

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Liberty Utilities Verified)	
Application for Approval of PVC Pipe)	File No. GO-2019-_____
Replacement Program and Recovery of Associated)	
Costs Through ISRS Mechanism)	

**VERIFIED APPLICATION OF LIBERTY UTILITIES
FOR APPROVAL OF PVC PIPE REPLACEMENT PROGRAM AND
RECOVERY OF THE ASSOCIATED COSTS THROUGH ISRS MECHANISM
AND CONTINGENT MOTION FOR WAIVER**

COMES NOW Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty Utilities" or "Company"), pursuant to 4 CSR 240-2.060 of the Commission's Rules, and in support of its Verified Application for Approval PVC Pipe Replacement Program, respectfully states as follows:

1. Liberty Utilities is a public utility incorporated under the laws of the State of Missouri, with its principal office located at 602 S. Joplin Avenue, Joplin Missouri 64802. Contact information for communications with Liberty Utilities, through the Company's legal counsel, including Liberty Utilities' electronic mail address, fax number and telephone number, are set forth on the signature page of this Application.
2. A Certificate of Good Standing evidencing Liberty Utilities' standing to do business in Missouri is attached hereto as Exhibit 1 and incorporated herein by this reference. The information on such Certificate is currently applicable and correct.
3. Liberty Utilities is primarily engaged in the business of distributing and transporting natural gas to approximately 55,000 customers in the West, Northeast and Southeast portions of the State of Missouri, subject to the jurisdiction of the Commission.

4. Other than cases that have been docketed at the Commission, Liberty Utilities has no pending actions or final unsatisfied judgments or decisions against it from any state or federal agency or court which involve customer service or rates.

5. Liberty Utilities is current on its annual report and assessment fee obligations to the Commission, and no such report or assessment fee is overdue.

6. All pleadings, filings data requests and other communications relating to this Application should be served on the undersigned attorneys and the following representative of Liberty Utilities:

Jill Schwartz
Senior Manager, Rates and Regulatory Affairs
Liberty Utilities (Central Region)
602 South Joplin Avenue
Joplin, MO 64802.
Phone: 417-626-5941
Email: jill.schwartz@libertyutilities.com

APPROVAL OF PVC REPLACEMENT PROGRAM

7. Over the past three decades, this Commission has authorized or affirmatively mandated a number of programs designed to replace natural gas distribution facilities that pose a risk to public safety. These have included more generally-applicable programs aimed at replacing aging facilities such as those set forth in the Commission's rules relating to cast iron and bare steel facilities.¹ They have also included programs approved for specific gas utilities with unique safety-related issues, such as the direct buried, soft-copper service line replacement program authorized for Laclede Gas Company years ago.

¹See 4 CSR 240-40.030(15)(D)&(E)

8. Unfortunately, all of these programs share a common origin, namely, they, or the regulations that mandated them, were a response to the occurrence of serious natural gas incidents that resulted in a loss of life, serious injuries and/or significant property damage. Since those incidents occurred, however, Missouri has been at the forefront in adopting measures designed to proactively address concerns relating to the safe operation of natural gas distribution systems. These measures have included, among others, the Commission's promulgation of natural gas safety rules that are among the most advanced and comprehensive in the nation and the Missouri General Assembly's enactment of an Infrastructure System Replacement Surcharge ("ISRS") mechanism that has been lauded by outside experts for its effectiveness in encouraging the replacement of aging natural gas infrastructure.²

9. In that same proactive spirit, Liberty Utilities raised an issue in its most recent rate case proceeding before this Commission, File No. GR-2018-0013, regarding the need to systematically replace the remaining poly vinyl chloride ("PVC") pipes in its distribution system.³ Ultimately, the parties agreed in Paragraph 17 of the Unanimous Stipulation and Agreement approved by the Commission in that case, that Liberty Utilities could submit an application requesting that the Commission approve a safety-

²In 2011, for example, the federal Pipeline and Hazardous Materials Safety Administration ("PHMSA") issued a white paper that reviewed the programs available in various states "to support efforts to accelerate the repair, rehabilitation and replacement of high-risk infrastructure in pipeline systems..." PHMSA looked favorably upon Missouri's ISRS Statute as one of the programs available to protect the public "by ensuring the prompt rehabilitation, repair or replacement of high-risk gas distribution infrastructure." PHMSA further urged State commissions to "accelerate the repair, rehabilitation and replacement of high-risk pipeline infrastructure." (P. 17)

³See the direct and surrebuttal testimony of Liberty Utilities' witness Michael D. Beatty in File No. GR-2018-0013, filed on September 29, 2017 and May 9, 2018, respectively.

related replacement program for PVC pipes. Paragraph 17 also provided that the Liberty Utilities could propose that such replacement costs be included in and recovered through the Company's ISRS mechanism. All parties reserved the right, of course, to challenge such a request, other than on the grounds that such a request should have been submitted in a general rate case or ISRS proceeding.

10. Consistent with the Stipulation and Agreement, the Company is proposing that the Commission approve a ten-year replacement program for the approximate 64.5 miles of PVC Pipe that remain in its distribution systems in Missouri. Exhibit 2, which is attached hereto and incorporated herein for all purposes, contains schematic drawings showing the location of such PVC Pipe in various sections of the Company's distribution system.

11. There are multiple, safety-related justifications for systematically replacing such PVC pipe over a reasonable period of time. First, the PVC piping was installed in Liberty Utilities' natural gas distribution systems in Missouri in the late 60's and so much of it is already a half century or more old. While age is not necessarily a determining factor in whether specific facilities need to be replaced, it is worthwhile noting that these are *not* new facilities.

12. Second, approximately 40% of the installed PVC piping is *un-locatable* because it was either installed without tracer wire or was installed with galvanized tracer wire or other wire that has since corroded away. Obviously, this raises serious concerns regarding the ability to locate such facilities when third parties are excavating nearby. Since third party damage is already the largest single cause of natural gas incidents, this inability to readily locate the Company's underground piping is particularly concerning.

