

**BOA Meeting Agenda
Peculiar City Board of Aldermen
Worksession Meeting and Public Hearing
City Hall – 250 S. Main St
Monday, April 4, 2016 6:30 p.m.**

Notice is hereby given that the Board of Aldermen of the City of Peculiar will hold a regularly scheduled meeting on Monday, April 4, 2016 at 6:30 pm, in the Council Chambers at 250 S. Main St. Representatives of the news media may obtain copies of this notice by contacting the City Clerk at City Hall, 250 S. Main St Peculiar, MO 64078 or by calling 816-779-2221. All proposed Ordinances and Resolutions will be available for viewing prior to the meeting in the Council Chambers.

1. **Call to Order**
2. **Pledge of Allegiance**
3. **Roll Call**
4. **City Clerk – Read the Board of Aldermen Statement**
5. **Public Comment – Caring Hearts of Peculiar Representative Larry Dobson – Street Clean-Up Day**
6. **New Business –**
 - A. **Resolution 2016-06 – A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE SEWER TAP FEE STUDY PREPARED BY GEORGE BUTLER AND ASSOCIATES AND CARL BROWN (GETTING GREAT RATES).**
 - B. **Resolution 2016-07 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE VALUE ENGINEERING REPORT ON THE WATER SUPPLY STUDY BY BURNS AND MCDONNELL.**
 - C. **Resolution 2016-08 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE DRAFT FINANCIAL FORECAST AND TAP FEE STUDY REPORT BY BURNS AND MCDONNELL.**
 - D. **Public Hearing & Bill No. 2016-01 - AN ORDINANCE OF THE CITY OF PECULIAR, MISSOURI ANNEXING CERTAIN ADJACENT, UNINCORPORATED TRACTS OF PROPERTY, BEING A PART OF THE INTERSTATE 49 RIGHT-OF-WAY, INTO THE CITY OF PECULIAR, MISSOURI.**
1st Reading
7. **Topic for Discussion –**
 - A. **Contract Inspection Services – City Planner Cliff McDonald**
8. **Aldermen Concerns**
9. **Aldermen Directives**
10. **Adjournment**

City Administrator
Brad Ratliff

City Clerk
Janet Burlingame

City Attorney
Reid F. Holbrook



City Engineer
Carl Brooks

Business Office
Trudy Prickett

City Planner
Cliff McDonald

Municipal Offices - 250 S. Main St., Peculiar, MO 64078
Phone: 816.779.2221 Facsimile: 816.779.5213

AGENDA REQUEST FORM
(Board of Aldermen)

This form must be completed and submitted to the office of the City Clerk. Complete materials for the agenda shall be submitted no later than Wednesday at 5:00 pm, 9 business days prior to the next Board of Aldermen's meeting. If an observed holiday falls on a Thursday, materials will be accepted until 5:00 pm on Wednesday. The Board of Aldermen's Regular Meeting is to be held the Third Monday of each month.

Date of Request: ~~3-7-16~~ ²⁻²⁴⁻¹⁶ Scheduled Meeting Date: ~~3-7-16~~ ⁴⁻⁷⁻¹⁶

Full Name of Speaker: Larry Dobson Organization: Caring Hearts of Peculiar

Home Address: 1712 E 58th Ave City Raymore State MO zip 64083

Home Phone #: 816-331-2888 Work Phone #: _____ Cell #: 716-5387 Email: LDobson@co1.co

Resident of the City of Peculiar? Yes No

Specifics of Topic: make board aware of April 16, for Peculiar Street Clean Up Day - permission for signs

Desired Outcome: gain awareness and knowledge of event

If applicable has this item been previously presented to any of the following Boards for consideration?

<input type="checkbox"/> Board of Aldermen	Date Presented _____	Outcome _____
<input type="checkbox"/> Planning Commission	Date Presented _____	Outcome _____
<input type="checkbox"/> Park Board	Date Presented _____	Outcome _____
<input type="checkbox"/> Board of Adjustment	Date Presented _____	Outcome _____

***I have been made aware of the date and time of the next scheduled Board of Aldermen meeting.

Office Use Only:

Date request Received: _____

Signature: Larry Dobson

City Administrator
Brad Ratliff

City Clerk
Janet Burlingame

City Engineer
Carl Brooks

Business Office
Trudy Prickett



Chief of Police
Harry Gurin

City Planner
Cliff McDonald

City Attorney
Reid Holbrook

Parks Director
Grant Purkey

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Phone: (816)779-5212 Facsimile: (816)779-1004

To: Mayor & Board of Aldermen
From: Carl Brooks, City Engineer (cbrooks@cityofpeculiar.com)
Date: April 3, 2016

Re: Resolution No. 2016-06, Mayor & Board of Alderman (BOA) Acceptance of the Sewer Tap Fee Study prepared by George Butler and Associates and Carl Brown, Getting Great Rates.

GENERAL INFORMATION

Applicant: City Staff
Requested Actions: Approval of resolution
Purpose: Acceptance of the Sewer Tap Fee Study prepared by George Butler and Associates and Carl Brown, Getting Great Rates
Property Location: City wide

PROPOSAL Acceptance of the proposed Resolution No. 2016-06, by the Mayor & Board of Alderman (BOA) of the Sewer Tap Fee Study prepared by George Butler and Associates and Carl Brown, Getting Great Rates

PREVIOUS ACTIONS

The Sewer Tap Fee Analysis Report was presented by GBA and Getting Great Rates (Carl Brown) to the Mayor and Board of Aldermen, for future consideration to be include in our Comprehensive Fee Schedule.

KEY ISSUES

The sewer tap fee study will select the tap fee determination methodology. Using the selected methodology, calculation of sewer tap fees will be determined.

As indicated in the proposed report scope, the amount of the proposed single family residential sewer tap fee is \$2,107.00, or an increase of \$7.00. Tap fees are recommended to be increased across the board at a rate of 3 percent each year; and based on growth the sewer tap fee study is recommended to be reviewed and potentially revised in five (5) years.

STAFF COMMENTS AND SUGGESTIONS

City staff agrees with the 2016 Sewer Tap Fee Study that has been prepared and completed by GBA and Getting great Rates.

STAFF RECOMMENDATION

City staff recommends passage of this resolution.

ATTACHMENTS

Resolution 2016-06
Sewer Tap Fee Study

RESOLUTION NO. 2016-06

A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE SEWER TAP FEE STUDY PREPARED BY GEORGE BUTLER AND ASSOCIATES AND CARL BROWN (GETTING GREAT RATES)

WHEREAS, the Board of Aldermen previously approved the execution of the Sewer Tap Fee Study to be conducted by George Butler and Associates and Carl Brown, Getting Great Rates, and

WHEREAS, the sewer tap fee study has been awarded in the amount not to exceed \$9,980.00,

NOW THEREFORE, be it ordained by the Board of Aldermen of the City of Peculiar, Missouri as follows:

THE SEWER TAP FEE STUDY PREPARED BY GEORGE BUTLER AND ASSOCIATES AND CARL BROWN (GETTING GREAT RATES)

Section 1. That the Mayor is hereby authorized to execute on behalf of the City of Peculiar the above referenced RESOLUTION and Sewer Tap Fee Study.

Section 2. The effective date of the ordinance shall be _____, 20_____.

BE IT REMEMBERED THE PRECEDING RESOLUTION WAS ADOPTED ON THIS _____ DAY OF _____, 2016, BY THE FOLLOWING VOTE:

Alderman Ford	_____	Alderman Ray	_____
Alderman Hammack	_____	Alderman Roberts	_____
Alderman McCrea	_____	Alderman Turner	_____

APPROVED:

ATTEST:

Holly Stark, Mayor

Janet Burlingame, City Clerk

Sewer Tap Fee Analysis Report

City of Peculiar, Missouri

Prepared March 4, 2016

Carl Brown, President
GettingGreatRates.com, LLC

Executive Summary

GettingGreatRates.com analyzed the sewer tap-on fee needs of the City of Peculiar, MO. The result is a set of tap-on fees, based upon water meter size, that will generate an appropriate amount of revenue and fairly treat properties that will be developed in the near future.

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Introduction

The city of Peculiar, Missouri, later called “the City” or “you,” hired George Butler Associates, Inc., later called “GBA,” for a number of services. Among them is tap-on fee analysis, later just called the “analysis.” In late 2015, GBA hired GettingGreatRates.com, later called “me” or “I,” to perform a tap-on fee analysis for the City by subcontract to GBA. Since then GBA and I have worked together in a coordinated fashion to assure that the City’s needs are met. In coordination with GBA, I researched and assembled a draft of this report. I sent it to GBA for review and comment and subsequently sent a revised version to the City for review and comment. I received and incorporated into the final report some comments from the City. Therefore, this report has now been through a rather rigorous review process. The result is an analysis and a narrative report that will serve as guidance for the City in its efforts to set and maintain appropriate and fairly structured sewer system tap-on fees.

Before proceeding, I need to define the term “tap-on fees.” Also called simply, “tap fees” or “connection fees,” tap-on fees are those charges you and other cities assess to grant a developer the right to connect a home or other development to your sewer system. You and other sewer utilities may assess several sub-fees, such as:

- A charge for the permit to connect,
- A charge for each trap that will be on the property,
- A charge to have connections inspected and approved by the utility, and perhaps,
- A charge for the cost of piping and other connection appurtenances you require the developer to purchase from the City.

You and other cities may assess these fees separately or in combinations. When I use the terms “tap fee” and “tap-on fee,” I mean all fees assessed to a new tap other than situation-specific connection materials and equipment you use or sell for making those taps.

You also need some context for the analysis project. Normally, we do tap-on fee analysis as one task within a comprehensive rate analysis. In that way, user fees, tap-on fees and other fees and charges can be set so that they are coordinated, they are designed to recover costs appropriately and they are consistent in their overall levels and in how they treat existing and prospective customers. Such rigorous coordination was not possible in this study since user fees had already been calculated. However, I endeavored to calculate and recommend tap-on fees that will be fairly structured and recover an appropriate amount of your capacity costs.

This report package is composed of two parts; this narrative report and a printout of the tap-on fee analysis model.

1. The narrative report describes what should be done to the utility's tap-on fees and why. The narrative report, however, goes a bit beyond that narrow scope by placing tap-on fees into context with other costs and fees. Therefore, the report covers these issues: principles, general issues, tap-on fee-related issues and tap-on fee setting recommendations.
2. The second part of the report package is a printout of the spreadsheet model worksheets and a capital cost table supplied by GBA. The model worksheets are simply a set of integrated calculations that mathematically depict or "model" the utility's situation in order to arrive at the recommended fees. The model is called, "Peculiar, MO; Sewer Tap Fees Scenario 2016-1." Later in this report this name will be shortened to "Tap Fee Scenario 1" or just simply "the model."

As you read this report, please keep this in mind. This report does not *direct* the City to do anything. Actions you take or do not take are strictly up to you. The report is meant to inform and educate so you can make well-informed decisions about actions to take. And the report and model are not legal recommendations. For legal issues consult your attorney.

Principles

I use several guiding principles when I help systems set their utility rates, fees and policies. As you read the report and the model, keep in mind that my recommendations have been weighed against these principles:

1. Water, sewer and all other utilities are businesses, regardless of who owns them. Businesses must cash flow properly.
2. In addition to functioning in a business-like manner, a utility has a responsibility to its customers to nearly guarantee its long-term prosperity for their benefit. The customers expect the service to be there whenever they want to use it. Thus, a utility must err on the conservative side by maintaining strong reserves that will enable it to weather financial storms.

3. If a service costs the utility money, the utility should recover that cost from the most logical “person” if that makes good business and community administration sense. For example, generally “growth should pay for growth.” Developers should fairly pay for their consumption of utility capacity by paying commensurate tap fees. Likewise, service users should pay for their use. Each user or class of users should pay their fair share of service costs.
4. Sometimes contradicting point 3 above, if adjusting a rate, fee or policy will turn currently “good” customers into “bad” customers, consider the necessity of the change carefully before making it. For example, while it may be warranted, raising the tap fee markedly may make it less attractive to developers, perhaps to the point that they would decide to develop elsewhere. Thus, in the attempt to generate more net revenue by raising tap fees, net revenues may actually go down due to fewer taps being made.

General Issues

GBA has prepared a wealth of infrastructure data and information for the City. I have used and will refer to some of that information. I will also cite some of that information as reference points in this report.

Concerning construction of the model, the tables presented in this report are actually a small subset of our rate analysis model. The sheets used in this analysis are focused only on tap-on fee issues. By necessity, we had to assume that all other rates and fees were set at least at levels that will adequately fund operation of the system plus those debt and capacity costs that will not be recovered by tap-on fees. I suspect that the current user rates were actually set high enough to cover capacity costs, as well. If that is the case, tap-on fees should end up being additional revenues that, in the future, will allow you to “slow down” future user rate increases. The model, therefore, aims at calculating tap-on fees that will be fairly structured and as adequate as they can be while still keeping the City competitive with neighboring cities’ tap-on fees. You will see later in this report that remaining competitive has turned out to be the over-riding factor for tap-on fees.

As you set and later reset rates and fees I suggest you follow the guidance I give in my book, “How to Get Great Rates.” I gave a copy to Carl Brooks so check with him about reviewing it.

Tap-on fee calculation should include several steps or parts:

- Establishment of the costs to appropriately recover through tap-on fees. This is the “cost basis” for tap fees,
- Establishment of the time period over which to recover those costs, and the resulting amount to recover in a full year’s time,
- An estimation of the number of new taps that will be made over that time period, or preferably, the number of new taps of the various meter sizes that will be made over that time period, and

- A calculation of the per meter size fee that recovers costs equitably and as adequately as competition will allow.

Each of these steps will be discussed at some length in the following subsections.

The Concept of Meter Size-based Tap-on Fees for Sewer Systems

The cost to provide capacity to serve is closely related to water meter size for water systems. The bigger the water meter, the higher will be the potential to draw water by that customer. Water systems are designed and built to be able to supply adequate flow at a certain design capacity. That capacity can be broken down into service to XX number of residential sized meters (five-eighths or three-quarter inch) and some lesser number of larger meters. Thus, each water meter size should pay a share of capacity costs based upon the capacity of each meter size to pass water.

A four-inch meter is 6.4 times bigger than a five eighths inch meter (a typical residential meter) on a diameter basis. But, according to the American Water Works Association, the authority on such issues, on the basis of sustainably passing water and metering it accurately, that meter is 75 times bigger than a five eighths inch meter. Thus, a four-inch meter should be assessed 75 “shares” of system capacity costs compared to a five-eighths inch meter. Other meter size capacities vary commensurately and should be assessed tap-on fees accordingly.

Water meter size is not quite a direct indicator of the potential to contribute wastewater flow to the sewer system. But unless a customer has on-site water storage, a high rate of sewer line inflow and infiltration, or receives fluids in incoming shipments that go down the sewer, water meter size works well for assessing sewer system capacity charges, too.

All of this said, it would not be appropriate to divvy all sewer infrastructure costs on a meter size basis. Some infrastructure costs are like fixed operating costs – they are related to the fact that you have customers, not to the size of customers’ water meters. Thus, to calculate water meter-size based tap-on fees fairly, one must deduct from the total infrastructure costs those costs that are “fixed.” That will be discussed in a later subsection of this report.

While it is better to recover capacity costs “up front” in tap-on fees, which can and usually should also be done based upon meter size, part of or all of the capacity costs can also be recovered over time through capacity surcharges to the minimum charge. Therefore, as a part of their regular minimum charge, each customer regardless of meter size should pay an equal share of all costs that do not vary by meter size. In addition, each should pay for their share of capacity costs, preferably based upon meter size, either as a tap-on fee, a minimum charge surcharge or a combination of both. In your case, we will trust that minimum charges will recover all appropriate costs and only consider tap-on fees here.

Cost Basis for Tap-on Fee Calculations

Please review the GBA table called, "ALLOCATION OF CAPITAL COSTS TO CUSTOMER CATEGORIES" attached to this report as page 19. This table is a summation of more detailed costs to replace existing wastewater infrastructure plus build additional infrastructure that will be needed in the near future. Tom Nevins, P.E. with GBA did a significant amount of excellent work to prepare this background data. I am sure he has shared it with you. While I usually use "book value" from audited financial statements as the cost basis for capacity costs, Mr. Nevins' data is far superior so in your case, I have used that as your capacity cost basis.

In Table 2, page 15, in the "Calculation of Annualized Capacity Cost" section you will see four types of assets with their amounts highlighted blue. These are the sums of individual items from Mr. Nevins' data compilation work. The part of these amounts that should be attributed to all customers or new connections equally, estimated at 50 percent, were deducted, leaving the "Capacity Costs" that can potentially be attributed to new connections. This portion of the value of the system, \$7.5 million, is subject to being recovered with tap-on fees.

Time Period for Cost Recovery

I chose 30 years as the time period for capacity cost recovery through tap-on fees for a few reasons. Most bonds issued to fund such infrastructure have a maximum term of 20 years. In other words, most lenders are "betting" that the facilities they fund will last longer than that. Most facilities are designed to have a useful life of approximately 20 years, although I am sure that most engineers try to include more useful life in their designs when they can. Thus, most water-related facilities last thirty years or so with piping systems lasting 50 or more years. That makes 30 years a reasonable and fairly conservative timeframe for tap-on fee planning.

Even so, 30 years is a long time to do financial forecasting. Fortunately, rate and tap-on fee calculations should be redone about every five years for a city the size and growth rate of Peculiar. Thus, over time rate and tap-on fee projections can be adjusted to better comport with what you discover as time passes.

Number and Meter Size of New Taps

Long projections are risky, but we still must make projections. There are currently 1,857 sewer connections, as shown in the right-hand column of Table 3, page 16. These connections consist of 1,652 city water customers and 205 customers of a public water supply district. Based upon the long-term growth rate estimated by both the City and by GBA at 1.0 percent per year, I have projected the number of new customers you expect to hook up during each of the next 10 years; 19 new connections next year and then a growth rate after that of 1.0 percent. All of the factors just mentioned are shown in Table 4, page 17.

As further described in the "Cost Basis..." subsection above, my recommendation is to base tap-on fees on the capability of different meter sizes to sustainably pass high flows because such flow is what forces a sewer utility to build extra capacity to receive and treat wastewater. Table 3 does the calculation of tap-on fees for the various water meter sizes.

Not knowing in advance how many meters of each size you will connect in the coming years, I made the assumption that the meter sizes of new connections will be in the same ratio as the currently connected customers. That distribution is shown in the right-hand column of Table 3, page 16. For example, 98 percent of your current customers are served by three-quarter inch meters. Therefore, I projected that 98 percent of new customers in the future will also be served by three-quarter inch meters.

Recommendations for Tap-on Fees

The following recommended tap-on fees are indicated by the Scenario 1 model. These are the fees that I recommend you adopt initially.

Table 1 - Recommended Tap-on Fees

Meter Size in Inches	Tap Fee; In-city Customer	Tap Fee; Out of City Customer (50% More)
Five Eighths	\$2,107	\$3,161
Three Quarters	\$2,107	\$3,161
One Inch	\$5,156	\$7,734
One & a Half Inch	\$10,237	\$15,355
Two Inch	\$32,592	\$48,889
Two & a Half Inch	\$60,537	\$90,806
Three Inch	\$88,482	\$132,722
Four Inch	\$152,500	\$228,750
Six Inch	\$325,249	\$487,873
Eight Inch	\$569,129	\$853,694
Ten Inch	\$853,656	\$1,280,484
Twelve Inch	\$1,077,213	\$1,615,820

1. Calculation of tap-on fee revenues shown in Table 4, page 17, assumed you will make these adjustments early enough to enable you to collect at these rates for new connections made after May 1, 2016.
2. If all goes as modeled, on the one-year anniversary of making the rate adjustments called for above, or at the same time you make other rate and fee adjustments, whichever comes first, and for several years thereafter, raise all tap-on fees across the board by 3.0 percent.

Overall Level of Recommended Fees; Competitiveness is the Limiting Factor

Remaining competitive with neighboring cities is the limiting factor in how high, overall, you can set tap-on fees. Therefore, when I modeled new tap-on fees I aimed at not changing the tap-on fees of new sewer customers that are served by five-eighths and three-quarter inch water meter sizes. Tap-on fees of the remaining meter sizes were then allowed to rise to the proportionate level that the AWWA ratios indicated. This will result, over time, in recovering 15.6 percent of the system's capacity costs. To help you put that recovery rate into perspective, I usually see capacity cost recovery rates in the range of five percent up to 50 percent. Rarely do I see recovery over that. This is simply due to the fact that almost all water-related utilities price tap-on fees too low and if you want to be competitive with them, you must approach their fee level.

Another point of reference is the capital cost summary table prepared by GBA, page 18 of this report. GBA calculated that weighted average tap-on fees would need to be right at \$4,500 to fully recover capital costs by the time the facilities are being fully utilized at "buildout." The weighted average of the fees I calculated is \$2,761 and that will rise annually by an inflationary factor of three percent over 30 years. Thus, the 30-year averaged fees I modeled will be higher than the initial fees shown in Table 1, page 7, and they may well approach those GBA calculated.

Comments on the Calculation Methodology, Strategies and Fee Comparisons

First, you should note that in Table 3, page 16, I assigned the same "AWWA-based Capacity Cost Each Meter Size" amount to five-eighths and three-quarter inch meters. That is because the vast majority of customers that are served by these meter sizes are single family residential properties. It will simplify your administration duties when you assess the same tap-on fee to these customers and there is little difference in the actual cost of capacity to serve these two meter sizes anyway.

In Table 2, page 15, I solved for tap-on fees that will keep the City competitive with the two neighboring cities of Belton and Raymore for in-town residential fees because we can reasonably assume that nearly all residential properties in those cities are also served by five-eighths or three-quarter inch water meters. (See Table 5, page 18.) The other cities do not assess meter size-based tap-on fees for commercial developments. In most places, most general business customers are served by residential sized meters. While it is likely that most of the others are served by 1.0 or 1.5 inch meters, it is not so reasonable to assume a meter size for them. In addition, all three cities assess sub-fees for the number of traps expected on a commercial property to be developed. Thus, comparisons of the current commercial tap-on fees is murky at best and comparisons to the meter size-based tap-on fees that I recommend is even harder to make.

However, IF one were to assume 10 traps on a representative commercial property and it was to be served by a 1.0-inch meter, Peculiar's current tap-on fee is slightly higher than those of Belton and Raymore and the fees I recommend would be \$2,000 higher than that.

It may well be that the recommended tap-on fee for large meter sizes, say 4.0 inches and greater, would be too high to remain competitive with your neighbors. However, seldom will you connect a new customer that will be served by such a large meter. That means large meter new taps will account for very little revenue over time. And that means that you will give up little revenue if you have to grant fee relief to such a prospective new customer in order to “land” them. Sticking to the fee schedule from bottom to top would technically yield the greatest degree of fee structure fairness. However, for all practical purposes, only new taps in the smaller meter sizes will make a meaningful difference on a revenue basis. Thus, the benefits of “landing” a large meter-size development (likely a large employer and a high-volume sewer customer) will usually outweigh what is given up in tap-on fees. You should adopt a fee structure that includes large meter sizes, but as such prospective customers consider locating in Peculiar, you should consider each situation on its merits.

One upside of setting tap-on fees that are too low is this. Use by your customer base is fairly stable, meaning your revenue stream from those fees is also fairly stable. However, the number of new connections you make can vary dramatically from year to year. If you assess high tap-on fees and you experience some down years in new connections, your revenues will suffer dramatically. This is not reason enough to set tap-on fees too low, but at least collecting tap-on fees that are too low is not all downside to the utility.

Closing

You would do well to adopt the tap-on fees calculated in Tap Fee Scenario 1.

These fees will contribute significant revenues toward building capacity to serve new customers while keeping your tap fees competitive with those of neighboring cities and priced in relation to the cost of building capacity to serve.

Finally, as you address issues raised in this report and the analysis, you will have questions. Ask them. My goal is to help you set and keep fair and appropriate tap-on fees. That takes time and effort and it may stretch out beyond the “conclusion” of the project.

Peculiar, MO; Sewer Tap Fees Scenario 2016-1 Modeling Results

March 4, 2016

This rate analysis scenario was produced by
Carl E. Brown, GettingGreatRates.com
1014 Carousel Drive, Jefferson City, Missouri 65101
(573) 619-3411

www.gettinggreatrates.com
carl1@gettinggreatrates.com

Note: This document is a print out of the spreadsheet model used to calculate new sewer tap-on fees. These calculations are complex and are based upon many conditions and assumptions. These issues, and others, are described in a narrative report that accompanies this model.

CBGreatRates© Version 7.5

Definitions

Affordability Index	The monthly charge for (typically) 5,000 gallons of residential service divided by the median monthly household income for the area served by the system. An index of 1.0, meaning a household pays one percent of its income to pay its bill for 5,000 gallons of service, is generally considered affordable. Affordability index is a primary factor in determining grant and loan eligibility and grant amount.
Analysis Year	The year following the "test year." Generally, rate analysis is done during the year following the "test year" and initial rate adjustments are done later still during the analysis year or sometime during the following year once the analysis shows how rates should be adjusted. See related "test year."
Capital Improvement Plan or Program (CIP)	A schedule of anticipated capital improvements. These are the more expensive items such as treatment plants, lines and other expensive infrastructure that generally requires bond or grant funding.
Capital Improvement Reserves	Cash reserves dedicated to funding the CIP
Comprehensive Rate Analysis	A thorough examination of a system's operating, capital improvement, equipment replacement and other costs, revenues, current rates, number of users and their use of the system, growth rates and all other key issues surrounding the system. This examination will determine how rates and fees should be set in the future to cash-flow the system properly, to build appropriate reserves and to be fair to ratepayers. It also will determine how policies should be adjusted to enable the system to operate well now, operate well in the medium-range future (about 10 years) and prepare for expected and expectable events such as capital improvements and equipment replacement.
Connection Charge	See hook-up fee
Conservation (Inclining) Rates	Unit charges that go up as the volume used goes up
Cost to Produce	There are several ways to define and calculate cost to produce. Each is acceptable for different purposes. Generally, cost to produce is the total of all variable costs required to get service to a utility's customers during one year divided by the total units of service delivered during that year. This calculation will yield the <u>average</u> cost to produce. In a proportional to use rate structure, this is the unit charge. See "Cost Calculations" at the bottom of Chart 19.
Cost to Serve Rates	Rates where fixed and variable costs generated by each user class are paid by that class with minimum and unit charges, respectively. Similar to and sometimes the same as "proportional to use" rates.
Cost Types; Fixed and Variable	The two main types of costs are fixed - those that are related to the fact that someone is a customer; and variable - those that are related to the volume of the commodity delivered to customers. Generally, fixed costs should be recovered with minimum charges and variable costs with unit charges.
Coverage Ratio (CR)	Incomes available to pay debt divided by the amount of the debt for that year. Most systems should have a CR of 1.25 or higher.
Current Position	For purposes of this report, for one year, the sum of all incomes and undedicated reserves minus all current financial obligations for that year. Future obligations (next year's loan payments) and depreciation are not included. Current position is a good measure of overall financial health.
Declining Rates	Rates where unit charges go down as the volume used goes up
Flat Rates	Rates where all users pay exactly the same fee regardless of the volume of service they use
Equivalent Dwelling Unit (EDU) or Equivalent Residential Unit (ERU)	Based upon number of water using fixtures, average flow, potential flow or similar criteria; the consumption rate of the average single family home is rated at one EDU. All other types of customers are then compared on this measuring basis and the EDUs are calculated. Generally the purpose of this exercise is to calculate fees that each EDU must pay.
Hook-up Fee, Tap Fee, Impact Fee, Availability Charge, Capacity Charge	There are many terms and many and varied definitions of terms in use that are related to fees charged to connect new customers. For purposes of this model, all charges related to connecting new customers will be "rolled together" into a tap fee, usually including a charge that buys a new customer system capacity. This combined charge may be a few hundred dollars for a residential customer, if little or no capacity costs are included, to many thousands of dollars for a large industrial customer with capacity costs included.

Definitions

Incremental Rate Increases (Inflationary Increases)	Rate increases done, generally annually, following the initial rate adjustment. The usual goal of such increases is to keep the system's incomes on track to meet reserve targets. Rate structure fairness is a small issue, if it is an issue at all. Such increases are usually small, in the two to five percent per year range.
Initial Rate Adjustments	Rate adjustments done in follow up to the comprehensive rate analysis. Generally, the goal of such adjustments is to establish rates that cover the system's short-term expected costs and do it with a structure that is fair to ratepayers. Initial adjustments should be followed in subsequent years with incremental rate increases.
Inflow & Infiltration (I&I)	In a sewer system, water that gets into the collection system by way of illicit connections (inflow) such as gutter downspouts, plus leaks in manholes and sewer lines (infiltration)
Infrastructure	Most commonly thought of as the hard assets, such as buildings, treatment plants and lines needed to provide service to customers connected to the system. In reality, staff, software and other "soft" assets should be thought of as infrastructure, as well.
Life-cycle Cost	The total cost to design, build, operate, maintain and eventually dispose of an asset. One asset may cost less to build but it may be more expensive to operate and maintain, yielding a higher total life-cycle cost.
Marginal Costs	The parts of a utility's costs that are unavoidable in the course of serving a particular customer, a group of customers, more volume to all customers or some other marginal use of the system. Such customer(s) or extra use could be added at a discounted but still profitable fee, if desired. Generally marginal costs are less than the average costs but when extra use requires a system upsizing, they can be greater. These costs are especially useful when considering selling service at wholesale or charging "snow birds" while they are away.
Operating Costs	Definitions and calculations vary. For rate setting purposes operating costs are costs incurred because a system is operated. Such costs are usually recovered primarily through unit charges.
Operating Reserves or Working Capital	Analogous to current position, this is the net revenues retained to fund operating costs during times when costs exceed incomes.
Operating Revenues	Revenues collected in the form of user fees and similar operating cost-related fees
Operating Ratio (OR)	Current incomes divided by current expenses, not including debt. An OR of 1.0 is "break even." Most systems should have an OR of 1.25 or higher.
Payback Period	In this case, time required for the investment made to get this analysis to return that investment through increased user and other fees
Potential Demand	The volume of service that a user could demand for a short period of time at full volume use. The potential demand limiting factor is usually the size of the customer's meter or service line.
Proportional to Use Rates	Rates where the minimum charge recovers all fixed costs, the unit charge recovers all variable costs, the unit charge is the same for all volume sold, and there is no usage allowance in the minimum charge. This rate structure is similar to and often the same as cost to serve rates.
Replacement Schedule	A timetable that describes equipment replacement and important repairs that are too infrequent and/or too expensive to cover as annual operating costs but not so expensive that they need to be covered as capital improvements.
Replacement Reserves	Cash reserves used to fund the Replacement Schedule
Return on Investment	In this case, the dollar amount or percentage of revenue gain enabled by this rate analysis. Related to payback period.
Snow Bird	A customer, usually residential, that goes away during part of the year. Most commonly, people of "means" who live in the north who "fly south" for the winter. But, this category includes everyone who is absent for a significant part of the year but returns to their permanent residence.
Test Year	The one year period from which data was gathered to be the basis of the rate analysis, which is usually the last completed fiscal year. See related "analysis year."
Usage Allowance	The volume, if any, that is "given away" with the minimum charge. Most systems give away no volume. Those that give away an unlimited volume have what are called "flat rates" - a minimum charge only.
User Fee, User Charge, User Rates	Fees assessed to customers for use of the system. Does not include tap, capacity or connection fees, late payment penalties or other types of charges.

Definitions

Water Loss	Measured by volume or percent, the part of a water system's net water production that does not reach customers or is not billed to customers. This loss also includes billable volume lost due to under-registering customer meters.
Working Capital, Net Income	The amount left in the operating fund after paying all costs due during that month, year or other time period. Working capital of \$0 is "break even." Related to "current position."
Working Capital Goal or Operating Reserves Goal	The desired operating fund reserve, in dollars or percent, at a stated point in time. Small systems (1,000 connections) generally should target 35 percent or greater. Larger systems can target a lower percentage. The goal for each system should be based upon the needs of that system and the risk the customers are willing to take.

Table 2 - Capacity Cost; Its Amount and How it May be Recovered

Peculiar, MO; Sewer Tap Fees Scenario 2016-1

This table shows tap and capacity costs to expect. From these costs, tap fees will be developed in Table 3.

	Test Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting
	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20	1/1/21	1/1/22	1/1/23	1/1/24	1/1/25	1/1/26	1/1/27
Expected New Taps Each Year	18.0	19.0	19.2	19.0	19.1	19.3	19.5	19.7	19.9	20.1	20.3	20.5

Calculation of Annualized Capacity Cost

	System Capital Cost	% of Total Attributable to Capacity	Capacity Cost	Average Annual Capacity Cost (Depreciation)
Water Treatment Plant	\$2,250,000	50.0%	\$1,125,000	\$65,563
Lift Stations: Area-wide	\$1,650,000	50.0%	\$825,000	\$48,079
Sewers: Interceptors	\$2,596,476	50.0%	\$1,298,238	\$75,659
Future Capital Improvements	\$8,424,712	50.0%	\$4,212,356	\$245,488
Totals	\$14,921,188	50.0%	\$7,460,594	\$434,790

Data source for blue highlighted items: "ALLOCATION OF CAPITAL COSTS TO CUSTOMER CATEGORIES" table, George Butler Associates, Inc., dated 2/7/2016. That table has been appended to the report.

Note: It is assumed that half of the infrastructure costs are related to capacity and the other half are related to the costs to hook up any customer regardless of whether they will be a high or low volume customer or high peak flow or level flow customer.

Costs Associated With Making New Connections

	Estimated Non-capital Costs per Connection	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Average Annual Capacity Cost (Depreciation)		\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790	\$434,790
Account Set up and Field Costs for New Connections	\$75	\$1,350	\$1,428	\$1,471	\$1,479	\$1,524	\$1,570	\$1,617	\$1,666	\$1,716	\$1,768	\$1,821	\$1,876
Total Costs for New Connections		\$436,140	\$436,217	\$436,261	\$436,269	\$436,313	\$436,359	\$436,407	\$436,455	\$436,506	\$436,558	\$436,611	\$436,666
Target Amount to Recover From Tap Fees Calculated in Table 3	15.6%	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827	\$67,827

Note: These costs should be recovered by fees charged for making new taps (usually called, "tap fees"). This table only calculates the maximum level of those revenues. Table 3 calculates the structure of those fees.

Note: Connection charges should almost always cover at least the staff time and "out of pocket" costs to make connections.

Table 3 - Tap Fees Based on Meter Size

Peculiar, MO; Sewer Tap Fees Scenario 2016-1

This table calculates tap fees to charge each meter size and total tap fee revenues that would be generated during this, a partial year, as well as one full year following initial adjustment. This table only covers meter size-based fees. If you also sell materials, you should charge separately to recover those costs, plus the cost of administering those sales.

In-City Customers

Meter Size	Meter Size in Square Inches	Mix of New Taps in a Typical Year	AWWA Capacity Multiplier for Each Meter Size	Total AWWA Capacity "Shares" Attributable to Each Meter Size Group	AWWA-based Capacity Cost Each Meter Size	Economy of Scale Discount Rate	Field and Admin Costs per New Tap From Table 1	Out of City Surcharge Factor	Total New Tap Fees Each Meter Size	Full-year Tap Fee Income From Each Size Class	Number Meters on System at End of Previous Year
Five Eighths	0.31	0.0	1.0	0.0	\$2,032	100%	\$75	100%	\$2,107	\$0	0
Three Quarters	0.44	16.5	1.5	24.8	\$2,032	100%	\$75	100%	\$2,107	\$34,798	1,611
One Inch	0.79	0.2	2.5	0.4	\$5,081	100%	\$75	100%	\$5,156	\$846	16
One & a Half Inch	1.77	0.0	5.0	0.1	\$10,162	100%	\$75	100%	\$10,237	\$210	2
Two Inch	3.14	0.2	16.0	3.3	\$32,517	100%	\$75	100%	\$32,592	\$6,681	20
Two & a Half Inch	4.91	0.0	29.8 *	0.0	\$60,462	100%	\$75	100%	\$60,537	\$0	0
Three Inch	7.07	0.0	43.5	0.9	\$88,407	100%	\$75	100%	\$88,482	\$1,814	2
Four Inch	12.57	0.0	75.0	0.8	\$152,425	100%	\$75	100%	\$152,500	\$1,563	1
Six Inch	28.27	0.0	160.0	0.0	\$325,174	100%	\$75	100%	\$325,249	\$0	0
Eight Inch	50.27	0.0	280.0	0.0	\$569,054	100%	\$75	100%	\$569,129	\$0	0
Ten Inch	78.54	0.0	420.0	0.0	\$853,581	100%	\$75	100%	\$853,656	\$0	0
Twelve Inch	113.10	0.0	530.0	0.0	\$1,077,138	100%	\$75	100%	\$1,077,213	\$0	0
Subtotal:		16.9		30.2					\$0	\$45,912	1,652

* Not included in AWWA study results, so these values are estimates

Out of City Customers

Five Eighths	0.31	0.0	1.0	0.0	\$2,032	100%	\$75	150%	\$3,161	\$0	0
Three Quarters	0.44	2.1	1.5	3.2	\$2,032	100%	\$75	150%	\$3,161	\$6,642	205
One Inch	0.79	0.0	2.5	0.0	\$5,081	100%	\$75	150%	\$7,734	\$0	0
One & a Half Inch	1.77	0.0	5.0	0.0	\$10,162	100%	\$75	150%	\$15,355	\$0	0
Two Inch	3.14	0.0	16.0	0.0	\$32,517	100%	\$75	150%	\$48,889	\$0	0
Two & a Half Inch	4.91	0.0	29.8 *	0.0	\$60,462	100%	\$75	150%	\$90,806	\$0	0
Three Inch	7.07	0.0	43.5	0.0	\$88,407	100%	\$75	150%	\$132,722	\$0	0
Four Inch	12.57	0.0	75.0	0.0	\$152,425	100%	\$75	150%	\$228,750	\$0	0
Six Inch	28.27	0.0	160.0	0.0	\$325,174	100%	\$75	150%	\$487,873	\$0	0
Eight Inch	50.27	0.0	280.0	0.0	\$569,054	100%	\$75	150%	\$853,694	\$0	0
Ten Inch	78.54	0.0	420.0	0.0	\$853,581	100%	\$75	150%	\$1,280,484	\$0	0
Twelve Inch	113.10	0.0	530.0	0.0	\$1,077,138	100%	\$75	150%	\$1,615,820	\$0	0
Subtotal:		2.1		3.2					\$0	\$6,642	205
Total:		19.0		33.4						\$52,554	1,857

Economy of Scale Factor:	0.0%	Capacity Cost to Recover per AWWA Capacity Multiplier Unit:	\$2,032	Projected Tap Fees for One Full Year Following Initial Adjustment	\$52,554	Prorated Tap Fees to Collect This Year	\$35,276
(This amount is the full-year tap fee prorated to account for time of year when rates will be adjusted initially. This amount is included in Table 4 where it is called, "Meter-size Based Tap Fees.")							

Notes:

Because growth rates and meter sizes to be installed in future years cannot be predicted with certainty, tap fee revenues are also uncertain. However, the projections above are based upon historical growth and meter sizes so they should be reasonable estimates. Generally, tap fees should only be used to pay for capital improvements so there is usually time to make adjustments in fee levels.

Economy of Scale Discount Rate - Generally the cost of infrastructure to serve a customer does not go up as quickly as their capacity (meter size) goes up. That is called economy of scale. This value is an estimate of the economy of scale the system enjoys as meter size goes up. Generally this factor should be no more than about 7%.

In the interest of simplicity, 3/4 inch meters, which are usually residential meters, were calculated at the 5/8 inch meter capacity for tap fee calculation purposes.

Table 4 - User Base, Growth and Tap Fee Incomes

Peculiar, MO; Sewer Tap Fees Scenario 2016-1

Projected New Connections

	Infla./De- flation (-) Factor	Test Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
		Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting	Starting
		1/1/16	1/1/17	1/1/18	1/1/19	1/1/20	1/1/21	1/1/22	1/1/23	1/1/24	1/1/25	1/1/26	1/1/27
Average Users for the Year	N.A.	1857	1876	1895	1914	1933	1953	1972	1992	2012	2032	2052	2073
Users Added/Lost During the Year	N.A.	18.0	19.0	19.2	19.0	19.1	19.3	19.5	19.7	19.9	20.1	20.3	20.5
User Growth or Loss Rate	N.A.	1.03%	1.03%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Rate Increases Projected for Future Years	N.A.	NA	NA	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

Tap Fee Incomes to Expect at These Growth and Inflationary Increase Rates

Meter-size Based Tap Fees Projected From Table 3	\$35,276	\$54,685	\$55,515	\$57,753	\$60,080	\$62,501	\$65,020	\$67,640	\$70,366	\$73,202	\$73,934	\$76,914
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Table 5 - Tap Fee Comparisons: Peculiar, Belton and Raymore, MO

Peculiar, MO; Sewer Tap Fees Scenario 2016-1

Data Source: George Butler Associates, with trap count assumptions made by GettingGreatRates.com

	Peculiar <u>Current</u> Connection Plus Permit Fees	Peculiar <u>Current</u> Fee per Trap	Assume 10 Traps Residential or Commercial	<u>Current</u> Total Tap- on Fees
In-town Residential	\$2,100	\$0	10	\$2,100
Out of Town Residential	\$3,000	\$0	10	\$3,000
In-town Commercial	\$2,625	\$50	10	\$3,125

	<u>Peculiar</u> Recommended Tap-on Fees	<u>Peculiar</u> Recommended Fee per Trap	Assume 10 Traps Residential or Commercial	<u>Recommended</u> Total Tap-on Fees
In-town Residential	\$2,107	\$0	10	\$2,107
Out of Town Residential	\$3,161	\$0	10	\$3,161
In-town Commercial	\$5,156	\$0	10	\$5,156

Assumption for Comparison Purposes: Meter Size for In-town Commercial property in all three cities is 1.0 Inches

	Belton <u>Current</u> Connection Plus Permit Fees	Belton <u>Current</u> Fee per Trap	Assume 10 Traps Residential or Commercial	Total Tap-on Fees
In-town Residential	\$1,200	\$47	10	\$1,670
Out of Town Residential	Unknown	Unknown	10	Unknown
In-town Commercial	\$2,000	\$59	10	\$2,590

	Raymore <u>Current</u> Connection Plus Permit Fees	Raymore <u>Current</u> Fee per Trap	Assume 10 Traps Residential or Commercial	Total Tap-on Fees
In-town Residential	\$1,433	\$47	10	\$1,903
Out of Town Residential	Unknown	Unknown	10	Unknown
In-town Commercial	\$2,363	\$59	10	\$2,953

ALLOCATION OF CAPITAL COSTS TO CUSTOMER CATEGORIES
 Sewer Tap Fee Rate Analysis

Source of Capital Cost	Number of Future Customers =			1,700	SFDU Equivalents
	System Capital Cost, \$			Unit Allocated Cost, \$/SFDU Equivalent Customer	
	Total	Allocated to Benefited Customer Group			
		Existing	Future		
Existing System Depreciated Capital					
Wastewater Treatment Plant	2,250,000	1,125,000	1,125,000	662	
Lift Stations					
Local / Subdivision	NA 1)	NA 1)	NA 1)	0	
Area -wide	1,650,000	825,000	825,000	485	
Sewers					
Collectors (Local / Subdivision)	NA 1)	NA 1)	NA 1)	0	
Interceptors	2,596,476	1,298,238	1,298,238	764	
Future Capital Improvements	8,424,712	4,157,915	4,266,797	2,510	
TOTAL	14,921,188	7,406,153	7,515,035	4,421	
Individual Service Tapping and Customer Account Setup Cost 2)				75	
Total Tapping Fee				4,496	

- 1) Assumed cost of improvement initially paid by developer and included in lot price paid by customer
- 2) Estimated by City managers at 1 hour for clerical time to set up new account + 1 hour for City inspector to inspect builder's work of connecting service lateral to the City to the sewer

City Administrator
Brad Ratliff

City Clerk
Janet Burlingame

City Engineer
Carl Brooks

Business Office
Trudy Prickett



Chief of Police
Harry Gurin

City Planner
Cliff McDonald

City Attorney
Reid Holbrook

Parks Director
Grant Purkey

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

To: Mayor & Board of Aldermen
From: Carl Brooks, City Engineer (cbrooks@cityofpeculiar.com)
Date: April 3, 2016
Re: Resolution No. 2016-07, Mayor & Board of Alderman (BOA) Acceptance of the Value Engineering Report on the Water Supply Study prepared by Burns & McDonnell.

GENERAL INFORMATION

Applicant: City Staff
Requested Actions: Approval of resolution
Purpose: Acceptance of the Value Engineering Report on the Water Supply Study prepared by Burns & McDonnell
Property Location: City wide

PROPOSAL

Acceptance of the proposed Resolution No. 2016-07, by the Mayor & Board of Alderman (BOA) of the Value Engineering Report on the Water Supply Study prepared by Burns & McDonnell.

PREVIOUS ACTIONS

The Value Engineering Report on the Water Supply Study Report was presented by Burns & McDonnell to the Mayor and Board of Aldermen, for future consideration to be included in our Comprehensive Fee Schedule.

KEY ISSUES

The Value Engineering Report on the Water Supply Study covers:

- ❖ Comparisons of the City's current water supply (Cass PWS) #2 to other suppliers: Kansas City Water, Tri-County Water Authority, City of Belton, MO, Jackson County Public Water Supply District No. 1 and Water One of Johnson County, KS
- ❖ Recommendation - that the City move forward with the buying of water from KCMO.
- ❖ Hydraulic Analysis of the City's distribution system reviewed and updated

STAFF COMMENTS AND SUGGESTIONS

City staff agrees with the 2016 Value Engineering Report on the Water Supply Study that has been prepared and completed by Burns & McDonnell.

STAFF RECOMMENDATION

City staff recommends passage of this resolution.

ATTACHMENTS

Resolution 2016-07

Value Engineering Report on the Water Supply Study, which includes

Water Supply Update and Review Memorandum

Water Supply Evaluation and Coordination, Updated Demand Projections and Hydraulic Model Memorandum

Hydraulic Model Review and Update Memorandum

RESOLUTION NO. 2016-07

A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE VALUE ENGINEERING REPORT ON THE WATER SUPPLY STUDY BY BURNS AND MCDONNELL

WHEREAS, the Board of Aldermen previously approved the execution of the Value Engineering Report on the Water Supply Study to be conducted by Burns & McDonnell, and

WHEREAS, the Value Engineering Report on the Water Supply Study has been awarded in the amount not to exceed \$45,600.00,

NOW THEREFORE, be it ordained by the Board of Aldermen of the City of Peculiar, Missouri as follows:

THE VALUE ENGINEERING REPORT ON THE WATER SUPPLY STUDY BY BURNS AND MCDONNELL

Section 1. That the Mayor is hereby authorized to execute on behalf of the City of Peculiar the above referenced RESOLUTION and the Value Engineering Report on the Water Supply Study.

Section 2. The effective date of the resolution shall be _____, 2016.

BE IT REMEMBERED THE PRECEDING RESOLUTION WAS ADOPTED ON THIS _____ DAY OF _____, 2016, BY THE FOLLOWING VOTE:

Alderman Ford _____
Alderman Hammack _____
Alderman McCrea _____

Alderman Ray _____
Alderman Roberts _____
Alderman Turner _____

APPROVED:

ATTEST:

Holly Stark, Mayor

Janet Burlingame, City Clerk

Memorandum



Date: March 30, 2016

To: Carl Brooks, P.E., City Engineer, City of Peculiar

From: Jeff Barnard, P.E., Project Manager, Burns & McDonnell
Dana Bruner, P.E., Project Engineer, Burns & McDonnell
Michaela Rempkowski, EIT, Project Engineer, Burns & McDonnell

Subject: Water Supply Update and Review

1. Introduction

Burns & McDonnell is preparing an updated water supply and hydraulic modeling technical memorandum (TM) for the City to assist in the planning of the Peculiar Way Interchange on Interstate 49 (I-49) of Peculiar (City). Evaluating the water supply options is the second task executed during the development of the updated water supply and hydraulic modeling TM. This memorandum summarizes arrangements and correspondence between Burns & McDonnell and each water supplier to establish anticipated connection fees, rates, contract terms, and available pressure and capacity at the point of connection for the City. In addition to the summary of correspondence, the following evaluations were conducted to provide supplier recommendations:

- A review of standard contract terms for each viable water supply option;
- A general assessment of water quality issues, including water age, disinfection byproduct potential, and chlorine or chloramine residual for each water supply option; and
- An evaluation of net present value for each water supply alternative and comparison.

The Peculiar Way Interchange on I-49 is anticipated to stimulate additional growth. Growth, related to infrastructure requirements, was not considered in the Engineering Report for Water Supply, Pumping, Storage, and Distribution Facilities, by Larkin, Lamp, Rynearson and Associates, May 2014 (Water Systems Engineering Report). Burns & McDonnell investigated several water supply options to meet the City's anticipated residential and commercial growth through the study period year 2035. The following water supply options were considered:

- Cass County Public Water District No. 2 (PWSD No. 2);
- Kansas City, Missouri (KCMO);
- WaterOne of Johnson County, Kansas (WaterOne);
- City of Belton, Missouri (Belton);
- Jackson County Public Water Supply District No. 1 (Jackson No. 1); and
- Tri-County Water Authority (Tri-County).

March 30, 2016

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2. Summary of Demands

The population of the City is estimated to increase by 1 percent annually based on the population projections in the Water Systems Engineering Report. Further, this report projected that the current service area demand would increase from the 2013 demand of approximately 260,000 gallons per day to 325,000 gallons per day by 2035. The maximum daily flow was predicted using a maximum daily flow to average daily flow ratio of 1.5, resulting in a maximum daily flow of 490,000 gallons in 2035. These values reflect the current and residential growth projected for the City by 2035.

The City will be providing service to the commercial and industrial users on Peculiar Way, or the east side of I-49. The City's service area projected average day demand is 415,000 gpd with a maximum day demand of 625,000 gpd in 2035. It is anticipated that the PWSDs will provide water service to all of the residential customers resulting from the Peculiar Way Interchange and the commercial and industrial customers on the west side of I-49; PWSD No. 2 on the west and PWSD No. 10 on the east. An additional 200 gallons per minute (290,000 gallons per day) is allocated for an industrial process demand. It is important to note that this general approximation of the demand may vary from the actual demand and will ultimately be dependent on the industry serviced.

Demand projections were calculated for the commercial and industrial zones of the PWSD service area to plan for contingency connections in the event that the PWSDs do not want to supply water to the development areas. The PWSD commercial and industrial service area average day demand is approximately 310,000 gallons per day with a maximum day demand of approximately 465,000 gallons per day. An industrial process water allowance of 400 gallons per minute (580,000 gallons per day) is allocated to the west of the interchange.

Table 1, below, provides a summary of the average and maximum day projections for the City and PWSD.

Table 1: 2035 Average and Maximum Day Projection Summary

Demand	Current Service Area	City Serviced 211th Street Interchange	City Industrial Allowance	City Serviced Total	PWSD Commercial and Industrial	PWSD Industrial Allowance	PWSD Total	City and PWSD Total
Average Day (gpd)	325,000	90,000	290,000	705,000	310,000	580,000	890,000	1,595,000
Max Daily (gpd)	490,000	135,000	290,000	915,000	465,000	580,000	1,045,000	1,960,000

Including these average day and max day demand projections will assist the City in choosing a water supplier by determining appropriate pressure and capacity requirements at the point of connection and determining contract terms. The following evaluations were established around a 1.0 MGD maximum day demand projected for the City in the year 2035. If PWSD No. 2 forfeits the supplying water to the commercial and industrial areas within their jurisdiction of the Peculiar Way Interchange, the City would renegotiate contracts to provide a 2.0 MGD maximum day contingent supply to these areas.

3. Current Water Contract

The City entered into a 20-year water purchase agreement with PWSD No. 2 on March 19, 1990 and renewed the agreement on March 16, 2010. The water purchase agreement required that PWSD No. 2 supply and deliver up to 700,000 gallons of water per day to the City for a contract term of 25 additional years. PWSD No. 2 has an existing water purchase agreement with KCMO and is authorized to resell water to the City, under the Wholesale Customer/Restricted rate and other appropriate provisions. This water may also be repurchased from the City by PWSD No. 2.

The City has three metering locations, at which PWSD No. 2 delivers water and may include other locations, as mutually agreed upon. The current metering locations include:

1. 211th Street and Harper Road Metering Station
2. 211th Street and South Peculiar Drive Metering Station
3. Sienna Street and Peculiar Drive Metering Station

March 30, 2016

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The City is required to maintain storage facilities for an average day's consumption and use them at their fullest extent to offset peak demands. The City currently has approximately 450,000 gallons stored in a ground storage tank and a 400,000 gallon elevated storage tank.

At times of emergency, the City may purchase water from the following suppliers:

- Cass County Public Water Supply District No. 10 (PWSD No. 10), at a location south of 211th Street and Larkspur Drive, at the base of PWSD No. 10 150,000 gallon elevated tank.
- Cass County Public Water Supply District No. 7 (PWSD No. 7), at the southwest corner of 227th Street and Harper Road.
- Other suppliers, with notice thirty (30) days before establishing a connection.

