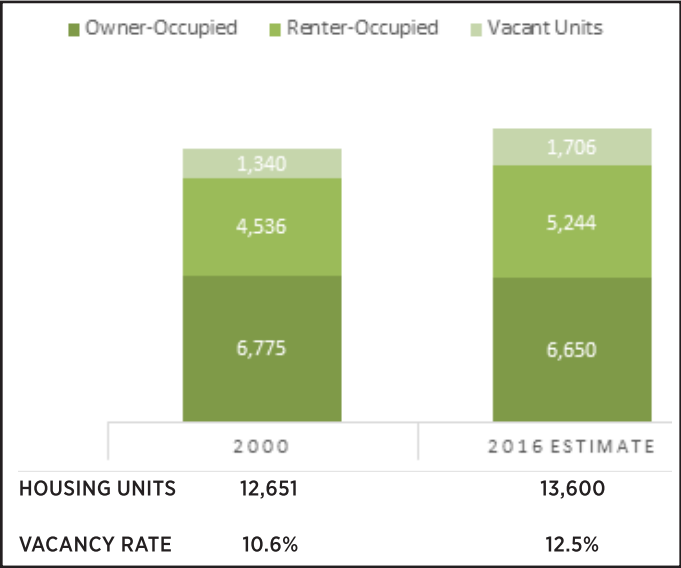
The expense, nature, and disposition of a community's housing stock are some of its defining characteristics. As part of a comprehensive planning process, it is important to consider whether the existing housing stock is adequately meeting the needs of the community. Additionally, tracking data on housing tenure, median value/rent, and price relative to income can help reveal important information about a community's current economic trajectory.

KEY TRENDS

HOUSING OCCUPANCY

New residents to a community often rent before buying a home, looking to understand the community and its neighborhoods before committing long term to one dwelling. The share of housing units occupied by renters in Shawnee has increased from 35.8% in 2000 to 38.5% according to the 2016 American Community Survey estimates. A trend and range experienced by comparable cities. The total number of housing units rose by 949, approximately 59 new units per year.

FIGURE 1.9: HOUSING OCCUPANCY



Source: U.S. Census

MAJOR THEMES

HOUSING MIX

Providing options within the market is critical to a stable housing market. Residents at different stages of their lives often look for different housing options. This begins with quality rental options for a young employee, followed by a nice, entry-level home, and then a home in which to raise a family. Finally the appropriate retirement setting that may allow a resident to downsize. A housing market with all these options incentivizes residents to consider Shawnee a life-long home.

WORKFORCE HOUSING

Rising housing costs have the greatest impact on those seeking to enter the housing market as a young employee or first time homebuyer. Rental rates can often be compared to a monthly mortgage payment. Adequate workforce housing, both in the rental and owner-occupied market, will improve the quality of life for those working in entry level and service-oriented positions.

Over the past 16 years the city's population grew by 4%, while the number of housing units in the city increased by 7.5%. If an average of 2.5 people per household were applied to the population increase, the city should have added at least 960 new housing units. As mentioned above, there were 949 housing units added to the city's housing stock.

The city's vacancy rate has continued to slowly rise from 10.6% 2000 to 12.5% in 2016. An available supply of units prevents housing inflation, provides a variety of options for residents, and encourages housing in the worst condition to be brought up to code. The current vacancy rate is above the ideal threshold of about 5-6% and likely reflects the undesirability of some unit.

HOUSING AFFORDABILITY

Figures 1.10 A&B compare median housing value to income for Shawnee residents. Affordable housing units should not cost more than 30% of a household's income. Based on household incomes and the number of affordable units available to those income ranges,

FIGURE 1.10A: Affordability Analysis

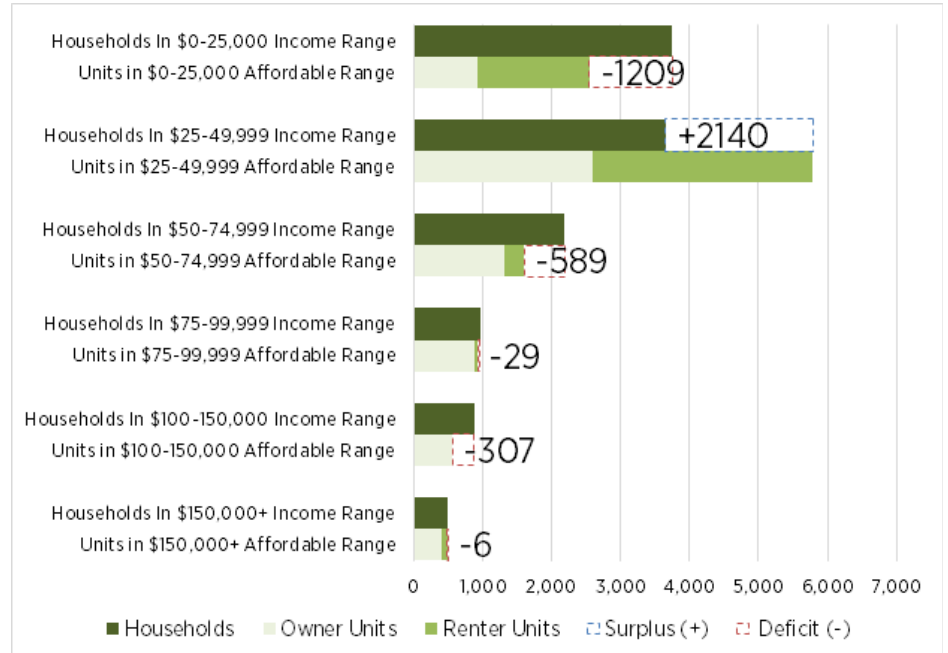


FIGURE 1.10B: Affordability Analysis

INCOME RANGE	# HHS IN EACH RANGE	AFFORDABLE RANGE FOR OWNER UNITS	# OF OWNER UNITS	AFFORDABLE RANGE FOR RENTER UNITS	# OF RENTER UNITS	TOTAL AFFORDABLE UNITS	BALANCE
\$0-25,000	3,753	\$0-49,999	915	\$0-400	1,629	2,544	-1,209
\$25,000-49,999	3,645	\$50,000-99,999	2,588	\$400-800	3,197	5,785	2,140
\$50,000-74,999	2,183	\$100,000-149,999	1,311	\$800-1250	283	1,594	-589
\$75-99,999	955	\$150,000-199,999	883	\$1,250-1,500	43	926	-29
\$100-150,000	868	\$200,000-\$299,999	561	\$1,500-2,000	0	561	-307
\$150,000+	490	\$300,000+	392	\$2,000+	92	484	-6

Source: US Census Bureau, 2016

Shawnee has a shortage of units for households in all income brackets except for those making between \$25,000 and \$49,999. The greatest shortage however is at the lowest income bracket, for households making less than \$25,000. It should be noted that many of these households are retired individuals living on fixed incomes.

The cost of housing falls in the middle range of comparable cities. Shawnee is more affordable than Claremore and Midwest City, but is less affordable than Del City and Seminole. The comparison is demonstrated in Figure 1.11.

Rental housing tends to be less expensive than comparable communities, with only Seminole beating out for lower rents. High rental housing costs can have the greatest impact on the city's service industry employees, young professions, and residents in the lowest income brackets.

DEMAND

The city's single-family building permit activity was hit hard after the economic downturn in 2008, however it has been trending upward since 2013 as seen in Figure 1.12. Several single-family neighborhoods were constructed in the past 10 year and were well received in the market.

Construction of multi-family units has been inconsistent throughout the years. The biggest year for multi-family dwelling construction was in 2011 with the most recent uptick in 2016 (143 new units constructed). The stagnant multifamily market has reduced competition in the overall market thereby allowing increases in rents without an increase in quality.

FIGURE 1.11: Affordability Analysis Comparison

	MEDIAN HOUSEHOLD INCOME	MEDIAN HOUSE VALUE	VALUE / INCOME RATIO	MEDIAN CONTRACT RENT	PERCENT RENTER OCCUPIED
Shawnee	\$37,906	\$96,800	2.55	\$502	44%
Claremore	\$40,206	\$119,000	2.96	\$598	46%
Del City	\$42,245	\$80,900	1.92	\$612	42%
Midwest City	\$45,695	\$101,500	2.22	\$621	42%
Seminole	\$34,904	\$63,100	1.81	\$435	41%

Source: US Census Bureau, 2016

FIGURE 1.12: Residential Building Permit Activity

	MONTHLY AVERAGE	% CHANGE	NET UNITS
2007	15.42		185
2008	9.33	-39%	112
2009	7.42	-21%	89
2010	7.08	-4%	85
2011	16.25	129%	195
2012	9.67	-41%	116
2013	13.33	38%	160
2014	4.25	-68%	51
2015	5.42	27%	65
2016	11.92	120%	143
2017	6.75	-43%	81
Total			1282

Source: City of Shawnee

SHAWNEE TODAY: ECONOMIC CHARACTER

INTRODUCTION

As introduced in the history of Shawnee, the community and its growth pattern are directly tied with the historic ebbs and flows of the local economy. While these fluctuations have become less noticeable due to the physical and digital interconnectedness of things, Shawnee's current economic position can be attributed to its economic past. Today, Shawnee has a healthy commercial and industrial economy due to its role as a regional hub; unfortunately, this health is often overshadowed by the prosperity of first-tier suburbs to Oklahoma City and other high visibility local issues such as downtown vacancy.

KEY TRENDS

MAJOR EMPLOYERS

Shawnee is home to at least 11 employers that report to have 200 or more employees. These employers are scattered throughout the core of the city and several at the periphery including Fire Lake Casino and Entertainment Center, the Thunderlake Casino, and the Kickapoo Casino. Major employers should be viewed as potential community partners because what is good for the community as a whole is typically good for their organization.

EMPLOYMENT BY INDUSTRY

- » Classified by the type of organization the individual is employed within, the metric provides a summary on the market focus of organizations in Shawnee. Approximately $\frac{1}{4}$ of employees work in the "educational services, and health care and social assistance" due in part to the University, Shawnee being the county seat of Pottawatomie County, and Shawnee's large school district.
- » The second and third largest employment industries are "arts, entertainment, and recreation, and accommodation and food services" and "retail trade" with 13.5% and 12.8% respectively. Both industries are supportive of Shawnee being a regional hub for commerce and entertainment.

MAJOR THEMES

A REGIONAL HUB

Shawnee remains a strong regional hub for retail, service, and employment. This is evidenced by the type of businesses located in the city, the type of work employees are doing, and anecdotally, the health of national box chains in Shawnee that have struggled or closed stores nationally. While Shawnee does not have the same regional pull as Oklahoma City or its suburbs, it is a strong regional hub in its own right.

DOWNTOWN AS A SYSTEM AND SYMBOL

A central business district always exists at two levels: 1) as a living, breathing, economic marketplace operating in a largely capitalist environment and 2) as a symbol for how the community is doing and for how it views itself. Downtown Shawnee has suffered in the market while consumer preferences shifted away from traditional districts and when population growth did not meet expectations however, recent energy and investment has focused attention on the beginning stages of its revitalization.

EMPLOYMENT BY OCCUPATION

- » Classified by the type of work an employee does within an organization; for example, there are typically a share of individuals classified as having a “sales and office” occupation even in industries known for manual labor. By examining the occupations of employees in Shawnee, a better picture of the workforce can be gleaned.
- » The largest occupation in Shawnee is “management, business, science, and arts occupations” with more than 31% of employees. This illustrates the leadership and other white-collar employees at the major industries in Shawnee.
- » The two largest employment nodes within Shawnee are located near the FireLake Casino and Entertainment Center and downtown Shawnee. There are several other employment nodes north of downtown which have anywhere from 240 jobs per square mile to 2,116 jobs per square mile.

DOWNTOWN

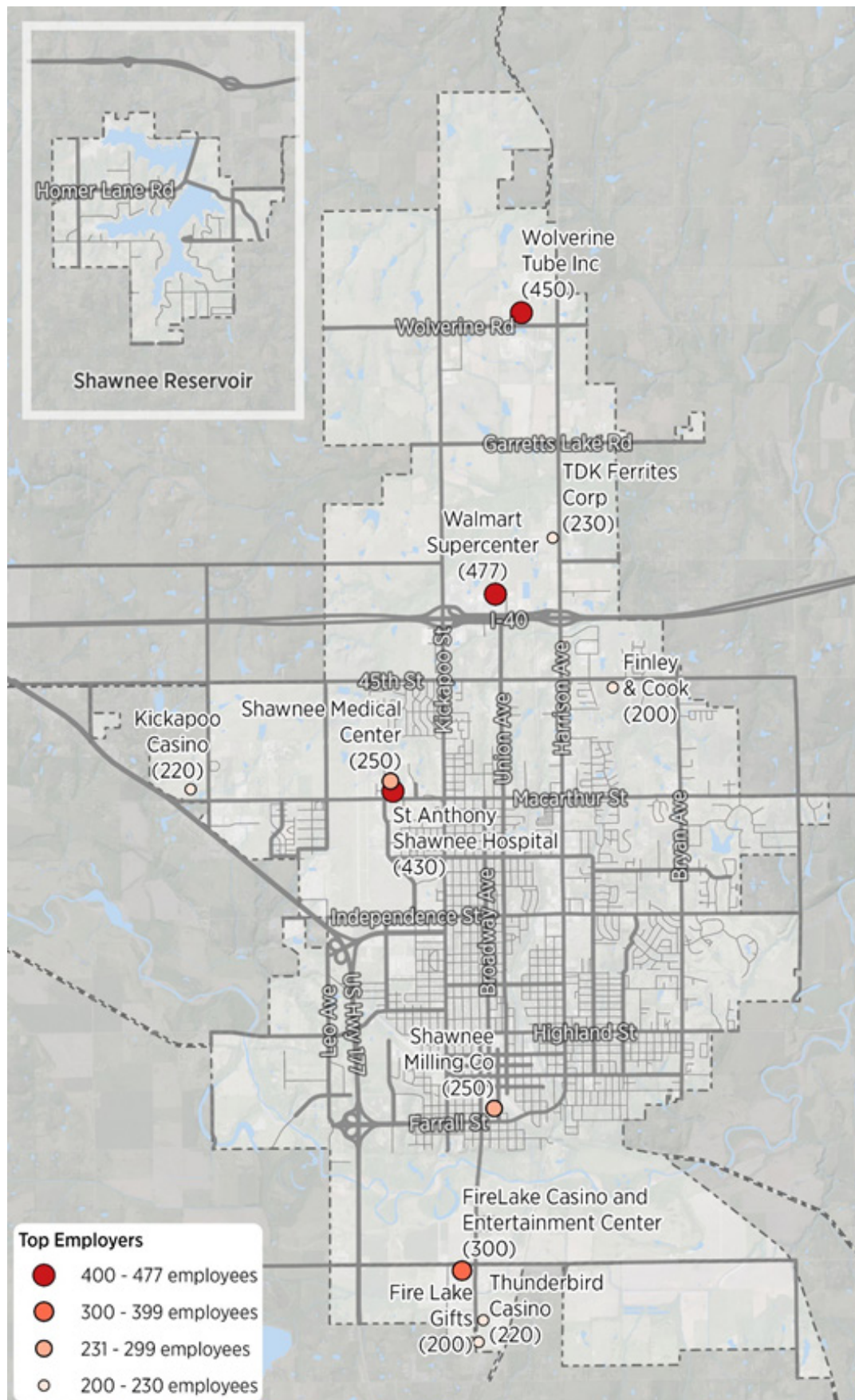
Downtown Shawnee represents the grandeur and prosperity that residents of a growing Shawnee expected circa 1900. The district is comprised of many historic structures with rich architectural character that rightfully beg to be the lasting impression for visitors and residents alike; but alas, downtown suffers from a high vacancy rate, blighted and deteriorating buildings, and a homeless problem. Due to the importance of downtown, its potential, and the scope of the challenges it faces, downtown has an element dedicated to it.

FIGURE 1.13: Shawnee Labor Force by Occupation, 2016

OCCUPATION TYPE	2016 EMPLOYEE COUNT	PERCENT
Management, business, science, and arts occupations:	4,108	31.08%
Service occupations:	2,904	21.97%
Sales and office occupations:	3,105	23.49%
Natural resources, construction, and maintenance occupations:	1,311	9.92%
Production, transportation, and material moving occupations:	1,789	13.54%

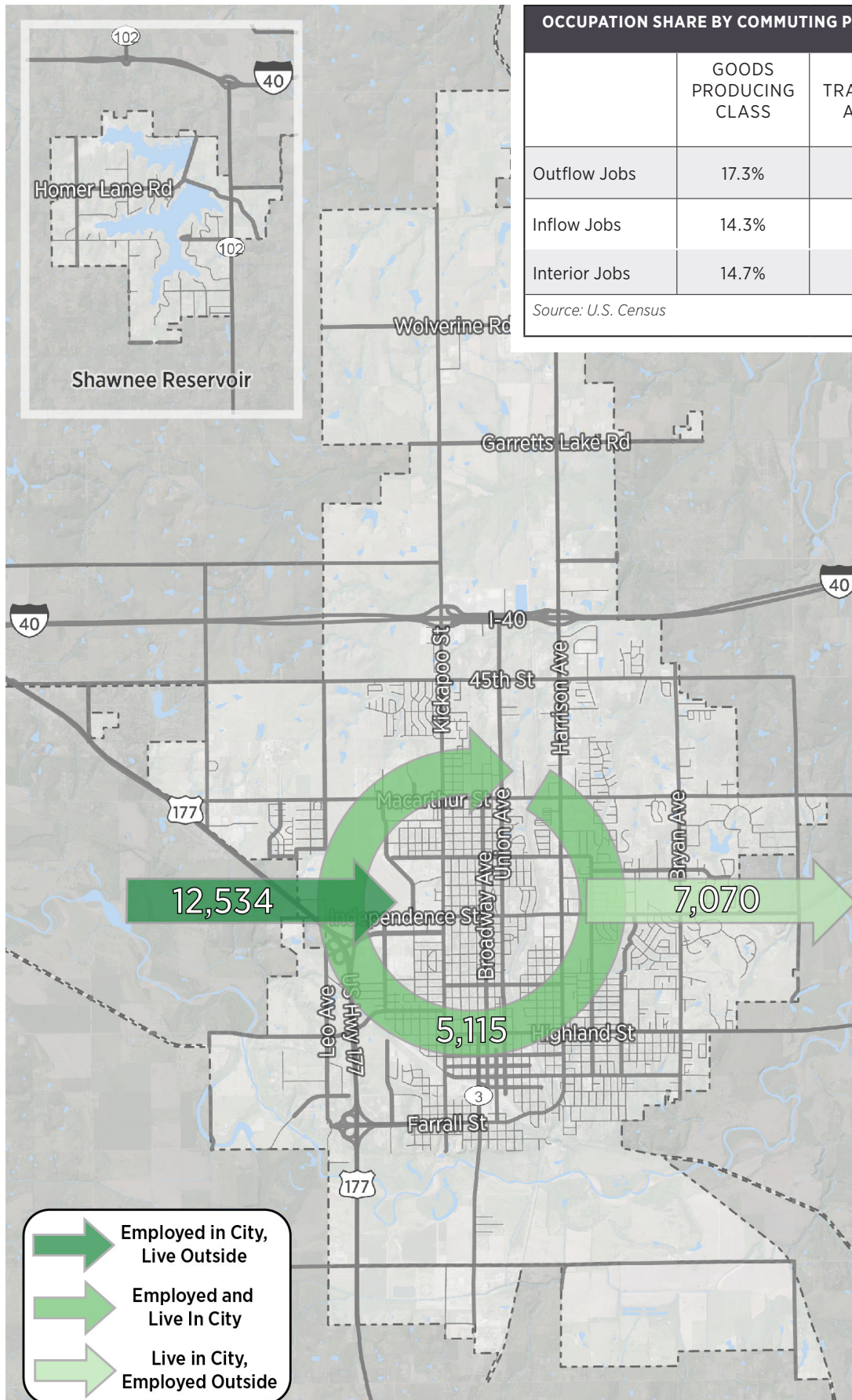
Source: 2011-2016 American Community Survey 5-Year Estimates

FIGURE 1.14: Top Employers



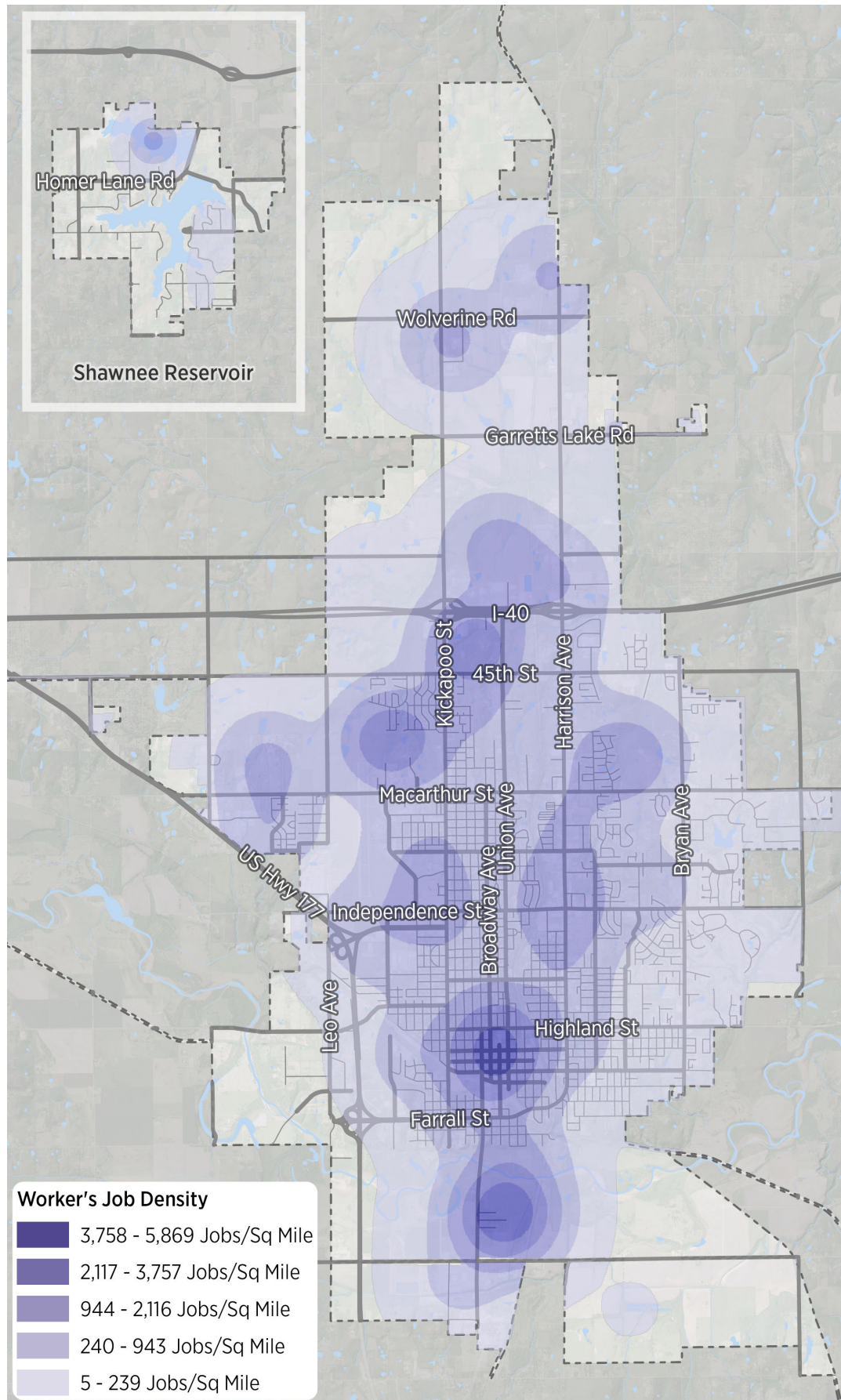
Source: ESRI Community Analyst

FIGURE 1.15: Inflow/Outflow Commute Patterns



Source: U.S. Census

FIGURE 1.16: Job Density Location



Source: U.S. Census

SHAWNEE TODAY: PARKS & RECREATION

INTRODUCTION

A city's park and recreation system is one of the most visible public amenities offered to residents. A park system should provide good coverage to all residents of the community, offer a variety of amenities, and, when connected by good sidewalks and trails, make the city easier to navigate on foot or by bike.

KEY TRENDS

- » Shawnee currently has a total of 33 parks throughout the community with 115 total acres. Five are considered community parks, 17 neighborhood parks, and 11 specialty parks. The park system includes a dog exercise area, bird sanctuary, skateboarding facilities, and trap shooting.
- » The 2017 Master Planning effort identified six of these parks for upgrades and in one instance expansion — Kid's Space Park, Briscoe Boy Scout/Rotary Park, Celebration of Life Park, Woodland Park, Optimist Park, and Dean Weigant Park.
- » The city currently has 6.34 miles of separated trails and 15.39 miles of signed bike routes which play an important role in both recreation and transportation.

GEOGRAPHIC SUPPLY OF PARKS AND TRAILS

Figure 1.18 illustrates the geographic distribution of parks. It is assumed that most residents are comfortable with a half-mile walking distance to a park. This traditionally is the comfortable distance a mother with a stroller would walk to the local playground.

Shawnee's geographic distribution of parks is generally strong, however areas on the east end of town and near the reservoir are underserved within the half-mile radius.

LEVEL OF SERVICE

Public parks in the United States are generally classified by type. A standard number of acres per 1,000 people has been developed by the National Recreation and Park Association for each of these types. A total of 310

MAJOR THEMES

SYSTEM EXPANSION

Over the years, the city's population and land area have grown. The park system will need to continue to grow to offer all residents high quality parks in close proximity. Partnerships and funding sources can be leveraged to assist in expansion of the system while maintaining existing parks.

DUAL PURPOSE INFRASTRUCTURE

One way to expand and connect the city's recreation system is by multi-purposing drainages and environmentally sensitive areas to support stormwater management and greenspace - both active and passive.

PARK DEDICATION

Park expansion should follow new development and the residents that will benefit most from the development. The city should work with developers and philanthropic organizations in partnership to ensure residents' park needs are met and to create highly marketable and quality developments.

acres of parks should be provided to meet these standards, while Shawnee currently has 115 acres of parkland. Shawnee falls just short of these standards for the community park and substantially short for the neighborhood park classifications. NRPA recommends a minimum of 1.5 acres per 1,000 residents for community parks and 10 acres per resident for neighborhood parks. Shawnee currently supplies 1.4 and 1.2 acres per resident respectively.

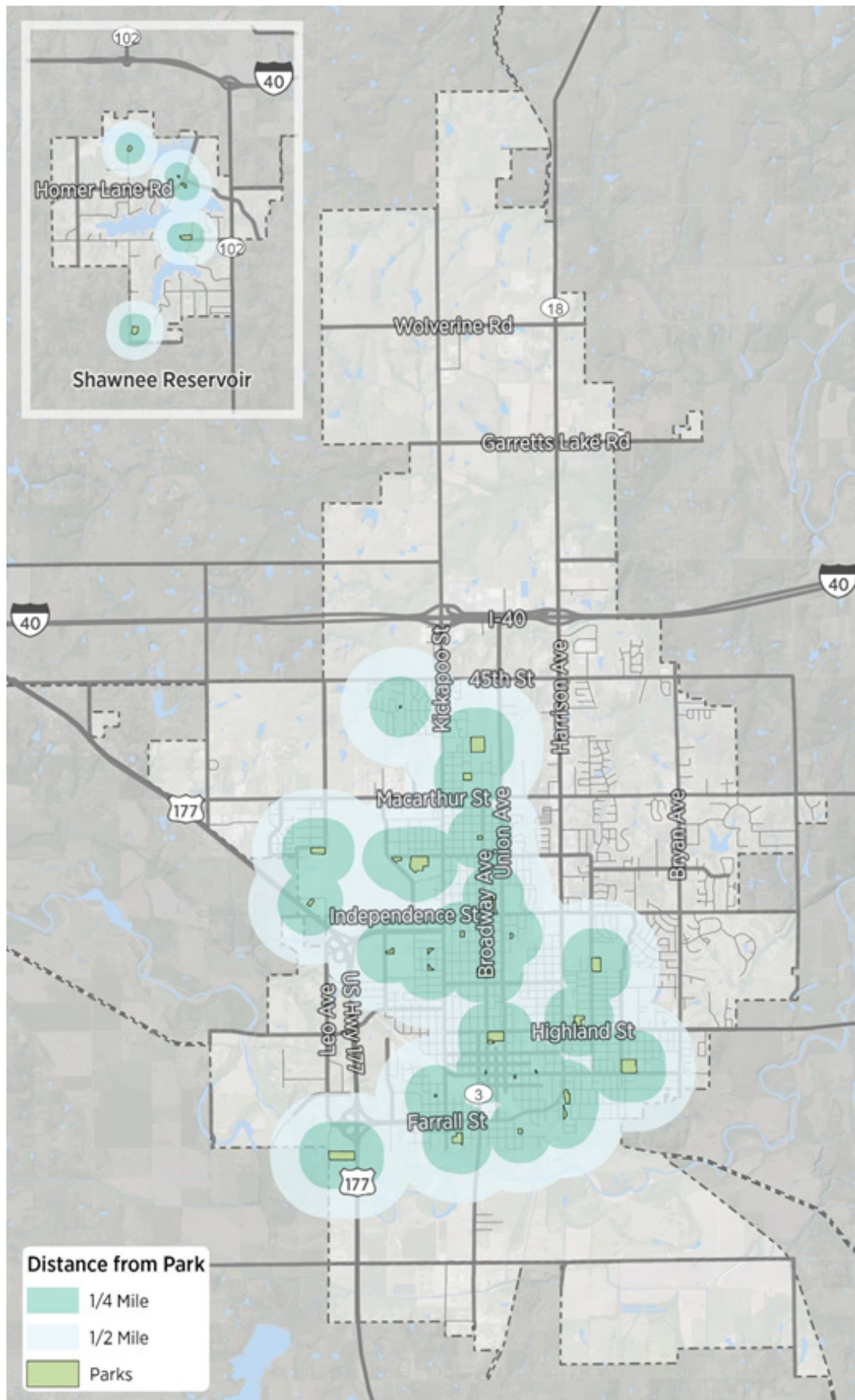
Based on the forecasted population growth and existing levels of service, Shawnee's park system will need to add 17.5 acres of park land. If the city wishes to strive to reach the NRPA standards for community and neighborhood park land, the city will need to add 10.25 acres of community park and 320.22 acres of neighborhood parks. At the current level of service, the city will need to add 6.6 acres of community park and 5.8 acres of neighborhood park with additional specialty parks to reach the city's existing level of service.

NRPA standards can also be applied to facilities within a system. Figure 1.17 summarizes the most common types of park facilities and projected need based on NRPA standards. These facilities do not include school facilities. Often playgrounds at schools do fill a need within a neighborhood but more structured facilities, such sports fields, have restricted use and are not always open to the public. The popularity of certain types of recreation have grown and waned over the years; for example, the popularity of tennis courts in the 1970s compared to soccer fields today. Features like picnic shelters and playgrounds are items that generally remain in high demand and will need to be added to the system to support the city's growing population. As demonstrated in the table, there are gaps in all facility types except swimming pools according to NRPA standards. Partnerships should be explored when addressing future park needs as the addition of 16 new playgrounds or 11 new tennis courts would become costly. Additional community outreach should also be undertaken to ensure the types of facility ratios recommended by NRPA match the community needs.

FIGURE 1.17: Shawnee Labor Force by Occupation, 2016					
FACILITY TYPE	RECOMMENDED FACILITIES PER POPULATION*	RECOMMENDED FACILITIES	2018 EXISTING FACILITIES	EXISTING GAP	RECOMMENDED ADDITIONAL FACILITIES FOR 2035 POPULATION
Basketball Courts	1/5000	6.22	3	-3.22	4.17
Football Fields	1/20,000	1.55	0	-1.55	1.79
Pavilion/Picnic Shelters	1/2000	15.55	10	-5.55	7.92
Playgrounds	1/1,000	31.09	15	-16.09	20.83
Recreation Center	1/25,000	1.24	0	-1.24	1.43
Swimming Pools	1/20,000	1.55	3	1.45	-1.21
Tennis Courts	1/2,000	15.55	4	-11.55	13.92
Trails	1 mile/10,000	3.11	6.34	3.23	-2.76
Volleyball Areas	1/5,000	6.22	1	-5.22	6.17

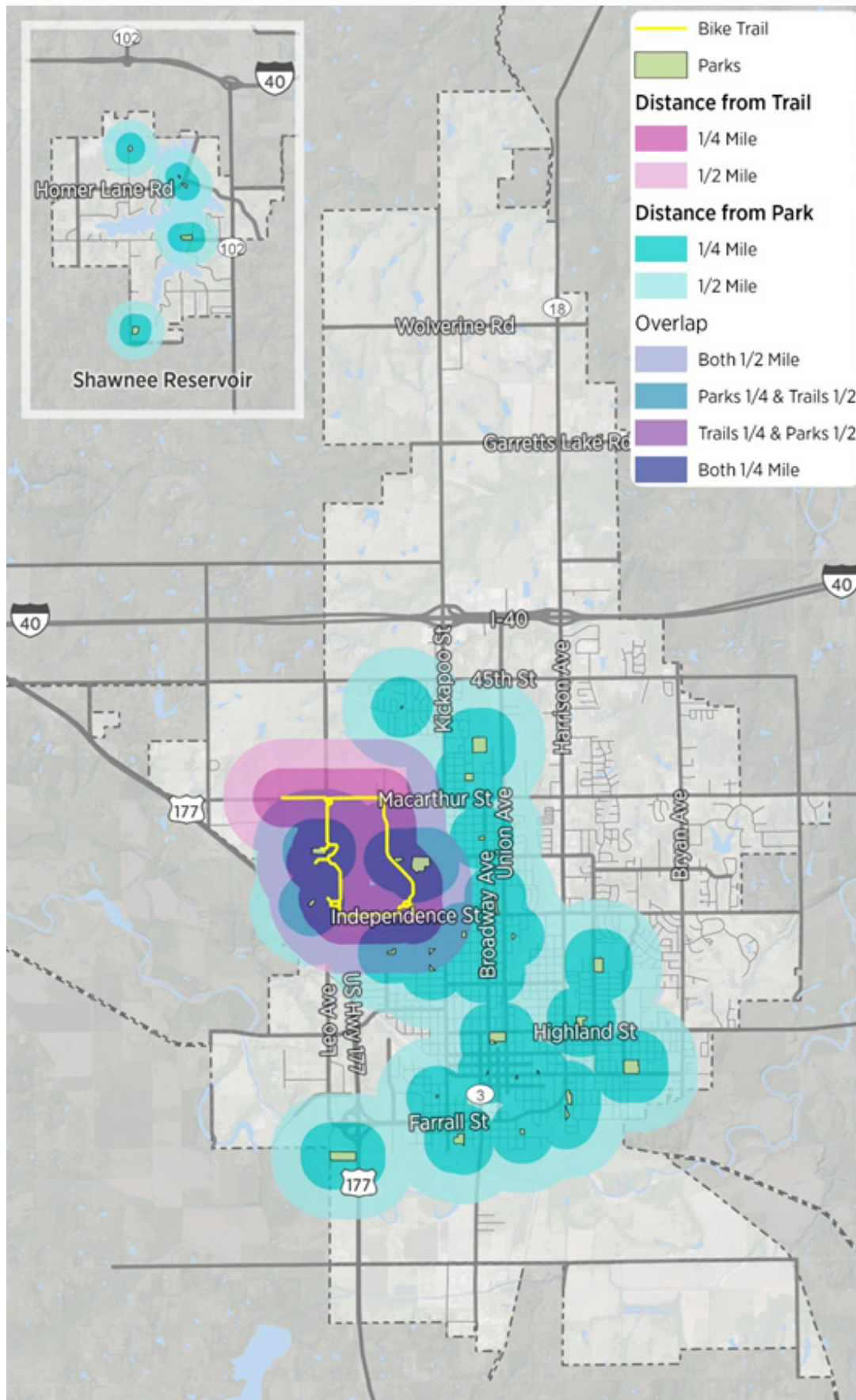
Source: National Recreation and Park Association; RDG Planning and Design

FIGURE 1.18: Park Service Areas



Source: City of Shawnee; RDG Planning & Design

FIGURE 1.19: Parks and Trails Service Area



Source: City of Shawnee; RDG Planning & Design

SHAWNEE TODAY: TRANSPORTATION

INTRODUCTION

The transportation system in Shawnee is largely dependent on the automobile. Over the years, the population grew alongside the growth of the automobile, which is reflected in the street system. A comprehensive transportation system goes beyond planning for the automobile and includes all modes of transportation such as pedestrians, bicycles, and transit. Shawnee has made strides to start a trail network, but much more can be done to make a well-rounded transportation network that includes pedestrians and bikes and improves the efficiency of motor travel.

KEY TRENDS

FUNCTIONAL CLASSIFICATIONS

Shawnee does not use a street classification system; however, the Federal Highway Administration identifies roadways based on their design and capacity including interstate, freeway/highway, arterial, collector and local roads. Beginning with highways, these roads have the lowest mobility but greatest access, moving down to local roads which have highest mobility and lowest access.

REGIONAL SYSTEM

The City of Shawnee's regional transportation system has good access via Interstate 40 to Oklahoma City or regionally via Highway 177.

LOCAL SYSTEM

The local transportation system for Shawnee includes the arterials, collectors, and local streets that provide access to housing, businesses, and public gathering spaces. Arterials within Shawnee have typically been spaced one mile apart, with collectors placed midway between. Some sections of the city, most notable in the core, have additional collectors at a quarter mile separation or less to move traffic more efficiently. These additional collectors do not generally connect outside their neighborhoods, often forcing more traffic onto already busy arterials.

MAJOR THEMES

MOBILITY APPROACH

The term "transportation" is often synonymous with roads and vehicles. While the automobile will remain a large part of the transportation system, the continued integration of alternative modes will improve access for all residents. After all, the focus of a transportation system should be to move people more efficiently, not cars.

ACCESS AND CONNECTIVITY

Piecemeal development often limits accessibility and connectivity for even the shortest errand. Improving access and connectivity in Shawnee relates to future development and also redevelopment in existing neighborhoods and commercial areas.