The Company does utilize Electronic Marker System Ball Markers and other related technology to provide repeatable locating once the non-locatable PVC is exposed and verified.

13. Third, it is increasingly difficult to maintain PVC piping in a safe condition. Currently there is no PVC pipe or PVC glue manufactured today that is rated for use in a natural gas distribution system. The Company has been able to source a repair fitting from Continental Industries of Tulsa Oklahoma. The Scope® Expandable Repair Joint is available in a Polyethylene pipe to PVC design.

14. Fourth, the chemical composition of PVC pipe has resulted in becoming unacceptably brittle over time. This has a number of detrimental safety implications. For example, while polyethylene (“PE”) pipe can be safely squeezed off to stop the flow of natural gas, the brittleness of PVC piping means that it can only be squeezed off under emergency conditions and then with limited success. Because of the brittleness of PVC piping, it also is more susceptible to breakage due to natural forces, including earth movement and tree root growth that stresses the pipe and induces brittle cracking.

15. Fifth, and finally, all of these factors have led federal safety officials to consider whether such the use of PVC piping should be phased or eliminated for natural gas distribution systems. As PHMSA observed in a recent rulemaking:

PHMSA is also looking to address some issues surrounding PVC pipe and components used for repair situations. Historically, PVC pipe and components have technically been allowed by code, including for repair, *but industry has slowly been phasing out the installation and use of PVC piping, including for repair, in favor of other newer and better-performing plastic materials.* PVC components are still used to a larger extent, however, as they are not as susceptible to the same issues of brittle-like cracking as PVC piping. *To align with this shift, PHMSA is proposing to add a new § 192.59(e) to explicitly prohibit the use of PVC*

pipe for new installations after the effective date of the rule, including for repairs. This new requirement would not prevent the use of previously installed PVC pipe, nor would it preclude the use of PVC components for the repair of existing PVC pipe. Requirements for PVC were previously addressed under ASTM D2513-99, but following the change to make ASTM D2513 a PE-only standard, there is now a standalone ASTM standard for PVC. For PVC components used to repair existing PVC pipe, PHMSA is proposing to incorporate ASTM F2817-10, “Standard Specification for Poly (Vinyl Chloride) (PVC) Gas Pressure Pipe and Fittings For Maintenance or Repair.” (cite, *emphasis supplied*.)

16. Although PHMSA has not yet completely banned the use of PVC for future installations, its statements certainly illuminate the ongoing concerns by both industry and safety officials regarding its continued use.

17. For all of these reasons, Liberty Utilities believes that there is ample justification for the Commission to approve a ten-year replacement program for the PVC piping in its distribution system. Under this plan, the Liberty Utilities would intend to replace an average of approximately 6.5 miles of such piping each year. The Company estimates that the ISRS revenue requirement associated with such annual replacements would average between \$1,500,000 and \$2,000,000, although the impact of future inflation, tax law changes and other factors could affect these estimates. Consistent with the shared value that this Commission and Liberty Utilities have toward proactively addressing safety risks through the replacement of facilities that pose such risks, the Company respectfully requests that the Commission approve the replacement plan submitted herein.

DETERMINATION OF ISRS ELIGIBILITY

18. Consistent with the provisions of the Stipulation and Agreement in File No. GR-2018-0013, Liberty Utilities also requests that the Commission include in its

Order a determination that the costs incurred by the Company to implement its ten year PVC pipe replacement program are eligible for recovery through the Company's ISRS mechanism, provided that all other requirements for a proper ISRS filing are satisfied. Because such eligibility issues are occasionally raised in ISRS proceedings, where the abbreviated schedule for processing a filing can impair the ability to fully develop an issue for the Commission's consideration, the Company believes making such a determination now is fully appropriate.⁴

19. In terms of the eligibility of these costs for inclusion in the Company's ISRS, Liberty Utilities would note that, consistent the requirements of Sections 393.1009-1015 of the ISRS Statute and 4 CSR 240-3.265 of the Commission's rules, such costs would be incurred only for eligible gas utility plant projects comprised of: (a) mains, valves, service lines, regulator stations, vaults, and other pipeline system components installed to comply with state or federal safety requirements as replacements for existing facilities that have worn out or are in deteriorated condition;⁵ or

(b) main relining projects, service line insertion projects, joint encapsulation projects, and other similar projects extending the useful life, or enhancing the integrity of pipeline system components undertaken to comply with state or federal safety requirements;

⁴The Company believes that there is already a justification for including such replacement costs in the ISRS since it would further the Company's ability to comply 4 CSR 240-40.030(17), which requires that natural gas facility operators like Liberty Utilities develop and implement system integrity plans. That said, approval of the replacement program and a clear determination by the Commission of the ISRS eligibility of the associated costs would eliminate any questions in this regard.

⁵Given the age and brittle nature of such PVC piping, as well as the fact that it cannot be easily repaired or located because its tracer wire has dissolved or was never installed, there should be no

(c) unreimbursed infrastructure facility relocations resulting from the construction or improvement of a highway, road, street, public way or other public work required by or on behalf of the United States, the State of Missouri, a political subdivision of the State of Missouri, or another entity having the power of eminent domain.

20. Liberty Utilities would further note that such costs will be eligible for ISRS inclusion because the facilities being installed to replace the PVC pipe:

(a) will not increase revenues by directly connecting to new customers;

(b) will be currently in service and used and useful at the time the Company's ISRS filing is completed;

(c) will not have been included in Liberty Utilities' rate base in its most recently completed general rate case, or in rates in a previous ISRS case; and

(d) will replace and/or extend the useful life of existing infrastructure.