In the event that PWSD No. 2 does not have sufficient water supply, the City may obtain supplemental supply from other suppliers for the quantities in excess of what is available from the district. The City is allowed to terminate the water purchase agreement with PWSD No. 2 after one (1) year with written notification.

The water rate charged by PWSD No. 2 consists of the sum of the components listed below:

1. Water Cost Component
 - a. Unit cost of water paid by PWSD No. 2 to KCMO, plus 15 percent to account for system losses.
2. Operation and Maintenance Cost for Shared Facilities
 - a. Sum of the following allocations divided by the total gallons sold by the PWSD No. 2:
 - i. Salaries and Benefits expenses for staff are 50 percent attributable to operation and maintenance of the facilities. Of this 50 percent share, 33 percent of it is attributable to shared transmission, pumping, and storage facilities.
 - ii. Repairs and maintenance expenses are 25 percent attributable to the shared facilities, with the exception of water tower maintenance, which is 100 percent attributable.
 - iii. Telephone and power utility expenses are 75 percent attributable to shared facilities.

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3. Cost Recovery Component on Shared Facilities
 - a. Total annual outstanding debt service on shared facilities divided by the total gallons sold by PWSD No. 2.
4. Monthly Meter Charge per Meter Based on Current KCMO Service Charges for Meters Outside the City Limits

It has been reported that the current water rate for the City is \$5.21 per 1000 gallons.

4. Supplier Overview

a. Descriptions

i. PWSD No. 2

Cass County Public Water Supply District No. 2 was organized in November 1967 under Chapter 247 of the Revised Statutes of Missouri (RSMO). PWSD No. 2 began in 1970 purchasing water from the City of Belton, MO and distributing water to approximately 300 customers. PWSD No. 2 has grown to service approximately 1450 customers today. PWSD No. 2 currently purchases wholesale water from KCMO and sells to residential, retail and wholesale customers. The City is currently under contract to purchase water from PWSD No. 2, as stated in the Current Contract Section of this memorandum.

ii. Kansas City, MO Water Services (KCMO)

Kansas City, Missouri Water Services maintains and operates water collection, treatment, and distribution systems; wastewater collection and treatment systems; and stormwater management systems for 460,000 Kansas City residents, 170,000 residential and business customers in Kansas City and for 33 wholesale water customers in the Kansas City region. Currently, the top ten wholesale water customers by consumption include:

1. City of Lee's Summit
2. Jackson County PWSD No. 1
3. City of Belton
4. City of Blue Springs
5. City of Raymore
6. Raytown Water Company
7. Dogwood Energy
8. Veolia – Kansas City
9. Kansas City Power and Light
10. Jackson County PWSD No. 2

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The operation is funded by fees charged to customers based on their use or impacts on the water utility systems.

By making a water purchase agreement with KCMO, the City would be able to bypass any additional fees charged by public water suppliers that currently purchase and resell water from KCMO.

iii. WaterOne

WaterOne of Johnson County, KS serves over 400,000 people in a 272 square mile service area, including unincorporated parts of Johnson County. WaterOne is an independent public water utility. WaterOne serves customers in the following 17 cities:

- DeSoto (partial)
- Fairway
- Lake Quivira
- Leawood
- Lenexa
- Merriam
- Mission
- Mission Hills
- Mission Woods
- Olathe (partial)
- Overland Park
- Prairie Village
- Roeland Park
- Shawnee
- Spring Hill (partial)
- Westwood
- Westwood Hills

Its service connections in the cities listed above extend into parts of Wyandotte County and Miami County. WaterOne has infrastructure within the city limits of Bonner Springs and Gardner, but does not currently provide service to customers in those jurisdictions.

Similar to KCMO, if the City were to enter into a water purchase agreement with WaterOne, they would be able to bypass any additional fees charged by public water suppliers that currently purchase and resell water from WaterOne.

iv. Belton, MO

The City of Belton, MO is currently under contract to purchase water from KCMO. The current water purchase agreement provides a maximum 4.0 MGD. The contract expired on May 17, 2007, however, both parties agreed to continue under the terms of the expired agreement.

Belton is currently investigating a dual source supply in order to meet the projected 20-year water demands. The current initiative is to negotiate a new agreement with KCMO to provide the original maximum 4.0 MGD for an additional 20 years and enter into a water purchase agreement with WaterOne for additional water demands.

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During these negotiations, it may be possible for Belton to request the additional supply from WaterOne to sell to the City.

v. Jackson PWSD No. 1

Jackson County Public Water Supply District No. 1 (Jackson PWSD No. 1) is currently under contract to purchase water from KCMO. Approximately 2.5 years ago, Jackson PWSD No. 1 expressed interest and is moving forward with purchasing water from Tri-County as they go through their expansion activities.

Jackson PWSD No. 1 purchased their water based on unallocated demand in Grain Valley; Grain Valley forfeited a portion of their contract with Tri-County, which created availability of water for Jackson PWSD No. 1. Tri-County will provide 2.5 MGD average day demand and 4.0 MGD maximum day demand, which corresponds with Jackson PWSD No. 1's current demands. Jackson PWSD No. 1 will discuss a potential connection with Peculiar via the Board. However, in order to allocate an additional 1.0 to 2.5 MGD to the City, it would take a multi-community approach to seize the capacity on forfeited contracts, as well as capital costs of transmission.

Jackson PWSD No. 1 does not have the capacity or transmission mains to provide water to the City at this time and will not be considered in the following analysis.

vi. Tri-County

Tri-County Water Authority treats water for three counties; Jackson, Cass, and Bates County, including the City of Grain Valley, Blue Springs, Pleasant Hill, Lake Winnebago, and East Lynne. The service area extends from Sibley down to Harrisonville, MO. The Tri-County plant was built in 1993 and the first expansion was in 2004.

Expansions to the water treatment plant and water distribution are currently under construction. Discussions with Tri-County determined that approximately 2.5 years ago Tri-County asked communities to ascertain their interest in water supply. Up to one year ago they could have potentially accommodated an additional customer, but currently all of the water they can provide from their water treatment plant is allocated (20.5 MGD). Any connections to Tri-County, at this time, would require a transmission main all the way to the water treatment plant and a process expansion would be necessary; cost prohibitive for any single community. It was mentioned that Tri-County goes through planning every 7-10 years for treatment plant expansions and additional distribution, at which time the City could declare interest for a more reasonable cost.

Tri-County does not have the capacity or transmission mains to provide water to the City at this time and will not be considered in the following analysis.

In summary, PWSD No. 2, KCMO, WaterOne, and Belton will be the only suppliers used in the following evaluations by Burns & McDonnell.

b. Water Quality

The goal of disinfection is to destroy or inactivate pathogenic organisms to a given level. Several disinfectants are commonly used in the water and wastewater industries, each with unique characteristics, such as safety of handling, stability during storage, toxicity to microorganisms, nontoxicity to humans and animals, and solubility in water or cell tissue. Furthermore, strength or concentration of the disinfectant should be measurable (i.e., there should be residual disinfectant in the water after disinfection to prevent infection in the water during transportation). Chlorine is a commonly used disinfectant in both water and wastewater treatment plants because it is effective at inactivating most pathogens and can provide a residual in water distribution systems to limit microbial growth. It is common practice to have a chlorine (or chloramine) residual of 1.0 to 2.0 parts per million (ppm) to limit microbial growth and is maintained in the distribution. The United States Environmental Protection Agency (USEPA) requires that no more than 4.0 ppm be detected in tap water. The water quality reports from each supplier for 2014 were used to confirm compliance with regulations compare residual chlorine concentrations in the water distribution systems (**Table 2**). All four suppliers maintain a chloramine concentration between 1.0 and 2.0 ppm, with the exception of WaterOne, which had an average chloramine exceedance of 4.4 ppm reported in 2014, as shown in **Table 2**, below.

Table 2: Chloramine Residual Concentration Comparison

Analyte	USEPA	KCMO			PWSD No. 2		WaterOne			Belton		
	MCL	Avg	Min	Max	Min	Max	Avg	Min	Max	Avg	Min	Max
Chloramines (ppm)	4	2.27	1.47	3.07	1.53	2.57	2.8	1.3	4.4	1.78	1.2	2.2

Chlorine and associated chlorine residuals tend to produce disinfection by-products (DBP) which may be harmful to humans. In 1974, it was discovered that chemicals often used to disinfect water in municipal systems react with naturally occurring organic matter in the water to create a variety of DBPs. The four DBPs most commonly used to indicate adverse reactions to disinfection are referred to as trihalomethanes (THMs) and include:

- Chloroform
- Bromodichloromethane
- Dibromochloromethane
- Bromoform

The discovery of THMs in drinking water led to research on other chemicals formed when chlorine is added to water, and to the health effects of these chemicals. More than 600 DBPs were identified in chlorinated tap water, including haloacetic acids (HAAs). THMs (80 micrograms per liter (µg/L)) and HAAs (60 µg/L) are currently used by the USEPA as indicator chemicals for all potentially harmful compounds formed by the addition of chlorine to water. Regulated DBPs are also formed by alternative disinfection methods, such as, bromate (10 µg/L) formed in ozone disinfection and chlorite (1 mg/L) formed in chlorine dioxide disinfection.

Currently unregulated DBPs include monochloramine, N-Nitrodimethylamine (NDMA), and iodinated DBPs (I-DBPs are formed from iodine). However, the World Health Organization (WHO) does provide guidelines for the unregulated DBPs that may become USEPA requirements as substantial data is built. All four suppliers reported THM and HAA concentrations well below the USEPA maximum contaminant level (MCL). The comparison of DBP concentrations for each supplier, according to the 2014 water quality reports, are provided in **Table 3**, below. WaterOne is the only supplier included in this analysis to provide water quality information on the four primary THMs, described above. All concentrations were reported below the WHO MCL.

Table 3: DBPs Concentration Comparison

Analyte	USEPA	KCMO			PWSD No. 2		WaterOne			Belton		
	MCL	Avg.	Min.	Max.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.
Haloacetic Acids (HAA) (ppb)	60	14.8	6.9	35.5	5.2	40.9	19	1	30.6	18.5	NA	31.8
Total Trihalomethanes (THMs) (ppb)	80	8.3	2.4	48.9	1.8	13.8	26	9.6	45.1	8	4.38	13

Water suppliers should be able to balance protecting the customers from pathogens and minimizing the health risks from disinfection by-products. Since waterborne pathogens pose a real and more immediate threat to health, water disinfection by-products become a secondary concern when comparing water quality reports. KCMO and WaterOne reported total coliform concentrations below the USEPA MCL.

In summary, all four suppliers provide water that meets the regulated water quality parameters set forth by the USEPA. Residual chlorine concentrations, DBPs and pathogens are not considered a health risk with any of the suppliers; however, disinfection and chemical addition should be analyzed for detrimental interactions if water is being supplied from two different suppliers. A

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summary of the water quality data provided in the 2014 water quality reports from each supplier is provided in **Table 4**, attached.

c. Contract Terms

i. PWSD No. 2

It is anticipated that the contract terms for PWSD No. 2 would be similar to the current contract with increased capacity. Details of the current contract are summarized in the Current Contract section of this memorandum. In order to renegotiate capacity, the City must allow a minimum of one year for capacity negotiations between PWSD No. 2 and their supplier, KCMO.

A water purchase agreement established between the City and KCMO would extend over a contract term of twenty years. However, the City is allowed the following emergency connections under the KCMO contract:

- Cass No. 2: 211th & Harper Road, 211th & Peculiar Drive, Sienna & Peculiar Drive
- Cass No. 7: N.W. corner 227th & Harper Road
- Cass No. 10: Base of tower, 211th Street behind house 12107 211th Street

ii. KCMO

The KCMO water purchase agreement would be a sole source agreement. If the City decides to purchase water from other sources, it would be for amounts in excess of what KCMO can provide or an additional emergency connection. The KCMO water purchase agreement includes repurchase, resale, and storage requirements similar to existing PWSD No. 2 contract terms. However, notification of contract termination must occur two years prior, as opposed to the current contract termination notification due one year prior. Language in Article III.1 (Control System) requires Peculiar to minimize changes in flow at the meter. If flows were to reduce to zero during high demand periods, equalization storage will be required. The City currently satisfies KCMO's requirement for storage, but would need to add an additional 0.5 MGD storage prior to reaching an average day demand of 0.7 MGD. It would also be necessary to determine the types of operating records KCMO would like to receive and how frequently.

iii. WaterOne

WaterOne currently cannot provide a general wholesale agreement to the City. Before WaterOne can enter into a wholesale agreement, they are required by Kansas State Statutes to enter into an interlocal agreement that outlines the intent of drafting a wholesale agreement with other governmental agencies.

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iv. Belton

Belton also does not currently have a general wholesale agreement. It will be assumed that Belton can agree to similar terms and conditions as the current water supplier contract Peculiar currently holds.

d. Connection Locations

The point of connection is important in determining the capital costs for building the transmission lines and infrastructure required to connect to the existing system of a water supplier. For all of the suppliers, the connection location was determined by identifying and appropriately size supply line located closest to the City; conversations with each supplier confirmed the locations.

i. PWSD No.2

Although transmission lines to PWSD No. 2 have already been established, PWSD No. 2 identified that the transmission line from the KCMO meter to the PWSD No. 2 master meters that provide the City water, would likely need to be upsized to provide additional flow.

ii. KCMO

Direct connection to the KCMO water distribution line would require a new 12 inch or 16 inch line to be installed from the elevated water storage tank near the intersection of East Hubach Hill Road and Highway J in Raymore, MO approximately 4.1 miles to the intersection of Highway J and I-49 in Peculiar.

iii. WaterOne

To provide a direct connection to the WaterOne water distribution line, approximately 3.2 miles of 20 inch pipe from 199th Street and Stateline to 199th Street and Metcalf Avenue in Johnson County, KS and an additional 10.5 miles of transmission line to 219th Street and Harper in the City, for a total of approximately 13 miles of transmission line.

iv. Belton

The connection point to the Belton water supply, provided by future WaterOne connection, would be at the intersection of South Cleveland Avenue and Palo Verde Drive in Belton. This transmission line will connect to the City's distribution system at 219th St and Harper. The total length of this 12 inch or 16 inch transmission line is approximately 9 miles.

The attached **Figure 1** provides the location and transmission length for all four suppliers.

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e. Connection Fees

There are a variety of fees associated with establishing new water supplier connections or increasing capacity with existing water suppliers. The fees that will be evaluated in this study will be associated with the projected demand for a 1 percent increase in population and development of the Peculiar Way Interchange (up to 1.0 MGD) and include the following:

- Capital Costs
 1. System Development Charge (SDC)
 2. Estimated Infrastructure Costs
 - Master Meters
 - Pipe
 - Connections
 - Valves
 - Air Release Valves
 - Flushing Hydrants
 - SCADA Modifications
 - Pump Stations
 - Road Crossings
 - Highway Crossings
 - Ditch Crossings
 - Driveway Crossings
 - Parking Lot Crossings
 - Stream Crossings
 - Bond Insurance/Mobilization (5 percent)
 - Contingency (30 percent)
 - Engineering, Legal, and Administrative Costs (10 percent)
 - Construction Observations (4.5 percent)
 - Survey (5 percent)
- Water Rate
 1. System Development Charge (SDC) Commodity Rate
 2. Operation and Maintenance Cost for Shared Facilities (O&M)
 3. Cost Recovery Component on Shared Facilities (CRC)
 4. Monthly Meter Charge per Meter

i. PWSD No. 2

The Service Delivery Charge (SDC) for renegotiating with PWSD No. 2 was paid at the initiation of the water purchase agreement in 1990. There would be no additional SDC to increase capacity under this contract. The commodity rate, Operations and Maintenance (O&M), CRC, and Monthly Meter Charges would remain the same as outlined in the contract summarized above and increase with inflation during the contract term. The summation of these charges under the water purchase

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agreement is \$5.21 per 1000 gallons of water. In addition, PWSD No. 2 estimates that upsizing the supply line from KCMO to the master meter to provide for the increase capacity would cost approximately \$500,000 to \$750,000 and does not include any upgrades to facilities within the City's distribution system.

ii. KCMO Connection

The SDC for establishing a new water purchase agreement with KCMO would be approximately \$817,000 for 1.0 MGD for a 20-year contract period. The current commodity rate for unrestricted wholesale customers is \$2.90 per 1000 gallons of water. The water rates established by Chapter 78 of the Code of Ordinances of KCMO do not provide O&M and CRC rates, therefore it is assumed that these fees are not charged by this supplier. The transmission costs to connect to the KCMO supply line approximately 4.1 miles away is approximately \$3,300,000. The recommended transmission line is 0.75 miles of 16 inch diameter line from the existing KCMO water tower to the location of the proposed elevated storage tank, then a 12 inch diameter line from proposed elevated storage tank to the tie-in to the existing 8 inch line at Old Town Road on Highway J. In order to provide water to the interchange development area, the cost of replacing 1.5 miles of 4 and 6 inch line along Peculiar Way with a 12 inch transmission line was included in the opinion of probable cost. These costs are summarized in **Table 5** below.

Table 5: Summary of Probable Costs for Transmission Line from KCMO Supply

Item No.	Description	Quantity	Units	Unit Price	Estimated Cost
1	16" PVC	4,000	LF	\$67	\$270,000
2	12" PVC	25,000	LF	\$52	\$1,300,000
3	Connections	4	EA	\$5,000	\$20,000
4	Valves	15	EA	\$3,000	\$50,000
5	Road Crossings	15	EA	\$10,000	\$150,000
6	Master Meter	1	EA	\$75,000	\$80,000
7	Air Release Valves	6	EA	\$5,000	\$30,000
8	Highway J Crossing	1	EA	\$20,000	\$20,000
9	Driveway Crossing	40	EA	\$2,000	\$80,000
10	Stream Crossing (HDD)	800	LF	\$300	\$240,000
11	Flushing Hydrant	5	EA	\$3,750	\$20,000
12	SCADA Modifications	1	EA	\$20,000	\$20,000
13	Bond/Insurance/Mobilization	5%	LS	\$101,000	\$110,000
Construction Cost					\$2,120,000
Contingency 30%					\$640,000
Subtotal					\$2,760,000
Engineering, Legal, & Admin 10%					\$280,000
Construction Observation 4.5%					\$120,000
Survey 5%					\$140,000
Total					\$3,300,000

iii. WaterOne Connection

The SDC for establishing a new water purchase agreement with WaterOne would be approximately \$1,200,000 for 1.0 MGD for a 20-year contract period. The current commodity rate for wholesale customers is \$3.29 per 1000 gallons. The O&M, CRC and Monthly Meter Charges are accounted for in the commodity rate. The transmission costs to connect to the WaterOne supply line approximately 13 miles away is approximately \$7,500,000 for a 12 inch diameter transmission line and \$9,200,000 for a 16 inch diameter transmission line. These costs are summarized in **Table 6** and **Table 7**, respectively.

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Table 6: Summary of Probable Costs for 12 Inch Transmission Line from WaterOne Supply

Item No.	Description	Quantity	Units	Unit Price	Estimated Cost
1	12" PVC	67,000	LF	\$52	\$3,480,000
2	Connections	2	EA	\$5,000	\$10,000
3	Valves	17	EA	\$3,000	\$50,000
4	Road Crossings	15	EA	\$10,000	\$150,000
5	Pump Station	2	EA	\$200,000	\$400,000
6	Master Meter	1	EA	\$75,000	\$80,000
7	Air Release Valves	6	EA	\$5,000	\$30,000
8	Highway Y Crossing	1	EA	\$25,000	\$30,000
9	Highway D Crossing	1	EA	\$25,000	\$30,000
10	Driveway Crossing	62	EA	\$2,000	\$130,000
11	Ditch Crossing	2	EA	\$5,000	\$10,000
12	Railroad Crossing	1	LS	\$50,000	\$50,000
13	Stream Crossing	300	LF	\$300	\$90,000
14	Flushing Hydrant	14	EA	\$3,750	\$50,000
15	SCADA Modifications	1	EA	\$20,000	\$20,000
16	Bond/Insurance/Mobilization	5%	LS	\$230,000	\$230,000
	Construction Cost				\$4,840,000
	Contingency			30%	\$1,450,000
	Subtotal				\$6,290,000
	Engineering, Legal, & Admin			10%	\$630,000
	Construction Observation			4.5%	\$280,000
	Survey			5%	\$310,000
	Total				\$7,510,000

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Table 7: Summary of Probable Costs for 16 Inch Transmission Line from WaterOne Supply

Item No.	Description	Quantity	Units	Unit Price	Estimated Cost		
1	16" PVC	67,000	LF	\$67	\$4,490,000		
2	Connections	2	EA	\$5,000	\$10,000		
3	Valves	17	EA	\$3,000	\$50,000		
4	Road Crossings	15	EA	\$10,000	\$150,000		
5	Pump Station	2	EA	\$200,000	\$400,000		
6	Master Meter	1	EA	\$75,000	\$80,000		
7	Air Release Valves	6	EA	\$5,000	\$30,000		
8	Highway Y Crossing	1	EA	\$25,000	\$30,000		
9	Highway D Crossing	1	EA	\$25,000	\$30,000		
10	Driveway Crossing	62	EA	\$2,000	\$130,000		
11	Ditch Crossing	2	EA	\$5,000	\$10,000		
12	Railroad Crossing	1	LS	\$50,000	\$50,000		
13	Stream Crossing	300	LF	\$300	\$90,000		
14	Flushing Hydrant	14	EA	\$3,750	\$50,000		
15	SCADA Modifications	1	EA	\$20,000	\$20,000		
16	Bond/Insurance/Mobilization	5%	LS	\$281,000	\$290,000		
					Construction Cost	\$5,910,000	
					Contingency	30%	\$1,770,000
					Subtotal	\$7,680,000	
					Engineering, Legal, & Admin	10%	\$770,000
					Construction Observation	4.5%	\$350,000
					Survey	5%	\$380,000
					Total		\$9,180,000

iv. Belton Connection

The SDC for establishing a new water purchase agreement with Belton would be approximately \$800,000 for 1.0 MGD for a 20-year contract period. The current commodity rate for wholesale customers is \$5.24 per 1000 gallons. The O&M, CRC and Monthly Meter Charges are accounted for in the commodity rate. The transmission costs to connect to the Belton supply line approximately 9 miles away is approximately \$5,700,000 for a 12 inch diameter transmission line and \$6,900,000 for a 16 inch diameter transmission line. These costs are summarized in **Table 8 and 9**, respectively.

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Table 8: Summary of Costs for 12 Inch Transmission Line from Belton Supply

Item No.	Description	Quantity	Units	Unit Price	Estimated Cost
1	12" PVC	48,000	LF	\$52	\$2,500,000
2	Connections	2	EA	\$5,000	\$10,000
3	Valves	15	EA	\$3,000	\$50,000
4	Pump Station	1	EA	\$200,000	\$200,000
5	Road Crossings	15	EA	\$10,000	\$150,000
6	Master Meter	1	EA	\$75,000	\$80,000
7	Air Release Valves	5	EA	\$5,000	\$30,000
8	Highway Y Crossing	1	EA	\$25,000	\$30,000
9	Driveway Crossing	45	EA	\$2,000	\$90,000
10	Stream Crossing (HDD)	900	LF	\$300	\$270,000
11	Flushing Hydrant	14	EA	\$3,750	\$50,000
12	SCADA Modifications	1	EA	\$20,000	\$20,000
13	Bond/Insurance/Mobilization	5%	LS	\$174,000	\$180,000
	Construction Cost				\$3,660,000
	Contingency			30%	\$1,100,000
	Subtotal				\$4,760,000
	Engineering, Legal, & Admin			10%	\$480,000
	Construction Observation			4.5%	\$210,000
	Survey			5%	\$240,000
	Total				\$5,690,000

Table 9: Summary of Probable Costs for 16 Inch Transmission Line from Belton Supply

Item No.	Description	Quantity	Units	Unit Price	Estimated Cost
1	16" PVC	48,000	LF	\$67	\$3,220,000
2	Connections	2	EA	\$5,000	\$10,000
3	Valves	15	EA	\$3,000	\$50,000
4	Pump Station	1	EA	\$200,000	\$200,000
5	Road Crossings	15	EA	\$10,000	\$150,000
6	Master Meter	1	EA	\$75,000	\$80,000
7	Air Release Valves	5	EA	\$5,000	\$30,000
8	Highway Y Crossing	1	EA	\$25,000	\$30,000
9	Driveway Crossing	45	EA	\$2,000	\$90,000
10	Stream Crossing (HDD)	900	LF	\$300	\$270,000
11	Flushing Hydrant	14	EA	\$3,750	\$50,000
12	SCADA Modifications	1	EA	\$20,000	\$20,000
13	Bond/Insurance/Mobilization	5%	LS	\$210,000	\$210,000
Construction Cost					\$4,410,000
Contingency					30% \$1,320,000
Subtotal					\$5,730,000
Engineering, Legal, & Admin					10% \$570,000
Construction Observation					4.5% \$260,000
Survey					5% \$290,000
Total					\$6,850,000

5. Distribution System Capital Improvements

Storage Improvements

For any supplier, it is recommended that a new elevated storage tank be provided as demands increase; the volume of the storage tank is recommended to be between 0.5 MG and 1.0 MG. This elevated tank will provide the storage necessary to meet the required equalization and emergency storage. The location of the tank and the trigger demand should be evaluated after the selection of the supplier and connection points. The price of elevated storage is highly dependent on the site location and the height of the elevated storage tank. Budgetary pricing was obtained for a composite elevated storage tank based on two different preliminary site options resulting in

different heights of the tank. One possible location based on discussions with the City is the northeast corner of the intersection of 195th Street and J Highway which would result in a necessary height of 150 feet with budgetary pricing as detailed in Table 10. An alternative location is adjacent to the KCMO tank located approximately 1,600 feet south of Hubach Hill Road on the east side of J Highway; this location would reduce the required height of the tank to approximately 80 feet with budgetary pricing as detailed in Table 11.

Table 10: Summary of Probable Costs 150-foot Elevated Storage Tanks

Description	0.5 MG	1.0 MG
Composite Elevated Storage Tank 150-foot	\$1,736,000	\$2,305,000
Site Work, Foundation, Yard Piping Allowance	\$440,000	\$440,000
Construction Cost	<u>\$2,176,000</u>	<u>\$2,745,000</u>
Contingency (20%)	\$435,000	\$549,000
Subtotal	\$2,611,000	\$3,294,000
Engineering	<u>\$400,000</u>	<u>\$400,000</u>
Total (rounded)	\$3,000,000	\$3,700,000

Table 11: Summary of Probable Costs 80-foot Elevated Storage Tanks

Description	0.5 MG	1.0 MG
Composite Elevated Storage Tank 80-foot	\$1,606,000	\$2,130,000
Site Work, Foundation, Yard Piping Allowance	\$440,000	\$440,000
Construction Cost	<u>\$2,046,000</u>	<u>\$2,570,000</u>
Contingency (20%)	\$409,000	\$514,000
Subtotal	\$2,455,000	\$3,084,000
Engineering	<u>\$400,000</u>	<u>\$400,000</u>
Total (rounded)	\$2,900,000	\$3,500,000

The elevated storage was not included in the net present value evaluation and capital cost assessments. For further discussion regarding elevated storage reference the Hydraulic Model Review and Update Technical Memorandum.

Distribution System Improvements

If the City decides to change water providers to KCMO, there are some additional distribution system improvements beyond the transmission mains required to accommodate the change.

These improvements are detailed in the Hydraulic Model Review and Update Technical Memorandum and include:

- Approximately 700 feet of 12-inch pipe to connect piping at Harper Street and 211th Street
- A pressure reducing station to prevent over-pressurization of the City’s system
- Approximately 100 feet of 8-inch pipe to connect Pressure Zone 1 to Pressure Zone 3 at Tuscany Highway

The capital costs associated these improvements are detailed in Table 12.

Table 12: Summary of Probable Costs Distribution System Improvements

Item No.	Description	Quantity	Units	Unit Price	Estimated Cost
1	12" PVC	700	LF	\$52	\$36,400
2	8" PVC	100	LF	\$45	\$4,500
3	Connections	2	EA	\$10,000	\$20,000
4	Pressure Reducing Station	1	EA	\$65,000	\$65,000
Construction Cost					\$126,000
Contingency				30%	<u>\$38,000</u>
Subtotal					\$164,000
Engineering, Legal, & Admin				10%	\$16,000
Construction Observation				4.50%	\$7,000
Survey				5%	<u>\$8,000</u>
				Total	\$200,000

Cost Opinion Development

These order-of-magnitude cost opinions are based primarily on our experience and judgment as a professional consultant combined with information from past experience, vendors, and published sources. Since Burns & McDonnell has no control over weather, cost, availability of labor, availability of material and equipment, labor productivity, construction contractors procedures and methods, unavoidable delays, construction contractors methods of determining prices, economic conditions, government regulations and laws (including the interpretation thereof), competitive

March 30, 2016

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bidding or market conditions, and other factors affecting such opinions or projections, Burns & McDonnell does not guarantee the actual rates, costs, etc. will not vary from the opinions and projections developed herein.

A 30 percent contingency allowance is included to cover all types of unaccounted-for project costs resulting from conditions, details, or components which are not normally known or determined until final detailed design. Costs specifically do not include geotechnical evaluations, deep foundations, surveys, permitting preparation and fees, utility services to site, taxes and bonds, and escalation. All costs are based on an ENR construction cost index 10,989 for Kansas City, MO as of March 2016.

6. Net Present Value Evaluation

The net present value (NPV) evaluation provides a cumulative representation of the present value of cash outflows through the 20-year contract period. The values calculated provide an estimation for capital budgeting and a reasonable value to compare supplier costs of the contract term. The results of the analysis provide a prediction of the demand at which an alternate supplier will provide the supply at a lower cost than the current supplier. A net present value evaluation was performed for three scenario:

1. Residential Growth for Existing Customers and Projected Interchange Demand (1.0 MGD)
2. Residential Growth for Existing Customers, Projected Interchange Demand, and Projected PWSID Interchange Demand (2.3 MGD)
3. Residential Growth for Existing Customers Only (0.7 MGD)

These scenarios represent the anticipated, best- and worst-case scenarios for projected average day demand expected for the City. A linear approximation of the demand was developed from the current average day demand of approximately 260,000 gpd in 2015 to the average day demand projected for each scenario in year 2035. It should be noted that demand may not increase linearly over the 20-year period; changes in demand are more likely to occur after development is completed, which cannot be projected for all scenarios. Using linear demand curves provides an analogous demand projection for a reasonable comparison of scenarios. The demand curve and the wholesale unit cost from each supplier was then used to calculate the cost of water per gallon. An inflation rate of 5 percent was applied to the wholesale unit cost from each supplier each year for the entire 20-year period. A 4 percent net present value discount rate was applied to the sum of the capital costs and cost of water per year.

Memorandum *(cont'd)*



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Note: The capital costs considered in this evaluation were the SDC for 1.0 MGD and transmission estimates. These were summed and represented in the year 2015 for each supplier. The summary of the SDC, transmission, and wholesale unit costs for each supplier is provided in **Table 13**.

Memorandum (cont'd)



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Table 13: Supplier Comparison

	Cass 2*	KCMO	WaterOne	Belton	Tri-County
SDC at 0.7 MGD for 20 Years	\$0	\$580,000	\$840,000	\$560,000	\$2,450,000
SDC at 1.0 MGD for 20 Years	\$750,000	\$817,000	\$1,200,000	\$800,000	\$3,500,000
SDC at 2.3 MGD for 20 Years	\$750,000	\$1,880,000	\$2,760,000	\$1,840,000	\$8,050,000
Transmission Cost (12" Diameter)	\$0	\$3,300,000	\$7,500,000	\$5,690,000	\$58,000,000
Transmission Cost (16" Diameter)	\$0	N/A	\$9,170,000	\$6,850,000	\$58,000,000
Wholesale Unit Water Cost (\$/1000 gallon)	\$5.21	\$2.90	\$3.29	\$5.24	\$2.43

*additional information was unavailable from KCMO regarding Cass 2 costs for added water from supply

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Residential Growth for Existing Customers and Projected Interchange Demand (1.0 MGD)

This scenario represents the anticipated increase in demand for the existing residential customer and the demand for the industrial and commercial development of the east side of the Peculiar Way Interchange. The NPV analysis determined that at an average day demand of approximately 480,000 gpd, the cumulative NPV for the KCMO supply becomes lower than continuing with the supply from PWSD No. 2. If demand were to occur in a linear trend until 2035, it is estimated that this savings will be reflected around year 2025. **Figure 2** provides a comparison of the cumulative NPV of water supplier costs for this scenario.

Residential Growth for Existing Customers, Projected Interchange Demand, and Projected PWSD Interchange Demand (2.3 MGD)

This scenario represents the highest demand projected and includes the existing residential customer and the industrial and commercial development on both the east and west side of the Peculiar Way Interchange. The NPV analysis determined that at an average day demand of approximately 1,000,000 gpd, the NPV for the KCMO supply becomes lower than continuing with the Cass 2 supply. At approximately 1,450,000 gpd, the NPV for WaterOne also becomes lower than continued service with the supply from PWSD No. 2. If demand were to occur in a linear trend until 2035, it is estimated that this savings for switching to KCMO supply will be reflected around year 2023. **Figure 3** provides a comparison of the cumulative NPV of water supplier costs for this scenario.

Residential Growth for Existing Customers Only (0.7 MGD)

This scenario represents the demand if development of the Peculiar Way Interchange were to cease and only includes the existing residential customers. The NPV analysis determined that at an average day demand of approximately 310,000 gpd, the NPV for the KCMO supply becomes lower than continuing with the supply from PWSD No. 2. Since this scenario is often predicted linearly, it could be said with confidence that this savings can be expected around year 2030. **Figure 4** provides a comparison of the cumulative NPV of water supplier costs for this scenario.

7. Recommendations

It is recommended that the City move forward with buying water from KCMO, as initially suggested in the Water Systems Engineering Report. The following summarizes our recommendation:

- The water quality will not change or interact with the current water supply characteristics since PWSD No. 2 source of supply is provided water through KCMO.
- The contract terms are similar to the current contract terms, however the following contract terms will require clarification and include:
 - The anticipated number of hours, time of day, and period of year that KCMO could reduce the supply to no flow conditions; these items are currently being reviewed by KCMO and will be provided to the City following the review.
 - The documentation requirements for what type of operating documents need to be submitted and how often.
- The Net Present Value analysis identified that in all three demand scenarios, KCMO would become the most cost-effective alternative of the suppliers evaluated.
- The trigger demand for the need of an elevated storage tank for KCMO is an average day demand of 514,000 gallons per day. At a linear growth rate for the existing City service area and projected development, the need for the elevated storage tank and PRV station is not likely to occur until year 2026.

Additional CIP items for the KCMO alternative will be identified and detailed in the Hydraulic Model Review and Update Technical Memorandum.

Table 4: Water Quality Summary

Analyte	MCL	MCL Goal	KCMO			PWSD #2		WaterOne			Belton			TriCounty
			Avg	Min	Max	Min	Max	Avg	Min	Max	Avg	Min	Max	Max
Inorganic Contaminants														
Arsenic (ppb)	10	0	NA	NA	NA	NA	NA	1.5	1	1.5	NA	NA	NA	1.13
Barium (ppm)	2	2	0.011	0.006	0.024	0.006	0.025	0.04	0.03	0.04	NA	NA	NA	0.0465
Chloramines (ppm)	4	4	2.27	1.47	3.07	1.53	2.57	2.8	1.3	4.4	1.78	1.2	2.2	NA
Chlorine Dioxide (ppb)	800	800	NA	NA	NA	NA	NA	147	50	147	NA	NA	NA	NA
Chlorite (ppm)	1	0.8	NA	NA	NA	NA	NA	0.3	0.08	0.7	NA	NA	NA	NA
Chromium (ppb)	100	100	3	3	4	2.35	4	2.9	2.6	2.9	3.54	2.26	3.54	1.89
Copper (ppm)	1.3	1.3	0.004	0	0	0.002	0.031	0.018	0	0.018	0.005	NA	NA	NA
Cyanide (ppb)	200	200	2	2	13	NA	NA	30	20	30	NA	NA	NA	NA
Fluoride (ppm)	4	4	0.72	0.14	1.11	0.17	1.23	1.48	0.22	1.48	NA	NA	NA	0.15
Lead (ppb)	15	0	0.002	0	0	NA	NA	4	0	4	1.29	NA	NA	NA
Nitrate (ppm)	10	10	1.39	0.08	5.65	0	4.5	1.9	0.2	1.9	NA	NA	NA	0.29
Selenium (ppm)	50	50	1.9	NA	3.2	1.05	2.38	3.4	1	3.4	NA	NA	NA	NA
Synthetic Organic Contaminants														
Atrazine (ppb)	3	3	0.22	0.2	2.1	0	1.07	0.2	0.2	1.1	NA	NA	NA	NA
Haloacetic Acids (HAA) (ppb)	60	NA	14.8	6.9	35.5	5.2	40.9	19	1	30.6	18.5	NA	31.8	15
Total Trihalomethanes (THMs) (ppb)	80	NA	8.3	2.4	48.9	1.8	13.8	26	9.6	45.1	8	4.38	13	9.34
Microbial Contaminants														
Total Coliforms (1/100 mL)	NA	0	0.2%	0.0%	0.8%	NA	NA	0.8%	0.0%	0.8%	NA	NA	NA	NA
Total Organic Carbon (TT)	1	NA	NA	NA	NA	NA	NA	1	1.8	2.6	NA	NA	NA	NA
Turbidity (NTU)	NA	NA	0.09	0.04	0.29	NA	NA	0.68	NA	NA	NA	NA	NA	NA
Radiological Contaminants														
Beta Particle & Photon Radioactivity (pCi/L)	50	0	NA	NA	NA	NA	NA	4.5	3	4.5	NA	NA	NA	NA
Uranium (ppb)	30	0	NA	NA	NA	NA	NA	0.7	0.7	0.7	NA	NA	NA	NA
Unregulated Parameters														
Alkalinity (ppm)	300	40	32	20	59	17	254	66	49	83	NA	NA	NA	83.5
Ammonia (as N)	NA	NA	0.2	0.07	0.54	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (ppm)	NA	NA	NA	NA	NA	0.049	0.093	NA	NA	NA	NA	NA	NA	NA
Bromide (ppm)	NA	NA	NA	NA	NA	0	2.02	NA	NA	NA	NA	NA	NA	NA
Bromochloroacetic Acid (ppm)	NA	NA	NA	NA	NA	0.001	0.001	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane (ppb)	NA	NA	NA	NA	NA	NA	NA	4.7	2.2	6.4	NA	NA	NA	NA
Calcium (ppm)	NA	NA	35.7	31.9	39	34.2	42.4	32	23	53	NA	NA	NA	14.7
Total Organic Carbon (TOC) (ppm)	#####	NA	NA	NA	NA	NA	NA	2.5	1.5	8.6	NA	NA	NA	NA
Chlorate (ppb)	NA	NA	NA	NA	NA	NA	NA	175	140	200	NA	NA	NA	NA
Chlorodibromomethane (ppb)	NA	60	NA	NA	NA	NA	NA	1.7	0.5	4	NA	NA	NA	NA
Chloroform (ppb)	NA	70	NA	NA	NA	NA	NA	24	6.7	94.3	NA	NA	NA	NA
Conductivity (µmhos/cm)	1500	NA	NA	NA	NA	NA	NA	628	305	945	NA	NA	NA	NA
Dichloroacetic Acid (ppb)	NA	0	NA	NA	NA	NA	NA	16	7.5	46	NA	NA	NA	NA
Hardness (Carbonate) (ppm)	NA	NA	105	81	124	88	186	NA	NA	NA	NA	NA	NA	113
Hardness (Calcium) (ppm)	200	60	NA	NA	NA	NA	NA	78	59	133	NA	NA	NA	NA
Hardness (Magnesium) (ppm)	150	50	NA	NA	NA	NA	NA	49	7	88	NA	NA	NA	NA
Hardness (Total) (ppm)	400	200	NA	NA	NA	NA	NA	128	68	163	NA	NA	NA	NA
Iron (ppm)	NA	NA	NA	NA	NA	0.004	0.058	NA	NA	NA	NA	NA	NA	NA
Magnesium (ppm)	150	50	5.2	3.23	6.55	3.56	6.83	12	2	21	NA	NA	NA	18.5
Manganese (ppm)	0.05	NA	NA	NA	NA	0	0.004	NA	NA	NA	NA	NA	NA	0.00731
Metolachlor (ppb)	NA	NA	NA	NA	NA	0	0.69	NA	NA	NA	NA	NA	NA	NA
Monochloroacetic Acid (ppb)	NA	70	NA	NA	NA	NA	NA	2	1	5.1	NA	NA	NA	NA
Nickel (ppb)	100	100	NA	NA	NA	NA	NA	1	1	1.1	NA	NA	NA	NA
pH (SU)	8.5	9	9.8	8.6	10.3	6.9	10.4	9.6	9.4	9.9	NA	NA	NA	8.18
Phosphorus (Total) (ppm)	5	NA	NA	NA	NA	NA	NA	0.2	0.05	0.4	NA	NA	NA	NA
Potassium (ppm)	100	20	NA	NA	NA	5.75	6.79	7.2	5.5	9.6	NA	NA	NA	6.33
Silica (ppm)	50	NA	NA	NA	NA	2.92	4.81	8.4	2.9	12.7	NA	NA	NA	NA
Sodium (ppm)	100	20	65.5	35.3	81.3	44.3	80.5	64	19	130	NA	NA	NA	49.8
Trichloroacetic Acid (ppb)	NA	20	NA	NA	NA	NA	NA	2.9	1.5	8.9	NA	NA	NA	NA
Constituents Having Secondary MCL's														
Aluminum (ppb)	200	NA	NA	NA	NA	0	0.061	8	5	15	NA	NA	NA	NA
Chloride (ppm)	250	NA	NA	NA	NA	NA	NA	67	21	170	NA	NA	NA	23.9
Copper (ppm)	1000	NA	NA	NA	NA	NA	NA	1	1	3	NA	NA	NA	NA
Corrosivity (SI)	0	NA	NA	NA	NA	NA	NA	1.19	0.72	1.61	NA	NA	NA	NA
Fluoride (ppm)	2	NA	NA	NA	NA	NA	NA	0.63	0.22	1.48	NA	NA	NA	NA
Odor Threshold (T.O.N)	3	NA	NA	NA	NA	1	6	1	1	5	NA	NA	NA	NA
Sulfate (ppm)	250	NA	179	54	228	65.8	227	133	36	209	NA	NA	NA	103
Total Dissolved Salts (TDS) (ppm)	500	NA	NA	NA	NA	120	630	376	183	567	NA	NA	NA	288
Zinc (ppb)	5000	NA	NA	NA	NA	0	0.006	10	5	14	NA	NA	NA	6.76
Unregulated Containment Monitoring Rules														
N-nitroso-dimethylamine (NDMA) (ppb)	NA	NA	NA	NA	NA	NA	NA	0.006	0.002	0.011	NA	NA	NA	NA
1,1 - Dichloroethane (ppt)	NA	NA	NA	NA	NA	NA	NA	36	30	36	NA	NA	NA	NA
Chlorate (ppb)	NA	NA	NA	NA	NA	NA	NA	178	140	200	NA	NA	NA	NA
Chromium (Hexavalent) (ppb)	NA	NA	NA	NA	NA	NA	NA	1.8	1.4	2	NA	NA	NA	NA
Chromium (Total) (ppb)	NA	NA	NA	NA	NA	NA	NA	1.8	1.3	2.4	NA	NA	NA	NA
Molybdenum (ppb)	NA	NA	3.2	3.16	3.24	0.003	2.91	4.2	3.6	5	3.34	2.51	3.34	NA
Strontium (ppb)	NA	NA	221	216	225	0.204	211	254	210	340	243	183	243	NA
Vanadium (ppb)	NA	NA	1.91	1.63	2.18	0.002	1.68	3.1	1.5	5.6	2.74	1.29	2.74	NA
Testosterone (UG/L)	NA	NA	4E-04	0	0.001	0	0.001	NA	NA	NA	NA	NA	NA	NA
Titanium (Total) (ppm)	NA	NA	NA	NA	NA	0	0.002	NA	NA	NA	NA	NA	NA	NA

Figure 1: Supplier Connections Map

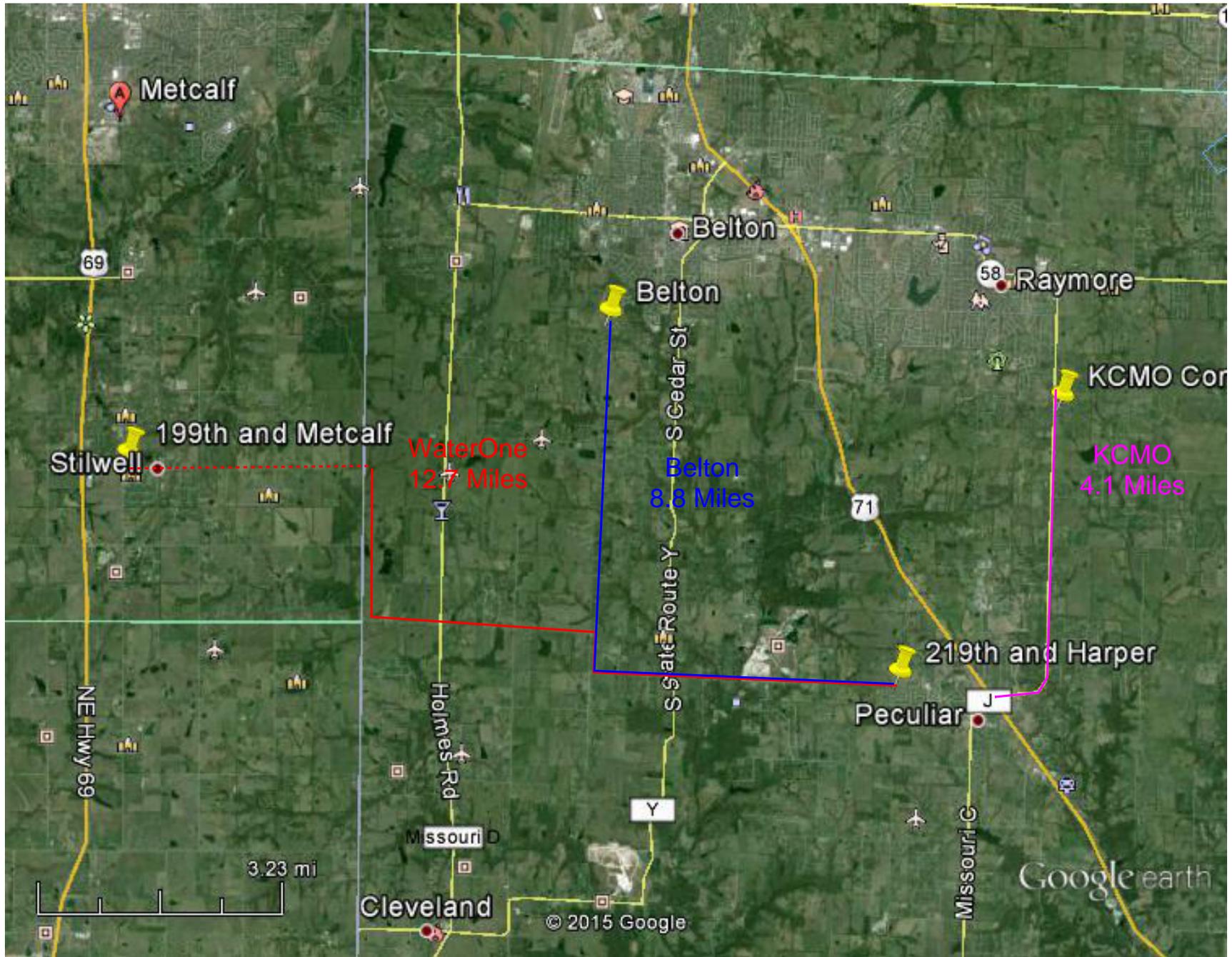


Figure 2: Cumulative NPV of Water Supplier Costs: City Supply + Commercial & Industrial on East Side of Interchange

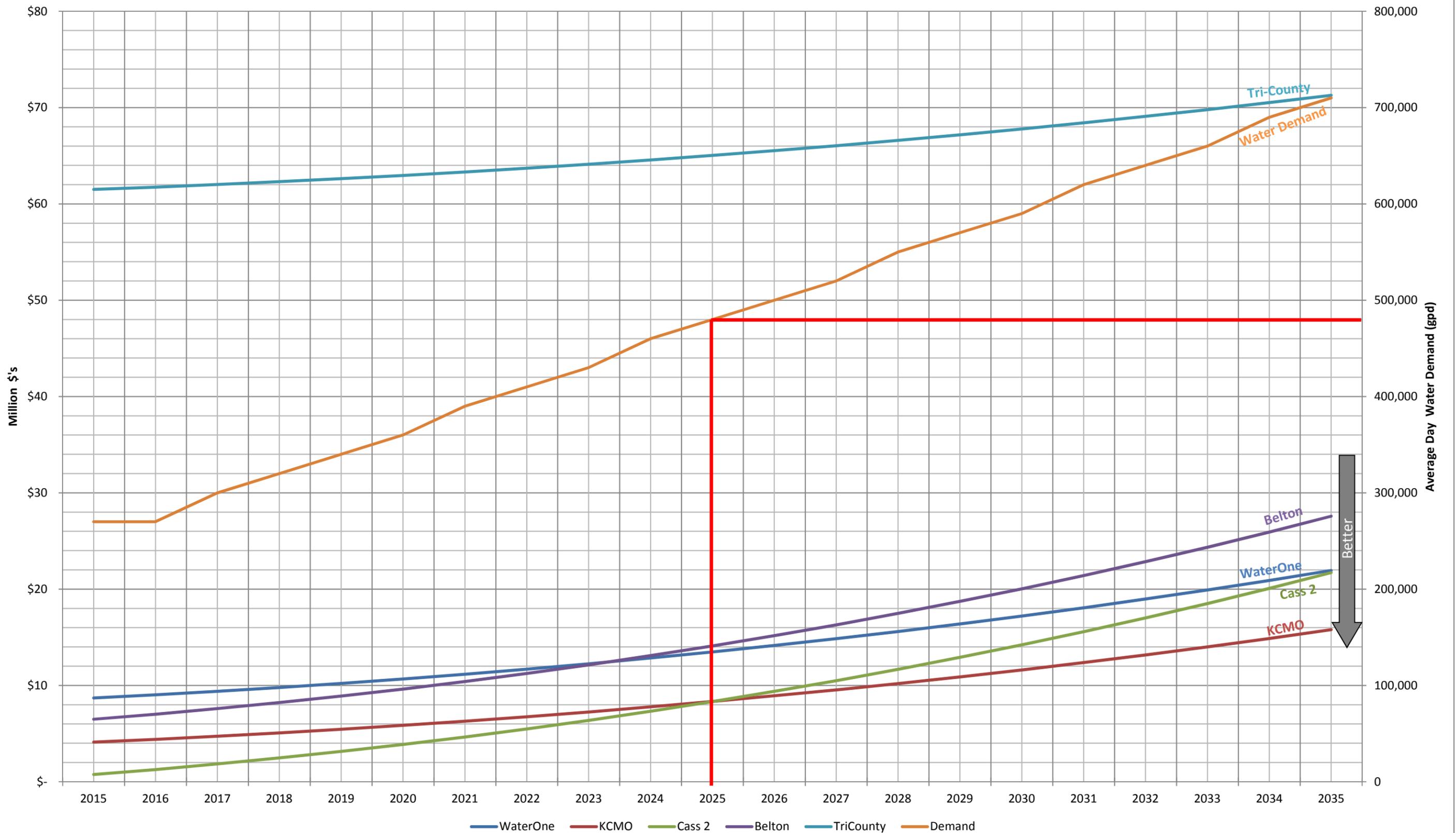


Figure 3: Cumulative NPV of Water Supplier Costs: City Supply and All Industrial & Commercial Demand

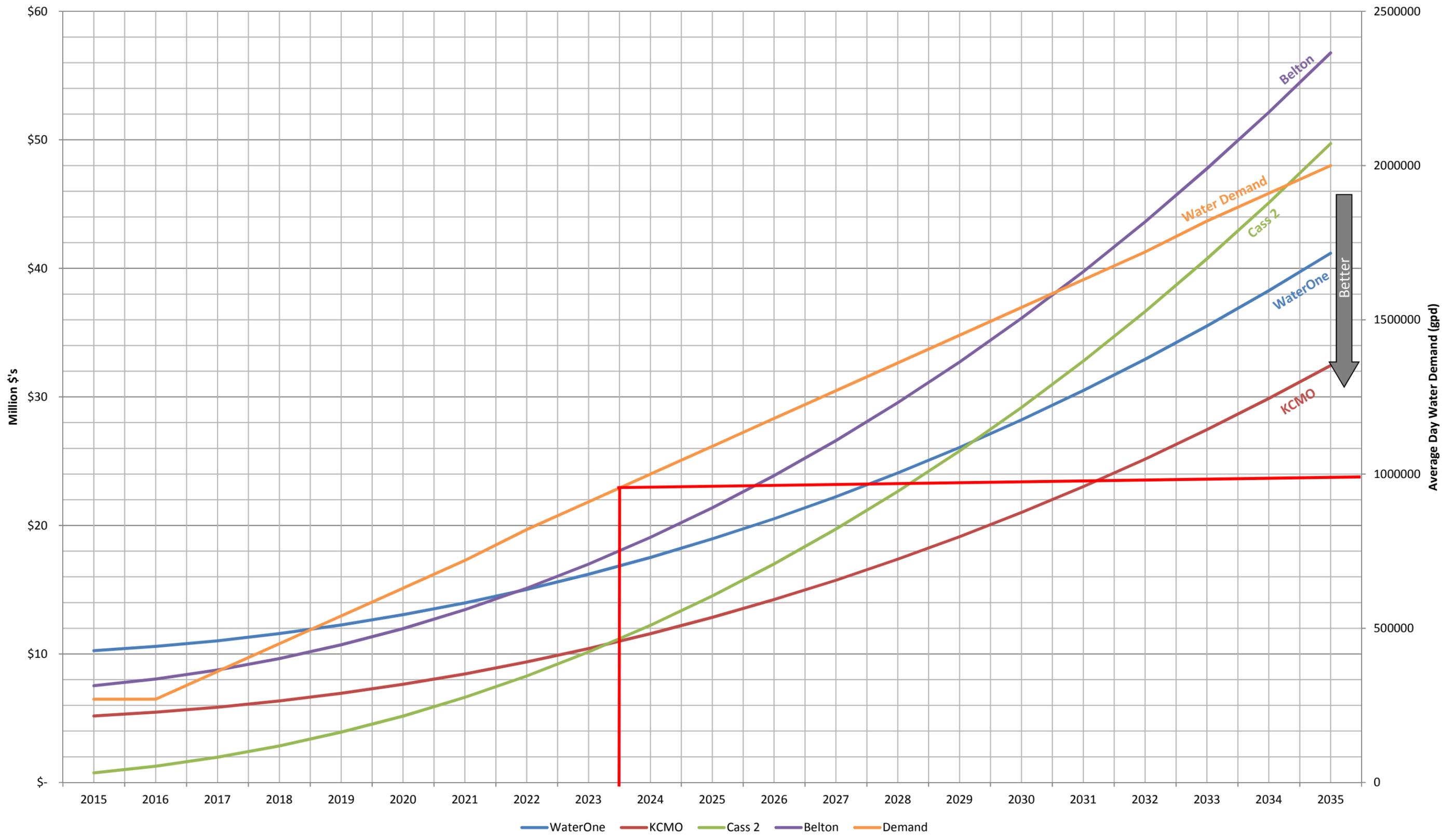
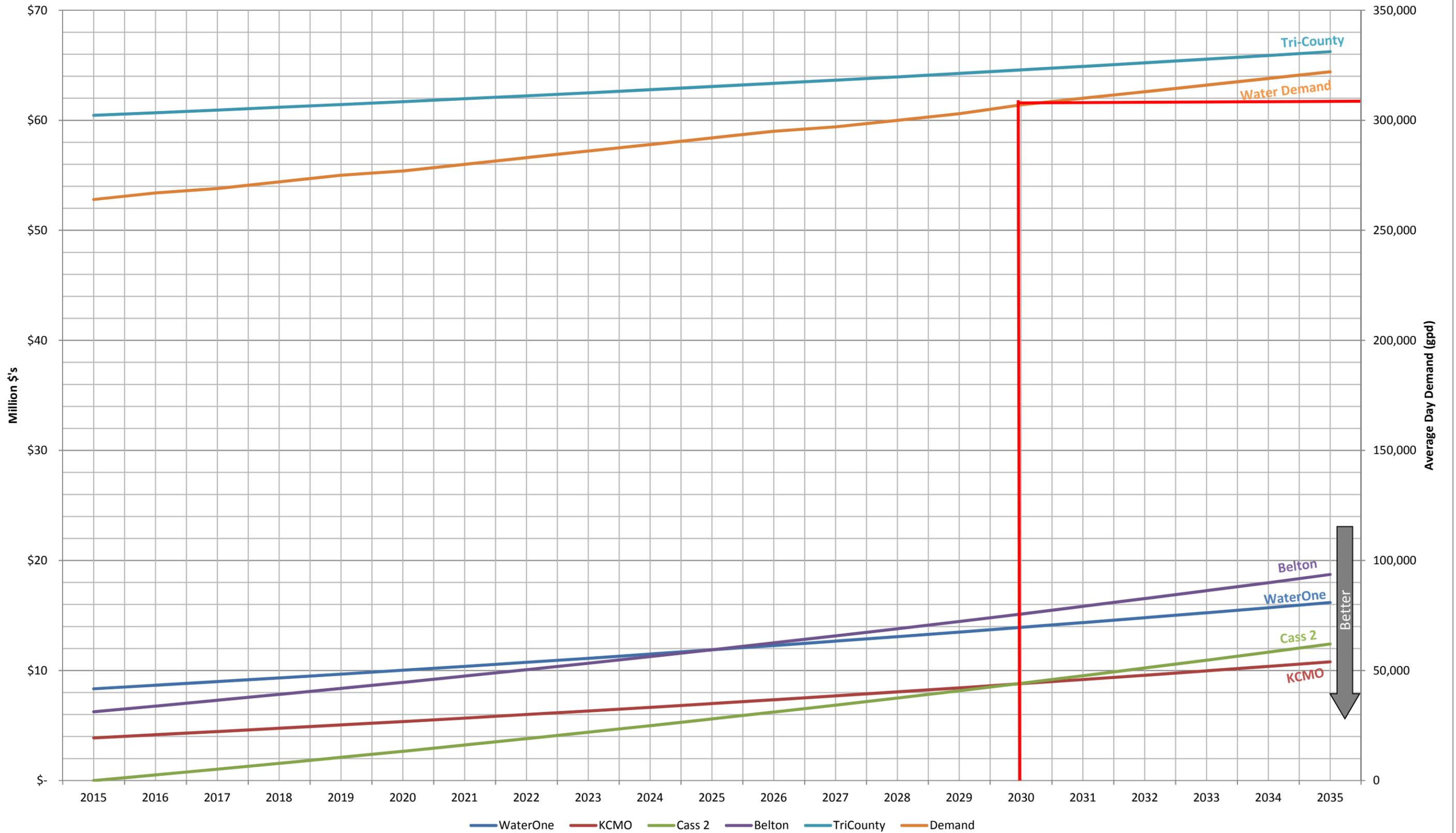


Figure 4: Cumulative NPV of Water Supplier Costs: 1% City Growth Only



Memorandum



Date: March 30, 2016

To: Carl Brooks, P.E., City Engineer, City of Peculiar

From: Jeff Barnard, P.E., Project Manager, Burns & McDonnell
Dana Bruner, P.E., Project Engineer, Burns & McDonnell
Michaela Rempkowski, EIT, Project Engineer, Burns & McDonnell

Subject: Water Supply Evaluation and Coordination, Updated Demand Projections and Hydraulic Model - FINAL

Burns & McDonnell is preparing an updated water supply and hydraulic modeling technical memo (TM) for the City to assist in the planning of Peculiar Way Interchange (formally known as the 211th Street Interchange) on I-49 for the City of Peculiar (City). The foundation of the water supply and hydraulic modeling TM is the water demand projection. This memorandum addresses the water demand projection through the study period of year 2035.