TRANSPORTATION OPTIONS

Residents have multiple transportation options available, however not all are created equal. The automobile has priority in the system, leaving pedestrians, wheelchairs/electric chairs, and bicyclists with limited safe options. This data is reflective of the community survey in which sidewalks and pedestrian paths, bicycle friendliness, pedestrian friendliness, trail connectivity, and awareness of transit rated highly inadequate.

TRAILS AND BIKE ROUTES

Shawnee has 6.33 miles of separated trails, or approximately .25 miles for every 1,228 residents. There are two separated trails, the Airport Track and Bryan Avenue, which are 10-foot wide dual-use paths for running and cycling. The complete Airport Trail loop is 3.21 miles and the Bryan Avenue path is just under 2 miles.

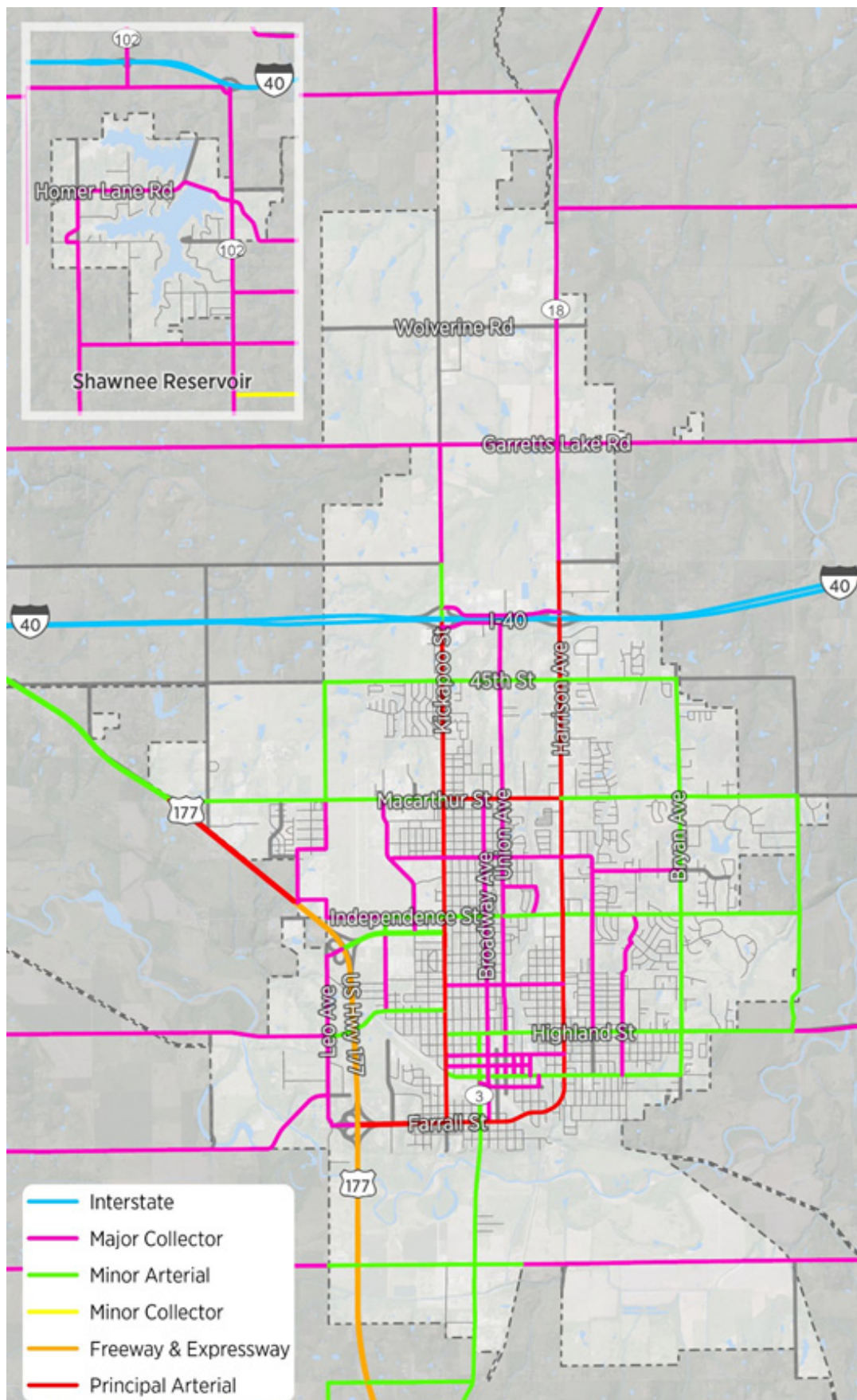
There are 15.39 miles of signed bike routes. No bike lanes are currently in place in Shawnee. These systems provide important connections to the existing off-street trails and sidewalks to link bicyclists to their destinations.

TRANSIT

Transit services are an important part of the transportation system, providing alternatives to vehicular travel for residents who can afford to or physically cannot drive to their destinations. Shawnee does not currently have a transit system, forcing residents to rely on Central Oklahoma Transit on a trip by trip basis. Providing a system with reliable routes and schedules for downtown, key shopping areas, schools, employment centers, and the airport would be an asset to Shawnee, but a challenge to provide given the current densities and funding sources.

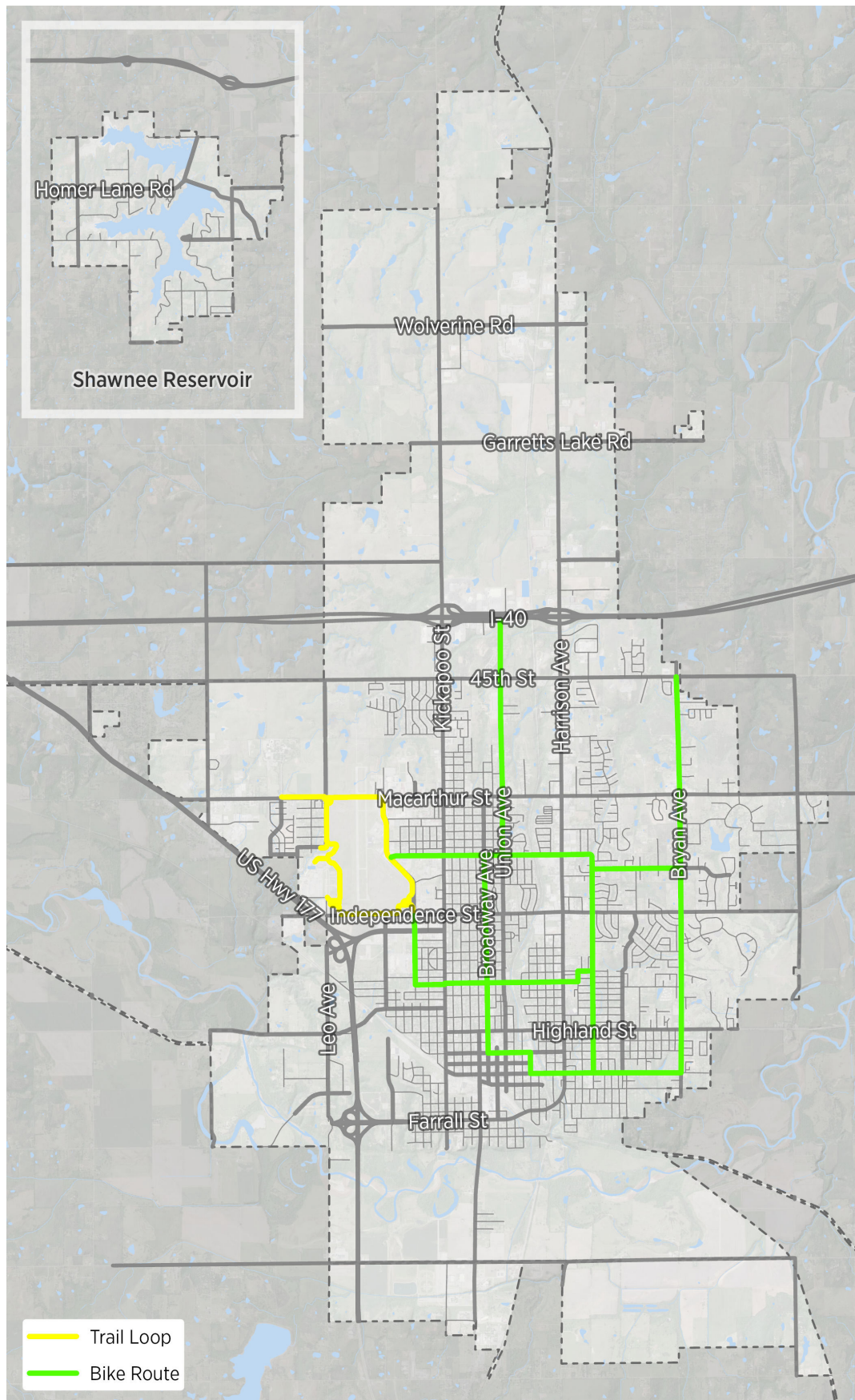


FIGURE 1.20: Functional Classification



Source: Oklahoma Department of Transportation

FIGURE 1.21: Trail and Bike Routes



Source: City of Shawnee; RDG Planning & Design

SHAWNEE TODAY: INFRASTRUCTURE

INTRODUCTION

Shawnee's infrastructure is a combination of water, wastewater, and stormwater systems designed to serve Shawnee's needs. These include:

- » Water supply, treatment systems, and a distribution system.
- » Wastewater collection, treatment methods, and disposal techniques.
- » Flood control and stormwater management.

KEY TRENDS

WATER SUPPLY, TREATMENT, & DISTRIBUTION

Shawnee's water comes from three reservoirs: Shawnee Twin Lakes #1 and #2 and Wes Watkins Reservoir. The Twin Lakes are located approximately 8 miles west of the City of South Deer Creek and were constructed in 1953 and 1960 by the City. The reservoirs are connected by a 10-foot deep equalizing channel. The City has full use of these reservoirs with their current permit allowing 8,000 acre-feet per year. The Wes Watkins Reservoir was constructed in 1997 by the Natural Resources Conservation Service. It is operated by the Pottawatomie County Development Authority and provides flood control, recreation, and water supply. Through a long-term contract, Shawnee can draw 4.250 acre-feet per year. The total storage capacity of the three reservoirs is 14,094 million gallons above the lower intake elevation.

A study completed in 2011 shows these reservoirs as adequate to handle average annual water demands of 4.7 mgd (million gallons per day) through 2060. If, however, the reservoirs reach an elevation of 1064 or lower, the City should require mandatory rationing. The average American uses 100 gallons of water every day. With a total capacity of 4.7 million gallons per day, the current water supply should handle the projected population growth.

Water is gravity fed from the lakes to the water treatment plant (built in 1980) at the southern end of the city where it is treated aggressively to remove particulates and is chlorinated to destroy pathogens. The water treat-

MAJOR THEMES

FOUNDATION TO URBAN LIFE

The city's infrastructure networks provide the foundation on which urban life in Shawnee is built. Without the water, sewer, stormwater, electrical, and telecommunication systems, the city would cease to exist.

CONSERVATION

Residents of Shawnee understand the importance of water, an often limited resource. The reduction of water use has many benefits including reduced operating expenses and operating without mandatory restrictions on water use.

EXTENSIONS FOR GROWTH

Whether fast or steady, the city will continue to experience growth. Meeting those demands through proper and efficient extension of services will ensure a system that can be supported and maintained by future generations.

ment plant has a capacity of 8.7 million gallons per day.

The water is then pumped to water towers throughout the city and again, flows by gravity to the homes and businesses. The City of Shawnee has four water storage towers with a total capacity of 2.5 million gallons. More than 150 miles of water mains and 10,000 water meters, and 15 miles of raw water lines comprise the water supply system. A major priority for the City is replacing the 30-inch line that delivers water from the Twin Lakes into the treatment plant.

WASTEWATER- COLLECTION, TREATMENT, & DISPOSAL

There are over 173 miles of sewer lines, collecting wastewater and delivering it to the wastewater treatment plants. Many of these sewer lines were constructed outside of the city limits and now that they have been annexed into the city fail to meet city code requirements. Some lines are undersized, while others are reaching their life expectancy.

The City of Shawnee operates two wastewater treatment plans, one of the south-side and one on the north-side with a total capacity to serve approximately 46,000 residents. The Northside Wastewater Treatment Plan has an operational capacity of 3 million gallons per day, while the Southside Plant can handle approximately 3.1 million gallons per day. The 2005 average operations were only 1.4 mgd and 2 mgd respectively. The Northside plant was built in 1982 when the city began expanding further north with new businesses and industrial development. The new growth has put a strain on the operational capacity of these plants, causing the city to investigate upgrades in recent years.

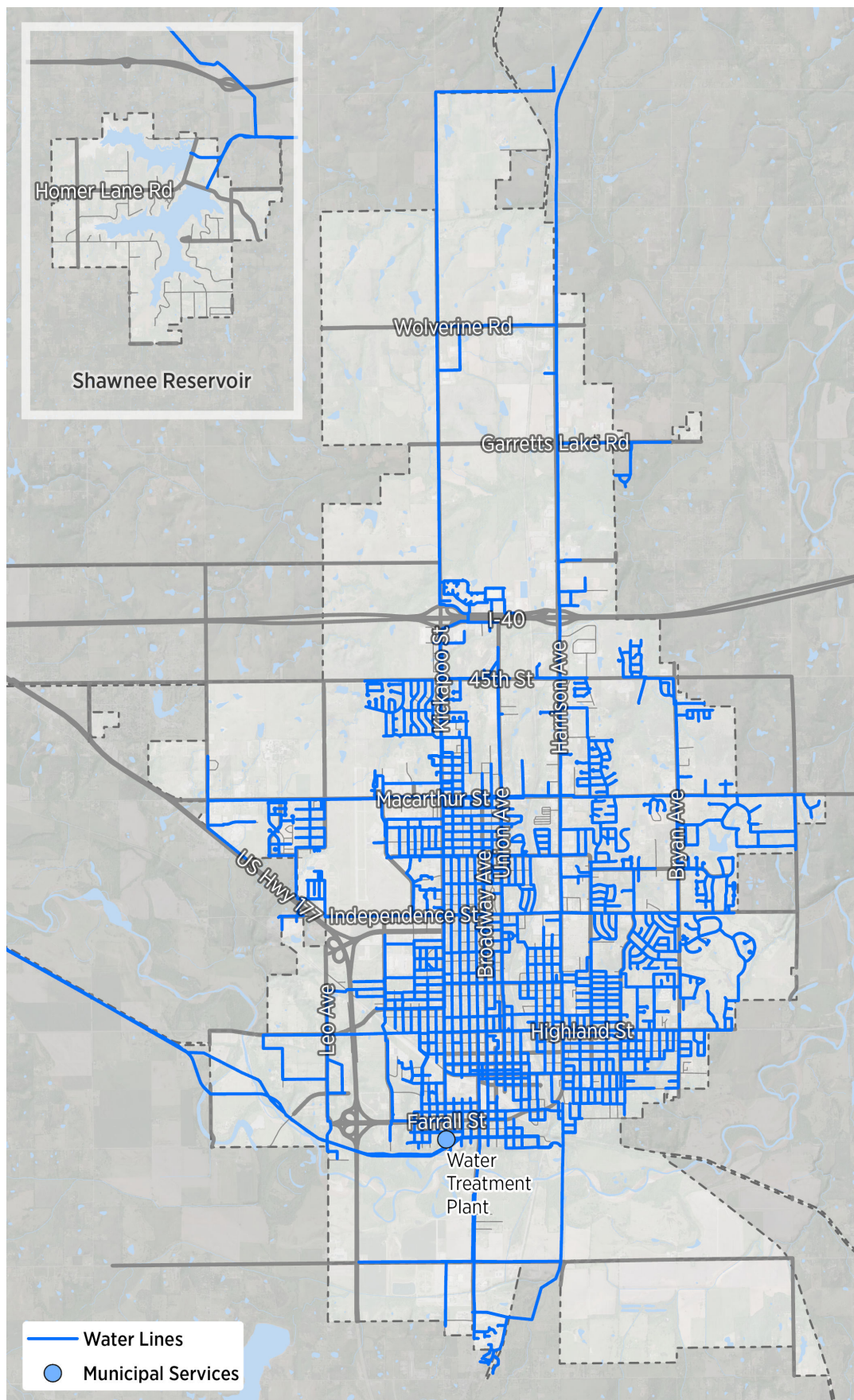
FLOOD CONTROL AND STORMWATER MANAGEMENT

Pottawatomie County has nine dams with three that would affect Shawnee if breached—Granda Lake (1976), Wes Watkins Reservoir (1994), and Shawnee Twin Lakes #1 (1935) and #2 (1960). The Pottawatomie County Hazard Mitigation Plan identifies the Granada Lake Dam located southeast of North Bryan Street and Granda as a high hazard. If breached, some residences could be affected within the Windmill Ridge and Woodlands neighborhoods. East Independence Street would be inundated restricting travel.

Failures of the Shawnee Twin Lakes dams would not affect the recreation area but would impact the agricultural and residential areas along the North Canadian River from I-40 to US 177. Major thoroughfares would be inundated and unpassable.

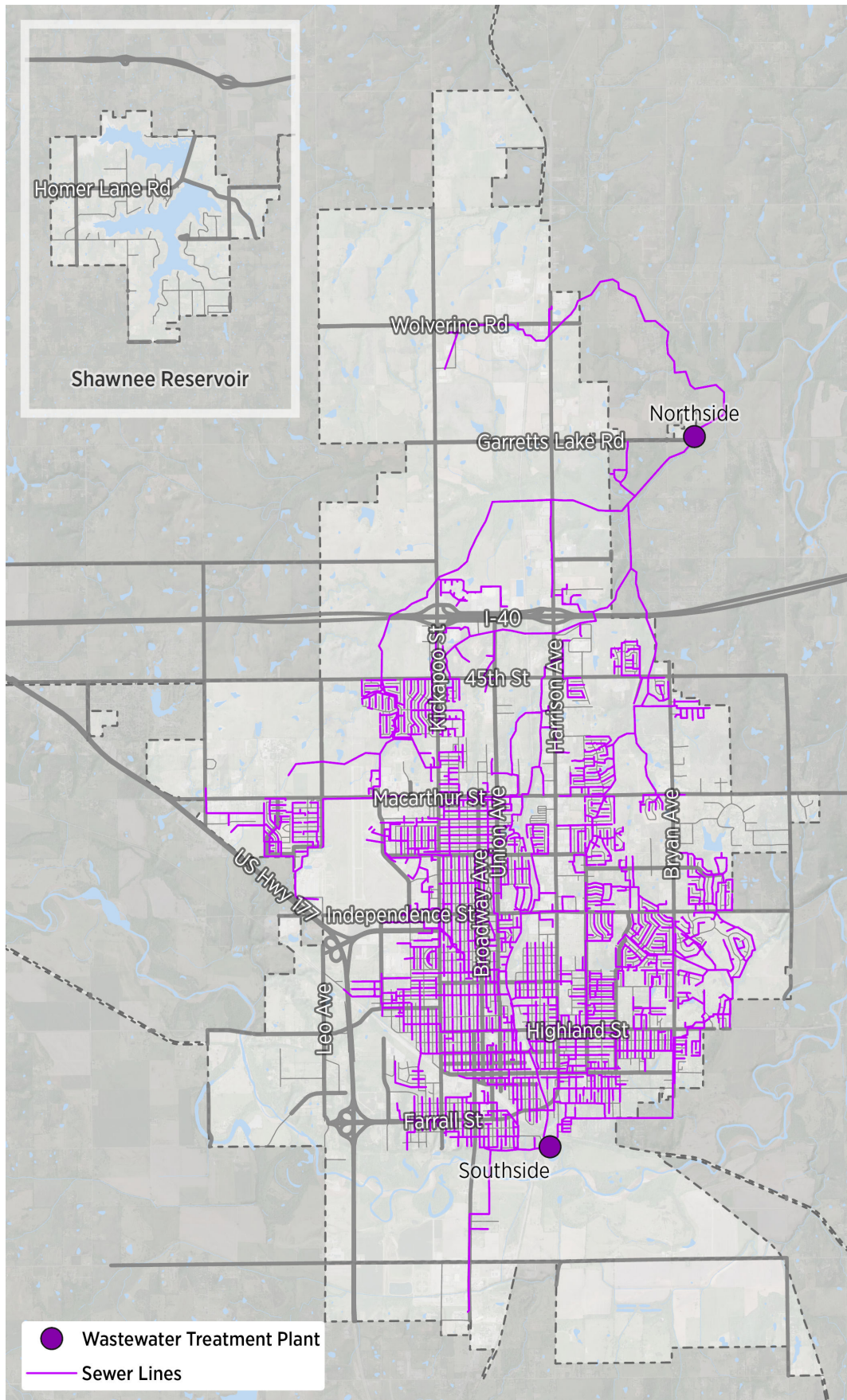
Stormwater within Shawnee is directed to the North Canadian River through stormwater pipes that vary in age. Some pipes are reaching the point of replacement, however there are not dedicated funds to do so. A stormwater impact fee is in the early stages of discussion among city staff. An impact fee could be used to update aging infrastructure and to create a master drainage

FIGURE 1.22: Water Supply System



Source: City of Shawnee

FIGURE 1.23: Wastewater Treatment System



Source: City of Shawnee

plan, another key document needed to maintain the stormwater infrastructure of Shawnee in good working condition. This is important given the amount of acres within the city currently located within the FEMA floodplain. It is expected that some areas of the community will be removed from the flood plain based on more accurate and current data with the most recent FEMA map updates set to come out within the next year.





CHAPTER 02.

ISSUES, CHALLENGES, AND OPPORTUNITIES

CONTENTS

- » Public Engagement Process
- » Challenges and Opportunities

MAJOR THEME

COMMUNITY IMAGE & DOWNTOWN REVITALIZATION

Arising from its static population and economy over the past few decades, the community began to look stagnant with a struggling downtown, aging infrastructure, and other related issues. However, it is clear from the many organizations in Shawnee that the community is anything but stagnant and efforts are made each day to improve the image of the community and revitalize downtown. These efforts should continue, be designed to build the capacity of the many partner organizations involved, and build energy for the next stage of the revitalization process.

EQUITY AND ENVIRONMENTAL JUSTICE

There is a sizable population in Shawnee disadvantaged by their circumstances, often a combination of personal, familial, and societal reasons. While it is not the role of a comprehensive plan to focus or adjudicate the cause of these issues, it is a strong tool to ensure these issues are not made worse. The U.S. Environmental Protection Agency defines Environmental Justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”

Both equity and environmental justice call for fairness in the application of policy and investment to provide the necessary help to those who need it; the Shawnee Next Horizons Plan views this as an essential element and its recommendations seek to achieve meaningful progress specifically through its housing, mobility, public art, and parks elements.

HOUSING QUALITY AND AFFORDABILITY

A component of community perception is the quality of housing relative to both its cost and the financial wherewithal of the perspective buyer. When a perspective buyer is looking for housing they are looking for a place where they will feel comfortable, safe, and where their investment will make financial sense long-term. They are looking for a home that is affordable to them. Inherently, this means that a market must offer quality products at a variety of price points to serve the demand of users within stable neighborhoods. In Shawnee, the lack of housing production and the homogeneity of housing products has led to depressed quality and values.

EDUCATION AND FACTORS RELATED TO COMMUNITY QUALITY

A primary area of discussion throughout the process was on topics that are not easily addressed through a comprehensive plan such as education, wages, and regional social safety nets. These topics are important and strongly contribute to the perception, appeal, and function of a community but are difficult because they fall outside the direct control and responsibility of the City of Shawnee. To support the improvement of the many factors that fall into this category, the Shawnee Next Horizons Plan offers the following tools:

- » **Goals and Principles.** The plan articulates a series of goals and principles Shawnee should seek to achieve. Generally, a goal can be thought of as the distant point on the horizon that the community is walking toward – every time a choice is made to take a different path, it will take the city closer or further from its destination. These goals are relevant to the City of Shawnee and its many partners and can be used as a guide to achieving progress most efficiently.
- » **The Power of Partnerships and Aligned Actions.** While the City of Shawnee may not have the sole responsibility or ability to make something happen, it can advance the idea toward its ultimate goal through small decisions, policies, and investments; if the many stakeholders such as the school district, university, tribes, foundations, and many more, in a similar position were to make similar actions, the ceiling of what is possible changes.
- » **Implementation Chapter as a Guide.** This plan is designed to be used. Building upon itself from goals and principles to the projects, policies, and partnerships, the implementation chapter is structured as a call for collaboration in pursuit of Shawnee's best future.

HEALTH – COMMUNITY, CIVIC, AND INDIVIDUAL

“Community” has many definitions but all acknowledge it as a collective with tremendous depth. From individuals, groups of individuals, the social and economic interactions amongst groups, to the physical places where they reside. A healthy community must support physical, social, and civic health at each of these levels. Community health at each of these scales underpin the purpose and intent of this plan.

INTERGOVERNMENTAL COOPERATION AND COMMUNITY PARTNERSHIPS

Expanding the definition of “community” a bit further, the City of Shawnee is a member of a larger community comprised of organizations, governments, and leaders including the sovereign native governments, Pottawatomie County, the school districts and university, local foundations and non-profits, and the State of Oklahoma. All of these organizations and agencies want to create a better and stronger Shawnee and Pottawatomie County and working together the region can achieve great things.

PUBLIC ENGAGEMENT PROCESS

For a plan to truly capture the spirit, aspirations, and opportunities of a community it must be developed side-by-side with its people. From the outset, Shawnee's leaders recognized the importance of engaging residents and stakeholders at the foundation of this process and the Shawnee Next Horizons Plan has stayed true to this intent by integrating hundreds of local voices into the core of this planning document. This section will summarize the process, explore the challenges and opportunities voiced, and articulate the major themes the community desires to address with this comprehensive plan.

STEERING COMMITTEE

The Shawnee Next Horizons Steering Committee was an important team of decision makers, engaged citizens, and representatives. This group of 20 individuals was assembled to represent the community through the process. The steering committee met throughout the development of this plan, reviewed progress, guided the overall direction of the plan, and ensured the people's voices were well heard and considered.

FOUNDATION DOCUMENTS AND DATA REVIEW

Public voices should not disappear after a planning process but should instead live on through planning documents. Background materials related to the existing comprehensive plan, strategic plans, related studies, the economy, reports generated by related organizations, and other factors were explored to leverage engagement and planning efforts that had been completed previously. This data collection provided the starting point for building this plan and introduced the planning process to the advisory committee, decision-makers, and the public-at-large.

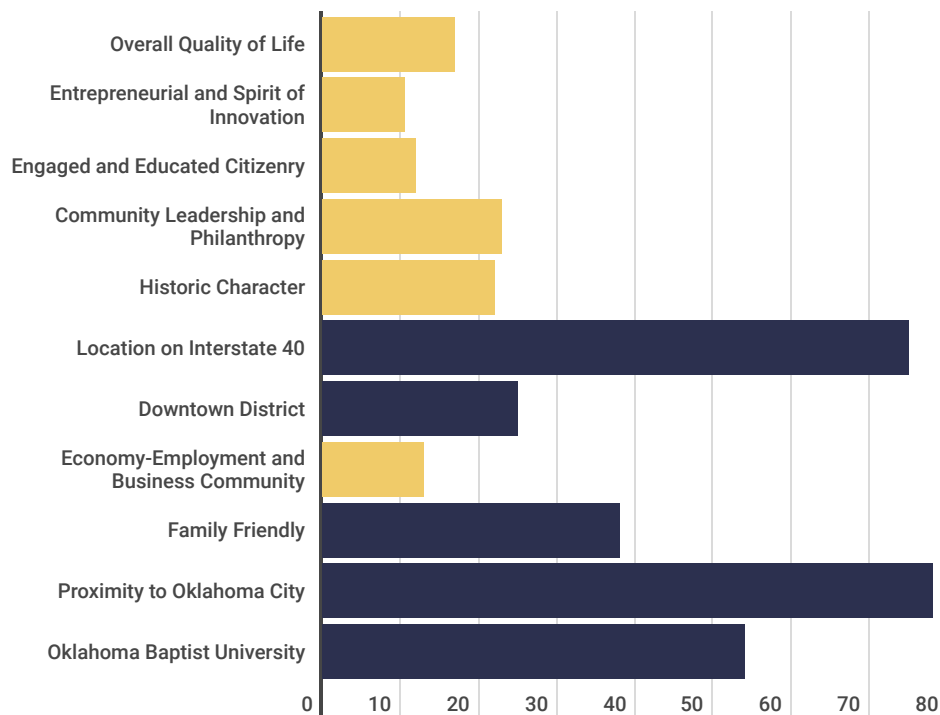


COMMUNITY SURVEY

At the beginning of the project, an online survey was developed to solicit input from members of the community. The survey was open for 5 months, was taken by 178 respondents, and solicited approximately 57 open ended comments. The survey was used to raise topics for broader conversation, reinforce themes, and build engagement in the project as a whole. While the survey is not contained in its entirety, noteworthy findings include:

- » Top ranking transportation items included access to Interstate 40, street connections, street signage, and traffic speeds and safety.
- » Poorly rated transportation infrastructure included sidewalks and pedestrian paths, bicycle and pedestrian friendliness, connectivity of trails, and transit awareness.
- » Overall, residents are happy living in Shawnee and feel there is strength in community institutions and high civic involvement and volunteerism.
- » Shawnee's top three assets include proximity to Oklahoma City, location on Interstate 40, and Oklahoma Baptist University.
- » The top three priorities included strengthening downtown as a destination, improving and increasing walking and bicycle facilities, and improving infrastructure in older neighborhoods.

WHAT DO YOU BELIEVE TO BE SHAWNEE'S GREATEST ASSETS?



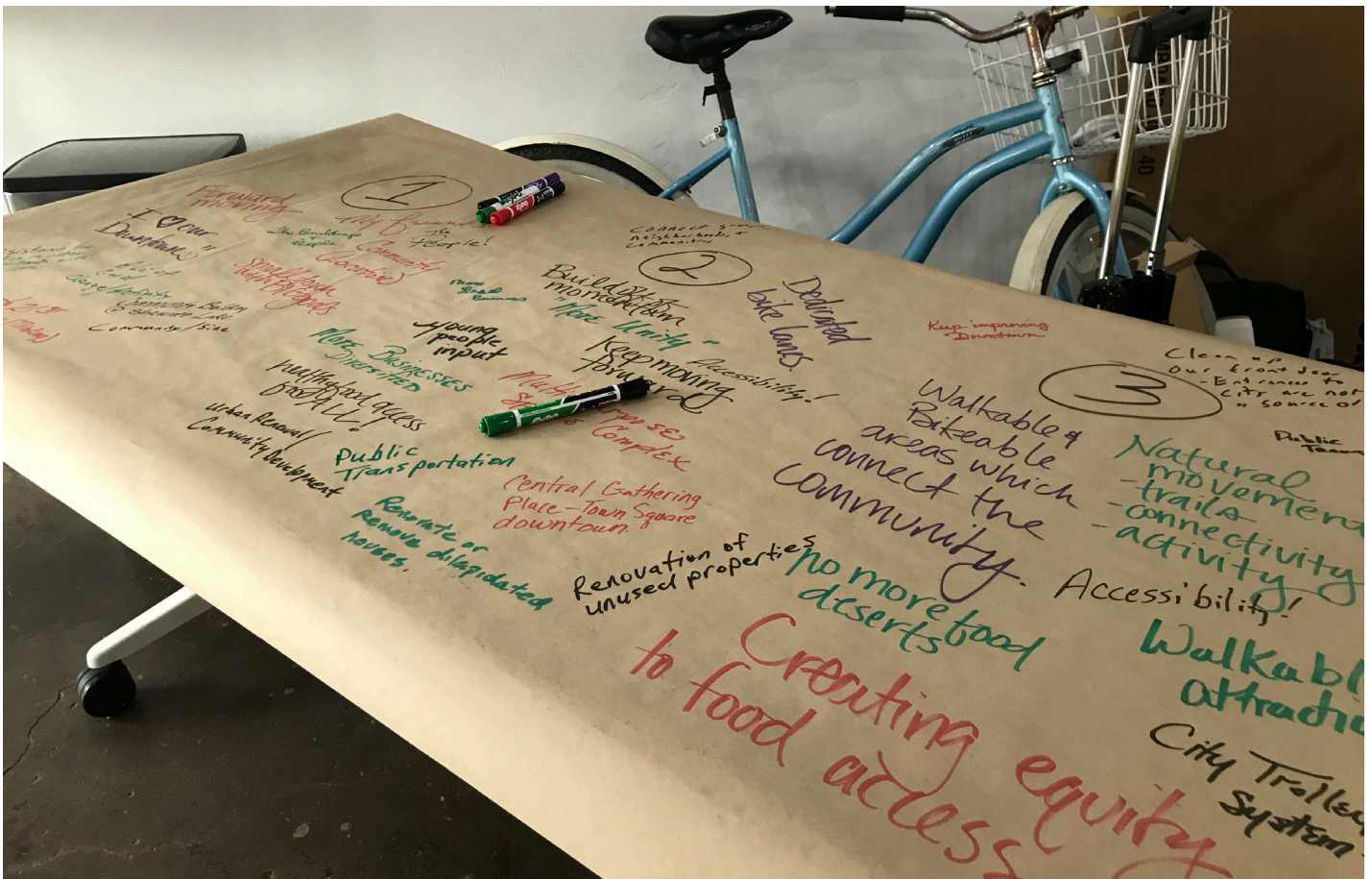


STAKEHOLDER GROUP DISCUSSIONS

Throughout the process, the planning team conducted a series of small group discussions around diverse topic areas. The stakeholder groups were assembled of engaged residents. Well-versed in certain aspects of the community, the stakeholders offered insight into the issues and opportunities of the community by topic area. The diversity represented in each stakeholder group led to dynamic and engaging discussion about the future of Shawnee including its opportunities and challenges.

In total, five stakeholder discussions were facilitated with the following representatives:

- » Non-Profit Entities
- » Local Businesses
- » Governmental Groups
- » Education Representatives



PUBLIC EVENTS, WORKSHOPS, AND CELEBRATIONS

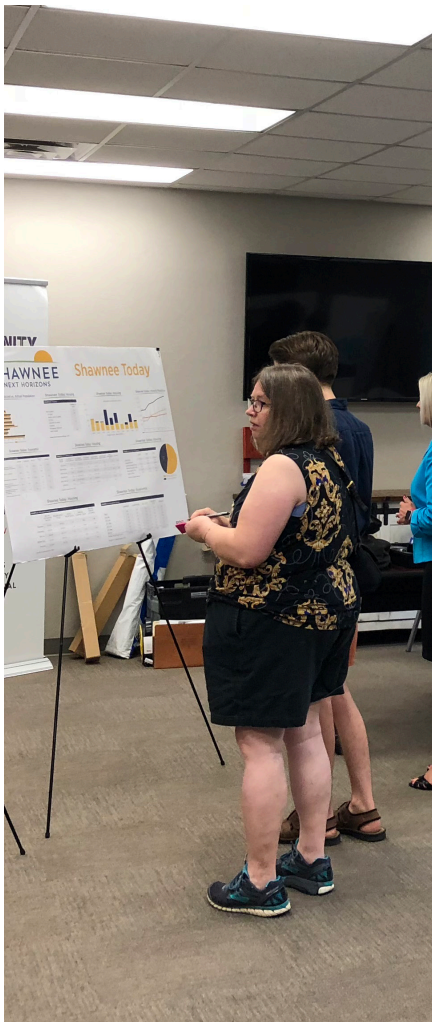
To energize the community, public events were designed to be celebratory, interactive, and evolve throughout the process to offer a unique experience. While the process was interspersed with a series of smaller meetings with a variety of groups, it was designed around the following milestone events.

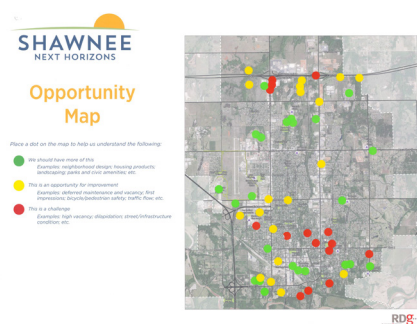
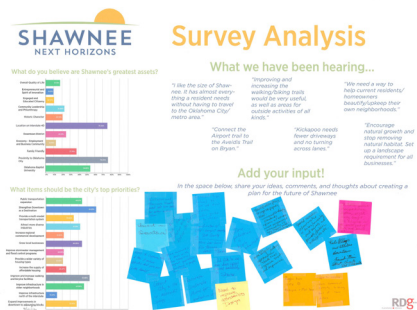
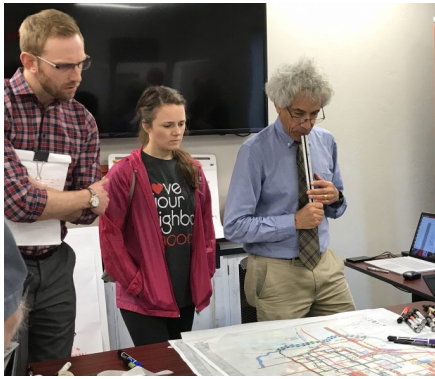
COMMUNITY KICKOFF

The Shawnee Next Horizons planning process started with a Kick-off meeting at First Christian Church in June of 2018. At this event participants learned about the process and participated in tabletop discussions around transportation, land use/growth directions, housing and neighborhoods, community image, downtown, parks and recreation, and municipal services. Ahead of this event the planning team also attending a Blue Zones bike tour and walking audit in March of 2018.

“Improve code enforcement, make people clean up properties.”