21. The Company recognizes, of course, that the Staff will have the right to audit the Company's ISRS filing to ensure that these requirements are satisfied. Subject to that audit and the Company satisfying all other requirements for a valid ISRS filing, however, the Company requests that the Commission issue its finding that the costs incurred in connection with the Company's PVC pipe replacement program are eligible for inclusion in and recovery through its ISRS mechanism.

CONTINGENT MOTION FOR WAIVER

22. Liberty respectfully requests that the notice requirement contained in 4 CSR 240-4.0015 be waived for good cause, since interested parties received notice via

question that such pipe is worn out or in a deteriorated condition as that phrase is used in the ISRS statute.

paragraph 17 of the Unanimous Stipulation and Agreement in File No. GR-2018-0013 that such a filing might be made on or about this date and since it was not known by the Company (60) days prior to the date that this Application was filed that it would, in fact, be filing this Application on such date. . 4 CSR 240-4.017(1)(D). Additionally, Liberty Utilities has had no communication with the office of the Commission within the prior one hundred fifty (150) days regarding any substantive issue likely to be in the case, other than in testimony or pleadings filed with the Commission and served upon all parties.. Additionally, the ISRS process, which is one of the subjects of this Application is authorized by Sections 393.1009, 393.1012 and 393.1015, RSMo, and Commission Rule 4 CSR 240-3.265. Its goal is to provide eligible gas corporations with the ability to recover, on a timely basis, certain infrastructure replacement costs outside of a formal rate case filing via the ISRS. The purpose of these statutes would not be served by the imposition of a 60-day waiting period and, therefore, good cause exists for a waiver. (See, also, Order Regarding Adjusted ISRS Rates, File No. GO-2013-0048 (October 18, 2012).

WHEREFORE, Liberty Utilities, the Applicant herein, respectfully requests that the Commission issue its Order: (a) approving the ten year replacement program for PVC piping as proposed herein, (b) determining that the costs associated with the approved replacement program are eligible for recovery through the Company's ISRS mechanism, assuming other conditions for a proper ISRS filing are met, (c) and providing such other relief as the Commission may deem appropriate or necessary and (d) if necessary, granting the waiver of the 60 day notice period requested herein.

Respectfully submitted,

LIBERTY UTILITIES

/s/James M. Fischer

James M. Fischer
Fischer & Dority, P.C.
101 Madison--Suite 400
Jefferson City, Missouri 65101
573-636-6758 ext. 1
jfischerpc@aol.com

/s/ Michael C. Pendergast

Michael C. Pendergast, #31763
Of Counsel
Fischer & Dority, P.C.
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Certificate of Service

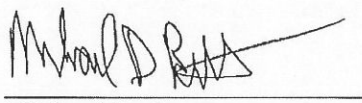
The undersigned certifies that a true and correct copy of the foregoing Verified Application of Liberty Utilities Inc. was served on the General Counsel of the Staff of the Missouri Public Service Commission and the Office of the Public Counsel on this 28th day of September 2018 by hand-delivery, e-mail, fax, or by placing a copy of such document, postage prepaid, in the United States mail.

/s/James M. Fischer_____

VERIFICATION

STATE OF MISSOURI)
) SS.
CITY OF ST. LOUIS)

Michael D. Beatty, being duly sworn, on his oath states that he is Vice President of Gas Operations for the Liberty Utilities Central Region, which includes Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities; the applicant in the foregoing Application; that he has read said Application, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

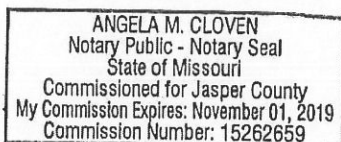


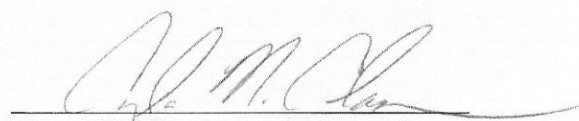
Michael D. Beatty

Subscribed and sworn to before me a Notary Public in the City of Joplin, State of Missouri, this 28th day of September, 2018.

My Commission expires: Nov 1, 2019.

[seal]





Notary Public, State of Missouri

STATE OF MISSOURI



John R. Ashcroft
Secretary of State

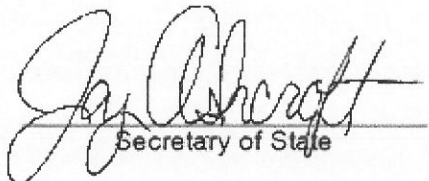
CORPORATION DIVISION
CERTIFICATE OF GOOD STANDING

I, JOHN R. ASHCROFT, Secretary of State of the State of Missouri, do hereby certify that the records in my office and in my care and custody reveal that

Liberty Utilities (Midstates Natural Gas) Corp.
01140562

was created under the laws of this State on the 10th day of May, 2011, and is in good standing, having fully complied with all requirements of this office.

IN TESTIMONY WHEREOF, I hereunto set my hand and cause to be affixed the GREAT SEAL of the State of Missouri. Done at the City of Jefferson, this 28th day of September, 2018.


Secretary of State



Certification Number: CERT-09282018-0007

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed 100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed \$1,000,000 as provided in 49 USC 60122.

OMB NO: 2137-0629
EXPIRATION DATE: 1/31/2018



U.S Department of Transportation
Pipeline and Hazardous Materials Safety Administration

Initial Date
Submitted:

03/14/2018

Form Type:

INITIAL

Date
Submitted:

ANNUAL REPORT FOR CALENDAR YEAR 2017 GAS DISTRIBUTION SYSTEM

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0629. Public reporting for this collection of information is estimated to be approximately 16 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

Important: Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at <http://www.phmsa.dot.gov/pipeline/library/forms>.

