CITY COUNCIL PROCEEDINGS

August 10, 2022

The City Council of the City of David City, Nebraska, met in open public session at 7:00 p.m. in the meeting room of the City Office at 490 “E” Street, David City, Nebraska. The Public had been advised of the meeting by publication of notice in The Banner Press on August 4th, 2022, and an affidavit of the publisher is on file in the office of the City Clerk. The Mayor and members of the City Council acknowledged advance notice of the meeting by signing the Agenda which is a part of these minutes. The advance notice to the Public, Mayor, and Council members conveyed the availability of the agenda, which was kept continuously current in the office of the City Clerk and was available for public inspection on the City’s website. No new items were added to the agenda during the twenty-four hours immediately prior to the opening of the Council meeting.

Present for the meeting were: Mayor Alan Zavodny, Council President Tom Kobus, Council members Jessica Miller, Kevin Woita, Pat Meysenburg, City Attorney David Levy, Interim City Administrator/City Clerk Tami Comte, and Deputy Clerk Lori Matchett. Bruce Meysenburg and John Vandenberg were absent.

Also present for the meeting were: Water Operator In Charge Dan Sobota, Water Department Employee Anthony Kobus, Special Projects Coordinator Dana Trowbridge, Craig Reinsch with Olsson, Keith Marvin with Marvin Planning Consultants, Brian Foral, Joan Prescott, Banner-Press Correspondent Hannah Schrodt and Sheriff Tom Dion.

The meeting opened with the Pledge of Allegiance.

Mayor Alan Zavodny informed the public of the “Open Meetings Act” posted on the west wall of the meeting room and asked those present to please silence their cell phones. He also reminded the public that if they speak tonight in front of the Council that they must state their name and address for the record.

Council member Tom Kobus made a motion to approve the minutes of the July 26th & 27th Meetings of the Mayor and City Council as presented. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Council member Pat Meysenburg made a motion to authorize the payment of claims. Council Member Tom Kobus seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Mayor Zavodny gave a reminder to the public about the placement of signs in front yards along the highway and making sure that they are following municipal code – placement of signs needs to be in the property owners portion of the yard and not in the parkway.

Interim City Administrator/City Clerk Tami Comte informed the council about the meeting she attended with Eric Johnson with Kirkham Michael earlier that morning. Eric shared that he had a meeting with Anne Rickert (Nebraska Aeronautics Director), who was very impressed with the City of David City for taking on purchasing the land around the airport without getting federal assistance to purchase the land.

Interim City Administrator/City Clerk Tami Comte also shared with the council that the City of David City is getting the second trench of ARPA Funds this week in the amount of $252,384.53. The City will have then received the full amount of ARPA Funds.

Council member Pat Meysenburg made a motion to accept the Committee and Officers reports as presented. Council Member Tom Kobus seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Council member Tom Kobus made a motion to approve progress estimate #4 in the amount of $15,012.88 and Change Order #3 in the amount of $(299.60) for M.E. Collins for the N-15 "S" Street Turn Lane Improvements. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

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CERTIFICATE OF PAYMENT: 4 Final

Date of Issuance: August 3, 2022

Project: N-15 and "S" Street Turn Lane Improvements, David City, Nebraska - 2021

Project No.: 020-2875

Contractor: M.E. Collins Contracting Co., Inc., P O Box 83, Wahoo, NE 68066

DETAILED ESTIMATE

Description	Unit Price	Extension
See Attached.		

PLEASE REMIT PAYMENT TO: M.E. Collins Contracting Co., Inc., P O Box 83, Wahoo, NE 68066

Value of Work Completed This Request: $0.00

Original Contract Cost:	$166,400.00
Approved Change Orders:	
No. 1	$0.00
No. 2	$7,660.00
No. 3	($299.60)
Total Contract Cost:	$173,760.40

Value of completed work and materials stored to date		$173,760.40
Less retainage percentage	0%	$0.00
Net amount due including this estimate		$173,760.40

Less: Estimates previously approved:

No. 1	$9,257.16	No. 3	$5,218.20	No. 5	$0.00
No. 2	$144,272.16	No. 4	$0.00	No. 6	$0.00

Total Previous Estimates: $158,747.52

0%

NET AMOUNT DUE THIS ESTIMATE: $15,012.88

The undersigned hereby certifies, based upon periodic observations as set forth in scope of work and the data included in all applicable payment applications that, to the best of its knowledge, information and belief: (1) the work has progressed as indicated in the applicable payment applications; (2) the work performed and materials delivered by Contractor are in conformance with the plans and specifications; and (3) the Contractor, in accordance with the contract, is entitled to payment as indicated above.

This certification does not constitute a warranty or guarantee of any type. Client shall hold its Contractor solely responsible for the quality and completion of the Project, including construction in accordance with the construction documents. Any duty or obligation of Olsson hereunder is for the sole benefit of the Client and not for any third party, including the Contractor or any Subcontractor.

cc: City of David City, Nebraska - Owner
M.E. Collins Contracting Co., Inc., P O Box 83, Wahoo, NE 68066
Project File

OLSSON

By: _____

olsson

Pay App. 4 FINAL

Project: N-16 and "S" Street Turn Lane Improvements, David City, Nebraska - 2021

Project #: 020-2876

Contractor: M.E. Collins Contracting Co., Inc., P O Box 83, Wahoo, NE 68066

Date: 8/3/2022

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
						WORK COMPLETED									
ITEM NO.	DESCRIPTION OF WORK	Pay Unit	Total Est. Qty	Unit Price	SCHEDULED VALUE (D * E)	Qty from previous pay appl.	Total From previous pay appl.	Qty this Period	Total from this Period	MATERIALS PRESENTLY STORED (NOT IN H OR J)	TOTAL QUANTITY TO DATE (G+I)	TOTAL COMPLETED AND STORED TO DATE (H+J+K)	% (M/F)	BALANCE TO FINISH (F-M)	RETAINAGE
Base Bid															
1	Earthwork	L.S.	1	$40,000.00	$40,000.00	1.00	$40,000.00	0.00	$0.00		1.00	$40,000.00	100%	$0.00	$0.00
2	Erosion Control	L.S.	1	$4,520.00	$4,520.00	1.00	$4,520.00	0.00	$0.00		1.00	$4,520.00	100%	$0.00	$0.00
3	6" Concrete Driveway/Pavement	S.Y.	167	$68.00	$11,356.00	167.00	$11,356.00	0.00	$0.00		167.00	$11,356.00	100%	$0.00	$0.00
4	8" Doweled Concrete Pavement (1)	S.Y.	816	$76.00	$62,016.00	816.00	$62,016.00	0.00	$0.00		816.00	$62,016.00	100%	$0.00	$0.00
5	Subgrade Prep (2)	S.Y.	816	$7.40	$6,038.40	816.00	$6,038.40	0.00	$0.00		816.00	$6,038.40	100%	$0.00	$0.00
6	24" RCP (3)	L.F.	48	$85.00	$4,080.00	48.00	$4,080.00	0.00	$0.00		48.00	$4,080.00	100%	$0.00	$0.00
7	Area Inlet	EA.	1	$6,710.00	$6,710.00	1.00	$6,710.00	0.00	$0.00		1.00	$6,710.00	100%	$0.00	$0.00
8	Storm Sewer Manhole (4)	EA.	1	$6,170.00	$6,170.00	1.00	$6,170.00	0.00	$0.00		1.00	$6,170.00	100%	$0.00	$0.00
9	Barrier Gate Arm	EA.	1	$6,000.00	$6,000.00	1.00	$6,000.00	0.00	$0.00		1.00	$6,000.00	100%	$0.00	$0.00
10	5" White Pavement Marking	L.F.	587	$3.00	$1,761.00	587.00	$1,761.00	0.00	$0.00		587.00	$1,761.00	100%	$0.00	$0.00
11	White Preformed Plastic Arrow	EA.	1	$673.00	$673.00	1.00	$673.00	0.00	$0.00		1.00	$673.00	100%	$0.00	$0.00
12	Remove Pavement (5)	S.Y.	537	$16.00	$8,592.00	537.00	$8,592.00	0.00	$0.00		537.00	$8,592.00	100%	$0.00	$0.00
13	Remove Area Inlet (6)	EA.	0	$945.00	$0.00	0.00	$0.00	0.00	$0.00		0.00	$0.00	100%	$0.00	$0.00
14	Remove Curb	L.F.	68	$17.00	$1,156.00	68.00	$1,156.00	0.00	$0.00		68.00	$1,156.00	100%	$0.00	$0.00
15	Remove and Reset Mailbox	EA.	1	$300.00	$300.00	1.00	$300.00	0.00	$0.00		1.00	$300.00	100%	$0.00	$0.00
16	Traffic Control	L.S.	1	$6,728.00	$6,728.00	1.00	$6,728.00	0.00	$0.00		1.00	$6,728.00	100%	$0.00	$0.00
					$166,100.40		**$166,100.40**		**$0.00**			**$166,100.40**		**$0.00**	**$0.00**
Change Order															
	Stored Materials (7)	L.S.	0	$10,285.73	$0.00	0.00	$0.00	0.00	$0.00		0.00	$0.00	0%	$0.00	$0.00
CO2	Embankment, Electrical and Traffic Control	L.S.	1	$7,660.00	$7,660.00	1.00	$7,660.00	0.00	$0.00		1.00	$7,660.00	100%	$0.00	$0.00
	Contract Total				**$173,760.40**		**$173,760.40**		**$0.00**	**$0.00**		**$173,760.40**	**100%**	**$0.00**	**$0.00**

	Original Contract		$166,400.00
+	CO 1		$0.00
+	CO 2		$7,660.00
+	CO		($299.60)
	Total Contract to Date		$173,760.40
	Total Work Completed to Date		$173,760.40
	Total Materials Stored to Date		$0.00
	Total Value completed & Stored to Date		$173,760.40
-	Retainage	0%	$0.00
	Net Total Due Less Retainage		$173,760.40
-	Pay AP 1		$9,257.16
-	Pay AP 2		$144,272.16
-	Pay AP 3		$5,218.20
-	Pay AP		$0.00
-	Pay AP		$0.00
-	Pay AP		$0.00
	Total Previous		$158,747.52
	Net Amount Due This Estimate		$15,012.88

Footnotes:

(1) Item 4 - Quantity updated from 750 SY to 816 SY per Change Order #4 Final
(2) Item 5 - Quantity updated from 750 SY to 816 SY per Change Order #4 Final
(3) Item 6 - Quantity updated from 45 LF to 48 LF per Change Order #4 Final
(4) Item 8 - Quantity updated from 2 EA to 1 EA per change Order #4 Final
(5) Item 12 - Quantity updated from 471 SY to 537 SY per Change Order #4 Final
(6) Item 13 - Quantity updated from 1 EA to 0 EA per Change Order #4 Final
(7) Removed Stored Materials quantities as these were paid through Item 1.