The City provided the following information to assist in the development of an updated demand projection:

- *Missouri Certified Sites Program*, Missouri Department of Economic Development
- 2015: *Comprehensive Plan Update*, by Gould Evans and Wilson & Company Engineers and Architects
- 2015, July: *Wastewater System Engineering Report Draft*, by Carollo Engineers
- 2014, May: *Engineering Report for Water Supply, Pumping, Storage, and Distribution Facilities*, by Larkin, Lamp, Rynearson and Associates
- 2013, June: *Access Justification Report*, by GBA Architects Engineers
- 2011, June: *211th Street Corridor Study*, by URS Corporation, GBA Architects Engineers, and PBA Engineering, P.C
- 2008, *Comprehensive Plan*, by JEO Consulting Group, Inc.

The Peculiar Way Interchange on I-49 is anticipated to stimulate substantial growth. Growth related infrastructure requirements for the interchange were not considered in the *Engineering Report for Water Supply, Pumping, Storage, and Distribution Facilities (2014)*; therefore, the updated demand projections are established based on an anticipated growth scenario and account for commercial, industrial, and retail growth at the Interchange over a 20-year study period. The resulting average day and maximum day water demand projections will be used to evaluate water supply options and develop the capital improvement plan for the required improvements with the hydraulic model, including transmission, distribution and storage.

I-49 Interchange Service Area

The service area for the Interchange was determined using the Land Use/Development Parcel Map as shown in Exhibit C-2 provided in the *Access Justification Report (2013)* and the Future

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Land Use map in the *Comprehensive Plan Update (2015)*. The 2013 map identifies future land use zoning for several parcels in the currently undeveloped Interchange. The 2015 plan provided an updated land use map, which was overlaid onto the 2013 map to identify the updated land use projections and relate these to the 2035 developed areas associated with each parcel. This resulted in an updated basis for land use for calculation of associated water demand.

Based on conversations with the City staff, who have communicated with adjacent public water supply districts (PWSDs), the City will provide water to the commercial and industrial zone development of the interchange on the east side of Interstate 49. PWSDs will provide water and fire flow to all other customers.

The Interchange demand projections consist of retail, office, light industrial, and heavy industrial parcels and are allocated in accordance with the parcel zoning. Parcels to be used in the City’s projections and modeling efforts, as well as the parcels impacted by the development of the interchange that will be serviced by adjacent Cass County PWSD No. 2 and No. 10 are shown in Figure 1.

Demand Coordination

Peculiar Way Interchange

The *Access Justification Report (2013)* provides useable and developed area percentages that were assumed for the 2035 development for each parcel. The resultant land use multiplier, after the useable and developed area data in the 2013 report was considered, was used to determine the parcel area for the average daily demand projections. This area was then used in the land use average daily demand calculations, per the following:

$$Average\ Daily\ Demand = 2035\ Developed\ Area\ (sq.\ ft.) \times \frac{Person}{sq.\ ft.} \times \frac{Gallons}{Person\ Day}$$

The population density factor for each land use type, provided in the City’s *Comprehensive Plan (2008)*, was used to project the number of people per acre. A per capita flow value of 15 gallons per day for industrial zones was used from the *Missouri Department of Natural Resources (MDNR) Design Guidelines for Sewage Works (10 CSR 20-8)* for “employee sanitary waste” and was multiplied by a standard factor of 1.1 to account for the correlation of wastewater contributions to water demand resulting in a value of 16.5 gallons per capita day. Further, a value of 16.5 gallons per capita per day, as directed by the City during the October 8, 2015 meeting, was applied for commercial and office zones in lieu of 220 (200 x 1.1) gallons per capita day extrapolated from the *Wastewater System Engineering Report Draft (2015)*.

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Population density and per capita flow values used in preliminary demand projections are summarized in **Table 1**.

Table 1: Per Capita Water Average Day Demands

Land Use Type	Population Density	People per Acre	People per Acre	Per Capita Water Average Day Demand
	ac/100 persons	persons/acre	persons/sq. ft.	gal/p/d
Commercial/Office	3.5	28.6	0.000656	16.5
Heavy Industrial	16.7	6.0	0.000137	16.5
Light Industrial	2.3	43.5	0.000998	16.5

Demands for industrial users are application specific. Battery manufacturing and relocation of an international manufacturing company have been discussed with City staff. Each application anticipated a range of water demand between 200 and 400 gallons per minute, respectively. Larger industrial applications would likely reside on the west side of the interchange and smaller industrial applications on the east; thus 200 gallons per minute of demand will be allocated to the east and 400 gallons per minute to the west. Retail has been discussed on the east side of the interchange; retail demand is anticipated to be captured by the Per Capita Water Average Day Demand for Commercial/Office listed in Table 1. Industrial usage demand allocations of 200 and 400 gallons per minute would be additive to the “employee sanitary waste” demand calculated by 10 CSR 20-8.

To predict the average and maximum daily water demand projections, the following statements apply:

1. For 2035, a total of six (6) parcels and associated land use and development data around the Peculiar Way Interchange were included.
2. An additional nine (9) parcels were included to predict the PWSD #2 commercial and industrial daily water demand projections.
3. The PWSD #2 projections were used to predict a contingency or emergency water supply demand for the west side of Interstate 49.

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4. Parcels identified as “Office” and “Retail” use were considered as “Commercial” use, similar to the *Comprehensive Plan Update (2015)*.
5. The total useable and developed area was used to determine the projected demand.
6. The maximum daily flow to average daily flow ratio for industrial and commercial facilities was generalized to account for seasonal demand and assumed to be 2.0.

In summary, the projected average day demand at the Interchange area is approximately 90,000 gallons per day for employee contributions and 290,000 gallons per day is allocated for an industrial process demand. It is important to note that this general approximation of the demand may vary from the actual demand and will ultimately be dependent on the industry serviced.

The attached **Table 2** provides the preliminary demand projections for the City that will be used in the hydraulic modeling efforts.

Current Service Area

The population of the City will increase by 1 percent annually based on the population projections in the *Engineering Report for Water Supply, Pumping, Storage, and Distribution Facilities (2014)*. This population growth index will be used by Burns & McDonnell in the hydraulic model along with the average daily flow, maximum daily flow, and peak hourly data and assumptions presented in the 2014 report. Further, this report projected that the current service area demand would increase from the 2013 demand of approximately 260,000 gallons per day to 325,000 gallons per day by 2035 and the maximum daily flow to average daily flow ratio was 1.5.

Projected Demand Summary

A summary of the demand projections for both the current service area and the City’s portion of the Interchange in the year 2035 is provided in **Table 3**.

The City will be providing service to the commercial and industrial users on the east side of Interstate 49. The City’s service area average day demand is 415,000 gpd with a maximum day demand of 625,000 gpd. It is anticipated that the PWSDs will provide water service to all of the residential customers resulting from the Interchange and the commercial and industrial customers on the west side of Interstate 49; PWSD No. 2 on the west and PWSD No. 10 on the east.

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Demand projections were calculated for the commercial and industrial zones of the PWSD service area. The PWSD commercial and industrial service area average day demand is approximately 310,000 gallons per day with a maximum day demand of approximately 465,000 gallons per day. An industrial process water allowance of 400 gallons per minute (580,000 gallons per day) west of the interchange is allocated based on discussions with City staff.

Table 4 (attached) provides the preliminary demand projections for the City that will be used in the hydraulic model activities by Burns & McDonnell. **Table 3** below provides a summary of the average and maximum day projections for the City and PWSD.

Table 3: Summary of Projected 2035 Daily Demands

Demand	Current Service Area	City Serviced 211th Street Interchange	City Industrial Allowance	City Serviced Total	PWSD Commercial and Industrial ¹	PWSD Industrial Allowance	PWSD Total	Emergency Total
Average Day (gpd)	325,000	90,000	290,000	705,000	310,000	580,000	890,000	1,595,000
Max Daily (gpd)	490,000	135,000	290,000	915,000	465,000	580,000	1,045,000	1,960,000

¹: Commercial and industrial zones only.

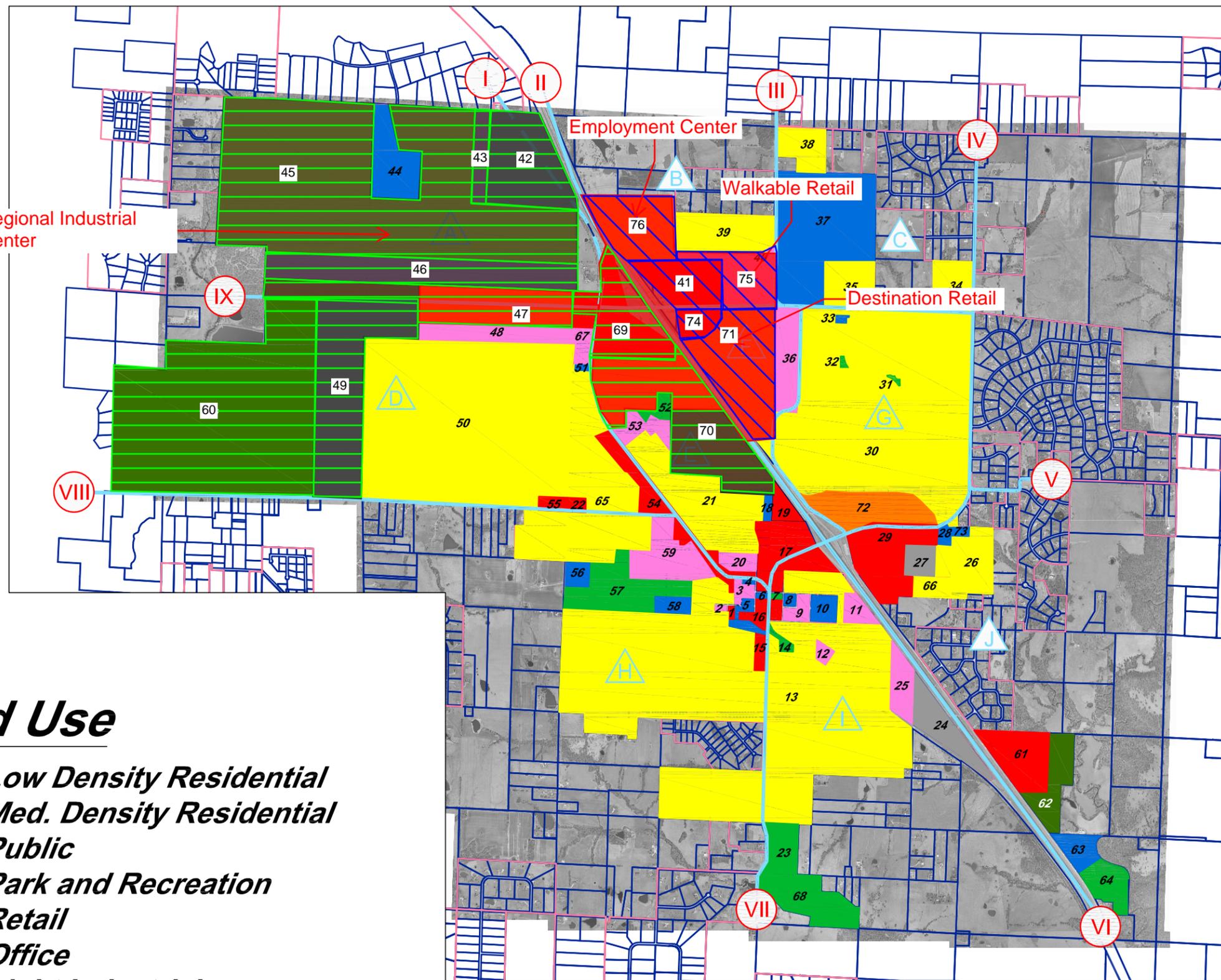
Including these average day demand projections and fire flow guidelines into the hydraulic model will assist the City in choosing a water supplier, preparing contract terms, and identifying the appropriate sizing for the water storage and transmission. Items requiring City confirmation include:

1. Adequacy of industrial allowance to promote Missouri Certified Site
2. Provision to provide redundant supply to Cass County PWSD No. 2

Please review and provide comment at your soonest convenience. If you have questions, please contact me at (816) 822-3834. Thank you for the opportunity to serve the City of Peculiar!

cc: David Shrout, City of Peculiar

G:\12670\Analysis\Traffic\CAD\AJR_Figures\Exhibit 4.dwg Layout: Parcel Map -- Wednesday, March 13, 2013, 10:15am -- Copyright 2013, George Butler Associates, Inc.



- ### Legend
- I External Destination
 - A Traffic Analysis Zone (TAZ)
 - 65** Tract Number
 - TAZ Boundary
 - Major Roadway (non-boundary)
 - 211th Street Interchange County Service Area
 - 211th Street Interchange City of Peculiar Service Area

Land Use

- Low Density Residential
- Med. Density Residential
- Public
- Park and Recreation
- Retail
- Office
- Light Industrial
- Heavy Industrial

Commercial Area Identified by CIP 2015

Industrial Area Identified by CIP 2015



PROJECT NUMBER
J4P2247

DATE
04/01/2013

62 Future Traffic Assignment
Land Use / Development Parcel Map

Figure 1

Table 2: City of Peculiar Water Demand Projections

Tract Number	Land Use Classification		Total Zone Area		Useable Area	Assumed 2035 Development	Resultant Land Use Multiplier	Population Calculations			Average Daily Demand Per Land Use (gallons per day)			Total Average Daily Demand Calculations	
	Class Number	Land Use Description	Sq. Ft.	Acres				2035 Area Use (Total Zone Area - sq. ft.)	2035 Area Use (Total Zone Area - Acres)	People in Area	Retail/Office	Industrial Light	Industrial Heavy	Average Daily Demand (gallons/day)	Max Daily Demand (gallons/day)
40	6	Retail	543,409	12	90%	70%	63%	342,348	8	225	3,705	-	-	3,705	7,410
41	6	Retail	2,673,447	61	75%	70%	53%	1,416,927	33	929	15,335	-	-	15,335	30,669
71	6	Retail	5,712,103	131	70%	70%	49%	2,798,930	64	1,836	30,291	-	-	30,291	60,583
74	6	Retail	1,080,782	25	70%	70%	49%	529,583	12	347	5,731	-	-	5,731	11,463
75	6	Retail	1,707,649	39	80%	70%	56%	956,283	22	627	10,349	-	-	10,349.39	20,699
76	6	Retail	3,402,024	78	90%	70%	63%	2,143,275	49	1,406	23,196	-	-	23,196	46,391
Totals:		-	15,119,414	347				8,187,347	188	5,370	88,608	-	-	88,608	177,215

Provided in the Access Justification Report

Table 3: PWS Water Demand Projections

Tract Number	Land Use Classification		Total Zone Area		Useable Area	Assumed 2035 Development	Resultant Land Use Multiplier	Population Calculations			Average Daily Demand Per Land Use (gallons/day)			Total Average Daily Demand Calculations	
	Class Number	Land Use Description	Sq. Ft.	Acres				2035 Area Use (Total Zone Area - sq. ft.)	2035 Area Use (Total Zone Area - Acres)	People in Area	Retail/Office	Industrial Light	Industrial Heavy	Average Daily Demand (gallons/day)	Max Daily Demand (gallons/day)
42	7	Light Industrial	4,519,211	104	90%	40%	36%	1,626,916	37	1,624	-	26,794	-	26,794	53,587
43	7	Light Industrial	1,019,117	23	80%	40%	32%	326,117	7	326	-	5,371	-	5,371	10,742
45	7	Light Industrial	25,055,500	575	75%	35%	26%	6,514,430	150	6,502	-	107,286	-	107,286	214,573
46	7	Light Industrial	6,068,999	139	80%	38%	30%	1,820,700	42	1,817	-	29,985	-	29,985	59,970
47	5	Retail	5,723,449	131	90%	40%	36%	2,060,442	47	1,351	22,299	-	-	22,299	44,598
49	7	Light Industrial	8,326,680	191	80%	20%	16%	1,332,269	31	1,330	-	21,941	-	21,941	43,882
60	8	Heavy Industrial	21,705,710	498	90%	20%	18%	3,907,028	90	537	-	-	8,862	8,862	17,724
69	5	Retail	4,110,387	94	60%	70%	42%	1,726,362	40	1,132	18,684	-	-	18,684	37,367
70	5	Retail	7,875,153	181	90%	70%	63%	4,961,346	114	4,103	33,851	33,851	-	67,701	135,403
Totals:			84,404,206	1,938				24,275,610	557	18,723	74,833	225,228	8,862	308,923	617,847

Provided in the Access Justification Report

Memorandum



Date: March 30, 2016

To: Carl Brooks, P.E., City Engineer, City of Peculiar

From: Jeff Barnard, P.E., Project Manager, Burns & McDonnell
Dana Bruner, P.E., Project Engineer, Burns & McDonnell
Michaela Rempkowski, EIT, Project Engineer, Burns & McDonnell

Subject: Hydraulic Model Review and Update

A. Introduction

Burns & McDonnell has prepared this hydraulic modeling technical memo (TM) for the City to assist in the planning of the Peculiar Way Interchange (Interchange) on Interstate 49 (I-49) for the City of Peculiar (City). The Interchange is anticipated to stimulate additional growth. Growth, related to infrastructure requirements, was not considered in the Engineering Report for Water Supply, Pumping, Storage, and Distribution Facilities, by Larkin, Lamp, Rynearson and Associates, May 2014 (Water Systems Engineering Report) and therefore is being considered in this evaluation.

Burns & McDonnell was tasked with projecting the anticipated demands and investigating several water supply options to meet the City's anticipated residential and commercial growth through the study period of year 2035. In these studies, it was determined that Kansas City, Missouri (KCMO) would be the most viable alternative to the City's existing agreement with Cass County Public Water Supply District (PWSD) No. 2; therefore, improvements to the City's distribution system were evaluated with the existing hydraulic model for the switch to KCMO supply.

This memorandum summarizes the maximum day, peak hour, and fire flow modeling scenarios for the years 2015 and 2035 with and without distribution system improvements to meet the demands associated with the development of the Interchange.

B. Summary of Demands

The population of the City is estimated to increase by one percent annually based on the population projections in the Water Systems Engineering Report. Further, this report projected that the current service area average day demand would increase from the 2015 demand of approximately 185 gallons per minute (gpm) to 230 gpm by 2035. **Table 1** provides a summary of the 2015 demand projections.

Table 1: 2015 Demand Projection Summary

Demand	Current Service Area	City Served 211th Street Interchange	City Industrial Allowance	City Served Total
Average Day (gpm)	185	0	0	185
Max Day (gpm)	280	0	0	280
Peak Hour (gpm)	560	0	0	560

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The City will be providing service to the commercial and industrial users at the Interchange that lie on the east side of I-49. The City’s commercial and industrial service average day demand is projected to be 65 gpm with a maximum day demand of 100 gpm in 2035. An additional 200 gpm is allocated for an industrial process demand. It is important to note that this general approximation of the demand may vary from the actual demand and will ultimately be dependent on the industry serviced. The 200 gpm industrial process demand was considered to be a continuous demand with minimal maximum day and peak hour increases.

The maximum daily flow was predicted using a maximum daily flow to average daily flow ratio of 1.5, resulting in a maximum day flow of 345 gpm in 2035. The peak hour flow was predicted using a peak hour flow to maximum day flow ratio of 2.0. **Table 2**, below, provides a summary of the average, maximum day, and peak hour projections for the City.

Table 2: 2035 Demand Projection Summary

Demand	Current Service Area	City Serviced 211th Street Interchange	City Industrial Allowance	City Serviced Total
Average Day (gpm)	230	65	200	495
Max Day (gpm)	345	100	200	675
Peak Hour (gpm)	690	200	200	1090

The “City Serviced” average day, maximum day, and peak hour demand projections were used for the demand scenarios in the hydraulic model.

It is anticipated that the PWSDs will provide water service to all of the residential customers resulting from the Interchange and the commercial and industrial customers on the west side of I-49; PWSD No. 2 on the west and PWSD No. 10 on the east. If the PWSDs decide to forfeit supplying water to the commercial and industrial areas within their jurisdiction of the Interchange, the City will need to renegotiate contracts and update the hydraulic model to provide up to 2 MGD maximum day supply to the PWSD projected service area.

C. Existing Distribution System

The City currently receives water from Cass County PWSD No. 2 through three master meters. Each of the master meters supplies one of the City’s four pressure zones (PZ); while PZ 4 is supplied by PZ 1 at the existing ground storage tank on East South Street. The existing ground storage tank is approximately 450,000 gallons and has a booster pump station that pumps directly into the City’s 400,000 gallon elevated storage tank that then provides water and the hydraulic gradient to PZ 4. PZs 1 and 2 are supplied by PWSD No. 2 at a hydraulic grade line (HGL) of 1175 feet, PZ 3 is supplied a HGL of

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1150 feet, and PZ 4 has a maximum HGL, determined by the level of the elevated storage tank, of 1140 feet.

The City is able to supply adequate flows and pressures throughout the distribution system under this operating method by allowing PZs 1, 2, and 3 to “peak” off of the PWSD No. 2 meters. While there are interconnections between the PZs, with the exception of check valves that allow flow from PZ 4 into PZ 2, they are manual connections that require a distribution system operator to open a valve. This can lead to problems if the City were to lose flow from one of the three master meters as there is no effective storage to provide flow and pressure within PZ 1 and PZ 3.

In evaluating the existing hydraulic model that was provided as part of the Water Systems Engineering Report, it was discovered that demand associated with the City’s largest users were not represented in existing demand scenarios. The model was updated to include the City’s five largest water users as outlined in **Table 3**, below.

Table 3: Top Five Largest Users Summary

User	Location	Average Day Demand (gpm)
Flying J	700 S State Route J	15.5
Senior Citizen Housing	500 S Peculiar Dr	1.8
Aaron’s Auto Wash	361 Legend Lane	1.8
Peculiar Elementary	201 E 3 rd St	0.7
Casey’s General Store	117 E North St	0.5

Several improvements made to the system following the 2014 Water Systems Engineering Report were identified and incorporated into the model as follows:

- A 12-inch pipeline that runs along Peculiar Drive from Hurley Street to Main Street was added to the model.
- The existing 2-inch and 4-inch water lines on Main Street from Hurley Street to North Street and on North Street from Main Street to Hurley Street were replaced with 12-inch lines and were updated during the existing model review.

D. Model Evaluation

An evaluation of the existing distribution system characteristics with supply from PWSD No. 2 for both the 2015 and 2035 demands were performed as a basis of comparison for the changes required if the water supply was obtained from KCMO. Maximum day, peak hour, and maximum day with fire flow demand scenarios for the connection to KCMO were modeled for 2015 and 2035.

KCMO provided a contract to the City for the purchase of up to 1 MGD of water. The KCMO contract provided to the City for planning stated:

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“BUYER has a control system which varies the flow rate in incremental steps, to maintain sufficient equalizing storage, and to minimize large changes in flow rate ... The control system must be able to reduce the flow rate to zero during specific hours of the day coincident with peak demand on the CITY system. If, at the discretion of the CITY the flow rate is reduced, subsequent rates of delivery shall be increased to allow for delivery of the maximum quantity per day to the fullest practical extent.”

This would require the City to “peak” off of its equalization storage rather than the supply meter as PZs 1, 2, and 3 currently operate. Additionally, the possibility for KCMO to cut the water supply to zero during peak demand periods could require the City to fill its storage tanks in a shorter period of time and supply all flow to its system for extended periods. KCMO was contacted regarding this provision, what the anticipated number of hours, time of day, and period of year that KCMO could reduce the supply to zero; these items are currently being reviewed by KCMO and will be provided to the City following the review. It is likely that the need for KCMO to reduce the supply to zero would correspond with the City’s own peak demand season and peak hour flows. For the purpose of this evaluation, three flow scenarios were modeled for the maximum day demand; providing the maximum day demand (1.0 MGD) within an 8 hour period, a 12 hour period, and a 24 hour period. The peak hour scenario was modeled with a constant 1.0 MGD supply, as well as zero flow supply.

Additionally, KCMO requires that the City have 1.5 times the average day demand of storage for emergency and equalization. This results in a storage requirement of 400,000 gallons for 2015 and 1,070,000 gallons for the 2035 demands projected. The City currently satisfies KCMO’s requirement for storage, but would need to add an additional 0.5 MGD storage prior to reaching an average day demand of 0.7 MGD.

In order for the existing system to satisfy the requirements of the KCMO contract, the current system would need to operate, and was evaluated as, a single pressure zone. This allows the existing elevated storage tank to provide the peaking flows. The system was modeled to operate as a single pressure zone by opening the check valves under I-49 and opening the closed valves connecting PZs.

The model scenarios used for analysis of the distribution system include: maximum day, peak hour and maximum day plus fire flow. The following guidelines were used to determine deficiencies:

- Distribution system pressure should maintain pressures similar to the existing pressures experienced throughout the system. Typically pressures should be greater than 40 psi and less than 110 psi during all conditions;
- Distribution system pressure should be greater than 20 psi during a fire flow analysis;
- Storage should be replenished completely over a 24-hour period and active storage replenished over an eight-hour period at night; and

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- Transmission pipeline velocities should be less than five feet per second and head loss less than six feet per 1,000 feet. Additional deficiencies, such as insufficient fire flow or low pressure, or additional growth are typically required in addition to this guideline to justify pipe replacement.
- Available fire flows at the junctions should be greater than 500 gpm and a residual pressure of 20 psi should be available throughout the system.

1. 2015 Model Evaluation

a. Cass County PWSD No. 2 Supply

The existing distribution system has maximum day demand pressures ranging from 59 to 89 psi, 61 to 105 psi, 60 to 91 psi, and 52 to 95 psi for PZs 1 through 4, respectively, as shown in **Figure 1**; the average HGL for PZs 1 through 4 were 1161, 1161, 1149, and 1126 feet, respectively. System pressures are generally the same during a peak hour scenario, with all pressures being maintained above 50 psi as shown in **Figure 2**. All pipe velocities were well below 5 feet per second. The centralized portion of PZ 1, fed by a single 4-inch line, currently cannot provide the recommended 500 gpm of fire flow when the system operates as four PZs as shown in **Figure 3**. Additionally, hydrants located at the dead end of mains that are 4-inches or smaller do not provide adequate fire flows. The connection of the 10-inch line on South Harper Road to the 8-inch line on 222nd Street (east side of Harper Road) would address the inadequate fire flows in PZ1.

b. KCMO Supply

During the evaluation of the three maximum day scenarios with the KCMO supply, system pressures ranged from 45 to 101 psi with an average of 64 psi and an average HGL of 1133 feet throughout the entire system. This results in a reduction in the average HGL of approximately 16 feet and a reduction in the average pressure by 4 psi to 65 psi, as shown in **Table 4** and **Figures 4** through **6**. During the peak hour scenarios, average pressures are very similar to maximum day. While there is a reduction in the average pressure, system pressures exceed 40 psi during all scenarios as shown in **Figures 7** and **8**. The interconnection of the PZs greatly improved the available fire flows, as the only inadequate fire flows now exist on dead ends and small mains as shown in **Figure 9**.

The recommended improvements to accommodate supply from KCMO include:

- Approximately 700 feet of 12-inch pipe to connect the existing 8-inch pipe on Harper Street at 211th with the existing 12-inch pipe on 211th Street. This would parallel the existing 6-inch pipe that is owned by PWSD No. 2 pipeline on the west side of the Interchange. This loops the City's system and connects PZs 1 and 2.
- Approximately 8,100 feet of 12-inch pipe on 211th Street to replace the existing 4- and 6-inch pipelines on the east side of the Interchange. This provides needed capacity to supply the PZ 1 area that would otherwise be fed solely by a 4-inch pipe that crosses I-49 at 217th Street. Additionally, this 12-inch pipe would also provide the necessary capacity for

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anticipated demand for future commercial and industrial users in that area. This project is already included in the City's CIP as a result of recommendations from the Water Systems Engineering Report.

- Approximately 4,000 feet of 16-inch pipe and 17,000 feet of 12-inch pipe along J Hwy from the KCMO connection at Hubach Hill Rd to the tie-in to the existing 8-inch line at Old Town Road. A pressure reducing station would also be required to prevent an over-pressurization of the City's distribution system as KCMO can provide a HGL up to 1240.
- Connection of PZ1 to PZ3 with approximately 100 feet of 8-inch pipe bored under Peculiar Drive at Tuscany Pkwy.

2. 2035 Model Evaluation

Distribution system improvements were evaluated to supply the anticipated demands associated with growth within the City and in the area of the Interchange by 2035. The first evaluation determines the necessary improvements should the City continue to obtain water from Cass County PWSD No. 2. As discussed earlier, if demands reach an average day of 0.7 MGD as anticipated by 2035, additional storage would be required to satisfy the emergency and equalization requirements. The City currently has effective storage of 400,000 gallons located in the center of town. The ~450,000 gallon ground storage tank does not count as effective storage because it does not have a backup power supply to the booster pump station per MDNR requirements; if backup power was provided to the booster pump station, the cumulative effective storage is approximately 850,000 gallons. The total storage is close to the storage quantity required (1,070,000 gallons) by KCMO for the anticipated 2035 average day demands. Per the KCMO storage requirements, the 850,000 gallons would support an average day demand of 0.56 MGD.

The majority of the anticipated growth associated with the Interchange is located on the north side of the City primarily along the 211th Street corridor within existing PZ 2. The ability of the City's existing distribution system to supply flow during an emergency to that area is currently limited by either a route of either six miles of 8-inch and 10-inch pipe, or through a network of approximately four miles of 4, 8, and 12-inch pipes. After discussions with City personnel, it was determined that an additional elevated storage tank located on the transmission main from KCMO to 211th St would be the best option; therefore, two alternatives were evaluated for KCMO supply, with the additional storage tank and without the addition of an elevated storage tank. The location of the tank is proposed along the east side of J Highway and is dependent on the City's ability to acquire property. The location can be evaluated to optimize the natural grade to limit the total height of the tank. Capital costs for 0.5 MG and 1.0 MG composite elevated storage tanks with heights of 80 feet and 150 feet are included in the Water Supply Update and Review Memorandum.

a. Cass County PWSD No. 2 Supply

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The 2035 scenarios with supply from PWSD No. 2 assume the ability to continue “peaking” off of the master meters, and thus remains a four PZ system. The existing distribution system has 2035 maximum day demand pressures ranging from 51 to 89 psi, 65 to 90 psi, 60 to 90 psi, and 52 to 95 psi for PZs 1 through 4, respectively, as shown in **Figure 10**; the average HGL for PZs 1 through 4 were 1148, 1170, 1149, and 1127 feet, respectively. The pressure in PZ1 decreases to 38 to 85 psi while pressures in PZ2 increase to 65 to 112 psi during a peak hour scenario. Pressures less than 40 psi are observed during the peak hour in a residential grid within PZ 1 supplied by a 4-inch line as shown in **Figure 11**. This is the same area that experiences inadequate fire flows that can be addressed by interconnecting piping at Harper Rd and 222nd St. PZ 3 and 4 maintain pressures similar to the maximum day demand scenario. System pipe velocities remain below 5 feet per second in both demand scenarios. Available fire flows are nearly identical to those from the 2015 Cass County PWSD No. 2 as shown in **Figure 12**.

b. KCMO Supply – Without Tank

An evaluation of 2035 demands with KCMO supply and the City’s existing infrastructure with the improvements discussed in the 2015 KCMO supply scenarios was performed to determine any additional improvements that would be required as growth occurs. As discussed with the 2015 KCMO supply scenarios, an evaluation of providing supply over 8, 12, and 24 hours was performed to determine the effects of the possibility of KCMO reducing the supply flow to zero during peak demand periods. As shown in **Table 5**, the transmission main cannot supply the maximum day demand over an 8-hr period (2,100 gpm). The maximum flow that the 4,000 feet 16-inch and 17,000 feet 12-inch transmission main can supply is 1,600 gpm, which is 500 gpm less than the required flow. This problem is eliminated if the City adds an elevated storage tank at 195th St and J Hwy. Alternatively, the entire 21,000 feet of transmission main from KCMO could be increased to a 16-inch main to deliver the necessary flow in an 8-hr period.

During the evaluation of the three 2035 maximum day scenarios with the KCMO supply without the additional tank, system pressures ranged from 45 to 112 psi with an average of 71 psi and an average HGL of 1136 feet throughout the entire system, as shown in **Table 5** and **Figures 13** through **15**. During the peak hour scenarios, average pressures are very similar to maximum day. While there is a reduction in the average pressure, system pressures exceed 40 psi during all scenarios as shown in **Figures 16** and **17**. **Figure 18** illustrates the available fire flows which are generally adequate except for dead ends and small mains.

c. KCMO Supply – With Tank

The addition of a 500,000 gallon elevated storage tank improves pressures within PZs 1, 2, and 3 while also allowing for the delivery of a maximum day demand during an 8-hr period. The maximum day scenarios result in system pressures ranging from 58 to 104 psi and 53 to 96 psi in the system (PZs 1, 2, and 3) and PZ 4 respectively. The average HGL for the system and PZ 4 were 1160 and 1132 feet, respectively. This results in an increase in the average HGL for the system, excluding PZ 4,

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of approximately 11 feet as compared to KCMO supply without the additional elevated storage. The average pressure in PZ 4 remain the similar to the pressures exhibited in the existing system at 2035 maximum day demand, as shown in **Table 5** and **Figures 19** through **21**. During the peak hour scenarios, average pressures are very similar to maximum day. While there is a slight reduction in the average pressure, system pressures exceed 40 psi during all scenarios as shown in **Figures 22** and **23**. **Figure 24** illustrates that available fire flows are inadequate in residential areas of PZ1 and PZ3. The available fire flows in PZ1 can be improved by connecting the 8-inch and 10-inch lines at Harper Road and 222nd Street as previously recommended in this TM.

In addition to the improvements stated for the 2015 KCMO Supply scenarios, the recommended improvements corresponding with the growth anticipated by 2035 due to the Interchange include:

- An additional 500,000 gallon elevated storage tank at the intersection of State Highway J and 195th Street to maintain adequate pressures and velocities throughout the system. The elevated storage would also provide adequate supply for peak hour and fire flow demand for PZs 1, 2, and 3.
- When additional elevated storage is provided, a pressure reducing valve (PRV) station may need to be installed between the connection of PZ 1 and PZ 3 to limit the increase in pressure to PZ 3 by approximately 10 psi and reduce the likelihood of water line breaks in aged infrastructure within PZ 3. It is our understanding that the City has a long-term CIP item to repair and replace the aging infrastructure within PZ 3; if that occurs, the PRV station would not be necessary.
- Connecting the 8-inch pipelines on 220th Street and 222nd Street to the 10-inch Harper Road pipeline will increase available fire flow to low flow areas. Other considerations should be made for a small main replacement program and/or looping dead end lines near water crossings and ridgelines to increase available flow for fire flow scenarios.

The estimate of probably cost for the connection to the KCMO supply and major improvements outlined in this memorandum are provided in the Water Supply Update and Review Technical Memorandum, dated March 30, 2016.

Table 4: 2015 Scenario Results Summary

	Max Day				Peak Hour		
	Existing System Supplier	2015 KCMO Supply			Existing System Supplier	2015 KCMO Supply	
Supply Flow (HR)	24 HR	24 HR	12 HR	8 HR	24 HR	24 HR	Zero Supply
Requested Supply Flow (gpm)	290	290	580	870	290	290	0
Supply Flow Delivered (gpm)	N/A	290	580	870	N/A	290	0
Demand (gpm)	286.5	286.5	286.5	286.5	573.0	573.0	573.0
System HGL Min (feet)	1130	1133	1133	1133	1013	1131	1131
System HGL Max (feet)	1175	1135	1140	1148	1175	1134	1133
System HGL Avg (feet)	1146	1133	1134	1135	1143	1133	1132
System Pressure Min (psi)	51.9	45.0	46.6	47.0	51.7	44.8	44.1
System Pressure Max (psi)	118.2	101.3	102.9	105.6	116.3	101.1	100.3
System Pressure Avg (psi)	68.8	64.2	64.5	65.2	66.0	64.0	63.6
400k Gal Elevated Tank Flow (gpm)	112.3	3.5	293.5	583.5	-224.6	-283.0	-573.0

*Negative values indicate that the tank is drafting.

Table 5: 2035 Scenario Results Summa

	Max Day							Peak Hour				
	Existing System Supplier	2035 KCMO Supply with Tank			2035 KCMO Supply without Tank			Existing System Supplier	2035 KCMO Supply with Tank		2035 KCMO Supply without Tank	
Supply Flow (HR)	24 HR	24 HR	12 HR	8 HR	24 HR	12 HR	8 HR	24 HR	24 HR	0 HR	24 HR	0 HR
Requested Supply Flow (gpm)	845	700	1400	2100	700	1400	2100	1152.67	700	0	700	0
Supply Flow Delivered (gpm)	N/A	700	1400	2100	700	1400	1600.3	N/A	700	0	700	0
Demand (gpm)	690.5	689.4	689.4	689.4	689.4	689.4	689.4	1121.4	1120.88	1120.88	1120.88	1120.88
System HGL Min (feet)	1130	1133	1133	1133	1132	1133	1133	1013	1132	1132	1131	1125
System HGL Max (feet)	1175	1172	1172	1173	1137	1157	1166	1175	1167	1167	1133	1133
System HGL Avg (feet)	1142	1149	1149	1149	1133	1137	1138	1134	1144	1144	1132	1129
System Pressure Min (psi)	51.4	53.1	53.1	53.1	44.9	47.1	47.4	37.8	51.4	51.4	44.3	41.3
System Pressure Max (psi)	116.5	104.4	104.4	104.4	102.0	108.6	111.5	112.8	101.6	101.6	101.5	98.2
System Pressure Avg (psi)	70.1	71.2	71.2	71.2	64.3	65.8	66.5	66.5	69.12	69.09	69.5	62.3
400k Gal Elevated Tank Flow (gpm)	168.4	146.1	146.1	146.1	10.5	710.6	910.6	268.8	-292.18	-292.19	-420.90	-1120.93
195th St Elevated Tank Flow (gpm)	N/A	-6.6	706.6	1406.6	N/A	N/A	N/A	N/A	-128.72	-828.72	N/A	N/A

*Negative values indicate that the tank is drafting.