- Survey Response





COMMUNITY DESIGN STUDIO

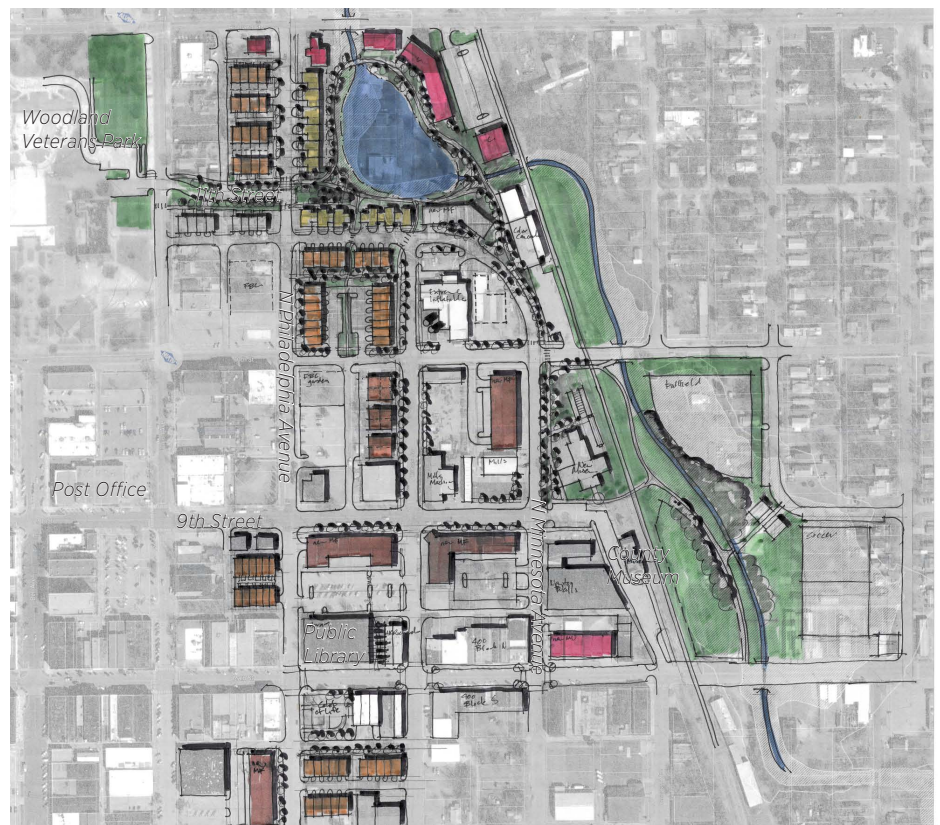
At a mid-point in the project, residents and stakeholders were once again invited to come together. This time, they worked side-by-side with the planning team to generate a physical development plan for the City of Shawnee. With events at the Blue Zones Office in downtown, at the New Beginning Church, and at the Community Renewal offices, the studio attracted approximately 33 participants who enjoyed the fun and collaborative event.

DOWNTOWN AND CORRIDOR DESIGN STUDIO

Where the Community Design Studio focused on creating a physical development plan for the entire city, this workshop targeted the enhancement of specific areas of the city including downtown and its principal north-south arterial streets. The event was hosted at the Community Market of Pottawatomie County, at a local downtown business, and the Shawnee Public Library and attracted over 20 participants.

FINAL PLAN OPEN HOUSE

The nine month process included many opportunities for members of the community to contribute their ideas and input on areas of the plan as it developed from mere ideas to investment and policy recommendations. Near the end of the process, stakeholders were invited to see their plan, its big ideas, and recommendations. This event was designed to welcome ideas and contributions between the plan was produced as a final draft for consideration by the City Commission. The event was hosted at Shawnee Forward and Community Renewal of Pottawatomie County.



Details on Downtown concept are found in Chapter 6, drawing on page 134

APPROVAL MEETINGS

The process was designed to ingrain public input throughout the course of the project into the foundation of the plan. The majority of residents (including city officials) voiced their opinions early on, had their ideas incorporated into the plan, and reviewed plan content at the final plan open house. The approval meeting by the planning commission and the City Commission were attended by ___ residents.

CHALLENGES AND OPPORTUNITIES

From hundreds of conversations, e-mail and survey contributions, and written comments at public meetings, stakeholders have raised a variety of challenges and opportunities that can be addressed or embraced by a community development plan. The purpose of this section is to explore and extract these challenges and opportunities from the entirety of the public engagement process.



DOWNTOWN, VACANCY, AND HOMELESSNESS

Many comments and discussions gravitated toward the perception of downtown. At first glance, downtown does have an issue with homelessness and commercial vacancy; however, it also has a momentum building at or slightly beneath the surface. Buildings are being renovated and re-occupied, the streetscape was reconstructed and beautified, and facades have been restored, one by one. Unfortunately, this energy is slow moving considering the scope of issues creating the negative perception.

Downtown should be considered both a challenge and an opportunity. While it will be difficult, slow, and costly, the revitalization of downtown Shawnee is a worthwhile endeavor that will help improve the trajectory of the community as a whole.



COMMUNITY IMAGE

Local stakeholders conveyed through a mix of direct comments but more often through tone, feeling self-conscious of how their community looks and how it is perceived by neighboring communities. While many conversations focused on broad topics such as older school facilities or downtown, many focused on more specific issues such as community gateways and major corridors, deferred maintenance on residential and commercial properties, or items such as unkept lawns or outside storage. Community image is a difficult challenge that was not created overnight, likewise, cannot be remedied overnight. Instead, a community image is improved gradually through a focus on mitigating the worst offenders and addressing 'low hanging fruit' to gradually increase local pride. Campaigns such as community led art projects can start to address some of these concerns.

COMMUNITY HEALTH

Community health was a major conversation in Shawnee due to the energy generated by the Blue Zones Initiative. This momentum carried forward into discussions related to community growth, reinvestment, and policy initiatives as a major opportunity for the comprehensive plan. Topics pertaining to community health included: trail development; bicycle and pedestrian transportation; safe routes to schools; creating a local food network, and building the next generation of local leadership. In addition to being an actionable topic, it is also an opportunity for Shawnee to differentiate itself from its neighbors.

NEIGHBORHOOD APPEARANCE AND QUALITY

Individual neighborhood image came up as a regular topic. While similar and correlated with community image, the quality and appearance of neighborhoods has a more direct impact on whether an individual chooses to buy a home and, if so, what they are willing to pay for it. The frequent case of neighborhood decline often occurs gradually when one or two houses on a block suffer from disinvestment or deferred maintenance; from this, others question whether it is worth reinvesting in their properties.

Shawnee and its partners have been active in trying to improve the stability of its neighborhoods and connect jobs on the north side with housing on the south. The not-for-profit, Community Renewal, has been building a network of engaged block-captains while the City and the Avedis Foundation have been active in improving neighborhood amenities such as trails and sidewalks. This energy, in concert with additional investment and new policies, can begin to address this challenge.

THE LAKES AND ST. GREGORY

Geographically remote, the lakes are located approximately three miles west of the city core. While not a frequent topic of conversation, several respondents mused about the plan for the lakes; will they remain passive, should they integrate more commercial, and is there a way for them to serve a greater role in Shawnee and in the region in terms of economic impact, community signature, and as a local amenity. Because it is not a challenge, it should be considered an opportunity or at least a question to begin answering.

Likewise, the bankruptcy and liquidation of certain assets belonging to St. Gregory's has caused the community to wonder. An impressive campus that will remain home to the founding monks, the long-term future of the St. Gregory property (aside from any land set aside) should be viewed as an opportunity for the community.

OKLAHOMA BAPTIST UNIVERSITY

Oklahoma Baptist University has a significant role in the development of Shawnee. The University attracts a growing population of young adults, however retaining this group after graduation is a challenge. Partnerships between the University and the community should focus on how the retain a higher number of students to stay in Shawnee, establish careers, and start families.





CHAPTER 03.

SHAWNEE INTEGRATED LAND USE

CONTENTS

- » An Integrated Land Use Vision
- » Growth Considerations
- » Policy Areas
- » Land Use Framework

AN INTEGRATED LAND USE VISION

The form of urban development arises from a combination of forces including transportation patterns, private and public land development, and environmental constraints. An integrated land use vision was developed from detailed study of the community including its growth patterns, pressures, and personalities.

DEVELOPMENT PRINCIPLES

USE URBAN SERVICES EFFICIENTLY

Contiguous and compact development, similar to the city's historic patterns, helps preserve the character of Shawnee as it grows. This type of development reduces costly infrastructure extensions such as water, sewer, and roads by developing on under-utilized infill properties or in strategic areas adjacent to existing development. Contiguous development minimizes travel distances and encourages development that is more accessible to both pedestrians and cars.



PROMOTE DIVERSE HOUSING OPTIONS

Residents have expressed a clear desire for more diverse housing options, at prices that more people can afford. At the same time, housing needs and preferences are diversifying. The Baby Boomer and Millennial generations are demonstrating a growing preference for smaller lot homes and multi-family housing, in addition to a continued interest in traditional single family homes. A mix of entry level housing options will be important to attracting and retaining young professionals. This diversity can be provided through a mix of new housing units and the conservation of existing housing units.



PROMOTE INFILL DEVELOPMENT

Infill development supports the economic value of Shawnee's existing neighborhoods by promoting investment in established areas with existing capital assets, rather than solely at the fringe. Infill development helps make full use of existing infrastructure, thus limiting unnecessary expansions and associated expense. Such developments are appropriate when they respect the character of the surrounding neighborhoods.



PRESERVE AND CONNECT DRAINAGEWAYS AND FLOOD ZONES

Preserving wetlands, low lying areas, and floodplains can protect property values for adjacent and downstream developments. In addition, it enhance and connects the park system, reduces flooding and lowers development costs by providing more natural areas for water to be absorbed while reducing the amount of fill needed on a site. A network of natural preserve areas will enhance community character, protect existing properties and future development areas, and avoid short term rewards with long term costs.



PLAN FOR COMMUNITY AMENITIES

Parks, open space, schools, and other public places can serve as neighborhood focal points that promote community activity, personal interaction, a sense of place, and ultimately a sense of ownership in the community. In 2018 voters approved initiatives for additional funding for several city projects including implementation of the Parks Master Plan Design, sidewalks and trails, and improvements to the senior center, community center, Santa Fe Depot, and library. This demonstrates the desire many residents have for quality public services. Public art installations and venues, in co-operation with the private sector, should be incorporated into these amenities. One way the city could fund public arts projects is through a 1% for the arts program.

PROVIDE A MULTI-MODAL AND CONNECTED TRANSPORTATION NETWORK

A network of streets, trails, pedestrian paths and on-street bike facilities should provide safe, efficient connectivity and accommodate a diverse set of mobility needs and preferences. Although not every street can or will accommodate all modes of transportation, Shawnee residents want to see more bike and pedestrian options and new developments and redevelopments need to accommodate these options.

ENHANCE PUBLIC SAFETY AND MINIMIZE HAZARDS

Land use decisions have a wide variety of effects on public safety and hazard mitigation. Preserving natural drainage-ways to manage stormwater minimizes the risk of injury and property damage due to flooding. A well-connected transportation network promotes better emergency service provision and evacuation routes in case of large-scale hazards. A mixture of land uses within neighborhoods enhances security by creating activity and “eyes on the street” throughout the day.

ENCOURAGE BALANCED AND CONNECTED NEIGHBORHOODS

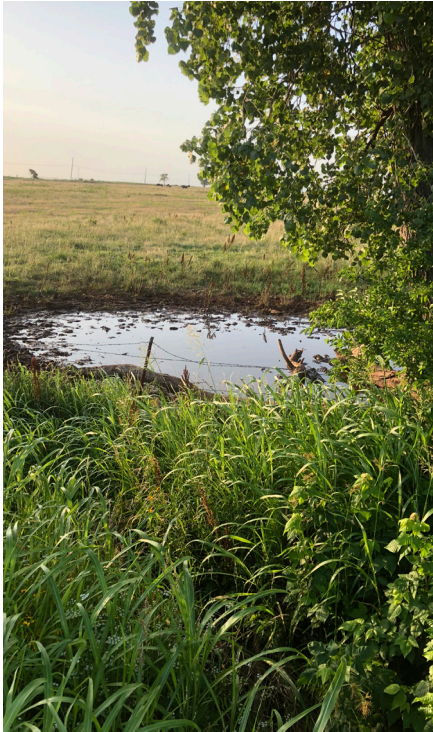
Balanced neighborhoods provide residents with easy access to a variety of places to live, shop, work, play, and engage in community life. Mixing compatible uses, such as a corner store or school in a residential neighborhood, creates a sense of community and promotes efficiencies in infrastructure and travel times. Balanced neighborhoods offer a variety of housing options, access to open space, and contain activity centers such as parks, schools, civic centers, or commercial areas that are well connected to surrounding neighborhoods. Appropriate transitions should be made between higher intensity uses, such as industry, and lower intensity uses, such as homes. The zoning code and subdivision regulations should be updated to support these environments.

USE PUBLIC INVESTMENTS TO PROMOTE PRIVATE DEVELOPMENT

Shawnee’s public investments in streets, water, sewer, parks, and civic facilities can be leveraged to promote private investments. When strategically located, a new park or public building can inspire private residential development, while targeted infrastructure improvements can attract new industry. Any infrastructure extension should be done with the goal of maximizing private investment, thus supporting the long term costs associated with the infrastructure or facility.

MAKE DECISIONS IN A TRANSPARENT AND COLLABORATIVE MANNER

Land use and environmental decisions should be made through a transparent process, with opportunity for input from all citizens and affected entities, such as the county, native tribal nations, or school district. Creation and implementation of land use decisions should be shared responsibilities that promote quality living environments and efficient use of fiscal resources.



GROWTH CONSIDERATIONS

Land use patterns and the demand for growth areas is influenced by many factors. Land use directions are most commonly influenced by environmental and man-made factors. These factors guide or even push development to occur within certain areas and in certain forms. The amount of land needed to support growth can be influenced by the same factors along with market preferences.

ENVIRONMENTAL BARRIERS

Environmental features in any community can be viewed as both major hurdles and as tremendous assets to a city's future growth. Preserving floodplains, prairies, or other native features can increase property values for adjacent development, enhance and connect the park system, protect plant and animal habitats, and reduce flood risk by providing natural stormwater drainage. Environmental features can also have a significant impact on development costs, specifically related to infrastructure. Drainage patterns may require sewage lift stations or water pumps, all adding to the cost of development. In the past costs such as elevating a property out of the floodplain have been viewed as acceptable but the impacts of those decisions to surrounding properties have resulted in greater prohibitions to these types of developments.

Shawnee's environmental assets are reviewed in Chapter 1 and three core themes are identified:

- » Growth within environmental constraints to control deforestation
- » Drainages as opportunities
- » Using native landscaping in new developments
- » Embracing the river

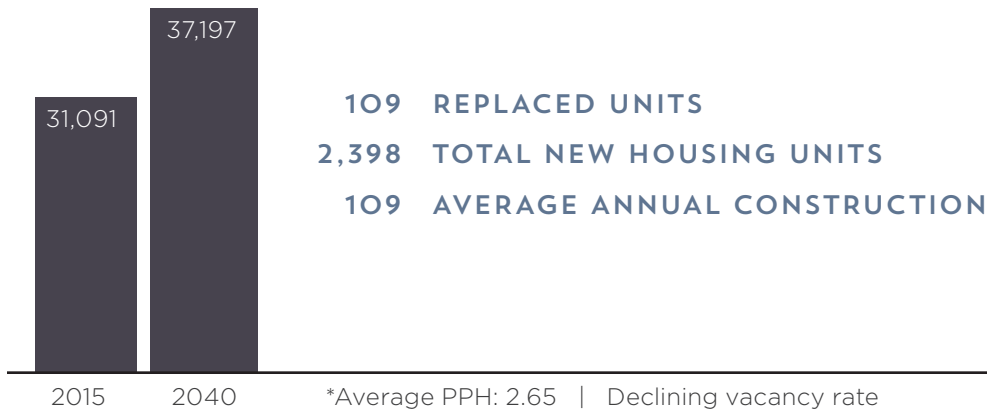
For Shawnee, awareness of these themes as it relates to future development should create safe, healthy, and inviting environments.

MAN-MADE BARRIERS

In addition to natural features that can direct development, man-made features can also impact new development. These constraints can vary from the highly visible, like a major transportation corridor, to less visible property ownership lines. Extending infrastructure across interstate or rail corridors can have added costs and decrease connectivity. Ownership and jurisdictional lines can leave gaps in development, or leap-frog patterns that add costs to infrastructure extensions. These last hurdles can be mitigated through negotiations and taking a more regional partnership approach but can often take significant time to resolve.

Both types of man-made barriers exist within Shawnee. While major built features are not changing any time soon they can be mitigated through thoughtful and guided development. Less visible ownership and jurisdictional barriers must be consistently managed through open and honest dialog.



FIGURE 3.1: Housing Demand at 0.75% Annual Growth Rate

HOW MUCH WE GROW

The conversations with residents and business owners clearly identified a potential for stronger growth. Chapter One outlined the historic trends within the community, which showed growth since the 1960s but even more growth within Pottawatomie County.

Figure 1.3 (page 21) identified a growth trend based on a 0.75% annual growth rate. This rate is slightly above the past 20 year trend but creates a conservative target that matches the aspirations of the community which includes attraction of young families and the next generation of entrepreneurs. At this rate of growth the city's estimated population in 2040 would be just over 37,000.

LAND USE GROWTH

To support population growth the city must plan for additional housing and job centers in the form of new development or redevelopment of under-utilized land.

With a population of over 37,000 by 2040 the city will need to add housing. At the same time a number of dilapidated and outdated structures will need to be removed from the supply (thus lowering the city's vacancy rate). To support growth the city will need to add approximately 109 units annually. This covers all types of units, including single-family detached, single-family attached, townhomes, and multi-family units. (Gaps in affordability is reviewed on page 30 and housing strategies are discussed in Chapter 7: Housing & Neighborhoods.)

This production rate is slightly below the city's ten year average of 116 but reflects the need to lower the city's vacancy rate from 12.6%. A city's vacancy rate is lowered through demolition of vacant obsolete structures or rehabilitation of those units. The Shawnee housing demand model assumes that both of these will need to occur over the life of this plan in order to create healthy vibrant neighborhoods.

LAND USE GOALS

Not every land use decision over the next twenty years can be anticipated in this plan but through the planning process residents identified how they want their community to look and feel in the future.

- » Growth should be geographically incremental, connected to existing infrastructure, neighborhoods, and community destinations.
- » The city should ensure new development contributes to the community’s character.
- » Ensure development in Shawnee and its periphery preserves environmental features.

FIGURE 3.2: Future Land Needs, 2019-2040

LAND USE TYPE	PROJECTED NEED (ACRES)	ACRES DESIGNATED FOR PLANNING PURPOSES
Residential	519	1,039
Commercial/Industrial	210-474	314-711

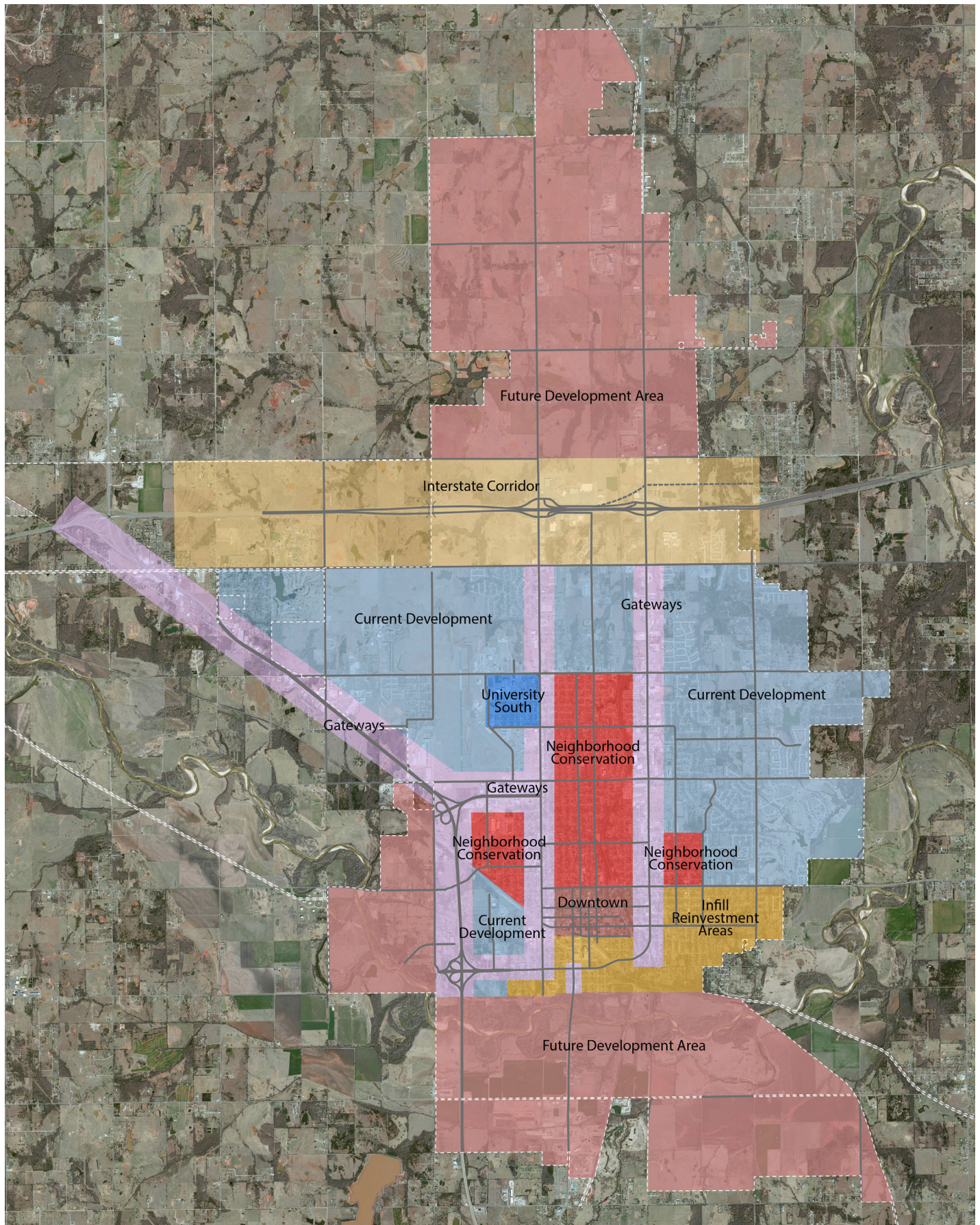
Source: RDG Planning & Design, 2019

The land use planning process gave residents an opportunity to make choices about what type of community they want to live in and leave for their children and grandchildren. This included:

- » Creating quality neighborhoods and developments that are accessible to all modes of transportation.
- » Housing variety beyond traditional single-family detached and multi-family units. Each policy area includes a recommendation of housing type. Generally, high density multifamily developments should be directed toward major corridors, while attached single family dwellings and townhomes should be used as a transition to established single-family detached neighborhoods.(For additional information on housing strategies see Chapter 7: Housing & Neighborhoods.)
- » Awareness of long term costs of development patterns. Extra miles of roads, sewer, and water lines create additional maintenance and staffing costs for a city.

Reinvestment in the city’s existing infrastructure and housing stock is important, but it will not be enough to support the varying desires of a growing population. However, new growth must reflect the items noted above and be done in the most efficient pattern possible. Figure 3.2 illustrates a land use scenario that assumes a greater mix of housing densities and the necessary commercial and industrial growth to support population growth. Where this growth occurs depends on property owners, thus the land use plan illustrated later in this chapter reflects more acres than needed to address these market forces.

FIGURE 3.3: Development Policy Areas

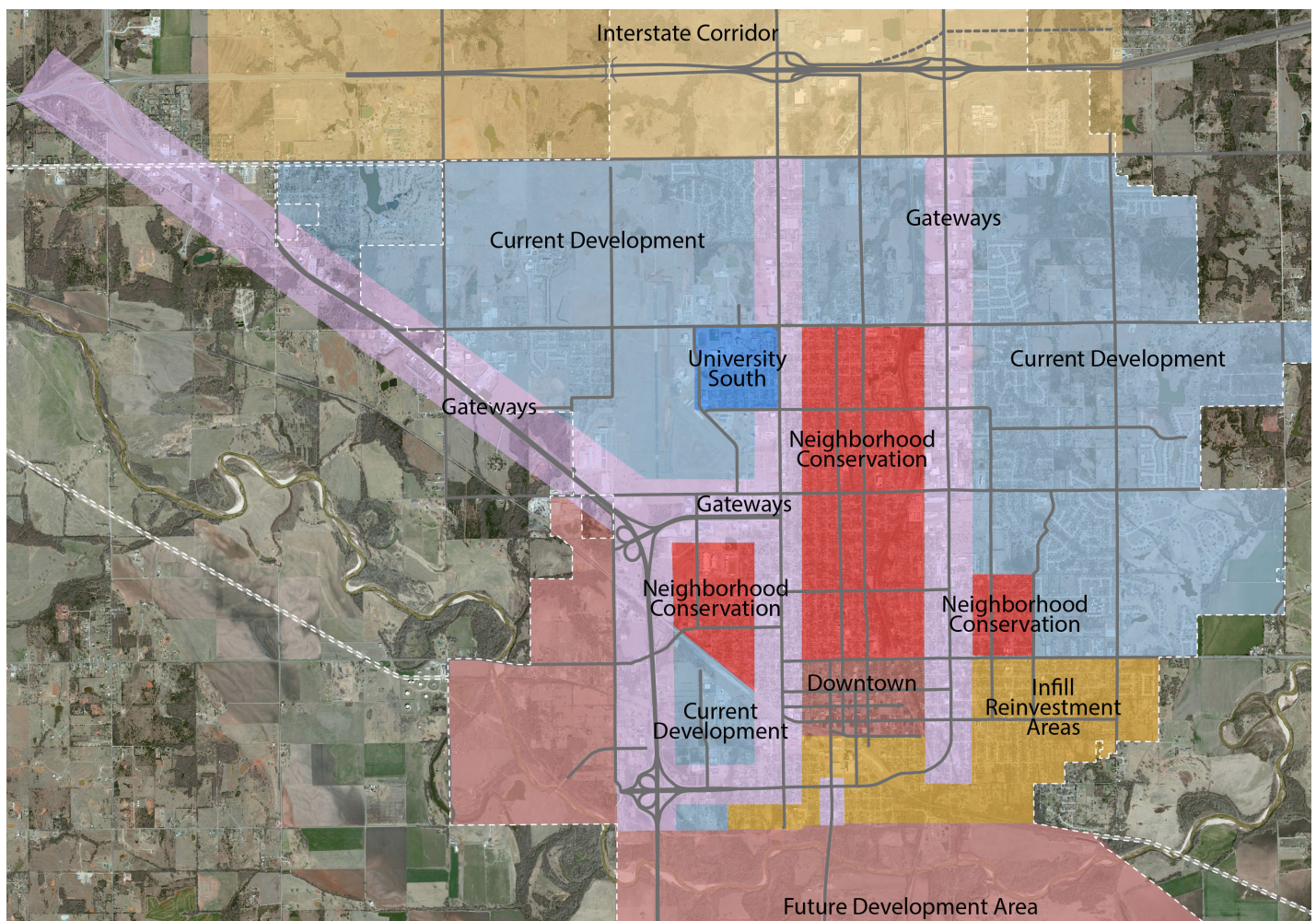


POLICY AREAS

Drawing on the key themes from Chapters 1 and 2 and guiding principles identified in this chapter, general development policies can be tailored to the city's unique development areas. For planning purposes, the city is divided into nine areas that share common issues, challenges, and opportunities. The policies identified in the following section should be viewed from a big-picture perspective, with the goal of balancing neighborhoods and providing quality living environments across the city.

GATEWAYS AREA

The Gateways are the corridors or entrances to the community. The areas surrounding these corridors are composed mostly of commercial uses but include pockets of industrial and residential uses. These corridors are the first and possibly only impression many people have of the city. Establishing a quality first impression builds pride among residents and establishes a strong first impression for those considering attending OBU, moving a businesses, or moving their family to the city.



ISSUES FACING THE AREA

- » **Corridor character and appearance.** While some sections of the Gateways offer a positive first impression, including sections of Kickapoo on the north and the entrance of Harrison off of the interstate. However, at other points deteriorated and abandoned buildings and other site issues greet visitors to the city.
- » **Theme.** There is no consistent theme or message conveyed to residents and visitors along the corridors.
- » **Traffic operations and clarity to users.** Numerous curb cuts and traffic patterns that co-mingle interstate bound traffic with local traffic can be confusing to visitors. Often in these situations residents are accustomed to these anomalies but visitors can find them very confusing.
- » **Orientation to the rest of the city.** Once a visitor has entered these corridors there is no signage that orients them to destinations within the community. These should include OBU, the high school, downtown, and visitor destinations like Pottowatamie County Museum.

POLICIES & ACTIONS

- » Site design should not restrict future development by creating fragmented parcels, or impeding circulation or connections.
- » Adequate separation and buffering should be provided between higher and lower intensity uses. Buffering can be achieved through strategic landscaping.
- » Work with property owners to provide adequate screening of outdoor storage areas, ideally using natural screening materials.
- » Work with economic development and the chamber to develop wayfinding and gateway features such as public art at the major entrances.
- » Regional commercial uses should avoid large expanses of concrete that lack shade or the ability to absorb stormwater.
- » Commercial developments should offer both internal and external pedestrian connections, especially between visitor services (hotels, restaurants, etc.).
- » New commercial developments at major intersections should use shared entrances and avoid multiple access points (curb cuts).
- » Development should allow for a range of office, retail, and higher density housing close to jobs.
- » Along Harrison and Kickapoo, high density residential uses should be included in redevelopment and development areas to provide housing close to jobs.
- » Review zoning requirements and infrastructure needs for the re-use, redevelopment, and revitalization of low performing or declining commercial areas.



WHAT IS LAND USE INTENSITY?

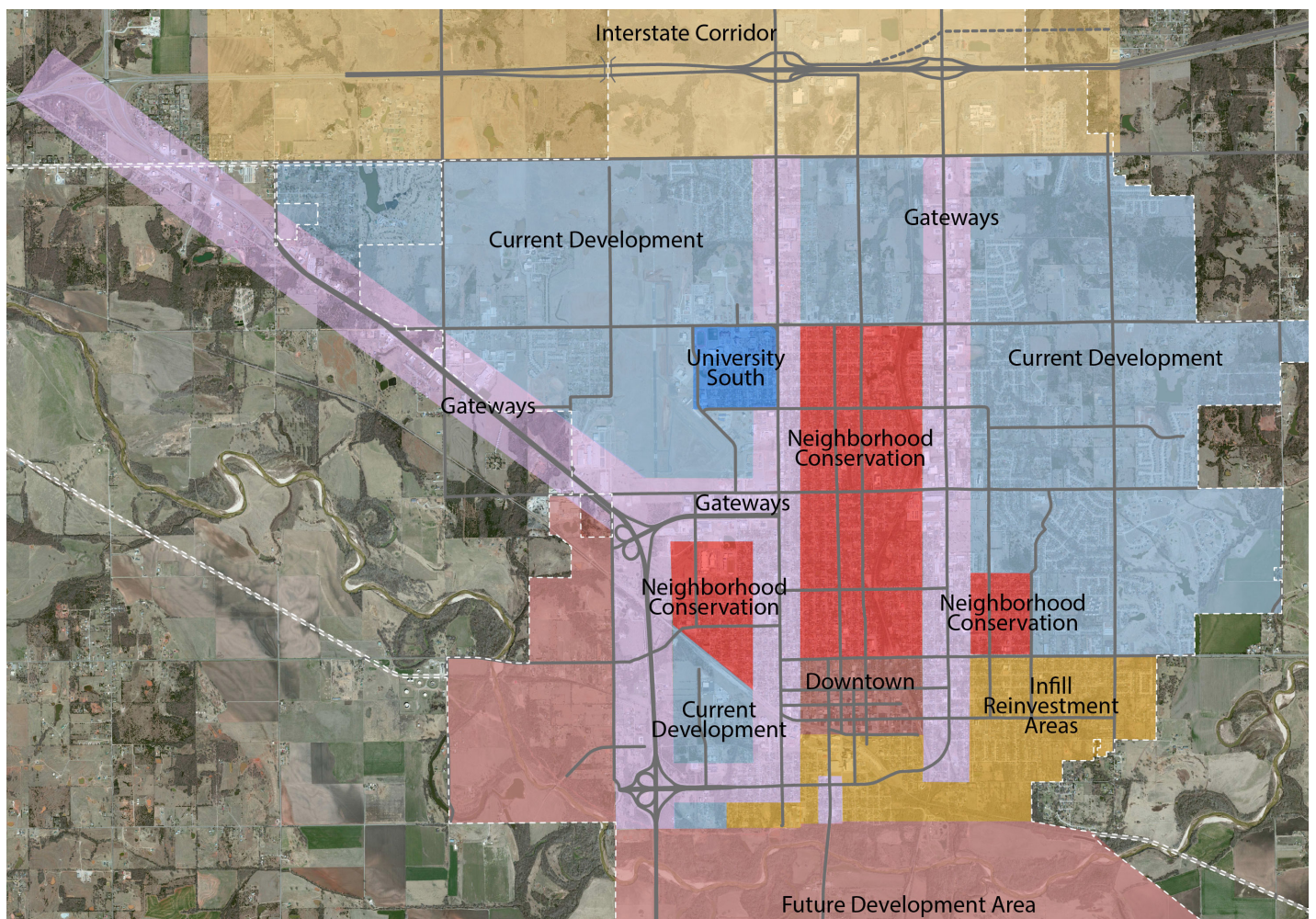
Land use intensity is the relative level of activity of a land use and the associated traffic flow, paving (impervious coverage), and other external effects such as noise, lighting, fumes, etc.

CURRENT DEVELOPMENT AREA

The Current Development Area is located south of the Interstate in the northern portion of the city with a smaller pocket north and south of Farrall Street on the west side of the city. These areas have experienced some of the city's newest development. Development in these areas has historically been single-family with some commercial to support new neighborhoods but interest is growing for a greater mix of housing.

ISSUES FACING THE AREA

» **Pressure for dispersed commercial uses.** Over the last several decades commercial development has moved away from the compact patterns of downtown. Affordable land that is easily accessible and visible to a car has dominated commercial development. This has created a very dispersed commercial development pattern within Shawnee. Accessing those business other than by car can be difficult and these spaces are now often challenges to reposition themselves in a changing retail environment.



- » **Connectivity and expansion of major streets.** Generally, Shawnee has limited the number of dead-end streets and cul-de-sacs that limit connectivity for both the car and other modes of transportation. The city must continue to support a highly connected street system and plan for expansion of streets as development occurs.
- » **Limited expansion of neighborhood parks.** What development that has occurred in the Current Development Areas has had little to no park development. What little park development that has occurred is often owned by the homeowners association, potentially leaving a gap in future maintenance and operation.
- » **Multiple school districts and service providers.** The mix of school districts and utility providers can leave some areas slower to develop.

POLICIES & ACTIONS

- » Encourage development of sites with access to existing infrastructure.
- » Prohibit new development on septic systems that can be served by city services.
- » Direct medium and higher density residential to areas adjacent to higher intensity uses and major corridors.
- » Prohibit development within floodplains and capitalize on these areas as trail corridors through policy documents such as the Parks Master Plan and within the zoning code.
- » Encourage mixed use developments with similar intensity along arterial corridors.
- » Identify connections to collectors and arterials for all new developments and work with developers early in the design process to ensure they are made.
- » Improved streets and any new streets should be designed as “complete streets,” incorporating features for both motorists and non-motorist.





CONSERVATION AREAS

The Neighborhood Conservation Areas are composed of some of the city's older neighborhoods. These areas grow to the north, west, and east from the downtown. Interstate 40 has been a major driver of development moving to the north and leaving the downtown on the city's southern edge.

ISSUES FACING THE AREA

- » **Older neighborhoods, generally in good condition.** The housing is in fair to good condition but continued investment or conservation is needed to maintain quality affordable housing.
- » **Compatibility of uses along arterials.** The arterial streets within the Conservation Areas have a mixture of uses, some that are not always compatible with the predominately residential uses.
- » **Maximizing the reuse of infill sites.** These neighborhoods are fully served by city services. Some available infill sites do exist and these areas should be developed to the highest density possible to use these services to the greatest extent possible.
- » **Conservation of housing.** A city's existing housing stock is the most affordable housing in a community. Maintaining that housing in a state of good repair ensures a good supply of affordable housing.
- » **Dispersed neighborhood services.** The Neighborhood Conservation areas are highly walkable areas, with a good street grid. However, lack of sidewalks and services that are more dispersed still leave many residents feeling car dependent.

POLICIES AND ACTIONS

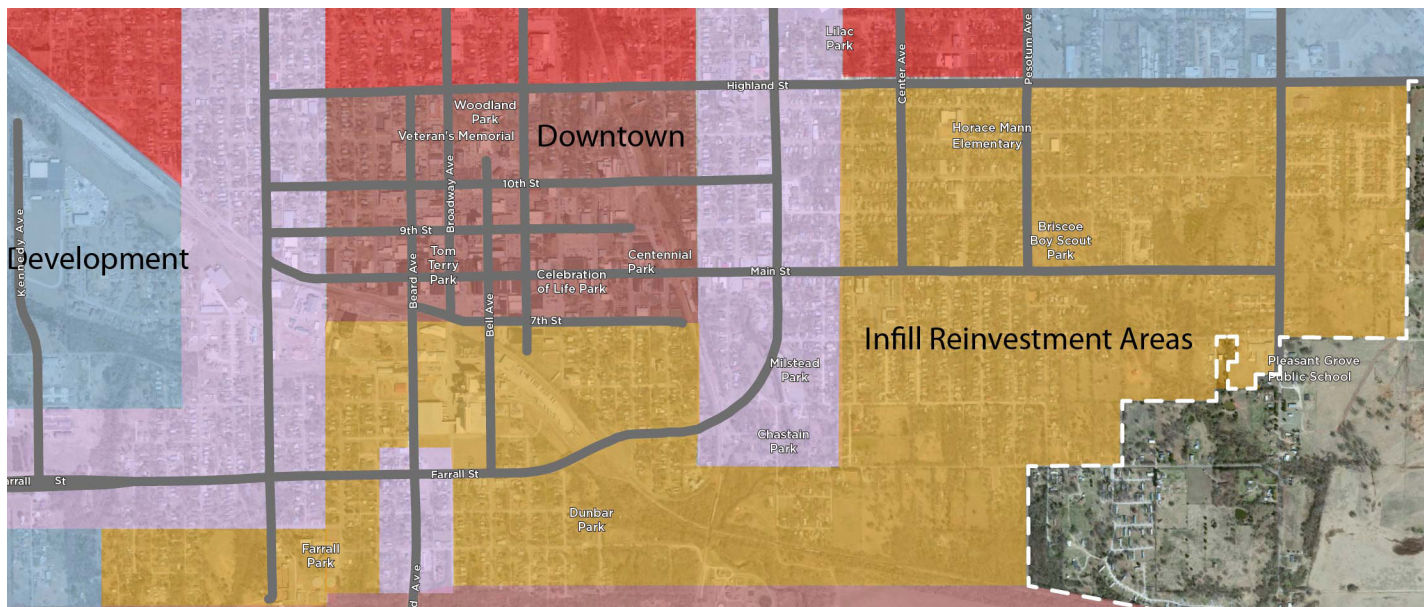
- » Continue to maintain and improve public facilities and infrastructure that support infill development and reinvestment.
- » Enable increased densities when impacts such as parking and access are addressed.
- » Direct medium and higher density residential uses such as townhomes to areas adjacent to higher intensity uses or along major streets.
- » Extend and connect the existing arterial & collector system.
- » Direct higher intensity uses to the arterial corridors.
- » Identify priority areas where the city can lessen hurdles to private investment through improvements to streets, parks, and schools (working with the school districts).
- » Protect existing drainage areas and use them to provide trail corridors.
- » Evaluate signage and landscaping requirements along high-volume corridors.
- » Encourage mixed uses along the major corridors.
- » Establish a network of complete streets.