CHANGE ORDER

No. 3
Final

olsson

Date of Issuance: August 3, 2022 Effective Date: August 3, 2022

Project: N-15 "S" Street Turn Lane Improvements	Owner: City of David City, Nebraska	Owner's Contract No.:
Contract: Base Bid		Date of Contract: July 14, 2021
Contractor: M. E. Collins Contracting Co., Inc.		Engineer's Project No.: 020-2875

The Contract Documents are modified as follows upon execution of this Change Order:

Description: Final quantities

Attachments: (List documents supporting change): see attached

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price: $ 166,400.00	Original Contract Times: Substantial Completion (days or date): December 15, 2021 Ready for Final Payment (days or date): April 15, 2022
Increase from previously approved Change Orders No. 1 to No. 2: $ 7,660.00	Increase from previously approved Change Orders No. 0 to No. 1: Substantial Completion (days or date): May 15, 2022 Ready for Final Payment (days or date): May 30, 2022
Contract Price prior to this Change Order: $ 174,060.00	Contract Times prior to this Change Order: Substantial Completion (days or date): May 15, 2022 Ready for Final Payment (days or date): May 30, 2022
Decrease of this Change Order: $ (299.60)	Increase of this Change Order: Substantial Completion (days or date): N/A Ready for Final Payment (days or date): N/A
Contract Price incorporating this Change Order: $ 173,760.40	Contract Times with all approved Change Orders: Substantial Completion (days or date): May 15, 2022 Ready for Final Payment (days or date): May 30, 2022

RECOMMENDED: Olsson	ACCEPTED: City of David City, Nebraska	ACCEPTED: M. E. Collins Contracting Co., Inc.
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: Project Manager	Title:	Title: V.P.
Date: 8/3/2022	Date:	Date: 8/3/22

Approved by Funding Agency (if applicable):

By: _____ Title: _____ Date: _____

Change Order 3 Final | **Project:** N-15 and "S" Street Turn Lane Improvements, David City, Nebr.

Date: August 3, 2022 | **Contractor:** M.E. Collins Contracting Co., Inc., P O Box 83, Wahoo, NE 68066

olsson

A	B	C	D	E	F	G	H	I	J
ITEM NO.	DESCRIPTION OF WORK	Pay Unit	Contract Quantities	Price Bid	Contract Total Cost (D * E)	Constructed Quantities	Add/Deduct Quantities	Add/Deduct Price	Contract Adjusted Total Cost
1	Earthwork	L.S.	1	$40,000.00	$40,000.00	1.00	0	0.00	$40,000.00
2	Erosion Control	L.S.	1	$4,520.00	$4,520.00	1.00	0	0.00	$4,520.00
3	6" Concrete Driveway/Pavement	S.Y.	167	$68.00	$11,356.00	167.00	0	0.00	$11,356.00
4	8" Doweled Concrete Pavement (1)	S.Y.	750	$76.00	$57,000.00	816.00	66	5,016.00	$62,016.00
5	Subgrade Prep	S.Y.	750	$7.40	$5,550.00	816.00	66	488.40	$6,038.40
6	24" RCP	L.F.	45	$85.00	$3,825.00	48.00	3	255.00	$4,080.00
7	Area Inlet	EA.	1	$6,710.00	$6,710.00	1.00	0	0.00	$6,710.00
8	Storm Sewer Manhole	EA.	2	$6,170.00	$12,340.00	1.00	-1	-6,170.00	$6,170.00
9	Barrier Gate Arm	EA.	1	$6,000.00	$6,000.00	1.00	0	0.00	$6,000.00
10	5" White Pavement Marking	L.F.	587	$3.00	$1,761.00	587.00	0	0.00	$1,761.00
11	White Preformed Plastic Arrow	EA.	1	$673.00	$673.00	1.00	0	0.00	$673.00
12	Remove Pavement	S.Y.	471	$16.00	$7,536.00	537.00	66	1,056.00	$8,592.00
13	Remove Area Inlet	EA.	1	$945.00	$945.00	0.00	-1	-945.00	$0.00
14	Remove Curb	L.F.	68	$17.00	$1,156.00	68.00	0	0.00	$1,156.00
15	Remove and Reset Mailbox	EA.	1	$300.00	$300.00	1.00	0	0.00	$300.00
16	Traffic Control	L.S.	1	$6,728.00	$6,728.00	1.00	0	0.00	$6,728.00
					$166,400.00				**$166,100.40**
Change Order									
	Stored Materials	L.S.	0	$10,285.73	$0.00	0.00	0	0.00	$0.00
CO2	Embankment, Electrical and Traffic Control	L.S.	1	$7,660.00	$7,660.00	1.00	0	0.00	$7,660.00
	Contract Total				**$174,060.00**			**($299.60)**	**$173,760.40**

Craig Reinsch of Olsson introduced himself and presented to the City Council the Water System Evaluation. “Thank you for those council members who were able to meet with me three or four weeks ago. We have taken the feedback we received at that meeting and have updated the report into its draft form. At that time, we are going to present some information, so I have created a fact sheet, i.e. CliffsNotes version, that I wanted to go through with you tonight. The evaluation we obviously looked at history, water use, population, and to see what the system has done and what it can do. So, we have combined a few different studies that we have done in the past. One of the things that we use as a primary driver for the calculations are population. One of the feedback items we received from council is to utilize the anticipated projected population number of lots that are going to be considered and then add that over five years, and then go through a half percent of growth through 2060. If you flip to page three on your fact sheet, I have a graph for you, and so that is what the numbers end up being. We’ve added in Bruno for use and so we are projecting four thousand two hundred seventy people by 2060. That is how we have done those calculations for water use. It was also recommended by city staff and confirmed with council to utilize Michael Foods existing consumption so that we are creating continual contingency as we go through and then we have also AGP into the mix. With all of this review and all of the calculation we did put together a hydraulic model as well and wanted to go through these figures that we have together. So, these are the larger figures and will go through these real quick. Figure 15, again Tami provided the report already, so these are just larger versions of those figures that you have seen, this shows the static pressures that are within the town. The town is fairly flat so there is not a whole lot of fluctuation. If you flip to the next page, Figure 16, this shows your existing system and again the stressors to the system are fire flow. So, we utilized the assumptions of fifteen hundred gallons per minute for residential and thirty-five hundred gallons per minute for commercial per your current ISO report. So, you can see on this figure that there are some areas that need to be addressed but the largest area that is sub fifteen hundred is that northern part of town between “H” Street and “O” Street. So those areas, that’s kind of our focus area as we went through and looked at what we can do. That area is older and is full of 4” water mains. Every town in Nebraska has 4” water mains and all of our

recommendations are to work towards those. As we went through, if you take a look at Figure 17, so we have added several recommendations for water main replacements; several of these you have seen before as we have presented these water projects and replacements to you. You can see with all the improvements in place this is what it looks like. So that same area from "H" to "O" again is above twenty-five hundred gallons per minute. Now that's replacing every single water main. So that will take a while and will take a conscious decision to do that. We have found some other ways to bracket that so that you are kind of bisecting that area, adding some 8" water mains, and able to adjust that. So, if you look at the final figure, Figure 18 this kind of show the recommended water projects, most of them are in that northern part of town, again there are some others that are from previous water studies. Again, the last one was done in 2001, so we are twenty years from that. Some are the same, some we have discussed in the past, and some are new. So, I will talk about what the recommendation is. The green are the 1" or 2" water services that serve several houses. Those are on the top of the list to be replaced. And then we are primarily focusing on Project A which is increasing going from a 4" to a 12" which completes the look around the main core of town that was planned and discussed as part of the downtown project. And then Project B, Project C, and Project G. With those main projects that really provides a lot more water flow into that northern part of town. Any questions on those Figures?"

Mayor Zavodny said, "Okay, you know we have "O" Street totally torn up at this time. Obviously, we are not going to get the whole process to get this done before that. So, we have all that brand new work, are we going to bore under that or what are we going to do to get this to work given where the main is?"

Craig Reinsch of Olsson said, "That depends on how quickly you want to move for this. This isn't something that you would do tomorrow. Right?"

Council President Tom Kobus said, "You could always bore."

Craig Reinsch of Olsson said, "You could bore, or you could do what we have done at the others. You could take out a panel and make a connection. But again, you are only looking at, if you choose those, we are looking at two places being affected. We did look at the 1" and 2" water mains that were there and those are being taken care of already."

Discussion continued.

Craig Reinsch of Olsson said, "The next large item that we reviewed was storage and we know that with AGP coming in storage is going to be a prime topic. What's interesting is, on page one of the facts sheet, we looked at projected peak day demands, projected average day plus residential fire, and projected average day plus commercial fire. Interestingly the stressors to the system are that projected peak demand. Now the city doesn't always meet that peak demand but if we are projecting it that provides some contingency. As these new developments come in, as AGP builds you can see what percentage we are of storage. We have the question, 'Do we need to do something now?', the answer is no, but we need to watch as AGP comes in and as they get turned on. There will be some time to react but once that full build out occurs that margin decreases quiet a bit. So, probably a five-year discussion depending on what else happens in town."

Mayor Zavodny said, "I don't think we do have the time, isn't it going to take us that long to get through land acquisitions, sizing, engineering? AGP is going to need it."

Craig Reinsch of Olsson said, "You have five years of operation from start up to the time they are planning on full build out. Typically to build or design, build and initiate you are looking at a

couple of years. So, there is some time to confirm those flows and see where they are going to be. A lot of it is going to paving applicated."

Mayor Zavodny said, "So we are looking at the window from today and there fully operational, within that time frame, we have to make sure AGP, it's 99.99 but there are no guarantees. If something happened and they scrapped it we don't want to be building a little storage tower."

Craig Reinsch of Olsson said, "Plus that will give you time to confirm what else is going up in that area, which right now we don' know what that is."

Council member Kevin Woita asked, "So, is a water tower the automatic decision or when you talk storage, what are the options?"

Craig Reinsch of Olsson said, "Well, it could be ground storage. At the Water Plant you have five hundred thousand gallons there, but if you have ground storage you have pumping it. Like a buried tank. There is a lot of benefit of putting it up in the air too. You will just have to coordinate elevations and filling. It looks like that's where a lot of the water use is going to be. That is a natural place to consider, but we did not consider a location of a tower other than you're getting close to your full capacity. In general, the system is well looped and that has really helped your system, so our suggested improvements note, you can read through these. We did find that there were non-emergency generators on the wells and so if you are in an emergency, you can't really rely on those, so we are looking at adding one permanent generator in our recommendation to Well 14, which is your largest well. We also looked at adding a portable generator that could run either Wells 10 or 11 which are the same size of motor. If you wanted to include that in this initial expense or funding request that would be fine. We included the four water main projects that you saw on the map as well as some valve and hydrant replacements. And then you are probably about due to review your water rates as you look at doing some of these projects as well. Any questions on those recommendations?"

Council member Tom Kobus said, "I think we need two generators."

Council member Pat Meysenburg said, "So do I."

Craig Reinsch of Olsson continued, "So, in an effort to keep the cost lower, I just included the one, I have pricing in there so that we can add it in. So, including all of those projects we are looking at an approximate cost of $3.2 million, again you are familiar with the funding process and so when we do a report like this, we recommend that you submit that for a funding request. The suggestion that I gave to council members was, this was our original recommendation and if you wish to add or take away, then feel free to do so. Let us know and then we can go ahead and submit that Water/Wastewater Advisory Committee funding application on your behalf if you so choose. We did discuss do you do phase 1 or phase 2 but then you can include that. It's a five-year funding cycle in general so you could break it up if you wanted to or do it all at once."

Mayor Zavodny asked, "So my other question is, with this type of recommendation, sourcing materials and everything that we would need to do it?"

Craig Reinsch of Olsson responded, "So, what we are seeing on the Akrs project is PVC, they are going to start in the next couple of weeks and get the water main laid."

Mayor Zavodny said, "Everything we need to do the $3.2 million plus, generators and all that stuff aren't a problem?"