Figure 1: 2015 PWSD No. 2 – Maximum Day

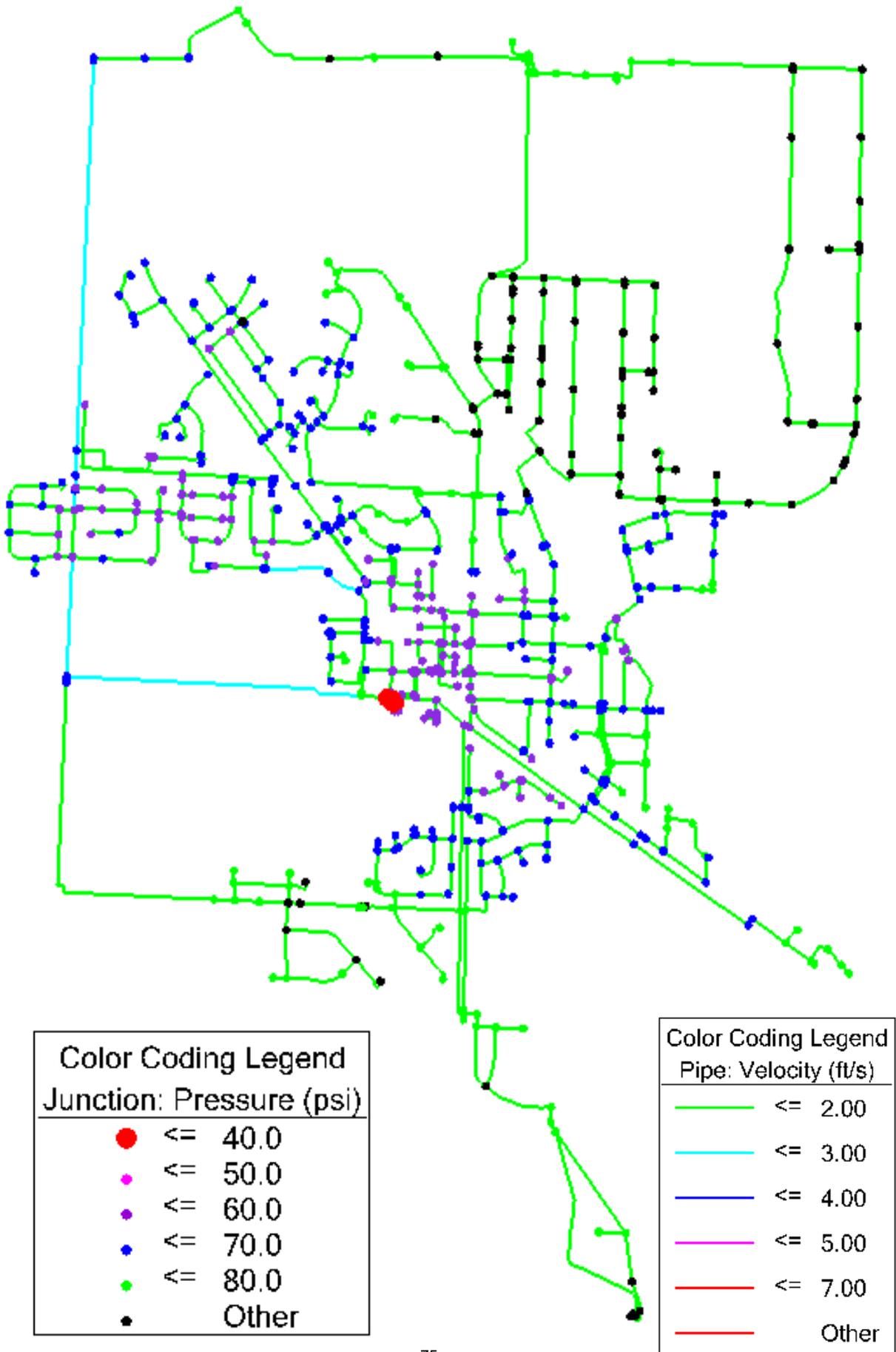
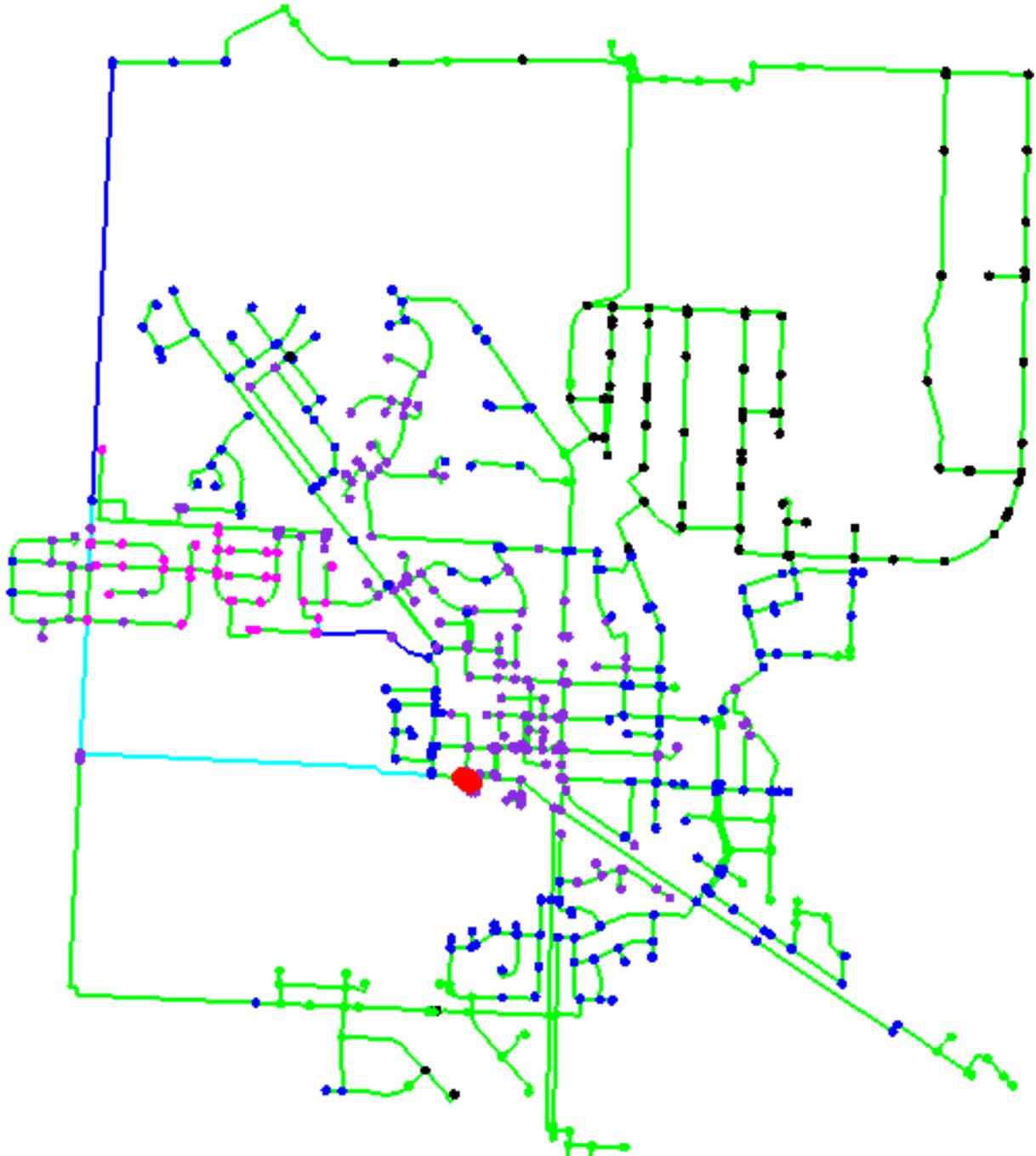


Figure 2: 2015 PWSD No. 2 – Peak Hour



Color Coding Legend	
Junction: Pressure (psi)	
●	<= 40.0
●	<= 50.0
●	<= 60.0
●	<= 70.0
●	<= 80.0
●	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
—	<= 2.00
—	<= 3.00
—	<= 4.00
—	<= 5.00
—	<= 7.00
—	Other

Figure 3: 2015 PWSD No. 2 – Fire Flow

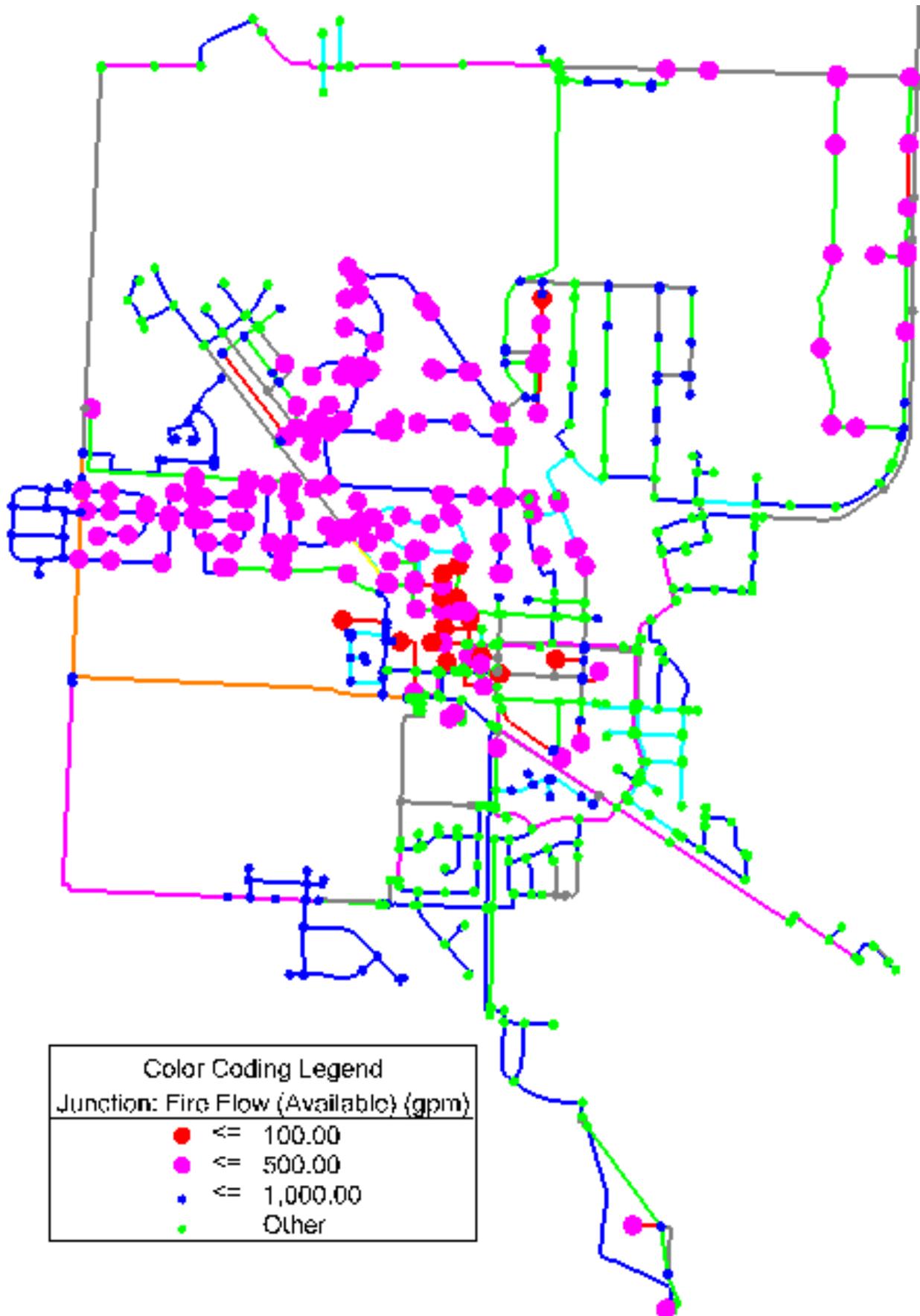


Figure 4: 2015 KCMO – Maximum Day (8 HR Supply)

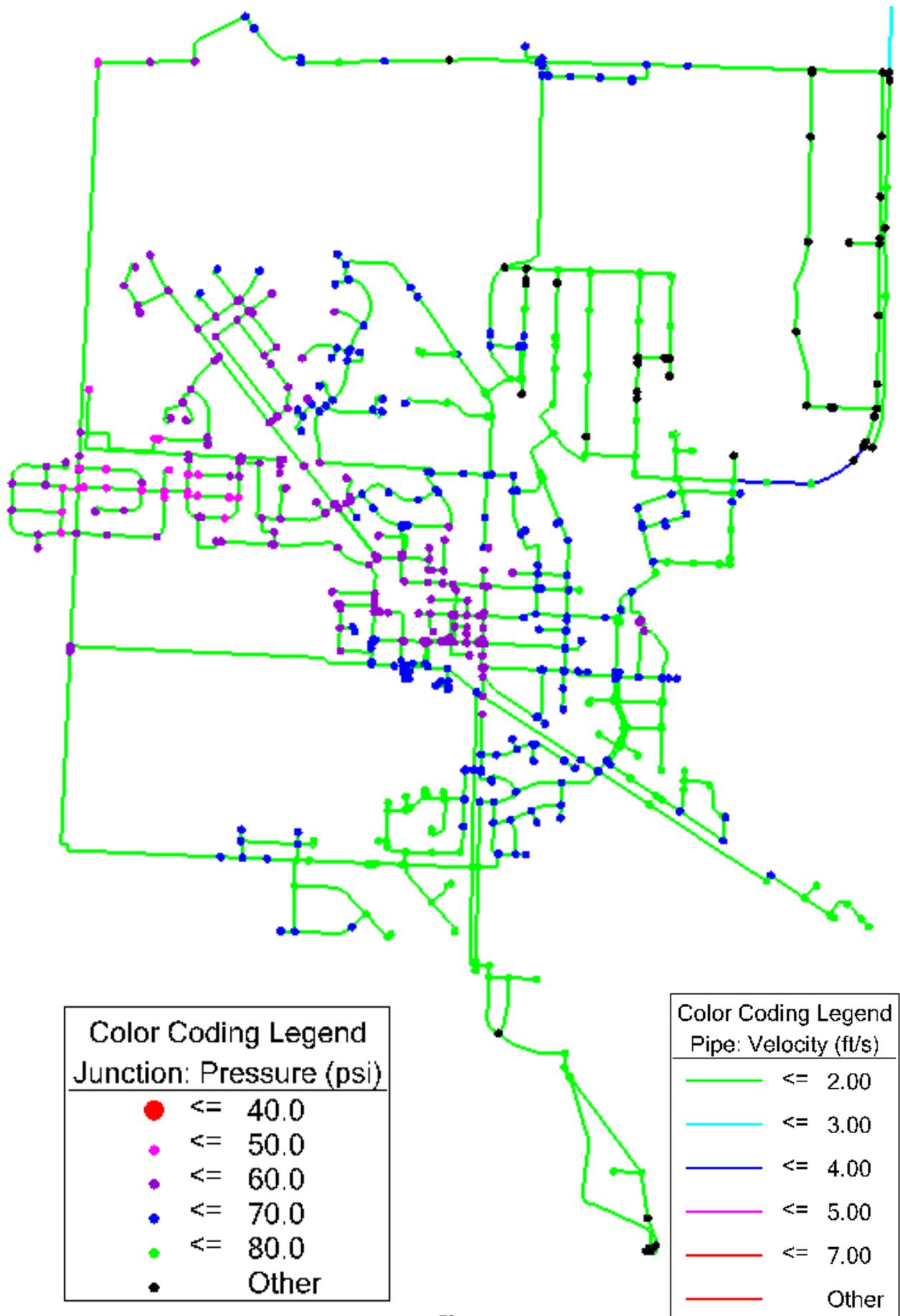


Figure 5: 2015 KCMO– Maximum Day (12 HR Supply)

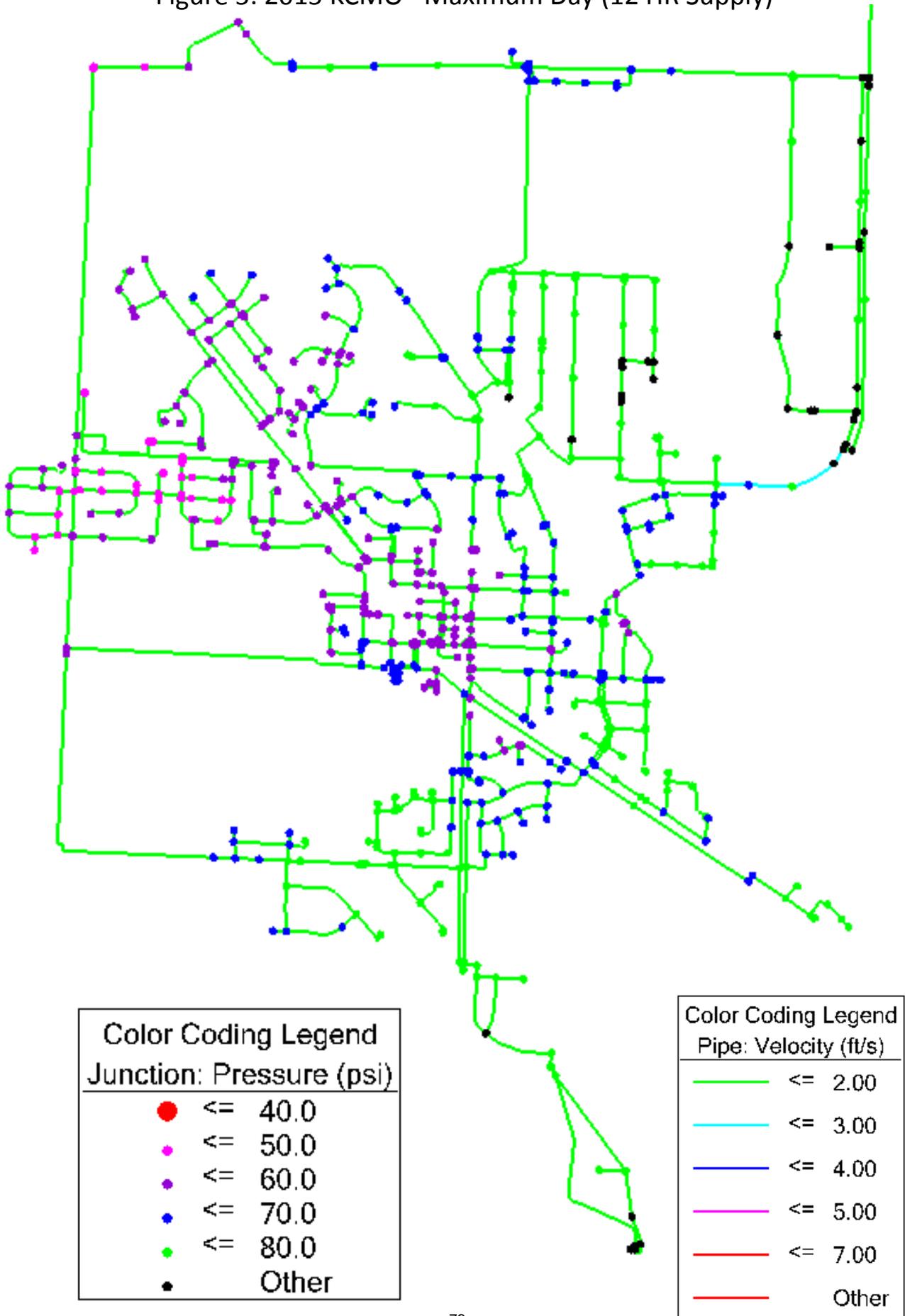
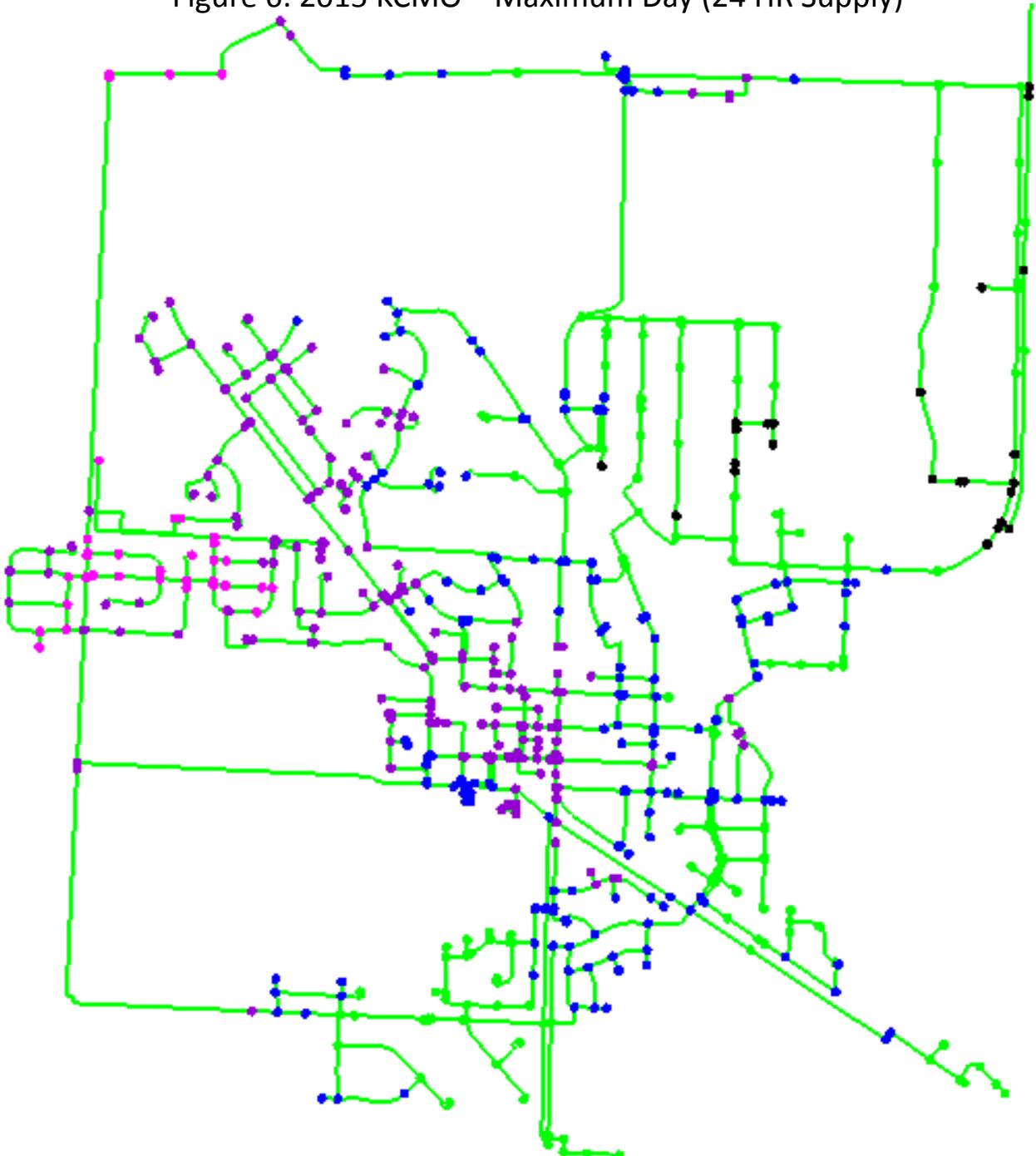


Figure 6: 2015 KCMO – Maximum Day (24 HR Supply)



Color Coding Legend	
Junction: Pressure (psi)	
● (Red)	<= 40.0
● (Magenta)	<= 50.0
● (Purple)	<= 60.0
● (Blue)	<= 70.0
● (Green)	<= 80.0
● (Black)	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
— (Light Green)	<= 2.00
— (Cyan)	<= 3.00
— (Blue)	<= 4.00
— (Magenta)	<= 5.00
— (Red)	<= 7.00
— (Dark Red)	Other

Figure 7: 2015 KCMO – Peak Hour (Zero Supply)

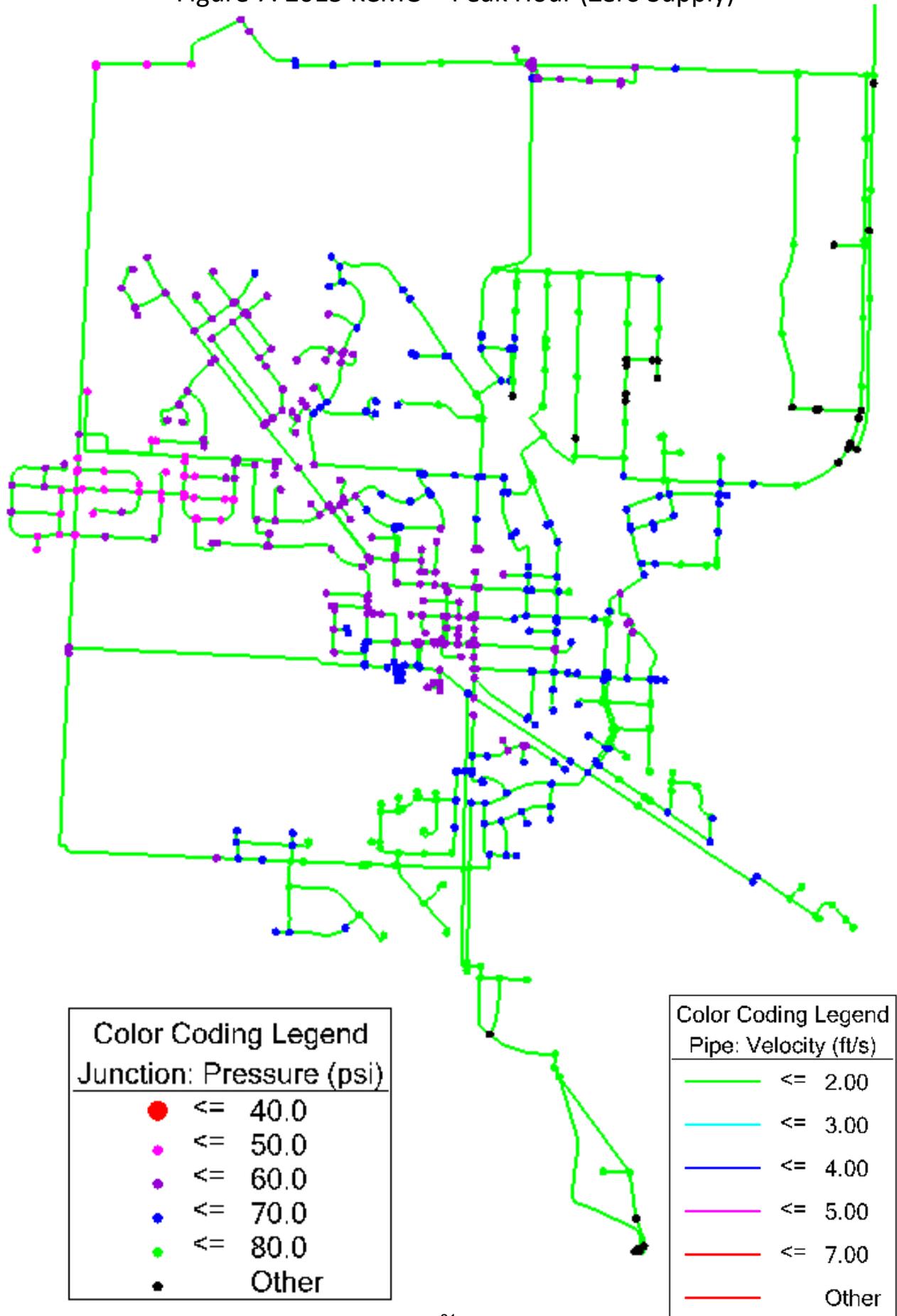


Figure 8: 2015 KCMO – Peak Hour (24 HR Supply)

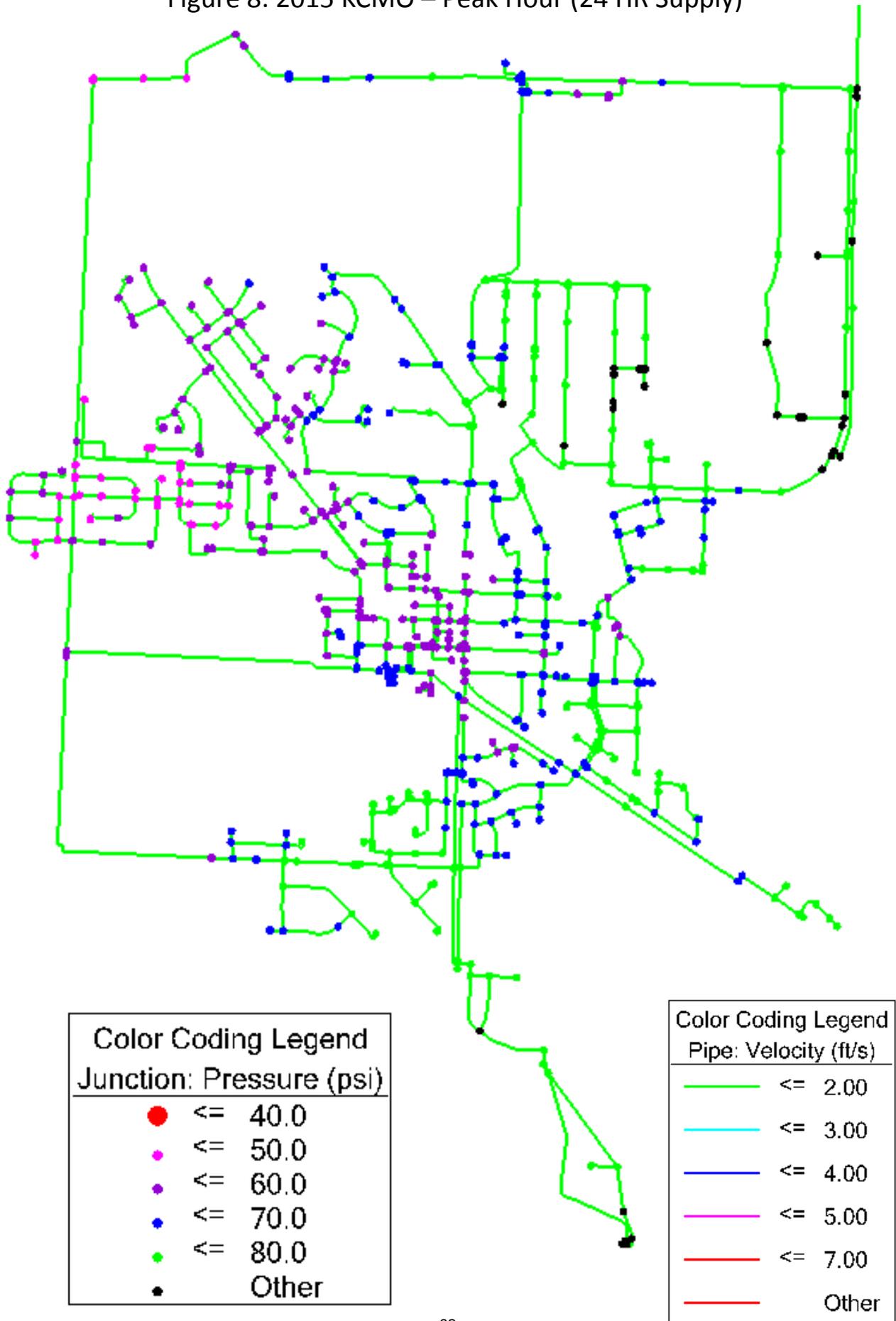


Figure 9: 2015 KCMO– Fire Flow

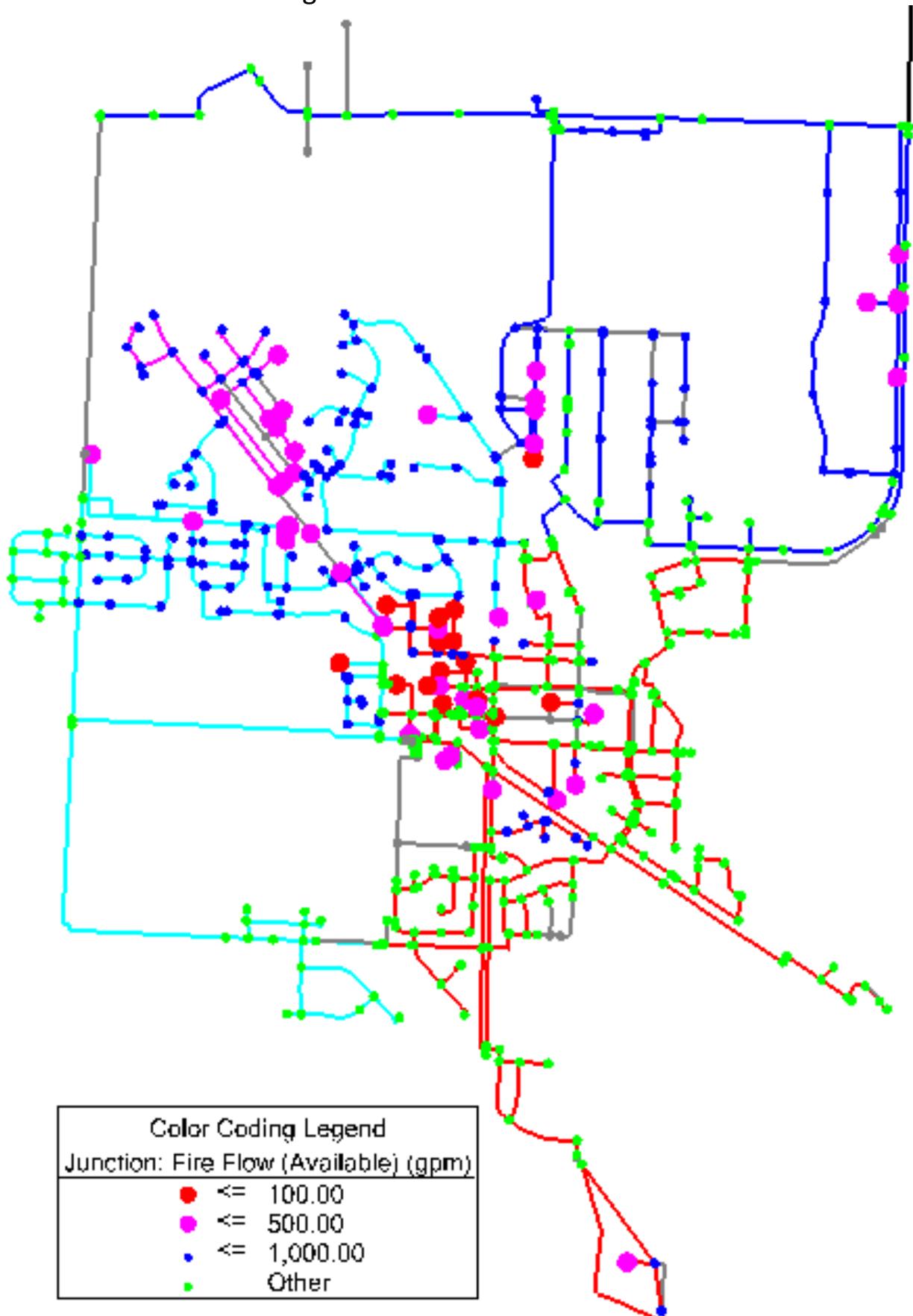
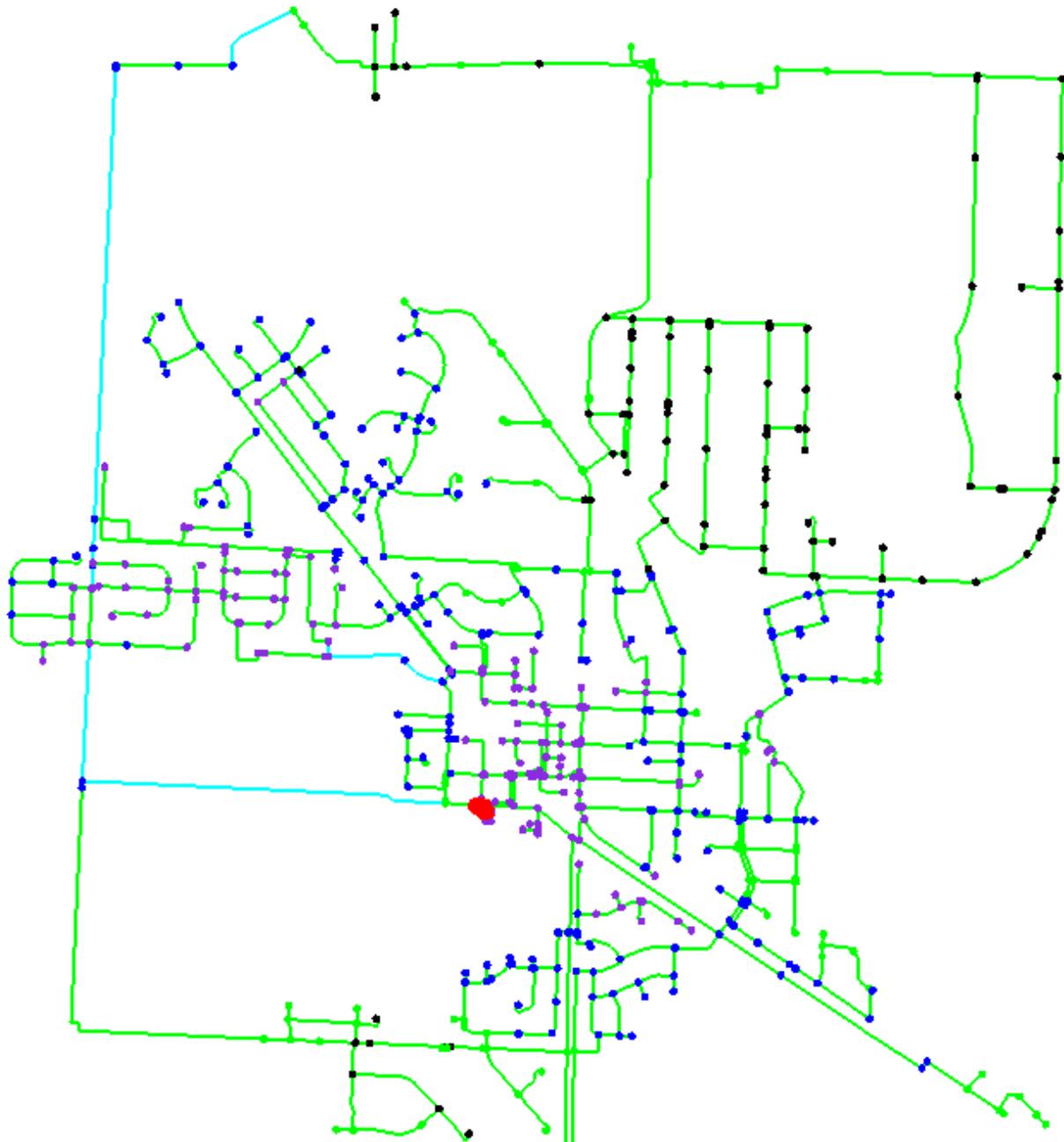


Figure 10: 2035 PWS No. 2 – Maximum Day



Color Coding Legend	
Junction: Pressure (psi)	
● (Red)	<= 40.0
● (Magenta)	<= 50.0
● (Purple)	<= 60.0
● (Blue)	<= 70.0
● (Green)	<= 80.0
● (Black)	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
— (Green)	<= 2.00
— (Cyan)	<= 3.00
— (Blue)	<= 4.00
— (Magenta)	<= 5.00
— (Red)	<= 7.00
— (Dark Red)	Other

Figure 11: 2035 PWS No. 2 – Peak Hour

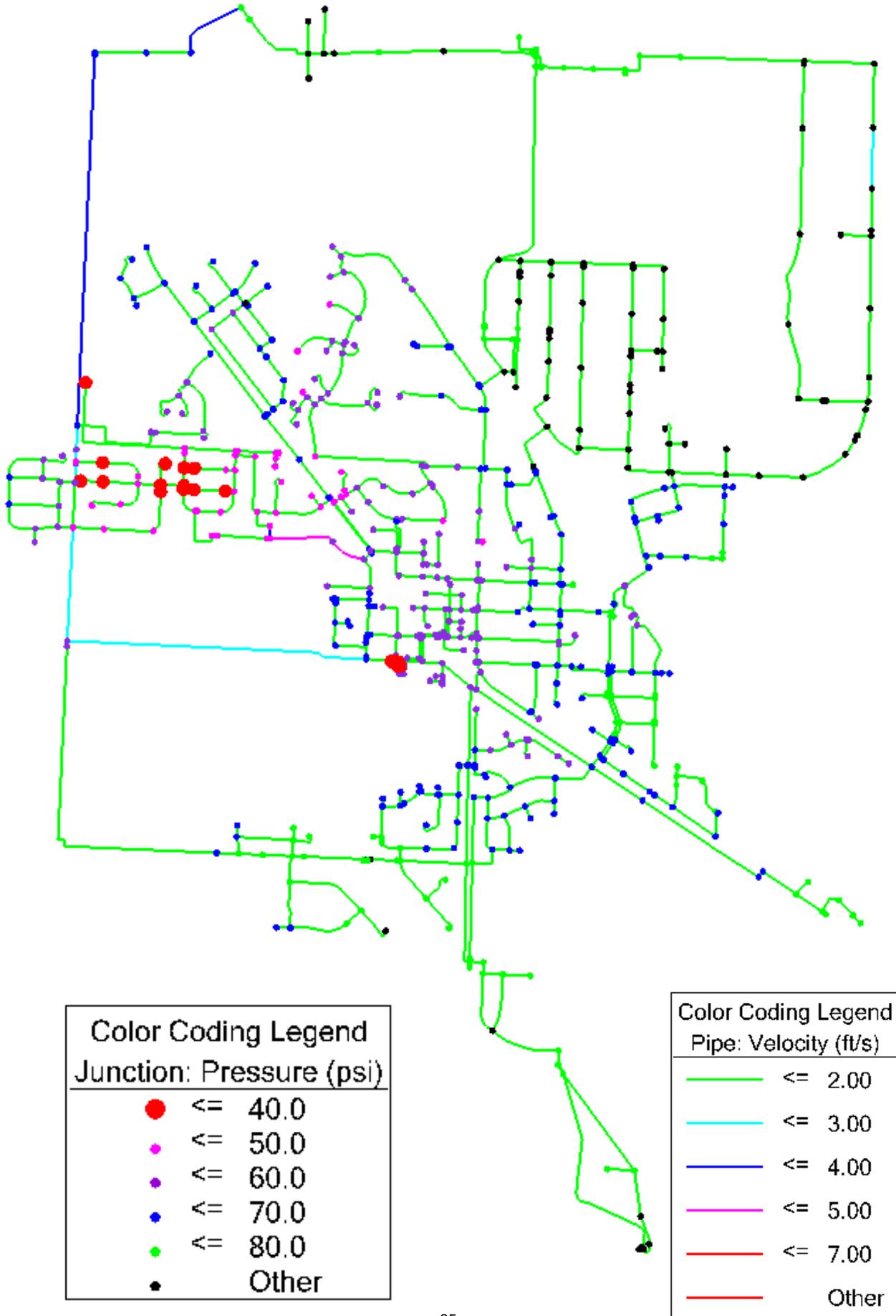


Figure 12: 2035 PWS No. 2 – Fire Flow

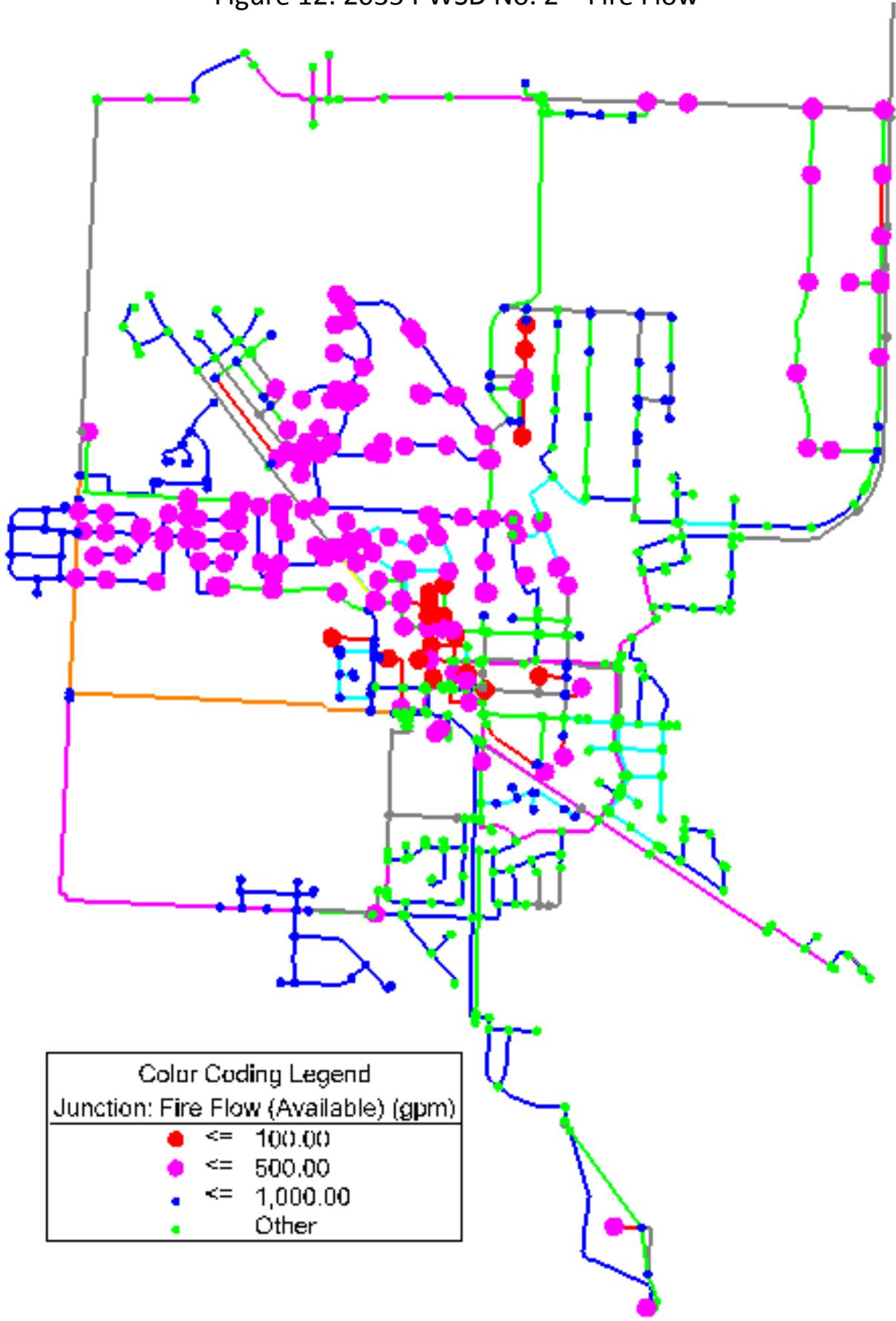
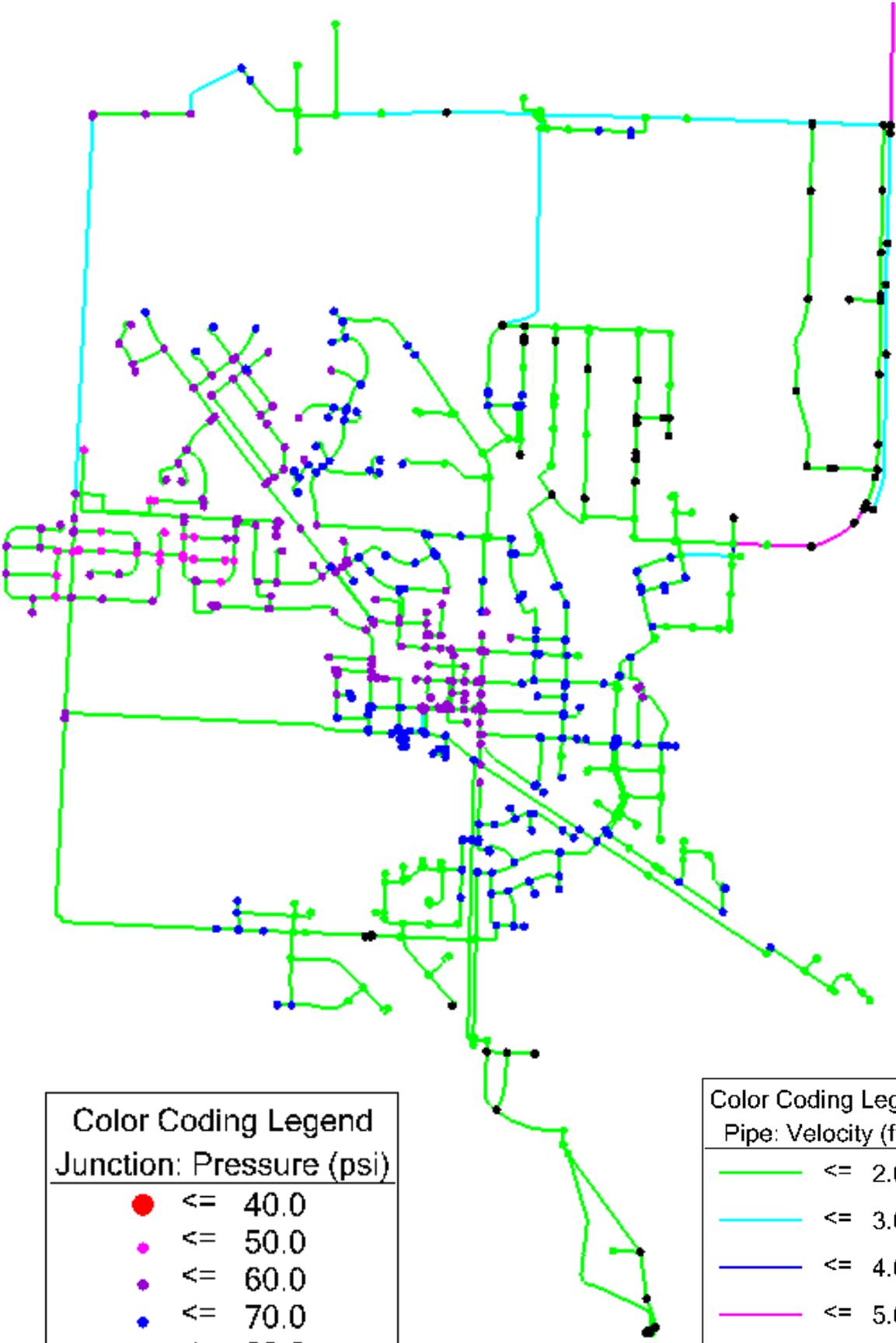


Figure 13: KCMO without Tank – Maximum Day (8 HR Supply)



Color Coding Legend	
Junction: Pressure (psi)	
● (Red)	<= 40.0
● (Magenta)	<= 50.0
● (Purple)	<= 60.0
● (Blue)	<= 70.0
● (Green)	<= 80.0
● (Black)	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
— (Green)	<= 2.00
— (Cyan)	<= 3.00
— (Blue)	<= 4.00
— (Magenta)	<= 5.00
— (Red)	<= 7.00
— (Red)	Other

Figure 14: KCMO without Tank – Maximum Day (12 HR Supply)

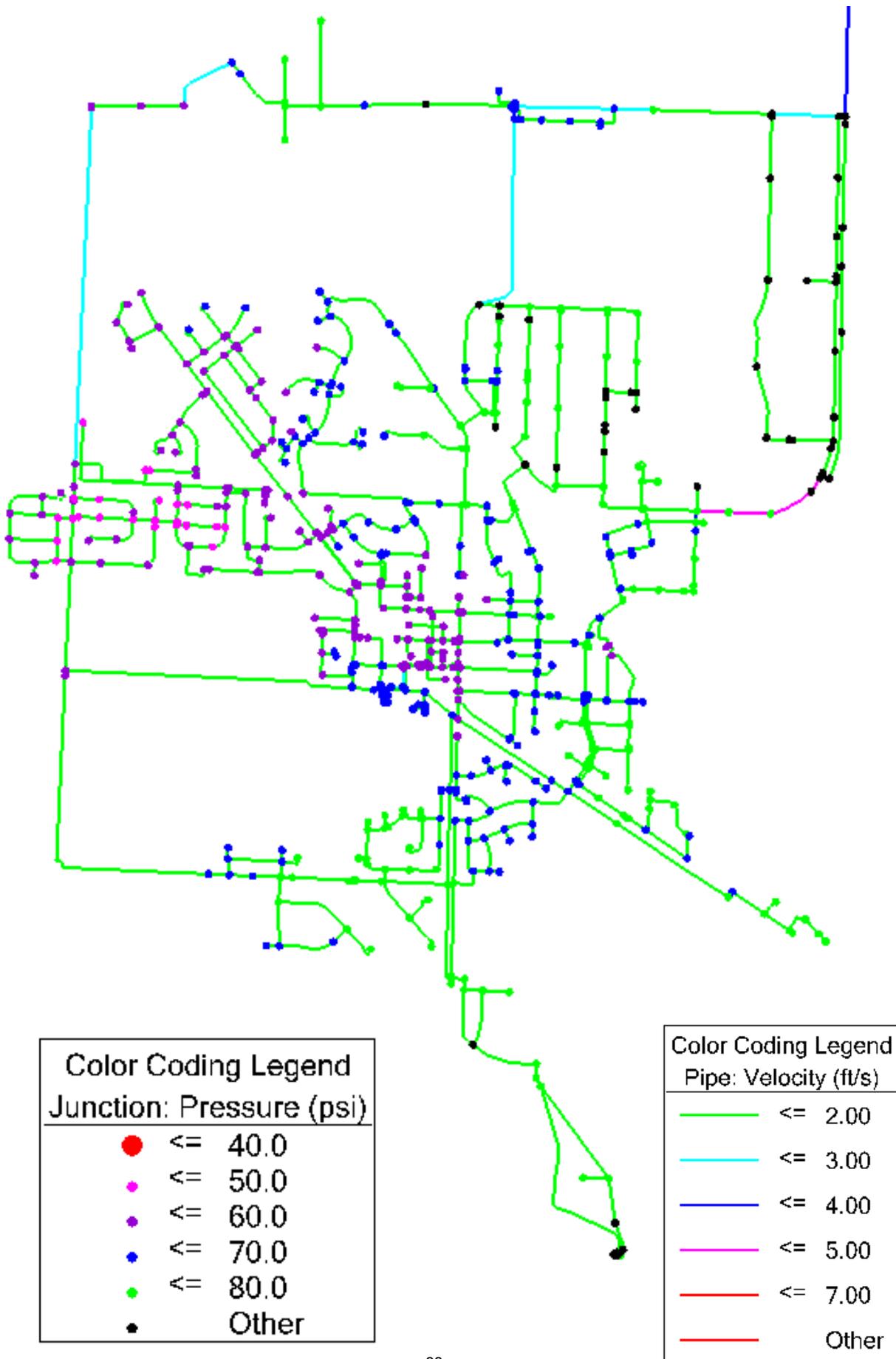


Figure 15: KCMO without Tank – Maximum Day (24 HR Supply)

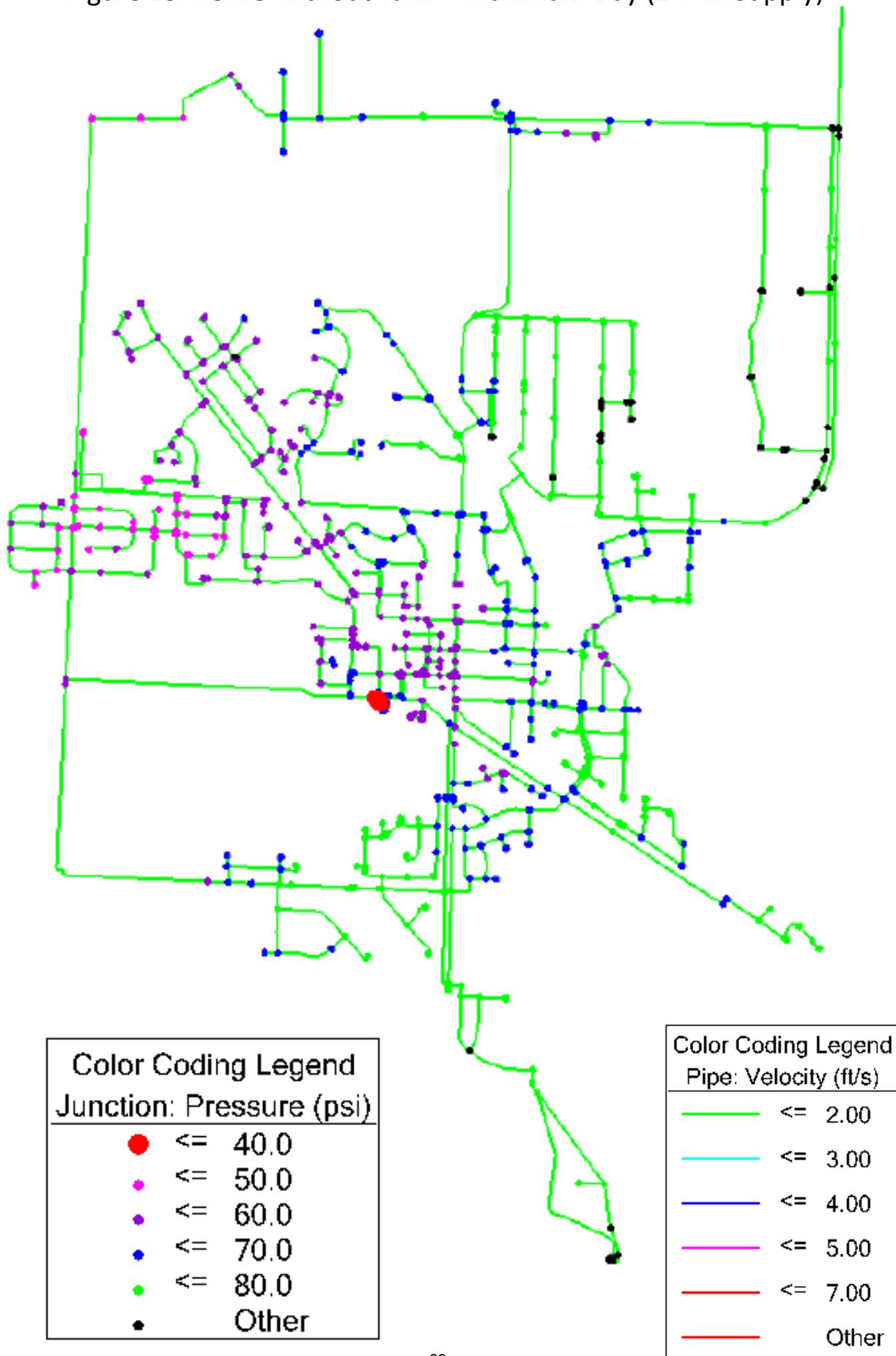


Figure 16: KCMO without Tank – Peak Hour (Zero Supply)