PART A - OPERATOR INFORMATION

(DOT use only)

20188607-35746

1. Name of Operator		LIBERTY UTILITIES (MIDSTATES NATURAL GAS) CORP. D/B/A LIBERTY UTILITIES	
2. LOCATION OF OFFICE (WHERE ADDITIONAL INFORMATION MAY BE OBTAINED)			
2a. Street Address		2751 NORTH HIGH STREET	
2b. City and County		JACKSON	
2c. State		MO	
2d. Zip Code		63755	
3. OPERATOR'S 5 DIGIT IDENTIFICATION NUMBER		38906	
4. HEADQUARTERS NAME & ADDRESS			
4a. Street Address		2751 NORTH HIGH STREET	
4b. City and County		JACKSON	
4c. State		MO	
4d. Zip Code		63755	
5. STATE IN WHICH SYSTEM OPERATES		MO	
6. THIS REPORT PERTAINS TO THE FOLLOWING COMMODITY GROUP (Select Commodity Group based on the predominant gas carried and complete the report for that Commodity Group. File a separate report for each Commodity Group included in this OPID.)			
Natural Gas			
7. THIS REPORT PERTAINS TO THE FOLLOWING TYPE OF OPERATOR (Select Type of Operator based on the structure of the company included in this OPID for which this report is being submitted.):			
Investor Owned			

PART B - SYSTEM DESCRIPTION

1.GENERAL

	STEEL				PLASTIC	CAST/ WROUGHT IRON	DUCTILE IRON	COPPER	OTHER	RECONDITION ED CAST IRON	SYSTEM TOTAL
	UNPROTECTED		CATHODICALLY PROTECTED								
	BARE	COATED	BARE	COATED							
MILES OF MAIN	0	0	10.338	1369.966	643.201	0	0	0	0	0	2023.505
NO. OF SERVICES	0	0	290	35940	38202	0	0	0	0	0	74432

2.MILES OF MAINS IN SYSTEM AT END OF YEAR											
MATERIAL	UNKNOWN	2" OR LESS	OVER 2" THRU 4"	OVER 4" THRU 8"	OVER 8" THRU 12"	OVER 12"	SYSTEM TOTALS				
STEEL	0	783.751	386.324	179.229	31	0	1380.304				
DUCTILE IRON	0	0	0	0	0	0	0				
COPPER	0	0	0	0	0	0	0				
CAST/WROUGHT IRON	0	0	0	0	0	0	0				
PLASTIC PVC	0	46.336	0	0	0	0	46.336				
PLASTIC PE	0	447.177	137.157	12.531	0	0	596.865				
PLASTIC ABS	0	0	0	0	0	0	0				
PLASTIC OTHER	0	0	0	0	0	0	0				
OTHER	0	0	0	0	0	0	0				
RECONDITIONED CAST IRON	0	0	0	0	0	0	0				
TOTAL	0	1277.264	523.481	191.76	31	0	2023.505				
Describe Other Material:											
3.NUMBER OF SERVICES IN SYSTEM AT END OF YEAR					AVERAGE SERVICE LENGTH: 71						
MATERIAL	UNKNOWN	1" OR LESS	OVER 1" THRU 2"	OVER 2" THRU 4"	OVER 4" THRU 8"	OVER 8"	SYSTEM TOTALS				
STEEL	1069	34466	689	3	3	0	36230				
DUCTILE IRON	0	0	0	0	0	0	0				
COPPER	0	0	0	0	0	0	0				
CAST/WROUGHT IRON	0	0	0	0	0	0	0				
PLASTIC PVC	0	1192	0	0	0	0	1192				
PLASTIC PE	0	36098	893	18	1	0	37010				
PLASTIC ABS	0	0	0	0	0	0	0				
PLASTIC OTHER	0	0	0	0	0	0	0				
OTHER	0	0	0	0	0	0	0				
RECONDITIONED CAST IRON	0	0	0	0	0	0	0				
TOTAL	1069	71756	1582	21	4	0	74432				
Describe Other Material:											
4.MILES OF MAIN AND NUMBER OF SERVICES BY DECADE OF INSTALLATION											
	UNKNOWN	PRE-1940	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019	TOTAL

MILES OF MAIN	27.790	.162	8.29	471.064	683.524	207.327	158.163	317.324	82.667	67.194	2023.505
NUMBER OF SERVICES	0	2	31	15154	14637	7405	9817	14771	9274	3341	74432

PART C - TOTAL LEAKS AND HAZARDOUS LEAKS ELIMINATED/REPAIRED DURING THE YEAR

CAUSE OF LEAK	MAINS		SERVICES	
	TOTAL	HAZARDOUS	TOTAL	HAZARDOUS
CORROSION FAILURE	12	0	4	1
NATURAL FORCE DAMAGE	10	2	23	4
EXCAVATION DAMAGE	15	13	74	73
OTHER OUTSIDE FORCE DAMAGE	1	1	31	29
PIPE, WELD OR JOINT FAILURE	2	0	6	2
EQUIPMENT FAILURE	9	1	26	7
INCORRECT OPERATIONS	2	0	5	1
OTHER CAUSE	0	0	0	0

NUMBER OF KNOWN SYSTEM LEAKS AT END OF YEAR SCHEDULED FOR REPAIR : 72

PART D - EXCAVATION DAMAGE

1. TOTAL NUMBER OF EXCAVATION DAMAGES BY APPARENT ROOT CAUSE: 89

a. One-Call Notification Practices Not Sufficient: 39

b. Locating Practices Not Sufficient: 27

c. Excavation Practices Not Sufficient: 23

d. Other: 0

2. NUMBER OF EXCAVATION TICKETS : 21890

PART E - EXCESS FLOW VALUE (EFV) AND SERVICE VALVE DATA

Total Number Of Services with EFV Installed During Year: 513

Estimated Number Of Services with EFV In the System At End Of Year: 5705

* Total Number of Manual Service Line Shut-off Valves Installed During Year: 15

* Estimated Number of Services with Manual Service Line Shut-off Valves Installed in the System at End of Year: 15

**These questions only pertain to reporting years 2017 & beyond.*

PART F - LEAKS ON FEDERAL LAND

TOTAL NUMBER OF LEAKS ON FEDERAL LAND REPAIRED OR SCHEDULED TO REPAIR: 0

PART G-PERCENT OF UNACCOUNTED FOR GAS

UNACCOUNTED FOR GAS AS A PERCENT OF TOTAL INPUT FOR THE 12 MONTHS ENDING JUNE 30 OF THE REPORTING YEAR.