Craig Reinsch of Olsson answered, “Generators have been but again you act on it sooner than you can work on it.”

Mayor Zavodny said, “We are running into it on transformers, and we are probably over two years out. Generators can’t be significantly better more than likely. What else do you have?”

Craig Reinsch of Olsson said, “Those are the recommendations, so basically, I can update the recommendation to include all of the generators and then if that is how you wish to proceed, I can finalize the report. We do need to do final formatting, need to know how many final copies you want, and if you wish me to submit this to WWAC on your behalf, I would just need that guidance from you.”

Council member Tom Kobus made a motion to authorize a change order to Olsson to include a water main stubbed. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

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WATER DISTRIBUTION SYSTEM EVALUATION

FACT SHEET

City of David City, Nebraska – August 10, 2022 – *revised*

Evaluation Findings:

- The last similar study was completed in 2001, prior to design/installation of the 750k gallon elevated water tower.
- Completed historical population, water use review and projections. Projected population growth using proposed development is 3,600 persons by 2030, then a 2060 population of 4,175 using 0.5% population growth from 2030. Adding in the population of Bruno increases this total to 4,270.
- The average and peak quantities of water distributed by the City's distribution system from 2016 through 2021 was equal to 0.995 and 2.381-million gallons per day (MGD). This calculates to an approximate average use of 258 gallons per capita per day (gpcd) using a current estimated population of 3,863 persons.
- Average and peak daily demands for the year 2060 are estimated to be 0.587 and 1.42 MGD, respectively. The peak day to average day factors used for this report were 3.0.
- The existing distribution system has piping ranging from 4 to 12-inches in diameter. Water age and static pressures are in the desired range. Of primary concern are water mains less than 4-inches in diameter. Several locations throughout the system were not able to provide the desired residential fire flows, based on the hydraulic model review. These areas are primarily in the northeast part of town. See Figures 15 through 18.
- The City has approximately 1.25-million gallons of water storage between the 0.75-million-gallon elevated water reservoir and the 0.5-million-gallon underground reservoir near the water plant.
- Current firm pumping capacity of the City's active and usable water supply facilities is 3.8 MGD (2,600 gpm). However, only one well (#12) has an emergency power source, which reduces the emergency pumping capacity to 1.6 MGD unless additional emergency power is provided. This compares to the 2.6 MGD of the water treatment plant (WTP) and 2.52 mgd using the high service pumps (HSP) in the WTP basement. These pumping capacities are calculated over 24 hours.
- The current and future average plus residential (1,500 gpm for 2 hours) or commercial (3,500 gpm for 3 hours) fire demands, as well as the peak daily demands were all less than the City's available storage, as summarized below using the following percentages.

Scenario	Projected (2060)	Projected plus AGP (initial)	Projected plus AGP (full build-out)
Projected Peak Day Demand	38 to 49%	56 to 71%	82 to 96%
Projected Average Day plus Residential Fire Demands	30 to 34%	19 to 24%	23 to 30%
Projected Average Day plus Commercial Fire Demands	66 to 69%	52 to 59%	58 to 60%

The scenario(s) with the least contingency are Projected Peak Day with AGP at full build-out.

- Hydraulic model completed of the existing system. Model is only as accurate as available information. Fire flow, future build-out, and system upgrade scenarios completed. Model is ready and available for other uses, as needed by the City.
- In general, the system is well looped. There are minimal areas of reduced fire flow flows, primarily in the northeast part of town.

Suggested Improvements to Submit for Funding Consideration

1. Emergency Generators at Wells #10, 11, and #14. Well #14 would have a permanent generator with automatic transfer switch (ATS). Wells #10 and #11 would each have a manual transfer switch and plug, with a trailer mounted generator shared between them.
2. Water Main Replacement Projects:
   a. 4th Street, O to F: Upsize 4" to 12".
   b. 7th Street, O to I: Upsize 4" to 6" (or 8").
   c. G Street, 3rd to 11th: Upsize 4" to 8".
   g. 9th Street, G to O, L Street, 7th to 9th: Upsize 4" to 6" (or 8").

   Up to 7 projects to replace 1 or 2-inch water mains to 4-inch minimum.

   There is minimal to no overlap with the City's current (2022) 1 and 6 year street plan.

   The approximate cost to replace the 1 and 2-inch water mains, add generators to Wells #10, #11, Well #14, and completing Projects A, C, G, and B, is $3.5 million.
3. Hydraulic modeling completed for the system, included fire hydrant flow testing. Approximately 28,000 LF (approx. 122,000 LF total) of the distribution system is 4-inches in diameter or less, or approximately 23-percent of the system. A plan should be put into place to begin replacing these water mains, either as a single or staged projects over a certain timeframe (i.e. 1,400 LF (approx. 3-4 blocks) on average every year for 20 years). Repairs could be made as recommended street improvements are planned or completed.
4. Hydrant/Valve Replacement: with approx. 150 fire hydrants and 285 valves, to replace all of them over a 20-year period would require replacement of 8 fire hydrants and 15 valves per year.
5. Recommend to review/adjust water rates, as it is understood that rates were last adjusted in September 2017 (Ordinance 1271), though only the 6" water meter rate was added at that time.

Benefits to the Community

- Replacing water mains will increase the City's ability to move water in an emergency (i.e. fire flow) as well as increase flows to residents and businesses. These improvements may result in lower insurance rates for the City, residents, and businesses, coupled with other changes identified in the City's latest ISO report.
- Investigating existing infrastructure will allow for a greater understanding of the City's assets. Replacing infrastructure will also provide better records for the City's use.
- Adding emergency generators to water supply wells will increase the City's resiliency and ability to supply water to the City.
- Continued funding of the City's distribution system, supply and storage facilities are critical for continued support for residential, commercial, and industrial growth.

Available Funding and Pending Action Items

- Approve recommendations of the PER, consider grouping of emergency generator and selected projects into a project package or group of project packages, then submit the proposed project(s) to the water/wastewater advisory committee (WWAC) for funding consideration.

Figure 11 shows the proposed population growth projections:

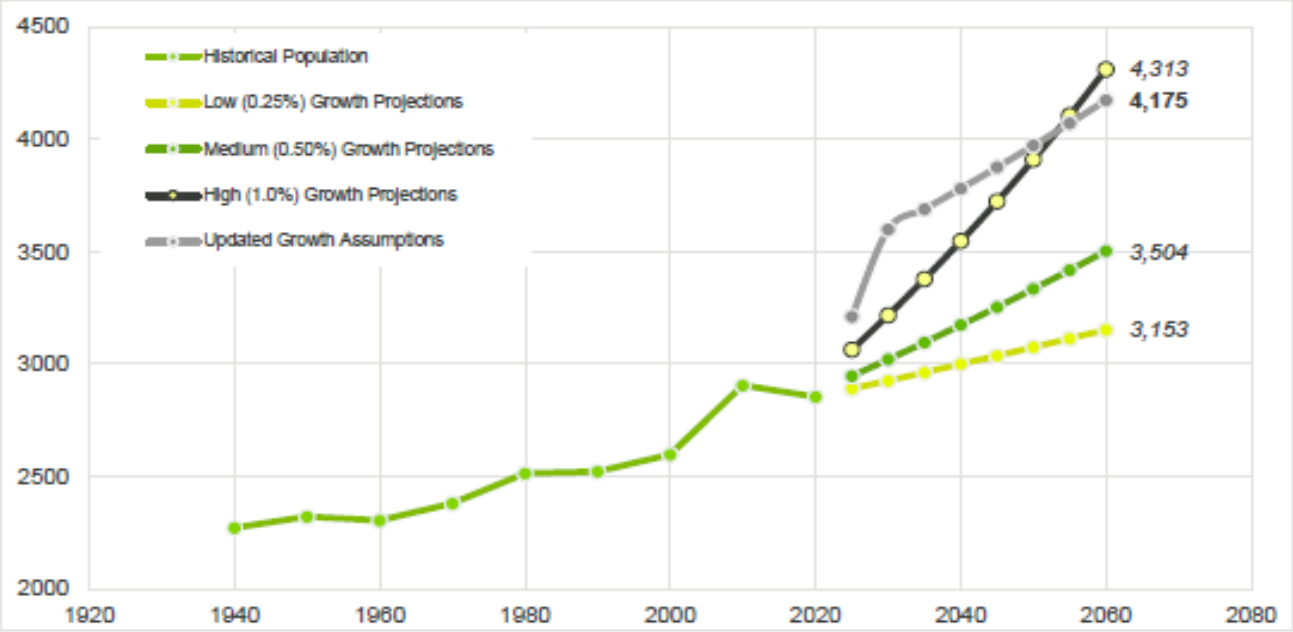

Figure 1. Population Growth Projections

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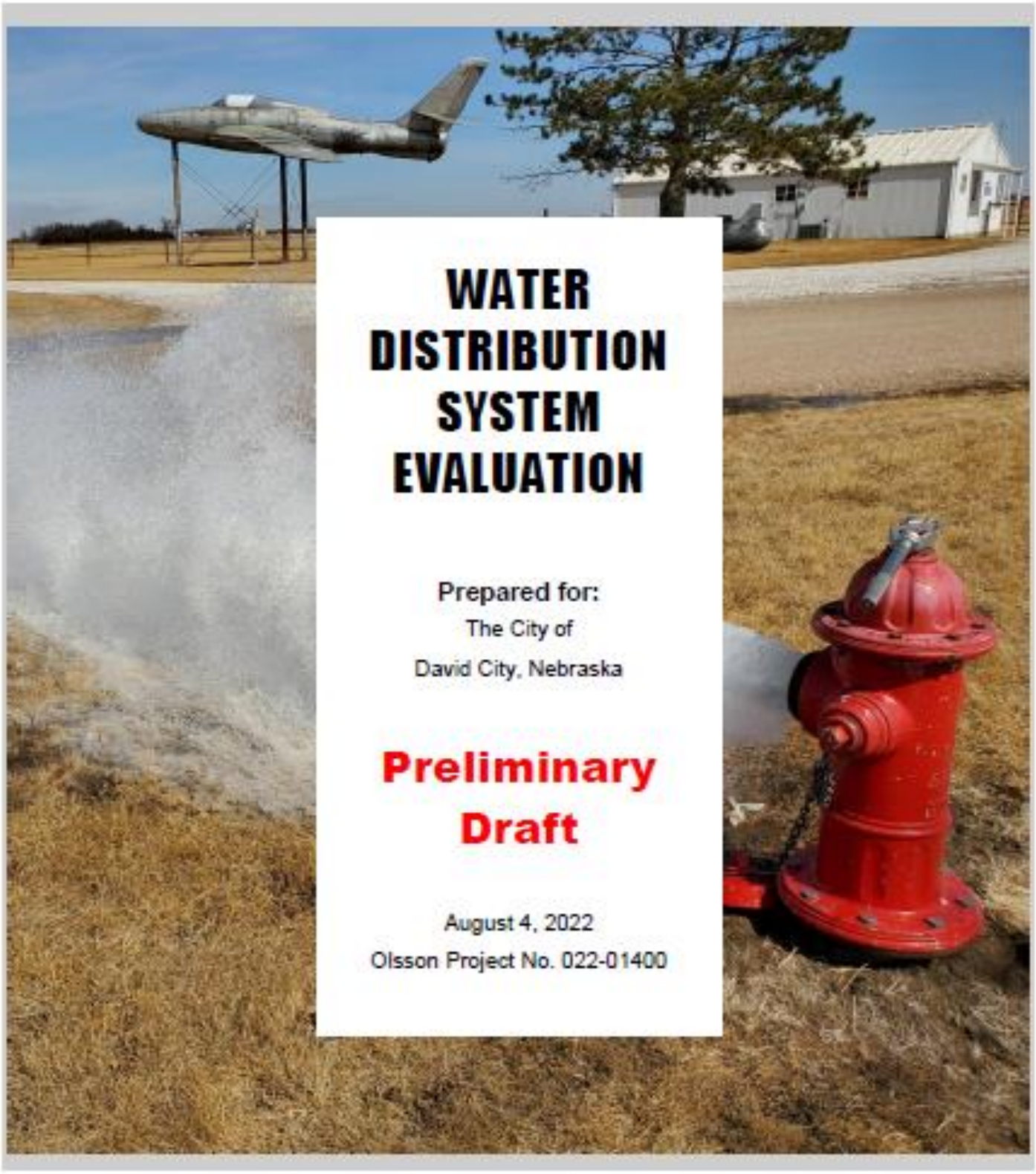
WATER
DISTRIBUTION
SYSTEM
EVALUATION
Prepared for:
The City of
David City, Nebraska
Preliminary
Draft
August 4, 2022
Olsson Project No. 022-01400