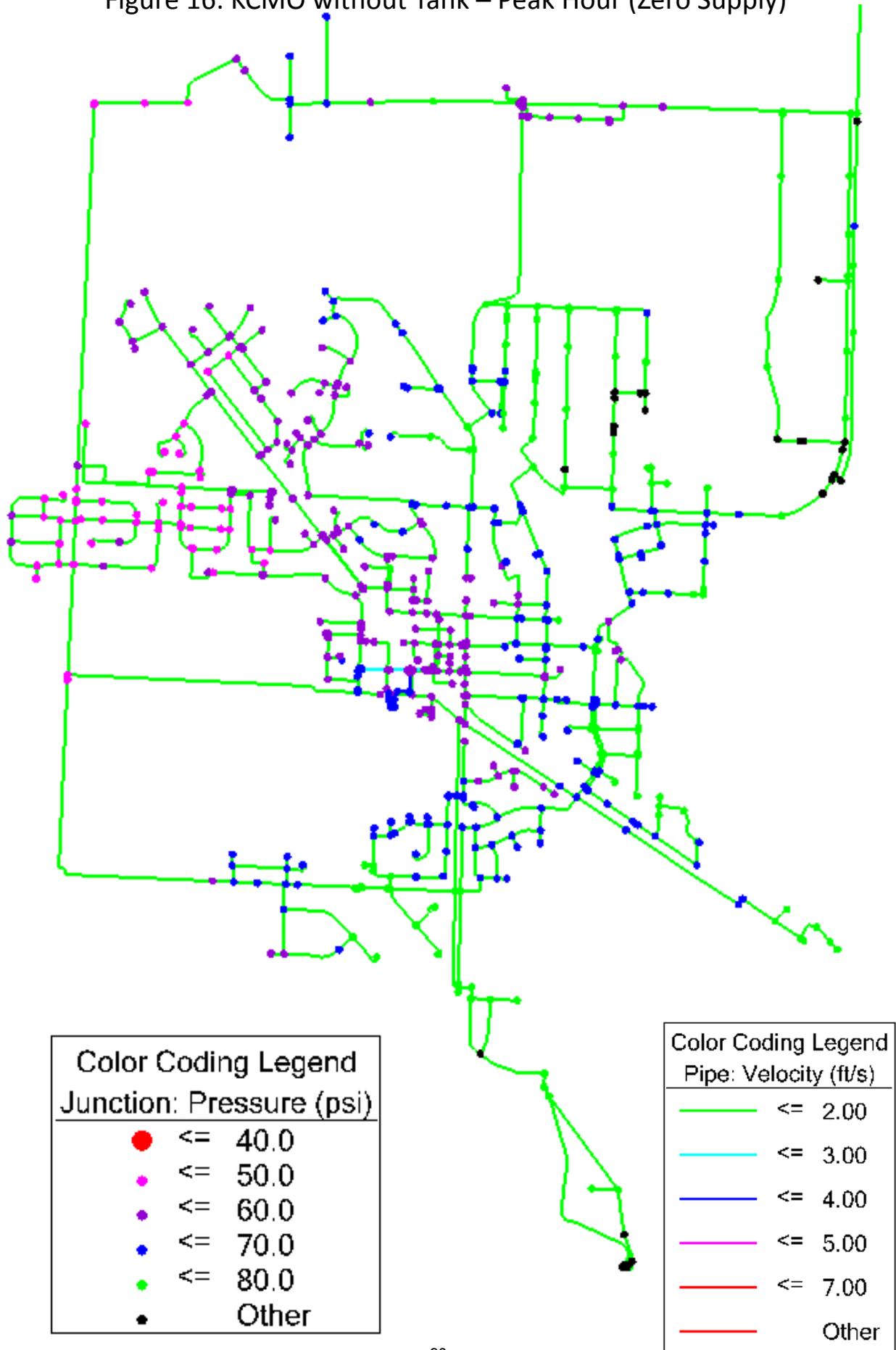
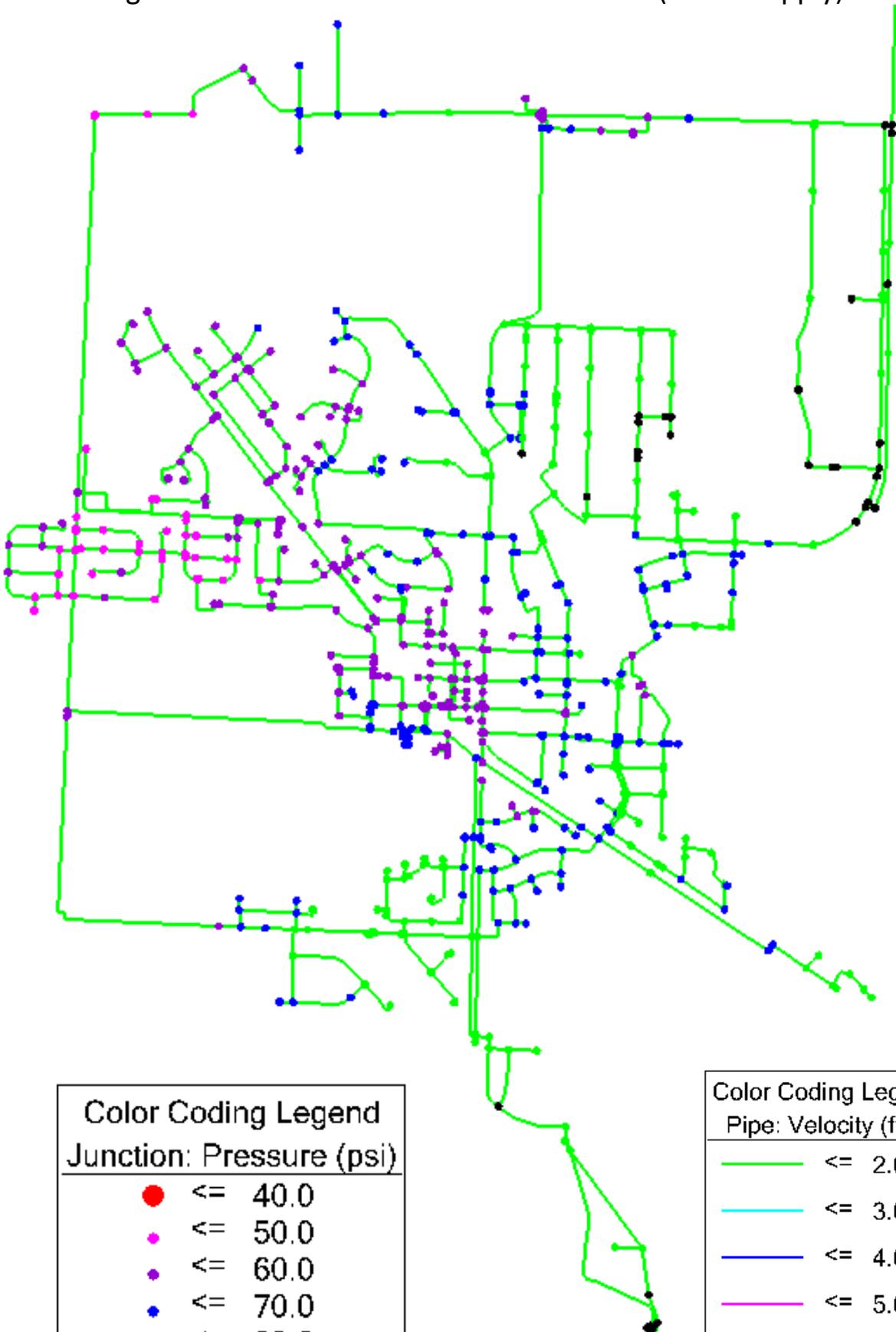


Figure 17: KCMO without Tank – Peak Hour (24 HR Supply)



Color Coding Legend	
Junction: Pressure (psi)	
●	<= 40.0
●	<= 50.0
●	<= 60.0
●	<= 70.0
●	<= 80.0
●	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
—	<= 2.00
—	<= 3.00
—	<= 4.00
—	<= 5.00
—	<= 7.00
—	Other

Figure 18: 2035 KCMO without Tank – Fire Flow

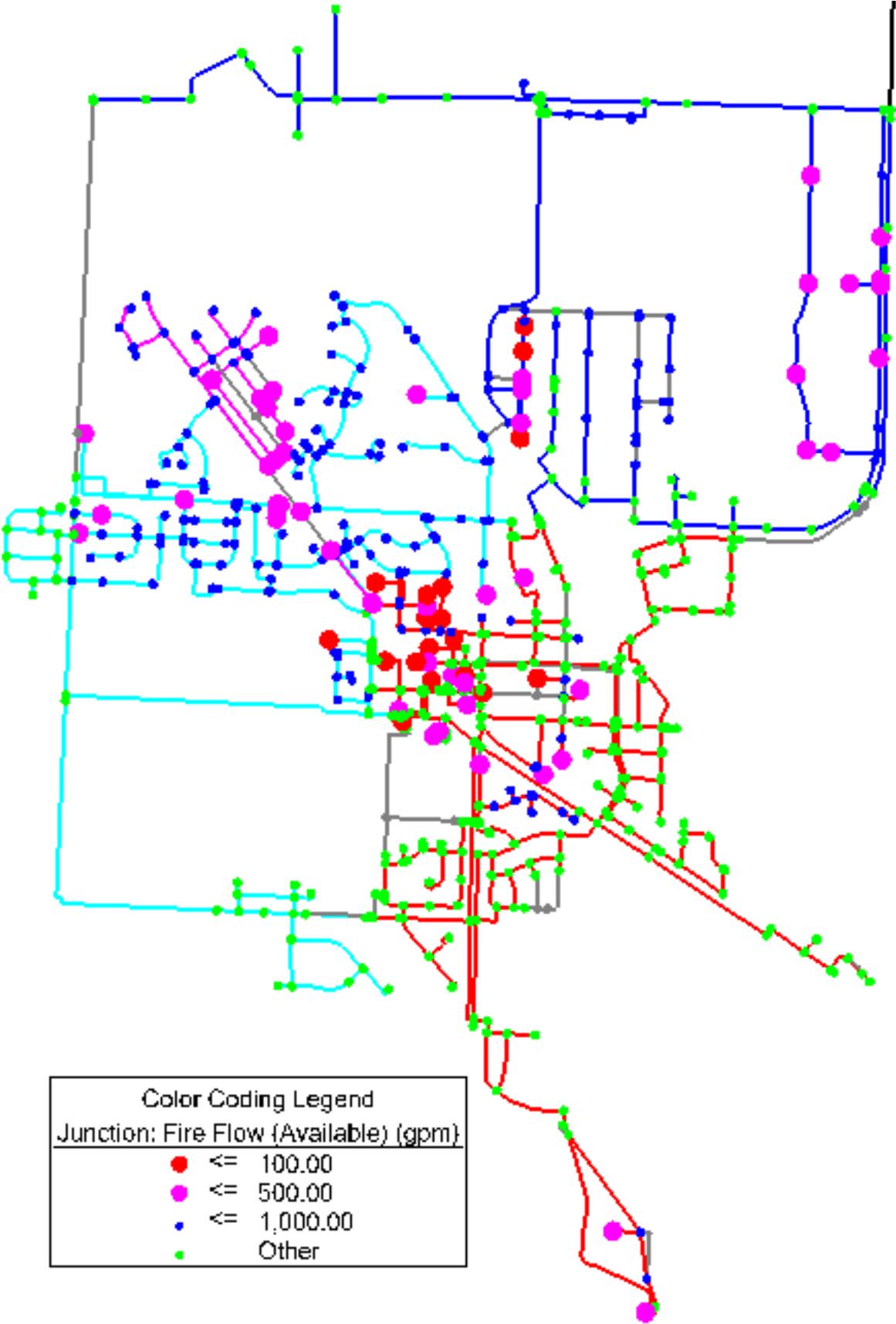


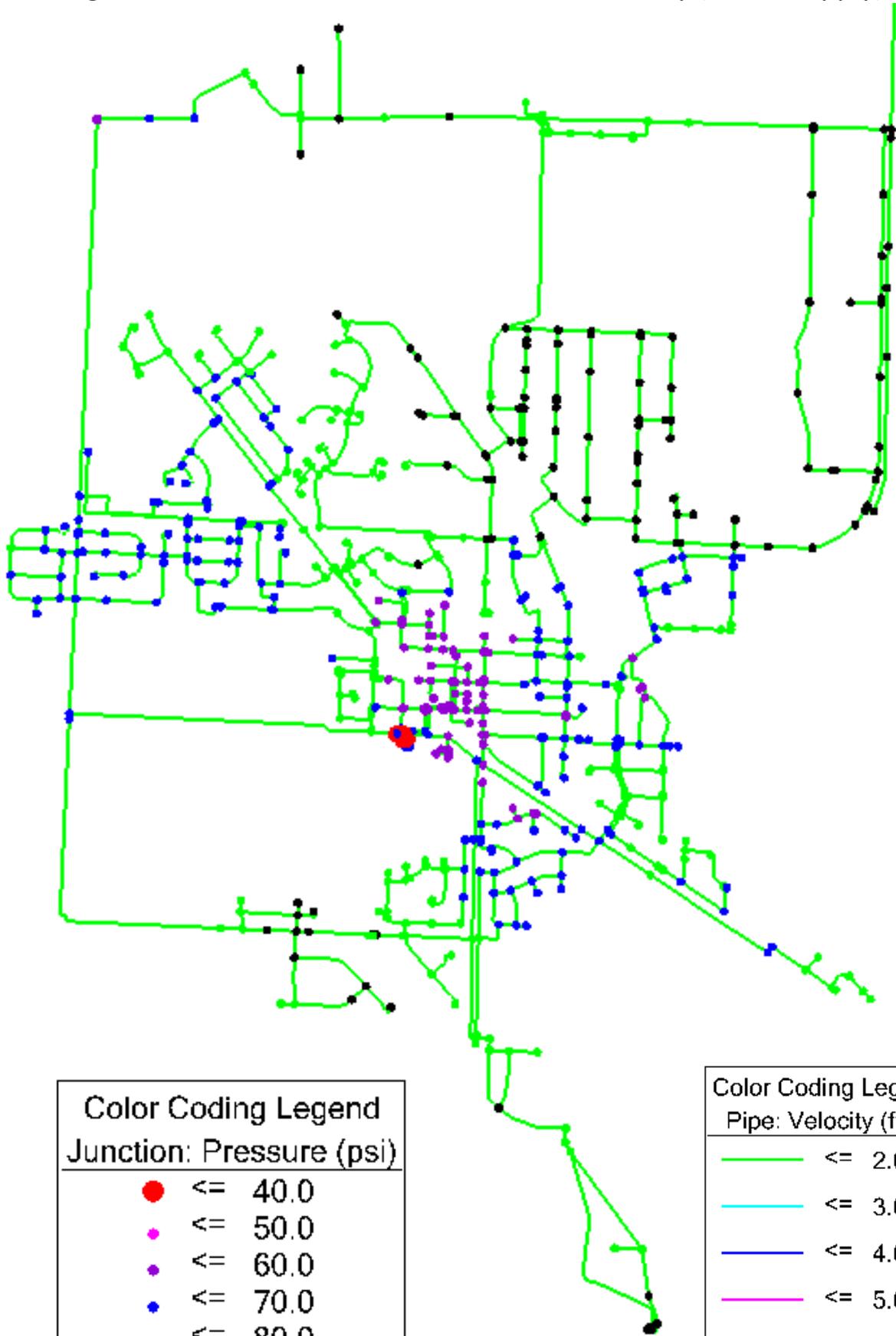
Figure 19: 2035 KCMO with Tank – Maximum Day (8 HR Supply)



Color Coding Legend	
Junction: Pressure (psi)	
●	<= 40.0
●	<= 50.0
●	<= 60.0
●	<= 70.0
●	<= 80.0
●	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
—	<= 2.00
—	<= 3.00
—	<= 4.00
—	<= 5.00
—	<= 7.00
—	Other

Figure 20: 2035 KCMO with Tank – Maximum Day (12 HR Supply)



Color Coding Legend	
Junction: Pressure (psi)	
●	≤ 40.0
●	≤ 50.0
●	≤ 60.0
●	≤ 70.0
●	≤ 80.0
●	Other

Color Coding Legend	
Pipe: Velocity (ft/s)	
—	≤ 2.00
—	≤ 3.00
—	≤ 4.00
—	≤ 5.00
—	≤ 7.00
—	Other

Figure 21: 2035 KCMO with Tank – Maximum Day (24 HR Supply)

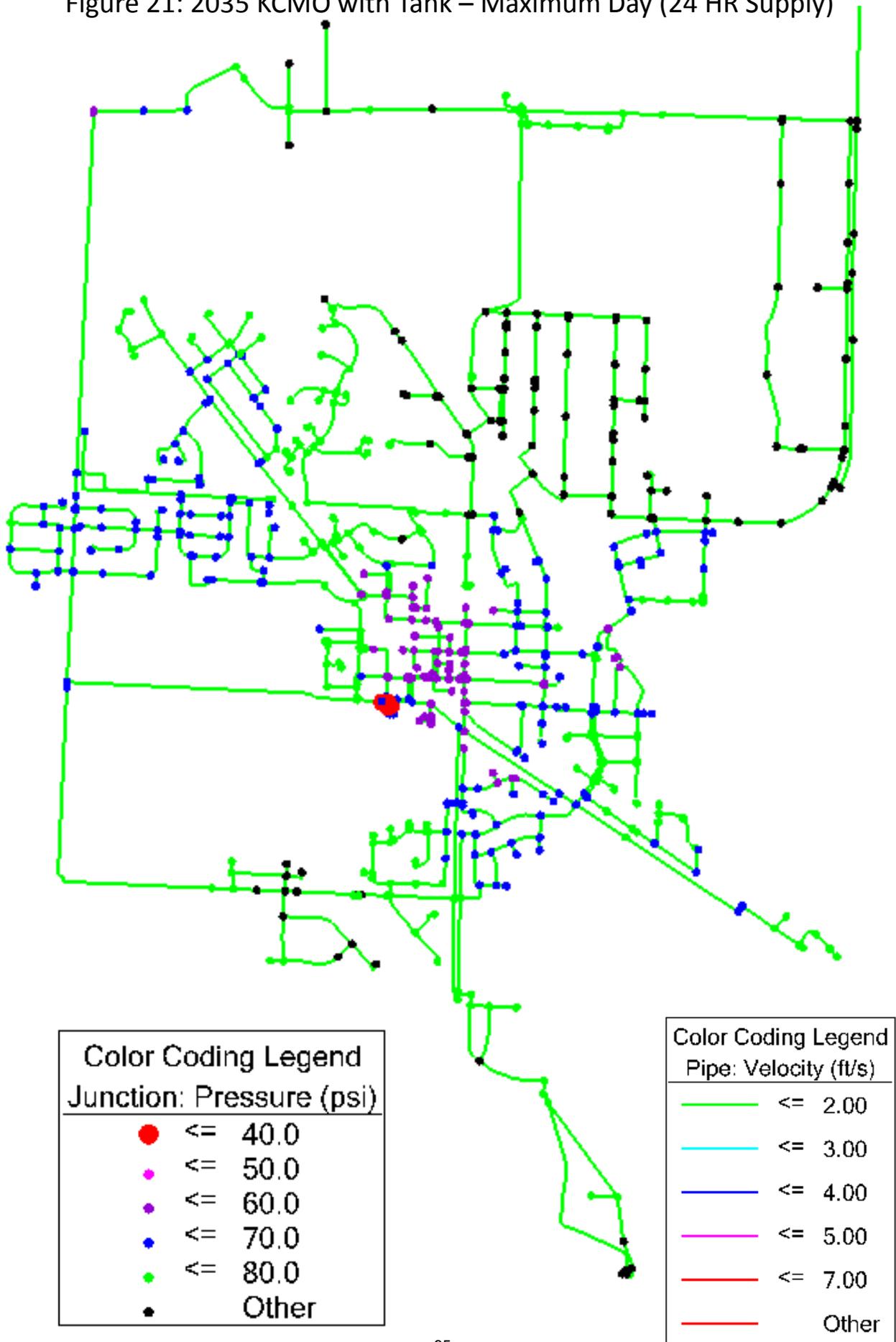


Figure 22: 2035 KCMO with Tank – Peak Hour (Zero Supply)

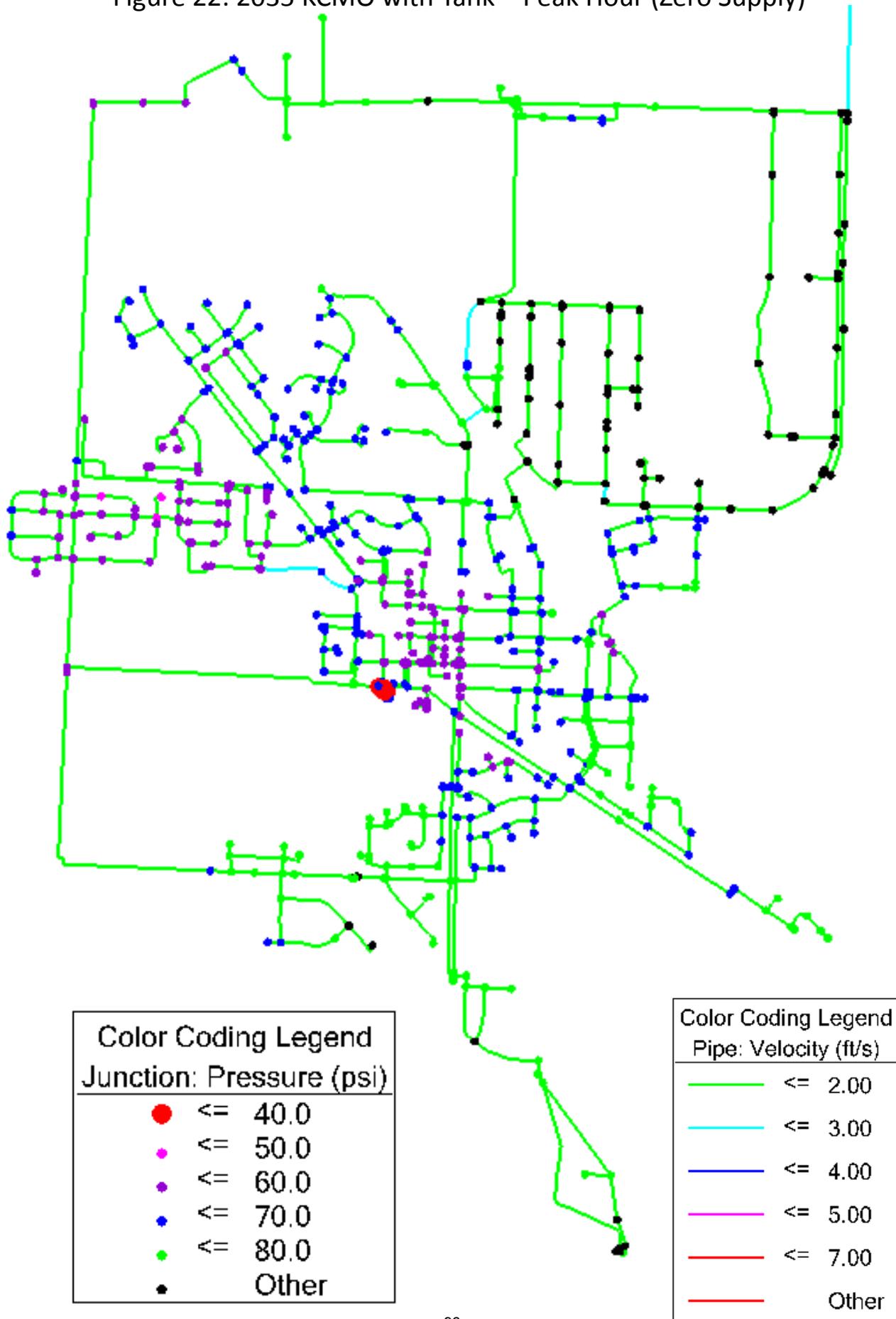


Figure 23: 2035 KCMO with Tank – Peak Hour (24 HR Supply)

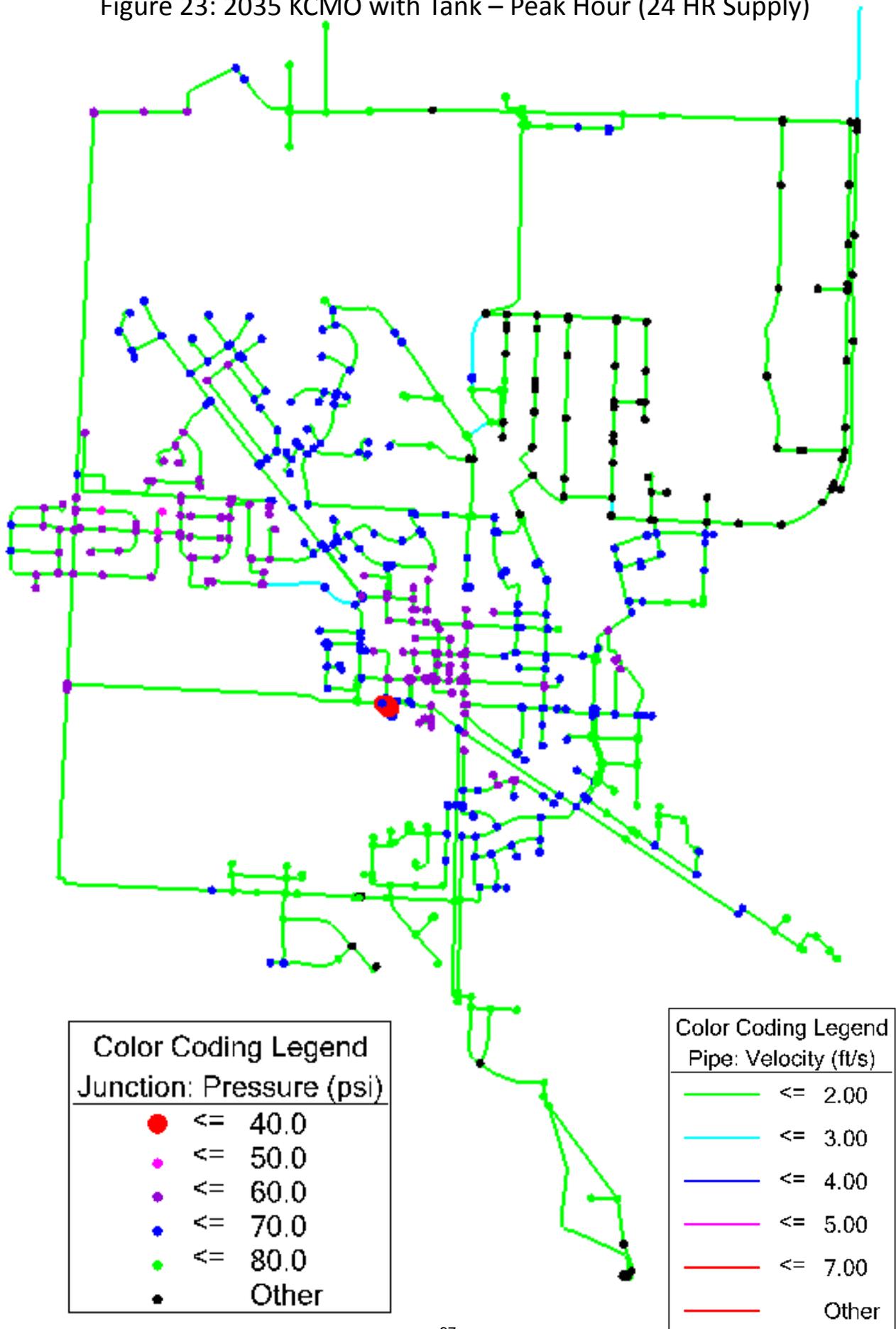
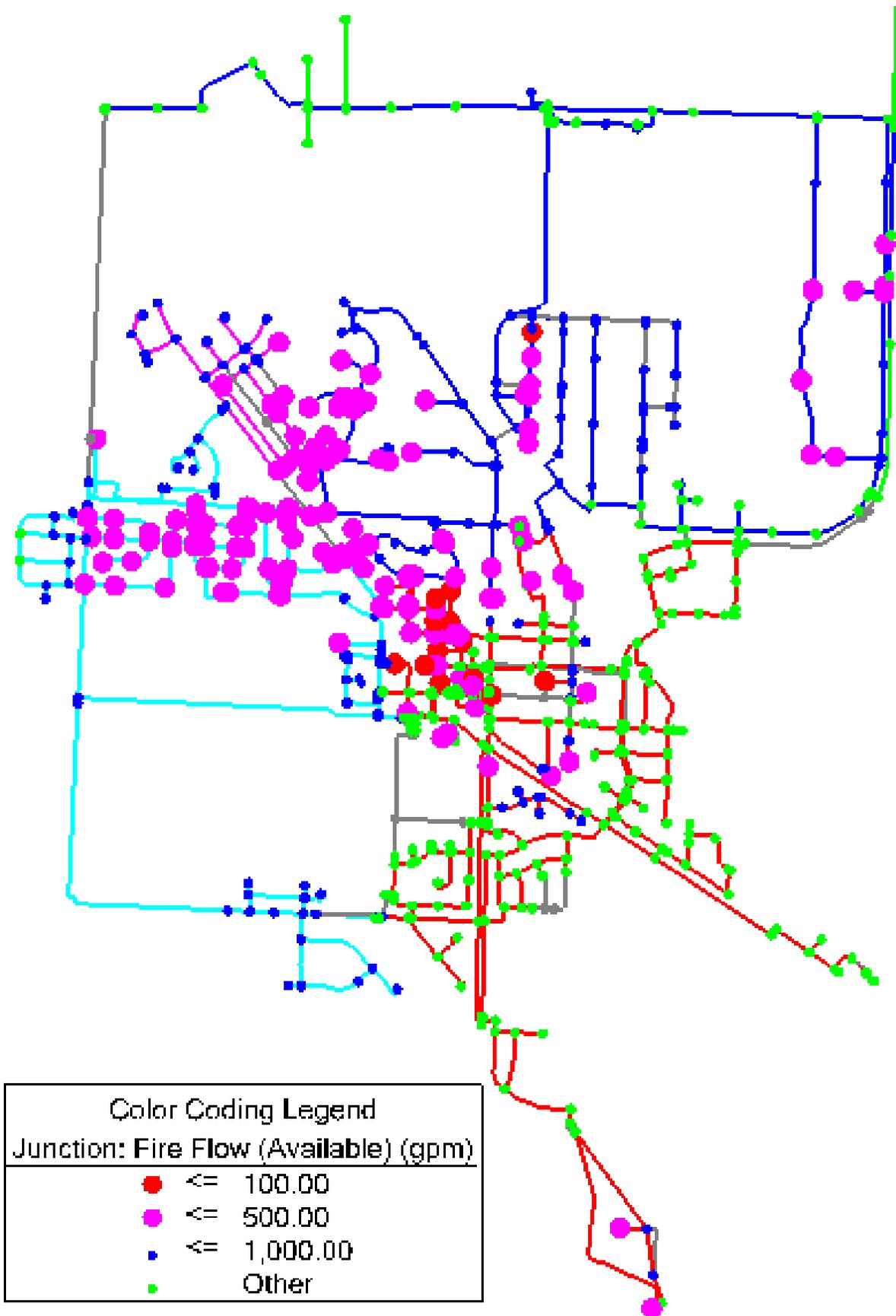


Figure 24: 2035 KCMO with Tank – Fire Flow



City Administrator
Brad Ratliff

City Clerk
Janet Burlingame

City Engineer
Carl Brooks

Business Office
Trudy Prickett



Chief of Police
Harry Gurin

City Planner
Cliff McDonald

City Attorney
Reid Holbrook

Parks Director
Grant Purkey

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

To: Mayor & Board of Aldermen
From: Carl Brooks, City Engineer (cbrooks@cityofpeculiar.com)
Date: April 3, 2016
Re: Resolution No. 2016-08, Mayor & Board of Alderman (BOA) Acceptance of the Draft Financial Forecast and Tap Fee Study as prepared by Burns & McDonnell.

GENERAL INFORMATION

Applicant: City Staff
Requested Actions: Approval of resolution
Purpose: Acceptance of the Draft Financial Forecast and Tap Fee Study as prepared by Burns & McDonnell.
Property Location: City wide

PROPOSAL

Acceptance of the proposed Resolution No. 2016-08, by the Mayor & Board of Alderman (BOA) of the Draft Financial Forecast and Tap Fee Study as prepared by Burns & McDonnell..

PREVIOUS ACTIONS

The Draft Financial Forecast and Tap Fee Study were presented by Burns & McDonnell to the Mayor and Board of Aldermen, for future consideration to be included in our Comprehensive Fee Schedule.

KEY ISSUES

The water tap fee study selected the tap fee determination methodology. Using the selected methodology, calculation of water tap fees was determined.

As indicated in the proposed report, the amount of the proposed single family residential water tap fee is \$1,700.00, or an increase of \$100.00. Tap fees are recommended to be reviewed every five (5) years. The financial forecast was evaluated with both a conservative residential growth rate of one (1) percent and a commercial development utilizing the 1 MGD potential supply.

STAFF COMMENTS AND SUGGESTIONS

City staff agrees with the 2016 Draft Financial Forecast and Tap Fee Study that has been prepared and completed by Burns & McDonnell.

STAFF RECOMMENDATION

City staff recommends passage of this resolution.

ATTACHMENTS

Resolution 2016-08

Draft Financial Forecast and Tap Fee Study

RESOLUTION NO. 2016-08

A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE DRAFT FINANCIAL FORECAST AND TAP FEE STUDY REPORT BY BURNS AND MCDONNELL.

WHEREAS, the Board of Aldermen previously approved the execution of the Draft Financial Forecast and Tap Fee Study to be conducted by Burns & McDonnell, and

WHEREAS, the Draft Financial Forecast and Tap Fee Study has been awarded in the amount not to exceed \$28,280.00,

NOW THEREFORE, be it ordained by the Board of Aldermen of the City of Peculiar, Missouri as follows:

THE DRAFT FINANCIAL FORECAST AND TAP FEE STUDY REPORT BY BURNS AND MCDONNELL

Section 1. That the Mayor is hereby authorized to execute on behalf of the City of Peculiar the above referenced RESOLUTION and the Draft Financial Forecast and Tap Fee Study.

Section 2. The effective date of the resolution shall be _____, 2016.

BE IT REMEMBERED THE PRECEDING RESOLUTION WAS ADOPTED ON THIS _____ DAY OF _____, 2016, BY THE FOLLOWING VOTE:

Alderman Ford _____
Alderman Hammack _____
Alderman McCrea _____

Alderman Ray _____
Alderman Roberts _____
Alderman Turner _____

APPROVED:

ATTEST:

Holly Stark, Mayor

Janet Burlingame, City Clerk



Financial Forecast and Tap Fee Study

City of Peculiar, Missouri

**Financial Forecast and Tap Fee Study
Project No. 87391**

**Final Report
03/31/2016**



Financial Forecast and Tap Fee Study

prepared for

City of Peculiar, Missouri

Project No. 87391

**Final Report
03/31/2016**

prepared by

Burns & McDonnell Engineering Company, Inc.

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1.0 EXECUTIVE SUMMARY

1.1 Project Background

Burns & McDonnell was engaged by the City of Peculiar (the City) to perform a financial forecast and tap fee study (Study) that (i) evaluates the financial planning implications of completing a new connection to Kansas City, Missouri and increasing the City's capacity to serve growth, and (ii) proposes tap fee rates to adequately recover costs associated with capacity that accommodates growth in the system.

1.2 Financial Planning

Comprehensive financial planning conducted for the utility considered two growth scenarios. The conservative case assumes growth consistent with recent history, increasing residential accounts by approximately one percent per year and no growth within other customer classes. Financial planning for this scenario, as summarized in Table 2-5, indicates that revenues under existing and approved rates (through 2018) are adequate to meet the projected cash obligations over the first five years of the study period, including the cost of connection to the Kansas City water system, through 2020. Beginning in 2021, revenue increases are proposed to sustain the financial performance of the water system.

A more aggressive growth scenario assumes growth in commercial accounts reflecting the "intermediate" demand assumptions from the Burns & McDonnell technical memorandum dated March 14, 2016. Under this scenario, no further revenue increases beyond those approved or planned through 2018 are anticipated through 2025. This scenario is summarized in Table 2-6.

The financial forecast is described in detail in Section 2.0 of this report. Burns & McDonnell recommends performing comprehensive financial planning with accompanying rate analysis at a minimum of every 5 years, or sooner if forecasted revenues and expenses deviate from projections anticipated herein.

1.3 Proposed Tap Fees

The City currently charges new water connections a \$1,600 fee if classified as residential and a \$1,900 fee if classified as commercial. Tap fees were evaluated using the Buy-In Methodology. Based on the findings of the tap fee analysis, tap fees for a 5/8" or 3/4" connection are proposed to be \$1,700. Fees for larger meter sizes are increased in accordance with meter capacity factors. Proposed tap fees are summarized in Table 1-1.

The development of proposed tap fees is described in detail in Section 3.0 of this report. Burns & McDonnell recommends the City review its tap fee calculation approximately every 5 years.

Table 1-1: Proposed Tap Fees by Meter Size

<u>Meter Size</u>	<u>Equivalency Ratio</u>	<u>Proposed Water Tap Fee</u>
5/8"	1.0	\$ 1,700
3/4	1.0	\$ 1,700
1	1.7	\$ 2,900
1.5	3.3	\$ 5,600
2	5.3	\$ 9,000
3	10.4	\$ 17,700
4	16.7	\$ 28,400

1.4 Statement of Limitations

In preparation of the City of Peculiar Financial Planning and Tap Fee Study (Study), Burns & McDonnell relied upon information provided by the City. The information included various analyses, computer-generated information and reports, audited financial reports, and other financial and statistical information, as well as other documents such as operating budgets and current retail water rate schedules. In addition, input to key assumptions regarding expected future levels of revenue, sales, and expenditures was provided by City staff to Burns & McDonnell. While Burns & McDonnell has no reason to believe that the information provided, and upon which Burns & McDonnell has relied, is inaccurate or incomplete in any material respect, Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness.

Estimates and projections prepared by Burns & McDonnell relating to financial forecasting and costs are based on Burns & McDonnell's experience, qualifications, and judgment as a professional consultant. Since Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, contractors' procedures and methods, unavoidable delays, economic conditions, government regulations and laws (including interpretation thereof), competitive bidding, and market conditions or other factors affecting such estimates or projections, Burns & McDonnell does not guarantee the accuracy of its estimates or predictions.

2.0 FINANCIAL PLANNING ANALYSIS

2.1 Project Approach

To meet the project objectives identified by the City, Burns & McDonnell conducted a financial forecast. Financial Planning provides an indication of the adequacy of the revenue generated by current rates. The results of the financial forecast analysis answer the questions "Are the existing rates adequate?" and "If not, what level of overall revenue increase is needed?" The Financial Planning Analysis is presented in the remainder of this section of this report.

2.2 Introduction

To determine if the existing schedule of rates can be expected to generate revenues sufficient to meet the City's operating and capital costs, Burns & McDonnell prepared a ten-year financial projection of revenues and expenditures for the water utility. A comparison of projected revenues and expenditures provides insight into the adequacy of overall revenue levels.

Our approach to Financial Planning involves the following basic steps:

1. Project revenues under existing and approved rates.
2. Project water utility expenditures.
3. Determine a funding plan to meet the proposed capital improvement program, including the use of cash and debt.
4. Develop a ten-year financial plan, including the budget year and a nine-year forecast period.

The planning period includes fiscal year (FY) 2016 as a budget year and a nine-year forecast period, FY 2017 – FY 2025. The City utilizes a twelve-month fiscal year beginning October 1 and ending September 30. The Financial Plan Analysis recognizes and references the same fiscal year in the ten-year budget and planning period.

2.3 Water Utility Revenues Under Existing Rates

The projection of revenues under the existing schedule of rates involved an analysis of customers, volumes, and revenues for the utility. The existing schedule of rates for FY 2016 and assumed rates for FY 2017 and FY 2018 is shown in Table 2-1.

Table 2-1: Existing Rates and Assumed Rates

	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>
<u>Within City Limits:</u>			
First 1,000 gallons	\$20.96	\$22.46	\$23.71
Over 1,000 gallons	\$16.52	\$18.02	\$19.27
<u>Outside City Limits:</u>			
First 1,000 gallons	\$23.70	\$25.20	\$26.45
Over 1,000 gallons	\$17.52	\$19.02	\$20.27

2.3.1 Historical Projected Customers, Volume & Revenue

Table 2-2 presents the historical water customers, volumes and revenue from 2013 to 2015 and the projection of customers, volumes and revenues under existing and approved rates for the 2016 to 2025 planning period. In recent years, the City has experienced a slight increase in the number of residential accounts with other customer classes remaining relatively stable. In light of recent trends in account growth, the projection of accounts conservatively assumes a one percent growth in the residential class and no growth within the other customer classes of accounts for 2016 through 2026.

Annual water volumes were constant in FY 2013 and FY 2014, decreasing in FY 2015 due to a wet year. Water sales are projected to slightly increase over the study period based on the growth in residential accounts. Water volumes are projected to increase from 80.6 million gallons in FY 2016 to 86.4 million gallons over the study period.

Table 2-2 also presents historical user charge revenues for 2013 to 2015 and a projection of user revenues under existing and approved rates for the 2016 to 2025 planning period. The projection of user revenues was estimated based on the forecasted accounts and volumes factored by the existing and approved schedule of rates shown in Table 2-1.

Historical water user charge revenues ranged from \$899,063 in 2013 to \$1,295,757 in 2015. Forecasted user revenues reflect the anticipated growth of customers and volumes previously presented and the existing and approved rates. Overall, water user charge revenues under existing and approved rates are projected to increase from \$1,501,500 in 2016 to \$1,859,400 in 2025.

Table 2-2: Historical and Projected Accounts, Volume and Revenues under Existing Rates

Line No.	Historical					Projected							
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Accounts													
1 Residential	1,488	1,508	1,538	1,553	1,569	1,584	1,600	1,616	1,632	1,649	1,665	1,682	1,699
2 Commercial (B12)	81	79	81	81	81	81	81	81	81	81	81	81	81
3 Government (non-taxable)	18	16	16	16	16	16	16	16	16	16	16	16	16
4 Other Outside	1	2	2	2	2	2	2	2	2	2	2	2	2
5 Rural	2	18	18	18	18	18	18	18	18	18	18	18	18
6 Total Accounts	1,589	1,624	1,655	1,671	1,686	1,702	1,718	1,734	1,750	1,766	1,783	1,799	1,816
Billed Volume (1,000 Gallons)													
7 Residential	75,211,554	72,307,370	61,640,084	62,256,500	62,879,000	63,507,800	64,142,900	64,784,300	65,432,200	66,086,500	66,747,400	67,414,900	68,089,000
8 Commercial (B12)	12,741,558	14,518,600	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300	15,289,300
9 Government (non-taxable)	2,652,100	2,322,100	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200	2,158,200
10 Other Outside	121,300	51,100	42,900	42,900	42,900	42,900	42,900	42,900	42,900	42,900	42,900	42,900	42,900
11 Rural	98,900	1,136,900	861,800	861,800	861,800	861,800	861,800	861,800	861,800	861,800	861,800	861,800	861,800
12 Total Billed Volume	90,825,412	90,336,070	79,992,284	80,608,700	81,231,200	81,860,000	82,495,100	83,136,500	83,784,400	84,438,700	85,099,600	85,767,100	86,441,200
User Charge Revenues under Existing Rates													
1 Residential	\$ 734,323	\$ 879,332	\$ 991,960	\$ 1,152,200	\$ 1,262,600	\$ 1,358,100	\$ 1,371,700	\$ 1,385,400	\$ 1,399,300	\$ 1,413,300	\$ 1,427,400	\$ 1,441,700	\$ 1,456,100
2 Commercial (B12)	\$ 134,710	\$ 206,239	\$ 254,998	\$ 293,200	\$ 318,200	\$ 338,900	\$ 338,900	\$ 338,900	\$ 338,900	\$ 338,900	\$ 338,900	\$ 338,900	\$ 338,900
3 Government (non-taxable)	\$ 27,360	\$ 30,524	\$ 33,761	\$ 38,800	\$ 42,100	\$ 44,900	\$ 44,900	\$ 44,900	\$ 44,900	\$ 44,900	\$ 44,900	\$ 44,900	\$ 44,900
4 Other Outside	\$ 1,339	\$ 858	\$ 848	\$ 1,000	\$ 1,000	\$ 1,100	\$ 1,100	\$ 1,100	\$ 1,100	\$ 1,100	\$ 1,100	\$ 1,100	\$ 1,100
5 Rural	\$ 1,331	\$ 15,302	\$ 14,190	\$ 16,300	\$ 17,500	\$ 18,400	\$ 18,400	\$ 18,400	\$ 18,400	\$ 18,400	\$ 18,400	\$ 18,400	\$ 18,400
6 Total UC Revenues	\$ 899,063	\$ 1,132,255	\$ 1,295,757	\$ 1,501,500	\$ 1,641,400	\$ 1,761,400	\$ 1,775,000	\$ 1,788,700	\$ 1,802,600	\$ 1,816,600	\$ 1,830,700	\$ 1,845,000	\$ 1,859,400

2.4 Utility Expenditures

The water utility's primary cash expenditures include the following direct operating and capital costs:

- Operation and Maintenance (O&M) Expenses
- Capital Improvement Program Expenditures
- Debt Service Principal and Interest Payments

2.4.1 O&M Expenses

Table 2-3 presents the recent water O&M expense history and the projection of water system O&M expenses through the 2025 planning period. Expenses summarized on Table 2-3 reflect operating costs associated with the utility. Costs related to capital projects are excluded from Table 2-3 and will be discussed later in this report.

Water O&M expenses ranged from \$844,457 in 2013 to \$1,044,552 in 2014. O&M costs for 2016 are based on the approved budget. Projected O&M expenses in general are escalated from budgeted 2016 amounts based on inflationary assumptions of 3.0 percent annually for salaries, 4.0 percent annually for benefits, 5.0 percent annually for water purchases and 2.5 percent for all other expenses.

Total O&M is projected to increase from the 2016 budgeted amount of \$1,171,300 to \$1,374,000 in 2025.

Table 2-3: Historical and Projected Operation and Maintenance Expenses

Line No.		Historical			Budgeted	Projected								
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Water Expenditures														
1	50-50-5000 Water Purchases	419,630	409,318	407,699	513,700	447,900	344,200	364,200	385,400	407,800	431,500	456,700	483,300	511,400
2	50-50-5001 Water-Salaries & Wages	166,429	194,749	238,602	263,000	270,900	279,000	287,400	296,000	304,900	314,000	323,400	333,100	343,100
3	50-50-5200 Payroll Taxes	13,123	13,239	16,199	20,900	21,500	22,100	22,800	23,500	24,200	24,900	25,600	26,400	27,200
4	50-50-5210 Benefits	69,535	76,580	90,307	124,900	129,900	135,100	140,500	146,100	151,900	158,000	164,300	170,900	177,700
5	50-50-5220 Worker's Compensation	4,250	5,752	26,987	8,200	8,500	8,800	9,200	9,600	10,000	10,400	10,800	11,200	11,600
6	50-50-5240 Employee Awards	-	-	164	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
7	50-50-5300 Uniforms	1,238	1,239	27,069	2,300	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100
8	50-50-5310 Travel & Training	934	1,410	2,640	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100
9	50-50-5320 Employee Testing	353	292	312	400	400	400	400	400	400	400	400	400	400
10	50-50-5400 Office Supplies	4,200	1,869	2,530	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000
11	50-50-5410 Dues & Subscriptions	2,136	1,649	2,095	2,000	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800
12	50-50-5420 Postage	3,363	3,212	3,456	3,800	3,800	3,900	4,000	4,100	4,200	4,300	4,400	4,500	4,600
13	50-50-5430 Bankcard Fees	8,568	14,015	6,535	-	-	-	-	-	-	-	-	-	-
14	50-50-5440 Office Machines	4,150	4,972	4,627	5,500	5,600	5,700	5,800	5,900	6,000	6,200	6,400	6,600	6,800
15	50-50-5540 Public Hearing	344	-	-	500	500	500	500	500	500	500	500	500	500
16	50-50-5600 Audit	3,075	3,100	4,600	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
17	50-50-5610 Accounting	10,446	17,705	36,234	18,400	18,900	19,400	19,900	20,400	20,900	21,400	21,900	22,400	23,000
18	50-50-5620 Legal	24,684	2,050	15,916	5,500	5,600	5,700	5,800	5,900	6,000	6,200	6,400	6,600	6,800
19	50-50-5630 Litigation	4,505	319	20,403	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100
20	50-50-5660 Engineering	6,086	43,000	415	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,100	12,400	12,700
21	50-50-5675 Liability Insurance	6,147	5,823	1,506	6,000	6,200	6,400	6,600	6,800	7,000	7,200	7,400	7,600	7,800
22	50-50-5700 Eco Dev Contractual	-	4,172	25,703	50,000	51,300	52,600	53,900	55,200	56,600	58,000	59,500	61,000	62,500
23	50-50-5715 Contractual-Payroll	1,147	437	519	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
24	50-50-5720 Water Contractual	12,530	20,651	26,675	24,500	25,100	25,700	26,300	27,000	27,700	28,400	29,100	29,800	30,500
25	50-50-5800 IT Maintenance	7,512	7,079	3,526	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
26	50-50-5810 Hardware Expense	1,915	1,500	7,449	12,500	12,800	13,100	13,400	13,700	14,000	14,400	14,800	15,200	15,600
27	50-50-5820 Software Expense	4,904	2,109	7,520	5,600	5,700	5,800	5,900	6,000	6,200	6,400	6,600	6,800	7,000
28	50-50-5850 Telephone	1,398	1,430	1,353	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
29	50-50-5870 Communications	-	-	120	200	200	200	200	200	200	200	200	200	200
30	50-50-6130 Supplies	-	3,847	2,410	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
31	50-50-6150 Administrative Building	13,238	-	15,260	6,600	6,800	7,000	7,200	7,400	7,600	7,800	8,000	8,200	8,400
32	50-50-6160 Public Works Building	4,240	-	7,578	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900
33	50-50-6200 Vehicle Insurance	2,100	2,438	618	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
34	50-50-6210 Vehicle Maintenance	1,752	550	3,550	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900
35	50-50-6220 Fuel & Oil	5,170	7,044	4,266	6,000	6,200	6,400	6,600	6,800	7,000	7,200	7,400	7,600	7,800
36	50-50-6260 Safety Equipment	-	887	187	8,300	8,500	8,700	8,900	9,100	9,300	9,500	9,700	9,900	10,100
37	50-50-7200 Pump-Line Maintenance	22,718	14,822	17,319	19,700	20,200	20,700	21,200	21,700	22,200	22,800	23,400	24,000	24,600
38	50-50-7210 Tower Maintenance	37	94	-	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
39	50-50-7220 Meter Maintenance	6,578	6,541	3,524	9,400	9,600	9,800	10,000	10,300	10,600	10,900	11,200	11,500	11,800
40	50-50-7250 Utilities	6,022	3,832	8,681	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
41	Total Water Expenses	844,457	877,726	1,044,552	1,171,300	1,125,500	1,042,500	1,083,900	1,127,100	1,172,200	1,219,500	1,268,900	1,320,400	1,374,000
			3.9%	19.0%	12.1%	-3.9%	-7.4%	4.0%	4.0%	4.0%	4.0%	4.1%	4.1%	4.1%

2.4.2 Projected Capital Improvement Expenditures

Table 2-4 shows the projected capital improvement expenditures for the 2016 to 2025 planning period. As shown in Table 2-4, the inflated CIP ranges by year from a low of \$45,700 in 2025 to a high of \$5,194,200 in 2017. A primary contributor to the CIP forecast is the Kansas City Water Supply Transmission Main and the Connection Fee.

Table 2-4: Capital Improvement Program

Line No.		Projected										Total	
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
Budgeted Projects													
1	WA15-002	Kansas City Water Supply 12" Trans. Main	-	3,510,000	-	-	-	-	-	-	-	-	3,510,000
2		Kansas City Connection Fee	-	817,000	-	-	-	-	-	-	-	-	817,000
3	WA15-003	Peculiar Drive North to Hurly	562,513	-	-	-	-	-	-	-	-	-	562,513
4	WA15-004	Spencer Addition	-	327,940	-	-	-	-	-	-	-	-	327,940
5	WA15-005	Harr Grove	-	-	259,059	-	-	-	-	-	-	-	259,059
6	WA15-006	Water Supply Valve Engineering	74,000	-	-	-	-	-	-	-	-	-	74,000
7	WA16-001	Windmill Meter Relocation	50,000	-	-	-	-	-	-	-	-	-	50,000
8	WA16-002	F350 Replacement (2004)	-	-	35,500	-	-	-	-	-	-	-	35,500
9	WA16-003	Water Storage Tank Maintenance	-	60,000	60,000	60,000	60,000	-	-	-	-	-	240,000
10	WA20-001	VFD Pump	-	-	-	-	30,000	-	-	-	-	-	30,000
11	WA20-002	Water Storage Inspection	-	-	-	15,000	-	-	-	-	-	-	15,000
12	PA18-001	F350 Replacement (2008)	-	-	35,500	-	-	-	-	-	-	-	35,500
13		Improvement 2	-	327,940	-	-	-	-	-	-	-	-	327,940
14		Improvement 3	-	-	259,059	-	-	-	-	-	-	-	259,059
15		Improvement 4	-	-	-	261,482	-	-	-	-	-	-	261,482
16		Improvement 5	-	-	-	-	184,248	-	-	-	-	-	184,248
17		Improvement 6	-	-	-	-	-	452,156	-	-	-	-	452,156
18		Improvement 7	-	-	-	-	-	-	184,046	-	-	-	184,046
19		Improvement 8	-	-	-	-	-	-	-	278,154	-	-	278,154
20		Tank Mixing Systems (2)	-	-	-	-	-	-	-	-	100,000	-	100,000
21		Emergency Generator	-	-	-	-	-	-	-	-	-	35,000	35,000
22		Total Capital Improvement Projects	686,513	5,042,880	649,118	321,482	289,248	452,156	184,046	278,154	100,000	35,000	8,038,597
23		Total Capital Improvement Projects with Inflation	686,500	5,194,200	688,600	351,300	325,600	524,200	219,800	342,100	126,700	45,700	8,504,700

2.4.3 Existing and Proposed Debt Service Requirements

Table 2-5 presents the existing and proposed debt service requirements for the water utility. As shown on Table 2-5, the water utility currently has approximately \$154,000 to \$340,800 of annual debt service payment obligations throughout the forecast period. A single debt issuance for the major capital projects associated with connecting to the City of Kansas City is proposed in 2017 for \$5.25 million. The proposed debt service assumes a 20 year term and an interest rate of 4.25 percent. Including both existing and proposed debt, total debt service increases from approximately \$154,000 in 2016 to approximately \$735,700 in 2025.