INPUT FOR YEAR ENDING 6/30: 2.20%

PART H - ADDITIONAL INFORMATION

PART I - PREPARER	
David Hinds, Manager - Compliance (Preparer's Name and Title)	(573)719-1175 (Area Code and Telephone Number)
David.Hinds@Libertyutilities.com (Preparer's email address)	(573)248-1701 (Area Code and Facsimile Number)

Total Footage

MO PVC	340,514
	64.49 miles

Totals

1/2"	9,390
3/4"	368
1"	77,622
1 1/4"	29,992
1 1/2"	90,209
2"	55,586
3"	77,345

2017 DOT**46.336 Miles PVC****244,654 ft****all 2" and under**

Butler	196,398
1/2"	9,390
1 1/4"	2,189
1 1/2"	69,373
2"	38,777
3"	77,345

Caruthersville	13,153
1"	10,494
1 1/4"	2,659

Jackson	25,193
1"	16,434
1 1/4"	282
1 1/2"	8,477

Kirksville	15,395
1"	7,612
1 1/2"	7,783

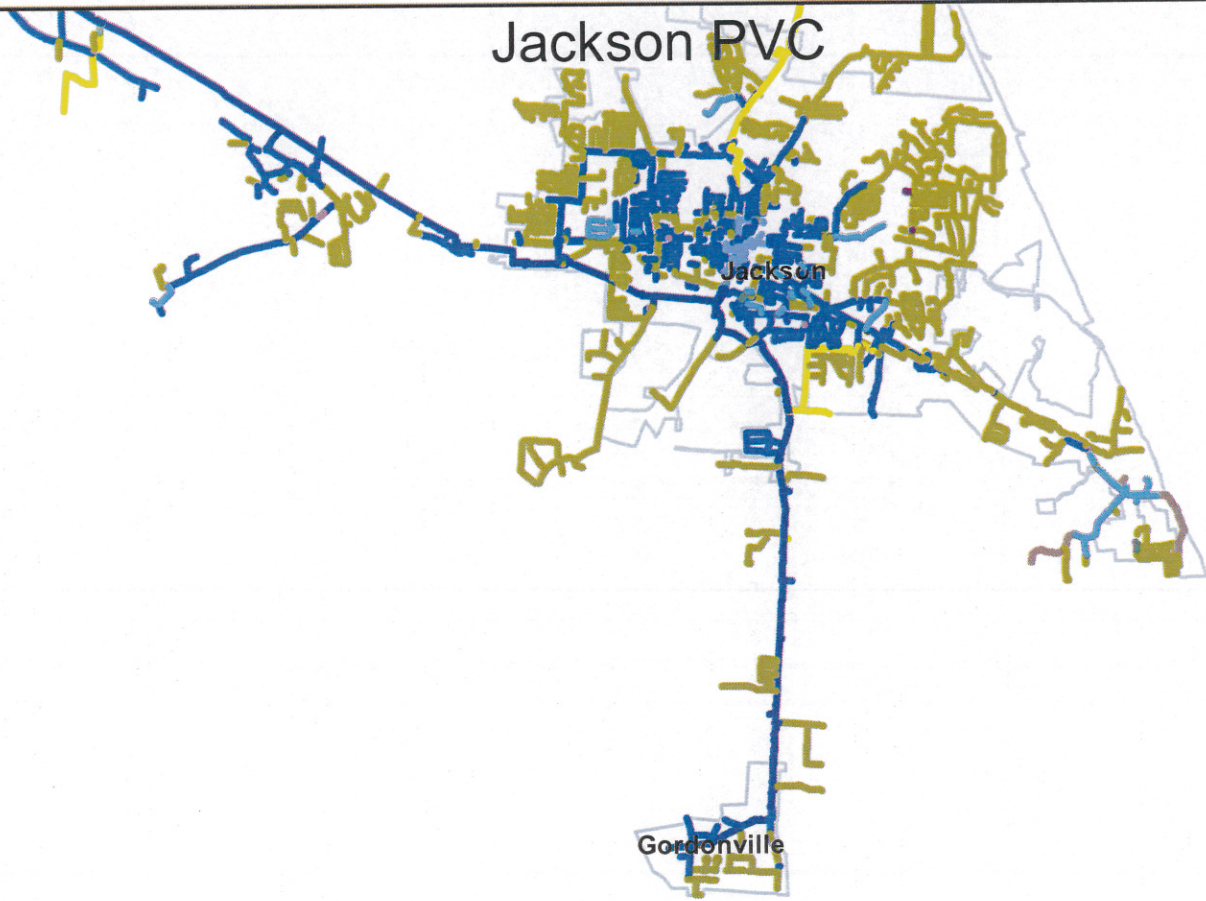
Malden	59,128
3/4"	368
1"	18,123
1 1/4 "	24,862
1 1/2"	431
2"	15,344