INFILL REINVESTMENT AREAS

The Infill Reinvestments areas are located mainly in the southern portions of the city, south and east of the downtown. These areas have some of the oldest housing and infrastructure. A number of homes in these areas will likely need to be removed in the coming years. These sites along with existing vacant areas create opportunities for reinvestment and re-strengthening of the neighborhoods.

ISSUES FACING THE AREA

- » **Addressing image and perception issues.** Many residents within the larger community do not view these areas as desirable places to live. Reinvestment should strengthen the image of the area.
- » **Deteriorated housing and site condition issues.** A combination of poor housing conditions and property maintenance issues add to the issues noted above.
- » **Lack of neighborhood retail.** These areas lack local services, including access to grocery stores. Most residents in these areas have lower incomes and the distance to services and retail creates car dependence.
- » **Access to job centers.** Similar to the lack of access to retail these neighborhoods are a significant distance to job centers with poor sidewalk connectivity.
- » **Compatibility of land uses.** The historic railroad corridor resulted in a mix of residential adjacent to light industrial uses, including uses with significant outdoor storage.
- » **Railroad limits connectivity.** Most of the city is laid out on a grid system but that grid breaks down around the railroad. This creates dead-end streets, creating safety issues and making it more difficult to navigate the neighborhood without a car.



POLICIES AND ACTIONS

- » Improve public facilities and infrastructure that support infill development and reinvestment.
- » Enable increased densities when impacts such as parking and access are addressed.
- » Direct medium and higher density residential uses to areas adjacent to higher intensity uses or along major streets.
- » Direct higher intensity uses to the arterial corridors.
- » Encourage mixed uses along the major corridors.
- » Work with neighborhood leaders to assemble resources and technical assistance to encourage maintenance and improvement of the area's housing stock.
- » Provide additional funding for code enforcement and public property maintenance.
- » Create partnerships and messaging to promote reinvestment that strengthens the image of the area. Consider completing a preservation survey to identify areas and buildings of importance to preserve.
- » Work with local and regional partners to improve transportation options for area residents.
- » Establish a network of complete streets which could be supported through adoption of a complete streets policy or ordinance.
- » Protect existing drainage areas and use them to provide trail corridors.



FUTURE DEVELOPMENT AREAS

The Future Development Areas are less likely to experience development in the near term. Adjacency to existing development and access to city services will eventually support development of these areas.

ISSUES FACING THE AREA

» **Transportation continuity beyond arterial/section line roads.**

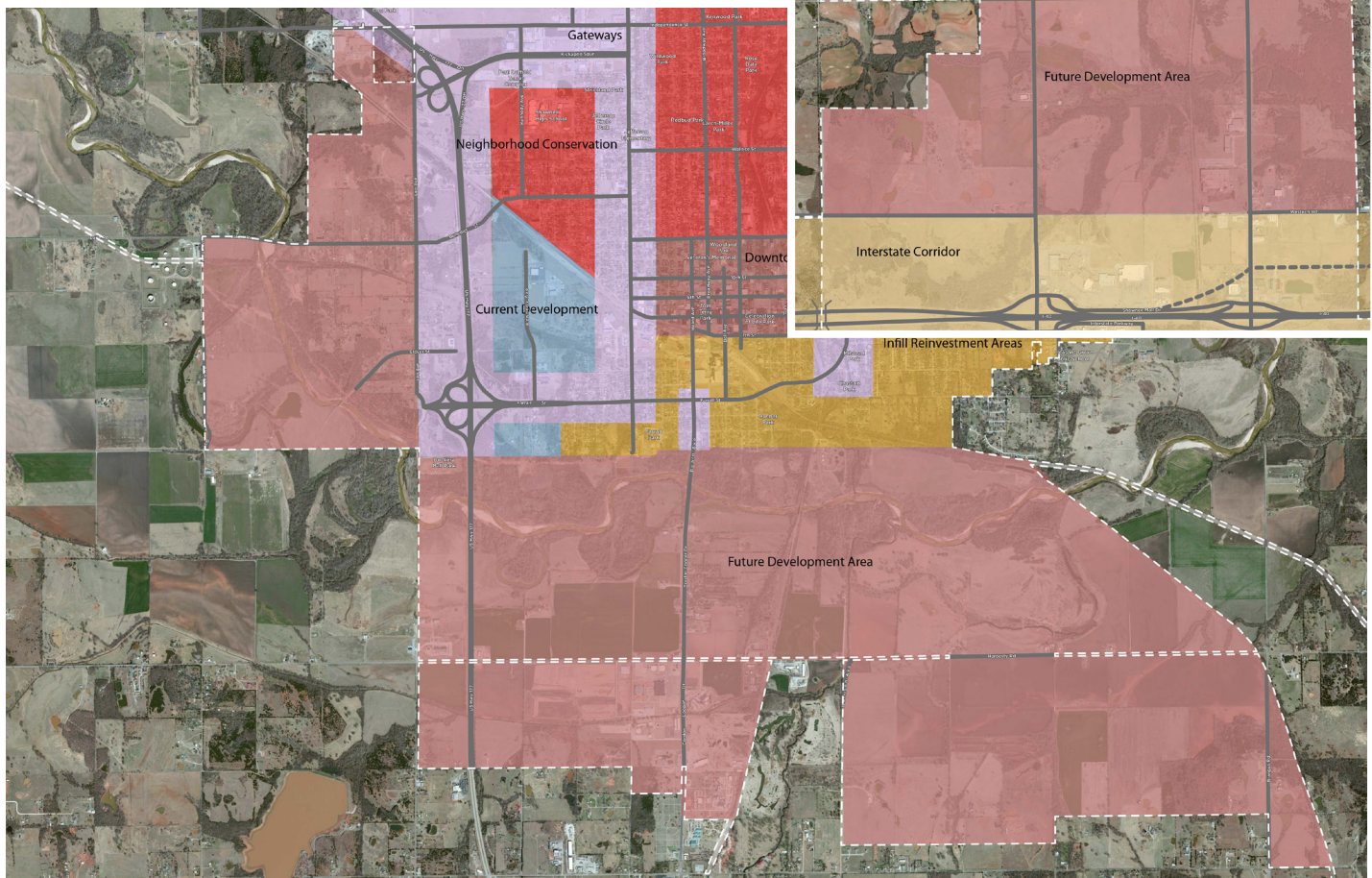
As this area develops, collector streets will need to be planned and built. These roads will collect traffic from a grid of local streets and deliver them to the arterial streets. At a minimum the should occur every half mile.

» **Connections across barriers.** These barriers include both man-made like the interstate and natural like the river.

» **Infrastructure responsibility and efficient phasing.** In both the northern and southern development areas there are overlapping jurisdictions. Continued dialogue between the city, county, and water districts should find ways to support growth in the most efficient manner possible.

» **Park and public space amenities keeping pace with growth.**

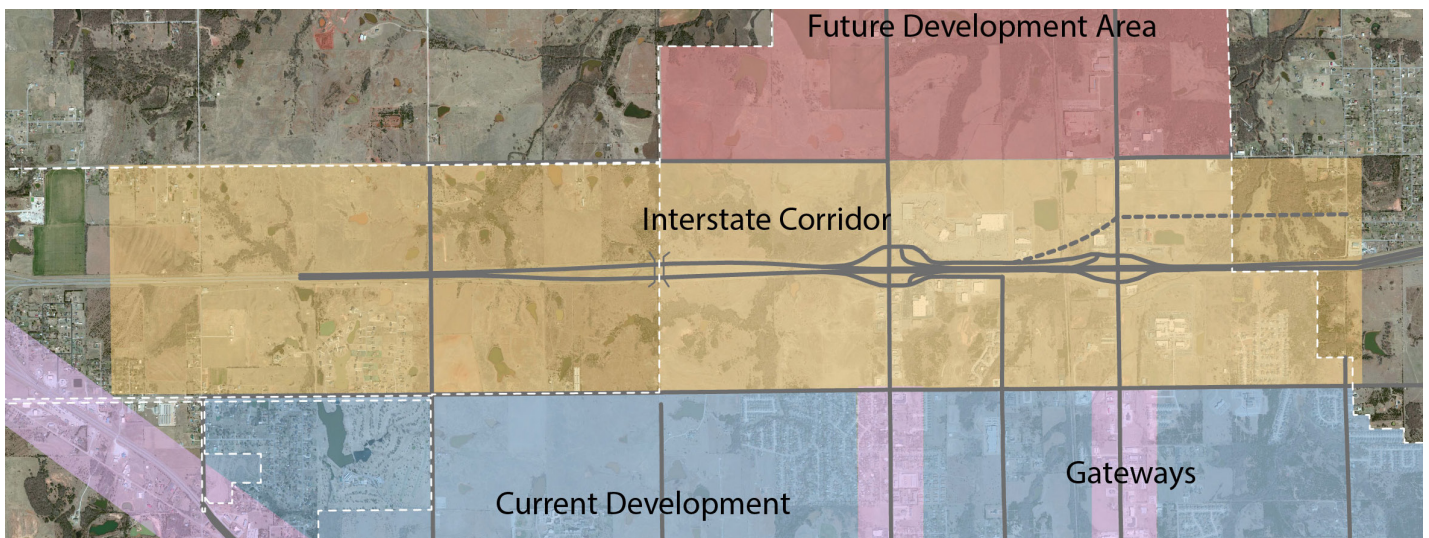
As development occurs further from a city's historic core new parks must be developed to provide the same level of service.





POLICIES AND ACTIONS

- » Infrastructure extensions into these areas should only occur after more cost effective extensions have been fully developed.
- » No new development should be permitted inside the floodplain beyond recreation uses.
- » Large lot development should be discouraged in the northern area.
- » Land use policies in developing areas should focus on the intensity of the use rather than just type, allowing for housing adjacent to low intensity commercial uses.
- » Existing low density developments should be buffered and separated from higher intensity uses.
- » Drainageways should be preserved with proper buffering to allow for stormwater absorption and recreation trails.
- » New streets should be multi-modal.



INTERSTATE CORRIDOR AREA

The developed areas of the Interstate Corridor are primarily commercial uses with some light industrial just to the north of the corridor and pockets of residential between 45th Street and Interstate 40.

ISSUES FACING THE AREA

- » **Traffic operations and clarity of users.** As noted in the Gateway areas clarity at the interchanges is important. Visitors must be able to easily navigate the area and find their destination.
- » **Future interchange.** An additional interchange at Bryan has been discussed for several years. This would open up new development opportunities for the city but the location of that interchange should be studied further to ensure negative impacts are avoided.
- » **Barrier issues.** The Interstate acts as a barrier to local traffic movement. Currently local traffic looking only to cross the interstate must mix with traffic getting off and on the interstate. Additionally, the city should improve bike and pedestrian access to businesses on the north side of the Interstate.
- » **Interchange development.** Development around the interchanges should be done in a manner that projects the best image of the city and is accessible to the workers needing to reach the area.
- » **Corridor character and appearance.** Like the Gateway Area, the I-40 corridor and surrounding environment might be the only experience someone has of the city. Making a good first impression is very important.

POLICIES AND ACTIONS

- » Uses should allow for a range of industrial, office, and residential, not just commercial uses.
- » Provide adequate separation and buffering between higher and lower intensity uses.
- » Site design should not restrict future development by creating fragmented parcels, or impeding circulation.
- » New or improved interchanges should include access for modes beyond just cars (pedestrians & bicyclists).
- » Ensure proper circulation within and between developments.
- » Provide proper wayfinding and gateway features such as public art at major interchanges or arches over entrances.
- » Provide regulations and enforcement for signage in the corridor to ensure proper wayfinding, reduce clutter, and avoid illegal signs.
- » Additional access points over (or under) the interstate should relieve traffic congestion on Kickapoo and Harrison.



UNIVERSITY NEIGHBORHOOD

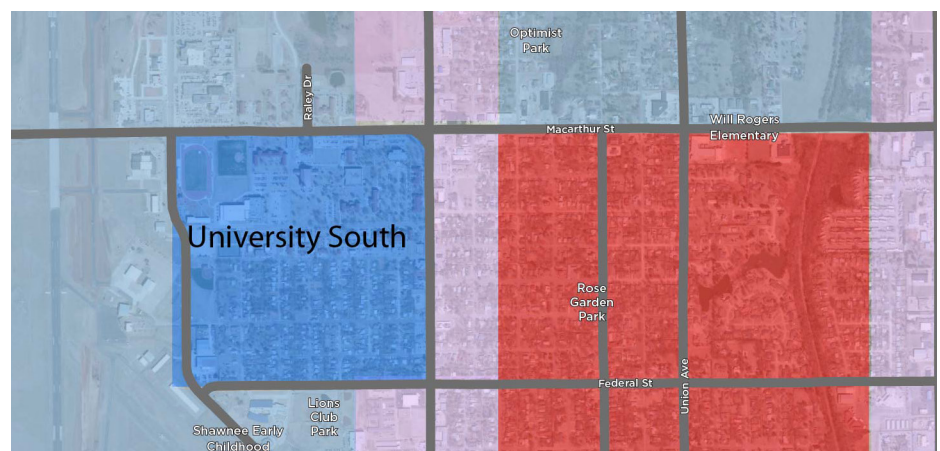
The University Area is located just to the south of Oklahoma Baptist University, north of Federal and west of Kickapoo. The area is home to a large number of OBU students. Housing quality and the impression made on OBU visitors is very important to this area.

ISSUES FACING THE AREA

- » **High renter occupancy.** Mostly among individuals living on their own for the first time. This means patience but also a teaching opportunity. Property must be maintained at a high level to set expectations for all residents of the area, young and old.
- » **Compatibility of developments along Kickapoo and Federal.** These uses should be easily accessible to students on foot and bike. Many of the current commercial uses are mixed in quality and efficiencies.
- » **Infill opportunities.** Due to the already high rate of student housing and rental occupancy, high quality multi-family could be ideally located on infill sites.

POLICIES AND ACTIONS

- » Higher density uses should be encouraged when parking and circulation issues are addressed.
- » Pedestrian and bicycle features should be expanded and connected to commercial destinations, including the downtown.
- » Commercial uses should be focused in mixed-use developments along Kickapoo and Federal.
- » Evaluate signage requirements along the boundaries.
- » Provide additional funding for code enforcement and public property maintenance.
- » Work in partnership with the University to create a clear image of both the city and the University.
- » Use resources like the City of Norman for policies and strategies for creating a stronger more diverse neighborhood.

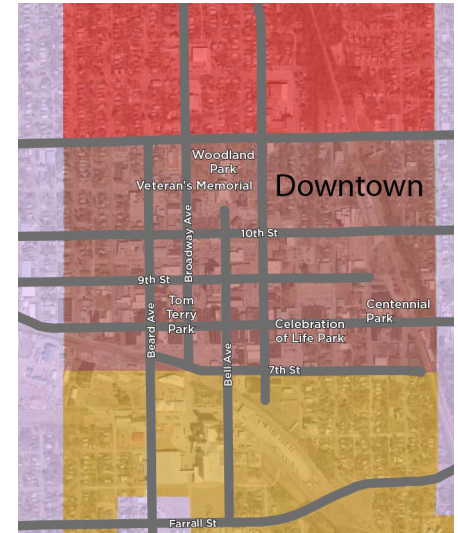


DOWNTOWN

A community's health has often been judged by the health of its downtown. Over the past several years, downtown Shawnee has seen renewed investment, including refurbished store fronts and new businesses. A deeper analysis and strategies for the Downtown are identified later in this document.

ISSUES FACING THE AREA

- » **Twenty-four hour population.** Currently the district lacks residential development, which leaves the district feeling abandoned after 5 o'clock.
- » **Perception issues.** The district has real and perceived issues of homelessness. The homeless and those struggling to get back on their feet do come to the area seeking services. This leaves some with a perception of a troubled and unsafe district.
- » **Homelessness.** The district does have visible homelessness for the reasons noted above. The Salvation Army is the only shelter resource in town, and provides meals and emergency shelter every day of the year. Finding safe shelter with services both at night and during the day should address some of the issue, however with a limited number of beds and staffing, resources are often stretched thin.
- » **Large vacant spaces.** The department stores of historic downtowns have long been replaced by the big box stores on the fringes of our cities. But today those stores are even being replaced by internet shopping. Many retail establishments no longer need as much space, making these spaces in downtowns difficult to lease.
- » **Community event space.** The district has several small pocket parks and Woodland Park. These spaces are either too small or have too many features to adequately support events in the downtown.



POLICIES AND ACTIONS

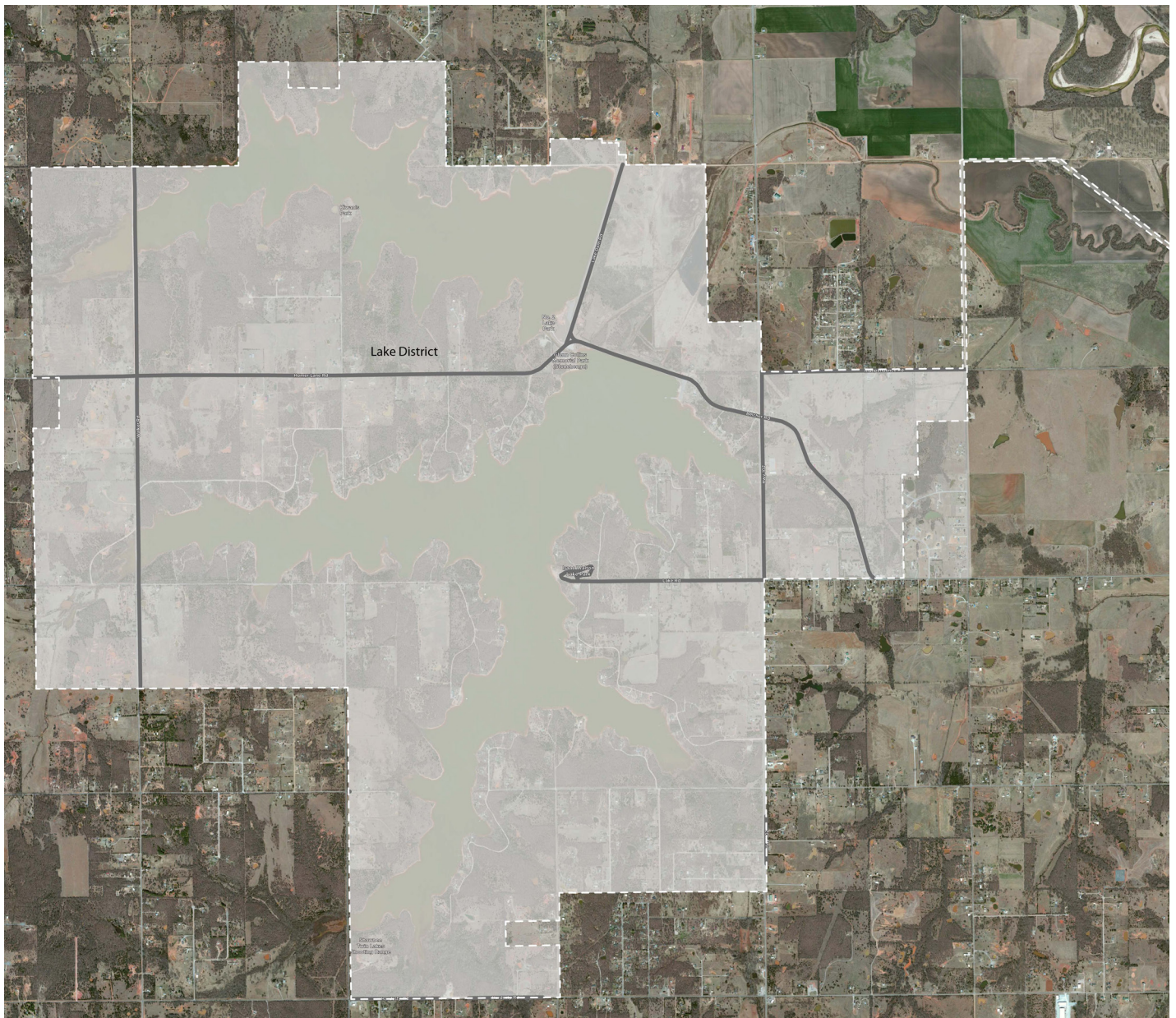
- » Housing options should be encouraged in the areas in and around the downtown.
- » Encourage a safe and appropriately located day shelter.
- » Maintain public property to levels expected by private property.
- » Review and update downtown property maintenance code.
- » Work with local and regional partners to improve transportation options for area residents.
- » Continue to maintain and improve public facilities and infrastructure that support infill development and reinvestment.
- » Enable increased densities when impacts such as parking and access are addressed.
- » Continue to identify ways that the city and economic development community can lessen the hurdles to development and redevelopment in the downtown such as through amendments to the zoning code and subdivision ordinance.
- » Improve wayfinding that directs visitors into the downtown.
- » Enhance entrances to the downtown that speak to the quality and image of the city overall through public art and wayfinding signage and district branding.

LAKES AREA

Shawnee's Lake Area is a beautiful part of the community and great asset with the potential to be an even stronger amenity. Development around the lakes varies but has generally focused on residential and recreation. Potential exists for additional commercial that can support the other two primary land uses.

ISSUES FACING THE AREA

- » **Hidden gem.** For many visitors and more recent residents, the lakes can be a hidden gem. They are not visible from the city and the lack of signage or “advertisement” in the community gives the impression they are not accessible to all.





- » **Difficult to find.** As noted above, there is no signage within the city directing residents to the lakes area. Additionally, the drive to the lakes is not direct and there is little to no signage directing visitors to their destination.
- » **Safety.** Because of the remote nature of the lakes there is some perception of reduced safety, especially after dark.
- » **Lack of services.** In the last several years a Dollar General has been built off of Highway 102 but has a limited supply of materials and does not have items that serve many of the recreation users (life jackets as an example).
- » **Ownership clarity.** Much of the development that has occurred around the lake is on land leased from the city. This has created ownership confusion that should be resolved in the coming years.

POLICIES AND ACTIONS

- » Commercial services should be encouraged to serve both residents and visitors.
- » Appropriate recreation features around the lakes, like trails should be expanded.
- » Due to the lack of water and sewer services and the desire to maintain a more rural character, residential developments should remain at a minimum of 5 acres on well and septic systems.
- » Identify strategies for improving the real and perceived sense of safety. This may include improved lighting and additional patrols.
- » Wayfinding between the city and the lakes should provide clarity.
- » Future land use policies should clarify ownership and leasing agreements.
- » Consider zoning overlay district that address unique site development issues around the shoreline.
- » Discourage strip development along major corridors that inhibits future development or connectivity.
- » Consider development of design guidelines for new developments along the Highway 102 corridor that ensure a sense of quality and destination this area desires. This should be done as a joint effort with Bethel Acres.

LAND USE FRAMEWORK

LAND USE PHILOSOPHY: A FLEXIBLE APPROACH

Contemporary growth in American cities has tended to separate different land uses through zoning. The concept of single-use zoning grew out of a need to separate people's homes from major industries and factories, in order to protect their health. Still today, some uses can produce so much traffic, noise, smell, or other negative effects that separation remains the most appropriate policy. However, increasingly, mixing compatible, and different uses is shown to create interesting and attractive communities. The Shawnee Plan recommends a flexible land use approach that allows mixing of uses.

A development pattern that encourages a mix of land uses and activities has a variety of benefits:

- » Creates activity at various times of day, among various types of uses, increasing security, vitality, and the number of people using public spaces.
- » Reduces the number of miles that people must travel daily by car when homes are in close proximity to jobs and services.
- » Opens opportunities to build a variety of housing types. The development of housing above office and commercial establishments adds vitality to business areas and increases the economic yield on property.
- » Creates more attractive neighborhoods to residents when uses are mixed (this is a national trend).
- » Provides greater flexibility for developers, and avoids unnecessary regulation when plans and land development policies allow appropriately mixed uses.

Shawnee can achieve all these benefits by using a flexible land use framework that allows for appropriate mixing of compatible uses. The land use framework recognizes existing land use patterns while establishing an intensity based approach for some developing areas. While this approach may allow for land uses with similar intensity to be integrated, each land use category has unique requirements for the following attributes:

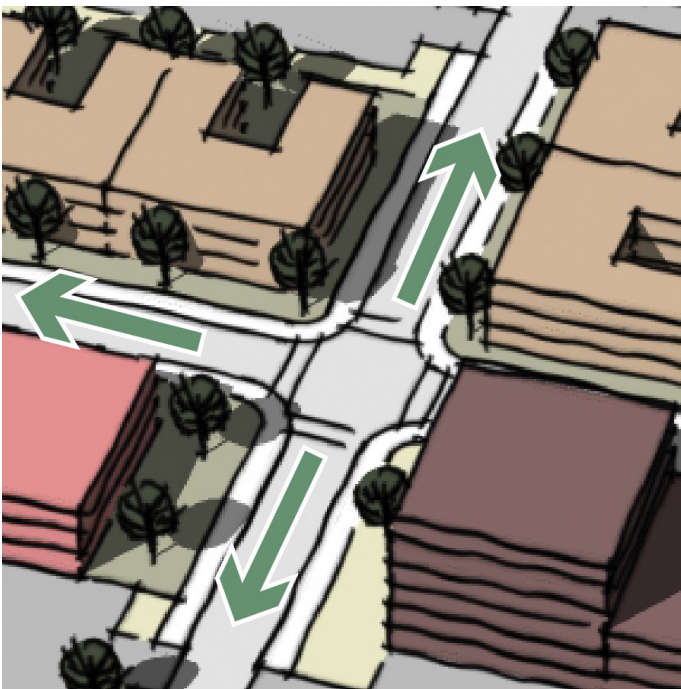
- » Types of Allowable Uses
- » Intensity or density
- » Compatibility (transitions between uses)
- » Form, or design

In this section of the plan, each land use category is described in terms of its purpose, form, uses, intensity, and compatibility requirements.

USE: INTEGRATION AND MIXING OF USES

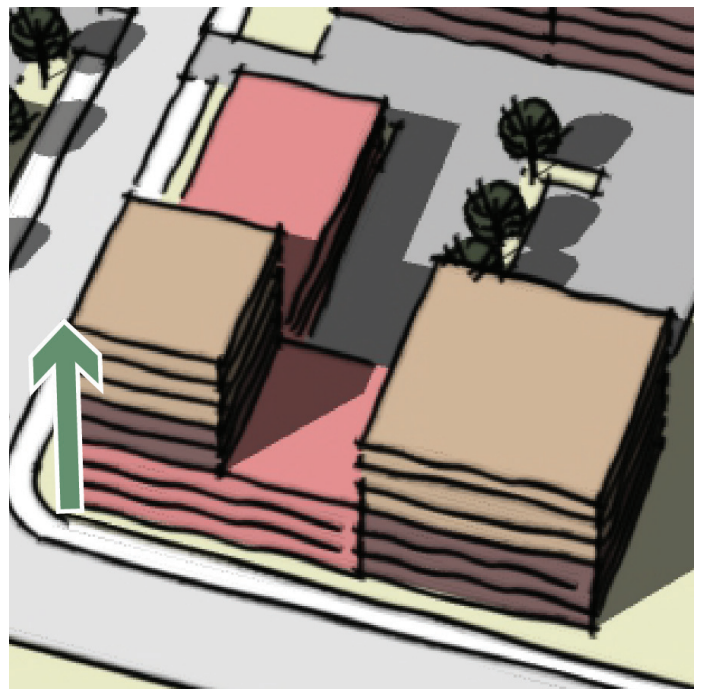
One advantage of an intensity based framework is its ability to integrate different land uses. Uses may be integrated in two ways: horizontally and/or vertically. Horizontal integration keeps individual building uses separate but relates buildings harmoniously to each other. Vertical integration puts more than one use in the same building. In Shawnee, most of the major corridors and nodes are in multiple-use categories, but certain areas, such as industrial, and more remote residential areas are still kept as single-use areas. Allowing for mixed use districts places more residents near job centers, reducing the separation currently in place where most jobs are on the north side of Shawnee, while most residential neighborhoods are on the south.

Understanding Mixing of uses and Transitions



HORIZONTAL
INTEGRATION

Horizontal integration of uses means that different uses are housed in different buildings but are related to each other.



VERTICAL
INTEGRATION

Vertical integration of uses means that different uses are located in the same building.

INTENSITY

The Shawnee land use framework designates how much development occurs in an area and how that development affects its neighbors. This is measured by intensity and/or density of development. In residential areas, intensity is measured by dwelling units per acre. For other uses, by factors such as the amount of traffic that a project generates or how it affects its neighbors to determine intensity. Intensity for non-residential uses can also be measured by a factor called “floor area ratio” (FAR), calculated by dividing building area by site area.

COMPATIBILITY

One of the most important concerns in land use planning is the relationship between different uses and their relative compatibility with each other. In areas where densities are low, compatibility is usually achieved using spacing between buildings and by congregating similar uses together. This simple method is easy to administer and understand; however it can lead to some undesirable conditions such as increased commute times, un-walkable neighborhoods, and higher utilities and public service costs.

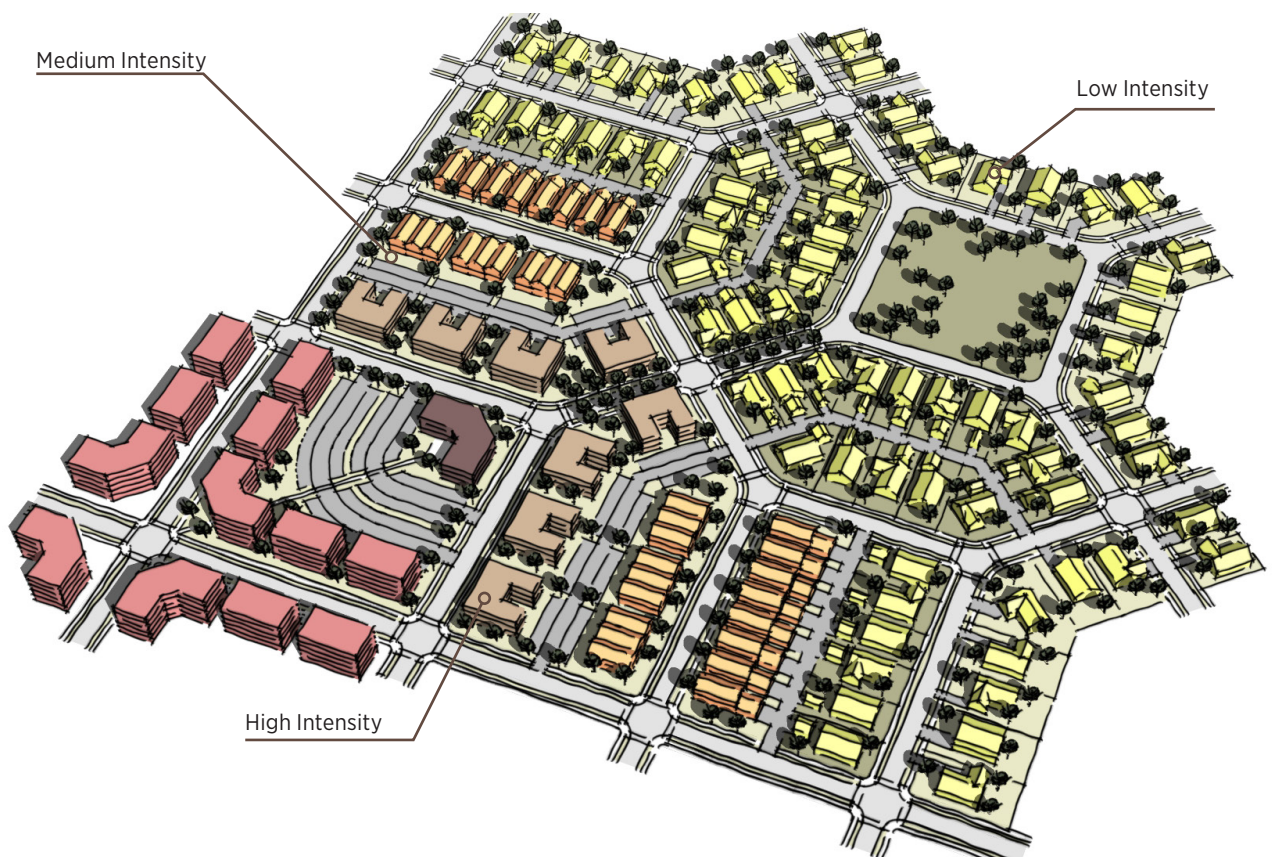
Compatibility in multiple-use districts can be attained in a more nuanced way by focusing more on the performance (effects) of various uses and designing land use regulations that allow for more integration of uses. If carefully done, the integration of uses can be achieved so that commute times become shorter, and neighborhoods become more walkable and interesting, all while preserving privacy, security and aesthetics.

The land use categories described in this plan exist on a continuum of intensity, and therefore have a continuum of compatibility methods. As land uses become more intense and uses become more integrated, compatibility methods focus less on spacing and congregating of similar uses, and more on performance-based methods that directly address issues such as noise, traffic, privacy, and aesthetics.

It is important to remember that while the intensity-based concept proposes mixing uses, it does not mean that every land use is appropriate everywhere. Location standards and compatibility requirements for higher impact uses are an important part of the land use system proposed in this plan.

FORM

Form relates to how the developments in the land use categories are laid out, including the street pattern, the type of infrastructure required, separation between buildings, and the relation of buildings to the street. Form also includes the scale of the buildings - the length, width and number of stories. The degree to which the buildings in an area are similar to each other in terms of these “form” characteristics impacts the perceptions of compatibility, and therefore market value.



CAVEATS TO THE FUTURE LAND USE MAP

The development concepts and future land use map are based on population projections, economic trends, environmental analysis, and public input. The amount of land that is planned for is greater than the projected need, in order to provide market flexibility, avoid creating a false land shortage, and provide long-term planning. This means that many areas shown in the maps are unlikely to develop in the 20-year time frame. Three important points about the Development Concept and Future Land Use Map:

PROPERTY OWNERS DECIDE

The Future Land Use map depicts new land uses for privately owned properties. The transition of these properties from their current use to the depicted use is expected to occur slowly over time, in response to market demands, as property owners voluntarily sell, develop, or change the use of their land.

GENERALIZED MAP

The Future Land Use map should be interpreted generally and is not intended to provide the specificity or the rigidity of a zoning map or engineering document. The map should provide guidance for the zoning map and is meant to show:

- » **Generalized land use locations and transitions:** The boundaries between land uses on the map are “fuzzy” lines and are meant to show approximate areas for transition, rather than rigid boundaries. The exception to this are those areas that preserve floodplains and wetlands.
- » **Collector and arterial street connections:** Critical arterial and collector street connections are specified on this map, though the exact routes will depend on detailed engineering studies. Local streets will be determined as development occurs.

BASIS FOR LAND USE DECISIONS

The Future Land Use map should provide the basis for decisions of the Planning Commission, the City Commission, and private developers. The map is a critical part of the approval process for development proposals and zoning decisions.