olsson

ACRONYMS AND ABBREVIATIONS

ATS	Automatic Transfer Switch
AWWA	American Water Works Association
BCL	Base Capacity Level
BCR	Benefit to Cost Ratio
CB&I	Chicago Bridge & Iron
CDBG	Community Development Block Grant
CIP	Cast Iron Pipe
DIP	Ductile Iron Pipe
DWSRF	Drinking Water State Revolving Fund
ENR-CCI	Engineeering News & Record Consumer Cost Index
FPSA	Fire Protection Service Area
FSRS	Fire Suppression Rating Schedule
ft	Feet/Foot
gpcd	Gallons per Capita per Day
gpd	Gallons per Day
gpm	Gallons per Minute
HSP	High Service Pump
HWL	High Water Level
Hwy	Highway
In.	Inch/Inches
ISO	Insurance Services Office
IUP	Intended Use Plan
JHC	Jacobson Helgoth Consulting
kW	Kilowatt
LF	Linear Feet
LMI	Low to Moderate Income
MG	Million Gallons
MGD	Millions of Gallons per Day
MHI	Median Household Income
MN	Minnesota
MTS	Manual Transfer Switch

NDEE	Nebraska Department of Energy and Environment
NeDED	Nebraska Department of Economic Development
NEMA	National Electrical Manufacturers Association
NE	Nebraska, Northeast
NDOT	Nebraska Department of Transportation
NW	Northwest
PER	Preliminary Engineering Report
PPC	Public Protection Classification
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
ROW	Right-of-Way
RWD	Rural Water District
SRF	State Revolving Fund
US	United States
USDA-RD	United States Department of Agriculture Rural Development
US EPA	United States Environmental Protection Agency
WWAC	Water Wastewater Advisory Committee
WTP	Water Treatment Plant

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APPENDICES

1. SUMMARY AND RECOMMENDATIONS

David City, the County Seat of Butler County, NE, is located approximately 50 miles from Lincoln and 75 miles from Omaha. The City provides water to approximately 2,900 residents, which includes both David City's residents and the nearby Village of Bruno. David City has shown a small amount of growth for the past several years. The current (2020) population of 2,824 persons. Per discussions with the City, due to growth anticipated from new developments being constructed in the City, the population is projected to grow to 3,600 persons by the year 2030, and then at a 0.5% annual growth rate in the years following, for an anticipated 2060 population of 4,175.

David City's water system was constructed in the late 1800s. Several major upgrades were implemented throughout the twentieth century, including the construction of an underground and elevated water storage reservoir in the first half of the century. A WTP, water main replacements, and a new well were constructed in the latter half of the century. A 750,000-gallon water tower was added to the system in 2005. Several other water main replacements were designed and constructed between 2014 and 2021, and the City worked with Olsson to identify another series of main replacements for construction in the subsequent years.

The water system is currently comprised of approximately 23 miles of 2 through 12-inch water mains. Newer mains are PVC, and older mains are DIP and CIP. Today's standards require water mains that provide fire protection be a minimum of 6 inches. However, due to the age of the system, approximately 20% of the water system is composed of 4-inch or smaller mains. These smaller diameter water mains should be upsized over time, starting where there is presently a deficiency in the system's ability to provide adequate fire protection.

The system presently has approximately 150 fire hydrants and 285 valves. The valve and hydrant coverage are generally adequate systemwide, but there are some gaps in the coverage. It is recommended that additional hydrants/valves be added where necessary to eliminate gaps in the coverage, generally in combination with main replacement projects recommended in this report.

System storage consists of 1,250,000 gallons of storage, including a 750,000-gallon elevated reservoir and 500,000-gallon underground reservoir at the WTP. Current system storage is adequate to accommodate a peak day of storage, as well as an average day of storage with both a commercial and residential fire demand.

Four wells currently provide supply to the water system. The firm capacity of the wells, defined as the available capacity when the largest well is out of service, is 5.4 MGD. A 2.6 MGD WTP

removes iron, manganese, and arsenic from the raw well water prior to pumping into the distribution system. David City's average and peak water demands are presently 0.3 and 0.8 MGD, respectively. Per capita water usage in David City is 98 gpd, which is in line with national average water demands. Residential and maximum commercial fire flow demands are 1,500 gpm and 3,500 gpm, respectively.

The latest ISO report was completed in 2017. ISO rated David City a PPC score of 04/4Y, indicating that it has a superiorly rated fire department, but does not have a fire engine with a water tank capable of providing 250 gpm for two hours.

A hydraulic model was developed to simulate the water system and identify potential deficiencies in the system's ability to provide adequate fire protection. A series of water main replacement projects were identified to improve system performance, consisting of a combination of new projects identified from the hydraulic model and projects previously identified by the City and Olsson. Besides the main replacements identified from the hydraulic model, several 1 and 2-inch mains that currently serve as long service lines were identified for replacement. Several of the projects identified with the hydraulic model confirmed main replacement projects recommended in a previous study developed by JHC in the early 2000s.

Of the projects identified in this study, it is recommended that the City prioritize installing 12-inch mains along the main corridor of the water system first, followed by those that increase service to the outer edges of the system. The smaller main replacement projects identified in this study should follow these larger projects, but locations where fire protection is currently a concern will benefit from the 12-inch loop being installed and can be installed subsequently.

New residential and industrial growth is planned on the outskirts of the existing system. New water mains have been sized to serve these new users to provide adequate fire protection while ensuring they are not sized such that they will have issues with water quality.

While the capacity of the WTP exceeds that of the production capability of the well field, only a single well currently has provisions to connect to backup power. In the event of a power outage, the WTP capacity would be reduced, as there would be more flow leaving the WTP than coming in via the wells. To ensure that the WTP can operate at its maximum capacity, it is recommended that a permanent generator be installed on the system's largest well (Well 14), and a temporary generator and manual transfer switches at Well 10 and 11.

There are several potential funding sources that may be available to fund the projects proposed in this report. It is recommended that David City submit the necessary WWAC pre-application to determine which funding sources will best match the City's needs.

2. INTRODUCTION

2.1 General

David City is the county seat of Butler County, Nebraska. It is located approximately 50 miles northwest of Lincoln and 75 miles west of Omaha. An aerial view of David City is provided in Figure 1. The most recent population figures (2020) indicate a population of 2,824 persons. Besides its own residents, David City provides water to the Village of Bruno, located approximately eleven miles to the northeast. The City also provides water to several major industries and has received interest from others about connecting to the system in the future. The last time the City's distribution system was reviewed, and a hydraulic model of their system was created by JHC in conjunction with a water study 2001.

Figure 1. David City, NE Aerial Photo Google Earth, 2022.

The David City water system was originally developed in the late 1800s. Major updates to the system were completed in 1923 and 1936 with the construction of an underground and elevated water storage tank, respectively. Another major expansion was completed in 1939, which included expansion of the existing system water mains. A new WTP, seven miles of water main,

and a new well were constructed in 1979-1981. A 750,000-gallon water tower was added to the system in 2005. Other significant distribution system water main replacement projects were completed between 2014 and 2021, and another series of main replacements have been designed, and are planned for construction as funds become available.

2.2 Purpose

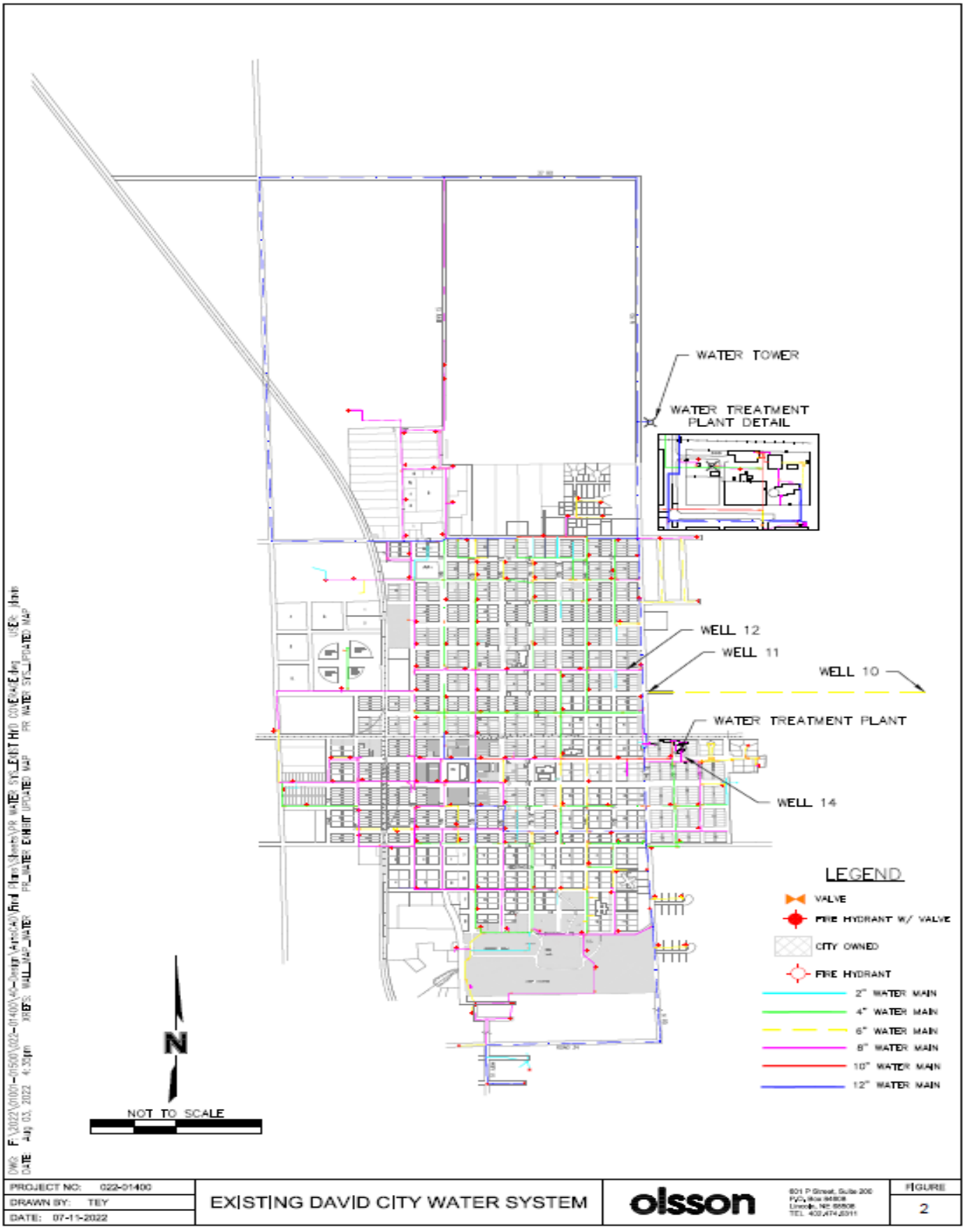
The purpose of this report is to review and evaluate the City of David City's existing water system for its ability to meet current and future water demands and to provide adequate fire protection to the overall system.