Sikeston	30,570
1"	24,959
1 1/2"	4,145
2"	1,465

		Number of Underground Leaks Either Eliminated or Repaired, Categorized by Material																																
Material	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Baseline 2005- 2009	2006- 2010	Trend	2007- 2011	Trend	2008- 2012	Trend	2009- 2013	Trend	2010- 2014	Trend	2011- 2015	Trend	2012- 2016	Trend							
Cast Iron/Wrought Iron	11	8	5	6	9	5	9	3	3	2	0	0	7.8	6.6	Down	6.8	Down	6.4	Down	5.8	Down	4.4	Down	3.4	Down	1.6	Down							
Bare Steel Unprot.	1	2	2	4	5	2	9	5	0	4	1	0	2.8	3	Up	4.4	Up	5	Up	4.2	Up	4	Up	3.8	Up	2	Down							
Bare CP Steel						0	0	6	1	6	7	6	0	0	Same	0	Same	1.2	Up	1.4	Up	2.6	Up	4	Up	5.2	Up							
Coated Steel	187	151	238	169	207	155	121	133	79	81	102	112	190.4	184	Down	178	Down	157	Down	139	Down	113.8	Down	103.2	Down	101.4	Down							
PE	27	23	127	98	110	108	100	107	59	86	70	106	77	93.2	Up	108.6	Up	104.6	Up	96.8	Up	92	Up	84.4	Up	85.6	Up							
PVC	21	19	44	96	25	24	18	9	8	26	18	19	41	41.6	Up	41.4	Up	34.4	Down	16.8	Down	17	Down	15.8	Down	16	Down							
Copper	17	10	89	23	7	6	3	2	5	1	0	4	29.2	27	Down	25.6	Down	8.2	Down	4.6	Down	3.4	Down	2.2	Down	2.4	Down							
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Same	0	Same	0	Same	0	Same	0	Same	0	Same	0	Same							
Total	264	213	505	396	363	300	260	259	154	200	191	241	348.2	355.4	Up	364.8	Up	315.6	Down	267.2	Down	234.6	Down	212.8	Down	209	Down							

Material	2005 Hazardous	2006 Hazardous	2007 Hazardous	2008 Hazardous	2009 Hazardous	2010 Hazardous	2011 Hazardous	2012 Hazardous	2013 Hazardous	2014 Hazardous	2015 Hazardous	2016 Hazardous	Baseline 2005- 2009	2006- 2010	Trend	2007- 2011	Trend	2008- 2012	Trend	2009- 2013	Trend	2010- 2014	Trend	2011- 2015	Trend	2012- 2016	Trend
Cast Iron/Wrought Iron	1	0	1	1	2	1	0	0	1	0	0	0	1	1	Same	1	Same	0.8	Down	0.8	Down	0.4	Down	0.2	Down	0.2	Down
Bare Steel Unprot.	0	0	1	2	4	1	3	0	1	4	0	0	1.4	1.6	Up	2.2	Up	2	Up	1.8	Up	1.8	Up	1.6	Up	1	Down
Bare CP Steel										0	1	0	0	0	Same	0	Same	0	Same	0	Same	0	Same	0.2	Up	0.2	Up
Coated Steel	29	16	65	65	52	61	62	62	13	31	25	30	45.4	51.8	Up	61	Up	60.4	Up	50	Up	45.8	Up	38.6	Down	32.2	Down
PE	10	6	92	84	97	99	94	95	41	72	62	97	57.8	75.6	Up	93.2	Up	93.8	Up	85.2	Up	80.2	Up	72.8	Up	73.4	Up
PVC	8	3	21	15	17	15	17	8	3	7	4	12	12.8	14.2	Up	17	Up	14.4	Up	12	Down	10	Down	7.8	Down	6.8	Down
Copper	2	2	5	3	2	1	3	3	0	0	0	0	2.8	2.6	Down	2.8	Same	1.8	Down	1.2	Down	0.8	Down	0.6	Down	0	Down
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Same	0	Same	0	Same	0	Same	0	Same	0	Same	0	Same
Total	50	27	185	170	174	178	179	165	59	114	92	139	121.2	146.8	Up	177.2	Up	173.2	Up	151	Up	139	Up	121.8	Up	113.8	Down