FIGURE 3.4: Future Land Use Plan

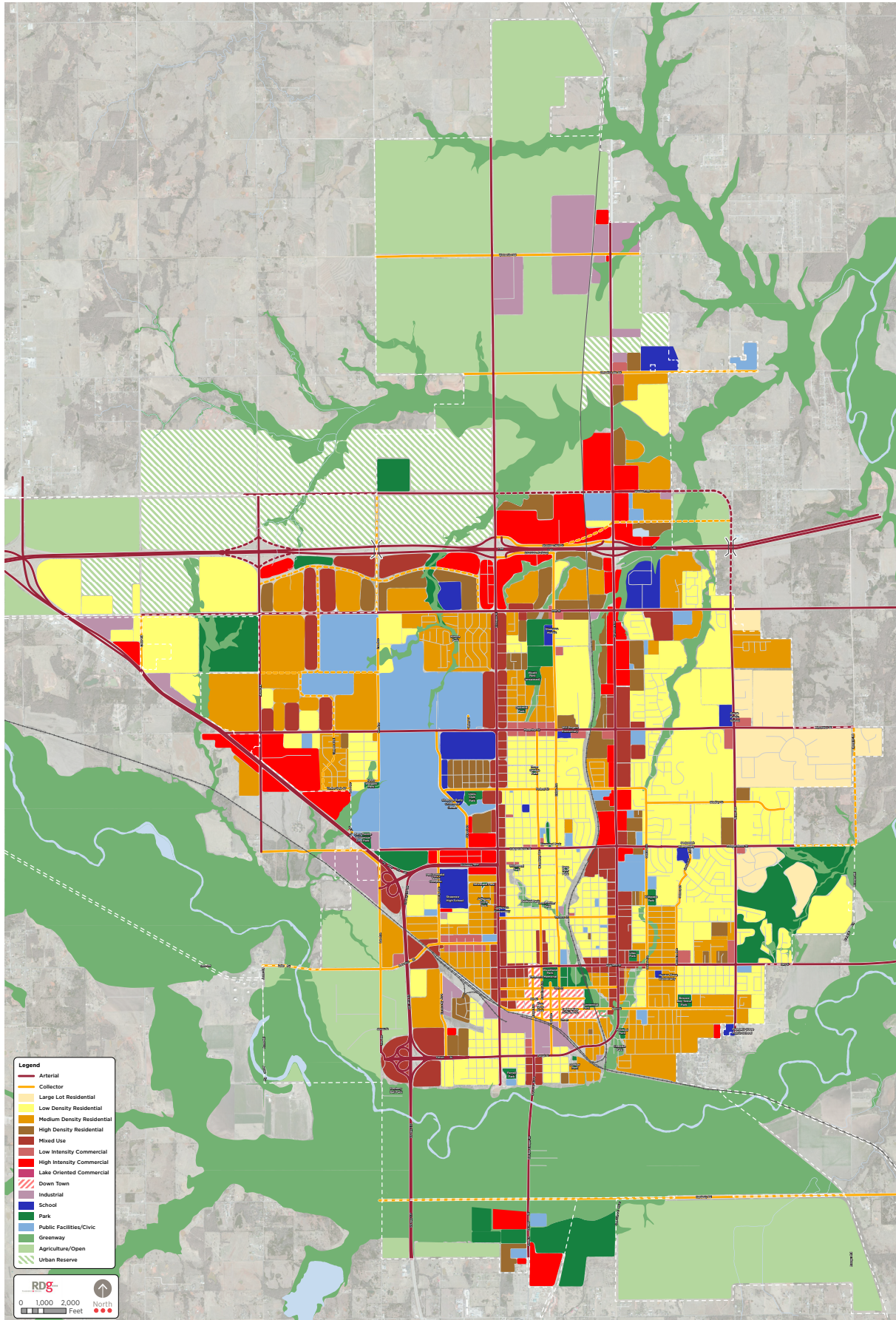
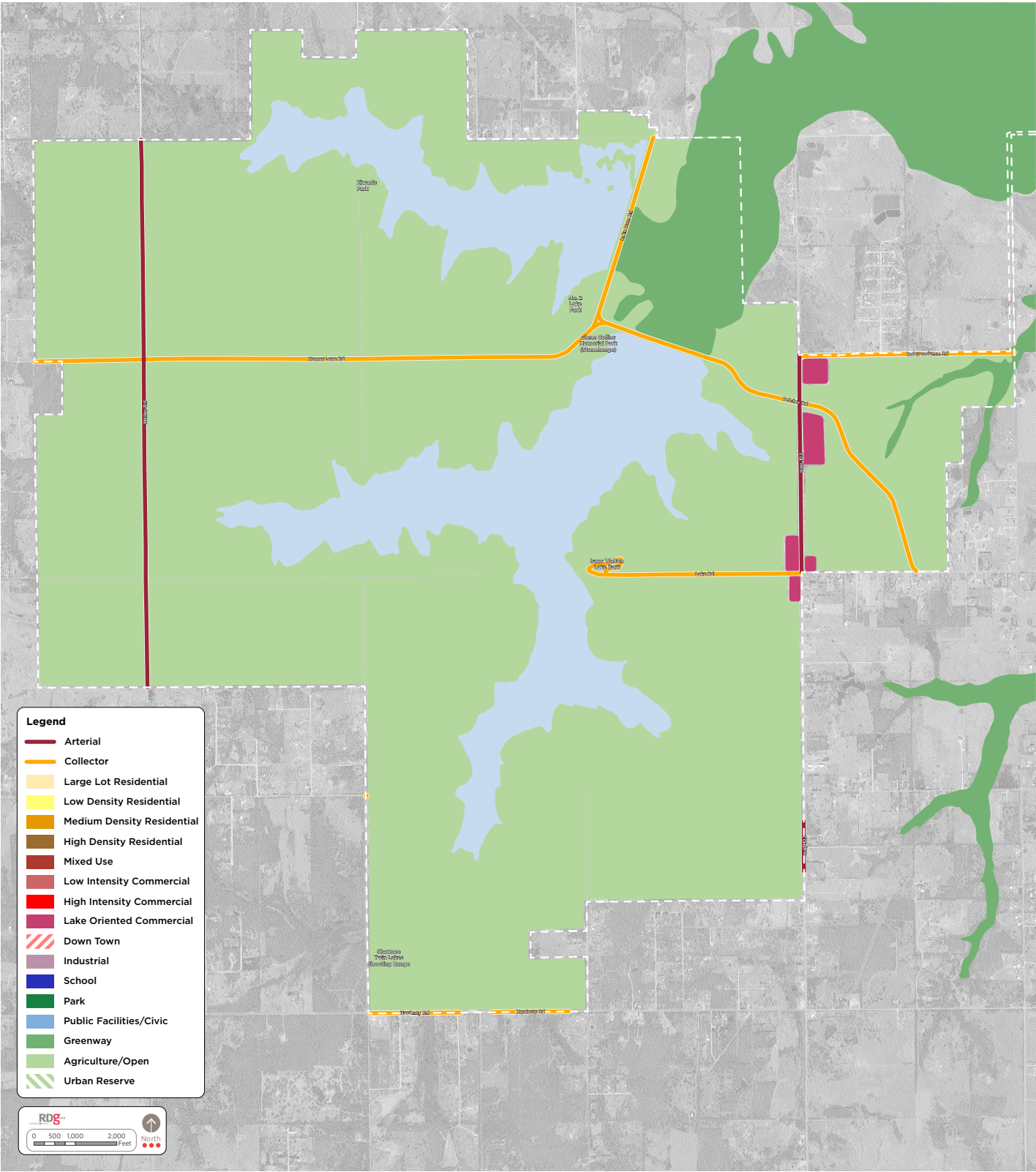


FIGURE 3.4: Future Land Use Plan



LAND USE: LARGE LOT RESIDENTIAL

DESCRIPTION:

Neighborhoods emphasizing single-family detached homes on lots greater than one acre.

POTENTIAL ZONING:

- » Residential Estates District

INTENSITY (DU/A):

- » < 1 unit per acres

USES:

- » Restrictive land use, emphasizing single-family detached development. Civic uses are generally allowed, with special permission for higher intensity uses.
- » Developments larger than three acres per unit will likely not have city services and should not occur in areas where city services can be provided or are likely to have city services in the future.

FORM:

Developments should provide connectivity within and between developments both for cars and pedestrians. A framework of streets, trails, and side-walks should create a sense of neighborhood. The use of cluster or conservation subdivision techniques where the lot size may be smaller but overall density is low should preserve sensitive areas and allow for shared open spaces. Sensitive areas may include drainageways or native prairie.

COMPATIBILITY:

Compatible with most single-family detached housing and attached single-family. Traffic and higher intensity uses should be directed away from these areas and along major thoroughfares. Building elements and scale should be consistent with surrounding development.

PARKING:

- » Majority accommodated off-street in private garages and driveways with a limited amount of overflow parking allowed on-street.
- » Due to the limited demand for on-street parking, neighborhood streets can often be narrow with parking limited to one-side.





LAND USE: LOW DENSITY RESIDENTIAL

DESCRIPTION:

Neighborhoods emphasizing single-family detached homes, although other single-family attached and small lot single-family homes may be permitted based on location.

POTENTIAL ZONING:

- » Single-Family Residential District

INTENSITY (DU/A):

- » 1-4

USES:

- » Restrictive land use, emphasizing single-family detached development, although innovative single-family forms may be permitted with special review.
- » Civic uses are generally allowed, with special permission for higher intensity uses.
- » Developments will be provided with full city services.

FORM:

Developments should provide connectivity within and between developments both for cars and pedestrians. A framework of streets and open space should create a sense of neighborhood. Densities should be higher at transition points with other more intense uses or districts.

COMPATIBILITY:

Compatible with most single-family detached housing, attached single-family and some townhome developments. Traffic and higher intensity uses should be directed away from these areas and along major thoroughfares. Building elements and scale should be consistent with surrounding development.

PARKING:

- » Majority accommodated off-street in private garages and driveways with a limited amount of overflow parking allowed on-street.
- » Due to most parking in new neighborhoods being handled off-street, neighborhood streets can often be narrower with parking limited to one side.

LAND USE: MEDIUM DENSITY RESIDENTIAL

DESCRIPTION:

Neighborhoods that incorporate a mix of housing types, including single-family detached, single-family attached, townhouse, and small lot single-family. Civic uses would also generally be allowed.

POTENTIAL ZONING:

- » Combined Residential District

INTENSITY (DU/A):

- » 4-12

USES:

- » Restrictive land use, emphasizing a mix of housing styles including single-family detached, single-family attached, and townhouses.
- » Limited multi-family development may be allowed with special review and criteria.
- » Civic uses are generally allowed, with special permission for higher intensity uses.

FORM:

High level of connectivity between and within developments. Connections to neighborhood commercial services and civic destinations should provide a sense of neighborhood. Developments should have articulated scale and maintain the identity of individual units. Densities should be higher at transition points with other more intensive districts.

COMPATIBILITY:

Applies to older established neighborhoods of the city which have diverse housing types, and in developing areas that incorporate a mix of development types. Projects may be incorporated into mixed-use developments and planned areas.

PARKING:

- » Accommodated off-street in private garages and driveways with a limited amount of overflow parking allowed on-street.
- » In new developments with driveways and garages there will be limited demand for on-street parking, neighborhood streets can be narrow with parking limited to one-side.





LAND USE: HIGH DENSITY RESIDENTIAL

DESCRIPTION:

Neighborhoods that incorporate a mix of housing types, including multi-family housing and tiny homes. These areas may also allow small scale office and commercial uses but the primary use is residential.

POTENTIAL ZONING:

Combined Residential District; Multi-Family Residential District

INTENSITY (DU/A):

12+

USES:

- » Allows multi-family and compatible civic uses.
- » Some limited office and convenience commercial within primarily residential areas may be appropriate.

FORM:

Located at sites with access to major thoroughfares and activity centers. Should be integrated into the fabric of nearby residential areas, while avoiding adverse traffic and visual impacts on low-density uses. Traffic should have direct access to collector or arterial streets to avoid overloading local streets. High levels of pedestrian access and connectivity is needed to avoid the creation of compounds.

COMPATIBILITY:

Conflicts with low-density residential developments should be resolved or minimized through project design. Traffic and other external effects should be directed away from lower-intensity uses. Landscaping, buffering, and screening should be employed to minimize negative effects. May be incorporated into mixed use projects or planned areas.

PARKING:

- » Accommodated through surface parking lots, parking structures, and underground parking facilities.
- » Parking facilities should be designed to manage stormwater and be screened from adjacent land uses.
- » When projects are along major corridors and gateways into the city, parking should be screened behind a residential or commercial space when possible.

LAND USE: MIXED USE

DESCRIPTION:

These areas improve economic performance and opportunities for social interaction, by locating diverse and complementary uses in close proximity. Higher-density mix of housing (see HDR), major commercial, office, and service uses, and limited low intensity industrial in suitable locations.

POTENTIAL ZONING:

Neighborhood Commercial District; Central Business District; Other districts may apply with modification to allow residential uses.

INTENSITY (DU/A):

12+

USES:

- » A mix of complementary uses, including multi-family residential, large offices, medical buildings, regional commercial, limited industrial, institutional uses such as churches, schools, or hospitals, and other regional attractors.
- » Residential uses range from townhomes/rowhouses up to apartment towers.
- » Parking garages or public parking lots may be found in these areas.
- » Higher levels of urban amenities are used to offset the area's intensity level.

FORM:

Access to freeways, highways, arterials, and transit, yet still designed around pedestrians. A high-connectivity grid pattern provides viable locations for higher intensity land uses, and allows multiple access points and routes between uses.

COMPATIBILITY:

- » Land uses and intensities should be fully integrated and mixed. Compatibility should be achieved through increased attention to traffic circulation and parking, site and building design, and on-site operations.
- » Different land uses can be close together because design and amenities take into account these juxtapositions and make appropriate accommodations.
- » Form and design rules and performance regulations address aesthetic and functional compatibility.
- » Limited industrial uses may be allowed with requirements that they mitigate any anticipated negative impacts on adjacent land uses and that they are located on arterial streets or rail lines.
- » Land uses should be fully integrated horizontally and mixed vertically, resulting in complementary and alternating times of use and the ability to share parking areas.
- » Areas may develop horizontally over time and not as one large project; therefore, each individual project should consider future adjacent uses through quality connections for all users and stormwater management that creates integrated amenities.

PARKING:

- » Accommodated through surface parking lots, parking structures, and underground parking facilities.
- » Parking facilities should be designed to manage stormwater and be screened from adjacent land uses.
- » When adjacent to a sensitive frontage, parking should be screened behind an active storefront when possible.





LAND USE: LOW INTENSITY COMMERCIAL

DESCRIPTION:

Areas with easily accessed neighborhood commercial services. These areas will provide services to the immediate area but may also draw customers and employees from the larger city.

POTENTIAL ZONING:

Neighborhood Commercial District; Suburban Office Commercial District;

INTENSITY (DU/A):

7-12

USES:

A mix of complementary smaller scale commercial uses with some higher density residential uses and civic uses. Amenities such as parks, plazas and quality streetscapes should act as neighborhood centers.

FORM:

A high-connectivity grid pattern expands viable locations for commercial land uses, and allows multiple access points and route choices between uses. As compared to High Intensity Commercial (HIC), LIC encourages closer proximity between transportation, housing, and shopping choices. Sidewalks should provide good connectivity between developments and adjacent residential uses.

COMPATIBILITY:

- » Land uses and intensities should be integrated at a finer grain than within the HIC designation. Compatibility should be achieved through increased attention to traffic circulation and parking, site and building design, and on-site operations.
- » Like MU, land uses are sometimes mixed vertically, resulting in complementary and alternating times of use and the ability to share parking areas.
- » Different types of land use are positioned to create a smooth internal transition from lower to higher intensity uses.
- » Smaller commercial uses are appropriate on any street provided that a smooth transition in intensity of uses is maintained.

PARKING:

- » Accommodated off-street in private garages, driveways, on-street (limited) and surface parking lots.
- » Parking facilities should be designed to manage stormwater and be screened from adjacent land uses.

LAND USE: HIGH INTENSITY COMMERCIAL

DESCRIPTION:

Areas characterized by major community and regional commercial development that are both large in scale and have high traffic impact. May include high-density residential use. Typically located at intersections of arterial streets.

POTENTIAL ZONING:

Suburban Office Commercial; Restricted Automotive and Commercial Recreation; General Commercial; Planning Shopping Center District

INTENSITY (DU/A):

12+

USES:

- » A broad range of retail services, including large-scale stores and services, auto related services, and large offices.
- » Multi-family uses can be mixed in with commercial, but commercial would be the dominate use.

FORM

Should be located along arterial streets and accommodate the automobile, while providing good pedestrian and bike access to adjacent streets and trails. Horizontal and vertical mixing of uses should be encouraged. Regionally appropriate landscaping should be used along all frontage roads and within parking lots. Internal pedestrian systems should allow customers to park once and conveniently access several destinations within a retail center.

COMPATIBILITY:

- » Compatibility should be achieved through increased attention to traffic circulation and parking, site and building design, and on-site operations.
- » Potential negative effects on surrounding residential areas should be limited by locations and buffering.
- » Heavy landscaping should be used along boundaries with lower-intensity uses.

PARKING

- » Accommodated through surface parking lots, parking structures, and underground parking facilities.
- » Parking facilities should be designed to manage stormwater.
- » Landscaping should be both internal and external, not just within the frontage and sideyards.



LAND USE: DOWNTOWN



DESCRIPTION:

Shawnee's downtown is the civic heart of the city. It should offer small to moderate scale commercial development along with housing. The district should remain connected to and surrounded by a mix of housing types including townhomes and small lot single-family

POTENTIAL ZONING:

Central Business District;

INTENSITY (DU/A):

12+

USES:

A broad range of retail services, excluding large-scale stores and services, auto related services, and large offices. Multi-family uses can be mixed in with commercial, but commercial would be the dominate use. Commercial uses should include activities that extend beyond the standard workday such as restaurants, theaters, or galleries.

FORM:

Low to moderate building and impervious coverage, located along major streets in areas close to residential growth centers or at nodes created by significant intersections of streets. Developments should emphasize pedestrian scale and relationships among businesses and accommodate automobile access without being designed at an automotive scale. Good pedestrian circulation should connect businesses and surrounding residential uses.

COMPATIBILITY:

- » The emphasis for the downtown should be on creating a unique neighborhood center or village. Compatibility should be achieved through increased attention to traffic circulation and parking, site and building design, and on-site operations.
- » Land uses may be mixed vertically in smaller scale two to three story buildings.
- » Horizontal mixed use must create smooth internal transitions from lower to higher intensity uses in distances similar to MU.
- » Larger commercial uses should cluster around arterial streets.
- » Smaller commercial uses are appropriate on any street provided that a smooth transition in intensity of uses is maintained.

PARKING:

- » Parking in the downtown should encourage customers to park on-street and employees/business owners in off-street parking lots. It is appropriate to institute measures to discourage on-street parking for more than two hours.
- » Off-street parking lots should be a secondary option for downtown customers. Parking facilities should manage stormwater and be screened from adjacent land uses.

LAND USE: LAKE ORIENTED COMMERCIAL

DESCRIPTION:

Areas with easily accessed by the Shawnee lakes. Commercial services should serve residents in the area and visitors using the lakes for recreational purposes.

POTENTIAL ZONING:

Neighborhood Commercial District; Restrictive Automotive and Commercial Recreation District

INTENSITY (DU/A):

Not Applicable

USES:

A mix of complementary small scale commercial uses including service oriented businesses.

FORM:

Should be located along arterial streets and accommodate the automobile, while providing good pedestrian and bike access to the lake area. Regionally appropriate landscaping should be used along street frontages and within parking lots. Internal pedestrian systems should allow customers to park once and conveniently access several destinations within a retail center.

COMPATIBILITY:

- » Adjacent uses will be very low intensity, therefore, compatibility should be achieved through increased attention to traffic circulation and parking, site and building design, and on-site operations.

PARKING:

- » Due to locations along major arterial streets, parking will have to be accommodated off-street in surface parking lots. These lots should be well landscaped and reflect the open space and recreational quality of the area.
- » Parking facilities should be designed to manage stormwater and be screened from adjacent land uses.





LAND USE: INDUSTRIAL

DESCRIPTION:

Areas intended to accommodate industrial uses that are difficult to integrate with less intensive uses due to negative impacts from heavy traffic, noise, or odors.

POTENTIAL ZONING:

Restricted Light Industrial; Light Industrial; Heavy Industrial

INTENSITY (DU/A):

Not applicable

USES:

All types of industrial: manufacturing, warehousing, distribution, and office/industrial flex space. Uses in this area can range in size but have some level of external impacts.

FORM:

Designation of any new Industrial areas should be done with consideration of the following factors:

- » Freeway and rail access;
- » Availability and capacity of water and sewer service;
- » Proximity to existing employment centers;
- » Compatibility of neighboring land uses;
- » Brownfield status;
- » Impact of added employee/truck traffic to the level of service of roadways in the surrounding area and impact on the non-industrial uses along those roadways.

COMPATIBILITY:

Development within Industrial areas will be similar in nature, so compatibility is less difficult to manage. However, in areas where industrial abuts other land use categories, the following should be considered.

- » Design standards: including land buffers, architectural and site design standards, and other appropriate standards implemented through PUDs, new codes, or guidelines.
- » Operational standards that consider traffic, noise, lighting, and air quality.
- » Areas adjacent to I-40 and Highway 177 should have a higher level of landscaping and avoid outdoor storage visible from these corridors.

PARKING:

- » Typically accommodated through off-street lots. Surface lots can be shared with other complementary ventures.
- » Parking facilities should be designed to manage stormwater and be screened from adjacent land uses.

LAND USE: CIVIC/SCHOOLS/INSTITUTIONS/PUBLIC FACILITIES

DESCRIPTION:

To provide space for educational, institutional, assembly, and other public uses, including hospitals, major campuses (high school, OBU), cemeteries, airport, landfills, water plant, and major utilities.

POTENTIAL ZONING:

Various

INTENSITY (DU/A):

Not applicable

USES:

- » Educational: Public, private and parochial institutions at K-12 and post-secondary level, or trade/business schools and their accessory uses.
- » Institutional and Assembly: Community or cultural facilities, religious institutions, public health care or human services facilities and their accessory uses.
- » Other: Government or non-profit organizations and accessory uses.

FORM:

Government facilities should be held to the same standard for site design and connectivity as any private enterprise of similar intensity.

COMPATIBILITY:

Civic uses may be permitted in a number of different areas, including residential areas. Maintenance, operating facilities and public works yards should generally be located in industrial areas. Individual review of proposals requires an assessment of operating characteristics, project design, and traffic management. Industrial operating characteristics should be controlled according to the same standards as industrial uses.

PARKING:

- » Typically accommodated through remote parking lots that allow visitors to park their vehicle one-time, then navigate the campus on foot.
- » Overall parking supply should be managed at a campus-wide level including the location of parking, permit supply and cost, and the creation of transportation alternatives to major school and civic destinations.
- » Bicycle parking facilities should be integrated throughout the larger campuses like the high school and OBU, including at all potential origins and destinations, such as residence halls and academic buildings.





LAND USE: PARKS & GREENWAYS

DESCRIPTION:

Areas intended to remain undeveloped and natural or recreational in character.

POTENTIAL ZONING:

Various

INTENSITY (DU/A):

Not applicable

USES:

Limited, primarily natural. Any development is recreational and low impact in nature (such as park shelters or ball fields), while complementary to the purpose of the wider area as open natural space.

FORM:

Traditional park and recreation areas including both passive and active recreation. Shawnee's many drainageways and floodplains, and any other sensitive areas should be preserved and incorporated into the city's stormwater management system.

COMPATIBILITY:

These areas are valuable for the natural character and uses within them should have minimal impact. This requires minimal visual, auditory, and other pollutants that would reduce the pristine character of areas. Aids for compatibility may include:

- » Heavy landscape screening, very large buffers; height limitations, zero odor emissions, strict ambient noise requirements.
- » More intense recreation uses, like sports complexes should be treated like comparable commercial uses for the traffic and compatibility issues that they can generate.

PARKING

- » Limited parking demand will be created by smaller neighborhood parks and greenways. Bike and pedestrian facilities should take priority over parking.
- » More intense recreation uses, like sports complexes follow parking guidelines similar to HIC.

LAND USE: URBAN RESERVE AND AGRICULTURE/OPEN SPACE

DESCRIPTION:

Long term growth areas. This comprehensive plan outlines the land needed to accommodate growth over the next 10 - 20 years. The urban reserve designation is assigned to areas that will be needed between 15 and 25 years into the future.

Development proposals in this area, including high-intensity agricultural operations, should be reviewed for their compatibility with future urban uses.



POTENTIAL ZONING:

Rural Agricultural District

USES:

Restrictive land use with an emphasis on land preservation such as crop cultivation.

FORM:

Adjacent developments should be designed for future expansion of roads, sewers, and other infrastructure facilities into the urban reserve areas without cul-de-sacs and other configurations that will require future growth to leap-frog development areas.

COMPATIBILITY:

- » Urban reserve areas should remain reasonably compatible with typical urban land uses including residential, commercial, and industrial operations.
- » The compatibility should be determined based on the future land use identified on the future land use map; for example: an urban reserve area adjacent to an area identified on the future land use map as industrial should be compatible to the industrial land use classification contained in this chapter.

PARKING

Uses should demand little to no parking, exclusive of special or conditional events. What parking is demanded should be handled off-street and be screened from arterial streets and highways and future uses.



CHAPTERS **O4** TRANSPORTATION

CONTENTS

- » Big Ideas
 - Principals for Transportation Development
- » Introduction
 - Issues
 - Opportunities
- » Initiatives and Policies
 - Introduction
 - Recommended Actions

CHAPTER 4: TRANSPORTATION

BIG IDEAS

- » The transportation network should provide a safe and efficient means for all users including pedestrians, bicyclists, and drivers
- » The transportation system should support desirable patterns of community, neighborhood, and economic development
- » The appearance and role of corridors should elevate the community's image and serve to unite the community

PRINCIPALS FOR TRANSPORTATION DEVELOPMENT

- » Design for walkability and bike friendliness
- » Create quiet neighborhood streets
- » Reduce pinch-points (areas where traffic congestion occurs)
- » Consider lifecycle costs and the overall impact of infrastructure development
- » Incorporate landscaping in street design and upgrades

WHAT ARE
PINCH-POINTS?
Pinch-points are places within the transportation system where a significant amount of traffic is funneled with few outlets or where conflicts between turning and through traffic create confusion and dangerous situations for both motorized and non-motorized users.

INTRODUCTION

Transportation is critical to Shawnee's ability to serve the present and future needs of the city. Mobility and access help form the city, advance public safety, expand the economy, and enhance the quality of life that Shawnee offers its citizens, businesses, and visitors. For that reason, a comprehensive plan must be built around a transportation framework that accommodates private motor vehicles (cars and heavy transport vehicles), bicycles, pedestrians, and transit. This chapter presents a plan for a future system that supports growth and meets the needs of a wide variety of users.

ISSUES

Pedestrian and bicycle access. Bicycle transportation is not for everyone, but riding a bicycle or walking to destinations for short trips can be an efficient option for most people and an important source of freedom for youth and those without cars. Challenges to the bike and pedestrian infrastructure include:

- » **Continuity.** Connecting major destinations without interruption.
- » **Diversity.** Having facilities appropriate to land use and/or street context.
- » **Comfort.** Most routes depend on streets and having good street connectivity will allow users to pick the level of street intensity they feel most comfortable using. Simple design features such as a strip of green space between the curb and sidewalk can add a great degree of comfort for a pedestrian.
- » **Condition.** Especially sidewalks in older neighborhoods. Tripping hazards, tree roots in sidewalks, and ADA accessibility are challenges for most communities. Just getting a handle on the locations of problem areas can make it easier to understand the scope and cost of repairs.

Corridors, like 45th Street, with significant development potential and inadequate capacity. Shawnee's street system is its largest public capital investment and maintenance of that system is often a challenge, let alone adding to the system. But with growth comes the need to expand the system. Growth has already started to occur along the 45th Street corridor and creating a street that can handle this growth along with pedestrians and bicycles will be essential to creating a safe



“Bike share would be a good addition to the community”

“Pedestrian overpass across MacArthur between Kickapoo and airport to protect OBU students”

August Workshop

environment for all.

Limited access across the interstate. Shawnee generally has a good system of collector and arterial streets south of the interstate but the number that cross the interstate is limited. The interstate serves as a barrier to the growing base of major retail establishments on the north from the residents living on the south. The division creates pinch-points at Harrison and Kickapoo that result in regular congestion and a system with little resilience to street closures and incidents.

Transit needs beyond existing on-demand system. Shawnee is not a city with a rich history of public transportation growing with the car instead. This resulted in a development pattern and culture that is not supportive of public transportation. As a result, there are challenges with coverage, pedestrian safety, and service hours. Everyone would like the transit system to stop on their block and take them directly to their destinations, but the city’s dispersed development pattern makes this very costly. Pedestrian access to stops must also be safe and convenient. Finally, providing the diverse hours of operations required of those who frequently need to use the system, like service workers, is costly. All of these challenges are the same for even larger cities like Oklahoma City.

Development patterns that haven’t supported transportation alternatives. Over the years many commercial developments have been designed to accommodate the car with large separations making it nearly impossible to provide transit along a corridor and sometimes dangerous for those on foot or bicycle. This includes the disabled and mothers with strollers trying to maneuver between their car and front doors. Additionally, each new development was built with little to no sidewalk connections.

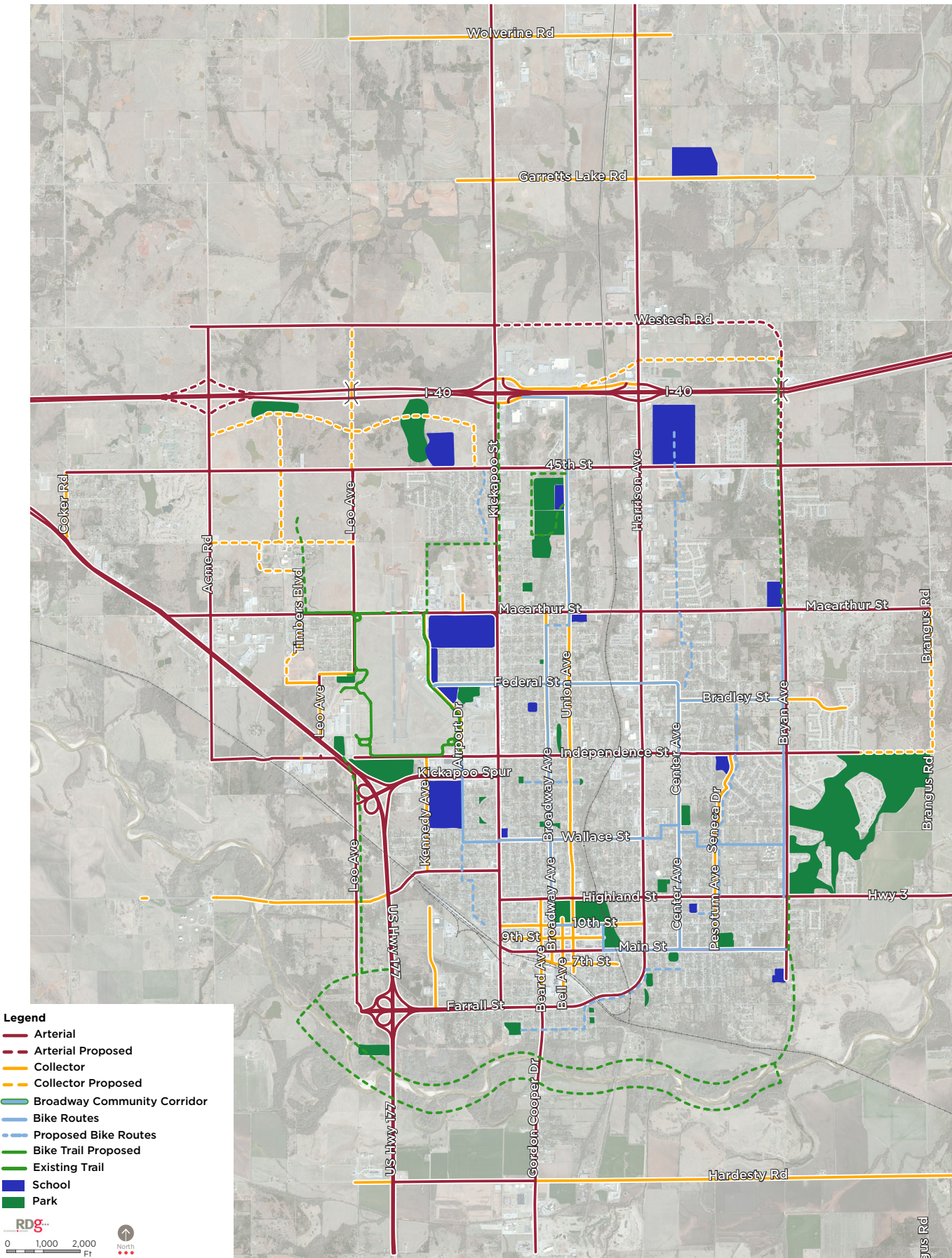
OPPORTUNITIES

Interstate proximity and access. The interstate affords Shawnee many advantages including rapid access to Oklahoma City and easy access for those to the west visiting Shawnee’s retail services. Additionally it offers high visibility and convenient access for interstate travelers and a location that is attractive to commercial and industrial enterprises.

Low stress neighborhood streets. Shawnee has a well-established hierarchy of streets where the majority of traffic is directed efficiently from neighborhood streets to collector streets, and onto the arterial streets. This creates a system of well-connected and quiet neighborhood streets that can support strong neighborhoods and safe bicycle and pedestrian travel.

Adequate capacity within a majority of the system. The vast majority of Shawnee’s streets have the capacity to support additional development and higher densities. This includes a corridor like Harrison that could handle significant reinvestment including the development of higher density residential development close to commercial uses.

FIGURE 4.1: Potential Connectivity Plan- City Core



UNDERSTANDING THE FUTURE STREET MAP

- » **Big Picture.** The map does not show every street that would be needed for future development. The local street pattern should be determined as development occurs.
- » **Flexible.** While the routes shown in Figure 4.1 have been carefully thought out, the exact path of these streets may vary depending on the details of development as it occurs. The priority is to maintain the principle of connectivity, to provide access to key connecting points, and to follow the general path shown in the map. Minor modifications can be made as needed on a case-by-case basis. Detailed engineering studies will be needed before undertaking any new road construction.
 - o Collector streets in Figure 4.1 have a higher “status” than the local streets. The collector routes should be given significant weight when making development decisions, while local streets are more flexible.
- » **Work with Property Owners.** Many new roads shown on this map run through property that is privately owned, and their implementation will therefore depend on the decisions of the property owners. The city should reach out to property owners in these key areas to discuss plans for the future.

FIGURE 4.2: Future Transportation Plan - Lake Area



INITIATIVES AND POLICIES

INTRODUCTION

An effective transportation system moves people and facilitates efficient land development patterns. It can also become a quality of life amenity in its own right. Integrated with the land use plan, the transportation plan proposes improvements, expansions, and policies to guide investment towards creating a healthy and balanced mobility system. This section will identify initiatives related to the overall system and then break it down into its component parts.

RECOMMENDED ACTIONS

COORDINATE THE TRANSPORTATION AND LAND USE PLANS

Transportation and land development are codependent systems – a transportation system is created to serve land as it develops, and land can only develop as access is granted. This is a story as old as human settlement but is especially pertinent to development in Shawnee in which land access and development is often limited by environmental factors. For the purposes of advancing a coherent land use plan and a high-quality transportation system, land use and transportation plans must be coordinated.

1. **Acquire right-of-way for expansion of the arterial system into growth areas.** The city should work with developers and property owners to reserve right-of-way for major streets in advance of development. This right-of-way should be adequate to accommodate multi-modal facilities, utilities and future expansion. Developers should leave room to extend streets to future adjacent development by leaving stub streets or empty lots where extensions are planned.
2. **Require a traffic impact analysis for large scale projects.** A traffic impact analysis (TIA) is a way to evaluate the impact of large developments on roadway system, but also on the pedestrian environment. The city would gain a clearer picture of anticipated traffic demand to identify necessary system improvements (present and future) and to more fairly determine the share of improvements for which the city and developer should be responsible.
3. **Provide a dedicated funding source for arterial and collector development.** A reliable and innovative funding program is necessary to meet the ongoing demand of major roadway projects. The city should identify those sources and align them to project priorities identified in the city's capital improvement plan.

Traffic Impact Analysis

A traffic impact analysis is not appropriate in all cases because land development projects vary widely based on their location, size, phasing, and the character of traffic expected. For example, a ten-lot residential subdivision adjacent to a collector street would be expected to have minimal impact on the existing transportation network whereas a high density residential complex may produce conflict depending on the location and context of the site. This plan recommends the city consider adopting a policy that would require a traffic impact analysis for large scale projects.

The threshold of requiring a traffic impact analysis may consider any of the following factors:

- » Estimated number of trips generated based on development proposal including the mix of uses (ITE estimates)
- » Minimum commercial square footage
- » Minimum site acreage (request and consider all phases of proposed development)
- » Extenuating circumstances such as the scale of infill development, limited access to appropriate roads classified to support the use, a site which integrates multiple land uses in a complex manner, and other factors as identified.

DEVELOP STREET CONNECTIVITY AND DESIGN STANDARDS

One of the key ingredients to successful communities is a well designed and connected transportation system. When the transportation system breaks down residents become frustrated and the real and perceived quality of life declines.

1. **Establish guidelines for greater street connectivity that includes pedestrian routes with subdivision standards.** Often subdivision ordinances are inconsistent with a community's desire for multi-modal facilities and connectivity between developments. A review of regulations should be completed to identify ways in which connectivity and safety can be improved by changing guidelines.
2. **Apply a context sensitive design approach to street design.** Context Sensitive Design is adapted from the Institute of Transportation Engineers manual: "Context Sensitive Solutions in Designing Major Thoroughfares for Walkable Communities." It takes a more holistic approach to transportation planning, where street network design involves deeper consideration of community planning issues such as adjacent land uses, intensity of development, and multiple modes of travel. The desired goal is to design streets for all users. Features include:
 - » "Streets as places", making community identity a key component in street corridor design which could be achieved through public art.
 - » The surrounding community influences the design of a given roadway, instead of applying a standard cross-section that is applied everywhere.
 - » Accommodate all modes of travel and make walking, transit, and bicycling more enjoyable and practical.
 - » Design features that enhance safety by controlling speed and access. These could include landscaping features, boulevard trees, narrowed lanes, etc.
 - » A street design that may change as it passes through different "context zones" or land uses within the community.
 - » Capacity provided through a network of streets, rather than widening a single corridor to accommodate more vehicular traffic.
 - » Concentrate longer trips along limited access routes.
 - » Focus transit where land uses can support it.
 - » Measure performance by more diverse standards than just level of service for automobiles.
3. **Develop design criteria for arterial streets to include options for medians and improved pedestrian environments.** Residents frequently noted the desire to improve the safety and image of high profile corridors. Future arterial streets and improvements made to existing streets could include features such as medians, improved crosswalks, and adequate landscaping. Aesthetic improvements may also include adjustments to the sign ordinance and increased landscaping requirements for parking lots that are visible from arterial streets.

"Need to improve
accessibility design."

"More neighborhood
sidewalks"

"Walkable & Bikeable
area which connect
the community."

Traits of Bicycle & Pedestrian Friendly Development

Street connectivity. Development with a high degree of street connectivity (and sidewalks) allows more direct and shorter walking distances in all directions.

Intersection / barrier treatments. A pedestrian friendly transportation system welcomes residents into all environments by integrating measures to help them safely and conveniently cross barriers such as major streets, railroads, and major land developments.

Mixing land uses. For a system to be pedestrian friendly, it must include a mix of origins and destinations within a reasonable walking distance. By situating complementary land uses together - shops, homes, and schools - walking becomes a viable option.