Aging components of the water system are leading to an overall decrease in service to water users. This affects the system's ability to provide adequate fire protection in certain areas of the system, which can potentially limit residential and commercial growth. This report will summarize the existing water distribution system characteristics, including the storage, supply, and distribution system. A computerized hydraulic model has been prepared, calibrated, and adjusted to analyze the existing system and proposed updates. Potential water system deficiencies have been identified, and improvements to address them have been recommended for consideration. Budget costs were prepared for each proposed project.

3. BACKGROUND

3.1 Water System

Per the previous (2001) water study developed by JHC, David City's water system was first developed in 1887. Several major improvements have been made in the years since, including addition of underground and elevated water storage tanks in the 1920s and 1930s, construction of a WTP in 1960, and installation of a 750,000-gallon water tower in 2005. This section will summarize the existing water distribution system and its various components, which includes the water mains, fire hydrants, and valves. Figure 2 shows the existing water distribution, supply, storage, and treatment system components.


WATER TOWER
WATER TREATMENT PLANT DETAIL
WELL 12
WELL 11
WELL 10
WATER TREATMENT PLANT
WELL 14
LEGEND
VALVE
FIRE HYDRANT W/ VALVE
CITY OWNED
FIRE HYDRANT
2" WATER MAIN
4" WATER MAIN
6" WATER MAIN
8" WATER MAIN
10" WATER MAIN
12" WATER MAIN
N
NOT TO SCALE
PROJECT NO: 022-01400
DRAWN BY: TEY
DATE: 07-15-2022
EXISTING DAVID CITY WATER SYSTEM
olsson
FIGURE
2

3.2 Published Standards/Guidelines

Table 1 includes suggested AWWA minimum design standards for distribution piping that the City should continue to use while expanding the system and making improvements.

Table 1. AWWA Standards for Distribution Systems

Appurtenances	Minimum Standard
Lines	
Smallest Pipe in Network (in.)	6
Smallest Branching Pipes/Dead Ends (in.)	8
Largest Spacing of 6-inch Grid (8-inch Grid beyond this Value, ft)	600
Smallest Pipes in High-Value District (in.)	8
Smallest Pipes on Principal Streets in Central District (in.)	12
Valves	
Largest Spacing (ft) in High Value District	800
Largest Spacing (ft) on Principal Streets in Central Districts	500
Hydrants	
Provided with Auxiliary Valve	All Hydrants
Minimum Size (in.)	6
Spacing in Congested Areas (ft)	300
Spacing in Light Residential Areas (ft)	600
Suggested Fire Hydrant Locations	Intersections, middle of long blocks, near end of dead end streets

Regarding water quality recommendations and water system design standards, it is advantageous for a community of any size to provide ongoing training and education opportunities to the water system operators and employees. National and state organizations, specifically the AWWA and the Nebraska local chapter provide these opportunities. Educational seminars of varying degrees are provided at a reduced cost to members of the organization. Membership applications are available online at www.awwaneb.org.

A second reference are the Recommended Standards for Water Works, typically referred to as the Ten States Standards. The Ten States Standards are a set of published guidelines utilized as a reference by engineers and regulatory agencies in the design of water and wastewater systems.

3.2.1 Water Distribution System

David City's water system is composed of approximately 23 miles of 2-to-12-inch diameter water mains. Newer water mains are PVC, and older water mains are a mixture of CIP and DIP.

The current configuration of the water system is provided in Table 2.

Table 2. Current Water System Configuration.

Pipe Size (in.)	Total Length (LF)	Total Length (miles)	% of Total
2	3,700	0.70	3.0
4	24,000	4.54	19.7
6	13,000	2.46	10.7
8	68,000	12.88	55.9
10	1,000	0.19	0.8
12	12,000	2.27	9.9
TOTALS	121,700	23.05	100

Approximately 25% of the existing water system is composed of two- and four-inch water mains. Ten States Standards (Part 8-Distribution System Piping and Appurtenances, Section 8.2-System Design) indicates that where fire protection is provided, water mains should be a minimum of 6 inches in diameter. While it is not feasible to replace all water mains smaller than 6 inches in diameter at once, the hydraulic model will be used to evaluate and prioritize replacement of smaller diameter water mains. The City should work to replace these smaller diameter mains as often as occasion allows.

3.2.1.1 Fire Hydrant Coverage

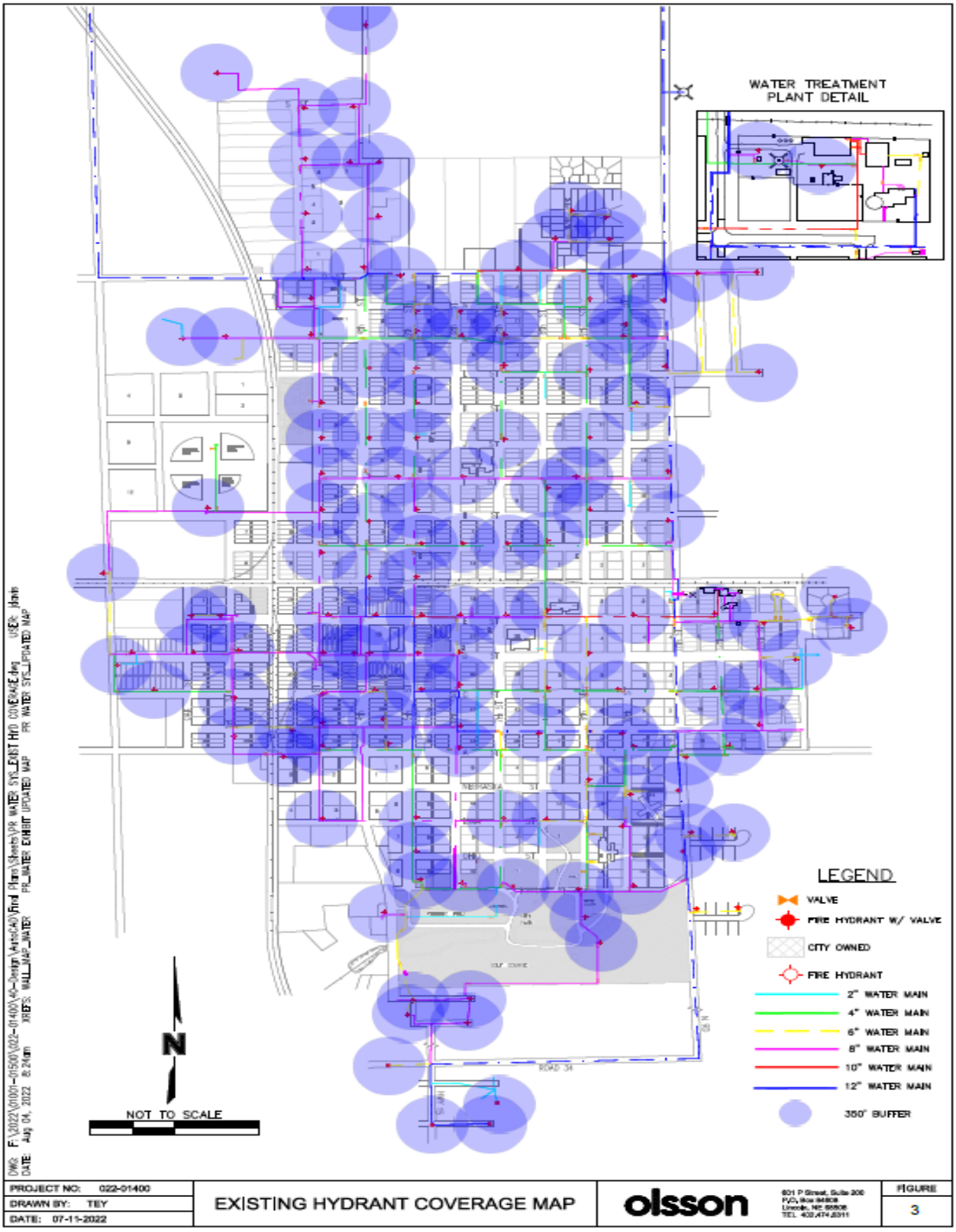
David City currently has approximately 150 hydrants that provide fire protection in the distribution system. Ten States Standards (Part 8-Distribution System Piping and Appurtenances, Section 8.4-Hydrants) indicates that hydrants should be placed a maximum of 350 feet apart to provide adequate fire protection. To identify potential gaps in the City's hydrant coverage, a 350-feet buffer was applied to all the hydrants shown in the City's current water map. The system's current fire protection coverage is displayed in Figure 3.

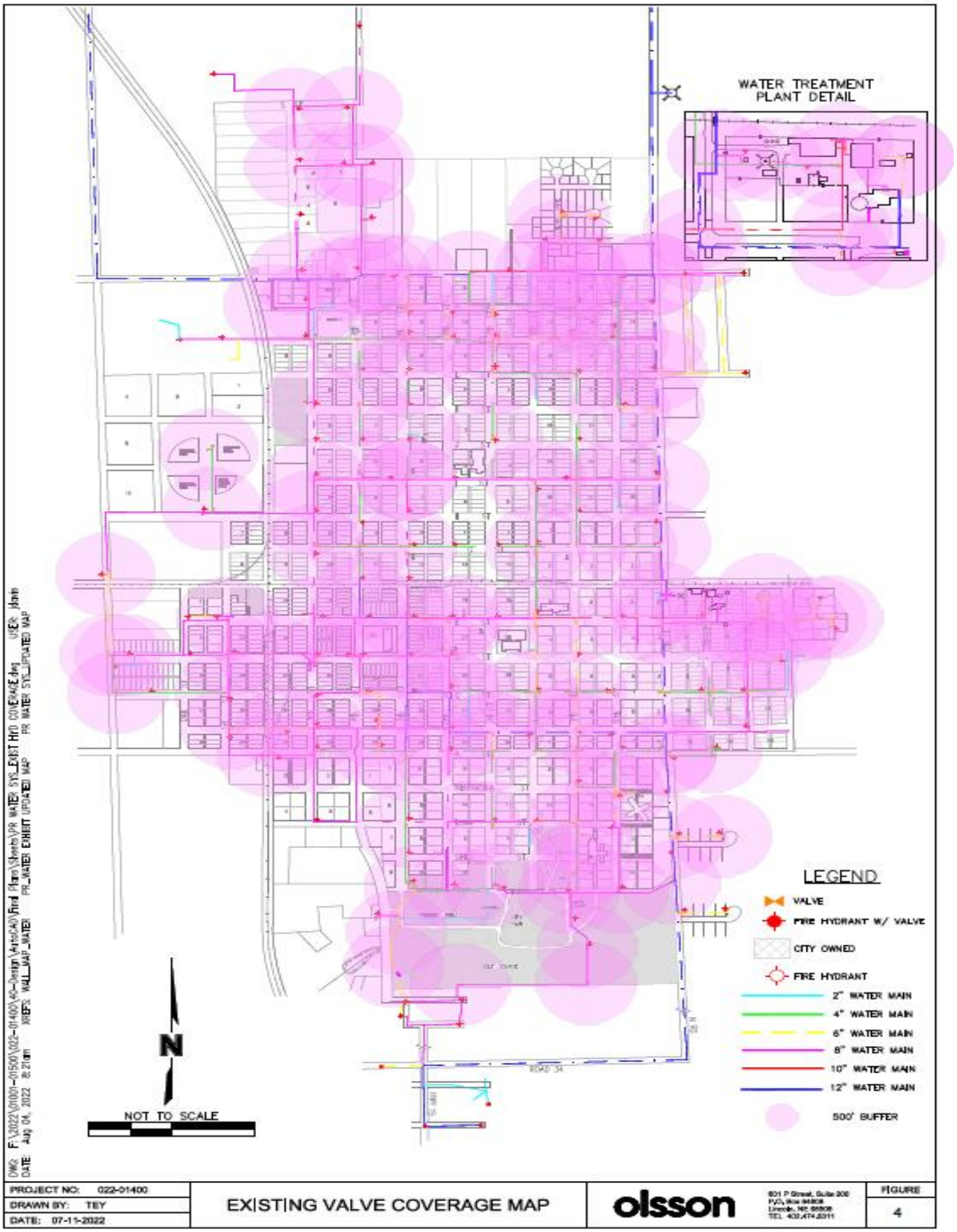
As depicted in Figure 3, there are eighteen locations in the system where additional hydrants are needed to fill in gaps in the current coverage. A number of these gaps will be addressed after completion of the proposed projects discussed later in this study and are not included in the eighteen locations identified.