Jackson PVC



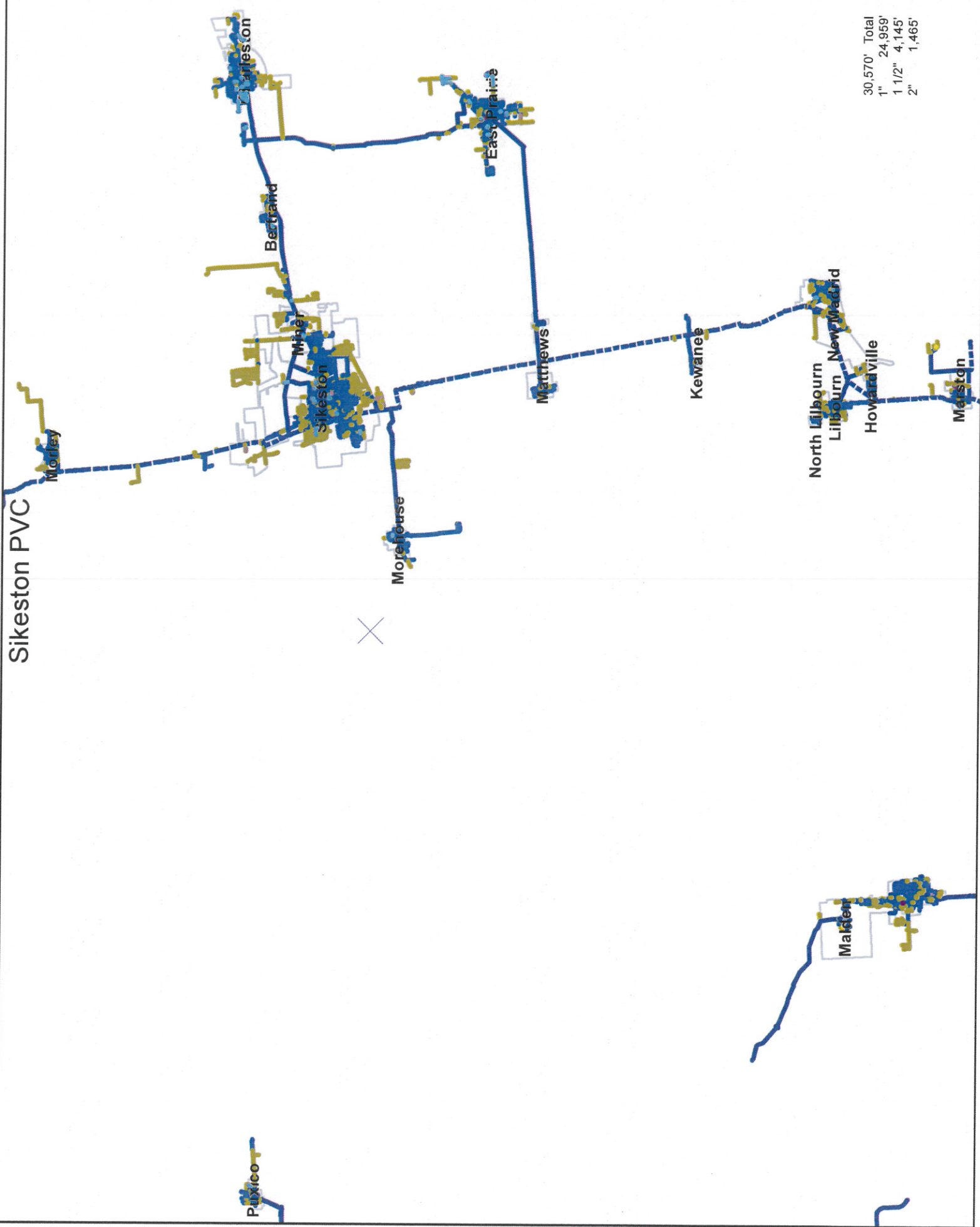
Gordonville



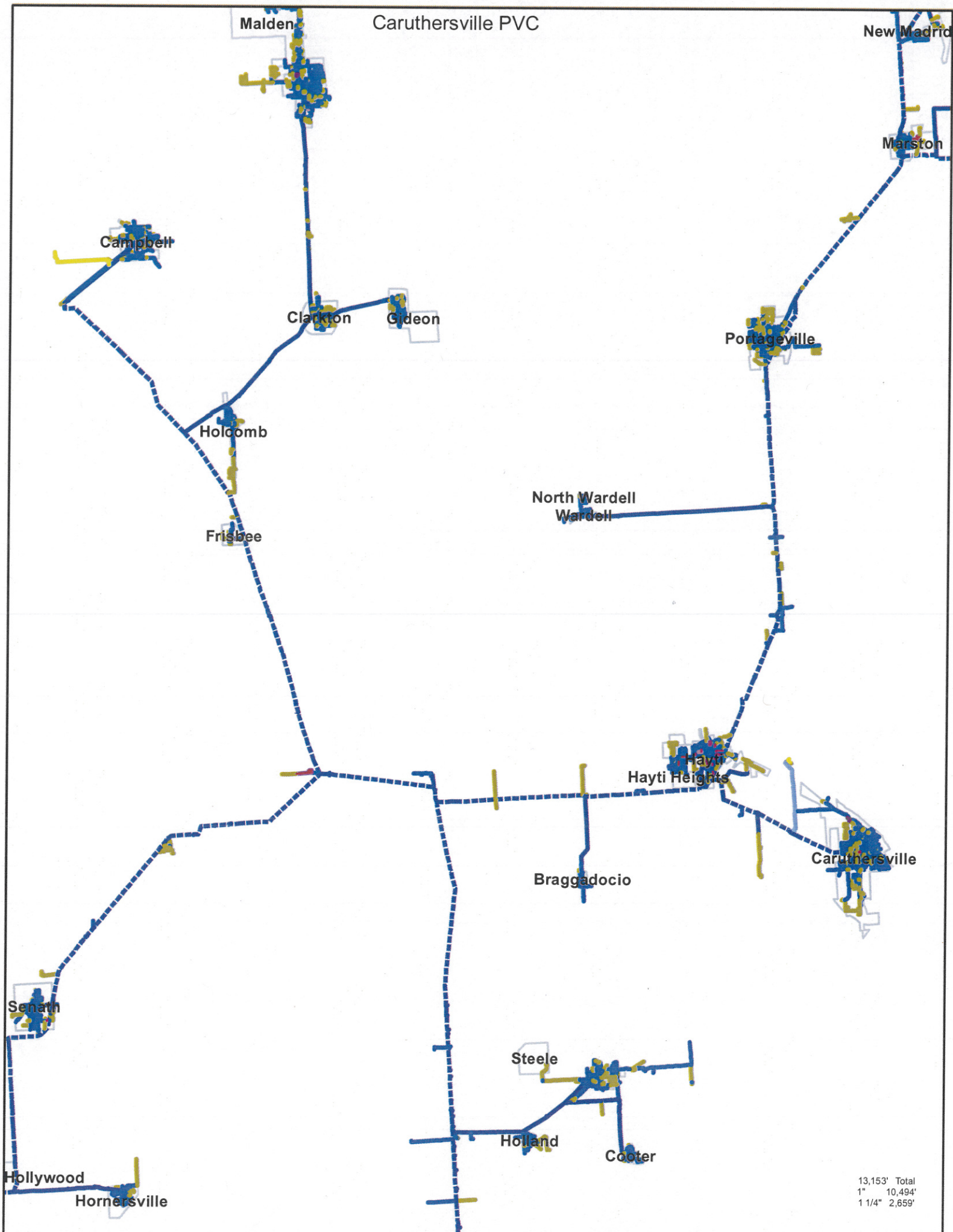
Chaffee

25,193'	Total
1"	16,434'
1 1/4"	282'
1 1/2"	8,477'