Trails and pathways. Often a strong recreational amenity, trails are much loved by residents and often play many roles in a community. However, the priority is most often recreation first and transportation a distant second. Trails and pathways can be used to bypass barriers or fill a “gap” that may be missing in the street system.

Narrow lot widths. In both residential and commercial developments, the width of parcels has a direct correlation with the time that a walker or bicyclist must travel to reach a destination. The time and distance directly affect whether an individual can (considering mobility issues) and will (considering convenience issues) choose to walk.

Clear pathways through the site. Upon arrival to a destination, there should be a clear pathway for a bicyclist or pedestrian to navigate through the site (often a parking lot and drive aisles) to the entrance of the facility or bicycle parking areas. Clearly defined pathways should provide the pedestrian and bicyclist with a route that is safe, convenient, and visible to automobile traffic.

Bicycle racks. Appropriate bicycle parking - site location and rack design - must be included to make any new development bicycle friendly.

CREATE MULTI-MODAL CORRIDORS

A transportation system can promote a variety of complementary transportation modes including motorists, bicyclists, pedestrians, and transit riders. Shawnee has a growing demand for a stronger pedestrian and bicycle system, as well as an expanded transit system. The use of these may grow and could be incorporated into development standards and city budgets.

1. **Establish site development standards that accommodate all modes of transportation.** In much the same way that context-sensitive design addresses the overall design of the street, sites should feature pedestrian accommodations in new developments, significant redevelopment, and priority areas in the core of the city. A tenant of context sensitive design is creating a roadway that provides a safe space for all road users and the same should be the case for those moving through a development, whether from their car to the front door or from business to business. This can be achieved by adopting a complete streets resolution which requires city staff to consider all modes of transportation when maintaining, upgrading or building new infrastructure.
2. **Identify a system of multi-modal corridors that safely connect all parts of the city and major destinations.** Not every street can be a multi-modal corridor or a will incorporate all forms of transportation. For example, arterial streets may accommodate vehicles and transit, while parallel local streets would serve pedestrian, bicycle, and trails. Every street improvement project that expands the capacity for motor vehicles on minor arterials and all collectors could include accommodations for transit and active modes (pedestrian and bikes) at some point. Specific corridors that are already designated as bike routes and future routes are illustrated in Figure 4.1. These corridors should connect major destinations, use low volume streets, and supplement the trail system.

Example: The Impact of Connectivity on Walkability and Bikeability

The following examples demonstrate the impact that connectivity has on walkability. Both scenarios show a quarter-mile walking distance. The example with high connectivity has a significantly greater reach (greater efficiency) than the low connectivity example which requires the walker to back-track.

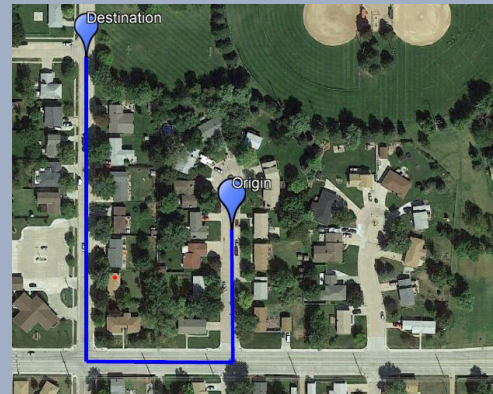
HIGH CONNECTIVITY SCENARIO

- » Walking Distance: 0.25 mile
- » Range/Reach: 0.21 mile
- » Efficiency (Range/Distance): 84%



LOW CONNECTIVITY SCENARIO

- » Walking Distance: 0.25 mile
- » Range/Reach: 0.09 mile
- » Efficiency (Range/Distance): 36%



3. **Establish guidelines for all new or improved collector streets to consider multi-modal features.** The city's collector system could serve a variety of functions and users. Guidelines for collector streets could include:

- » A pedestrian/bicycle domain set back from the roadway by street landscaping and an adequate greenway setback from curb to sidewalk; or designation of an on-street bike route, along with a continuous sidewalk.
- » Special lighting and street graphics to promote a sense of security and well-being.
- » Well-marked pedestrian crossings, sometimes with features such as crossing nodes that reduce the distance pedestrians must travel to cross the street.
- » Street furniture that claims part of the street environment for people who are outside of vehicles. This may not be appropriate for all corridors, but could be very important in proposed neighborhood centers.
- » Attractive landscaping to promote a sense of community.
- » Adequate buffering of draws and stormwater drainage areas to lower the volume and velocity of rainwater and decrease flooding events.



IMPROVE AND EXPAND THE EXISTING TRAIL NETWORK

Shawnee has a limited number of trails, but those in existence are very popular. Residents expressed a desire to see these trails connected with additional routes.

1. **Update Shawnee Trails Master Plan.** Based on the success of the existing trails the city should update the Trail Master Plan to reflect growing interest in trails and the work that has been done by Blue Zones around walking and biking.
2. **Connect existing trail links.** A trail that provides miles but does not connect to its surroundings may provide benefits to people seeking exercise, but fails in its transportation mission to move people to destinations. In addition, poor access or visibility to and from surroundings can create public safety problems. Trails should be designed or retrofitted to provide convenient and barrier-free access to adjacent streets and major destinations. One of the top priorities of the updated Trail Master Plan should be to connect existing trails and identifying funding sources for construction and maintenance.
3. **Identify a reliable funding source for trail development.** Shawnee will need to develop a reliable funding source for trail development. The traditional method of trail funding through the Federal Transportation Alternatives program, faces challenges with every reauthorization, and must compete for declining funds with a wider variety of projects. In addition, good trail maintenance is important, and total costs will increase as the system expands. Because trails are both transportation and recreation facilities (and sometimes transportation to recreation), funding from the capital and operating budgets for the Parks and Public Works Departments is both necessary and appropriate. However, these funds are also limited, and other sources should be explored.
4. **Connect the city to the river through trail development.** The river is a hidden asset on the south side of the city. By creating a trail corridor along the river residents can be connected to the regions natural beauty while also expanding the city's trail system, a request by many residents. The opportunities to expand this system to include the river are illustrated in Figure 4.1. Additionally the city should monitor the rail corridor to the south that crosses the river. If this is officially abandoned it could be an additional connection across the river. The proposed crossing in Figure 4.1 uses the former Slover/Clear Pond Road bridge.
5. **Find ways to include public art and amenities to increase use and stewardship.** Beautification efforts can have an impact on trail use and feelings of safety and comfort. Finding ways to incorporate public art or amenities such as trash cans, benches, or water fountains on trails and major pedestrian routes could contribute to increased usage.

“Connect high school
to rest of trail system.”

“More pedestrian and
bicycle infrastructure.”

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EXPAND THE BIKE AND PEDESTRIAN SYSTEM

The city's transportation system could encourage all modes for appropriate trips - short distances that do not require automobile travel, for example. Therefore, street standards could include reasonable accommodations for all users.

1. **Expand and approve bike routes along low volume streets.** Shawnee's bike system is limited to a few corridors. This should be expanded to a series of low volume streets that connect major destinations and are comfortable to the users.
2. **Improve the bicycle-friendliness of Shawnee.** Shawnee could work to create an environment that is friendly to both bicyclists and pedestrians. The "4 E's," which the League of American Bicyclists views as the measure of a bicycle friendly community, could be adopted in Shawnee. This system recognizes that engineering alone does not create a successful bicycle culture. The components of the 4 E's include:
 - » **Education:** making cyclists and motorists aware of the rules and practices of safety and etiquette and their mutual rights and responsibilities as road users
 - » **Enforcement:** helping to ensure safety by enforcing rules that pertain to all users
 - » **Encouragement:** executing events and programs that promote bicycling and its many benefits
 - » **Evaluation:** establishing benchmarks and measurements to gauge the effectiveness of bicycle initiatives
3. **Remove barriers to expanding the bike system which includes improvements to crossing man-made barriers.** The greatest challenge to expansion of the bike system in Shawnee are man-made barriers – especially corridors like Kickapoo and Harrison, where even cars find it challenging to cross at times. Improvements to existing crossings could include bicycle and pedestrian features. Future or improved crossings of the interstate or any arterial street could take into consideration the need to move people along with cars. Features may include better defined crosswalks, refuges for pedestrians, pedestrian signals, and clearly defined bike lanes.
4. **Identify high priority sidewalk segments per an established sidewalk plan or the safe routes to school master plan adopted in June 2019.** Shawnee needs to develop and implement a strategic plan for the city's pedestrian network. Any plan needs to address key challenges, including:
 - » Expanding neighborhood sidewalks on local streets that provide access to destinations such as schools and employment centers
 - » Addressing barriers to pedestrian travel such as major intersections, long arterial street crossings, and signal timing
 - » Connecting the sidewalks to the trail and bike system

To address these issues the plan will need to:

 - » Identify a complete street network and pedestrian corridors that could be developed and funded
 - » Upgrading sidewalks through the use of public art, especially within school zones
 - » Establish a slow zones around schools policy





“Need public
transportation with
routine bus route.”

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5. **Include sidewalks in all updated street design standards.** As the city reviews and updates street design standards, sidewalks must be included in all street types exclusive of expressways. This should include proper crossings and signalization and coordination with utilities.
6. **Establish a dedicated funding source to address gaps and maintenance of the sidewalk system.** Maintenance and filling the gaps within an existing sidewalk system can be one of the most challenging priorities in a pedestrian system. For new areas, the city can work with the developers to ensure that quality of life amenities like sidewalks are included in the final design. During street maintenance and reconstruction some improvements are made for ADA compliance. However, funding to fill the remaining gaps often falls solely to the city, although some communities have done shared funding approaches with property owners. To maintain the system and fill the gaps, the city will have to look at a variety of funding sources that include local support from civically minded residents and organizations.

PLAN FOR EXPANDED TRANSIT SERVICES

Shawnee’s current transit system is an on-demand system with limited hours of operation. The city has a small role in the transit system and funding for expansion of these services is very limited. In the future, the city could continue to work with the transit authority to ensure that development can ultimately be accessed by transit and that residents have safe routes to get to transit stops.

1. **Ensure that future projects are transit friendly.** As streets along high intensity or high density areas are improved or modified, transit friendly features could be included. Amenities could include enhanced pedestrian access and street crossings; signal cycles that give pedestrians time to cross; space for shelters; and signal controls. As the city is revising and updating existing street standards all of these features could be included. Additionally, the connections between a stop and the entrance to a major destination is also important. For example, examine whether there is a clear and safe path or a large parking lot with no defined pedestrian route. Unsafe paths or waiting in uncomfortable settings can deter residents from using the service. All major projects and smaller projects in areas with high intensity of land use should consider the length and nature of the path between their front door and the street.
2. **Expand the awareness of the existing transit services.** Central Oklahoma Community Transit System (COTS) offers demand-response transit service within Shawnee and to destinations outside the city. This includes transportation to schools, medical appointments, shopping, and special events. Demand-response means that it must be scheduled 48 hours ahead of time but only costs the user \$3 a ride. Many residents are not aware of this service or believe that it is only available to the elderly or disabled. Local organizations should work with COTS to share information about the services that are available.



CHAPTER 05.

COMMUNITY IMAGE

CONTENTS

- » Big Ideas
- » Principals for Community Image
- » Introduction
 - o Issues
 - o Opportunities
- » Initiatives and Policies
 - o Introduction
 - o Recommended Actions

CHAPTER 5: COMMUNITY IMAGE

BIG IDEAS

- » Shawnee's built and natural environment should be regionally appropriate and well maintained
- » Partnerships should produce neighborhood and commercial areas that are healthy, inviting, attractive, and functional
- » Develop places where Shawnee residents can gather and socialize to build connections
- » Support the missions and quality of all community organizations including the school district and downtown organization

PRINCIPLES

- » Public spaces should be maintained to the same level as expected of private property
- » Private property investments should be protected through code enforcement and maintenance of public areas including streets
- » Guidelines should clearly define city expectations for developers and investors
- » Places should be designed for multiple generations

INTRODUCTION

The traditional elements of a comprehensive plan help guide land use directions, transportation and infrastructure services, and other city services like parks. Throughout the Shawnee Next Horizons planning process, residents also expressed a desire to address community image and quality. The image of the city both internally and externally was very important to residents. They saw that great cities go beyond basic systems and elevate the pride and quality of life that residents and visitors alike experience. Chapter 8 will review many of the quality of life features, such as parks, recreation, arts and culture, and natural environments. Community Image identifies initiatives and action items that will promote Shawnee's character through the built environment. Defining a vision and the action items necessary to achieve that vision requires a discussion of the issues and opportunities related to community appearance, landscaping, and community design.

ISSUES

Community appearance. Community appearance has a direct impact on residents' attitudes toward investment in their community and neighborhoods. Many noted concerns with property maintenance, the appearance of entrances into the city, and housing quality. Defining a 'good appearance' can be difficult, as it can mean different things to different people. Cities need to have a well-defined baseline for building and property maintenance, as well as the political will to enforce those standards and apply them to city property. This effort needs to include community education regarding expectations and how to properly address problem properties in a neighborhood. The key element is community support, which has been expressed by residents through the Shawnee Next Horizon process.

Property maintenance. Shawnee is not unique, in that property maintenance is a struggle for many communities and can often result in a cycle of decline starting with just one low-quality property on a block. Investing in city properties should be a first step, in essence "leading by example." Establishing and enforcing property maintenance codes should be viewed through the lens of life safety and economic development. All individuals in the community should expect that all structures are safe and secure. Additionally, deteriorated properties lower the value of all adjoining properties and decrease the desire for investment.

Urban landscape. Areas along Kickapoo have begun to set a standard for better landscaping and residents noted a desire to extend this throughout the community and into public and semi-public spaces. Good and well maintained landscaping can be a crucial contributor to an attractive community image. Older neighborhoods have a good tree canopy but this has not been done consistently in new areas. When landscaping is installed it is often done with inappropriate materials for Shawnee's soil and climate. Sustaining an attractive landscape requires selection of appropriate materials and an understanding of proper maintenance.

"Clean up our front door – entrances to city are not a source or point."

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OPPORTUNITIES

Momentum from Kickapoo Street improvements. The improvements that have been made to North Kickapoo are a nice welcome to visitors and residents alike. This has hopefully established a new level of expectations that should be carried out in any new street or reconstruction of existing streets.

Cultural history of the area. The area has a rich cultural history that most importantly includes the history of five Native American Tribes. This history should be celebrated and shared more with visitors and residents. The Potawatomi County Museum, Mabee-Gerrer Museum of Art, and Citizen Potawatomi Nation Cultural Heritage Center do this work but it should be expanded beyond the museums into the rest of the downtown at a minimum. This should include arts and cultural events and businesses that sell materials from local artists and craftsmen.

Large number of visitors (regional retail hub). Shawnee is a retail hub for a large area to the east and south. As a hub, thousands of visitors come to the community every year but many never make it into the southern portion of the city. Community leaders should find ways for entrepreneurs to capitalize on this traffic and draw them into the community for shopping, dining, and entertainment.

“Need to capture more of the 11 million vehicles that pass our ‘Little Hamlet’ annually”

“Connect city to CPN (Citizen Potawatomi Nation) in meaningful ways.”

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INITIATIVES AND POLICIES

INTRODUCTION

A healthy city is a place in which people have pride in their community. That pride should be expressed in many different ways but is often in the physical image of the community. This often translates to the more intangible perceived image of a community both by residents and visitors. The following section identifies policies and actions that can be taken to physically express the pride that many residents have in Shawnee.

RECOMMENDED ACTIONS

IMPROVE LANDSCAPE REGULATIONS

Good and well maintained landscaping can be a crucial contributor to an attractive community image. Landscaping can have many benefits and fill an important role in land use. These include:

- » Minimizing compatibility issues between adjacent but different land uses
- » Offering shade on hot days and blocking harsh winds
- » Breaking up concrete environments such as large parking lots
- » Shading homes and reducing utility bills
- » Strengthening commercial districts (studies have found that shoppers will spend more in environments that have greenery and good landscaping)
- » Overall enrichment of the urban environment



1. **Support and encourage the use of native materials.** Central Oklahoma is not immune to droughts that can quickly cause non-hardy materials to wither and die. The use of native materials should be first demonstrated by the city and within city owned property. Through local partnerships, fundraising, and grants native landscaping should be added to city properties, especially city parking lots.
2. **Work with partners to plant trees and native landscaping along major corridors and within parks.** The streets of any community may be the only public environment individuals experience on a daily basis. While the improvements to the Kickapoo corridor have elevated the quality of the environment much of the corridor still lacks trees. Trees and landscaping can have a strong impact on the opinion that is formed of a community. This is not an easy or inexpensive endeavor and must be taken on with the assistance of local community organizations, business owners, redevelopment efforts, and active neighborhoods. Reconstruction of any arterial or collector street should include landscaping along with appropriate pedestrian and bicycle features.



UPGRADE SITE DESIGN STANDARDS

Good site design standards should do more than just ensure proper vehicular turning radius but must also create environments that people want to be in, properly control stormwater, and create safe connections to surrounding developments.

1. **Require pedestrian accommodations in all site designs.** New developments and redevelopment of existing sites must include better pedestrian connections. At a minimum this may include:
 - » Safe walkways between parking areas and business entrances
 - » Defined walkways between businesses within a development
 - » Median breaks and refuge areas when crossing major streets
 - » Well defined crosswalks that offer the pedestrian the shortest possible crossing
 - » Connections to any adjacent trails or sidewalks
 - » Safe and convenient connections to public transit stops (current or planned)
2. **Establish basic design guidelines for the I-40 corridor.** As one of the only perspectives visitors may have of the city the importance of this corridor cannot be over stated. Design guidelines for this area should give clear direction to the development community and planning commission. Guidelines should focus on good landscaping, screening of storage areas, lighting, utility placement and visibility, stormwater management that creates amenities, and properly scaled signage and public art.
3. **Offer incentives for on-site retention when done as an amenity.** Encouraging the use of low-impact development techniques should decrease the volume and velocity of stormwater entering the streets and drainageways with the added benefit of creating on-site amenities. For too long the default has been to hide these behind buildings as nothing more than holes in the ground instead of turning a necessity into an asset. Techniques may include:
 - » On-site retention of stormwater to create a water feature/amenity for the development
 - » Using rooftop collection systems and green roofs to capture rainwater that can be used later for irrigation
 - » Using pervious pavement, pavers, or asphalt in appropriate locations
 - » Using planters or landscaped strips next to roads and parking areas to encourage stormwater infiltration and temporary detention

“Increased landscaping
standard for new
development”

“Parkway along south
side of I-40 to serve
future development.
Connects to
marketplace circulator
system at Kickapoo.”

“The development of
traffic corridors should
equal green belt
development”

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IMPROVE OVERALL COMMUNITY APPEARANCE

As noted earlier, residents naturally crave a community they can take pride in. When buildings are deteriorating, landscaping is non-existent or poorly maintained, and community facilities are in poor condition that pride is hard to maintain. Elevating a community's appearance also elevates investors sense of security in a market or community thus incentivizing them to invest or even expand an existing business.

“Improve sign ordinance to make major streets more welcoming”

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1. **Review and update property maintenance codes and enforcement procedures.** Poorly maintained buildings and sites have an enormous effect on the visual quality of Shawnee, which can be depressing to residents as well as property values. A review of property maintenance codes should be completed along with an assessment of enforcement procedures. A review of the property maintenance code should address those items that have the greatest impact on life safety, visual quality, preservation of community maintenance standards, and enforcement of the ordinance. The City should consider a proactive approach for key corridors and neighborhoods that are experiencing declining values. With increased enforcement should also come access to assistance, as often people do not have the resources to improve the appearance of their property. This assistance may come through the city's many generous non-profits. Along with property maintenance notifications, the City should provide information on local organizations that offer assistance to residents. This may even be done in partnership with local civic and church organizations.
2. **Develop property maintenance materials and education programs on how to be a good neighbor.** Good property maintenance programs combine awareness of the need for reinvestment and upkeep with the tools necessary to be a good neighbor. Preparation and distribution of a property standards manual should encourage good neighbor behaviors before enforcement is needed. The manual should be a friendly and clear document that sets out the expectations for residents of Shawnee as a community for individual building and property maintenance. It can also help provide useful information, such as locations of sites to dispose of or recycle unwanted household items. Educational programs should also be developed, especially for first time homeowners and renters. This may be done in conjunction with local realtors or landlord associations.





PHOTO CREDIT: Community Renewal

3. **Work with the schools on community pride and property maintenance.**

Understanding and pride in one's community starts at an early age but more and more communities are realizing that out reach on what it means to be a good neighbor needs to occur early. Working with the schools, and particularly the after school programs, the city or Shawnee PRIDE program should develop materials on different topics, including history of the city, what it means to be a good neighbor, and the importance of property maintenance

4. **Invest in a systematic reporting system for tracking problem properties.**

Calls on different properties come to the city or other non-profits from many different challenges. The city should consider investing in a system that creates a more systematic approach to collecting and tracking problem properties.

5. **Continue to promote public art throughout the community.** One of the best ways to enhance the image of the city is through public art. This is already apparent through the painted horses scattered throughout the city. Additional efforts to include public art in newer developments or gateway projects should be considered.

RECOGNIZE EFFORTS THAT HAVE BEEN MADE

Shawnee Next Horizon Committee members noted that residents of Shawnee have completed some great work and built strong partnerships over the years but often those accomplishments can get lost in the negatives that are easily debated. Recognizing and celebrating those efforts should acknowledge the great volunteers of Shawnee and create momentum and pride in the city. Pride is essential to building a civically and economically healthy city. (see Shawnee Next Horizon Introduction: Being a Healthy City)

1. **Establish a “state of the city” address to celebrate accomplishments and outline initiatives.** Over the last several years the city has accomplished a number of initiatives, whether led by the City or other organizations. Acknowledging these efforts should be done to build pride in the community, celebrate the great people of Shawnee, and build momentum for continued investments.
2. **Evaluate the city’s existing brand and consider updating.** Every few years cities and organizations realize they must reassess their brands in light of changing trends and environments. On a regular basis the City, Shawnee Forward, and other community development groups should work together to assess the effectiveness of the branding and messaging of the city.
3. **Extend customer service training in the PRIDE program to city staff.** Building partnerships between the City and individual residents is an important first step to addressing property maintenance issues. Many cities have placed this process in the hands of the police departments, creating a sense of criminality to the process. When possible creating a better community through code enforcement and permitting should be framed as a partnership in which everyone is working towards making a better city for all.

Perennial for 2019

Rattlesnake Master

Eryngium yuccifolium

Rattlesnake Master is a native species to the tall grass prairies. Leaves of rattlesnake master are parallel-veined, bristly-edged, sword-shaped, medium green leaves (to 3' long) resembling those of yucca. Flowers are greenish-white and tightly packed into globular, 1" diameter heads resembling thistles. The flowering heads attract many kinds of insects

Rattlesnake master prefers dryish, sandy soils, but tolerates clay and shallow-rocky soils. Plants tend to open up and flop in overly fertile soils or in anything less than full sun. This is a taprooted plant which transplants poorly and is best left undisturbed once established.

Use rattlesnake master in a xeriscape garden, perennial border, or native garden. Group plants in naturalized areas for best affect.

- Exposure: Sun, part shade
- Soil: Tolerates about any soil
- Hardiness: USDA Zone 4-10



Each year the Department of Horticulture and Landscape Architecture at Oklahoma State University picks a perennial of the year for their Oklahoma Proven plant promotion program. Their website, www.oklahomaproven.org, is a great resource for developing a list of approved native plants.

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CHAPTER 06.

SHAWNEE DOWNTOWN

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CHAPTER 6: DOWNTOWN

BIG IDEAS

- » Improve visibility of the downtown
- » Elevate the downtown to be a regional destination for living, working, and entertainment
- » Offer an urban lifestyle in downtown Shawnee with quality residential options
- » Ensure that the downtown is included in an overall economic strategy for Shawnee

PRINCIPLES

- » Downtowns should be neighborhoods where people live, work, and play
- » Public services should be high quality with public spaces that act as regional destinations
- » Corridors should welcome visitors with quality signage
- » Vacant areas should be leveraged to create high quality community spaces or housing

INTRODUCTION

Around the country, downtowns in cities of all sizes have experienced a re-birth. The most successful of these established themselves as “places” as well as “presences” – areas that attract people to live and to experience, as well as to work. The last thirty years has seen a reintroduction in the types of uses and activities in our city centers that previously moved away – housing, shopping, entertainment, eating and drinking. These uses interact with one another to create a new sense of city life. Opinion surveys and market results have demonstrated the affinity that younger generations have for city life. Geoffrey Webb, a theoretical physicist who has turned his attention to understanding the unifying principles of cities succinctly describes good city planning as “maximizing interaction, minimizing distress.” This measurement describes active and safe city centers and provides a prism through which we view central districts. Most importantly, though, high functioning centers also encourage and attract innovation, becoming in the words of British architect Peter Cook a “garden for ideas.”

ISSUES

Homelessness. This issue is both real and perceived in the downtown. As one of the few communities in the region to provide services to those distressed, some in the rural areas come to Shawnee looking for help. However, there is also a perception that the downtown is not safe, which is not the case. Addressing this issue will take a community wide effort to offer better day services and a marketing effort that highlights all of the positives happening in the district.

Large vacant spaces. Since World War II the retail market has experienced several evolutions. The first was the move out of traditional downtowns to car-oriented malls and super centers. In more recent years the shift has been to on-line retail. The on-line market has impacted the large scale retailers the most, and thus the demand for square footage has declined. This leaves the former downtown department stores even harder to fill. The market today is smaller scale, focused on specialty goods and services. Communities that have successfully filled larger spaces have found ways to divide them into marketable small spaces.

Lack of twenty-four hour population. Until recently, regulations have prohibited residential uses in the downtown. This policy along with a lack of entertainment options resulted in a district that has limited activity after 5 pm. Adding residents and retail to serve them in and around the downtown will be essential to bringing back more activity in the district. The added “eyes on the street” will also increase the sense of safety in the district.



Sense of neighborhood and perception. Closely aligned with the lack of residential uses in and around the downtown, the district is not seen as a neighborhood. This, in addition to perceptions about safety, has stifled development in the past. Adding more residents increases the sense of “positive” activities, while adding new businesses will improve the perception of the downtown. However, this may take multiple years to complete.

Community event space. The downtown has a number of community events but many of the districts public spaces are either small and hidden or like Woodland Park are limited in size for hosting larger community events. Activating the existing spaces with people and events will further improve the perception of the district.

OPPORTUNITIES

Strong interest in adding housing. There is a growing interest in adding housing in and around the downtown. One of the first projects is already under construction. These homes and new energy are essential to creating new business demand and an increased perception of safety.

Available sites. In and around the downtown there are a number of sites available for adding both residential and commercial uses. Smaller projects, like what is occurring on the east end of Main Street should build momentum for the larger projects. Large projects like the Masonic building will lead to multiple partnerships and the momentum for smaller scale projects.

Opportunity to create public spaces that support development. The proposed expansion of Woodland Park creates the ideal opportunity to establish an environment that supports additional private market investment in and around the downtown. Improvements to this park and to Celebration of Life Park should address the surrounding blocks to create an opportunity for new development or redevelopment.

“More downtown
housing for all ages.”

August Workshop



INITIATIVES AND POLICIES

INTRODUCTION

This is not the first time that strategies and initiatives have been identified for the downtown. In 2012 Reimagine Downtown was assembled with the help of OU design students. The effort created momentum and interest in the downtown and many good things have occurred in the district since the completion of the plan. Additionally, the five key recommendations identified in the plan still remain valid. These recommendations include:

1. Develop an organizational structure to guide progress downtown
2. Pursue and provide guidance for financing options
3. Attract more people to downtown from Shawnee and the region
4. Enliven public spaces, including streets, parks, and plazas, with design strategies
5. Improve access and connectivity to downtown from key gateways

The following initiatives and action items build on these strategies and the work that has been done in the downtown since 2012.

RECOMMENDED ACTIONS

ENLIVEN PUBLIC SPACES

Our public right-of-way contains some of the most important public spaces we have in a community, especially in a downtown. The sidewalks and ability to navigate a downtown by foot are essential to the experience one has in a downtown. Since the completion of the 2012 plan the streetscape project has been finished but this work should be used as a catalyst for continued improvements to public spaces.

1. **Continue public enhancements that started with the streetscape and use these as development tools.** Public investments should always create a private market reaction that is equal to or greater than the investment made by the public. While it is sometimes hard to quantify the direct private market reaction, Shawnee has clearly seen an uptick in the number of new businesses and facade improvements completed since the streetscape investment.

Three potential projects should build on this momentum to create further opportunities for private investment.

- a. **Extension of the streetscape to East Main.** Over the past two years significant investment has been made in the buildings along East Main. Many of these buildings are smaller and therefore more appealing and easier to occupy. Extension of the street should create continuity and improve the pedestrian environment for this high traffic area. Special attention should be given to outdoor seating areas for the existing businesses.
- b. **Woodland Park expansion.** The 2017 Park Master Plan identified Woodland Park and Celebration of Life Park as focus parks for improvement, and expansion in the case of Woodland Park. Like the streetscape these projects should be viewed as an opportunity to create private market investment. Improvements should create opportunities for new development and active spaces that attract people for more than just special pro-

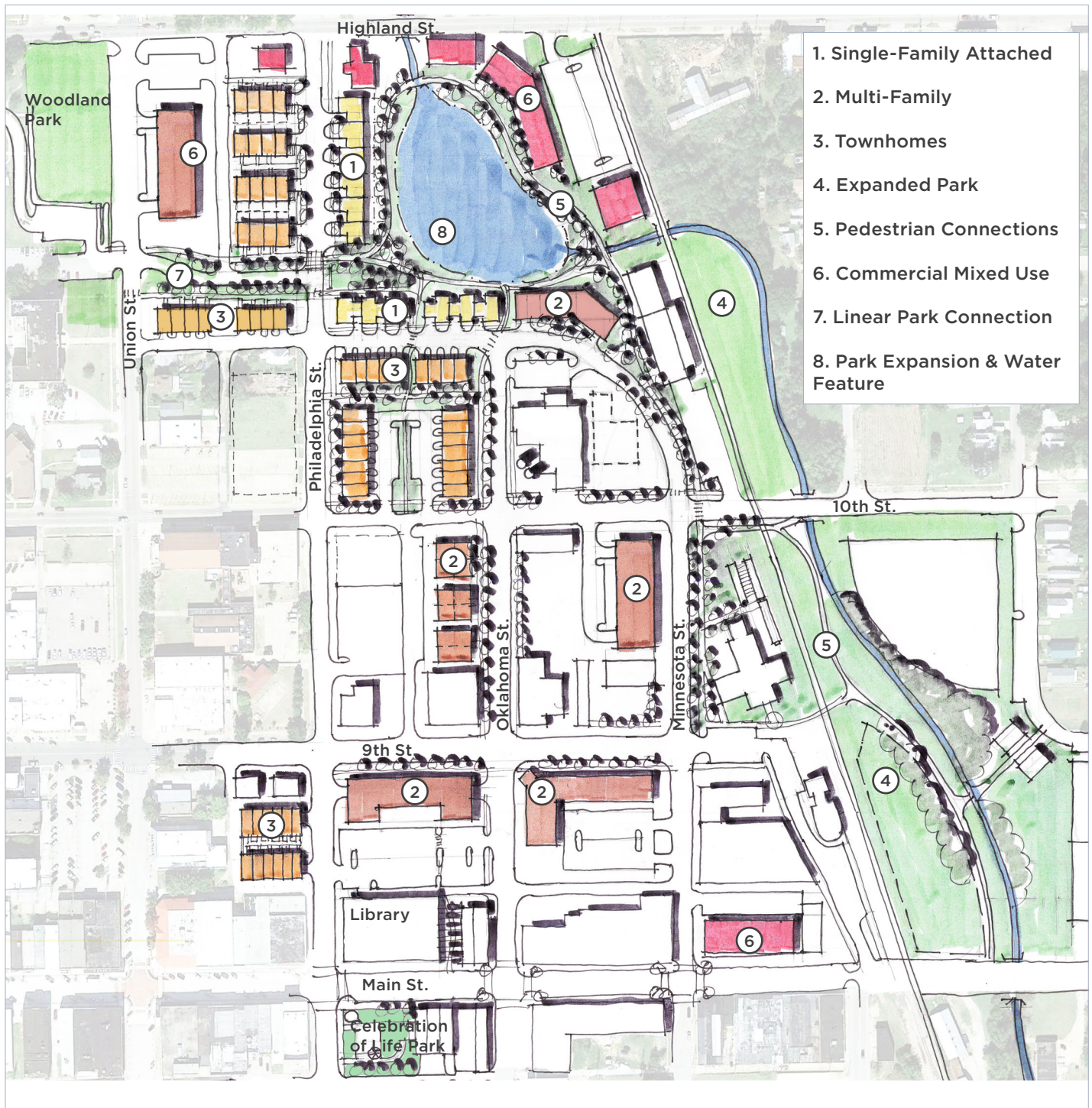
“The look of main street needs to be expanded across the area: Kickapoo to Harrison, Highland to Farrell.”

August Workshop

gramed events. During one of the community workshops, ideas were developed that will help leverage the park for greater private market investment and unprogrammed activation. The concept laid out below illustrates these ideas and include:

Leveraging the floodplain and creating development sites. The concept removes structures within the floodplain and uses this space to create a water feature that attracts people. The water feature should have paths that connect it to Woodland Park and south to Main Street. To the south the path should follow the drainage way. Using the exist-

“Central Gathering
Place – Town Square
downtown.”





ing floodplain, threatened properties should be removed for additional park space to the east of the railroad. Following the floodplain the park should connect the expanded Woodland Park to the Museum and Main Street.

Create a boulevard or linear parkway. The parkway should connect Woodland Park to the new water feature to the east.

Add new residential development that includes a mix of single-family attached, townhomes and multi-family. Shawnee is in need of a greater mix of housing (see Chapter 7). Adding quality housing in and around the downtown is a key strategic goal for the district. This should create more of a 24/7 environment in the district. Multi-family sites may be a little further off of the park and fill in existing lots in the downtown. Potential sites include areas on the south side of both 9th and 10th streets.

Create opportunities for new or improved commercial/mixed-use sites. A number of the existing commercial uses along Highland are marginal.



Development of an expanded Woodland Park should create new commercial or mixed-use sites both along highland and the park area.

c. **Celebration of Life Park.** This pocket park in the heart of the downtown is a great opportunity to create an engaging space that attracts residents to the area for more than special events. The 2017 Park Master Plan calls for adding a performance stage and play structures. Like Woodland Park, improvements should be paired with redevelopment of surrounding sites. Specifically to the south of the park where new residential development would add eyes on the park and improve both the quality of the park and the residential units.

2. **Increase enforcement of park hours.** Resolution 5957 sets park hours between 5 AM and 10 PM. The presence of individuals in the park after hours can lead to an increased perception of that downtown is unsafe. Increased enforcement of park hours could help reduce this perception.

ATTRACT MORE PEOPLE TO DOWNTOWN

The 2012 plan called for finding ways to bring more people to the district. This included:

- » Providing affordable housing options
- » Improving retail offerings downtown
- » Developing community activities and events throughout the year
- » Eliminating the perception of poor safety

The city has made some progress on these items, including the first stand alone residential project, new businesses along Main Street, and additional events like the Safe Events for Kids. However many of these still remain relevant. Actions items should include:

1. **Increase residential population.** New housing opportunities should be added to the district both as second story rehabs and new construction similar to those on Philadelphia Street. Large projects may only occur after smaller projects have proven successful in the market. For new construction, good site plans with adequate parking and landscaping should be maintained. The school district may also be a partner in bringing housing to the downtown. Working in partnership with a private developer the school district should redevelop vacant space in the former high school to residential use. First priority for these units should be given to teachers. The public private partnership could even require the units to be affordable to a teacher's salary.
2. **Initiate family-oriented development around downtown.** In many cities young 20 and 30 year old professionals have been attracted to more urban living in downtowns. Many of these individuals are moving into their family years but still look to be in an urban environment. This housing option does not exist in Shawnee today but the potential around the downtown exists. Attached single-family homes or townhomes with good access to park space are the kinds of units that this market and many empty-nesters want. These opportunities are identified in concepts for Woodland Park.
3. **Encourage adaptive residential reuse and mixed use in key buildings.** There are several key buildings in the downtown, mostly along Main and 9th streets. Many of these buildings are very large and finding one occupant will be challenging. Mixing uses and tenants within these buildings may be necessary to a successful reuse.



“A downtown with shops that are active not just for the lunch crowd, but in the evenings after people get off work.”

Survey Response

“Compassionate
solutions for
homelessness.”

Survey Response

4. **Identify key niches that can support destination businesses.** Finding niche businesses that provide a special product and a unique level of service can expand the marketability of the district to a larger region. Shawnee is home to multiple Native American Tribes with unique arts and trades. One potential niche could be as a center of Native American arts and crafts, a unique destination that appears to be lacking in Oklahoma today.
5. **Establish partnerships to identify safe and supportive alternatives for the homeless, day and night.** There are many residents concerned that by providing additional services the city will only attract more troubled individuals. This may be the case but the people of Shawnee are also compassionate, caring people who provide for their fellow residents through existing non-profits and churches. Having safe shelter for troubled residents should consolidate the many efforts and dollars that are being put forth by scattered non-profits and churches in the community and establish an alternative to congregating in the downtown.
6. **Put sites together.** One of the biggest deterrents to redevelopment can be the consolidation of ownership and site preparation. The city or county can play an important part in this process. With consolidated ownership the city can then make a site available for redevelopment. Tools such as TIF can then be used to help with the redevelopment of the site or surrounding area. It is critical that the first of these projects be of a high quality in a strategic location. Odd sites with a product that is subpar can create many detractors. Site plans, parking, and land use mix should all be carefully considered.

IMPROVE ACCESS AND VISIBILITY OF THE DOWNTOWN

Downtown Shawnee can be a bit of a hidden gem. For those visiting the community or just passing through along Interstate 40 the district can be hard to find. The 2012 Downtown Plan outlined the need to improve the corridors into downtown and the directional signage or wayfinding that guides people to the district. These remain important actions items for the district.