3.2.1.2 System Valves

The most current water system map indicates that there are 285 water valves in the distribution system. Ten States Standards (Part 8-Distribution System Piping and Appurtenances, Section 8.3-Valves) indicates that a water system should have adequate valving to minimize inconvenience and sanitary hazards during repairs, and that valves are placed at intervals not exceeding 500 feet in commercial districts, and not more than one block, or 800-feet intervals in other districts.

A 500-feet buffer was applied to all system valves in the current water system map to identify potential gaps in the current valve coverage. Per Figure 4, not including locations where new projects are recommended, there are ten locations where new valves are recommended to be installed to adequately isolate the system.


WATER TREATMENT PLANT DETAIL
LEGEND
VALVE
FIRE HYDRANT W/ VALVE
CITY OWNED
FIRE HYDRANT
2" WATER MAIN
4" WATER MAIN
6" WATER MAIN
8" WATER MAIN
10" WATER MAIN
12" WATER MAIN
350' BUFFER
N
NOT TO SCALE
NEBRASKA ST
ROAD 34
EXISTING HYDRANT COVERAGE MAP
olsson
PROJECT NO: 022-01400
DRAWN BY: TEY
DATE: 07-11-2022
FIGURE
3


WATER TREATMENT PLANT DETAIL
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12" WATER MAIN
500' BUFFER
N
NOT TO SCALE
PROJECT NO: 022-01400
DRAWN BY: TEY
DATE: 07-11-2022
EXISTING VALVE COVERAGE MAP
olsson
FIGURE
4

3.2.2 Storage Facilities

Water storage in David City consists of two facilities:

- 750,000-gallon elevated reservoir, constructed in 2005.
- 500,000-gallon underground reservoir near the WTP.

Each of these facilities will be discussed in detail in the following sections.

3.2.2.1 750,000-gallon Elevated Reservoir

A 750,000-gallon elevated water spheroid storage tank is in place approximately 125 feet north of 11th & O Streets. It was constructed in 2005 by CB&I. There is a 40-foot head range within the tank, and the BCL is 92'-6" from finish grade. The overall height from finish grade to the top capacity level is 132'-6".

Figure 5. 750,000-gallon elevated water storage reservoir

Figure 6. 750,000-gallon Tank Nameplate

3.2.2.2 WTP Finished Water Storage Clearwell

The 500,000-gallon underground finished water storage clearwell for the WTP was constructed in 1923 near 11th & F Streets. The depth of the clearwell is approximately 14 feet. Water is pumped from the underground clearwell to the 750,000-gallon elevated reservoir via HSPs located in the basement of the WTP.

Figure 7. WTP Clearwell Site

3.3 Water Supply

David City currently has four wells in service, Wells 10, 11, 12, and 14. Well 10 was installed in 1979, and is located approximately a half mile east of 11th & H Street. Well 11, installed in 2002, is also located on H Street, just east of 11th Street. Wells 12 and 14 were both installed in 2009. Well 12 is just north of I Street between 10th and 11th Streets, and Well 14 is located near the WTP at approximately 12th & E Street.

Table 3. Wells Summary

Well	ID Number	Casing Diameter (in.)	Total Depth (ft)	Capacity (gpm)	Capacity (MGD)
10	79-1	16	425	800	1.2
11	2002-1	16	427	850	1.2
12	2009-1	18	508	1,100	1.6
14	2009-2	18	427	950	1.4
Total Pumping Capacity (gpm)				3,700	
Firm Pumping Capacity (gpm)				2,600	
Total Pumping Capacity (MGD)*				5.4	
Firm Capacity (MGD)*				3.8	

*24-hour capacity

3.4 Water Treatment

A WTP was constructed in David City in 1981. The WTP includes aeration, flocculation, clarification, filtration and disinfection processes to partially soften the raw well water and remove iron, manganese, and arsenic. Treated water is conveyed to the system via three HSPs with capacities of 875 gpm each, for a firm pumping capacity of 1,750 gpm or 2.52 MGD. A photo of the existing WTP and its process flow diagram are included as Figure 8 and Figure 9, respectively. The City is currently in the process of changing their WTP to a reverse osmosis softening process, and related improvements. The design has been completed by others, and it is awaiting bidding. It is understood that the treatment capacity of the modified treatment process will remain the same as that of the existing plant.

Figure 8. David City WTP

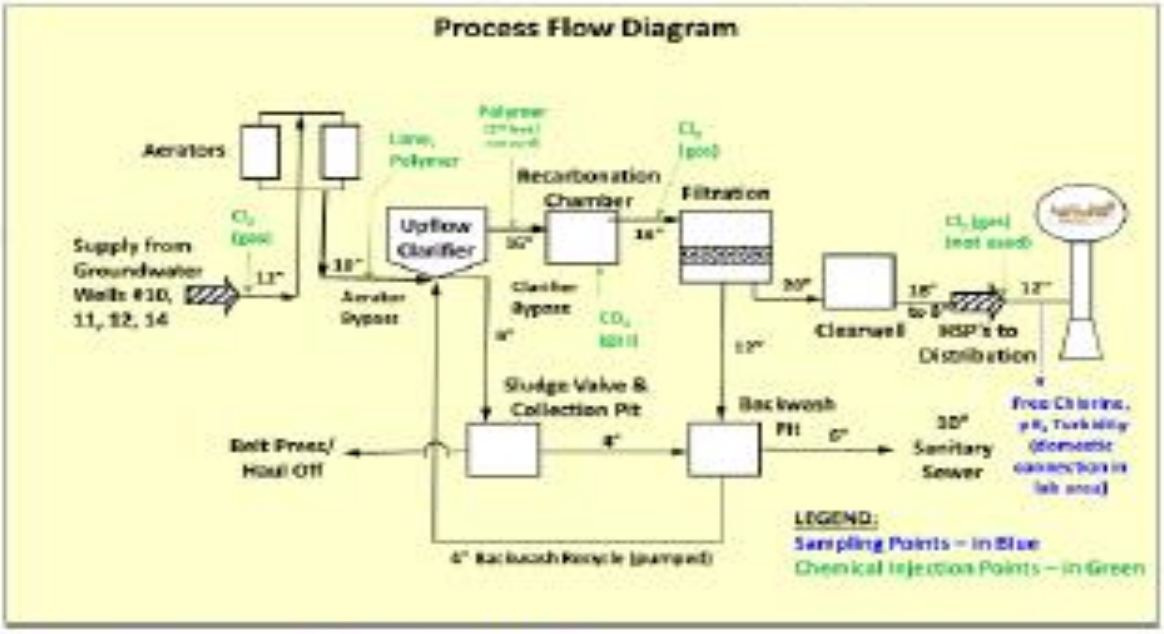


Figure 9. David City WTP Flow Process Diagram

The design flow rate of the WTP is 2.6 MGD, well below the firm pumping capacity of the wells (5.4 MGD). Historically, the WTP has been able to meet peak demands with no issues.

4. ISO REPORT

The ISO periodically performs PPC surveys to evaluate water systems for their ability to provide fire protection to their residents. Insurance underwriters use the

PPC grade determined by the ISO as a factor in determining which coverage to offer and prices to charge for personal and commercial property insurance.

PPC surveys are generally conducted when a change in a community's grade is anticipated. The most recent PPC survey in David City was conducted in 2017 and has an effective date of April 1, 2016.

4.1 ISO Report Criteria

A community PPC grade is dependent upon the following criteria (reproduced from *Public Protection Classification Summary Report, David City FPSA, 2016)*.

- **Needed Fire Flows**, which are representative building locations used to determine the theoretical amount of water necessary for fire suppression purposes.
- **Emergency Communications**, including emergency reporting, telecommunicators, and dispatching systems.
- **Fire Department**, including equipment, staffing, training, geographic distribution of fire companies, operational considerations, and community risk reduction
- **Water Supply**, including inspection and flow testing of hydrants, alternative water supply operations, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires up to 3,500 gpm.

4.2 ISO Report Scoring/Weighting

The PPC Grade is determined by giving a score to the various water system features mentioned in the previous section.

A community's PPC score is weighted as follows:

- Emergency Communications: 10% of total score
- Fire Department: 50% of total score
- Water Supply System: 40% of total score

The total score, with possible of 100 points available, is then multiplied by a Divergence factor, defined as the disparity between the effectiveness of the fire department and the amount of water available. The best/highest score that a system can achieve is a 1, and the lowest score that a system can be awarded is a 10. See Table 4 for further explanation of the rating system.

Table 4. PPC Scoring

PPC	Points	Description
1	90.00 or more	A fire suppression system that includes an FSRS creditable dispatch center, fire department, and water supply
2	80.00 to 89.99	
3	70.00 to 79.99	
4	60.00 to 69.99	
5	50.00 to 59.99	
6	40.00 to 49.99	
7	30.00 to 39.99	
8	20.00 to 29.99	
9	10.00 to 19.99	A fire suppression system that includes a credible dispatch center, fire department, but no FSRS creditable water supply
10	0.00 to 9.99	Does not meet minimum FSRS criteria for recognition, including areas that are beyond five road miles of a recognized fire station

In addition to the 1-10 rating a community can receive, a special classification (8B) was established in cases where a water system has a superior level of fire protection in otherwise class 9 areas, but the fire department has a lack of water supply system capable of meeting the minimum FSRS fire flow criteria of 250 gpm for two hours. The criteria have since changed, and the 8B has been changed to a suffix of "Y". For example, a system formerly classified as 1/8B would now be classified as 01/1Y.