Sikeston PVC



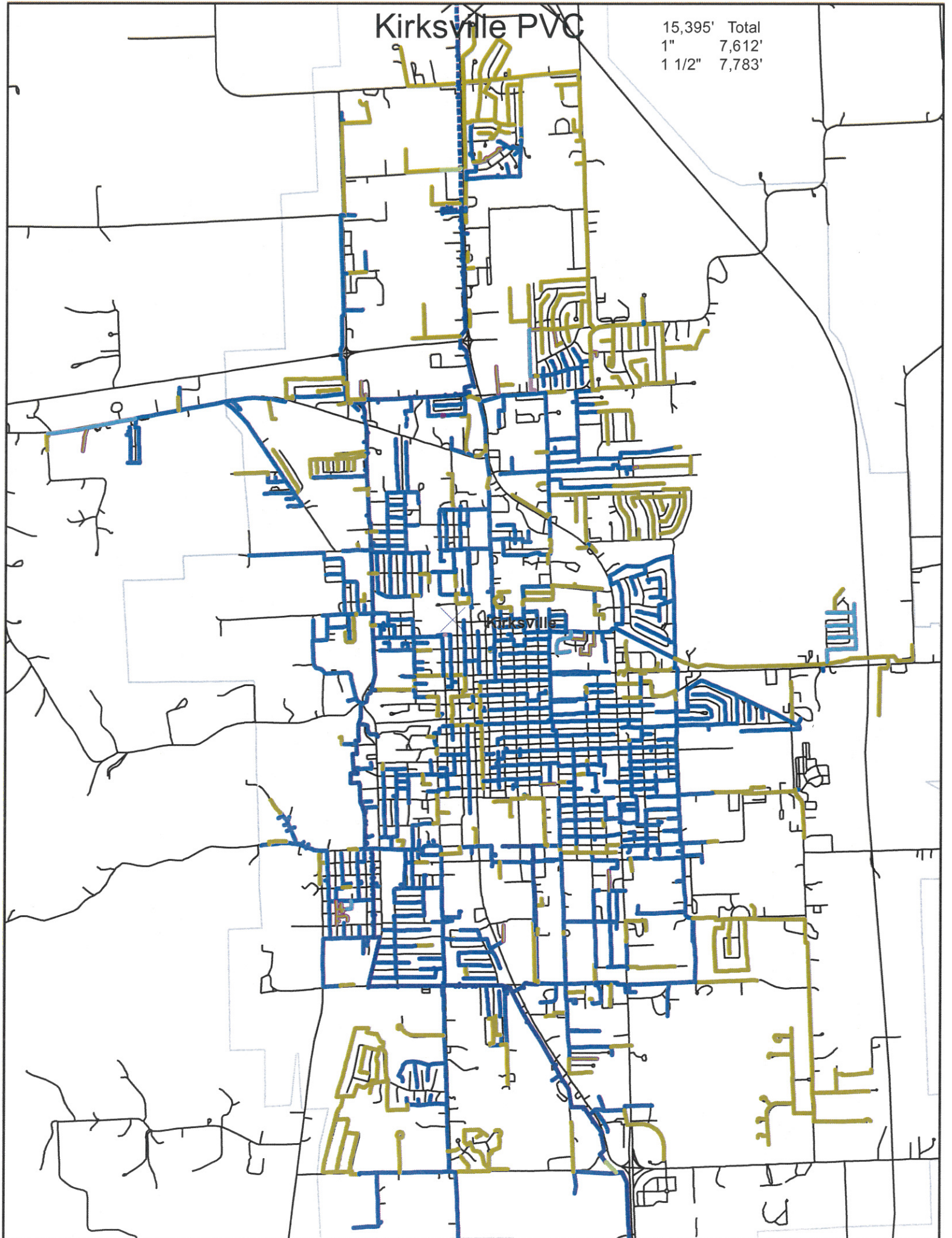
Caruthersville PVC



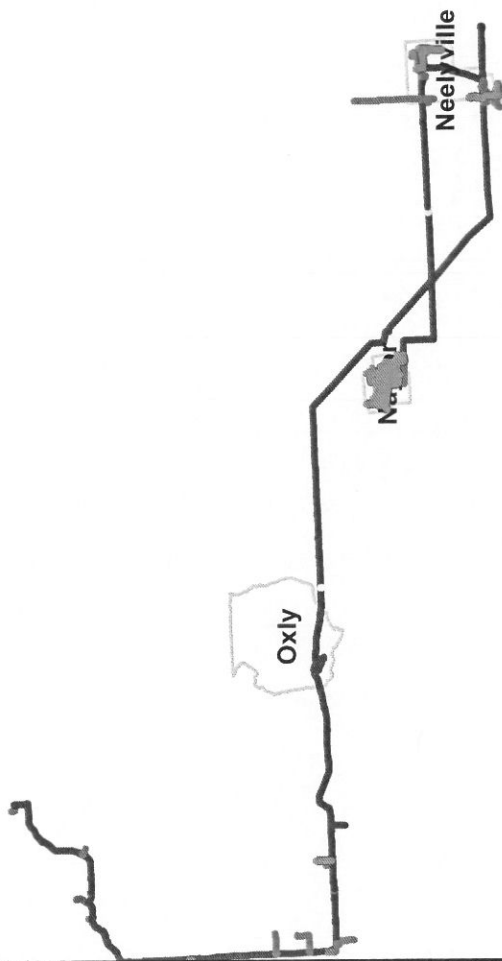
13,153' Total
1" 10,494'
1 1/4" 2,659'

Kirksville PVC

15,395' Total
1" 7,612'
1 1/2" 7,783'



Malden PVC



30,570'	Total
3/4"	368'
1"	18,123'
1 1/4"	24,862'
1 1/2"	431'
2"	15,344'