Table 2-5: Existing and Proposed Debt Service

Line No.		Projected									
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Existing Debt Issues										
1	Series 2014	37,300	37,400	37,500	37,600	36,900	37,900	37,400	37,600	37,800	38,600
2	Series 2013	44,000	43,700	43,400	43,100	42,700	44,600	44,000	43,200	44,900	44,000
3	Series 2013 COP Refinancing	48,100	48,100	48,100	149,800	181,900	250,500	253,300	255,500	253,400	258,200
4	2013 COP Refinancing	24,600	28,000	27,500	26,900	-	-	-	-	-	-
5	Total Existing Debt Service	154,000	157,200	156,500	257,400	261,500	333,000	334,700	336,300	336,100	340,800
	Proposed Debt										
6	2017 Issuance	-	394,900	394,900	394,900	394,900	394,900	394,900	394,900	394,900	394,900
7	Total Proposed Debt Service	-	394,900	394,900	394,900	394,900	394,900	394,900	394,900	394,900	394,900
8	Total Debt Service	154,000	552,100	551,400	652,300	656,400	727,900	729,600	731,200	731,000	735,700

2.5 Water Utility Financial Plan

Based on the information developed for this report, a financial plan has been assembled. This financial plan aggregates the revenues and expenses forecasted and described previously to assess the adequacy of revenues to meet all operating and capital requirements. The cash flow analysis identifies the overall increase in revenues needed to meet the City's overall financial objectives.

2.5.1 Operating Flow of Funds

A detailed cash flow is presented in Table 2-6. Line 1 of Table 2-6 shows user revenues under existing and approved rates, shown previously in Table 2-2. Lines 2 through 10 present the proposed revenue increases. As can be seen, no additional revenue increases are needed until FY 2021. All increases shown are assumed to be effective in October of the calendar year indicated. Total user revenues are summarized on Line 12. Lines 13 through 19 present other water fund revenues, which are projected to remain at 2016 budget levels. Line 20 shows the total operating revenue forecasted over the study period. Including the proposed revenue adjustments, total revenue is projected to range from \$1,688,700 in 2016 to \$2,343,500 in 2025.

Operating revenue requirements are shown on Lines 21 through 25 of Table 2-6. The operations and maintenance expenses are as shown previously in Table 2-3. The debt service amounts on Lines 22 through 24 correspond to the debt shown in Table 2-5.

Total revenue requirements are summarized on Line 25 of Table 2-6. This amount is deducted from Line 20 total revenue to determine the annual operating balance. With the proposed revenue adjustments, the operating balance is positive throughout the forecast.

2.5.2 Capital Flow of Funds

The capital flow of funds is shown in Table 2-6 on Lines 32 through 38.

Sources of funds include a transfer of funds from the operating balance and the issuance of debt. In FY 2016, the transfer from operating funds is approximately \$482,900. Capital improvement projects shown on Line 37 are consistent with that shown in Table 2-4.

Line 38 of Table 2-6 shows the annual capital balance. As can be seen, the balance all years of the forecast show enough funding sources for the capital in each year, leaving a positive capital balance on Line 38.

Total utility debt service coverage is calculated on Lines 39 through 41. After the proposed 2017 debt issuance, debt service coverage is anticipated to range from 1.27 to 1.64 from 2017 to 2025.

Table 2-6: Water Utility Financial Plan

Line No.	Projected										
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Water Utility Operating Flow of Funds											
1	Revenue Under Existing Rates	1,501,500	1,641,400	1,761,400	1,775,000	1,788,700	1,802,600	1,816,600	1,830,700	1,845,000	1,859,400
Proposed Revenue Adjustments											
	<u>Year</u>	<u>Month</u>	<u>Increase</u>								
2	2017	1	0.0%	-	-	-	-	-	-	-	-
3	2018	1	0.0%	-	-	-	-	-	-	-	-
4	2019	1	0.0%	-	-	-	-	-	-	-	-
5	2020	1	3.0%		53,700	54,100	54,500	54,900	55,400	55,800	
6	2021	1	3.0%			55,700	56,100	56,600	57,000	57,500	
7	2022	1	3.0%				57,800	58,300	58,700	59,200	
8	2023	1	2.0%					40,000	40,300	40,600	
9	2024	1	2.0%						41,100	41,500	
10	2025	1	2.0%							42,300	
11	Total Proposed Additional Revenue	-	-	-	-	53,700	109,800	168,400	209,800	252,500	296,900
12	Total Water User Charge Revenue	1,501,500	1,641,400	1,761,400	1,775,000	1,842,400	1,912,400	1,985,000	2,040,500	2,097,500	2,156,300
Other Water Fund Revenues											
13	Water Connection Fees	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
14	Interest Income	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
15	Penalties	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
16	Tower Rental	21,700	21,700	21,700	21,700	21,700	21,700	21,700	21,700	21,700	21,700
17	Reimbursed Expense	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
18	G.O. Principal (transfer from DSF 40)	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500
19	Total Other Water Fund Revenues	187,200	187,200	187,200	187,200	187,200	187,200	187,200	187,200	187,200	187,200
20	Grand Total Water Revenue	1,688,700	1,828,600	1,948,600	1,962,200	2,029,600	2,099,600	2,172,200	2,227,700	2,284,700	2,343,500
Revenue Requirements											
21	Operation and Maintenance Expense	1,171,200	1,125,500	1,042,500	1,083,900	1,127,100	1,172,200	1,219,500	1,268,900	1,320,400	1,374,000
Debt Service											
22	Existing Debt	154,000	157,200	156,500	257,400	261,400	333,100	334,700	336,300	336,100	340,900
23	Proposed Debt	-	394,900	394,900	394,900	394,900	394,900	394,900	394,900	394,900	394,900
24	Total Debt Service	154,000	552,100	551,400	652,300	656,300	728,000	729,600	731,200	731,000	735,800
25	Total Revenue Requirements	1,325,200	1,677,600	1,593,900	1,736,200	1,783,400	1,900,200	1,949,100	2,000,100	2,051,400	2,109,800
26	Annual Operating Balance	363,500	151,000	354,700	226,000	246,200	199,400	223,100	227,600	233,300	233,700
27	Beginning Balance - Operating Fund	397,000	277,600	300,600	320,300	322,600	333,600	345,100	357,100	366,200	375,600
28	Funds from Operating Balance	363,500	151,000	354,700	226,000	246,200	199,400	223,100	227,600	233,300	233,700
29	Transfer to Capital	(482,900)	(128,000)	(335,000)	(223,700)	(235,200)	(187,900)	(211,100)	(218,500)	(223,900)	(224,100)
30	Ending Balance - Operating Funds	277,600	300,600	320,300	322,600	333,600	345,100	357,100	366,200	375,600	385,200
31	Minimum Annual Operating Balance [1]	277,600	300,600	320,300	322,600	333,600	345,100	357,100	366,200	375,600	385,200
Water Utility Capital Flow of Funds											
32	Beginning Balance - Capital Funds	1,300,000	1,096,400	1,280,200	926,600	799,000	708,600	372,300	363,600	240,000	337,200
33	Water Connection Fees	-	-	-	-	-	-	-	-	-	-
34	Transfer from Operations	482,900	128,000	335,000	223,700	235,200	187,900	211,100	218,500	223,900	224,100
35	Debt Issuance	-	5,250,000	-	-	-	-	-	-	-	-
36	Total Available Capital Funds	1,782,900	6,474,400	1,615,200	1,150,300	1,034,200	896,500	583,400	582,100	463,900	561,300
37	Major Capital Improvements	686,500	5,194,200	688,600	351,300	325,600	524,200	219,800	342,100	126,700	45,700
38	Ending Balance - Capital Funds	1,096,400	1,280,200	926,600	799,000	708,600	372,300	363,600	240,000	337,200	515,600
Debt Service Coverage											
39	Net Operating Revenues Available for Debt Service	517,500	703,100	906,100	878,300	902,500	927,400	952,700	958,800	964,300	969,500
40	Annual Debt Service	154,000	552,100	551,400	652,300	656,300	728,000	729,600	731,200	731,000	735,800
41	Debt Service Coverage	3.36	1.27	1.64	1.35	1.38	1.27	1.31	1.31	1.32	1.32

[1] Minimum Annual Operating Balance equal to 60 days of operating revenues.

2.6 Alternative Water Utility Financial Plan

An alternative financial plan has been assembled based on an intermediate demand forecast for the City. This financial plan scenario shows the outcome of increased demand for the City. Due to the increased water system demand, the revenues under existing and proposed rates are higher and the operating costs are higher because of an increased water supply fee. With the higher revenues associated under this scenario, no additional revenue increases are needed and a lower debt issuance is projected.

2.6.1 Operating Flow of Funds

A detailed cash flow is presented in Table 2-7. Line 1 of Table 2-7 shows user revenues under existing rates. As mentioned above, this revenue stream is higher than what is shown in Table 2-6 due to the increased water system demand. Lines 2 through 10 present the proposed revenue increases. As can be seen, no additional revenue increases are anticipated to be needed throughout the forecast period. Total user revenues are summarized on Line 12. Lines 13 through 19 present other water fund revenues, which are projected to remain at 2016 budget levels. Line 20 shows the total operating revenue forecasted over the study period. Total revenue is projected to range from \$1,688,700 in 2016 to \$3,237,600 in 2025.

Operating revenue requirements are shown on Lines 21 through 25 of Table 2-7. The operations and maintenance expenses are higher than those shown previously in Table 2-3, due to increased water purchases. The proposed debt services amount on Line 23 is lower than the debt shown in Table 2-5 due to a lower proposed debt issuance amount of \$3.95 million.

Total revenue requirements are summarized on Line 25 of Table 2-7. This amount is deducted from Line 20 total revenue to determine the annual operating balance. In this scenario, the operating balance is positive throughout the forecast.

2.6.2 Capital Flow of Funds

The capital flow of funds is shown in Table 2-7 on Lines 32 through 38.

Sources of funds include a transfer of funds from the operating balance and the issuance of debt. In FY 2016, the transfer from operating funds is approximately \$482,900. Capital improvement projects shown on Line 37 are consistent with that shown in Table 2-4 and Table 2-6.

Line 38 of Table 2-7 shows the annual capital balance. As can be seen, the balance all years of the forecast show enough funding sources for the capital in each year, leaving a positive capital balance on Line 38.

Total utility debt service coverage is calculated on Lines 39 through 41. After the proposed 2017 debt issuance, debt service coverage is anticipated to range from 1.75 to 2.47 from 2017 to 2025.

Table 2-7: Alternative Water Utility Financial Plan

Line No.	Projected										
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Water Utility Operating Flow of Funds											
1	Revenue Under Existing Rates	1,501,500	1,765,600	2,026,000	2,172,000	2,318,000	2,464,200	2,610,600	2,757,000	2,903,600	3,050,400
Proposed Revenue Adjustments											
	<u>Year</u>	<u>Month</u>	<u>Increase</u>								
2	2017	1	0.0%	-	-	-	-	-	-	-	-
3	2018	1	0.0%	-	-	-	-	-	-	-	-
4	2019	1	0.0%	-	-	-	-	-	-	-	-
5	2020	1	0.0%	-	-	-	-	-	-	-	-
6	2021	1	0.0%	-	-	-	-	-	-	-	-
7	2022	1	0.0%	-	-	-	-	-	-	-	-
8	2023	1	0.0%	-	-	-	-	-	-	-	-
9	2024	1	0.0%	-	-	-	-	-	-	-	-
10	2025	1	0.0%	-	-	-	-	-	-	-	-
11	Total Proposed Additional Revenue	-	-	-	-	-	-	-	-	-	-
12	Total Water User Charge Revenue	1,501,500	1,765,600	2,026,000	2,172,000	2,318,000	2,464,200	2,610,600	2,757,000	2,903,600	3,050,400
Other Water Fund Revenues											
13	Water Connection Fees	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
14	Interest Income	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
15	Penalties	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
16	Tower Rental	21,700	21,700	21,700	21,700	21,700	21,700	21,700	21,700	21,700	21,700
17	Reimbursed Expense	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
18	G.O. Principal (transfer from DSF 40)	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500
19	Total Other Water Fund Revenues	187,200	187,200	187,200	187,200	187,200	187,200	187,200	187,200	187,200	187,200
20	Grand Total Water Revenue	1,688,700	1,952,800	2,213,200	2,359,200	2,505,200	2,651,400	2,797,800	2,944,200	3,090,800	3,237,600
Revenue Requirements											
21	Operation and Maintenance Expense	1,171,200	1,158,400	1,092,700	1,163,000	1,237,800	1,317,500	1,402,600	1,493,200	1,589,500	1,692,000
Debt Service											
22	Existing Debt	154,000	157,200	156,500	257,400	261,400	333,100	334,700	336,300	336,100	340,900
23	Proposed Debt	-	297,100	297,100	297,100	297,100	297,100	297,100	297,100	297,100	297,100
24	Total Debt Service	154,000	454,300	453,600	554,500	558,500	630,200	631,800	633,400	633,200	638,000
25	Total Revenue Requirements	1,325,200	1,612,700	1,546,300	1,717,500	1,796,300	1,947,700	2,034,400	2,126,600	2,222,700	2,330,000
26	Annual Operating Balance	363,500	340,100	666,900	641,700	708,900	703,700	763,400	817,600	868,100	907,600
27	Beginning Balance - Operating Fund	397,000	277,600	321,000	363,800	387,800	411,800	435,800	459,900	484,000	508,100
28	Funds from Operating Balance	363,500	340,100	666,900	641,700	708,900	703,700	763,400	817,600	868,100	907,600
29	Transfer to Capital	(482,900)	(296,700)	(624,100)	(617,700)	(684,900)	(679,700)	(739,300)	(793,500)	(844,000)	(883,500)
30	Ending Balance - Operating Funds	277,600	321,000	363,800	387,800	411,800	435,800	459,900	484,000	508,100	532,200
31	Minimum Annual Operating Balance [1]	277,600	321,000	363,800	387,800	411,800	435,800	459,900	484,000	508,100	532,200
Water Utility Capital Flow of Funds											
32	Beginning Balance - Capital Funds	1,300,000	1,096,400	148,900	84,400	350,800	710,100	865,600	1,385,100	1,836,500	2,553,800
33	Water Connection Fees	-	-	-	-	-	-	-	-	-	-
34	Transfer from Operations	482,900	296,700	624,100	617,700	684,900	679,700	739,300	793,500	844,000	883,500
35	Debt Issuance	-	3,950,000	-	-	-	-	-	-	-	-
36	Total Available Capital Funds	1,782,900	5,343,100	773,000	702,100	1,035,700	1,389,800	1,604,900	2,178,600	2,680,500	3,437,300
37	Major Capital Improvements	686,500	5,194,200	688,600	351,300	325,600	524,200	219,800	342,100	126,700	45,700
38	Ending Balance - Capital Funds	1,096,400	148,900	84,400	350,800	710,100	865,600	1,385,100	1,836,500	2,553,800	3,391,600
Debt Service Coverage											
39	Net Operating Revenues Available for Debt Service	517,500	794,400	1,120,500	1,196,200	1,267,400	1,333,900	1,395,200	1,451,000	1,501,300	1,545,600
40	Annual Debt Service	154,000	454,300	453,600	554,500	558,500	630,200	631,800	633,400	633,200	638,000
41	Debt Service Coverage	3.36	1.75	2.47	2.16	2.27	2.12	2.21	2.29	2.37	2.42

3.0 PROPOSED TAP FEES

3.1 Introduction

The City refers to the one-time fee charged to its new customer connections as a tap fee. This fee is intended to reasonably recover the cost associated with capacity in the system to accommodate new connections. Within the water industry, these types of fees are frequently referred to as system development charges, connection fees, or impact fees. Currently, the City's residential water tap fee is \$1,600 and the commercial water tap fee is \$1,900 for connections up to 1 inch. Commercial connections greater than 1 inch include additional fees for parts and materials. As a part of this Study, the City's current tap fees were reviewed.

Properly applied, the use of tap fees should result in new connections paying their proportionate share of water system development costs, thereby lowering the burden of development costs that existing ratepayers would otherwise fund through user charges. Tap fees may also reduce the overall level of debt financing that may be necessary to build new facilities. Additionally, by utilizing tap fees future customers will pay for historical investment in facilities made by existing customers. Ultimately, the use of tap fees enables new customers who directly benefit from the service to pay for the service, rather than receive a subsidy from all other customers through user charges.

Tap fees should be implemented with appropriate consideration of legal authority and statutory requirements, which vary by state. Some important elements in the development of tap fees are summarized or referenced in this section of the report. However, this report should not be considered legal advice pertaining to the implementation or use of tap fees.

Generally speaking, a reasonable relationship must exist between the fees charged and the cost of providing capacity to the customer. This relationship is typically referred to as a rational nexus, which is a foundational concept in the development of tap fees. Having a rational nexus means that the tap fee has a reasonable relationship to the benefits received, and that new customers pay their proportionate share of the cost of capacity.

The City does not receive the current tap fee until the application for the building permit is filed. Additionally, the City is planning to add further capacity improvement projects to accommodate future growth. The remainder of this section of the report describes the analysis used to assign new customers their proportionate share of system capacity costs. As such, the City is establishing a rational nexus between capacity provided in the system, the proportionate share to be recovered from new customers, and the proposed tap fees.

3.2 Methodology

Different approaches may be used in the determination of tap fees. The American Water Works Association (AWWA) M1 Manual of Practice indicates the three most common methods for determining tap fees are:

- Buy-In Method, which is based on the value of the existing capacity;
- Incremental Cost Method, which is based on the value or cost to expand the system's capacity, and,
- Combined Approach, which is based on the blended value of the existing and expanded system's capacity.

The Buy-In Method was selected for use in the update of the City's tap fees. Under the Buy-In Method, tap fees for new customers reflect the current value of providing capacity to serve additional users. Under this method, the new customer is effectively on par with the value of capacity contributed by existing customers and shares equally in the responsibility for system capacity. There are two advantages associated with the use of the Buy-In Method for this analysis.

- The Buy-In Method is commonly accepted and relatively easy to explain;
- Because the approach uses the current cost of existing capacity, it is not dependent future capital projects and capital spending to justify the level of fee. In other words, the resulting fee is justifiable regardless of the path the City moves forward with pertaining to expanded water supply capacity and storage.

The steps involved in the Buy-In Method include system valuation, determination of applicable credits, equivalent unit development, and the design of tap fees. Each of these steps is described herein.

3.3 System Valuation

The first step in the Buy-In Method is valuing the system infrastructure. Burns & McDonnell examined the fixed asset records maintained for the water utility as of September 30, 2015, which is the end of the most recently completed fiscal year. Fixed assets are characterized as Buildings and Improvements, Construction in Progress, Infrastructure, Land and Improvements, Machinery and Equipment, and Office Equipment and Furniture. Assets included in the tap fee development should directly relate to capacity-producing assets that serve as the backbone of the water utility system. As such, Construction in Progress and Infrastructure asset categories were included in the evaluation. A review of assets included in the other categories indicated they were more of a general nature, such as a portion of City Hall costs, field machinery such as backhoes and electronic equipment, and office computers. Table 3-1 summarizes the original cost, accumulated depreciation, and remaining value of the existing infrastructure assets. As

shown on Table 3-1, original cost less depreciation (OCLD) values of the selected assets on the City's books totaled nearly \$3.8 million.

Table 3-1: Original Cost Less Depreciation of Backbone Assets as of 9/30/2015

System No.	Description	Date In Service	Years Life	Original Cost	Accumulated Depreciation	Original Cost less Depreciation
Construction in Process						
373	Professional services - ground storage tank	9/30/2014	0	\$ 1,931	\$ -	\$ 1,931
396	CIP Water Lines	8/1/2015	0	\$ 137,679	\$ -	\$ 137,679
Total Construction In Process				\$ 139,610	\$ -	\$ 139,610
Infrastructure						
60	Water System-1993/1994B Including refunding previous series	9/30/1990	40	\$ 360,000	\$ 225,750	\$ 134,250
61	Water/Sewer System-1994A Series - Water Portion	9/30/1994	40	\$ 2,738,300	\$ 1,443,319	\$ 1,294,981
66	Bar Screen SW Plant - Water portion	9/1/2004	10	\$ 12,631	\$ 12,631	\$ -
70	12' WT line Centennial Farms - Water portion	6/15/2005	40	\$ 15,061	\$ 3,892	\$ 11,169
72	Sioux Chief Water/Sewer Project Missouri Grant - Water portion	7/1/2005	40	\$ 403,022	\$ 103,275	\$ 299,746
71	Water line-Harper Harper farm	7/15/2005	40	\$ 26,767	\$ 6,858	\$ 19,909
75	Water / Tower / Line Project EPA/COPS2004/UF	9/15/2006	40	\$ 1,516,449	\$ 344,360	\$ 1,172,089
76	Water / Tower / Line Project Final	10/1/2006	40	\$ 228,639	\$ 51,444	\$ 177,195
135	New Meter Sets	10/24/2007	10	\$ 3,667	\$ 2,903	\$ 764
102	Sewer- Trenchless Liner at Peculiar Golf & Learning Center	8/1/2008	40	\$ 17,280	\$ 3,096	\$ 14,184
134	Meter Change Out Program	8/20/2008	10	\$ 17,116	\$ 12,124	\$ 4,992
137	New Meter Sets	2/4/2009	10	\$ 2,000	\$ 1,333	\$ 667
138	Meter Changeouts	2/19/2009	10	\$ 1,721	\$ 1,133	\$ 588
169	MEADOW VIEW ESTATES METERS	10/10/2010	10	\$ 9,798	\$ 4,899	\$ 4,899
184	Broadway Main Replacement	2/1/2012	40	\$ 112,050	\$ 10,271	\$ 101,779
241	negative asset	9/30/2012	0	\$ 245	\$ (108,329)	\$ 108,574
370	Ground Water Storage Tank Renovation	8/25/2014	30	\$ 239,068	\$ 8,633	\$ 230,435
400	Ground Water Storage Tank Renovation	5/11/2015	25	\$ 54,879	\$ 882	\$ 53,997
Total Infrastructure				\$ 5,758,693	\$ 2,128,476	\$ 3,630,217
Total Construction in Process and Infrastructure				\$ 5,898,303	\$ 2,128,476	\$ 3,769,827

As shown on Table 3-1, the selected assets have been placed in service beginning in 1990 up through 2015. These costs were recorded into the fixed asset system based on the cost incurred at the time of construction, and do not reflect current value in 2016 dollars. To reflect the current value of these assets, a replacement cost has been developed and is shown in Table 3-2.

Replacement costs represent the current day cost of replicating the existing assets. Development of replacement cost is achieved by applying construction cost inflation indices. Inflation factors were sourced from the Handy-Whitman Index of Public Utility Construction Costs, Cost Trends of Water Utility Construction for the North Central Region. After bringing the cost of the infrastructure up to today's value, the replacement cost assets are then depreciated to reflect the wear and tear that has been incurred since they were placed in service. This replacement cost less depreciation (RCLD) value represents a value in today's dollars while also recognizing the assets being valued are not new.

Table 3-2: Replacement Cost Less Depreciation of Backbone Assets as of 9/30/2015

System No.	Description	Original Cost less Depreciation	Eligible Backbone Infrastructure	Eligible Original Cost less Depreciation	Handy-Whitman Inflation Factor	Replacement Cost less Depreciation
Construction in Process						
373	Professional services - ground storage tank	\$ 1,931	100%	\$ 1,931	1.0	\$ 1,931
396	CIP Water Lines	\$ 137,679	100%	\$ 137,679	1.0	\$ 137,679
Total Construction In Process		\$ 139,610		\$ 139,610		\$ 139,610
Infrastructure						
60	Water System-1993/1994B Including refunding previous series	\$ 134,250	100%	\$ 134,250	2.3	\$ 311,216
61	Water/Sewer System-1994A Series - Water Portion	\$ 1,294,981	100%	\$ 1,294,981	2.1	\$ 2,686,537
66	Bar Screen SW Plant - Water portion	\$ -	0%	\$ -		\$ -
70	12' WT line Centennial Farms - Water portion	\$ 11,169	100%	\$ 11,169	1.6	\$ 18,234
72	Sioux Chief Water/Sewer Project Missouri Grant - Water portion	\$ 299,746	0%	\$ -		\$ -
71	Water line-Harper Harper farm	\$ 19,909	100%	\$ 19,909	1.6	\$ 32,502
75	Water / Tower / Line Project EPA/COPS2004/UF	\$ 1,172,089	100%	\$ 1,172,089	1.9	\$ 2,224,216
76	Water / Tower / Line Project Final	\$ 177,195	100%	\$ 177,195	1.9	\$ 336,255
135	New Meter Sets	\$ 764	0%	\$ -		\$ -
102	Sewer- Trenchless Liner at Peculiar Golf & Learning Center	\$ 14,184	0%	\$ -		\$ -
134	Meter Change Out Program	\$ 4,992	0%	\$ -		\$ -
137	New Meter Sets	\$ 667	0%	\$ -		\$ -
138	Meter Changeouts	\$ 588	0%	\$ -		\$ -
169	MEADOW VIEW ESTATES METERS	\$ 4,899	0%	\$ -		\$ -
184	Broadway Main Replacement	\$ 101,779	100%	\$ 101,779	1.1	\$ 109,249
241	negative asset	\$ 108,574	0%	\$ -		\$ -
370	Ground Water Storage Tank Renovation	\$ 230,435	100%	\$ 230,435	1.0	\$ 230,435
400	Ground Water Storage Tank Renovation	\$ 53,997	100%	\$ 53,997	1.0	\$ 53,997
Total Infrastructure		\$ 3,630,217		\$ 3,195,803		\$ 6,002,639
Total Construction in Process and Infrastructure		\$ 3,769,827		\$ 3,335,412	\$ -	\$ 6,142,249

One additional step has been added in the determination of RCLD. For each asset in the Construction in Process or Infrastructure categories, an evaluation of whether or not the underlying assets were eligible backbone facilities was performed. For instance, meter sets are not generally included in tap fee assessments, and have been excluded from the analysis. Also, the Sioux Chief project, which is indicated to have been funded by Missouri Grants, was also excluded, since that asset was contributed and not paid for by existing customers of the system. In total, the OCLD value was reduced from nearly \$3.8 million to approximately \$3.3 million. Adjusting for inflation, the RCLD of the remaining assets is valued at approximately \$6.1 million.

3.4 Outstanding Debt

The City's water utility does have outstanding debt. Because this debt will likely be paid from user charges received from both existing and future users, the value of the outstanding principal should be excluded from the valuation. Doing so prevents the potential to double count the cost of the asset recovered through the tap fee and debt service as paid through user charges. Table 3-3 summarizes the

water and sewer utility outstanding principal as of September 30, 2015, and adjusts the principal to derive the water-only portion. Outstanding water utility principal is approximately \$3.1 million.

Table 3-3: Outstanding Water Utility Principal as of 9/30/2015

	Series <u>2014</u>	Series <u>2013</u>	Series 2013 COP <u>Refinance</u>	Series 2013 COP <u>Refinance</u>	<u>Total</u>
2016	\$ 21,419	\$ 50,000	\$ -	\$ 30,000	\$ 101,419
2017	\$ 22,184	\$ 50,000	\$ -	\$ 35,000	\$ 107,184
2018	\$ 22,949	\$ 50,000	\$ -	\$ 35,000	\$ 107,949
2019	\$ 23,714	\$ 50,000	\$ 135,000	\$ 35,000	\$ 243,714
2020	\$ 23,714	\$ 55,000	\$ 180,000	\$ -	\$ 258,714
2021	\$ 25,244	\$ 55,000	\$ 275,000	\$ -	\$ 355,244
2022	\$ 25,244	\$ 55,000	\$ 285,000	\$ -	\$ 365,244
2023	\$ 26,009	\$ 60,000	\$ 295,000	\$ -	\$ 381,009
2024	\$ 26,774	\$ 60,000	\$ 300,000	\$ -	\$ 386,774
2025	\$ 28,304	\$ 60,000	\$ 315,000	\$ -	\$ 403,304
2026	\$ 29,069	\$ 65,000	\$ 325,000	\$ -	\$ 419,069
2027	\$ 29,834	\$ 70,000	\$ 335,000	\$ -	\$ 434,834
2028	\$ 30,599	\$ 70,000	\$ -	\$ -	\$ 100,599
2029	\$ 32,129	\$ 75,000	\$ -	\$ -	\$ 107,129
2030	\$ 33,659	\$ 80,000	\$ -	\$ -	\$ 113,659
2031	\$ 34,424	\$ 80,000	\$ -	\$ -	\$ 114,424
2032	\$ 34,424	\$ 85,000	\$ -	\$ -	\$ 119,424
2033	\$ 34,424	\$ 90,000	\$ -	\$ -	\$ 124,424
2034	\$ 35,189	\$ -	\$ -	\$ -	\$ 35,189
	\$ 539,311	\$ 1,160,000	\$ 2,445,000	\$ 135,000	\$ 4,279,311

Water-Only Portion

Ratio	100%	50%	76%	76%	
Value	\$ 539,311	\$ 580,000	\$ 1,858,200	\$ 102,600	\$ 3,080,111

3.5 Equivalent Unit Development

Table 3-4 details the development of current utilization of the City's water system. Based on existing City records and engineering assessments, the current average day demand including water losses is approximately 260,000 gallons, with a maximum day demand of 390,000 gallons. The City's population, based on information from the U.S. Census Bureau, is 4,797. Dividing daily demand by the City's population yields an average use per person of approximately 54 gallons per day and 81 gallons per day

for maximum day. The number of residents per household is estimated to be 2.67, based on U.S. Census Bureau information. Multiplying the average use per day per person by the number of persons per household provides an equivalent residential unit demand of 145 gallons per day on average and 217 gallons per day on maximum day.

Table 3-4: Equivalent Unit Development

<u>Description</u>	<u>Average Day</u>	<u>Maximum Day</u>
Current system demand in gallons	260,000	390,000
Population	4,797	4,797
Gallons per day per person	54	81
Persons per residential account	2.67	2.67
Gallons per day per equivalent residential unit	145	217

3.6 Tap Fee Development

Using the information illustrated in Tables 3-2 through 3-4, a tap fee may be calculated for a residential equivalent unit. Table 3-5 shows this calculation, and indicates the proposed tap fee to be \$1,704 per equivalent connection. The value is based on the net system value of approximately \$3.1 million, which is determined by subtracting the outstanding water principal previously identified in Table 3-3 from the RCLD previously shown in Table 3-2. This system value is divided by the maximum day demand from Table 3-4 to establish the price per gallon of \$7.85. This unit price is applied to the equivalent residential demand of 217 gallons per maximum day to derive the proposed tap fee for a residential connection.

Table 3-5: Tap Fee for an Equivalent Residential Unit

Replacement Cost less Depreciation	\$ 6,142,249
Less: Outstanding Debt	\$ <u>3,080,111</u>
Net System Value	\$ 3,062,138
System Demand in Gallons	390,000
Price per Gallon	\$ 7.85
Equivalent Residential Unit in Gallons	217
Calculated Impact Fee	\$ 1,704

Using the tap fee for an equivalent residential unit and an equivalency factor based on meter capacity, tap fees may be calculated for larger meter sizes. The equivalency factors reflect capacity factors documented in AWWA's M-1 rates manual Table VI.2-5. As shown in Table 3-6, tap fees for up to 4 inch connections

have been calculated. It is recommended that connections above 4 inches be evaluated on a case by case basis, taking into consideration the anticipated demand associated with the proposed development.

Table 3-6: Proposed Tap Fees by Meter Size

<u>Meter Size</u>	<u>Equivalency Ratio</u>	<u>Proposed Water Tap Fee</u>
5/8"	1.0	\$ 1,700
3/4"	1.0	\$ 1,700
1"	1.7	\$ 2,900
1.5"	3.3	\$ 5,600
2"	5.3	\$ 9,000
3"	10.4	\$ 17,700
4"	16.7	\$ 28,400

3.7 Comparison of Regional Tap Fees

A final consideration for tap fees is a comparison of the proposed tap fees to neighboring utilities. Table 3-7 shows the comparison of existing and proposed tap fees for the City to other regional water purveyors. The proposed tap fees developed in this report appear to be competitive with other regional water utility tap fees.

Table 3-7: Comparison of Regional Tap Fees

	Existing Peculiar Residential	Existing Peculiar Commercial	Proposed Peculiar	Cass PWSD#2	Cass PWSD#7	Cass PWSD#10	Harrisonville (a)	Belton (b)		Raymore (c)					
								Min	Max	Displacement / Compound	Class 1 Turbine	Class 2 Turbine	Pleasant Hill (d)		
5/8"	\$ 1,600		\$ 1,700		\$ 4,000		\$ 774								\$ 1,770
3/4"	\$ 1,600	\$ 1,900	\$ 1,700	\$ 4,500	\$ 4,000			\$ 3,090	\$ 3,090	\$ 2,318					
1"		\$ 1,900	\$ 2,900	\$ 6,563	\$ 4,000	\$ 3,400		\$ 4,944	\$ 4,944	\$ 3,621					
1 1/2"		\$ 1,900	\$ 5,600	\$ 13,125	\$ 4,000			\$ 6,180	\$ 9,888	\$ 4,525	\$ 7,240				
2"		\$ 1,900	\$ 9,000	\$ 21,000	\$ 4,000			\$ 12,360	\$ 14,832	\$ 9,049	\$ 10,862	\$ 10,862			
3"		\$ 1,900	\$ 17,700	\$ 4,000	\$ 4,000			\$ 18,540	\$ 33,867	\$ 13,575	\$ 22,626	\$ 24,890			
4"		\$ 1,900	\$ 28,400	\$ 4,000	\$ 4,000			\$ 24,670	\$ 61,800	\$ 18,133	\$ 36,245	\$ 45,254			

(a) Harrison fees above 5/8" are based on EDU. EDU's are determined based on average use per day, or case-by-case for larger connectoins. Currently, 55% of fee is waived. Water fee of \$1,720 per EDU without waiver.
 (b) Belton fees include a range for meters size at or above 1.5" based on meter type.
 (c) Raymore fees exclude meter supply fee. Impact fees vary by type of meter.
 (d) Tap fees over 3/4" are based on actual cost.

Burns & McDonnell recommends the City review its tap fee calculation approximately every 5 years.



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City Attorney
Reid Holbrook

Parks Director
Grant Purkey

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

To: Board of Aldermen
From: Clifford L. McDonald
Date: April 4, 2016
Re: Voluntary Annexation Petition, I-49 Right-of-way, from MHTC

GENERAL INFORMATION

Applicant: MHTC (Missouri Highway Traffic Commission)

Status of Applicant: N/A

Requested Actions: Board of Aldermen to conduct a Public Hearing regarding the Voluntary Annexation Petition received from MHTC to annex the I-49 Right-of-way from Peculiar Way (211th Street) north to 203rd Street into the Corporate City Limits of Peculiar; and consider the attached Ordinance for approval.

Date of Application: March 9th, 2016

Purpose: The purpose is for the BOA to review the Voluntary Annexation Petition, hear Public comment for or against, and consider the attached Annexation Ordinance for approval.

Property Location (if applicable): I-49 Corridor, Peculiar Way north to 203rd Street.

PROPOSAL

See “Requested Actions” above.

PREVIOUS ACTIONS

As part of the MoDOT annexation process, the City had a Public Notice of Intent to Annex published and contacted adjacent property owners by certified mail regarding this pending annexation; no formal protests have been received by the City.

KEY ISSUES

- Presently, Peculiar’s Corporate City Limits on I-49 only extend North to Peculiar Way (211th Street).
- The new intersection is well under construction, Staff believes it prudent to extend Peculiar’s City Limits on I-49 North to 203rd Street – this would provide the Peculiar Police Department jurisdiction on I-49 when the intersection opens and provide uniformity to the City’s northern City Limits.

STAFF COMMENTS AND SUGGESTIONS

None.

STAFF RECOMMENDATION

Staff Recommends the BOA review the attached Annexation Petition and consider the accompanying Ordinance for approval.

ATTACHMENTS

1. MHTC Voluntary Annexation Petition
2. Annexation Ordinance

STAFF CONTACT: Clifford L. McDonald,
PH: 816-779-2226
E-mail: cmcdonald@cityofpeculiar.com

CCO Form: RW39
Approved: 11/05 (BDG)
Revised: 01/15 (AR)
Modified:

VOLUNTARY ANNEXATION PETITION

The City of Peculiar, Missouri, (hereinafter, "City") has requested that the Missouri Highways and Transportation Commission (hereinafter, "MHTC") file a petition requesting voluntary annexation into the City of certain public rights of way as indicated in the attached plan sheets. The undersigned on behalf of the City hereby verifies the following:

(1) The City has published a notice of annexation in a local newspaper of general circulation for public comment regarding the proposed annexation or if the City has no local newspaper, it has given public notice using whatever mechanism it typically uses to notify citizens of similar actions.

(2) The City has provided accurate information to MHTC regarding any and all public input received for the annexation, along with any and all input received from the County of Peculiar and any other incorporated municipality within a five-mile radius of the area to be annexed.

(3) The City has complied with all requirements set forth by MHTC and has provided all information requested by MHTC.

(4) The City has notified all property owners adjacent to the MHTC property to be annexed pursuant to this annexation petition of the proposed voluntary annexation.

(5) The Commission has provided the City with a legal description of the property. If the City desires or is required by statute to use a legal description different from that provided by the Commission, the City shall ensure that the alternate legal description prepared by the City shall correspond to the Commission's legal description and the City shall ensure that the City's description will not extend beyond the description provided by the Commission.

(6) To the extent allowed by law, the City will hold MHTC, Missouri Department of Transportation and its employees harmless from any lawsuits arising out of or relating to the City's failure to comply with all statutes pertaining to the annexation of the described property.

(7) The parties enter into this voluntary annexation petition with full understanding that MHTC, to the best of its knowledge and belief, has the

authority to petition for voluntary annexation into the City. MHTC makes no representation that it has full fee simple title to the right of way which is the subject of this voluntary annexation. In the event this annexation is rendered null and void based upon a determination that MHTC did not have the authority to petition for voluntary annexation, MHTC will not be responsible for any damages, costs or other expenses incurred by the City in connection with this Agreement.

(8) That the undersigned on behalf of the City of Peculiar has the authority to execute the terms and conditions contained in this voluntary annexation petition and bind the City to those terms and conditions.

(9) That the event the voluntary annexation is approved by the City and the city limits are extended to include the rights of way described in this voluntary annexation petition, the City shall provide MHTC's undersigned representative with a copy of the final ordinance adopted by the City extending the City's boundary to include the herein described right of way.

Therefore, the undersigned, according to his or her best knowledge, information, and belief, on behalf of the MHTC alleges:

(1) MHTC holds a property interest in the following described tracts:

All that portion of Interstate Highway 49 situated in the SW Quarter and the NW Quarter of Section 4, Township 45 North, Range 32 West, Cass County, Missouri and all that part of the NE Quarter of Section 5, Township 45, Range 32, Cass County, Missouri, which lies within the right of way widths between Station 400+00 and Station 460+00, as shown on the attached MHTC plan sheets and all that part of the NE Quarter of the NW Quarter of Section 9, Township 45 North, Range 32 West, in Cass County, Missouri, lying North and East of Highway 71 (I-49) as now established; containing 2.74 acres more or less.

(2) By execution of this petition, the MHTC requests that the above-described right of way be annexed to, and be included within the corporate limits of the City of Peculiar, Missouri, as authorized by the provisions of Chapter 71 of the Revised Statutes of Missouri.

(3) That, based upon information provided by the City, that the area to be annexed is not now a part of any incorporated municipality.

(4) That, based upon information provided by the City, the area to be annexed is compact and contiguous to the existing corporate limits of the City of Peculiar.

(5) That the undersigned petitioner is authorized to execute this voluntary annexation petition on behalf of MHTC so that the described right of way can be included within the corporate limits of the City of Peculiar.

(6) That MHTC authorizes the governing body of the City of Peculiar to cause the required notice to be published, to conduct a public hearing as required by law and to thereafter adopt as ordinance extending the limits of the City of Peculiar to include the above-described right of way.

THIS PETITION REQUESTING VOLUNTARY ANNEXATION IS NOT A VALID PETITION UNTIL BOTH THE CITY AND MHTC'S REPRESENTATIVE HAVE EXECUTED THE PETITION.

In Witness Whereof, the parties have entered into this voluntary annexation petition on the date last written below:

Executed by the City this _____ day of _____, 20__.

Executed by MHTC this _____ day of _____, 20__.

CITY OF PECULIAR

MISSOURI HIGHWAYS AND
TRANSPORTATION COMMISSION

By: _____

By: 

Title: _____

Title: District Engineer



ERIC FOSTER
My Commission Expires
July 23, 2016
Clay County
Commission #12371172

ACKNOWLEDGEMENT BY COMMISSION

STATE OF MISSOURI)
)
COUNTY OF JACKSON) SS

On this 9th day of MARCH, 2016 before me appeared Dan Niec personally known to me, who being by me duly sworn, did say that he is the District Engineer of the Missouri Highways and Transportation Commission and that said instrument was signed in behalf of said Commission by authority of the Missouri Highways and Transportation Commission and said District Engineer acknowledged said instrument to be the free act and deed of said Commission.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal in the county and state aforesaid the day and year written above.



Notary Public



ERIC FOSTER
My Commission Expires
July 23, 2016
Clay County
Commission #12371172

My Commission Expires: July 23, 2016

ACKNOWLEDGEMENT BY CITY

STATE OF MISSOURI)
)
COUNTY OF _____) SS

On this ____ day of _____, 20____, before me appeared _____ personally known to me, who being by me duly sworn, did say that he/she is the _____ of the City of _____ and that the foregoing instrument was signed and sealed on behalf of the City of _____ and that he/she acknowledged said instrument to be the free act and deed of the City of _____ and that it was executed for the consideration stated therein and no other.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal in the county and state aforesaid the day and year written above.

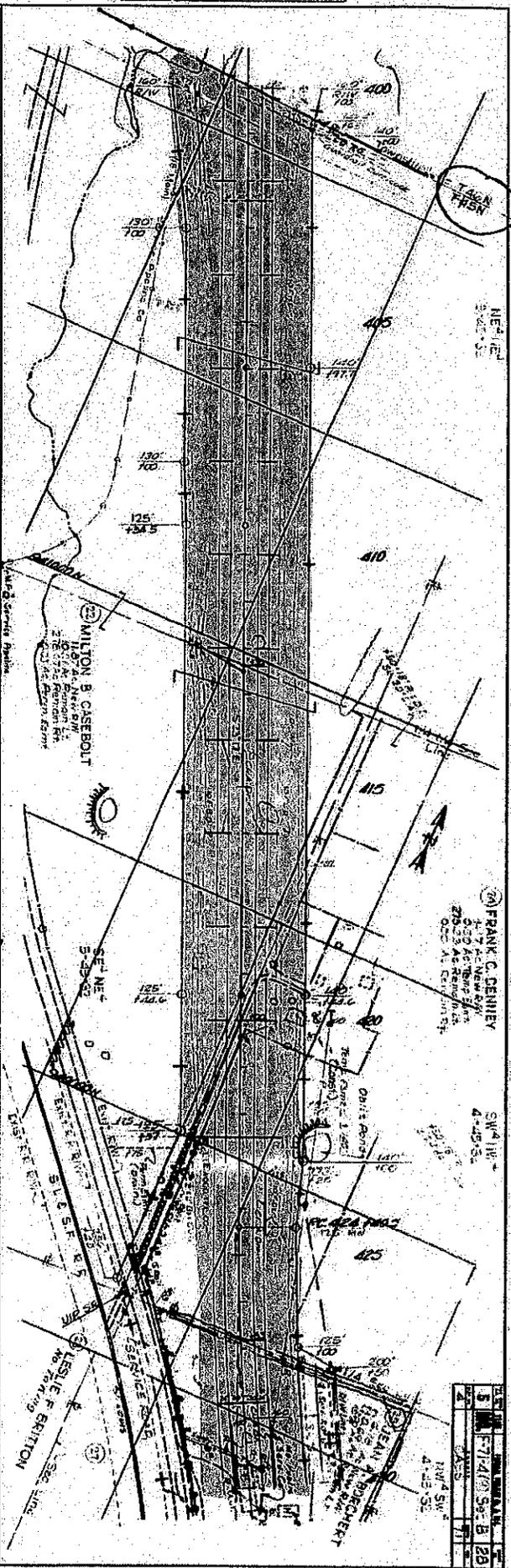
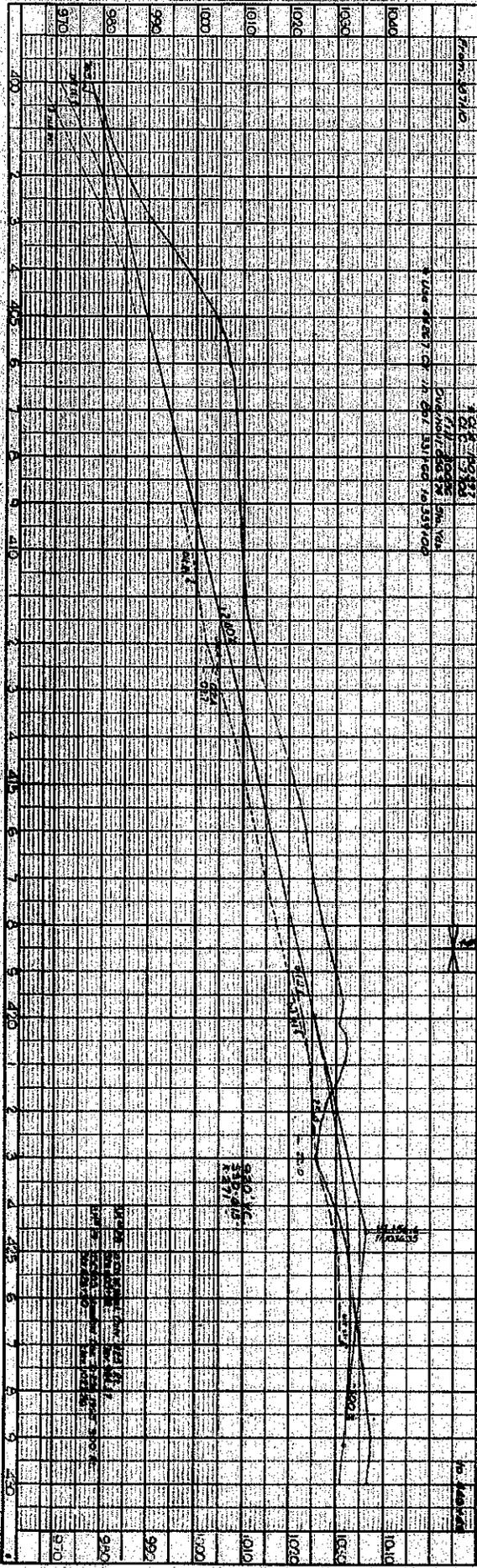
Notary Public

My Commission Expires: _____

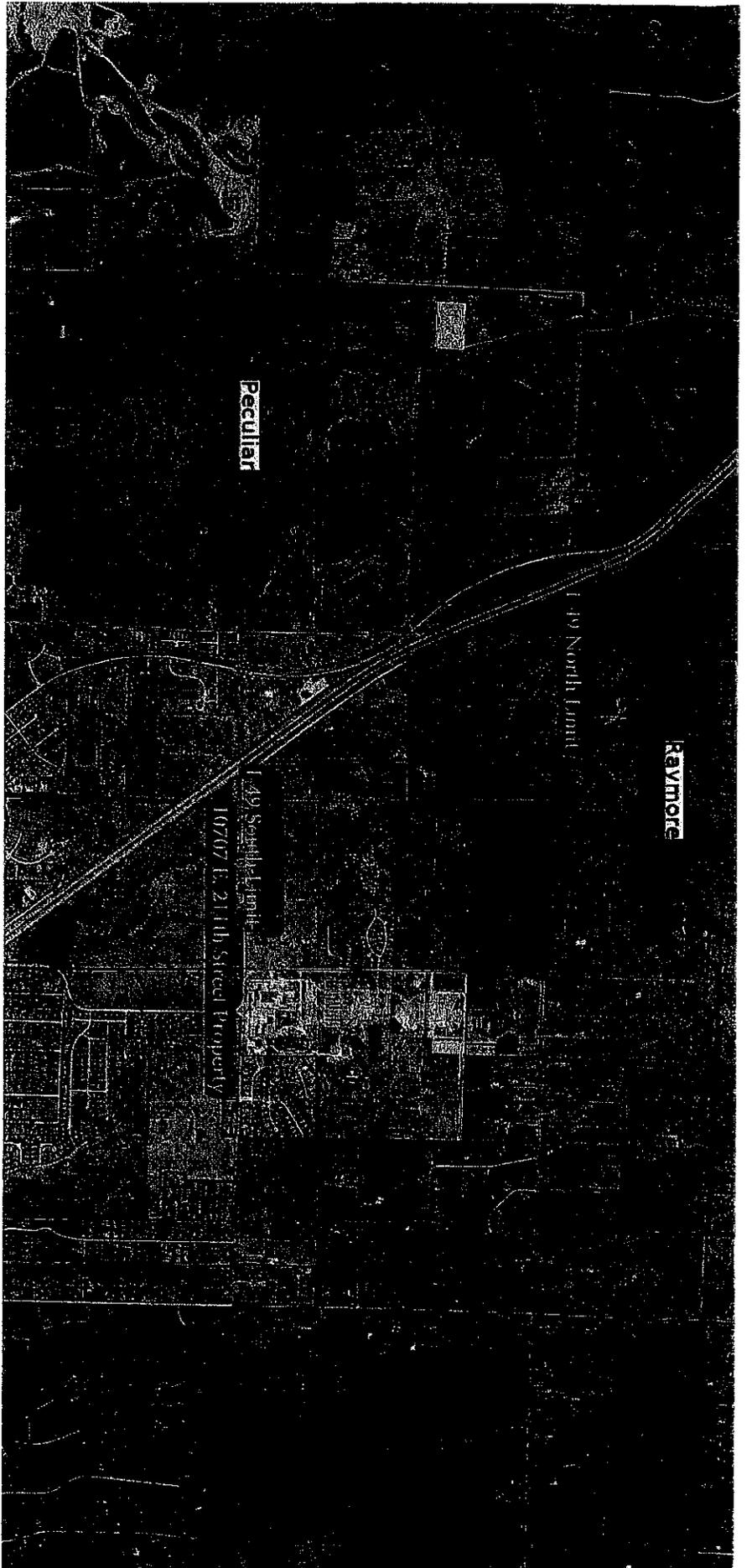
27

PROFILE	PLAN
DATE: 10/1/54	DATE: 10/1/54
PROJECT: [unclear]	PROJECT: [unclear]
SCALE: [unclear]	SCALE: [unclear]
BY: [unclear]	BY: [unclear]
CHECKED: [unclear]	CHECKED: [unclear]

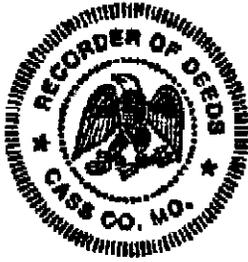
PLAN	PROFILE
DATE: 10/1/54	DATE: 10/1/54
PROJECT: [unclear]	PROJECT: [unclear]
SCALE: [unclear]	SCALE: [unclear]
BY: [unclear]	BY: [unclear]
CHECKED: [unclear]	CHECKED: [unclear]



DATE	BY	CHECKED
10/1/54	[unclear]	[unclear]
10/1/54	[unclear]	[unclear]
10/1/54	[unclear]	[unclear]



I-49 ROW Annexation from: Peculiar Way (211th Street) to 203rd Street, and the 10707 E. 211th Street property
City of Peculiar Corporate Limits shown in Lavender



FILE NUMBER 552276
OR BK 3837 PG 354
RECORDED 10/14/2014 03:08:50 PM
RECORDING FEE 30.00
MIKE MEDSKER, RECORDER OF DEEDS
CASS COUNTY, MISSOURI
TJ

THIS IS NOT A CERTIFIED COPY.

CCO FORM: RW03
Approved: 12/92 (TLP)
Revised: 08/14 (AR)
Modified:

COUNTY: Cass
ROUTE: I-49
PROJECT: J4P2247
PARCEL: 10
(Total Acquisition)

GENERAL WARRANTY DEED

(1) **PARTIES:** THIS AGREEMENT, made this 24th day of September, 2014, by and between **Robert L. Conroy**, a single person, (hereinafter, Grantor), of the County of Jackson, and State of Missouri, and the STATE OF MISSOURI, acting by and through the MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION, (hereinafter, Grantee).

GRANTOR'S ADDRESS: 312 E. 79th Street, Kansas City, Missouri, 64114

GRANTEE'S ADDRESS: 600 NE Colbern Road, Lee's Summit, Missouri, 64086

(2) **CONSIDERATION:** Grantor, in consideration of the sum of Two Hundred Eleven Thousand Five Hundred AND NO/100 DOLLARS (\$211,500.00), to be paid by the Grantee, the receipt of which is hereby acknowledged, does hereby grant, bargain and sell, convey and confirm to the Grantee fee simple title in the property described in this deed.

(3) **PROPERTY DESCRIPTION:** Grantor conveys to the Grantee the real estate and interests in real estate in the County of Cass, State of Missouri, the exact legal description of which is located in **EXHIBIT A – LEGAL DESCRIPTION**, attached hereto and made part hereof.