The final PPC score given to the David City water system, was 04/4Y, indicating that it has a superiorly rated fire department, but does not have a fire engine with a water tank capable of providing 250 gpm for two hours. Should the City desire to increase their rating classification, a detailed look into the Iso report scoring criteria will be required. For example, the water system supply credit was 33.38 out of 40 (83.45%). Additional inspections and flow testing could increase that total. Emergency Communications was 6.7 out of 10, and the Fire Department was 27.8 out of 50, for comparison. An increase in classification is more likely to be achieved by the City reviewing the Fire Department and/or Emergency Communications categories, and the associated scoring criteria. This review is outside of the scope of this report.

5. POPULATION TRENDS

5.1 Historical Population Trends

Population figures were investigated from 1940 to 2020 to determine historical growth patterns to best plan for David City's future water needs. Population figures are summarized in Table 5.

Table 5. David City Population (1940-2020)

Year	Population	Average % Change/Year
1940	2,272	-
1950	2,321	+0.22%
1960	2,304	-0.07%
1970	2,380	+0.33%
1980	2,514	+0.56%
1990	2,522	+0.03%
2000	2,597	+0.30%
2010	2,906	+1.19%
2020	2,824	-0.28%

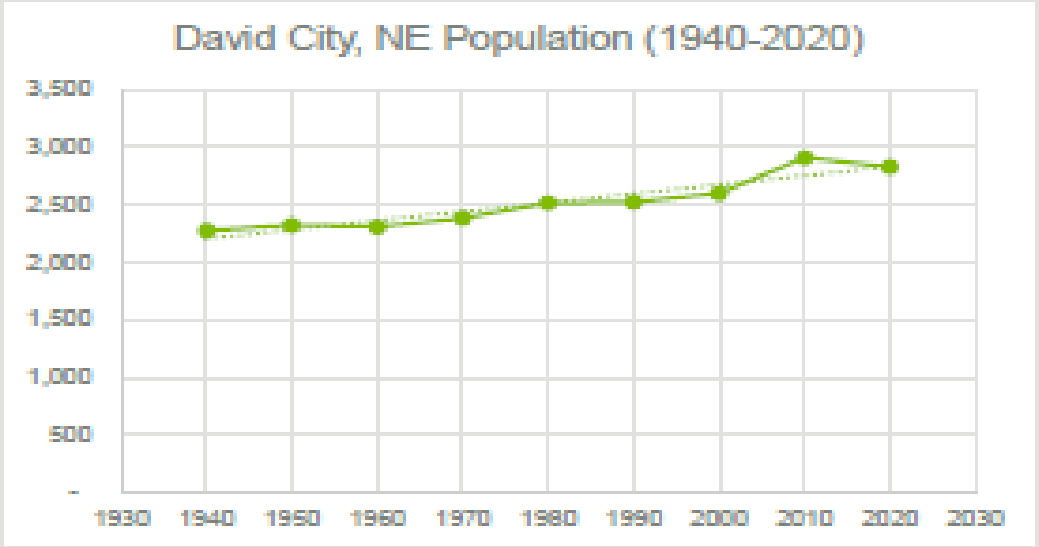


Figure 10. David City Population (1940-2020)

As indicated in Table 5 and Figure 10, David City has experienced a small amount of growth over the past several years. Growth is trending upwards, so it is assumed that the system can expect growth to continue into the foreseeable future.

5.2 Future Growth Projections

Future population growth has been projected to the year 2060. The 2020 Water Treatment Facility Evaluation evaluated growth at Low (0.25%), Medium (0.50%) and High (1.0%) conditions and recommended that medium growth be assumed for the community.

The City has had recent interest in new developments being added to the system, which will significantly increase growth projections compared to those presented in the 2020 study. The City anticipates that the population will grow to 3,600 persons in the year 2030, based on the number of approximately 180 anticipated and available lots to be added and continue to grow at a rate of 0.5 percent annually for the rest of the study period. The new growth anticipated is plotted on Figure 11 for comparison to the previous growth patterns. The new growth rate established by the City will be utilized for all calculations in this study.

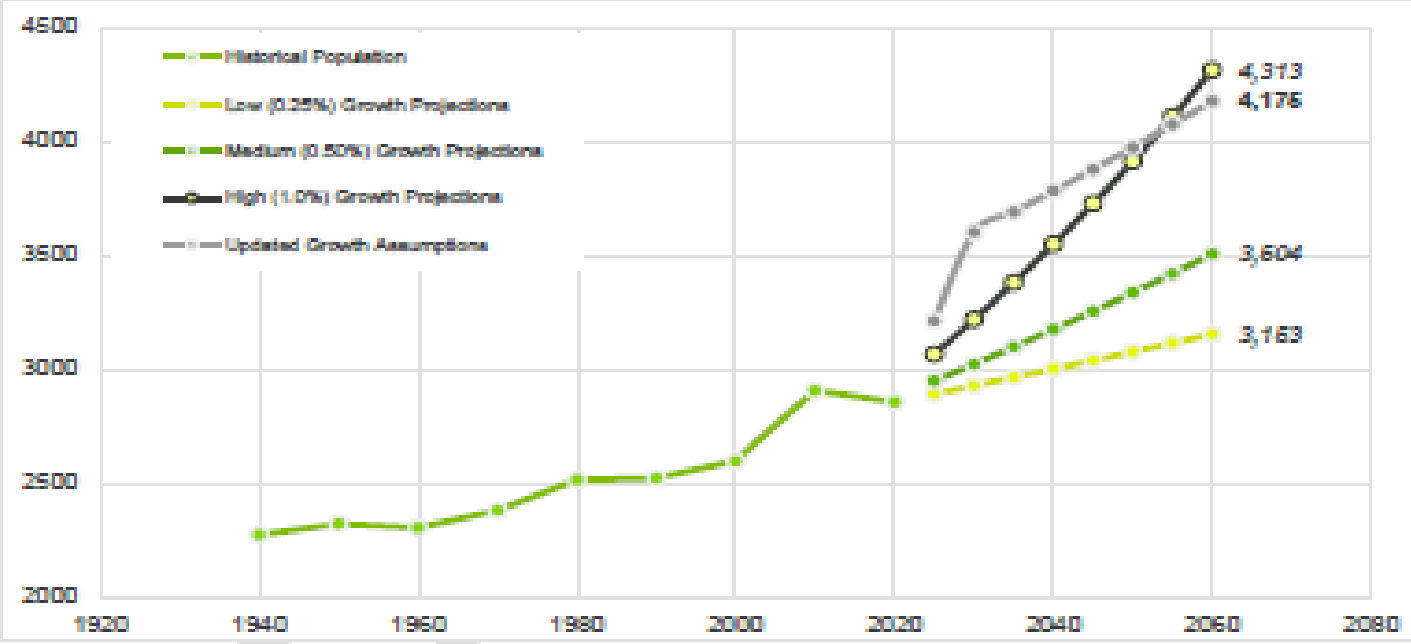


Figure 11. Population Growth Projections

David City supplies water to the Village of Bruno, which currently has a population of 95. Table 6 provides David City's projected population through the year 2060, along with the total population of David City and Bruno. Bruno's population is assumed to remain at 95 persons for the entire study period.

Table 6. Projected Population Growth (2020-2060)

Year	Projected Population	Projected Total Population with Bruno
2020	2,824	2,919
2025	3,212	3,307
2030	3,600	3,695
2035	3,690	3,785
2040	3,762	3,877
2045	3,877	3,972
2050	3,974	4,069
2055	4,073	4,168
2060	4,175	4,270

6. HISTORICAL AND PROJECTED FUTURE WATER DEMANDS

The City of David City provided five years of water demand information for use in this report. Water demands from 2016 through 2019, used in the 2020 Treatment Facility Evaluation are also used in the calculations. David City provides water to the Village of Bruno, Nebraska. The population of Bruno (95 persons in 2020) is included in the demand calculations of this section.

6.1 Average Day Demands

Average day demands are calculated by dividing the amount of water used by the number of days the use is reported. The demands are based upon the billing records for 2016 through 2019, and the demands for 2020 and 2021 are based upon the quantity of water pumped out of the high service pumps at the WTP. The previous Olsson study indicated that water loss, or water pumped into the system, but not billed due to leaks, flow testing, or unmetered connections amounts to approximately 28%. This value is higher than anticipated, and the City should look to reduce or better track this water use. The total water pumped out of the WTP is multiplied by a factor of 0.72 to most closely replicate water consumed by the community. Water demands from 2016-2021 are reported in Table 7.

Table 7. Water Demands, 2016-2021

Year	Average Water Demands (MGD)	Population*	Per Capita Water Demand (gpcd)
2016	0.535	2,914	186
2017	0.466	2,933	159
2018	0.500	2,940	170
2019	0.579	2,947	197
2020	0.504	2,919	173
2021	0.400	3,290	122
Average (2016-2020)	0.500	-	177

*population calculations include the Village of Bruno

Compared to national averages, per capita water demands in David City are extremely high. The Average American family uses more than 300 gallons of water per day (US EPA, (May 24, 2022), *How We Use Water*. Retrieved July 11, 2022, from https://www.epa.gov/watersense/how-we-use-water). David City's average household size is 2.14 persons from the 2020 US Census (data.census.gov), which should result in a household demand of approximately 212 to 254 gpd. The high per capita water usage present is driven by David City's largest water customer, Michael Foods (previously Henningsen Foods), which typically accounts for around 30 percent of the total billed water use. The 2020 Olsson study indicates that Michael Foods has an average demand of 48,000 gpd. The per capita demand calculations, removing the average day demands from Michael Foods, are provided in Table 8.

The Michael Foods water demands for 2020 and 2021 were not available, so the 2020 and 2021 values reported are the average values from 2016 through 2019.

Table 8. Per Capita Demands without Michael Foods

Year	Total Demands (gallons)	Michael Foods Demands (gallons)	Updated Demand (gallons)	Population, Including Bruno	Per Capita Demand (gpcd)
2016	138,541,898	37,590,000	100,951,898	2,914	95
2017	140,351,569	39,702,100	100,649,469	2,933	94
2018	144,124,878	45,732,400	98,392,478	2,940	92
2019	163,163,689	69,259,940	93,903,749	2,947	87
2020	183,838,314*	48,071,110**	135,767,204	2,919	127
2021	145,720,037*	48,071,110**	97,648,927	2,919	92

*Total water pumped from WTP minus assumed 28% water loss
**Average Michael Foods demands from 2016-2019

Michael Foods' average daily use, considering a 5.5 day per week schedule, resulted in approximately 168,100 gpd. Removing Michael Foods from the overall water usage calculations results in per capita water demands much more in line with the generally accepted per capita demands discussed previously in this report. The average per capita demand from 2016-2021 is 96 gpcd, which will be the per capita value used for calculations in this study. Michael Foods is planning to leave David City in the Summer of 2022, and it is unsure if or when a large new water user will use the same production facility. Projected future demands will include current demands from Michael Foods to ensure that there is adequate capacity in place to support another water user of a similar size.

6.2 Peak Day Demands

Peak Day Demand is defined as the maximum daily water demand in the study period. Peak day demands occur in the summer months, where irrigation and recreational water use is at its highest. Peak Day Demand from 2016-2021 is summarized in Table 9.