1. **Improve corridors and wayfinding into downtown.** From the northern reaches of the Kickapoo and Harrison Street corridors the Downtown district can seem a long ways away. Directional signage should guide residents to the district. This may be done with fun facts about the district or about the destinations, like the Museum, that will be found upon arrival. Thoughtful consideration should be given to the route by which visitors are directed, ensuring that the best impression of the city and the district is communicated.
2. **Expand the connections to downtown through improved bike infrastructure and pedestrian paths in key corridors.** Shawnee has a growing bike culture along with a segment of the population that must rely upon walking or biking to move around the city. Offering safe ways to travel to the district will increase the visibility of the district and create more “foot” traffic in the downtown as a destination for families.



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CHAPTER 07. HOUSING AND NEIGHBORHOODS

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CHAPTER 7: HOUSING AND NEIGHBORHOODS

BIG IDEAS

- » Create healthy neighborhoods that offer a range of housing types to accommodate workers and residents at all stages of life
- » Ensure that Shawnee's future housing stock is affordable to all through conservation of existing housing and new diverse housing options
- » Create a reinvestment strategy that supports private market investment in older neighborhoods

PRINCIPALS FOR HOUSING AND NEIGHBORHOODS

- » Housing as a public good/responsibility
 - » Direct impact on the quality of life that residents experience
 - » Direct impact on the ability to attract and retain residents
 - » Serves as economic development
- » Thoughtful and intentional growth
 - » Create neighborhoods with diverse housing and access to amenities
- » Preserve existing housing as its the best source of affordable housing
- » Innovation must come with a shared risk—share risk to share the reward

“Increased
Affordable housing
opportunities for
young adults +
college students”

INTRODUCTION

The majority of land in every city in America is taken up by housing, making it one of the single largest capital investments in any community. Our homes and neighborhoods are the places where we spend a significant portion of our lives and the condition and appearance of both greatly affects the lives we live and the perception of our cities. Often residents measure their community satisfaction by the quality of their blocks and neighborhoods. For all of these reasons continued investment in our existing neighborhoods and thoughtful development of new areas is essential to city health.

ISSUES

Housing and site conditions in older areas. Shawnee has a wide variety of neighborhoods and age of housing. This is also true with regards to the level of maintenance and upkeep of properties. Often older homes and neighborhoods require more maintenance, just due to age. Lack of maintenance can quickly create a downwards spiral for a block and eventually the broader neighborhood. The Development Policy areas in Chapter 3 take note of these older neighborhoods and appropriate policies for these areas.

Lack of sidewalk connections. Sidewalks in Shawnee are often sporadic and the maintenance of those links even more sporadic. Sidewalks are a great way to improve safety through additional eyes on a street, connect residents to adjoining destinations, and provide a safe place for a city's youngest and oldest residents to navigate their community.

Limited diversity with mostly single product housing developments. Single-family owner-occupied homes dominate the housing market, indicated in both the market analysis and the community survey. While appealing to many, young professionals, retirees, and seniors often need other options such as homes for rent, apartments, townhomes, or condominiums. These types of housing units often provide higher densities and thus a better way to control costs. They also offer fewer maintenance requirements to the occupants.

Cost of housing to income disparity. The cost of housing has been a significant issue for many years outside the Midwest/Great Plains. However, since the Great Recession the issue has worked its way into the middle parts of the country. Increasing material costs for both home construction and infrastructure, along with rising land values have outpaced the increase in real income for many residents since 2000.



“Improve code enforcement, make people clean up properties.”

Survey Response

OPPORTUNITIES

Growth and market appetite. Based on survey results, community conversations, and regional growth potential, Shawnee has a strong and demonstrated appetite for a variety of new housing products. Through a combination of its low vacancy rate within quality units, pent-up demand for new housing units, and growth potential, home-buyers and renters are quick to absorb quality housing units if available at relatively reasonable prices.

New construction in both single family and multi-family sectors. Some markets have experienced little to no new construction over the last 20 years. That has not been the case for Shawnee. New rental development has occurred, and the construction by the Tribes has quickly filled.

Stock of older affordable housing. While there are clearly neighborhoods and pockets of disinvestment, Shawnee has a stock of quality older homes that are affordable. The most significant problem is the demand for these units exceeds the supply.

Vacant lot inventory. Lot development can be a significant deterrent to the development of affordable housing. The rising cost of infrastructure and land values that have remained strong make the use of existing lots essential to providing affordable options. Within Shawnee there are a number of locations that are not developed or are under-utilized offering great opportunities for more affordable developments.

Grassroots investment in older neighborhoods. There is a growing interest in reinvestment in existing neighborhoods. The engagement of residents in Community Renewal is a great example of this interest. The momentum being generated in some neighborhoods can and should spread to other parts of the city that continue to struggle.

“Need to redo old abandoned houses to provide more affordable housing.”

August Workshop

“Landlords need to be required to keep their rental homes painted and generally maintained better in the older areas of the city.”

Survey Response



INITIATIVES AND POLICIES

INTRODUCTION

The fundamental goal of Shawnee Next Horizons and specifically of this section is to ensure that existing and future neighborhoods add to the livability of the city and strengthen the economic base. Housing is one of the private market's largest capital investments, and the streets, sewers, and water lines that serve those homes are the largest public capital investments. New developments must create true neighborhoods and a quality housing stock that future generations will want to invest in and create a burden. At the same time, existing neighborhoods must be conserved and not neglected. These neighborhoods reflect large public investments and fiscal responsibility suggests that these investments need to be protected and used to the highest degree possible. The following actions provide the basis for addressing the issues, opportunities, and challenges raised above.

RECOMMENDED ACTIONS

REVITALIZE AND STABILIZE OLDER NEIGHBORHOODS

For any city the best source of affordable housing is within the city's existing housing stock. Maintaining those units and the services provided in those neighborhoods is essential to ensuring a continued supply of safe and affordable housing. Adopting strategies to assure the stability and livability of Shawnee's historic and established neighborhoods will help to preserve the culture, history, and identity of the community.

1. **Implement policies identified in the Development Policy Areas.** Chapter 3 outlined specific issues, opportunities, and strategies within a series of similar development areas or neighborhoods. This included Conservation Areas and Infill Reinvestment Areas. Policies and actions for these areas focused on reinvestment strategies, and the form, scale, and connectivity of new development. These should be used as guiding principles when assessing investment/reinvestment and action items to address in the coming years.



2. **Expand rehabilitation and demolition programs.** Demolition and rehabilitation dollars are in short supply in every community but are important to ensuring both the personal and financial safety of residents. Poor property maintenance can create a hardship on adjoining property owners by stifling the value of their investment. Programs oriented toward clearance of dangerous structures and housing maintenance and rehabilitation will be essential to providing safe housing and stabilizing older neighborhoods.

Housing rehabilitation and maintenance programs should include a mixture of owner and renter assistance programs. Owner assistance programs may include:

- o Emergency repair program for very low income residents in need of emergency repairs. These programs are designed to meet critical individual needs, but also keep viable housing from deteriorating further.
- o Direct rehabilitation loan programs that provide forgivable loans or grants to low income households.
- o Energy efficiency loans for improvements that can extend the life of a house and substantially reduce utility bills for a household.

These examples and many more can be funded using dollars from CDBG programs, local funds, or even partnerships with local utilities.

“We need a way to help current residents/homeowners beautify/upkeep their own neighborhoods/houses. Older neighborhoods just keep getting more and more run down. We need a way to help residents purchase homes instead of just creating more and more overpriced rental property that is not taken care off.”

Survey Response



3. **Target public facility improvements to highest risk neighborhoods.** Reinvestment in a neighborhood often needs to begin with the infrastructure that holds a neighborhood together. This can include addressing street quality, appearance and efficiency of drainageways, or stormwater run-off. When these types of facilities are in poor condition or cause regular and visible problems, residents see no reason to invest their own money on maintenance. Available resources are never sufficient to address these problems but by setting priorities, dollars can be used in a more targeted way. To identify neighborhoods both with the highest needs and greatest capacity the city should consider:

- o Intensity of code violations and demolition orders
- o Existing support capacity from neighborhood associations and/or local service providers
- o The availability of community institutions like parks, schools, churches, or community centers
- o Links to surrounding neighborhoods and access to commercial services

The city may want to consider establishing a “neighborhood empowerment zone.” Once targeted neighborhoods are identified, the implementation of a neighborhood empowerment zone could allow the city to create added incentives, including waiving fees related to construction of buildings in the zone or entering into agreements to refund sales tax for sales made within the zone (for a set period of time) to fund site redevelopment costs.

4. **Work with local non-profits to expand knowledge of property maintenance standards.** Shawnee has a group of well organized and energized non-profits that work in the neighborhoods and with residents struggling to maintain their homes. Working together, the city and these organizations should spread the message about community quality and pride in property and the economic value this has for everyone in a community. Basic materials, such as pamphlets on what it means to be a good neighbor can be distributed through the non-profits and neighborhood organizations.

Purchase Rehab Resale

Over a five year period NeighborWorks Northeast Nebraska has implemented a highly successful Purchase Rehab Resale program in Columbus, NE. Under the program a qualifying household identifies a home, an assessment of the home for structural stability is completed, followed by NeighborWorks Northeast Nebraska purchasing the home to complete any repairs needed. Repairs can range from \$2,000 to \$25,000. Following completion of the repairs the home is sold to the qualifying household often with down payment assistance of 20% of the final purchase price, up to \$20,000. For the city this has resulted in 140 homes being updated and purchased, often by first time home buyers.



EXPAND HOUSING DIVERSITY

Shawnee has quality neighborhoods and a healthy demand for new housing. Meeting that demand with a range of affordable options in well thought-out neighborhoods supports economic efforts and is fundamental to providing safe and affordable workforce housing. Shawnee residents have expressed a desire for a wider variety of housing options at prices accessible to middle-income buyers.

1. **Establish a non-profit development corporation to produce housing options that are too risky for the private market.** Many cities, some much smaller than Shawnee, have created a not-for-profit housing development corporation to operate in the markets where the private development community cannot (low-revenue or untested products). Absentee Shawnee has done some work in this area for members. A city-wide or even county-wide organization can reside within an existing organization such as the Shawnee Housing Authority, Community Renewal, or economic development, but with the express mission of implementing housing programs. Its board of directors and stakeholders should be comprised of partners whose mission is impacted by the housing market. A not-for-profit can accept an assortment of funding sources, implement a variety of housing programs, and work on behalf of its partner organizations to strengthen Shawnee's housing market for the benefit of all. Potential programs they could implement include:

- » Purchase-rehab-resale program. These programs stabilize marginal properties and provide safe affordable housing for moderate to lower income households.
- » Construction of untested products or price points with little to no profit margin. A demonstration project is a great way to show a product type works. Success is very important and therefore, appropriate scale, location, and design are important. Demonstrations should not sacrifice quality for getting a project done. A low quality project does not add long-term value to the community and may actually deter future investment if the project deteriorates or obtains a bad reputation.
- » Home buyer and renter education programs.
- » Downpayment assistance programs.





ABOVE: Before and after images of small lot single-family infill (Excelsior Springs, MO). The city assembled these lots and worked with a developer on the redevelopment of the street with affordable housing.



2. **Direct city investment and redevelopment dollars toward mixed-income projects.** Any incentives, whether they come from the city or the economic development community, should favor housing developments that blend income levels. For many residents working in the service industries, the cost of housing is a burden. This is often the hardest housing market to address, as the profit margins are not high enough to attract private market construction and prospective tenants often make over the income limits required to qualify for housing assistance programs. In addition to blending income levels, projects should also provide a mix of housing styles.
3. **Review zoning code for barriers and hurdles.** Traditional zoning ordinances from the mid-twentieth century valued low density and separation of different land uses. Today there is a growing interest in what some might consider “non-traditional” housing types. The city’s existing ordinance allows for one unit lots down to 60-foot-wide and accessory dwelling units (ADU) are allowed through a conditional use permit. Accommodating tiny homes, lot sizes smaller than 60-foot, or even the newest innovations in senior living are not allowed in the ordinance, but should be considered. The city should review its codes as they relate to housing for the physically and mentally handicapped. Often these may be in group housing settings. Universal design standards that allow homes to be easily adapted for aging or physical disabilities should also be considered.

“When vacancies rise above approximately 20% of an area’s total properties, the number of vacant buildings and lots may continue to grow indefinitely”

Lincoln Institute of Land Policy

ENCOURAGE INFILL DEVELOPMENT

Infill development is a key component of stabilizing and revitalizing older neighborhoods, however, it can also be the most challenging projects for the private market. Site development issues, including older infrastructure, compatibility with existing neighborhood structures, or the removal of an existing structure, along with lower assessed values for surrounding properties can increase the costs and risk. Often these types of projects need some assistance from the city but the return on the investment can be significant both for the neighborhood and the city's overall tax base.

1. **Identify strategies for consolidating ownership of vacant lots in older neighborhoods.** One of the biggest hurdles to transformative infill development in struggling neighborhoods is the assembly of land or lots. Most developers do not have the capital, time, or resources to assemble lots from multiple property owners. This can be true for both deteriorated older residential areas or even older commercial and industrial sites. In areas with a concentration of infill sites or just one large infill development, preparation of the redevelopment plan by the city should guide developers and builders. Cities have done this through multiple approaches including direct purchase and ownership of sites before transitioning to a developer through a proposal process or a land bank.
2. **Establish incentives for the development of vacant lots.** As noted above, these lots may have site issues that need to be addressed such as dilapidated structures that need to be removed. Site issues along with the scattered nature of vacant lots can make infill development challenging. The adjacency of lots, allowing for easier movement of resources and supplies between job sites, is an important component to the development of affordable housing. The city should identify barriers to the development of vacant lots, especially in target neighborhoods. This may include fees for demolition, dumping, and hook-ups. Removing or reducing these fees or providing a privately funded pool of money to off-set these costs can begin to eliminate hurdles. Some cities also assist in the assembly of vacant lots, generally focused on targeted neighborhoods. These lots can then be sold or given to for- or non-profit developers to encourage development in otherwise struggling neighborhoods. These types of programs can be combined with increased demolition and property maintenance to create visible change and momentum in a struggling neighborhood.

BELOW: Abandoned public facilities can have a deteriorating effect on a neighborhood, while reuse or redevelopment can re-energize investment in surrounding properties.



3. **Provide public facility improvements that create favorable environments for private investment on underutilized sites.** Demand for affordable housing is high and many Shawnee residents have shown a desire to continue to invest in older neighborhoods. Preferences are also changing, as many families appreciate active urban spaces that provide living, shopping, entertainment, and work places with good walking and biking access. Redevelopment and infill in older neighborhoods depends on private investment but the city's policies and actions should not create conditions that discourage that investment. Policy directions that may encourage investment include:

- » **Infrastructure and street improvement.** While redevelopment and infill sites usually have infrastructure, these facilities are sometimes obsolete and require improvement. These types of improvements should not be hurdles to the development of new affordable housing and mixed use environments and the city should consider funding alternatives to address these improvements as projects come forward.
- » **Public facilities.** Parks, schools, community centers, sidewalks and trails, and other amenities can provide anchors that are proven to create private development response. These amenities benefit current residents and the reinvestment or installation of these should generate private development response.
- » **Code enforcement.** Poor property maintenance and nuisances can degrade the value of surrounding property and discourage reinvestment. Consistent, predictable enforcement will minimize these disincentives and create momentum for new private development.

INTEGRATE AMENITIES INTO NEW NEIGHBORHOODS

As the city grows, new neighborhoods should have access to the resources and community amenities in a way that integrates them with the rest of the city. These should include trails, parks or plazas, schools, and other facilities.

1. **Identify green space that should be added to the cities park system ahead of growth.** To the extent permitted by applicable law, all new subdivisions should be required to provide either a park dedication fee based on the number of lots or dedicated land within the development to ensure adequate neighborhood park service within walking distance of the development. The park dedication fee should be used by the city to acquire land that serves multiple developments.
2. **Implement connectivity standards for all modes of transportation.** New developments should be required to have sidewalks on at least one side of the street and connect to any adjoining trail system. If a future trail is planned through the area the development may not be required to install the trail but should provide the space for the trail, similar to a future street dedication.
3. **Review zoning and subdivision regulations with regard to landscaping and buffering.** This action item ties closely to those recommended in Chapter 5 Community Image. Landscaping and buffering requirements should be highest as the intensity of the use increases. Adequate buffering between low and higher intensity uses improves the image of the city, property values, and overall quality of place/pride in community.



ENCOURAGE DOWNTOWN'S EVOLUTION AS A NEIGHBORHOOD

As downtowns have evolved in recent years, there are many success stories to learn from. Almost all the successes include a residential component. Land use and development policies will be instrumental in achieving the area's neighborhood goals, many of which were laid out in the previous chapter.

1. **Use city incentives for development of housing in and adjacent to downtown.** Incentives to adding housing both in and around the downtown do not always have to be the traditional fiscal approaches, although having tools like tax increment financing can be very important. Other incentives may include:
 - o Density bonuses for added open or public space
 - o Improvements by the city to parking and pedestrian environments
 - o Adding family-friendly public amenities including parks, open space, greenways, plazas, bikeways, or public art
 - o Reviewing parking requirements to make sure they do not create a hurdle for new residential development
 - o Reducing permit fees and processing time for infill residential projects
2. **Work with chamber and economic development groups to encourage services and businesses that support workers and residents in the downtown.** The expansion of the business base in the downtown is important both to provide services to workers that come to the district during the work day but also to attract and retain households in and around the district. The city should be a partner with the business community to expand the overall economy of the district and encourage services that benefit the worker, visitor, and resident of the district.



PRESERVE AND ENHANCE SPECIAL NEEDS HOUSING

1. **To address homelessness in Shawnee, a coalition of agencies should implement a Continuum of Care model.** A continuum of care (CoC) model is a nationally recognized approach to address homelessness and the causes of homelessness. HUD defines CoC as “a community plan to organize and deliver housing and services to meet the specific needs of people who are homeless as they move to stable housing and maximize self-sufficiency. It includes action steps to end homelessness and prevent a return to homelessness.” Using this type of model, the city and local agencies should identify and develop strategies specific to Shawnee’s needs. Traditionally these strategies include providing additional emergency shelter beds, transitional housing, and permanent supportive housing. Additionally, strategies such as rent or mortgage assistance, and counseling services for housing, medical or health and budget should be provided and targeted to the highest risk households. Many of Shawnee’s non-profits and churches provide different aspects of these services today but work independently of each other.
2. **Require large scale projects to incorporate universal design standards into at least a portion of the units.** The requirements of special needs populations, including the aging and people with physical and mental disabilities, is growing. Much of the discussion to this point has focused on providing a diversity of housing styles but housing must also accommodate individuals with varying levels of independence at various stages of life. Universal design means that homes can be used by the widest range of people possible. Closely tied to accessible design, universal design means that every aspect of a home from the bathroom to the garage are more accessible and comfortable to use. Often these changes do not cost more and require slightly different approaches to design. At a minimum, universal design standards should be applied to at least a portion of all units within a larger project or subdivision.

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CHAPTER 08. QUALITY OF LIFE

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CHAPTER 8: QUALITY OF LIFE

BIG IDEAS

- » Encourage neighborhood and community destinations that are family friendly and support strong social networks
- » Provide park facilities and recreational services accessible to Shawnee's growing population
- » Expand connections between jobs and housing
- » Promote a holistic vision of community health in all aspects of the comprehensive plan with respect to strengthening personal, social, and economic health of Shawnee's residents, organizations, and businesses

PRINCIPLES

- » Serve all residents with parks and trails
- » Integrate quality of life features including art and cultural amenities into developments
- » New developments should create neighborhoods not subdivisions
- » Commercial developments should be connected and accessible
- » Attention should be given to trees and landscaping
- » Strategically invest for the future



INTRODUCTION

Parks, recreation, and cultural resources are more than just about residents' play and leisure time, but are critical to the city's health, civic, and economic quality. Continuing to support quality of life is important to residents. They want to make sure the features they love about Shawnee remain constant. This is important for existing residents but also to businesses trying to attract and retain employees. A city that looks good and offers a great quality of life allows people the opportunity to expand their horizons, encourages a sense of community, advances creativity, and creates happy residents. Happy and engaged people are ultimately more productive and connected to their community. These attributes are especially important to a community that is trying to compete in a regional market.

ISSUES

Gaps in the trail and bike system. The city's existing trails, including the Airport and Avedas Park loops, are very popular but are not connected to each other or other destinations. The trails serve as a recreational feature in their current form but lack connections to serve as a transportation alternative.

Gaps in the park system. The level of park service can be assessed by the amount of acres and the distribution of parks. While a community may have a good supply of parks by acreage, the level of service decreases if those acres are not accessible to residents. All residents should be able to walk their children to a park in Shawnee. Most Shawnee residents are within a half mile of a park but bigger gaps exist south of I-40 east of Harrison and in potential development areas in the western portions of the city and north of I-40.

Minimal landscaping regulations. Over the years landscaping and buffering requirements have been sporadic. A corridor like Kickapoo is a good example. While street improvements have been done on the north side, landscaping and sidewalks are inconsistent leaving a less cohesive feel.

Minimal investment in secondary education facilities. Schools are a significant factor when families are deciding where to locate when living in a larger regional job market. A negative perception of a school district can inhibit growth in a community. It has been several decades since investments have been made in the city's schools and improvements should be assessed related to technology, and STEAM program needs.

OPPORTUNITIES

Cultural resources are not fully tapped. The Shawnee area is home to a number of different Native American Tribes, yet visitors would have little awareness of these cultural resources. This untapped resource offers an opportunity to celebrate the areas cultural diversity and create public art and economic development opportunities.

Spirit of investment. The funding initiatives passed by voters in 2018 and the investments being made in the downtown illustrate the interest that residents have in investing in the community. This spirit of investment should be capitalized on to invest in quality of life improvements.

Momentum from Blue Zones work. The Shawnee Blueprint developed by the Blue Zones Project Pottawatomie County has created a renewed sense of energy in the community around community improvements. Leaders in all market sectors should use this momentum to identify and implement quality of life improvements.

Education resources. Unlike some of the smaller surrounding communities, Shawnee has great education resources such as the Oklahoma Baptist University and Gordon Cooper Technology Center. These institutions provide higher education and training resources not found in most cities. Additionally, OBU offers cultural events and public art opportunities that are often difficult to attract to mid-size cities.





Norman and Oklahoma City have music and movies in their parks that are free. It wouldn't cost that much for Shawnee to do the same and it would improve the quality of life and keep residence at home instead of on the road

Survey Response

INITIATIVES AND POLICIES

INTRODUCTION

In the introduction to this plan is a discussion of what makes a healthy city (see pages 14-15). All four components of a healthy city (economic, environmental, civic, and individual) directly correlate to quality of life. When a city is healthy in these four areas, or at least visibly working towards improving these aspects, residents' real and perceived quality of life increases. To achieve a healthy city, high quality services and cultural assets must be a priority for residents, and community members must come together to provide the resources necessary for long term investment. The return on investing in a community can be seen just down the road. The investments Oklahoma City has made through the MAPS projects continue to make the city an attractive place to live and invest.

The following section identifies some of the potential actions and policies that residents can do to improve quality of life.



RECOMMENDED ACTIONS

IMPLEMENT CONCEPTS FROM THE PARKS MASTER PLAN

The 2015 Park Assessment Report identified a number of upgrades to the city's park system, including a focus on eight parks in the system and identifying a dedicated funding source.

1. **Identify funding sources to implement park improvements.** The 2015 Park Assessment noted the need to identify a dedicated funding source. Following this study the city completed a more detailed assessment of six parks. The concepts recommended in the 2017 Park Plan should be implemented over a period of time as funding becomes available. Voter approved funding in 2018 will help with implementation. Bond funding is one approach to making large scale park improvements but these initiatives should be done with an eye toward providing a breadth of improvements that elevate the quality of life for as large a segment of the population as possible (everyone should see some benefits from the improvements). It should also be noted that the importance of a well designed project cannot be understated. Poorly done projects can quickly reduce support for the next project.
2. **Expand the Parks Plan to the Lakes.** The current plan makes note of the Lakes and recommends that the parks associated with the Lakes be retained. Additionally the study makes identifies basic facility maintenance and upgrade opportunities. The Lakes can be a significant recreation and economic resource to the city and therefore a more detailed analysis of potential improvements should be completed. This analysis should include addressing the real and perceived accessibility of the Lakes. A visitor to Shawnee would not realize that two beautiful lakes are just to the west of the city. Chapter 3 outlines policies and actions that should be taken in the Lakes Area. This includes:
 - o Better wayfinding
 - o Additional recreation features around the lakes, such as trails
 - o Additional commercial services that support visitors and residents
 - o Addressing real and perceived sense of safety

Ultimately, recommended improvements should create additional economic development opportunities and general reinvestment in the area.



3. **Find joint ventures with local Tribes that can improve recreational options for all residents.** The existing parks plan identifies opportunities where the City and Tribes can work together to create amenities that benefit many residents. Additionally both jurisdictions have looked at ways to invest in these features and through joint efforts dollars can go further and be used more effectively.



MAINTAIN FACILITIES IN A STATE OF GOOD REPAIR

The cost of maintaining existing parks is increasing, especially as facilities age, but maintenance and adjustments to changing interests builds community pride and quality of life. The 2015 Park Assessment recommended that a focus be placed on eight of the city's parks with a reduction to the overall number of parks. This should be done with a high degree of caution. While parks can be expensive to maintain they are an important community amenity that adds to a city's quality of life. All cities are looking for ways to cut cost but cutting quality of life features, like parks, can be done at a cost to community pride, investment, and ultimately economic development.

1. **Budget adequately based on routine assessment of park maintenance and improvement needs.** The 2015 study noted that the city spends about \$27 per capita on parks, while the national average is \$71 per capita. Outside funding sources for park improvements can often be found but funding routine maintenance is often seen as a basic city service and thus not of interest to donors and foundations. This makes a systematic assessment of maintenance needs and priorities even more important. This assessment begins with developing and maintaining a thorough inventory of current conditions. It then establishes a maintenance standard and sets criteria and investment priorities. Establishing a level of expectation within the community, through a systematic approach, can offer a level of security to tax payers and ensure adequate annual funding through the city's budget process.
2. **Evaluate recreational trends and demands and adapt to desires.** Recreation trends are continually evolving, from tennis courts in the 1970s to soccer fields today. Changing interests and trends should be evaluated to ensure that the city's park system continues to meet the needs and desires of residents. This often occurs through regular conversations with special interest groups and advocates.
3. **Regularly review facilities and plan for strategic interventions.** The above section on budgeting recommended the establishment of a thorough inventory of existing facilities. This inventory should be regularly reviewed to ensure that new issues have not arisen, and user preferences have not evolved.





Moore Central Park Master Plan clearly illustrated the ideas and potential of the park, helping gain community support and significant private donations for implementation.

ADD PARK LAND IN GROWTH AREAS

Parks and recreation are a vital component of community life; therefore, it is essential that the city provides additional facilities in growth areas. Expansion is necessary to maintain a high level of park and recreation services that boosts the city's competitive position for attracting both residents and visitors.

1. **Establish policies for adding park land in growth areas.** In growth areas, the addition of park land is placed solely on the developer (to do or not do) often with no city support. This means that there are a number of private parks in growth areas. For higher-end and owner-occupied housing this may work, although long term ownership and maintenance can be an issue. As neighborhoods age and the original owners and investors in a homeowners association change, feelings toward who should maintain a park may change. This approach also makes it much more challenging to provide park space to new affordable housing or even rental occupied housing. The city should establish policies for new park development in growing areas that ensures quality parks that are accessible to all residents.
2. **Budget for development of existing land in partnership with the private sector.** The city currently owns undeveloped land within city limits, specifically on the north side. While the demand for this park space may not be needed, an assessment of potential uses and a strong master plan for the land should be developed. The master plan can then be used to garner both public funding support and private donations.

Park system with soccer, baseball, and other youth sports facilities in a common location. The park should also include walking trail and indoor facilities. Shawnee has some of these things but they are in multiple locations and not available to all citizens.

Survey Response

3. **Develop a park expansion trust fund.** Community founders often left their civic mark through donations or physical park development. Residents today should be provided the same opportunity, even if they cannot afford to give land or a significant donation. A Park Trust Fund allows residents who love their community to leave their mark on the city's quality of life for the next generation. At the same time the fund can be an excellent resource for park development in partnership with affordable housing. The trust fund could be used if a development provides additional affordable housing. The cost of providing additional park land or a cash in lieu payment could be offset through trust fund dollars if the development were to provide a certain percentage of housing in price points that meet the city's workforce housing demand.
4. **Identify strategies such as "adopt a park" programs to assist with maintenance.** Some city's have worked with local civic organizations to "adopt a park" and assist with maintenance and improvements. For smaller neighborhood parks, partnerships with civic organizations can assist in maintenance and fundraising for small scale improvements. Rotary Park is a good example of this kind of partnership. With declining membership within these organizations Shawnee may need to look to other partners, including community churches or OBU organizations.

USE TRAILS AND GREENWAYS TO CONNECT PARKS

Trails and greenways can be one of the best ways to expand park access to the widest audience. Shawnee is a safe community and its residents should feel comfortable walking or riding a bike to their nearest park and should feel assured that they will have a good experience once they arrive. Safe routes to parks can be the final hurdle to creating greater access.

1. **Require buffers along drainage ways.** Buffering along drainageways should provide protection and create corridors that connect destinations. The city's drainageways and even the North Canadian River are a great way to improve stormwater management and create corridors of connectivity. A small additional buffer can provide space for trail linkages that allow residents to connect with Shawnee's natural beauty and provide safe off-street alternatives. The river corridor may have a more recreation focus but can create a low maintenance cost resulting in a high quality community amenity. This type of project is also a great opportunity for the city to work with adjoining Tribes to create an amenity that benefits everyone.
2. **Develop public private partnerships for trail development and maintenance.** Like a city's park system, funding is in short supply, although some state and federal programs exist, they often look for established partnerships. In the short-term many communities have found success with different advocacy groups, including bike and trail coalitions and environmental groups on the development and maintenance of greenways and trails.
3. **Require sidewalks in new developments.** The installation of sidewalks is important for many, the least of which is to provide a safe route for a city's youngest residents to navigate their city and travel to school. While some concern is placed on the added cost of development, this is a fairly standard requirement in city's because of the added benefits and long term community quality that sidewalks provide. They city may also consider offering narrower street widths, thus off-setting concrete costs, especially in neighborhoods with full garages and driveways that provide adequate off-street parking.
4. **Establish a plan for connecting new sites (in developing areas) to the larger city.** Working with the Parks and Recreation and developers the city should establish a plan for connecting new developments to the existing city, ensuring no one is isolated from the larger city.



Building relationships
with Tribal
governments.

Survey Response

IMPLEMENT LAND USE REGULATIONS THAT SUPPORT MIXED USE NEIGHBORHOODS

Shawnee regulates development with traditional ordinances that often silo uses. The land use approach outlined in Chapter 3 encourages mixing uses that have a similar character or intensity. This does not mean the city's existing ordinance needs to be discarded but should be reviewed for key hurdles to creating mixed-use neighborhoods. Why is this important to quality of life? Residents over and over note that some of their favorite neighborhoods or communities are places where they can easily access housing, shopping, and jobs with safe and affordable transportation options. Mixed use areas are essential to creating this environment.

1. **Implement guidelines outlined in the land use chapter.** Chapter 3 outlined the benefits of encouraging a mix of land uses and activities. Implementation of both vertical and horizontal mixed-use will create more vibrant neighborhoods and improve access for all residents.
2. **Direct city investments and incentives to mixed use projects or mixed use settings.** Residents asked for more destinations where a person could walk, dine, and shop in one stop. The city should prioritize infrastructure and redevelopment dollars in the downtown and older commercial areas like Harrison, and South Kickapoo where higher density options can add affordable housing close to services, jobs, and entertainment.



MAINTAIN THE CITY'S HERITAGE THROUGH HISTORIC PRESERVATION & CELEBRATE THE CITY'S CULTURE AND HISTORY

Every community is looking for ways to build pride, ownership, engagement, and thus build civic health. Calling attention to and investing in a city's heritage, culture, and arts builds interest and ownership in the community. It enriches the experience of living in Shawnee, telling visitors, employers, and prospective investors about the place and rooting residents in the context of their community.

1. **Remove barriers and encourage public art across the community.** Larger cities have found success with a "1% for Arts" ordinance which could be implemented in Shawnee. Other support could come from the State Arts Council and Oklahoma Public Art Network. Working with local arts organizations is important, but often these volunteers and staff are not familiar with the review and approval process and can find the experience daunting. By developing clear guidelines and working closely with Shawnee's organizations, the city will reinforce the importance of arts and culture in the community while ensuring the projects meet established standards.
2. **Connect the city's museums to the rest of the city.** Shawnee has a beautiful cultural resource in the Pottawatomie County Museum. This is a great amenity to the downtown and community overall but the museum's connection to high traffic areas is limited. Better signage should direct visitors from the commercial centers along Kickapoo and Harrison, Mall area, and the Expo Center to the downtown and specifically the Museum. Eventually trail and sidewalk connections between the hotels off the interstate should connect visitors to the downtown and Museum. In addition, the Mabree-Gerrer Museum of Art and Citizen Potawatomi Nation Cultural Heritage Center are two additional great assets which could be better integrated into the community.
3. **Develop a cultural heritage plan and public art plan.** Long time Shawnee residents take an immense amount of pride in the city's history and character. Efforts should be made to encourage the preservation of Shawnee's cultural heritage and history through the development and implementation of a cultural heritage plan and public art plan. The plan provides another opportunity to build bridges between the city and local Tribes and should build awareness with new residents about what makes Shawnee special.
4. **Find ways to celebrate partnerships between the city and Tribes.** The city and local tribes have worked together in the past on a number of successful projects; however, some of that has been overshadowed by past political struggles. These partnerships should be celebrated more and used to build bridges and new partnerships.
5. **Celebrate the investments by organizations in the community.** Shawnee has a number of non-profits, churches, and the local Tribes that make significant investments in the community. These efforts to elevate the city's quality of life should be acknowledged more at a community-wide level. This may be done through a "state of the city" address (see Chapter 10 Community Image).

We need a public art ordinance, better landscaping requirements, better street structures with sidewalks, and more infill development and focus on updating existing structures and facilities.

Survey Response



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A hand-drawn map of a city grid, oriented vertically on the page. The map features a network of streets, with major thoroughfares highlighted in thick red lines and secondary streets in blue. Buildings are represented by simple rectangular shapes, some with internal details like windows or doors. A river or canal is depicted in blue, flowing through the grid. The map is drawn on a piece of paper that is placed over a larger, faded aerial photograph of the same area. The drawing is done in a sketchy, illustrative style with various colors used for different areas and features.

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CHAPTER 9: PUBLIC SERVICE

BIG IDEAS

- » Provide public services in a manner that balances cost efficiency and levels of service
- » Guide the extension of water and sewer services in a way that supports efficient patterns of community development
- » Ensure land use and transportation patterns that support the efficient and cost-effective delivery of emergency services
- » Expand emergency services to maintain a high level of service to current and future residents

PRINCIPLES

- » Current levels of service should be maintained and expanded where they make the city stronger and more resilient
- » Infrastructure and facility investments are economic development
- » Educational investments are economic development

INTRODUCTION

Any city's first priority is to provide basic services to its 'customers' – the residents and taxpayers of the community. This responsibility begins with the services that are essential to public health, safety, and commerce, such as police, fire, emergency services, water, waste disposal, stormwater drainage, and transportation. Other services like libraries and parks, while not essential to people's safety, are vital investments in residents' well-being. Still others, like education, are provided by other agencies, but require partnerships with city government. This section of the Shawnee Plan addresses all of those essential services, outside of transportation, and the facilities needed to manage and maintain those services.

ISSUES

Funding challenges for maintenance. Over the past few decades funding for maintenance has often remained flat or even decreased. Frequently, maintenance funding is cut into for other essential or emergency tasks. This has often translated into deferred maintenance of public facilities and infrastructure. For many communities this is resulting in a growing balloon of capital projects that will have to be addressed in the coming years.

Cost of infrastructure extensions. The cost of materials and the demand for labor has pushed up the development costs for both the private and public sector. This means that cities must use existing infrastructure as efficiently as possible and may need to assess ways to offset infrastructure costs when it supports key workforce housing and business development targets.

Intergovernmental cooperation. During the planning processes it was noted that over the years the City and local Tribes have not always worked well together. At the same time others noted the many successful joint projects and investments that the local Tribes have made in the community that should be celebrated.

Keep services up with growth. City services, including the police, fire, and the library, must keep up with growth. For growth that extends into areas that were previously not developed this could mean additional public safety staffing and even additional locations like fire stations in growth areas. Even if the city grows more internally, redeveloping and infilling within the existing city, services levels at parks, libraries and other facilities should be maintained to the same level.

“Improve infrastructure overall, particularly updating water/sewer systems, and encouraging regrowth downtown.”

Survey Response

OPPORTUNITIES

Use infrastructure to guide development. Infrastructure is required for urban land development and should be used as a tool to guide the implementation of this plan. The city should use infrastructure as a tool to guide growth in directions that will be most efficient for current and future generations.

Compact development history. This city has a history of growing incrementally with very few examples of areas “leap frogging” past undeveloped areas. A more compact development pattern reduces costs for residents by lowering transportation costs and providing better access to services.

Spirit of investment. Residents of Shawnee are very giving and have supported many projects in the community. This has translated to the city in the previous year when residents approved additional funding for parks and other amenities. The community needs to leverage this energy and spirit to improve the quality of life for all residents.

“Redo alleys and utilities downtown. Finish Main Street, streets, and sidewalks.”

August Workshop



INITIATIVES AND POLICIES

INTRODUCTION

As any city grows and evolves so must its infrastructure systems. These systems are in need of constant repair, replacement, occasional expansion, and evaluation of the level of need. Shawnee has potential to grow and for that reason the city must constantly monitor the need to improve or expand services with a vision toward long term cost efficiencies. Growth in services and maintenance of existing services must be done with an eye toward the long term cost. Delaying maintenance and expansion or supporting growth that does not use services efficiently can only cost a community more in the long run. The following recommendations cover some of the key actions that will need to be taken in the coming years to address growth and maintain or elevate existing levels of service.