This conveyance includes all the realty and realty rights described in the attached Exhibit A-Legal Description, that lie within the limits of a tract of land described and recorded with the Cass County Recorder of Deeds in Book 941, at Page 112.

1
ORIGINAL

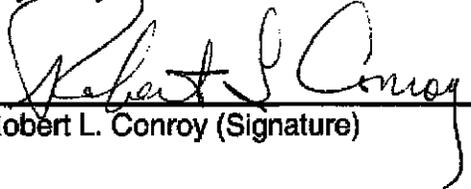
ATCH 8

THIS IS NOT A CERTIFIED COPY.

(4) **RIGHTS OF GRANTEE:** Grantee shall obtain all rights, privileges, appurtenances and immunities belonging to grantor, his successors and assigns forever.

(5) **WARRANTY:** Grantor hereby covenants that he is lawfully seized of an indefeasible estate in fee in the premises herein conveyed. Grantor Covenants that he has good right to convey the property. Grantor covenants that the said premises are free and clear of any encumbrances done or suffered by him or those under whom he claims; and that he will warrant and defend the title to said premises unto the Grantee and unto its successors and assigns, forever, against the lawful claims and demands of all persons whomsoever.

(6) **DATE:** IN WITNESS WHEREOF, the said grantor executed the above the day and year first above written.


Robert L. Conroy (Signature)

ACKNOWLEDGMENT BY INDIVIDUAL

STATE OF Missouri }
COUNTY OF Jackson } ss

On this 24th day of September, 2014, before me appeared **Robert L. Conroy**, a single person, personally known to me to be the person who executed the foregoing instrument and acknowledged to me that he executed the same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal in the county and state aforesaid the day and year written above.


Notary Public



ERIC G. THOMPSON
My Commission Expires
May 31, 2016
Jackson County
Commission #12412821

My Commission Expires: _____

**EXHIBIT A
LEGAL DESCRIPTION**

Cass County
Route I-49
J4P2247
Tract 10
(Total Acquisition)

All that part of the Northeast Quarter of the Northwest Quarter of Section 9, Township 45 North, Range 32 West, in Cass County, Missouri, lying North and East of Highway 71 (I-49) as now established; containing 2.74 acres or 119,354.4 square feet, more or less.

THIS IS NOT A CERTIFIED COPY.

BILL NO. 2016-01
ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF PECULIAR, MISSOURI ANNEXING CERTAIN ADJACENT, UNINCORPORATED TRACTS OF PROPERTY, BEING A PART OF THE INTERSTATE 49 RIGHT-OF-WAY, INTO THE CITY OF PECULIAR, MISSOURI.

WHEREAS, on March 9th, 2016, the City of Peculiar was presented with a verified *Petition of the Missouri Highways and Transportation Commission Requesting Annexation to the City of Peculiar, Missouri (Petition)*, signed by the Missouri Department of Transportation District 4 Engineer related to the tracts of real property described therein: and

WHEREAS, the real estate described in the *Petition* is adjacent and contiguous to the present corporate limits of the City of Peculiar, Missouri: and

WHEREAS, a public hearing was held concerning this matter on the 4th day of April, 2016, at 6:30 p.m. in the City Hall (250 S. Main Street) of Peculiar, Missouri; and

WHEREAS, notice of this public hearing was published for two weeks beginning March 17th, 2016 in *The Journal*, a weekly newspaper of general circulation in the County of Cass, Missouri; and

WHEREAS, at the public hearing, all interested persons, corporations, and political subdivisions were afforded the opportunity to present evidence regarding the proposed annexation; and

WHEREAS, no written objection to the proposed annexation was filed with the City of Peculiar, Missouri within fourteen days after the public hearing; and

WHEREAS, the Board of Aldermen of the City of Peculiar, Missouri does find and determine that the annexation is reasonable and necessary to the proper development of the City; and

WHEREAS, the Board of Aldermen of the City of Peculiar, Missouri finds that it is in the best interests of the City and its citizens to annex the property described in the verified *Petition*.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI AS FOLLOWS:

SECTION I: Pursuant to Rev. Stat. Mo. § 71.012, the real estate described in the *Petition*, attached hereto as Exhibit A and incorporated-by-reference herein, is hereby annexed into the City of Peculiar, Missouri, to-wit.

SECTION II: The boundaries of the City of Peculiar, Missouri, are hereby altered so as to encompass the tracts described on Exhibit A and incorporated-by-reference herein, which lies adjacent and contiguous to the present corporate limits.

SECTION III: The City Clerk of the City of Peculiar is hereby ordered to cause three certified copies of this ordinance to be filed with the Cass County Clerk, the County Assessor and the Office of the District Engineer, Missouri Department of Transportation, District 4.

SECTION IV: The City Engineer, the City Planner, and other pertinent City staff are hereby authorized and directed to conform all maps, directories, drawings, plats and other appropriate documents to the altered corporate limits of the City of Peculiar, Missouri as herein provided.

SECTION V: All Ordinances or parts of ordinances in conflict with this ordinance are hereby repealed insofar as they do conflict.

SECTION VI: The effective date of this ordinance shall be _____, 2016.

First Reading: _____

Second Reading: _____

BE IT REMEMBERED THE PRECEDING ORDINANCE WAS ADOPTED ON ITS SECOND READING THIS ____ DAY OF _____, 2016, BY THE FOLLOWING VOTE:

Alderman Ford _____
Alderman Hammack _____
Alderman McCrea _____

Alderman Ray _____
Alderman Roberts _____
Alderman Turner _____

APPROVED:

ATTEST:

Holly Stark, Mayor

Janet Burlingame, City Clerk

City Administrator
Brad Ratliff

City Clerk
Janet Burlingame

City Engineer
Carl Brooks

Business Office
Trudy Prickett



Chief of Police
Harry Gurin

City Planner
Cliff McDonald

City Attorney
Reid Holbrook

Parks Director
Grant Purkey

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

To: Board of Aldermen
From: Clifford L. McDonald
Date: April 4, 2016
Re: Topic of Discussion – Contract Inspection Services

GENERAL INFORMATION

Applicant: City Staff

Status of Applicant: N/A

Requested Actions: Board of Aldermen to review the City’s contract with IBTS (Institute for Building Technology and Safety), the Case Study for Shared Building Department Services and Appendix J to the IBTS Service Agreement for Property Maintenance Services.

Date of Application: March 29th, 2016

Purpose: The purpose is for the BOA to review the contract agreement Peculiar has with IBTS and Appendix J (new addition for Property Maintenance) in preparation for discussion of utilizing IBTS for contracted inspection services.

Property Location (if applicable): City Wide.

PROPOSAL

See “Requested Actions” above.

PREVIOUS ACTIONS

In preparation for large development around our new Peculiar Way – I-49 intersection and Peculiar’s Certified Industrial Site, the City entered into an agreement with IBTS to provide services for plan review and construction inspection in July, 2014; the City has yet to utilize this service.

KEY ISSUES

- The City’s Code Enforcement position is vacant (Mr. Erickson now works for the City of Raymore).
- This provides an opportunity to consider utilizing contracted inspection services, and to test & evaluate the service, response, cost and savings associated with this type of service.
- Per the contract with IBTS (attached) their plan review & inspection fees are paid “up front” when a Building Permit is issued – this would essentially replace the City’s Administrative Fee.
 - The IBTS Fee Schedule is on Attachment B of the Service Agreement

- Code Enforcement (Appendix J, attached) is also an option, however being pro-active on Property Maintenance and having an immediate response to citizen complaints remain crucial concerns.
 - Appendix J lists the IBTS Fees associated with Property Maintenance Code Enforcement.

STAFF COMMENTS AND SUGGESTIONS

None.

STAFF RECOMMENDATION

Staff Recommends the BOA review the attached IBTS Contract, Study and Appendix J (Property Maintenance) in preparation for Monday night's discussion.

ATTACHMENTS

1. Service Agreement between the City of Peculiar and IBTS
2. Property Maintenance Services Addendum (Appendix J)
3. IBTS ICMA Shared Building Department Services Report

STAFF CONTACT: Clifford L. McDonald,
PH: 816-779-2226
E-mail: cmcdonald@cityofpeculiar.com

Service Agreement

Between

IBTS

and

CITY OF PECULIAR, MISSOURI

On this 21st day of July, 2014, the City of Peculiar, Missouri herein after referred to as "City", located at 250 S. Main Street, Peculiar, MO 64078, and the Institute for Building Technology and Safety, headquartered at 45207 Research Place, Ashburn, VA, 20147 hereinafter referred to as "IBTS," do hereby enter into this Service Agreement under the following terms and conditions.

WITNESSETH

WHEREAS, the Mid-America Regional Council (MARC), along with IBTS and has made available to the City of Peculiar, Missouri for consideration regional building code services; and

WHEREAS, IBTS is a nonprofit organization whose purpose is to assist local Jurisdictions and regional councils by delivering quality services that meet the challenges of governance at all levels while enhancing public safety, economic development and the general welfare of the community; and

WHEREAS, the City of Peculiar, Missouri recognizes the safety and other energy benefits from code compliance of residential and commercial structures; and

WHEREAS, the City of Peculiar, Missouri desires to participate in the regional services negotiated by MARC with IBTS:

NOW THEREFORE, in consideration of the above, the City of Peculiar, Missouri hereby enters into this cooperative purchase agreement made available through the Kansas City Regional Purchasing Cooperative (KCRPC) program for the services described below:

In consideration of the mutual agreements contained herein, the City of Peculiar, Missouri and IBTS agree as follows, to-wit:

1.0 DEFINITIONS

"MARC/IBTS Project" hereafter referred to as "Project" references the full scope of activities and services outlined in this Master Agreement for the building department services project.

"Advisory Committee" refers to the Oversight Advisory Committee established by MARC. The Advisory Committee consists of representatives of participating Jurisdictions and will meet on a periodic basis to provide input and guidance for the Project.

"Applicant" refers to any individual, business or organization applying for building code department permits and/or services from a Jurisdiction and paying certain fees for those permits and/or services.

"Jurisdictions" refers to city, county and other governmental organizations in the states of Kansas and Missouri.

"Master Agreement" refers to the agreement entered into by MARC and IBTS for the purposes of defining key elements of the regional approach to the building department services project (also called MARC/IBTS Project or Project) and the responsibilities of both parties.

"Services Agreement" refers to this agreement entered into by the City of Peculiar, Missouri and IBTS that define specific services to be delivered by IBTS to the City. This Service Agreement should be considered as a cooperative purchase agreement made available through the Kansas City Regional Cooperative Purchasing program (KCRPC). Any Jurisdiction in the states of Kansas and Missouri can enter into a Service Agreement with IBTS as a result of this Master Agreement.

COOPERATIVE SERVICE AGREEMENT
BETWEEN IBTS AND THE CITY OF PECULIAR, MISSOURI

2.0 CUSTOMER SERVICE

Customer Service – Should an issue arise for any Jurisdiction with delivery of services by IBTS that Jurisdiction shall notify IBTS and work directly with IBTS to resolve the issue within 30 days. Should the issue remain unresolved after 30 days, the Jurisdiction can seek further resolution, including cancelation of the Service Agreement between the Jurisdiction and IBTS based upon the terms of the Service Agreement.

3.0 SERVICE SELECTION

The full scopes of services offered by IBTS found in the Master Agreement are listed as attachments to this Service Agreement. The City of Peculiar, Missouri hereby selects to implement the services identified below by initialing beside the services to be implemented in the City of Peculiar, Missouri:

- _____ : Building Code Department Services & Fees, Attachment B
- _____ : Flood Plain Services & Fees, Attachment C
- _____ : Accessibility Code Services & Fees, Attachment D
- _____ : Fire Code Review & Inspection Services & Fees, Attachment E
- _____ : Storm water Services & Fees, Attachment F
- _____ : FIT® Permitting Software & Fees, Attachment G
- _____ : Energy Management & Green Building Services & Fees, Attachment H
- _____ : Planning & Zoning Services & Fees, Attachment I
- _____ : Property Maintenance Services, Attachment J

4.0 CHANGES AND ADDITIONAL SERVICES

The City of Peculiar, Missouri may request addendums to the services outlined in the following attachments so that additional services not currently described can be added. Examples of addendums that can be included are specialty services, such as Property Maintenance Services, Contractor Licensing Services, Business Licensing Services, Public Works Inspections, and other services as needs are identified and documented by MARC, IBTS and/or Jurisdiction(s). If any such change causes an increase or decrease in the cost of or in the time required for performance of this Master Agreement, IBTS shall notify MARC in writing immediately, but, in any event, prior to executing an Agreement Modification. IBTS and MARC will negotiate the new terms and modify the Master Agreement as described in Section 15.0 – Agreement Modification.

5.0 USE OF REGISTERED TRADEMARKS

IBTS and the City of Peculiar, Missouri give mutual permission to each other to utilize each other’s registered trademark and/or logos in all marketing materials, advertisements and public documents pertinent to the Scope of Services described in the attachments as long as this Service Agreement remains in effect.

COOPERATIVE SERVICE AGREEMENT
BETWEEN IBTS AND THE CITY OF PECULIAR, MISSOURI

6.0 FEE COLLECTION:

IBTS will collect the fees for all services as described in the attachments, with the exception of Property Maintenance Services. IBTS will retain fees for its services and report activity to the City. Reports will include the appropriate permit fee rebates.

The City of Peculiar, Missouri will be responsible for collecting all fees, fines and violations associated with Property Maintenance services.

6.1 PAYMENT TERMS AND PROCESS

IBTS in accordance with schedules attached to this Service Agreement, IBTS will utilize its existing credit card processing system, which includes acceptance of e-checks, to receive all fees associated with the services provided to the City of Peculiar, Missouri. IBTS will collect payment of fees from the applicant for appropriate services and will retain certain fees for its services and report activity to the City. IBTS agrees to pay all credit card and other banking or financing fees required in the transaction of, use of, maintenance, and other fees associated with the processing of transactions with a the credit card account.

Jurisdiction agrees to pay IBTS for services provided with 45 working days of receipt of invoice from IBTS.

Jurisdiction's Permit Fee Rebates – IBTS has provided suggested permit fees in the attached fees schedules. Each Jurisdiction shall establish permit fees for each permit type shown in the fee schedule. These permit fees, along with all other plan review, inspection, flood review, handling and other fees required for the permit, shall be paid to IBTS at the time the applicant submits the permit application. IBTS will rebate the City's permit fees to the City to cover their expenses to administer the permit process. IBTS will make rebate payments to each Jurisdiction for permit fees collected during the permitting process. Within 45 working days of the end of the month, IBTS will rebate to the City all permit fees collected by IBTS. A report describing all transactions will include the permit number, permit type, permit category and the date of the permit will accompany the rebate.

IBTS will reimburse the City's permit fees for services the City provides such as and including permitting and issuing the Occupancy Certificates and release to connect the utilities only after the inspections have been completed and the building has passed all IBTS inspections. Each Jurisdiction will establish these permit fees for each permit type shown the fee schedule. The Jurisdiction's established fees may vary from the suggested permit fees included the attached fee schedule.

IBTS will include the City of Peculiar's adopted permit fees as part of permitting software upon receipt of a resolution for the City that adopts and establishes those fees.

All rebate payments shall be made payable to: The City of Peculiar, Missouri. A report of all activity processed during the month shall accompany each payment. The payment shall be submitted with the report to: The City of Peculiar, Missouri, 250 S. Main Street, Peculiar, MO 64078.

The report shall include the following information, at a minimum, for the activity processed during the quarter:

- 1) Jurisdiction name
- 2) date fees were collected
- 3) permit number

COOPERATIVE SERVICE AGREEMENT
BETWEEN IBTS AND THE CITY OF PECULIAR, MISSOURI

- 4) permit category
- 5) permit type
- 6) plan review fees
- 7) inspection fees, and
- 8) calculation of jurisdiction's permit fees.

IBTS Plan Reviews, Inspection and Other Services Fees – IBTS will retain the amounts paid by the applicant for plan reviews, inspections and/or other services as described in the attached schedules to cover the building department services provided by IBTS.

7.0 TERM OF AGREEMENT

This initial two-year Service Agreement term shall begin on August 1st, 2014, and shall end on July 31st, 2016. After the expiration date of this Service Agreement, the Service Agreement and all subsequent amendments may be extended for additional two-year terms until either the City of Peculiar or IBTS terminates the Service Agreement by providing a 90-day written notice of termination in advance of expiration. During the term of the Service Agreement, the City of Peculiar, Missouri agrees to use IBTS as its exclusive provider of services selected. Prior to the start of each two-year extension, the rate of compensation and the handling fees will be negotiated as appropriate.

8.0 REFERENCES

The City of Peculiar, Missouri understands they are purchasing the services initialed in Section 3.0 Service Selection and agree to all terms listed herein, as well as the conditions and terms as described in the Master Agreement between IBTS and the Mid America Regional Council.

9.0 JURISDICTION-FURNISHED RESOURCES

The City of Peculiar shall appoint a Program Manager to coordinate the services for this Service Agreement. The assigned Program Manager shall be the principal point of contact on behalf of the City and will be the principal point of contact for IBTS concerning performance under this Service Agreement.

The City will pass ordinances to require fees, plan reviews, permits, inspections and code compliance by IBTS and establish enforcement mechanisms that shall be in accordance with federal and state law. The City of Peculiar, Missouri agrees to enforce the requirement and take administrative and legal action to enforce compliance with those ordinance requirements. IBTS shall comply with those ordinance requirements in the provision of services to the City.

The City will provide IBTS field inspector with a location, from time to time, for coordination with City personnel, filing reports and assisting citizens. If the City is providing permit issuance assistance, one of the City's personnel will handle the permits and receive the plans for review. The City shall also permit IBTS to use its printer or copier as necessary to support third party services.

10.0 IBTS-FURNISHED RESOURCES

IBTS will be fully responsible for its staff and all of its staff's needs including but not limited to: automobile, mileage, housing, per diems, cell phones, laptop computers and appropriate software, code books, safety equipment, tools for inspections, and certification costs.

COOPERATIVE SERVICE AGREEMENT
BETWEEN IBTS AND THE CITY OF PECULIAR, MISSOURI

11.0 NOTICES

All contractual notices shall be addressed to:

Institute for Building Technology and Safety (IBTS)

Attn: David Moreaux, Contracts Administrator
45207 Research Place
Ashburn, VA 20147

City of Peculiar

Attn: Clifford L. McDonald
250 S. Main Street
Peculiar, MO 64078

All technical notices shall be addressed to:

Institute for Building Technology and Safety (IBTS)

Attn: Greg Seldon, Director
45207 Research Place
Ashburn, VA 20147

City of Peculiar

Attn: Clifford L. McDonald
250 S. Main Street
Peculiar, MO 64078

12.0 ORDER OF PRECEDENCE

This Service Agreement shall, to the extent possible, be construed to give effect to all of its provisions; however, where provisions are in conflict, first priority shall be given to the provisions of the Service Agreement and its amendments; second priority shall be given to the Master Agreement and third priority shall be given to the provisions of the IBTS Scope of Services as described in the following Attachments and any amendments.

13.0 INCORPORATION OF ATTACHMENTS

Attachments selected by the City of Peculiar in Section 3.0 are attached hereto and are hereby incorporated by reference as though fully set out and rewritten herein.

IN WITNESS WHEREOF, the parties have executed this Service Agreement as of this ____ day of _____, 2014.

For IBTS:

Printed Name: _____

Title: _____

Signature: _____

Date: _____

For City of Peculiar:

Holly Stark

Printed Name: _____

Title: _____ Mayor

Signature: _____

Date: _____

SERVICE AGREEMENT
ATTACHMENT A – AUGMENTED SERVICES

A1.0 AUGMENTATION SERVICES

IBTS will provide labor only staff to deliver the services called for in this agreement on a specific instance as requested by the City. The fees, per staff are outlined in each of the following attachments that describe services delivered.

IBTS will work with the jurisdiction to represent the city in the best manner possible by wearing uniforms with the jurisdiction's city seal, name and information as appropriate on the uniform. IBTS will also place the city's seal and department name on IBTS vehicles to identify the department(s) of the city being represented.

SERVICE AGREEMENT
ATTACHMENT B – BUILDING CODE DEPARTMENT SERVICES

B1.0 BUILDING CODE DEPARTMENT SERVICES

IBTS will provide Building Code Department Services, administration, permitting systems, plan reviews, permit approvals, certificate of occupancy approvals and electronic record keeping. Permit applicants can come to the City of Peculiar's office to get permits, submit plans for plan reviews, or for Zoning and FEMA certifications; or they may elect to apply online once IBTS has implemented its proprietary online FIT® permitting system.

Permit Applications

Citizens/contractors may go to city hall to apply for a permit and submit the required documentation for the permit. Citizens/contractors may also choose to register online with IBTS FIT® software. In either case, a local jurisdiction staff person will enter and/or review the submitted information, receive the payment and submit to IBTS for review. Notifications are sent immediately to IBTS staff that Plan Reviews are pending.

Plan Reviews

As directed by the City, IBTS staff will conduct all of the plan reviews to check for compliance with federal, state and local building code requirements. The following represents the type of reviews (commercial and residential) that can be conducted, if so selected by each jurisdiction:

- Building codes
- Electrical codes
- Plumbing codes
- Mechanical codes
- Energy codes
- Accessibility
- Flood determinations
- Landscape/land use/lighting
- Fire codes
- Other local requirements

Permit Approvals & Issuance

Once plans are approved, IBTS will indicate approval in the FIT® software system. The system in return immediately notifies the jurisdiction that a permit is ready for issuance. The jurisdiction having authority remains in control in order to issue permits and each jurisdiction can hold the approval for issues or concerns. This provides the opportunity to hold final issuance for any reason the jurisdiction may deem necessary.

Inspections

Once a project is under construction, IBTS will provide inspections on the construction project, based upon the structure type of occupancy. IBTS will provide each contractor with a direct telephone number to the inspector in order to schedule the inspections; inspections can also be requested via fax request or on the web-based permitting solution.

Certificates of Occupancy

After the final inspection or the Certificate of Occupancy (CO) inspection is completed, IBTS will upload and document all of the results and reports from the inspections in the FIT® software. IBTS will then approve the CO for issuance and the software will notify the City that a CO is ready to be issued. The jurisdiction at that time, just like the permit, has the authority to withhold that CO if deemed necessary. This provides the City with ultimate control of allowing the occupancy of the structure.

SERVICE AGREEMENT
ATTACHMENT B – BUILDING CODE DEPARTMENT SERVICES

B2.0 BUILDING CODE DEPARTMENT FEES

RESIDENTIAL FEE SCHEDULE					
ITEM	SQ.FT.	Jurisdiction Suggested Permit Fees	IBTS Plan Reviews	IBTS Inspections	MARC Handling
New Construction	0-3,000	Suggested Permit Fees are \$50 each	\$250.00	\$625.00	1.5% of plan review and inspection fees retained by MARC.
	3,001-5,000		\$390.00		
	>5,001		\$490.00		
New Modular	ALL		\$150.00	\$250.00	
New Addition/ Remodel	0-2,000		\$390.00	\$250.00	
	2,001-5,000		\$565.00		
	5,001 >		\$765.00		
New Manufactured Housing	ALL		n/a	\$250.00	
New Detached Accessory	ALL		\$165.00	\$300.00	
New Portable Building	ALL		\$75.00	\$150.00	
Structure Relocation (Move)	ALL	\$185.00	\$250.00		
Swimming Pool	ALL	\$165.00	\$300.00	See Master Agreement for full details.	
MISCELLANEOUS	SQ.FT.	Jurisdiction Suggested Permit Fees	IBTS Plan Reviews	IBTS Inspections	MARC Handling
1st Re-Inspection	n/a	n/a	n/a	n/a	1.5% of plan review and inspection fees retained by MARC.
2nd Re-Inspection		n/a		\$90.00	
3rd Re-Inspection		n/a		\$150.00	
Roofing Inspection		Suggested Permit Fees are \$25 each		\$100.00	
Electrical Meter Change				\$75.00	
Mechanical Trade Inspection				\$75.00	
Electrical Trade Inspection				\$75.00	
Plumbing Trade Inspection				\$75.00	
Demolition				\$75.00	
Change of Occupancy				\$75.00	
Change of Contractor				n/a	
Permit Extensions				n/a	
Decks				\$150.00	
Temporary Pole		\$75.00			
All Stop Work Orders		n/a			
Re-Roof		\$25		\$150.00	
Flood Determination Review		n/a		\$65.00	
		\$250.00			See Master Agreement for full details.

EXAMPLE: 2000 sq. ft. home

Permit Fees	\$125.00
Plan Review	\$250.00
Bldg Inspect	\$625.00
Mech Inspect	\$75.00
Elec Inspect	\$75.00
Plumbing Inspect	\$75.00
Handling Fees	\$14.30
FEE TOTALS	\$1,239.30

FEE BREAKDOWN

Jurisdiction Fees	\$125.00
MARC Fees	\$14.30
IBTS Fees	\$1,100.00
FEE TOTAL	\$1,239.30

SERVICE AGREEMENT
ATTACHMENT B – BUILDING CODE DEPARTMENT SERVICES

COMMERCIAL BUILDING CODE FEE SCHEDULE								
GROUPS	OCCUPANCY	SQUARE FOOTAGE		JURISDICTION SUGGESTED PERMIT FEES	IBTS CODE REVIEW FEE (INCLUDES 1 REJ. REVIEW)	IBTS 3rd PLAN REVIEW	IBTS CODE INSPECTION FEE	MARC HANDLING FEES
		Minimum	Maximum					
A	ASSEMBLY	0	2,500	\$100.00	\$385.00	\$175.00	\$1,250.00	1.5% of plan reviews and inspections; \$300 maximum See Master Agreement for full details
		2,501	4,500		\$650.00		\$1,500.00	
		4,501	10,000		\$1,300.00		\$1,850.00	
		10,001	50,000		\$1,850.00	\$300.00	\$2,800.00	
		50,001	100,000		\$3,250.00		\$4,000.00	
		100,000	300,000		\$4,500.00	\$8,500.00		
		300,001 +			\$4,500 + .01 sq.ft. over 300,000	\$500.00	\$8,500 + .01 sq.ft. over 300,000	
1-2, 1-3	HEALTH CARE, INSTITUTIONAL, OR DETENTION (Includes Limited Care & Assisted Living)	0	2,000	\$100.00	\$385.00	\$125.00	\$1,000.00	
		2,001	5,000		\$650.00		\$1,500.00	
		5,001	10,000		\$1,300.00		\$1,850.00	
		10,001	20,000		\$1,650.00	\$200.00	\$4,095.00	
		20,001	30,000		\$2,450.00		\$5,265.00	
		30,001	50,000		\$3,475.00		\$7,020.00	
		50,001	100,000		\$4,275.00		\$11,700.00	
		1,000,001	300,000		\$5,500.00	\$325.00	\$21,000.00	
		300,001 +			\$5,500 + .01 sq.ft. over 300,00		\$21,000 + .01 sq.ft. over 300,000	
M & B	BUSINESS OR MERCANTILE	0	3,000	\$100.00	\$415.00	\$125.00	\$750.00	
		3,001	10,000		\$825.00		\$1,755.00	
		10,001	30,000		\$1,550.00		\$2,575.00	
		30,001	80,000		\$2,225.00	\$200.00	\$4,650.00	
		80,001	150,000		\$3,000.00		\$9,900.00	
		150,001	300,000		\$5,125.00		\$14,625.00	
		300,001 +			\$5,125 + .01 sq.ft. over 300,000		\$14,625 + .01 sq.ft. over 300,000	
E & 1-4	EDUCATIONAL & DAYCARE	0	5,000	\$100.00	\$650.00	\$175.00	\$1,500.00	
		5,001	10,000		\$1,150.00		\$1,875.00	
		10,001	30,000		\$1,900.00		\$4,365.00	
		30,001	80,000		\$3,150.00	\$300.00	\$9,945.00	
		80,001	150,000		\$4,900.00		\$17,550.00	
		150,001	300,000		\$7,850.00		\$43,875.00	
		300,001 +			\$7,850 + .01 sq.ft. over 300,000		\$500.00	\$43,875 + .01 sq.ft. over 300,000
F1, F2, S1,S2, & U	INDUSTRIAL OR STORAGE	0	10,000	\$100.00	\$550.00	\$125.00	\$750.00	
		10,001	20,000				\$750.00	
		20,001	50,000				\$1,250.00	
		50,001	100,000				\$1,250.00	
		100,001	200,000				\$1,250.00	
		\$200,001 +			\$550 + .01 sq.ft. over 200,000		\$1,250 + .01 sq.ft. over 200,000	
H1, H2, H3, H4,	HIGH HAZARD	0	2,000	\$100.00	\$725.00	\$125.00	\$1,000.00	
		2,001	5,000		\$1,100.00		\$1,200.00	

**SERVICE AGREEMENT
ATTACHMENT B – BUILDING CODE DEPARTMENT SERVICES**

& H5		5,001 +			\$1,100 + .02 sq.ft. over 5,000		\$1,200 + .01 sq.ft. over 5,00
R1, R2, R3, R4, I-1	HOTELS, DORMS, APARTMENTS, LODGING, ROOMING, & RESIDENTIAL CARE FACILITIES	0	2,500	\$100.00	\$550.00	\$150.00	\$1,500.00
		2,501	10,000		\$1,250.00		\$1,872.00
		10,001	30,000		\$1,800.00		\$4,680.00
		30,001	50,000		\$3,250.00	\$9,945.00	
		50,001	150,000		\$4,200.00	\$17,550.00	
		150,001	300,000		\$5,425.00	\$43,875.00	
		300,001 +			\$5,425 + .01 sq.ft. over 300,00	\$225.00	43,875 + .01 sq.ft. over 300,00

BUILDING DEPARTMENT SERVICES AUGMENTATION FEE SCHEDULE		MARC FEES
Residential Plan Reviews	See residential plan review fee schedule	1.5% of plan reviews
Residential Inspections	\$100 per inspection	1.5% of inspections
Commercial Plan Reviews	See commercial plan review fee schedule	1.5% of plan reviews; \$300 maximum
Commercial Inspections	\$175 per inspection	1.5% of plan reviews and inspections; \$300 maximum

SERVICE AGREEMENT
ATTACHMENT D – ACCESSIBILITY CODE SERVICES

D1.0 ACCESSIBILITY PLAN REVIEW AND INSPECTION SERVICES

IBTS will provide Accessibility Plan Review and Inspection Services and will perform site visits. As permitted by the completeness of information submitted for code plan review, IBTS will conduct the accessibility plan reviews during the building department plan reviews in order to streamline the process. However, should accessibility not be fully addressed within the original submission, additional review may be necessary.

IBTS staff will provide the accessibility technical reviews and inspections on commercial use group properties. IBTS will review drawings and inspect structures for these codes requirements for compliance to the locally adopted codes. IBTS staff will attach Plan Reviews and Inspection result records to each permit which can be archived for easy retrieval for future purposes.

All accessibility reviews and inspections will be documented and recorded in the FIT® Permitting System software. Each review and inspection report will be available from any web-enabled access device such as internet tablets and pads.

D2.0 ACCESSIBILITY SERVICES FEES

D2.1 Built-In Fees: Fees for accessibility reviews and inspections are included in the fees for the building code plan reviews and inspections found in Attachment B.

D2.2 Plan Review Only: Should an applicant desire to have reviews only conducted on a commercial structure, the following fees are applicable.

TYPE	IBTS FEES*	MARC HANDLING FEES**
All Commercial Structures, <5,000 sq. ft	\$500.00 each	1.5%
All Commercial Structures, 5,001 – 25,000 sq.ft	\$800.00 each	1.5%
All Commercial Structures, 25,001 – 100,000 sq.ft	\$1,350.00 each	1.5%
All Commercial Structures, >100,001 sq.ft	\$1,600.00 each	1.5%

**Fees applicable for augmentation services*

***1.5% of IBTS fees*

SERVICE AGREEMENT
ATTACHMENT E – FIRE CODE SERVICES

E1.0 FIRE CODE PLAN REVIEW & INSPECTION SERVICES

IBTS will provide code plan review and inspections services, permit approvals, certificate of occupancy approvals and electronic record keeping for commercial structures. Permit applicants can come to City Hall to get permits, submit plans for plan reviews, or for Zoning and FEMA certifications; or they may elect to apply online once IBTS has implemented its proprietary online FIT® permitting system.

Plan Reviews

As directed by the City, IBTS staff will conduct all of the plan reviews to check for compliance with federal, state and local building fire code requirements. These reviews will be conducted during the same time as the building code and accessibility reviews.

Permit Approvals

The permit approval process will follow the same steps for processing permits as described in Attachment B - Building Code Department Services.

Inspections

Once the project is under construction, IBTS will provide inspections on the construction project, based upon the structure type of occupancy. IBTS will provide each contractor with a direct telephone number to the inspector in order to schedule the inspections; inspections can also be requested via fax request or on the web-based permitting solution.

Certificates of Occupancy

After the final inspection or the Certificate of Occupancy (CO) inspection is completed, IBTS will upload and document all of the results and reports from the inspections in the FIT® software. IBTS will then approve the CO for issuance and the software will notify the City that a CO is ready to be issued. The jurisdiction at that time, just like the permit, has the authority to withhold that CO if deemed necessary. This provides the City with ultimate control of allowing the occupancy of the structure.

IBTS, upon direction from the City, will coordinate the CO inspection with the local and/or State Fire Marshal as required to ensure that all of their requirements have been satisfied before occupancy is allowed.

SERVICE AGREEMENT
ATTACHMENT E – FIRE CODE SERVICES

E2.0 FIRE CODE REVIEW & INSPECTION SERVICES FEES

FIRE CODE FEE SCHEDULE					
GROUPS	OCCUPANCY	SQUARE FOOTAGE	IBTS FIRE REVIEW FEE*	IBTS FIRE INSPECTION FEE*	MARC Handling Fee
A	ASSEMBLY	ALL	\$500.00	\$500.00	1.5 % of Plan Review and Inspection Fees. See agreement for more details.
I-2, I-3	HEALTH CARE, INSTITUTIONAL, OR DETENTION (Includes Limited Care & Assisted Living)	ALL	\$500.00	\$500.00	
M & B	BUSINESS OR MERCANTILE	ALL	\$500.00	\$500.00	
E & 1-4	EDUCATIONAL & DAYCARE	ALL	\$500.00	\$500.00	
F1, F2, S1,S2, & U	INDUSTRIAL OR STORAGE	ALL	\$250.00	\$500.00	
H1, H2, H3, H4, & H5	HIGH HAZARD	ALL	\$500.00	\$500.00	
R1, R2, R3, R4, I-1	HOTELS, DORMS, APARTMENTS, LODGING, ROOMING, & RESIDENTIAL CARE FACILITIES	ALL	\$500.00	\$500.00	

**Fees applicable for augmentation services*

SERVICE AGREEMENT
ATTACHMENT F – STORM WATER SERVICES

F1.0 STORM WATER SERVICES

IBTS will provide Storm Water Pollution Prevention Plan (SWPPP) reviews and site inspections. These services will be provided on all residential and commercial structures as required by local, state and or federal laws regulating storm water pollution.

SWPPP Reviews

IBTS will provide the SWPPP reviews at the same time as the Building Code reviews. IBTS will ensure that the necessary state permits have been obtained and are on file with the construction permit.

IBTS will also maintain any necessary sub-division Master Plans as allowable by regulations. The Master Plan will be reviewed only once, and thereafter, IBTS will confirm that contractors have signed the necessary agreements that they as well as the sub-contractors will follow the Master SWPPPs.

SWPPP Site Visits

IBTS will conduct SWPPP inspections at each code inspection to verify ongoing compliance of the SWPPP requirements at the job site. Records of inspection results will be recorded and archived with the construction permit for record keeping and archival purposes

In the event of a rainfall event, IBTS will conduct spot checks for records after the rainfall event has passed, but no sooner than 24hrs so as to allow the site manager to complete all paperwork. IBTS will verify that storm water pollution plans are in place and remain effective after the rainfall event.

F2.0 STORM WATER SERVICE FEES

F2.1 Fees for storm water reviews and inspection are included in the fees for the building code plan reviews and inspections found in Attachment B.

F2.2 Fees for augmentation services are below

STORM WATER AUGMENTATION SERVICE FEES		
TYPE	IBTS FEES*	MARC HANDLING FEES
All residential structures	\$150.00 each	1.5%
All commercial structures	\$300.00 each	1.5%

**Fees applicable for augmentation services*

SERVICE AGREEMENT
ATTACHMENT G – FIT PERMITTING SOFTWARE SERVICES

G1.0 FIT® Software

IBTS will use its proprietary FIT® permitting software in the execution of these services when a jurisdiction selects IBTS to provide Building Code Department Services. The configuration of fees and permit types will be based upon the negotiated types and fees as described in the Master Agreement, Service Agreement and the Agreement Attachments thereof.

G1.1 – FIT® Permitting Software At No Cost: IBTS will provide its proprietary FIT® Permitting Software to the City of Peculiar if selected, to use IBTS as their Building Code Department Service provider as described in the Master Agreement, Service Agreement and the attachments thereof.

G1.2 – FIT® Permitting Software For Lease: Should the City elect to use only IBTS' FIT® Permitting Software, and no other services, MARC has negotiated specific fees for the lease of the software only. The City would be required to work directly with IBTS to execute a separate Software Licensing Agreement based upon the below FIT® Fee Schedule.

The standard configuration of fees and permit types, as described in the Master Agreement, Service Agreement and Agreement Attachments are included in the "Standard Configuration Fees." Any additional configuration or changes outside the standard configuration for fees and permit types to the FIT® software is considered customization and will require additional time, labor, and materials subject to additional fees.

If the City elects to use only IBTS' FIT® Permitting Software, and no other services, the City will be required to pay for configuration costs, handling fees as well as a per permit usage fees for hosting, bandwidth and digital storage as shown below.

IBTS will provide FIT® software that provides, at a minimum, the following features:

A web-based permitting system that allows for:

- Online applications
- Online permit payments
- Online permit tracking
- Automatic notification when
 - The permit application is submitted and payments are received
 - Plan reviews are completed
 - Permits are issued (along with the permit being provided)
 - Inspection results and reports are complete
 - Certificates of Occupancy (CO) are issued
- An applicant portal that can:
 - Upload drawings, specifications and attach to the application
 - Request inspections
 - Print receipts, applications, permits, inspection reports and certificates of occupancy
 - Upload flood plain, storm water and other construction documents

- User role based functionality
- Provides transparent checks and balances
- Provides live, real-time reporting
- Access to all documents attached to the permit

SERVICE AGREEMENT
ATTACHMENT G – FIT PERMITTING SOFTWARE SERVICES

IBTS Technology Services Department will also work closely with the City to develop the necessary links from their website to FIT® so that citizens and contractors alike can easily access the permitting system.

G2.0 – FIT® Permitting Software Fees

FIT® PERMITTING SOFTWARE	IBTS FEE	MARC Handling Fee*
FIT® Standard Configuration Fee Per Jurisdiction	\$4,000.00	\$60.00 each
FIT® Customization Fee	\$150.00/ hour	1.50%
FIT® Per Permit Usage Fee (0-500 permits)	\$5.00 each	
FIT® Per Permit Usage Fee (501-2,500 permits)	\$4.00 each	
FIT® Per Permit Usage Fee (>2,500 permits)	\$2.00 each	

**1.5% of IBTS fees*

SERVICE AGREEMENT
ATTACHMENT G – FIT PERMITTING SOFTWARE SERVICES

G3.0 – FIT SERVICE AGREEMENT

FIT® SOFTWARE SERVICE AGREEMENT
Welcome to FIT®

THIS LEGAL AGREEMENT BETWEEN YOU AND IBTS GOVERNS YOUR USE OF THE FIT® PRODUCT, SOFTWARE, SERVICES, AND WEBSITES (COLLECTIVELY REFERRED TO AS THE “SERVICE”). IT IS IMPORTANT THAT YOU READ AND UNDERSTAND THE FOLLOWING TERMS.

IBTS is the provider of the Service, which permits you to utilize certain internet services, including all modules and portals, and making it accessible on your compatible devices and computers, and certain location based services, only under the terms and conditions set forth in this Agreement. As soon as you commence using FIT® services, your data/information will be automatically sent to and stored by IBTS. "IBTS" as used herein means:

- IBTS HQ Ashburn, VA, located at 45207 Research Place, Ashburn, VA 20147;
- IBTS Austin, TX, located at 8705 Shoal Creek, Suite 214, Austin, Texas 78757;
- IBTS Bossier City, LA, located at 707 Benton Road, Suite 100, Bossier City, LA 71111;
- IBTS Houston, TX, located at 820 Lawrence Road, League City, Texas 77573;
- IBTS Somerset, PA, located at 421 Georgian Place, Somerset, Pennsylvania 15501;
- IBTS Troy, NY, located at 120 Defreest Drive, Troy, NY 12180; and,
- IBTS Washington, DC, located at 7059 Blair Road NW, Suite 200, Washington, DC 20012.

REQUIREMENTS FOR USE OF THE SERVICE

The Service is available to selected jurisdiction staff and all city individuals based on roles. Use of the Service requires compatible computers, Internet access, and certain software (fees may apply); may require periodic updates; and may be affected by the performance of these factors. IBTS reserves the right to limit the number of Accounts that may be associated with any field-grade inspection device. Internet access is necessary for use. The latest version of required software/browser is recommended to access the Service and may be required for certain transactions or features. Meeting these requirements, which may change from time to time, is your responsibility.

Use of Location-based Services

IBTS and licensors may provide certain features or services through the Service that rely upon device-based location information, which use GPS (where available), along with crowd-sourced Wi-Fi hotspot and cell tower locations. To provide such features or services, where available, IBTS and licensors must collect, use, transmit, process and maintain your location data, including the real-time geographic location of your device, and you hereby agree and consent to IBTS's and licensors' collection, use, transmission, processing and maintenance of such location data to provide such services. In addition, by enabling and/or using any location-based services or features within the Service (GPS Routing, etc.), you agree and consent to IBTS and licensors transmitting, collecting, using, processing and maintaining information related to your FIT® account (“Account”), and any devices registered thereunder, for purposes of providing such location-based service or feature to you, and use of your location data and location search queries to provide and improve location-based and road traffic-based products and services. Such information may include, but is not limited to, your IBTS ID, device ID and name, device type and real-time geographic location of your device at time of your request. Any location data provided by the Service is not intended to be relied upon in situations where precise location information is needed or where erroneous, inaccurate, time-delayed or incomplete location data may lead to death, personal injury, property or environmental damage. IBTS shall use reasonable skill and due care in providing the Service, IBTS does not guarantee the availability, accuracy, completeness, reliability, or timeliness of location data or any other data displayed by the Service.

Stolen Field-Grade Equipment/Devices

IBTS employs anti-theft software on all field-grade equipment/devices that it sells, or leases. When your field-grade equipment/device is lost or stolen, it can be remotely and immediately disabled. And, if your field-grade equipment/device is recovered, all data can be quickly reactivated to full functionality.

SERVICE AGREEMENT
ATTACHMENT G – FIT PERMITTING SOFTWARE SERVICES

Limitations on Use

You agree to use the Service only for purposes as permitted by this Agreement and any applicable law, regulation, or generally accepted practice in the applicable jurisdiction. If your use of the Service or other behavior intentionally or unintentionally threatens IBTS's ability to provide the Service or other systems, IBTS shall be entitled to take all reasonable steps to protect the Service and IBTS's systems, which may include suspension of your access to the Service.

Fees

The Service accepts credit cards, certain payment accounts, and checks for payment. IBTS may obtain preapproval for an amount up to the amount of the transaction. Billing occurs at the contractually agreed upon times.

YOU ARE RESPONSIBLE FOR THE TIMELY PAYMENT OF ALL FEES. All fees will be billed to the jurisdiction, or office you designate, at regularly scheduled times. If IBTS is unable to successfully collect payment for fees due, IBTS reserves the right to revoke or restrict access to your stored Content, or terminate your services.

Account Information and Billing Inquiries

You may consult your jurisdiction-specific contract for details on your Account information including payment method and billing cycles. IBTS will send an electronic invoice to your designated billing recipient email address. If you believe you have been billed in error for the Service please notify us immediately at info@ibts.org.

Changes in Per Case Use Costs

Per Case Use Cost changes and institution of new charges implemented during your Service billing year will apply to subsequent billing years and to all new applicable permits after the effective date of the change.

Your Use of the Service / Your Account

As a registered user of the Service, you shall be provided with an Account. Don't reveal your Account information to anyone else. You are solely responsible for maintaining the confidentiality and security of your Account and for all activities that occur on or through your Account, and you agree to immediately notify IBTS of any security breach of your Account. You further acknowledge and agree that the Service is designed and intended for JURISDICTION use and you should not share your Account and/or password details with another individual. Provided we have exercised reasonable skill and due care, IBTS shall not be responsible for any losses arising out of the unauthorized use of your Account resulting from you not following these rules.

In order to use the Service, you must enter your IBTS ID and password to authenticate your Account. You agree to provide accurate and complete information when you register with, and as you use, the Service, and you agree to update your Service Registration Data to keep it accurate and complete. Failure to provide accurate, current and complete Service Registration Data may result in the suspension and/or termination of your Account. You agree that IBTS may store and use the Service Registration Data you provide for use in maintaining and billing fees to your jurisdiction.

Additional Obligations or Terms of Use

Particular modules or features of the Service provided by IBTS and/or its licensors, including but not limited to the ability to use inspection forms on an Apple iPad, require separate software or other license agreements or terms of use. You must read, accept, and agree to be bound by any such separate agreement as a condition of using these particular components or features of the Service.

No Conveyance

Nothing in this Agreement shall be construed to convey to you any interest, title, or license in an IBTS ID, email address, domain name, or similar resource used by you in connection with the Service.

No Resale of Service

You agree that you will not reproduce, copy, duplicate, sell, resell, rent or trade the Service (or any part thereof) for any purpose.

SERVICE AGREEMENT
ATTACHMENT G – FIT PERMITTING SOFTWARE SERVICES

IBTS Privacy Policy

You understand that by using the Service, you consent and agree to the collection and use of certain information about you and your use of the Service in accordance with IBTS's Privacy Policy. You further consent and agree that IBTS may collect, use, transmit, process and maintain information related to your Account, and any devices or computers registered thereunder, for purposes of providing the Service, and any features therein, to you. Information collected by IBTS when you use the Service may also include technical or diagnostic information related to your use that may be used by IBTS to support, improve and enhance IBTS's products and services.

Content and Your Conduct

Content

"Content" means any information that may be generated or encountered through use of the Service, such as data files, device characteristics, written text, photographs, images, messages and any other like materials. You understand that all Content, whether publicly posted or privately transmitted on the Service is the sole responsibility of the person from whom such Content originated. This means that you, and not IBTS, are solely responsible for any Content you upload, download, post, email, transmit, store or otherwise make available through your use of the Service. IBTS does not control the Content posted via the Service, nor does it guarantee the accuracy, integrity or quality of such Content. You understand and agree that your use of the Service and any Content is solely at your own risk.

Your Conduct

You agree that you will NOT use the Service to:

- a. upload, download, post, email, transmit, store or otherwise make available any Content that is unlawful, harassing, threatening, harmful, tortious, defamatory, libelous, abusive, violent, obscene, vulgar, invasive of another's privacy, hateful, racially or ethnically offensive, or otherwise objectionable;
- b. pretend to be anyone, or any entity, you are not — you may not impersonate or misrepresent yourself as another person, entity, another FIT® user, an IBTS employee, or a civic or government leader, or otherwise misrepresent your affiliation with a person or entity; and, or
- c. engage in any copyright infringement or other intellectual property infringement, or disclose any trade secret or confidential information in violation of a confidentiality, employment, or nondisclosure agreement.

Access to Your Account and Content

IBTS reserves the right to take steps IBTS believes are reasonably necessary or appropriate to enforce and/or verify compliance with any part of this Agreement. You acknowledge and agree that IBTS may, without liability to you, access, use, preserve and/or disclose your Account information and Content to law enforcement authorities, government officials, and/or a third party, as IBTS believes is reasonably necessary or appropriate, if legally required to do so or if we have a good faith belief that such access, use, disclosure, or preservation is reasonably necessary to: (a) comply with legal process or request; (b) enforce this Agreement, including investigation of any potential violation thereof; (c) detect, prevent or otherwise address security, fraud or technical issues; or (d) protect the rights, property or safety of IBTS, its users, a third party, or the public as required or permitted by law.

Content Submitted or Made Available by You on the Service

Trademark Information

IBTS, the IBTS logo, FIT®, the FIT® logo and other IBTS trademarks, service marks, graphics, and logos used in connection with the Service are trademarks or registered trademarks of IBTS in the US and/or other countries. Other trademarks, service marks, graphics, and logos used in connection with the Service may be the trademarks of their respective owners. You are granted no right or license in any of the aforesaid trademarks, and further agree that you shall not remove, obscure, or alter any proprietary notices that may be affixed to or contained within the Service.

Software

IBTS's Proprietary Rights

You acknowledge and agree that IBTS and/or its licensors own all legal right, title and interest in and to the Service, including but not limited to graphics, user interface, the scripts and software used to implement the Service, and any

SERVICE AGREEMENT
ATTACHMENT G – FIT PERMITTING SOFTWARE SERVICES

software provided to you as a part of and/or in connection with the Service (the “Software”), including any and all intellectual property rights that exist therein, whether registered or not, and wherever in the world they may exist. You further agree that the Service (including the Software, or any other part thereof) contains proprietary and confidential information that is protected by applicable intellectual property and other laws, including but not limited to copyright. You agree that you will not use such proprietary information or materials in any way whatsoever except for use of the Service in compliance with this Agreement. No portion of the Service may be reproduced in any form or by any means, except as expressly permitted in these terms.

Indemnity

You agree to defend, indemnify and hold IBTS, directors, officers, employees, agents, contractors, and licensors harmless from any claim or demand, including reasonable attorneys’ fees, made by a third party, relating to or arising from: (a) any Content you submit, post, transmit, or otherwise make available through the Service; (b) your use of the Service; (c) any violation by you of this Agreement; (d) any action taken by IBTS as part of its investigation of a suspected violation of this Agreement or as a result of its finding or decision that a violation of this Agreement has occurred; or (e) your violation of any rights of another.

Notices

IBTS may provide you with notices regarding the Service, by email to your account email address (and/or other alternate email address associated with your Account if provided), by regular mail, or by postings on our website and/or the Service.

Governing Law

Except to the extent expressly provided in the following paragraph, this Agreement and the relationship between you and IBTS shall be governed by the laws of the State of Virginia. You and IBTS agree to submit to the personal and exclusive jurisdiction of the courts located within the county of Loudoun, California, to resolve any dispute or claim arising from this Agreement.

General

This Agreement constitutes the entire agreement between you and IBTS, governs your use of the Service and completely replaces any prior agreements between you and IBTS in relation to the Service. You may also be subject to additional terms and conditions that may apply. If any part of this Agreement is held invalid or unenforceable, that portion shall be construed in a manner consistent with applicable law to reflect, as nearly as possible, the original intentions of the parties, and the remaining portions shall remain in full force and effect. The failure of IBTS to exercise or enforce any right or provision of this Agreement shall not constitute a waiver of such right or provision.

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SERVICE AGREEMENT
ATTACHMENT H – ENERGY & GREEN BUILDING SERVICES

H1.0 ENERGY AND GREEN BUILDING SERVICES

IBTS will provide Energy Management and Green Building Services as described herein. These services are provided by IBTS to the Jurisdiction on an as request basis and requires coordination between the Jurisdiction, IBTS and MARC to gather and understand the exact needs.

For each request, IBTS agrees to develop, the necessary programs that are solicited by the jurisdiction. IBTS will perform reviews and necessary on-site visits as specified herein and as may be required for each individual project. IBTS will coordinate all service delivery efforts with MARC to ensure that same or similar energy services are made available to all other MARC members.

Service categories being provided by IBTS include:

- Energy Savings Performance Services
- Building Energy Portfolio Programs
- Green / LEED / HERS / Energy Star Services
- Building Energy Envelope & Air Barrier Inspections/Testing
- Energy Efficiency Program Development
- Solar Photovoltaic Quality Assurance

IBTS will provide a detailed Technical Proposal for any Energy Management and Green Building Services selected by the Jurisdiction; fees will be based upon the below fee schedule.