RECOMMENDED ACTIONS

MAINTAIN FACILITIES IN A STATE OF GOOD REPAIR AND CONTINUALLY ADAPT TO SUPPORT POTENTIAL GROWTH

A growing population and geographic expansion of the city will mandate facility extension into new development areas. However, the city should still prioritize the maintenance of existing facilities to continue serving the current population, neighborhoods and districts. The city must balance its focus and resources to serve the full population including existing development and new development areas. Making sure new demand is served through the proper and efficient extension of services will ensure the long-term sustainability of the system for future generations.

1. **Maintain facilities and equipment on a routine schedule.** When funding is tight this can easily be one of the first items that is cut. However, having a routine schedule provides some regularity in year-to-year budgets by spreading out large repairs and capital projects. In addition, maintaining facilities and equipment in a state of good repair prolongs their life, saving money and making more efficient use of taxpayer dollars. On the other hand, deferring maintenance causes services to suffer and increases costs over time.
2. **Use high quality material and equipment.** High quality facilities and using quality equipment can reduce maintenance costs, in addition to accommodating growth and modernizing services. Using high quality materials can reduce the annual maintenance costs of a building while providing a more attractive exterior. In addition, buildings and equipment with a larger up-front cost but longer life span can also reduce ongoing expenses in the long run.

“Plan and provide
for updating and
continuously
improving
infrastructure.”

Survey Response



3. **Work with departments to evaluate the need, location, and functional suitability for public buildings.** Public buildings represent a major investment in the future of the city. These buildings should be maintained in a state of good repair and be regularly evaluated for appropriateness.

A facility and the underlying property should be maintained and used while it is appropriate for that primary use. However, when demands change, it should be studied to determine its future - can it be adjusted to serve its current purpose better or should it be re-purposed. If its current use is no longer practical, several options should be considered:

- o Is the facility appropriate for another public use?
- o Is the location appropriate for another public use?
- o If not, can the building/site be put to a private purpose that is supportive of the goals of this plan (examples: housing; business development, recruitment and retention)?

4. **Balance the intensity of development & response times to locate facilities.** The character of growth in Shawnee will impact the ability and cost of providing essential public services to new development areas. Development proposals should be evaluated with this perspective in mind - how will residents and homes in these areas receive emergency services and costly infrastructure extensions - and developments should be adjusted to reflect this need and cost.

MAXIMIZE PUBLIC SAFETY THROUGH SITE DESIGN

The physical design of a site has a tremendous impact on public safety and hazard management. A well-designed site can improve a city's ability to promote public safety and allow efficient emergency response.

Introduction of stricter zoning requirements, including low impact development, and better engineering/development choices and outcome.

Survey Response

1. **Update subdivision codes.** The city should complete a detailed review of subdivision codes to identify areas that no longer meet modern practices or prohibit efforts to do innovative projects.
2. **Clearly define public and private spaces.** Undefined spaces can often leave visitors feeling unwelcome and unsafe. Well-defined public spaces are places where people can literally see and be seen. These spaces increase the level of positive interaction that is the essence of a quality neighborhood. Hidden or neglected public spaces have the opposite effect, attracting nuisances and sometimes crime, and creating a scary or off-putting atmosphere people avoid.
3. **Design spaces with natural surveillance.** Areas with natural surveillance are designed to have physical features including walkways, gathering areas, roadways, and structures that eliminate hiding places and increase human presence and supervision.
4. **Maintain public spaces and enforce existing codes to create environments that feel well-kept and safe.** Property maintenance can have significant impacts on a visitor's comfort level. Areas filled with litter and overgrown landscaping can feel unwelcoming and unsafe. Studies have shown that the best way to combat property damage and illegal activity is to create a strong sense of ownership. If a public space feels "owned" by the community, damage is quickly cleaned up or removed and criminal activity often decreases. This practice needs to be strongly demonstrated with all city property.
5. **Prohibit developments with one access point.** Large developments with one access point can leave homes and business isolated during emergencies. The more access points or street connections that a development has, the easier it is for emergency personnel to reach areas in need of their services.

Neighborhoods with a high degree of connectivity can improve emergency response times as well as offer alternative routes for motorists and pedestrians.



UPDATE AND IMPLEMENT WATER AND SEWER MASTER PLANS

Citizens tend to see water and sewer services as a given, an unlimited resource. Yet, growth and nature can have substantial impacts on both of these services. Managing and monitoring these services ensure residents' needs today and into the future can be met.

1. **Regularly review existing water plans and strategically identify the next round of priority projects.** A city's water system includes collection, treatment, storage, and distribution. All of these systems should be regularly reviewed for changes in demand, age, technology, and regulations. From these reviews, priorities should be identified that are then incorporated into the city's Capital Improvement Plan or for larger projects taken to the voters.
2. **Consider water and sewer treatment capacities and alternative solutions for expansion of the treatment facilities.** Growth can have a tremendous impact on a city's water and sewer treatment capabilities. This growth can be through development of new housing or just one industry that can demand significant water or wastewater treatment. The region's climate can also put a heavy strain in dry years on any city's water supply. Alternative solutions and education on water consumption should continually be investigated as ways to provide significant efficiencies to the city.
3. **Establish stormwater management practices that protect downstream users.** Land development should be expected to responsibly manage the stormwater landing on their site. Stormwater can be managed in multiple ways ranging from the small detention basins common in contemporary housing developments to preserving natural drainageways. The natural depressions and drainageways should be viewed as an opportunity at both the site level and at the community scale wherein the drainageways can be re-imagined as greenways and trail connections city-wide.
4. **Work with surrounding water jurisdictions to create a unified plan.** The existing system of water districts creates competition, can inhibit growth, and may even discourage wise water use practices. The system is not likely to change, therefore, cooperation is essential. Working together, the region's water districts need to find paths forward that provide the most efficient way to provide services both today and long term. Ultimately, today's decisions should not create unsustainable costs or economic development barriers.

FUND WATER AND SEWER INFRASTRUCTURE TO LEVERAGE DEVELOPMENT AND REDEVELOPMENT

1. **Build and finance water and sewer infrastructure in coordination with the land use plan and market demands.** As the city grows the pressure to develop water, sewer and roadway projects in advance of final development increases. Historically, cities have lagged behind development in the improvement of infrastructure. The city should assess the need and funding sources to be more proactive. However, it should be done in coordination with the land use plan. In redevelopment areas these improvements can be essential to spurring development or meeting a "but for test."



COORDINATE STORMWATER ORDINANCES WITH THE LAND USE PLAN

Record setting flooding continues to happen in and around Shawnee. This creates dangers for both existing residents and costs to future development areas. The city must coordinate its stormwater ordinances and development standards to match the vision of the land use plan.

1. **Study the suitability of impact fees to fund stormwater infrastructure extensions and improvements.** Funding for drainage projects is a consistent problem for most cities. Many cities have implemented a fee to help pay for compliance with regulations as well as capital projects. This fee is often necessary because cities are unable to muster enough general funds to pay for projects.
2. **Evaluate ordinance updates that would require stormwater management to be integrated as a site amenity.** Many developments in Shawnee have included isolated stormwater detention basins engineered to offset the increased peak runoff rate generated by site improvements. These may include underground storage facilities that offer no site or neighborhood benefit other than controlling the stormwater.

Updating the city's ordinances to integrate stormwater management as an amenity can provide benefits to developers, residents, and the city as a whole. It should prioritize the following:

- Mitigate flooding and peak runoff (required)
- Provide a site amenity for residents such as a rain garden or pond
- Support the creation of a regional amenity such as a trail, nature preservation area, or regional detention basin
- Restore the native prairie ecosystem

Often stormwater facilities can be planted with native prairie species to provide valuable habitat. In this way, stormwater infrastructure can do more than fulfill an engineering need.

3. **Evaluate ways to incentivize innovative approaches to stormwater management.** In addition to traditional stormwater management practices, the city should incentivize more innovative approaches. Often, this can provide more attractive infrastructure and amenities at less cost, while still providing the same levels of public service.

Green infrastructure is one such innovative way of managing stormwater. Green infrastructure approaches manage water by protecting, restoring, or mimicking the natural water cycle through the use of trees and wetlands to effectively capture, filter, and infiltrate water. As opposed to more traditional gray infrastructure (concrete channels, pipes, and water treatment plants), green infrastructure effectively and economically enhances community quality of life. Bioswales can also provide attractive connecting corridors between detention basins, which paired with trails and parks, creates a connected recreational system that fulfills other community purposes.

These types of initiatives should be incentivized through shared cost, density bonuses or other approaches that are appropriate to Shawnee.



WORK IN PARTNERSHIP WITH THE SCHOOL DISTRICTS TO BUILD AND RENOVATE FACILITIES

Schools are an essential resource in any community. While not managed by the city, the interaction and partnerships between school districts and cities can not be understated. Funding for schools has been scarce over the last several decades but investments in a city's schools should be viewed as a key economic development initiatives, essential to attracting and retaining young families.

1. **Remove hurdles to reinvestment in existing schools.** The city and school districts should work toward identifying hurdles that exist for reinvesting in existing schools. This may include site issues or opportunities for shared outdoor/park spaces where a hurdle could be removed.
2. **Be a partner at the table to improve connections to schools.** Improving pedestrian and bicycle connections to schools can lower traffic volumes in the area and create a healthy option for students to travel to school. City's often have access to funding sources, such as Safe Routes to School, that they can use to improve connectivity to schools.
3. **Work in partnership to identify future site needs and locations.** Frequently school district sites fall to the cheapest land or sites that can accommodate the car. Schools can be significant market and transportation drivers. A new school can attract new growth and congestion when all students must be driven to school on neighborhood streets. For these reasons, siting schools can be very important; therefore, cooperation between the city and school districts should happen early in any process.



FIND OPPORTUNITIES FOR SHARED INITIATIVES WITH SURROUNDING TRIBAL NATIONS

Over the years numerous initiatives have been taken on by the city and tribes that have improved life for all residents. Sadly, these projects have been overshadowed by the tensions and disagreements that have occurred between the entities. This relationship is important because what is good for one group is traditionally good for everyone. The relationship will only be improved through communication and one successful project at a time. The city should continue to identify opportunities for shared initiatives that improve the lives of all residents. These initiatives been highlighted in other sections throughout this document and include:

1. **Find individual opportunities to improve relations.** Trust is often built through individual relationships. Everyone one in the community and especially the city should find ways to build relationships for the betterment of all residents in the city and region.
2. **Build on the areas cultural history and find ways to celebrate partnerships**
3. **Celebrate investments that Tribes are making in the community**
4. **Move forward with the joint ventures identified in the Parks Plan.**

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CHAPTER 10. IMPLEMENTATION

CONTENTS

- » Introduction
- » Regulatory Mechanisms and Annexation Policy
- » Changes to the Plan
- » Roles and Responsibilities

INTRODUCTION

Shawnee Next Horizons articulates many recommendations – policies, initiatives, and investments – to help the community achieve the vision expressed by residents throughout the engagement process. Components of this chapter include the following:

- » **Regulatory Mechanisms & Annexation Policies.** Annexation is one tool for accommodating growth over time. This section outlines policies for evaluating areas for annexation.
- » **Plan Maintenance and Changes.** A comprehensive plan is a living document that must be maintained, updated, and revisited to ensure it remains a helpful and relevant guide for the community. This section outlines the process for maintaining the plan and evaluating progress toward the plan goals.
- » **Roles and Responsibilities.** The implementation of this plan must be a partnership of many stakeholders throughout the community. This section outlines the key players and their potential roles in achieving the goals of this plan.
- » **Implementation Table.** This section summarizes the many recommendations of the plan and presents a projected time frame, responsible parties, and potential funding mechanisms.

REGULATORY MECHANISMS & ANNEXATION POLICIES

The regulatory tools of the city, including zoning and subdivision regulations, are essential to implementation of the plan.

ANNEXATION POLICIES

One of the important regulatory tools that the city can use when addressing growth and development is annexation. Oklahoma Law prescribes the process by which communities can annex land. This section provides the legal framework for annexation, but each community should also establish a policy framework for implementation of annexation codes. These policies should take into consideration the following:

- » **Areas with Significant pre-existing development.** Areas outside the city with substantial commercial, office, or industrial development are logical candidates for annexation. In addition, existing residential areas developed to urban densities (generally higher than 2 units per acre) should be considered for potential annexation. However, these areas should be closely considered under a cost benefit analysis.
- » **Protection of Future Growth Areas.** In order to allow the city to guide its growth and development more effectively, future growth areas will need to be managed through annexation. Annexation will allow the city to extend its zoning and subdivision jurisdiction, thus guiding development in a direction that will provide safe and healthy environments.
- » **Public Services.** Public service issues can provide compelling reasons for annexation. Areas for consideration should include:
 - o Parcels that are surrounded by the city but remain outside of its corporate limits. In these situations, city services may provide enhanced public safety with improved emergency response times. These situations should be resolved and avoided in the future.
 - o Areas that are served by municipal infrastructure. Shawnee's sewer and water system should not be extended without an annexation agreement.
- » **A Positive Cost Benefit Analysis.** The economic benefits of annexation, including projected tax revenues, should compensate for the additional cost of extending services to newly-annexed areas. The review policy for annexation should include the following:
 - o Estimated cost impact and timetable for providing municipal services.
 - o The method by which the city plans to finance the extension and maintenance of municipal services.
 - o Identification of tax revenues from existing and probable future development in areas considered for annexation.
 - o Calculation of the added annual operating costs for urban services, including public safety, recreation, and utility services, offered within newly-annexed areas.

PLAN MAINTENANCE & CHANGES

This plan should be viewed as a living document. It is not meant to be rigid or static, but should adapt in response to changing conditions, resources, and opportunities. As explained earlier, land use maps and other maps are meant to be general guides of policy, rather than carrying the specificity and rigidity of a map such as a zoning map. As such, the Planning Commission, City Staff, and the City Commission can exercise some discretion as to whether a proposal matches the intentions of the plan. This plan was created through a public process, and therefore, any official changes to the plan should be made through a public process.

PLAN MAINTENANCE

The initiatives and action items of the Shawnee Next Horizons are ambitious and long-range, and its recommendations will require funding and other continuous support. The city should implement an ongoing process that uses the plan to develop annual improvement programs, as outlined below.

ANNUAL ACTION AND CAPITAL IMPROVEMENT PROGRAM

The Planning Commission and City Commission should define an annual action and capital improvement program that implements the recommendations in this plan. This program should be coordinated with Shawnee's existing capital improvement planning and budgeting process, even though many of the plan's recommendations are not capital items. This annual process should be completed before the beginning of each budget year and should include:

- » A work program for the upcoming year that is specific and related to the city's financial resources. The work program will establish which plan recommendations the city will accomplish during that year.
- » A three-year strategic program. This component provides for a multi-year perspective, aiding the preparation of the annual work program. It provides a middle-term implementation plan for the city.
- » A six-year capital improvement program. This is merged into Shawnee's current capital improvement program.

ANNUAL EVALUATION

The Planning Commission should conduct an annual evaluation of the comprehensive plan at the end of each fiscal year. This evaluation should include a written report that:

- » Summarizes key land use developments and decisions during the past year and relates them to the comprehensive plan.
- » Reviews actions taken by the city during the past year to implement plan recommendations.
- » Defines any changes that should be made in the comprehensive plan.

The plan should be viewed as a dynamic changing document that is actively used by the city as a source of information and guidance on policy and public investment.

ROLES AND RESPONSIBILITIES

The public, decision-makers, and staff must be concerned with the short and long-range consequences of present actions. Each of these groups plays a role in ensuring that decisions are made in the interest of good quality design and protecting the integrity of what makes Shawnee an exceptional community.

RESPONSIBILITIES: ELECTED/APPOINTED OFFICIALS

Decision-makers, along with staff, must be conscious of the rights of others. Decisions should expand choices and opportunities for all persons, including the disadvantaged, and promote economic integration. Officials include the City Commission and City Boards and Commissions.

RESPONSIBILITIES: CITY STAFF

City staff should continue to seek meaningful input from the public on the development of plans and programs. The Shawnee Next Horizons Plan is rooted in a public engagement process, and thereby the goals and initiatives represent the aspirations of the community as a whole. Recommendations from staff to decision-makers should provide accurate information on planning issues to all affected persons and to governmental decision-makers.

NON-PROFIT COMMUNITY

The non-profit community, including churches and organizations like Community Renewal, play an important part in the Shawnee community. They often fill the gaps local tax supported organizations can not fully meet. This includes community outreach and building capacity for some of the city's most vulnerable residents. Potential roles for these organizations include:

- » Advocates for recommendations made within this plan that improve the lives of all residents. This may even include assisting with fundraising for capital projects.
- » Community outreach on priorities, as organizations that residents are familiar and comfortable with they can continue the community outreach efforts started in this plan.
- » Filling the gaps in providing services that city and state agencies have a difficult time funding with tax dollars. With diminishing federal dollars for many programs state and local governments are often looking for ways to continue important programs and initiatives.

IMPLEMENTATION TABLE

The tables at the end of this chapter present a summary of the recommendations of the Shawnee Next Horizons Plan. Recommendations are listed in order of their place in the plan. Each recommendation is characterized according to several categories:

TYPE

- » **Goal.** A general guiding principle of the plan to be incorporated and evaluated at a philosophical level to all decisions.
- » **Policy.** Continuing efforts over a long time period. In some cases, policies include specific regulatory or administrative actions.
- » **Action (Capital).** Specific efforts or accomplishments by the city or community including public capital projects that will implement features of the plan.

TIMING

The implementation of a comprehensive plan must be flexible, multi-faceted, and also respect the finite resources of all stakeholder organization. The timing of the implementation table was explored by the city and the Steering Committee who assigned each action into a time frame.

- » **Ongoing.** Most of the recommendations fit into this category. These are matters related to general policy and operations, and have no completion date.
- » **Short Term.** Implementation within 5 years.
- » **Medium Term.** Implementation in 5-10 years.
- » **Long term.** Implementation in 10-20 years.

Although the implementation timing can help with the question of “where to start,” it should not dictate the order of implementation. The city should be open to implementing any of these recommendations if/when the opportunity arises or the conditions are right.

RESPONSIBILITY & LEADERSHIP

The primary audience of this plan is the City Commission, City Staff, and the Planning Commission. However, it is important for the City to partner with other entities who have an interest in implementing the recommendations of the plan. The final column in the Implementation Summary recommend which group should take the lead in carrying out the recommendation and who the potential partners are.

This designation of “leadership” is not meant to be exhaustive, or to exclude any group that would like to take the lead on a project or policy. Any group or resident is invited to work with the city to support the implementation of this plan. However, this list can serve as a starting point and provide guidance on the expectations of the groups listed here.

The entities named in the table are listed below, followed by the abbreviated name used in the table.

- » City Commission (Commission)
- » Planning Commission (PC)
- » Blue Zones Project (BZ)
- » City Staff
- » Shawnee Forward
- » Residents or Resident Groups (Residents)
- » Private Land Developers (Developers)
- » Private Property Owners (Owners)

FUNDING SOURCES

In order to implement many of the objectives described in the plan, the city will need to consider a mixture of funding sources. The final column of the Implementation Schedule presents possible funding sources. This list is not exhaustive and should be reviewed and modified each fiscal year with new opportunities added and outdated sources removed.

Abbreviations used in this section are listed below:

- » CDBG – Community Development Block Grant
- » TIF – Tax Increment Financing
- » LIHTC – Low Income Housing Tax Credit
- » Benefit Fees – similar to impact fees but should be viewed as a benefit to the development. This includes participation by developers in the construction of off-site facilities such as water, wastewater, roadways, trails, and parks.
- » ODOT – Oklahoma Department of Transportation
- » Grants – Outside foundations and other organizations that assist with specific capital projects.

IMPLEMENTATION SUMMARY

RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
LAND USE					
Implement an intensity based approach to land use and development in accordance with the future land use map and land use categories	Policy	On-going	Planning Commission	City Commission, City Staff	NA
Encourage responsible horizontal integration (mixed use development) at appropriate locations	Policy	On-going	Planning Commission	City Commission, City Staff; Developers	NA
Encourage responsible vertical integration (mixed use development) at appropriate locations	Policy	On-going	Planning Commission	City Commission, City Staff; Developers	NA
Use the future land use map as a basis for decisions by the Planning Commission, the City Commission, and private developers	Policy	On-going	Planning Commission	City Commission, City Staff; Developers	NA
Implement site design standards in accordance with the recommendations of each land use category	Policy	Short	Planning Commission	City Commission, City Staff; Developers	NA
Evaluate the existing zoning and subdivision ordinance to ensure compliance with recommendations and whether new districts or overlay districts are needed to achieve the goals	Action	Short	Planning Commission/City Staff	City Commission, City Staff; Developers	NA

IMPLEMENTATION SUMMARY

RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
TRANSPORTATION					
Coordinate the transportation & land use plans	Policy	On-going	Staff, Planning Commission	ODOT; Developers	NA
Acquire right-of-way for expansion of the arterial system into growth areas	Capital	Medium	Staff; City Commission	ODOT; Pottawatomie County	City Bonds; ODOT
Require a traffic impact analysis for large scale projects	Policy	Short	Staff	Planning Commission; City Commission; Developers	Private Sector; Blue Zones; Developers
Provide dedicated funding source for arterial and collector development	Capital	Short	City Commission	ODOT; Pottawatomie County; Developers	ODOT; Bonds; Development Fees
Develop street connectivity and design standards	Policy	Short	Staff; Planning Commission	City Commission; Developers; Blue Zones	NA
Establish guidelines for greater street connectivity that includes pedestrian routes within subdivision standards	Policy	Short	Staff; Planning Commission	City Commission; Developers; Blue Zones	NA
Apply context sensitive design approach to street design	Policy	Short	Staff; Planning Commission	City Commission; Developers; Blue Zones	NA
Develop design criteria for arterial streets to include options for medians and improved pedestrian environments	Policy	Short	Staff; Planning Commission	City Commission	NA
Create multi-modal corridors	Action/ Capital	On-going	Staff	Blue Zone; Planning Commission; City Commission	NA
Establish site development standards that accommodate all modes of transportation.	Policy	Short	Staff; Planning Commission	City Commission	NA
Identify a system of multi-modal corridors that safely connects all parts of the city and major destinations	Action/ Capital	Short	Staff	Blue Zone; Planning Commission	City Bonds; Grants
Establish guidelines for all new or improved collector streets to have multi-modal features	Policy	Short	Staff	Planning Commission; Blue Zones	NA
Improve and Expand the Existing Trail Network	Action/ Capital	On-going	Staff	Blue Zone; Planning Commission; City Commission	NA
Update Shawnee Trails Master Plan	Action	Short	Staff	Planning Commission; Park Commission; Blue Zone	City General Fund; Grants
Connect existing trail links	Action/ Capital	Long	Staff	City Commission	City Bonds; Development Fees; Grants
Identify a reliable funding source for trail development	Action	Short	City Commission	Park Commission; Blue Zone	NA
Connect the City to the river through trail development	Action	Long	Staff	City Commission; Park Commission	City Bonds; Development Fees; Grants

IMPLEMENTATION SUMMARY					
RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
TRANSPORTATION					
Expand the bike and pedestrian system	Action	On-going	Staff	Blue Zone; City Commission	General Funds; Grants; ODOT
Expand the approved bike routes along low volume streets	Action	Short	Staff	Blue Zone	General Funds; Grants
Improve the bicycle-friendliness of Shawnee	Goal/Action	Medium	Local bike shops; Police Department	Blue Zone; Shawnee Forward; School Districts	NA
Remove barriers to expanding the bike system (improvements to crossing man-made barriers)	Action/ Capital	Long	Staff	City Commission; ODOT; Blue Zone	ODOT;
Identify high priority sidewalk segments per an established sidewalk plan or safe routes to school plan	Action/ Capital	Short	City Staff; School Districts	City Commission; Blue Zone	Bonds; General Funds; ODOT; Grants
Include sidewalks in all updated street design standards	Policy	Short	Staff	Planning Commission; Developers	NA
Establish a dedicated funding source to address gaps and maintenance of the sidewalk system	Action	Short	City Commission	Staff; School Districts; Blue Zone	Avedis
Plan for expanded transit services	Policy	Long	Staff; Planning Commission	Regional Transit Agency;	NA
Ensure that future projects are transit friendly	Policy	Short	Staff; Planning Commission	Regional Transit Agency;	NA
Expand the awareness of the existing transit services	Goal/Action	Short	Regional Transit Agency	Forward Shawnee; School Districts; Blue Zones	Grants

IMPLEMENTATION SUMMARY					
RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
COMMUNITY IMAGE					
Improve landscape regulations	Policy	Short	Staff	Planning Commission; Developers	NA
Support and encourage of the use of native materials	Policy	On-going	Staff	Planning Commission; Developers	Development Costs
Work with partners to plant trees & native landscaping along major corridors & within parks.	Action/ Capital	On-going		Shawnee Forward; Blue Zones; Garden Clubs	Grants
Upgrade site design standards	Policy	Short	Staff	Planning Commission	NA
Require pedestrian accommodations in all site designs	Policy	On-going	Staff	Planning Commission; City Commission	NA
Establish basic design guidelines for the I-40 corridor	Policy	Short	Staff	Planning Commission	NA
Offer incentives for on-site retention when done as an amenity	Policy	Short	Staff	Planning Commission; City Commission	Waive fees; density bonuses
Improve overall community appearance	Action	On-going	Staff	Shawnee Forward; Community Renewal	NA
Review and update property maintenance codes & enforcement procedures	Policy	Short	Staff	Planning Commission; City Commission; Community Renewal	NA
Develop property maintenance material & education programs on how to be a good neighbor	Action	On-going	Staff	Shawnee Forward; Community Renewal	NA
Work with the schools on community pride and property maintenance	Action	On-going	Staff	School Districts; Shawnee Forward; Kids Clubs; Community Renewal	NA
Invest in a systematic reporting system for tracking problem properties	Capital	Short	Staff	City Commission	General funds
Recognize Efforts that have been made.	Policy	On-going	City Commission	Staff	NA
Establish a “state of the city” address to celebrate accomplishments to outline initiatives	Policy	Short	City Commission	Staff, Avedis	NA
Evaluate the city’s existing brand (logo etc.) and consider updating	Action	Short	City Commission	Shawnee Forward	Shawnee CTV, VSI
Extend customer service training in the PRIDE program to city staff	Action	Short	City Commission	Shawnee Forward	NA

IMPLEMENTATION SUMMARY

RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
DOWNTOWN					
Enliven public spaces	Capital	On-going	Staff	City Commission; Park Commission; Community organizations	TIF, General Fund
Continue public enhancements that started with the streetscape and use these as development tools	Capital	Short	Staff	City Commission	TIF, General Fund
Attract more people to downtown	Action	On-going	Staff; Community Organizations	City Commission	LIHTC; TIF; General Fund
Increase the residential population	Action	Short	Staff; Community Organizations	City Commission	LIHTC; TIF; General Fund
Initiate family-oriented development around downtown	Action	Short	Staff; Community Organizations	City Commission	LIHTC; TIF; General Fund
Encourage adaptive residential reuse and mixed use in key buildings	Policy	Short	Staff	Planning Commission	NA
Identify key niches that can support destination businesses	Policy	Short	Staff	Planning Commission	NA
Establish partnerships to identify safe and supportive alternatives for the homeless, day and night	Action	Short	Staff	Planning Commission; City Commission; Developers	NA
Put together critical sites and properties	Capital	On-going	Staff	Planning Commission; City Commission; Pottawatomie County	CDBG; General Funds
Improve access and visibility of the downtown	Policy	Short	Staff	City Commission	General Funds
Improve corridors and wayfinding into downtown	Action/ Capital	On-going	Staff	City Commission	General fund
Expand the connections to downtown through improved bike infrastructure and pedestrian paths in key corridors	Capital	Medium	Staff	City Commission; Blue Zone; Avedis Foundation	City bonds; Grants

IMPLEMENTATION SUMMARY					
RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
HOUSING & NEIGHBORHOODS					
Revitalize and stabilize older neighborhoods	Policy	On-going	Staff	Planning Commission; Shawnee Forward	NA
Implement policies identified in the Development Policy Areas	Policy	On-going	Staff	Planning Commission	NA
Expand rehabilitation and demolition programs	Capital	Short	City Commission	Staff; Community Renewal	CDBG; General Fund
Target public facility improvements to high risk neighborhoods	Capital	Medium	Staff	City Commission	Bonds; CDGB; General Fund
Work with local non-profits to expand knowledge of property maintenance standards	Policy	Short	Staff	Non-profits; City Commission; Shawnee Forward	NA
Expand Housing Diversity	Policy	On-going	Staff	City Commission; Developers	NA
Establish a non-profit development corporation to produce housing options that are too risky for the private market	Action	Short	Shawnee Forward; Community Renewal	City	HOME Funds; City General; Lending Consortium
Direct city investments and redevelopment dollars toward mixed-income projects	Policy	On-going	Staff	City Commission	Economic Development
Review zoning code for barriers and hurdles	Action	Short	Staff	Planning Commission	NA
Encourage Infill Development	Policy	On-going	Staff	City Commission; Developers	NA
Identify strategy for consolidating ownership of vacant lots in older neighborhoods	Action	Short	Staff	City Commission; Pottawatomie County; Community Renewal	Public-Private Partnerships
Establish incentives for the development of vacant lots	Action	Short	Staff	City Council	TIF; Waive fees
Provide public facility improvements that create favorable environments for private investment on underutilized sites	Capital	Medium	Staff	City Commission	Bonds; CDGB; General Fund

IMPLEMENTATION SUMMARY

RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
HOUSING & NEIGHBORHOODS					
Integrate amenities into new neighborhoods	Action	On-going	Staff	Planning Commission; Developers	NA
Identify green space that should be added to the cities park system ahead of growth	Goal	Medium	Staff	Parks Commission	General Fund
Implement connectivity standards for all modes of transportation	Policy	Short	Staff	Planning Commission	NA
Review zoning & subdivision regs with regard to landscaping and buffering	Action	Short	Staff	Planning Commission	NA
Encourage downtown's evolution as a neighborhood	Policy	Short	Staff	Planning Commission	NA
Use city incentives for development of housing in and adjacent to downtown	Policy	On-going	Staff	City Council; Developers	TIF; Waiving fees; Tax rebate
Work with chamber and economic development groups to encourage services and businesses that support workers and residents in the downtown	Goal	On-going	Downtown Business Association	City; Shawnee Forward	NA
Preserve and enhance special needs housing	Policy	On-going	Staff	Planning Commission; Developers	NA
To address homelessness in Shawnee, a coalition of agencies should implement a Continuum of Care model	Action	Short		Salvation Army; Central OK Community Action Agency	Grants
Require large scale projects to incorporate universal design standards into at least a portion of units	Policy	Long	Staff	Planning Commission; Developers	N/A

IMPLEMENTATION SUMMARY					
RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
QUALITY OF LIFE					
Implement concepts from the Parks Master Plan	Action	On-going	Park Commission	Staff, City Commission; Residents	NA
Identify funding sources to implement Park improvements	Action	Medium	Park Commission	Staff; City Commission	NA
Expand the Parks Plan to the Lakes	Policy	Short	Park Commission	Staff; City Commission; Tribal Leadership	NA
Find joint ventures with local Tribes that can improve recreational options for all residents	Action	Medium	Park Commission	Staff; City Commission	NA
Maintain facilities in a state of good repair	Action	On-going	Park Commission	Staff; Non-profits; Volunteers	General Funds
Budget adequately based on routine assessment of park maintenance and improvement needs	Policy/Action	On-going	Staff	City Commission	NA
Evaluate recreational trends and demands and adapt to desires	Policy/Action	On-going	Staff	Residents	NA
Regularly review facilities and plan for strategic interventions	Policy/Action	On-going	Staff	City Commission	NA
Add park land in growth areas	Policy/Action	On-going	Staff	City Commission; Builders; Residents	Development Fees, General Funds
Establish policies for adding park land in growth areas	Policy	Short	Staff	Planning Commission; Developers	NA
Budget for development of existing land in partnership with private sector	Action	Medium	City Commission		NA
Develop a park expansion trust fund	Capital	Medium	City Commission	Shawnee Forward; Avedis Foundation; Local Tribes	Non-profits, Businesses, Grants
Identify strategies such as “adopt a park” programs to assist with maintenance	Policy	Short	Staff	Community Organizations	NA
Develop a cultural resources and public arts plan	Action	Short	City Commission	Community Organizations; Staff; Residents	Grants, General Funds
Establish and Arts and Culture Commission	Action	Medium	City Commission	Community Organizations; Staff; Residents	NA
Pursue a 1% for the Arts Ordinance	Action	Medium	City Commission	Staff	NA

IMPLEMENTATION SUMMARY					
RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
QUALITY OF LIFE					
Use trails and greenways to connect parks	Policy/Action	On-going	Staff	City Commission; Non-profits/Foundations	NA
Require buffers along drainage ways	Policy	Short	Staff	Planning Commission; Developers	NA
Develop public private partnerships for development and maintenance of trails	Capital	Medium	City Commission	Shawnee Forward; Avedis Foundation; Local Tribes	NA
Require sidewalks in new developments	Policy	Short	Staff	Planning Commission; Developers	Development Costs
Establish a plan for connecting new sites (in developing areas) to the larger city	Policy/Action	Short-Medium	Staff	City Commission, Blue Zones, Avedis Foundation	Bonds; General Funds, Grants
Implement land use regulations that support mixed use neighborhoods	Policy	On-going	City Commission	Planning Commission; Shawnee Forward; Staff	NA
Implement guidelines outlined in the land use chapter	Policy	On-going	Staff	Planning Commission	NA
Direct city investments and incentives to mixed use projects or mixed use settings	Policy	On-going	Staff	City Commission; Planning Commission	NA
Maintain the city's heritage through historic preservation & celebrate the city's culture and history	Policy	On-going	Historic Alliance	Planning Commission; Shawnee Forward; Local Tribes; Downtown Businesses	NA
Remove barriers and encourage public art across the community	Policy	On-going	Beautification Committee	Shawnee Forward; City Commission	NA
Connect the city's museum to the rest of the city	Action	Medium	Staff	City Commission, Avedis Foundation; Blue Zones	Grants; Bonds, General Funds
Develop a cultural heritage plan and public art plan	Action	Medium	Shawnee Forward	Cultural Organizations; Local Tribes	General Funds; Grants
Find ways to celebrate partnerships between the city and Tribes	Action	On-going	Non-Profits, City Commission	Shawnee Forward; Local Tribes	NA
Celebrate the investments by organizations in the community	Action	On-going	City Commission	Staff; Shawnee Forward	NA

IMPLEMENTATION SUMMARY

RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
PUBLIC SERVICES					
Maintain facilities in a state of good repair and continually adapt to support potential growth	Policy	On-going	Staff	City Commission	General Funds
Maintain facilities and equipment on a routine schedule	Policy	On-going	Staff	City Commission	General Funds; Bonds; Grants
Use high quality material and equipment	Policy	On-gong	Staff	City Commission	General Funds; Bonds; Grants
Work with departments to evaluate the need, location, and functional suitability for public buildings	Policy	On-gong	Staff	City Commission	General Funds; Bonds; Grants
Balance the intensity of development & response times to locate facilities	Policy	Short	Staff	City Commission	General Funds; Bonds; Grants
Maximize public safety through site design	Policy	On-gong	Staff	City Commission; Planning Commission	NA
Clearly define public and private spaces	Policy	On-gong	Staff	Planning Commission	NA
Design spaces with natural surveillance	Policy	On-gong	Staff	Planning Commission	NA
Maintain public spaces and enforce existing codes to create environments that feel well-kept and safe	Action	On-gong	Staff	City Commission	NA
Prohibit developments with one access point	Policy	On-gong	Staff	Planning Commission	NA
Update and implement water and sewer master plans	Action	Short	Staff	City Commission	NA
Regularly review existing water plans and strategically identify the next round of priority projects	Action	On-gong	Staff	City Commission	NA
Consider water and sewer treatment capacities and alternative solutions for expansion of the treatment facilities	Action	On-gong	Staff	City Commission	NA
Establish stormwater management practices that protects downstream users	Policy	On-gong	Staff	Planning Commission	NA
Work with surrounding water jurisdictions to created a unified plan	Action	Medium	City Commission; Staff	Planning Commission; Adjoining Jurisdictions	NA

IMPLEMENTATION SUMMARY

RECOMMENDATION	Type	Timing / Priority	Leadership	Partners	Funding
PUBLIC SERVICES					
Fund water and sewer infrastructure to leverage development and redevelopment	Action	On-going	City Commission	Staff	City Bonds; General Funds
Build and finance water and sewer infrastructure in coordination with land use plan and market demands.	Policy	On-going	City Commission	Staff	City Bonds; General Funds
Coordinate stormwater ordinances with the land use plan	Action	On-going	Staff	Planning Commission	NA
Study the suitability of impact fees to fund stormwater infrastructure extensions	Action	Short	Staff	City Commission	NA
Evaluate ordinance updates that would require stormwater management to be integrated as a site amenity	Action	Short	Staff	City Commission	NA
Evaluate ways to incentivize innovative approaches to stormwater management	Action	Short	Staff	City Commission	NA
Work in partnership with the school districts to build and renovate facilities	Action	On-going	School Districts	Staff; Planning Commission; City Commission	NA
Remove hurdles to reinvestment in existing schools or conversion of closed schools	Action	Long	School Districts	Staff; Planning Commission; City Commission	Grants
Be a partner at the table to improve connections to schools	Action	Short	School Districts; Staff	Staff; Planning Commission; City Commission	Development Fees; General Funds
Work in partnership to identify future site needs and locations	Action	Medium	School Districts; Staff	Planning Commission; Land Commission	Bond
Find opportunities for shared initiatives with surrounding Tribal Nations	Policy	On-going	City Commission; Residents	Staff	NA
Find individual opportunities to improve relations	Policy	On-going	City Commission; Residents	Staff	NA
Build on the areas cultural history and find ways to celebrate partnerships	Action	On-going	Local cultural organizations; Tribes	City Commission	Partnerships
Celebrate investments that Tribes are making in the community	Action	On-going	City Commission	Tribes	Partnerships
Move forward with the joint ventures identified in the Parks Plan	Capital	Medium	City Commission	Tribes; Staff	City Bonds