ENERGY EFFICIENCY SERVICE FEES	IBTS FEE	MARC Handling Fees
Energy Efficiency Project Manager	\$130.00 / hour	See below ¹
Energy Efficiency Commercial Auditors / Inspectors	\$120.00 / hour	
Energy Efficiency Residential Auditors / Inspectors	\$90.00/ hour	
LEED Commercial Verifications	\$120.00 / hour	
LEED for Homes Residential Verification	\$2,500.00 each	1.5 %
Green Verification for Commercial	\$90.00 / hour	1.5%
Green Verification for Residential	\$925.00 each	1.5 %
Residential Energy Star® Verification	\$1,000.00 each home	1.5 %
Commercial Energy Star® Verification	\$90.00 / hour	See below ¹

*** All services are quoted separately and quotes are based upon the specific needs of each jurisdiction. IBTS will provide energy efficiency services pricing tailored to jurisdiction requirements and preferred fee structures.*

¹ MARC Handling Fee For Energy Services	
Handling Fees for projects less than \$25,000.00	\$250.00 per project
Handling Fees for projects from \$25,000.00 to \$100,000.00	\$500.00 per project
Handling Fees for projects from \$100,000.01 to \$500,000.00	\$750.00 per project
Handling Fees for projects over \$500,000.01	\$1,000.00 per project

SERVICE AGREEMENT
APPENDIX I – PLANNING & ZONING SERVICES

11.0 PLANNING AND ZONING MANAGEMENT

IBTS will provide Planning and Zoning Management solutions focus on the utilization of contemporary ideas and technology within a small town and rural context. IBTS will coordinate efforts with the [jurisdiction name here] Planning & Zoning Commission to administrate the following:

- Zoning Code Interpretation
- Zoning Review and Enforcement
- Planning and Zoning Commission Support
- Zoning Code Recommendation
- Zoning Code Implementation
- Parcel Map Digitization (if selected)
- Zoning Map Creation and Maintenance (if selected)

12.0 PLANNING AND ZONING INSPECTIONS

IBTS will conduct enforcement of the local zoning ordinances as adopted. The Zoning Administrator will review all the required Development Permits, Development Permit Approvals, Zoning Reviews and full administration of the Zoning Ordinance. IBTS will attend each Development Review Committee meeting to be informed and aware of upcoming projects. Zoning administration will provide the following:

- Site Inspections
- Setbacks
- Accessory Use
- Traffic Corner Visibility
- Public Notification
- Nonconforming Buildings
- Landscape & Screening
- Signs / Billboards

13.0 PLANNING AND ZONING ORDINANCE REVIEW

IBTS will review and recommend revisions as necessary to the current adopted Zoning code . IBTS will assess the current character and desires of the [jurisdiction name here] to revise the code appropriately. IBTS will develop, implement, manage and conduct planning and zoning activities for the [jurisdiction name here]. IBTS will provide information concerning zoning to the general public, builders, developers, Mayor, City Council and Planning and Zoning Commission. In addition, IBTS will develop and recommend policies and procedures for all Planning and Zoning activities.

13.0 GEOGRAPHICAL INFORMATION SERVICES (GIS)

With the adoption of a new Zoning Code, it would be advantageous to create a zoning map. A current zoning map would help the [jurisdiction name here] administer the zoning ordinance. IBTS can assist in this endeavor and recommends the city contact the Mid America Regional Council for creation of this map. A digital parcel map can aid in the following:

- Creation of zoning map
- Basis for future land use analysis
- Regeneration of base tax map to recoup lose tax revenue
- Cost efficient Communication

SERVICE AGREEMENT
APPENDIX I – PLANNING & ZONING SERVICES

14.0 PLANNING & ZONING FEES

Description	Processing Fee*	Ad Fee*	MARC Fees
Rezoning	\$375 plus \$75/acre over the first	\$100.00	1.5% of Processing Fee Only See Master Agreement for further details
Zoning Verification Letter	\$50/\$100 per location	N/A	
Subdivision With or Without Waiver	\$300 plus \$25/lot	\$100 if over 2 acres	
Town Home Development	\$300 plus \$25/lot	\$100 if over 2 acres	
Preliminary Subdivision Plat	\$300 plus \$25/lot	\$100 if over 2 acres	
Revision to Approved Preliminary Plat (Public Hearing)	\$300 plus \$25/lot	\$100	
Revision to Approved Preliminary Plat (Staff Level)	\$100 plus \$25/lot	N/A	
Final Plat Approval including PUD	\$200 plus \$25/lot	N/A	
Final Plat Revision including PUD (Public Hearing)	\$200 plus \$25/lot	\$100	
Final Plat Revision including PUD (Staff Level)	\$100	N/A	
Preliminary Subdivision Plat Extension	\$100	N/A	
Bond and Agreement Review	\$100	N/A	
Exchange of Property	\$100	\$100 if over 2 acres	
Combination of Lots	\$100 plus \$25/lot each original lot	\$100 if over 2 acres	
Site Plan (Public Hearing)	\$400	\$100	
Site Plan (Staff Level)	\$200	N/A	
Paving Waiver	\$100	\$100	
Parking Waiver	\$100	\$100	
Revocation	\$200	\$100	
Wireless Tower Site Plan	\$400	\$100	
Reasonable Accommodation for Group Home	N/A	N/A	
Mobile Home Park	\$500 plus \$25/lot	\$100	
Major Street Plan Amendment	\$500	\$100	
Planned Unit Development Concept Plan	\$500 plus \$100/acre over 20 acres	\$100	
Planned Unit Development Final Development Plan	\$300	\$100	
Small Planned Unit Development	\$500 plus \$100/acre over 2.5 acres	\$100	
Street Name Change	\$200 plus \$3 for each Abutting Property Owner	\$100	
Major Street Setback Reduction	\$100	N/A	
Conditional Use Permit	\$400 plus \$75/acre after first acre	\$100	
UDC Text Amendment	\$500	\$100	
Enterprise Zone	\$100	N/A	
Demolition or Relocation	\$200	\$100	
Opinion of Appropriateness	\$50	N/A	
Certificate of Appropriateness	\$100	\$100	
Local Landmark/District Designation	\$100/\$500	\$100	
TND General Implementation Plan	\$3000 plus \$100/acre over 50 acres	\$100	
TND Specific Implementation Plan	\$1,000	\$100	
Final TND Major Site Change	\$1,000	\$100	
Final TND Major Use Change	\$1,000	\$100	
Final TND Minor Change	\$500	N/A	

*MARC Fees are 1.5% of the processing fees only since the AD Fees are direct costs

SERVICE AGREEMENT
APPENDIX J – PROPERTY MAINTENANCE SERVICES

J1.0 – Property Maintenance Inspections

IBTS will provide the inspections for the city to enforce the city’s Property Maintenance Code (PMC) ordinance. IBTS Property Maintenance Inspectors and Certified Building Officials will conduct the inspections, as authorized by city, and provide the inspection results, along with any required documented evidence and or pictures as necessary to identify the violation clearly and effectively.

As a summary, here is a list of inspections that can be provided in this project:

- Unsafe Structures & Equipment
- Emergency Measures
- Demolition
- Rental Properties
- Vacant Structures
- Nuisance / Rubbish & Garbage
- Property Inspections
- 10” or higher weeds
- Swimming Pools
- Exterior Structure
- Interior Structure
- Extermination / Infestations
- Light / Ventilation
- Occupancy Limitations
- Required Facilities
- Toilet Rooms
- Plumbing / Water Systems
- Sanitary Drainage
- Heating Facilities
- Mechanical Equipment
- Nuisance Inspection
- Electrical Facilities / Equipment
- Means of Egress
- Fire Resistance / Protection

J2.0 – Property Maintenance Documentation

IBTS will coordinate with city officials including but not limited to City Attorney, the Fire Chief and the Chief of Police on the development, approval and implementation of all the necessary forms, documentation and notices required by this effort.

Citation forms will be compiled onto one common form where applicable. IBTS will coordinate with the city upon developing these forms, documents and notices in order to keep the number of required forms to a minimum for printing efficiency.

J3.0 – Jurisdiction Responsibility

The jurisdiction will incur all costs associated with printing, supplying and distributing of all of the necessary forms, documentation and notices required for enforcement by this effort. IBTS will provide the necessary forms, documents and notices in electronic format suitable for printing.

The Police Department Police Chief, in coordination with the Mayor and City Council, will appoint IBTS as an officer charged with one duty only; the issuing Notices of Violation to vehicles.

Ordinances will be passed and fee schedules adopted by the City in order to pay for services rendered by IBTS. IBTS will work closely with the city on adopting a line item budget for services. IBTS staff will monitor the budget and ensure that services don’t exceed the approved budgeted amount. IBTS will provide the necessary field inspections and documentation of violations. The city will be responsible for any necessary court actions, injunctive reliefs and other measures needed to bring about compliance.

J3.0 – Program Manager

SERVICE AGREEMENT
APPENDIX J – PROPERTY MAINTENANCE SERVICES

IBTS proposes that the City Program Manager will initiate coordination efforts for structures, vehicles, equipment and property inspections. The Program Manager will authorize IBTS to conduct the inspections after a review of each complaint filed is completed to verify it is not a nuisance complaint. This type of coordination will prevent the City from accruing inspection charges for complaints that are not valid. This will enable the City to better handle citizen disputes rather than starting and completing a case management file for a non-valid complaint.

Coordination between IBTS and the city Police Department will occur once the vehicle in question has been determined to exist. IBTS, once the VIN number is obtained, will obtain the required owner information so that the citation may be completed and the appropriate notice sent to the vehicle owner and if necessary, the property owner. This documentation will be copied to the city as well as the Police Department for enforcement and authorization of towing, as necessary.

J3.0 – Fees

INSPECTION FEE SCHEDULE				
ITEM	1ST INSPECTION	2ND INSPECTION	MARC Fees	
Equipment Violation	\$25.00	\$35.00	1.5% of Processing Fee Only See Master Agreement for further details	
1 & 2 Family Structure	\$75.00	\$100.00		
Unsafe Residential Structure	\$100.00	\$125.00		
Unsafe Commercial Structure	\$250.00	\$275.00		
Unsafe Equipment	\$40.00	\$90.00		
Unlawful Structure	\$500.00	\$650.00		
Structure Closer	\$50.00	\$75.00		
Prohibited Occupancy	\$500.00	\$650.00		
Imminent Danger	\$75.00	\$100.00		
Demolition	\$150.00	\$300.00		
Rental Apartment Inspections / Apt	\$100.00	\$100.00		
Rental 1 & 2 Family Dwelling / Unit	\$80.00	\$80.00		
Multiple Apartment Inspection / Apt	\$85.00	\$85.00		
Commercial Structure Violation	\$100.00	\$150.00		
Nuisance	\$50.00	\$65.00		
Exterior Property	\$25.00	\$50.00		
Motorized Vehicle	\$50.00	\$100.00		
Residential Swimming Pool	\$50.00	\$65.00		
Commercial Swimming Pool	\$125.00	\$150.00		
Porch, Stairs, Decks, Balconies, Handrails, Guards,	\$40.00	\$90.00		
Structure Interior - Residential	\$40.00	\$90.00		
Structure Interior - Commercial	\$75.00	\$125.00		
Rubbish Garbage	\$25.00	\$50.00		
Infestation	40.00	\$90.00		
MISCELLANEOUS FEE SCHEDULE				
ITEM	FEES			
Court Appearances – Testimony	\$90.00 per hour, plus travel costs			
Residential Property Owner Research	\$15.00 each			
Commercial Property Owner Research	\$25.00 each			

SERVICE AGREEMENT
APPENDIX J – PROPERTY MAINTENANCE SERVICES

SHARED BUILDING DEPARTMENT SERVICES

Case Study on an Innovative Public-Nonprofit Partnership Model:
Analysis of the Effectiveness of the IBTS and MARC Shared
Building Department Services Partnership in Selected Missouri
and Kansas Jurisdictions

July 2015



Funded by the Institute for Building Technology and Safety (IBTS)
and written by the International City/County Management Association (ICMA)

SHARED BUILDING DEPARTMENT SERVICES

Case Study on an Innovative Public-Nonprofit Partnership Model: Analysis of the Effectiveness of the IBTS and MARC Shared Building Department Services Partnership in Selected Missouri and Kansas Jurisdictions

Introduction

Collaborative service delivery approaches and innovative public-public and public-private partnerships to provide more efficient and cost-effective services to citizens are a popular trend with local governments today. With increasing demand from citizens for an expanding array of services and higher-quality services coupled with reduced financial and staff resources, these alternative service delivery options are the way forward for most local governments.

There are numerous types of collaborative service delivery options, including horizontal public-public partnerships (such as between two local governments), vertical public-public partnerships (such as counties providing services to constituent municipalities), public-nonprofit partnerships, and public-private partnerships.¹ The focus of this report and an example of a model of a public-nonprofit partnership is the shared services program provided by the non-profit organization the Institute for Building Technology and Safety (IBTS) through Mid-America Regional Council (MARC) for building department services to several Kansas and Missouri jurisdictions.

The purpose of this case study is to determine the effectiveness of this partnership model and to provide lessons learned for shared services arrangements both generally and in the specific case of the IBTS model.

Partners

IBTS is an NGO that provides government entities at all levels with professional building code compliance services, including building department services, staff

augmentation and auditing. They have been providing technical assistance and thought leadership on a wide range of public building regulatory and administrative services since 1999.

MARC is a nonprofit council of city and county governments and the metropolitan planning organization for the bi-state Kansas City region. Governed by a Board of Directors made up of local elected officials, MARC serves nine counties and 119 cities. MARC provides a variety of shared services to its member jurisdictions to advance social, economic and environmental progress in the region.

IBTS/MARC Shared Building Department Services Master Agreement

Under the IBTS/MARC Master Services Agreement, MARC member jurisdictions may sign an individual Services Agreement with IBTS and MARC. The program provides as-needed building department services at no cost to jurisdictions. Fees are charged directly to residents and customers, and the overall service fee includes a small administrative fee to help jurisdictions recover the cost of overseeing the agreement. Jurisdictions can choose from ten services:

- Building code department services
- Flood plain services
- Accessibility code services
- Fire code review & inspection services
- Storm water services
- GOVMotus™ permitting software, an e-service for customers and residents to directly apply for submit permit applications and pay permit fees
- Energy management & green building services
- Planning & zoning services
- Property maintenance service

This model allows flexibility for jurisdictions to pick and choose what they need, and they can opt into

¹ International City/County Management Association (ICMA), the Alliance for Innovation, and the Center for Urban Innovation at Arizona State University, "The Collaborative Service Delivery Matrix: A Decision Tool to Assist Local Governments," ICMA, 2014, <http://icma.org/Documents/Document/Document/306983>.

more or less services after the agreement is in place. IBTS and MARC provide the on-the-ground staff and technical expertise to jurisdictions that enable greater efficiencies in building department services delivery, ensure compliance and realize cost savings. Each individual jurisdiction negotiates the agreement with IBTS under the provisions of the Master Service Agreement, which sets the overall deliverable timeline expectations, fees and fee schedules, and implementer and implementing partner responsibilities.

Case Study Interview and Questionnaire

Overview and Methodology

The International City/County Management Association (ICMA) is the premiere association of local government professionals and aims to create excellence in local governance by developing and fostering professional management to build better communities. ICMA was contracted by IBTS to conduct a case study on the effectiveness of this partnership model using the IBTS/MARC example.

ICMA developed a pre-interview questionnaire and conducted in-depth phone interviews with a point of contact at each of the five selected jurisdictions. MARC, the implementing partner, also filled out the questionnaire and was interviewed. The interviewees

were primarily the main overseer of the partnership from the jurisdiction, which ranged from the mayor to the head of the Planning and Zoning Department. Guided by a defined protocol, ICMA used conversational interviewing to fully explore the interviewee’s perspectives and experiences. All of the interviews were recorded and later reviewed for the compilation of this report. The researcher sought permission prior to attributing any quotes to an individual or organization. The below report compiles and summarizes the key information obtained from the questionnaire and interview process.

Sample

IBTS provided the five jurisdictions selected as representative of the 13 jurisdictions who were using the IBTS/MARC Service Agreement for shared building department services as of April 2015. The sample was selected based on the length of the agreement, array of services and population size to ensure an adequate sample.

For the full list of jurisdictions currently or previously participating, please see Table 1 below. Jurisdictions interviewed have been underlined in the table.

Based on an analysis of this data, there is a moderate negative correlation between the population size of the jurisdiction and the number of services opted into ($r = -0.53, n = 15$). This indicates that the smaller

Table 1 IBTS/MARC Service Agreement Jurisdictions as of April 2015

Jurisdiction	Contract Start Date	Number of Services Opted into (10 total)	Population size (2013 Census data)
Bates City, MO	9/25/2014	9	216
Wood Heights, MO	11/20/2013	9	702
Buckner, MO	12/18/2014	9	3,072
Orrick, MO	6/1/2015	9	821
Tracy, MO	2/18/2015	8	219
Edwardsville, KS	12/19/2013	7	4,355
Peculiar, MO	7/21/2014	6	4,797
Homestead, MO	11/18/2014	4	180
Crystal Lake, MO	2/20/2014	4	353
Lone Jack, MO	1/16/2015	1	1,072
Raytown, MO	3/4/2015	1	29,510
Johnson County, KS	12/3/2014	1	566,933
Clay County, MO	Work Order	1	230,473

the population size, the more likely jurisdictions are to sign up for a number of building department service options. Larger jurisdictions are more likely to only opt into one specific service.

There is also a slight positive correlation ($r = 0.33$, $n = 14$) between the length of time that the service agreement has been in place and the amount of services that jurisdictions have opted into. However, the interviews revealed that, in most instances, the number of services did not change from the start of the agreement until now.

Pre-Interview Questionnaire

ICMA developed a pre-interview questionnaire for the five jurisdictions and MARC to complete prior to the phone interviews. The questionnaire covered key motivation factors for entering the shared services agreement, deciding factors for using this particular arrangement, barriers to implementation, and benefits from using this agreement.

Motivation: The questionnaire requested that jurisdictions choose their main motivating factor(s) for pursuing a shared services arrangement for building department services. The main factor for three jurisdictions was an increased pool of relevant expertise (50%), as demonstrated in Chart 1 below.

History of Shared Services: All of the jurisdictions reported that they had not used shared services arrangements previously on the questionnaire. However, the interviews revealed that nearly all had

used a horizontal or vertical public-public shared service or one provided through MARC previously, and several had tried this option for building department services.

Deciding Factors: Jurisdictions also noted which factor(s) they considered when deciding on the type of shared services arrangement to pursue for shared building department services. Labor intensity, or the amount of labor required to do the work, was a deciding factor for half of the jurisdictions (50%) followed by asset specificity, or the degree to which the service requires investment in special infrastructure or technical expertise (33%).

Barriers to Implementation: Two jurisdictions (40%) noted the cost of service as an obstacle as the change from the municipality’s fee structure to IBTS’s fee structure was difficult for some customers, who considered them high for their small community. Another jurisdiction (17%) mentioned public opinion of the regional building official community was an obstacle at the inception of the program. Two jurisdictions (40%) did not encounter any obstacles.

Factors Impacting Planning, Negotiation and/or Implementation of the Service Agreement: The jurisdictions and MARC also selected which factors had a positive, negative or neutral impact on the planning, negotiation and/or implementation of the service agreement. The two factors that had the most positive

Chart 1 Motivating Factor(s) for Jurisdictions and MARC to pursue a Shared Services Arrangement for Building Department Services (n=6)

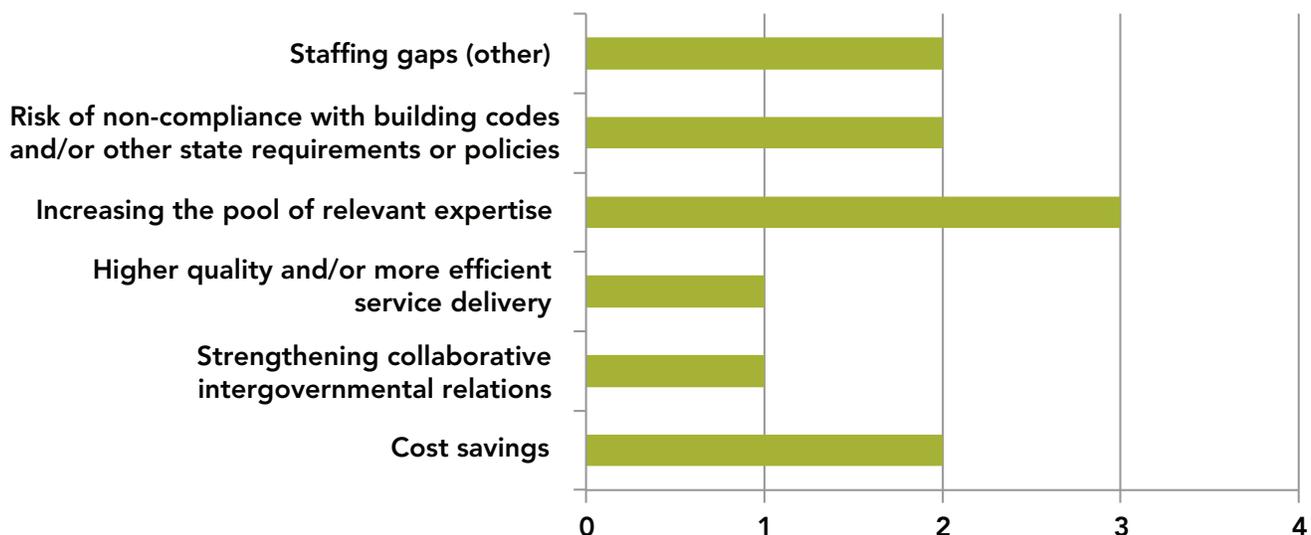


Chart 2 Deciding Factor(s) for Jurisdictions and MARC to pursue this type of Shared Services Arrangement for Building Department Services (n=6)

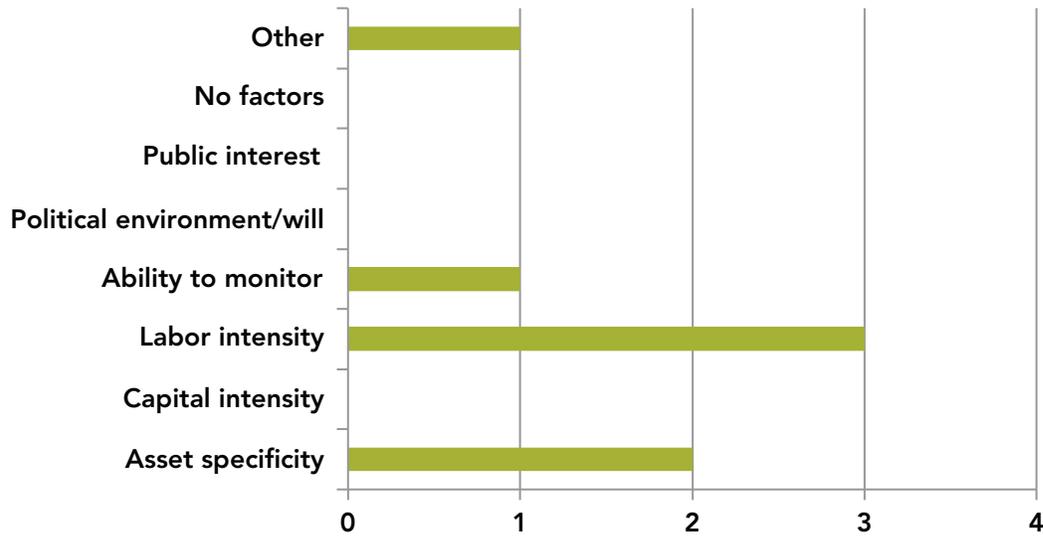
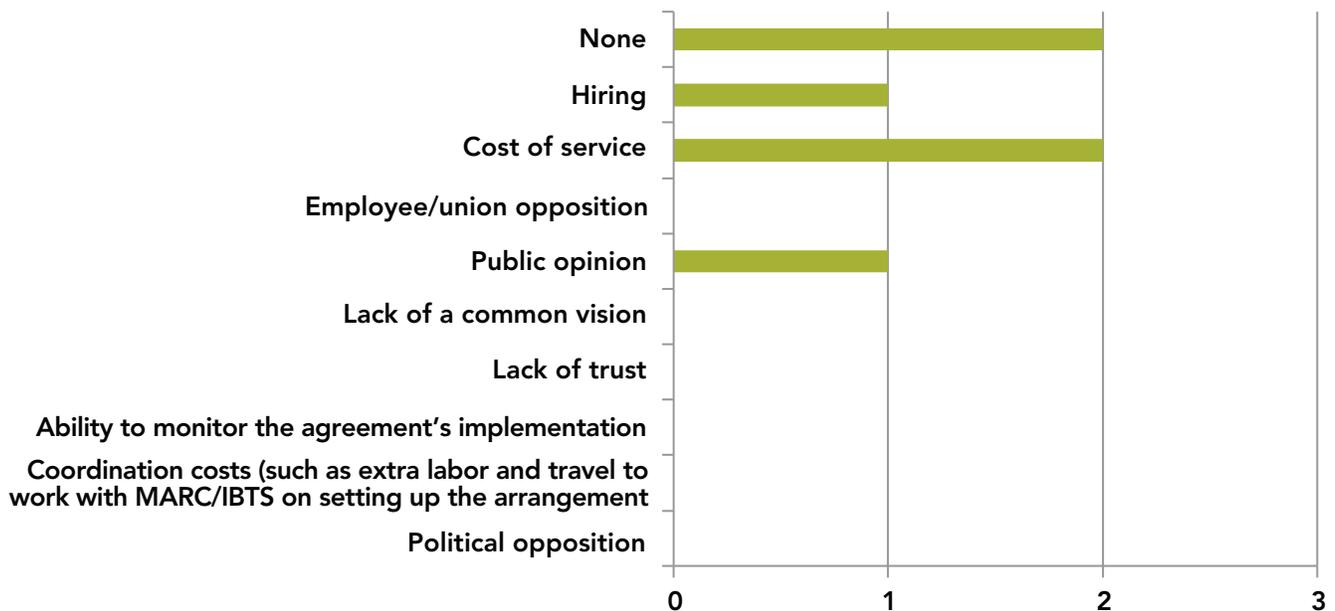


Chart 3 Barriers to Implementation for Jurisdictions and MARC (n=6)



impact were the management skills of local government staff (80%) and of IBTS (60%). There were no factors with a negative impact recorded. See Chart 4 on the next page for a detailed breakdown of questionnaire responses.

Benefits: The majority of jurisdictions reported that the key benefit from the service agreement program

was a greater pool of expertise (67%), followed by reduction in staff positions (33%). Thirty-three percent of interviewed jurisdictions also noted that no new efficiencies were realized as a result of the program, but those jurisdictions did identify some cost savings in the interview. One jurisdiction also noted streamlined business processes as a benefit, while another cited reduction in staff workload.

Chart 4 Factors Impacting Planning, Negotiation and/or Implementation of the Service Agreement for Jurisdictions and MARC (n=6)

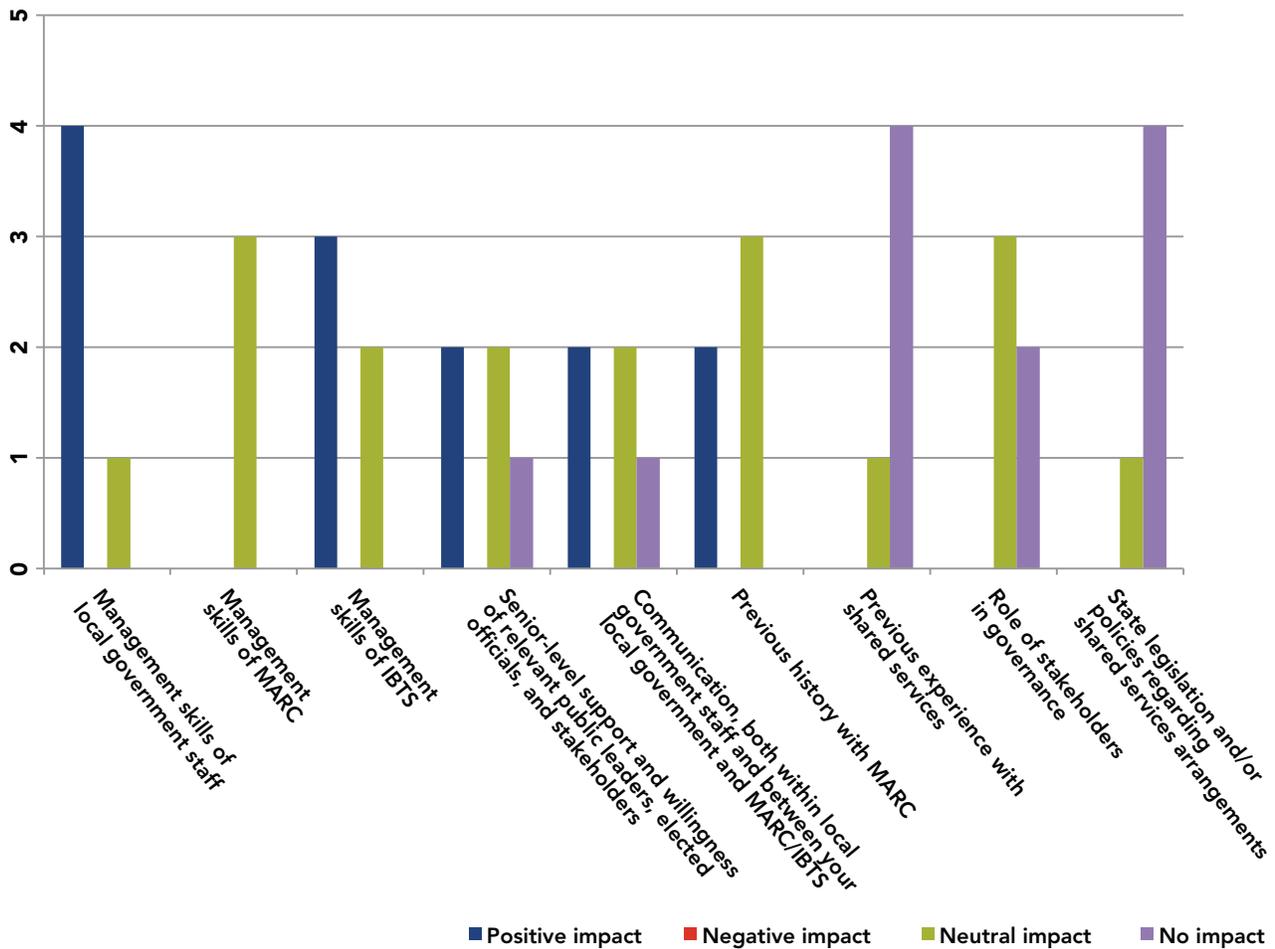
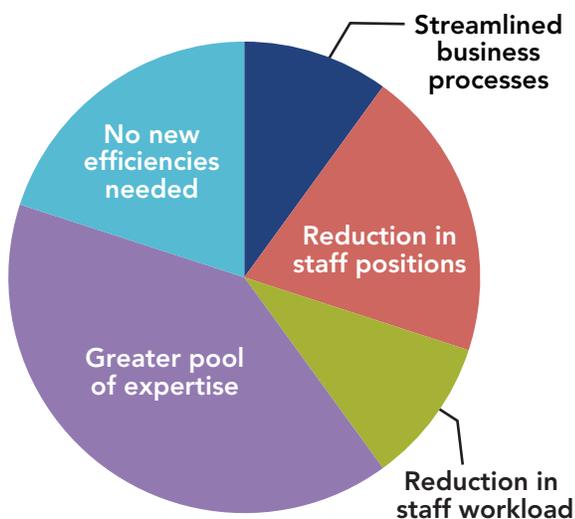


Chart 5 Benefits and New Efficiencies Realized as a Result of the Service Agreement for Jurisdictions and MARC (n=6)



Interviews: The pre-interview questionnaire yielded useful information that was enabled the interviewer to further delve into key areas during the case study interviews, especially in the areas of benefits realized and factors impacting implementation.

A Solution for Every Type of Jurisdiction

By conducting the case study interviews and questionnaire, it became apparent that the IBTS/MARC Service Agreement model was not the traditional “one size fits all” approach. Communities could use the agreement as a way to outsource their building department services entirely, pick and choose the services needed due to staffing or other gaps, and/or to supplement their current capacity in times of peak development work. On the following pages, community profiles of the jurisdictions selected for in-depth interviews are featured based on their size and the type of solution they have opted to select.

Smaller jurisdictions

Smaller jurisdictions (less than 1,000) tended to use nearly all of IBTS's available service options to maximize efficiencies and enable access to a pool of expertise and staff that would otherwise not be available to them.

- Bates City, Missouri
- Wood Heights, Missouri

Bates City, Missouri

Bates City, Missouri, is a small local government with a close-knit community and very few staff. With no full-time employees in the city's planning and zoning committee, options for obtaining the type of building code and department services expertise needed by the city were limited. Bates City has some history with vertical public-public service delivery partnerships with Lafayette County on mapping services, as well as some of the MARC-provided member services. The mayor of Bates City learned about the IBTS/MARC Master Services program through MARC's outreach and spearheaded the initiative within the city to enter into the agreement.

The main motivations for the jurisdiction pursuing the agreement were cost savings and increasing their pool of relevant expertise, as the labor intensity required to provide adequate building department services to citizens exceeded the city's capacity. The city signed the service agreement in

BATES CITY, MO PROFILE

Total population served (2013 Census): 216

Total land area served (in sq. mi.): 1.07

Median household income: \$48,750

Signed contract with IBTS/MARC: September 2014

Services opted into: 9 of 10

- Building code department services
- Flood plain services
- Accessibility code services
- Fire code review & inspection services
- Storm water services
- GOVmotus™ permitting software
- Energy management & green building services
- Planning & zoning services
- Property maintenance services

Website: www.batescity.net

“The advantages are obvious because we don't have staff to handle those situations— it's now being taken care of in a professional manner.”

—City Employee, Bates City, MO

September 2014 and implementation by IBTS began almost immediately.

Implementation

Bates City selected all of the services available except for wastewater, which the city does not provide. The negotiated services agreement was presented to the Bates City Board and, with some discussion, was approved. With a relatively small group of stakeholders involved, Bates City did not encounter any communications or other challenges with the community or administration. The mayor directly oversees the program with assistance from the city clerk.

Satisfaction

Bates City reported satisfaction with both the quality and timeliness of the agreement and cited that they would recommend this to another jurisdiction. The advantages for the city were streamlined business processes, reduction in staff positions and a greater pool of expertise. In addition, IBTS's fees were actually lower than the city's for the building department services, an unexpected perk for citizens.

In the interview, Bates City also expressed interest in engaging in more shared service delivery options in the future. The recommendation from City Clerk Carol Branson for other jurisdictions considering shared services was to “ask lots of questions.”

Conclusion

Bates City has opted into all of the applicable services offered by IBTS and has maximized their pool of needed expertise at no additional cost to the city. The city also lowered its service fees to citizens while still recouping their full administrative costs. Through this agreement, Bates City has improved building department service delivery while also realizing cost savings.

Wood Heights, Missouri

Wood Heights, Missouri, previously had been part of a vertical public-public partnership with Ray County to provide building department services. When the partnership encountered obstacles including limited resources to share between the two jurisdictions, the mayor of Wood Heights began to explore other options. With a small community, a full-time building inspector was not a cost-effective solution. MARC approached Wood Heights as an ideal community to benefit from the service agreement.

Implementation

The mayor of Wood Heights worked with the city's Planning and Zoning Board to finalize the service agreement and opted into all services except wastewater, which the city does not provide. The city's motivations to enter into the agreement were primarily cost savings, increasing the pool of relevant expertise and risk of non-compliance with building codes and/or other state requirements or policies. The city signed the service agreement in November 2013 and implementation began within two months.

Challenges

The mayor of Wood Heights oversees the majority of implementation for the service agreement. While implementation has gone smoothly from the adminis-

“[Wood Heights] basically got a city inspector to inspect homes, dwellings, new building permits for nothing.... I don't think we could have had a better person... [than] Roger Kroh to work with us.”

—Robert Pettegrew
Mayor, Wood Heights

tration's perspective, there have been some challenges with citizens on the fee structure and resistance to change. Unlike Bates City, the fees under the service agreement have been relatively high for Wood Heights citizens. To help Bates City residents transition into this new structure, the IBTS building inspector, Roger Kroh, took the necessary time to build relationships with residents and customers.

Satisfaction

Wood Heights cited overall satisfaction with the service agreement and expressed that the city's expectations for the agreement had been met, especially with the performance of the current building inspector. Mayor Robert Pettegrew noted that he would recommend the agreement to other local governments, especially those who face similar challenges with enforcing building code compliance. The main advantages for Wood Heights were an increased pool of up-to-date technical expertise and reduction in staff needs and workload.

Conclusion

Wood Heights, like Bates City, is using the service agreement to cover a wide array of services that the small jurisdiction would otherwise not be able to provide. However, the change from the municipality's fee structure to IBTS's fee structure has been an obstacle for some customers. A future consideration would be to look at readjusting the fee structure for smaller communities due to lower usage. Overall, Wood Heights was very satisfied with the agreement.

WOOD HEIGHTS, MO PROFILE

Total population served (2013 Census): 702

Total land area served (in sq. mi.): 2.28

Median household income: \$56,875

Signed contract with IBTS/MARC: November 2013

Services opted into: 9 of 10

- Building code department services
- Flood plain services
- Accessibility code services
- Fire code review & inspection services
- Storm water services
- GOVmotus™ permitting software
- Energy management & green building services
- Planning & zoning services
- Property maintenance services

Medium-sized jurisdictions

Medium-sized jurisdictions (1,000–10,000 citizens) typically opted into several service options to fill gaps in staffing and in-house capabilities and also provide more expertise to reduce liability of non-compliance with building codes.

- Edwardsville, Kansas

Edwardsville, Kansas

Edwardsville, Kansas was facing a challenge—they needed to make some changes to meet the certification requirements for building inspectors, but the solution could not cost the city as much as a full-time, salaried inspector. The city considered a horizontal public-public partnership with another city, but the city’s previous experiences had shown that responsiveness and long-term costs often made such arrangements unsustainable. Thus, Edwardsville was interested in other options for building department services. The City Manager discovered IBTS’s shared services agreement model at an ICMA conference in 2012 and, seeing its potential benefits for the region, spearheaded bringing IBTS to MARC to present to a group of potential pilot cities.

While MARC was negotiating the larger, umbrella Master Services Agreement, Edwardsville signed an initial contract for an individual project building inspection. When the MARC/IBTS Services Agreement was finalized, Edwardsville transferred to an agreement under the larger Master Services Agreement. During this time, Edwardsville’s part-time building

“To think we can just continually do what we did, even pre-2000s. I think the writing was on the wall that we have to do something different.... Cities, whether it’s through a shared agreement like this or through other means, are going to have to figure out how we provide services in a cooperative manner if we want to really provide the level of service that’s being asked of us.”

—Michael Webb
City Manager, Edwardsville, KS

inspector retired but due to this agreement, there were no issues in transition and continued service delivery.

Implementation

The city opted into most of the services provided by IBTS other than those not provided or not needed by the city, which were planning and zoning, property maintenance and wastewater review services. Their motivations for signing the agreement were higher quality and/or more efficient service delivery, increasing the pool of relevant expertise and risk of non-compliance with building codes. The deciding factor for using this arrangement was asset specificity and labor intensity. When signing both the initial contract and the later service agreement, the city administration worked with the Planning Commission, which had relationships with the building industry in the area. City Council was also consulted and, after adjusting and amending the originally proposed agreement to address some concerns about the fee and fee schedule, passed the agreement without significant obstacles. The City Manager and Administrative Assistant oversee the implementation of the agreement.

Challenges

Although the internal administrative process was relatively smooth, working out initial “kinks” took approximately a year due to back-and-forth between IBTS and the city and onboarding initial IBTS personnel. After signing the agreement, implementation was

EDWARDSVILLE, KS PROFILE

Total population served (2013 Census): 4,355

Total land area served (in sq. mi.): 9.04

Median household income: \$58,205

Signed contract with IBTS/MARC: Original contract with IBTS initiated 2012, transitioned under Master Services Agreement starting December 2013

Services opted into: 7 of 10

- Building code department services
- Flood plain services
- Accessibility code services
- Fire code review & inspection services
- Storm water services
- GOVmotus™ permitting software
- Energy management & green building services

Website: www.edwardsvilleks.org

almost immediate and the transition to the umbrella service agreement was quick. Building on lessons learned during this process, IBTS focused on staffing up in the region and contracted a regional coordinator as well as hiring a building inspector who had been working in the region. The inspector having local context and understanding has been helpful, although smaller and medium-size jurisdictions can lose some of the personal contact with their customers while using this type of agreement.

Another challenge was the introduction of a new permitting software service, which took approximately a year to finish customizing and launch. The software, IBTS's GOVMOTUS™, can be a challenging adjustment in communities where the building community conducts their business in-person rather than electronically as it can create extra work for city staff. The IBTS Regional Coordinator, Curt Skoog, and the city have been working together to address this challenge.

For some customers, another obstacle has been the cost of the fees. However, a benefit of using this agreement is that the fees are set per service, whereas previously, the cost of the service was on a time and labor basis. This meant that sometimes customers received estimates that differed greatly from the final cost, which is no longer an issue.

Satisfaction

Overall, Edwardsville was satisfied and reported that expectations have been met through implementation. The key advantage for the city was the increased pool of expertise. Given the highly technical nature of the building inspector position, the City Manager noted that the cost of not only hiring and maintaining a full-time inspector, but also the costs of providing the necessary continuing education and then providing incentives to retain that individual, were prohibitive. This agreement model puts the responsibility for having a qualified building inspector with up-to-date credentials and knowledge in the hands of IBTS. The fee structure also allows the city to cover their administrative costs.

The City Manager reported that he would recommend this agreement to other jurisdictions and also shared services overall, noting that shared service arrangements were the way of the future for cities. The city also spearheaded the Midwest Public Risk, an insurance pool for local governments in the region for property liability coverage.

Conclusion

Edwardsville originally used the service agreement to cover an immediate need but then expanded to

cover all of the services that the city did not have in-house capacity to provide. As the first city to use the service agreement in the region, Edwardsville unsurprisingly encountered implementation challenges. However, through time and the concerted efforts of both the city and IBTS, these have been primarily addressed which will be lessons learned for implementation of future shared services arrangements. Overall, the city noted that it was satisfied with the agreement.

Larger jurisdictions

Larger jurisdictions (10,000+) tended to use one service to cover staffing gaps or supplement existing capacity in highly technical fields.

- Clay County, Missouri
- Johnson County, Kansas

Clay County, Missouri

Clay County was facing an impending staffing gap when their building inspector resigned. As a large jurisdiction, it was important to ensure that service quality and responsiveness did not suffer while searching for a replacement.

Implementation

Clay County's building inspector was actually contracted by IBTS for the MARC/IBTS Master Service Agreement, so the logical next step was to use the service agreement as a stopgap measure to continue providing high-quality services during the time when the county was searching for the inspector's replacement. In addition, Clay County selected the IBTS model due to the labor intensity of their building department services and their ability to monitor the implementation of the agreement.

CLAY COUNTY, MO PROFILE

Total population served (2014 Census): 233,682

Total land area served (in sq. mi.): 397

Median household income: \$60,936

Signed contract with IBTS/MARC: July 2014; ended December 2014 (Work Order)

Services opted into: 1 of 10

- Building code department services

Website: www.claycountymo.gov

“[IBTS] takes care of it. You allow your builders to contact them directly for inspections or plan review, so it’s a real nice, clean relationship. It definitely helped us out.”

—Matthew Tapp, Director, Planning

Clay County worked with the county management administration and ultimately, the county commission to negotiate and approve the final agreement. The Planning and Zoning Director spearheaded and managed the implementation of the agreement. Implementation was quick after signing the agreement, and Clay County did not note any communication or other challenges within the administration or the public. Once a replacement building inspector was recruited, Clay County ended the service agreement as the services were no longer needed.

Challenges

Clay County encountered a challenge over the amount of time between inspection and the inspection report, as well as the level of service quality, in transitioning from a full-time inspector to the service agreement. However, the issues were not significant enough to detract from overall satisfaction.

Satisfaction

The Planning and Zoning Director remarked that, overall, he and the county were satisfied and their expectations had been met through the service agreement. He even commented that Clay County might look at the service agreement option again for any large, complicated projects that might occur. The primary advantage, other than covering a staffing gap, was that the responsibility for the entire service was transferred to IBTS, yielding time savings for staff. The director advised that jurisdictions considering shared services ensure that the services provided are still high quality.

Conclusion

Clay County effectively used the service agreement to cover a temporary staffing need. While some challenges in implementation had to be overcome that are a lesson learned for IBTS in the future, this agreement provided a means to continue providing timely, high-quality services while recruitment for a replacement inspector was underway.

Johnson County, Kansas

Johnson County, like many jurisdictions, had to cut staff in 2009 due to a downturn in the development market. However, there has been an increase in development demand in more recent years that current wastewater department staffing levels could not meet. Given the difficulty of recruiting qualified wastewater staff and the need to meet demands quickly, Johnson County began to look at other options to reduce staff workloads. The county learned of the service agreement through MARC and determined that the agreement was the right option to supplement their current staff.

Implementation

The primary motivating factor for Johnson County to pursue a shared services arrangement was inadequate staff to meet development demand, and the deciding factor to enter into this arrangement with IBTS was asset specificity. As the only service the county needed was wastewater plan review, this was the only service it opted into. The wastewater department head worked with the County Manager to negotiate and approve the agreement. Due to internal delays, the contract took time to finalize but there were no significant delays in implementation.

The county also coordinated with a constituent city, Overland Park, which has a significant level of development. The county did not encounter any communication issues with customers. The General Manager of Johnson County Wastewater spearheaded the agreement and the New Development Engineering Manager oversees implementation.

Challenges

The county encountered challenges in implementation due to a learning curve for IBTS to become familiar with their process and systems. The county noted that greater communication and more time spent upfront between IBTS and the jurisdiction on learning the local context and establishing expectations for deliverables,

JOHNSON COUNTY, KS PROFILE

Total population served (2014 Census): 574,272

Total land area served (in sq. mi.): 473.38

Median household income: \$74,717

Signed contract with IBTS/MARC: December 2014

Services opted into: 1 of 10

- Wastewater plan review services

Website: <http://www.jocogov.org>

“They’ve been very good about wanting to know exactly how we do what we do and why... and not coming in and saying ‘you guys should do this.’ ... Them really wanting to develop the understanding of what we do and why has been really good.”

—Jennifer Harder
New Development Engineering
Manager, Johnson County

such as reporting, would have benefited the process, in addition to some delays from IBTS personnel changes. Currently, IBTS and the county are working together to find solutions for reducing project review times. Both IBTS and the county continue to learn from the experience.

Satisfaction

Johnson County was satisfied with the agreement, especially IBTS personnel. The primary benefits for the county were human resources and recruitment cost savings, and they cited that they would recommend this agreement and shared services arrangement generally to other jurisdictions.

Conclusion

Johnson County has leveraged the service agreement to supplement existing wastewater staff to meet increasing demand. Although the partnership took some time to fully develop and there are lessons learned in communications, the county has since been able to benefit from human resources and recruitment cost savings as a result of using the service agreement.

Implementing Partner

Mid-America Regional Council (MARC)

The Mid-America Regional Council (MARC) is a regional planning council and provides a number of shared services, including a cooperative purchasing program and a 9-1-1 system. One of the MARC

constituent jurisdictions—Edwardsville, Kansas—heard about IBTS’s shared building services model and brought it to MARC as a potential solution for several jurisdictions under MARC. This was MARC’s first time working with IBTS. The main motivation for MARC to enter into this agreement was strengthening collaborative intergovernmental relations.

Implementation

After confirming initial interest, MARC, with assistance from Edwardsville, conducted outreach and convened a forum of local building officials for a presentation by IBTS of the service agreement. MARC and IBTS negotiated several iterations before the final Master Services Agreement was realized in September 2013. The first jurisdiction (Wood Heights, MO) signed their agreement in November 2013. MARC’s Program Director of Local Government Services oversees the agreement and is responsible for promotion and outreach around the agreement.

Challenges

One challenge for MARC was initial public opinion among the regional building official community. However, IBTS took steps, such as hiring a regional coordinator, to mitigate the concern that this program would replace building department jobs. A lesson learned for future managers for similar shared services partnerships is to plan ahead for the amount of time it will take to gain a critical mass of jurisdictions to opt into the service agreement. In time, these issues were overcome, but more time spent personally engaging jurisdictions at the front end, discussing the benefits of this service, may make for a more efficient process in the end.

Satisfaction

MARC cited that they were satisfied with the agreement, would recommend the IBTS Master Agreement to other councils of governments (COGs) and Regional Planning Organizations (RPOs) and that MARC will

MARC PROFILE

Total population served (2010 Census): 2,086,771
across 119 cities and 9 counties in Kansas & Missouri
in the Kansas City Metropolitan Region

Total land area served (in sq. mi.): 4,358

Signed contract with IBTS/MARC: September 2013

Website: www.marc.gov

“[The agreement] helps us enhance what we currently offer; we found that entering into an agreement with IBTS was a win-win for both IBTS and MARC.”

—Georgia Nesselrode
Program Director of Local
Government Services, MARC

continue to consider other shared service arrangements in the future depending on their needs. The key benefits were an increased pool of expertise and enhancing their current suite of services for members. MARC also shared their lessons learned through this process, which were to have patience with the consensus-building process and that achieving efficiency required exploring, finding commonalities and working together towards how best to implement a shared services arrangement. This type of agreement requires a lot of relationship- and trust-building for the implementer (IBTS) and implementing partner (MARC).

Conclusion

MARC found the program to be very beneficial for all parties, especially member jurisdictions. Some key takeaways were taking steps early on to mitigate negative perceptions among the building community and personal engagement to sell the program for the COG from the outset. However, the program gained significant momentum recently and has been very successful.

Key Takeaways

The case study and interview process found that, overall, jurisdictions and the implementing partner all found the IBTS/MARC Service Agreement satisfactory and most had realized some form of cost savings or other benefit. Other key points are highlighted below.

- **Motivation:** The key motivation for most jurisdictions to enter a shared services arrangement for building department services is an increased pool of relevant expertise. The majority of jurisdictions using the service agreement reported a greater pool of expertise as a benefit, indicating that the expectations for the agreement were met.
- **Service Options:** For all of the jurisdictions participating in the program, including those not interviewed, the most commonly contracted service option of the ten options was building department services (85%) and the least contracted was wastewater service plan review (8%).
- **Size Factor:**
 - Smaller jurisdictions (less than 1,000) seemed to use nearly all of IBTS’s available service options to maximize efficiencies and enable access to a pool of expertise and staff that would otherwise not be available to them.
 - Medium-sized jurisdictions (1,000-10,000 citizens) opted into several service options to fill gaps in staffing and in-house capabilities and also provide more expertise to reduce liability of non-compliance with building codes.
 - Larger jurisdictions (10,000+) typically used just one service to quickly cover staffing gaps in highly technical fields. This service can also be very useful to supplement current building department capacity in any size of jurisdiction, especially during peak development seasons.
- **Shared Services:** A key issue with horizontal or vertical public-public partnerships cited by jurisdictions was high demand from both municipalities at the same time for the same service, so each sought out another option that provided more consistent and timely responses. This indicates that horizontal or vertical public-public partnerships for building department and similar services may be less effective than services with more predictable schedules, such as waste collection, and public-nonprofit or public-private partnerships may better serve this highly technical need.
- **Implementing Partner Role:** MARC played a key role in the outreach and communication for the service agreement opportunity. Most jurisdictions learned about the MARC/IBTS Service Agreement opportunity through MARC directly.
- **Key Stakeholders:** Key stakeholders involved were primarily local government internal stakeholders such as city and county boards. No formal public outreach efforts were conducted in any of the jurisdictions interviewed, and, other than an initially poor public reaction from the regional building community at large, no significant communication challenges were mentioned. The primary staff person managing the agreement for the jurisdictions was the mayor or relevant department head.

- **Lessons Learned and Practices to Replicate:** The list below covers some key lessons learned and best practices from the program to replicate in future shared services arrangements.
 - *Communications* — To ensure smooth implementation, frequent communication at the outset of a shared services agreement negotiation that includes detailed expectations, particularly of deliverables, is critical. It is also key for the implementer to spend time at the beginning learning and understanding the local context, system and processes.
 - *Fee Model* — Discussions on fee model and potentially different schedules depending on development needs should take place during the conversation about the Master Services Agreement and communicated to stakeholder jurisdictions. Communications and outreach materials for potential jurisdictions to help explain the reason for the fee schedule by either the implementer or implementing partner are also recommended.
 - *Public relations with relevant stakeholders* — Early communication with the regional building community and solutions such as hiring regional liaisons should be initiated early in the process to mitigate potential fears of outsourcing jobs.
 - *Relationship-building* — Relationship- and trust-building on the part of the implementer, implementing partner and jurisdiction are key to ensuring the success of any shared services arrangement.
- *Plan ahead* — For implementing partners, it is important to know in advance that it will take time to gain a critical mass of jurisdictions to opt into the service agreement, but also to work at personal engagement in the early stages to market the agreement to jurisdictions.
- **Benefits:** The primary benefit to jurisdictions was a greater pool of technical expertise and also removing the burden of responsibility for service provision from the jurisdiction to the implementer. This yielded human resources cost savings in most jurisdictions. None of the jurisdictions or MARC recorded any performance measurements, but two noted that they would likely analyze performance measurement improvements or cost savings in the future.
- **Future Shared Services:** Only one of the five jurisdictions indicated that they did not envision the jurisdiction entering into another shared services arrangement in the future, and this was due to lack of information about what other shared services arrangements were available. This positive outlook by case study participants on shared services indicates that, overall, the IBTS Service Agreement with MARC has been very successful. As the first shared services arrangement that most of the jurisdictions had used that was not vertical or horizontal public-public, the Service Agreement also increased awareness in the region of the variety of shared services arrangements and the benefits of public-nonprofit partnerships.



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