Table 9. Peak Day Demands (MGD), 2016-2021

	Average Day Demand (MGD)	Peak Day Demand (MGD)	Peak/Average Day Ratio
2016	0.535	2.3	4.3
2017	0.466	0.9	1.9
2018	0.500	1.0	2.0
2019	0.579	1.9	3.3
2020	0.504	1.6	3.2
2021	0.400	1.3	3.3
		Minimum Peaking Factor	1.9
		Maximum Peaking Factor	4.3
		Average Peaking Factor	3.0

The average of the peak to average water demand from 2016 through 2021 (3.0) will be used for calculations in this report. By comparison, the peaking factor used in the 2020 Water Treatment Facility Evaluation was 2.86.

7. FIRE FLOW DEMANDS

David City's water system provides fire protection to its residents. This report will evaluate the system's ability to meet residential and commercial fire flow demands. Residential fire flow demands are determined using an equation, and commercial fire flow demands are determined using the ISO report as a guideline.

Fire flow demands are defined as the quantity of water (in gpm) that a system can provide while maintaining a residual pressure of 20 psi.

7.1.1Residential Fire Flow Demands

Residential fire flow is calculated using the following equation:

$$Q = (1020\sqrt{P})(1 - 0.01\sqrt{P})$$

Where:

Q is the fire flow (gpm, rounded to the nearest 500)
P is the population in thousands

Using David City's current population of 2,824 persons (P=2.8) results in a residential fire flow demand of **1,500 gpm**.

7.1.2Commercial Fire Flow Demands

Commercial fire flow demands are determined using the most recent ISO report, which was provided by the City. This report was most recently completed in 2017, and is available for reference in Appendix A. The highest commercial flow reported in the ISO Report is **3,500 gpm** at 3rd & D Streets.

7.1.3Fire Flow Duration

Fire flow durations vary by demand, with durations increasing with fire flow demands per the AWWA Manual of Water Supply Practices M32 (2005). Fire Flow Demands and associated durations are summarized in Table 10.

Table 10. AWWA M32 (2005) Fire Flow Durations

Fire Flow Demand (gpm)	Duration (hours)
< 3,000	2
3,000-3,500	3
4,000-12,000	4

Per Table 10, the residential (1,500 gpm) and commercial (3,500 gpm) fire flows will be assumed to have durations of 2 and 3 hours, respectively.

8. STORAGE ANALYSIS

A water system must be capable of providing a single peak day of storage. When fire protection is provided, a water system must provide an average day of storage plus water needed for fire protection. Storage may be supplemented by supply if backup power is in place. This section will evaluate the City's elevated storage capability to meet these needs over the next 20 years based upon the population projections listed in Section 4. Demands are calculated using the per capita demands calculated earlier in this study, and the water demand assumed from Michael Foods (or similar water user that will take its place) is assumed to remain consistent at 131,702 gpd, or 91 gpm for the entire study period.

There are presently only provisions for backup power at Well 12, therefore it is the only one that can be assumed to be available in the event of a power outage. Well 12 has a capacity of 1,100 gpm, which is lower than the WTP HSP firm capacity of 1,750 gpm, therefore, there is a potential deficiency in the wells' ability to keep up during peak demand periods. If only Well 12 is available, the WTP pumping capacity would be limited to 1,100 gpm, the amount of flow coming into the clearwell. Since the fire flow scenarios are all a shorter duration than it would take to empty the tank in both conditions, it may be assumed that the clearwell is available during fire flow events and a separate calculation is not provided. The potential deficiency would occur during a peak day scenario.

If generators are installed on all four of the wells, the firm capacity from the well field is 2,600 gpm. With this being above the WTP firm pumping capacity (1,750 gpm) it can be assumed that the wells will keep the clearwell full, and the firm WTP is available to pump into the system and elevated water tower without running out of supply.

8.1 Peak Day Analysis

Using the values calculated previously, the water system is analyzed for its ability to accommodate a peak day of storage.

A summary of these calculations is provided in Table 11 and Table 12. As indicated in the tables, there is not presently a deficiency anticipated with current growth projections through the year 2060, even if only Well 12 is available to supply water to the system.

Table 11. Peak Day Storage Analysis-Generator on all wells

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Peaking Factor	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Peak Day Demand (gpd)	858,186	972,258	1,086,330	1,112,790	1,139,912	1,167,711	1,196,206	1,225,412	1,255,350
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Total Demand (gpd)	1,026,286	1,140,358	1,254,430	1,280,890	1,308,012	1,335,811	1,364,306	1,393,512	1,423,450
Clearwell Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Elevated Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
24-hour firm pumping supply from WTP (gallons)	2,520,000	2,520,000	2,520,000	2,520,000	2,520,000	2,520,000	2,520,000	2,520,000	2,520,000
Total Supply (gallons)	3,770,000	3,770,000	3,770,000	3,770,000	3,770,000	3,770,000	3,770,000	3,770,000	3,770,000
Net Surplus (+)/Deficiency (-)	+2,743,714	+2,629,642	+2,515,570	+2,489,110	+2,461,988	+2,434,189	+2,405,694	+2,376,488	+2,346,550
Demand/Storage Percentage	27.2%	30.2%	33.3%	34.0%	34.7%	35.4%	36.2%	37.0%	37.8%

Table 12. Peak Day Storage Analysis-Generator only on Well 12

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Peaking Factor	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Peak Day Demand (gpd)	858,186	972,258	1,086,330	1,112,790	1,139,912	1,167,711	1,196,206	1,225,412	1,255,350
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Total Demand (gpd)	1,026,286	1,140,358	1,254,430	1,280,890	1,308,012	1,335,811	1,364,306	1,393,512	1,423,450
Clearwell Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Elevated Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
24-hour Pumping Supply from WTP (limited to 1,100 gpm) (gallons)	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000
Total Supply (gallons)	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000
Net Surplus/Deficiency	+1,807,714	+1,693,642	+1,579,570	+1,553,110	+1,525,988	+1,498,189	+1,469,694	+1,440,488	+1,410,550
Demand/Storage Percentage	34.9%	39.0%	43.0%	43.9%	44.9%	45.9%	46.9%	47.9%	48.9%

8.2 Average Day plus Residential Fire Flow

Residential fire flow demands in David City were calculated in a previous section of this report to be 1,500 gpm, which corresponds to a duration of two hours per Table 10. Average day plus residential fire flow calculations are included in Table 13 and 14. The calculations are performed assuming that demands occur over a full 24-hour period and a 16-hour period, respectively in the following tables. To remain conservative, it is typical and prudent to use value less than 24 hours to provide a level of redundancy to the system. For reference, the calculated 2060 average daily demand, including Michael Foods' average demand of 168,100 gpd, is 586,550 gpd.

Table 13. Average Day plus Residential Fire Flow Storage Calculations (24-hour usage)

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
24-hour Average Demand (gpm)	199	225	251	258	264	270	277	284	291
Residential Fire Flow Demand (gpm)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Michael Foods Demands (gpm)	117	117	117	117	117	117	117	117	117
Total Demand (gpm)	1,816	1,842	1,868	1,875	1,881	1,887	1,894	1,901	1,908
2-hour Demand (gallons)	217,879	221,047	224,216	224,951	225,704	226,476	227,268	228,079	228,911
Available Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
2-hour supply from WTP (gallons)	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000
Total Supply (gallons)	975,000	975,000	975,000	975,000	975,000	975,000	975,000	975,000	975,000
Net Surplus (+)/Deficiency (-)	+757,122	+753,953	+750,784	+750,049	+749,296	+748,524	+747,732	+746,921	+746,089
Demand/Storage Percentage	28.8%	29.3%	29.9%	30.0%	30.1%	30.3%	30.4%	30.5%	30.7%

Table 14. Average Day plus Residential Fire Flow Storage Calculations (16-hour usage)

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Demand (gpd)	286,062	324,088	362,110	370,930	379,971	389,237	398,735	408,471	418,450
16-hour Average Demand (gpm)	298	338	377	386	396	405	415	425	436
Residential Fire Flow Demand (gpm)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Michael Foods Demands (gpm)	117	117	117	117	117	117	117	117	117
Total Demand (gpm)	1,915	1,955	1,994	2,003	2,013	2,022	2,032	2,042	2,053
Total 2-hour Demand (gallons)	229,798	234,551	239,304	240,406	241,536	242,695	243,882	245,099	246,346
Available Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
2-hour supply from WTP (gallons)	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000
Total Supply (gallons)	975,000	975,000	975,000	975,000	975,000	975,000	975,000	975,000	975,000
Net Surplus (+)/Deficiency (-)	+745,202	+740,449	+735,696	+734,594	+733,464	+732,305	+731,118	+729,901	+729,654
Demand/Storage Percentage	30.8%	31.7%	32.5%	32.7%	32.9%	33.1%	33.4%	33.6%	33.8%

8.3 Average Day plus Commercial Fire Flow

The highest commercial fire flow demand in David City is 3,500 gpm, (from the ISO report, included as Appendix A, and discussed in more detail in Section 4). Per Table 10, a 3,500-gpm fire flow demand corresponds to a duration of three hours.

Table 15. Average Day plus Commercial Fire Flow Storage Calculations (24-hour usage)

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Demand (gpd)	286,062	324,088	362,110	370,930	379,971	389,237	398,735	408,471	418,450
24-hour Average Demand (gpm)	199	225	251	258	264	270	277	284	291
Michael Foods Demand (gpm)	117	117	117	117	117	117	117	117	117
Commercial Fire Flow Demand (gpm)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Total Demand (gpm)	3,816	3,842	3,868	3,875	3,881	3,887	3,894	3,901	3,908
3-hour Demand (gallons)	686,818	691,571	696,324	697,426	698,556	699,715	700,902	702,119	703,366
Available Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
3-hour supply from WTP (gallons)	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000
Total Supply (gallons)	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000
Net Surplus (+)/Deficiency (-)	+378,182	+373,429	+368,676	+367,574	+366,444	+365,285	+364,098	+362,881	+361,634
Demand/Storage Percentage	64.5%	64.9%	65.4%	65.5%	65.6%	65.7%	65.8%	65.9%	66.0%

Table 16. Average Day plus Commercial Fire Flow Storage Calculations (16-hour usage)

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Brand)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
16-hour Average Demand (gpm)	298	338	377	386	396	405	415	425	436
Michael Foods Demand (gpm)	91	91	91	91	91	91	91	91	91
Commercial Fire Flow Demand (gpm)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Total Demand (gpm)	3,915	3,965	3,994	4,003	4,013	4,022	4,032	4,042	4,053
3-hour Demand (gallons)	704,607	711,828	718,996	720,609	722,304	724,042	725,823	727,648	729,519
Available Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
3-hour supply from WTP (gallons)	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000
Total Supply (gallons)	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000	1,065,000
Net Surplus (+)/Deficiency (-)	+360,393	+353,174	+346,004	+344,391	+342,696	+340,958	+339,237	+337,352	+335,481
Demand/Storage Percentage	66.2%	66.8%	67.5%	67.7%	67.8%	68.0%	68.2%	68.3%	68.5%

Under current demand conditions and projected population growth for the next several years, David City is able meet all demand conditions, including providing adequate storage and supply for a single peak day and an average day with both residential and commercial fire flows.

8.4 Additional Water User Calculations

There has been interest from another large industrial water user north of David City. Anticipated demands for the new facility will be 0.575 MGD initially, and 1.3 MGD at full buildout. The facility will also have a 1,500-gpm fire flow demand. During fire scenarios, the production would still require 500 gpm of water supply, resulting in a total of 2,000 gpm in this scenario. The preceding storage calculations are repeated to determine if the existing system can accommodate this new user without any further expansion to the system at both initial and full buildout. To remain conservative, it is assumed that the WTP operates at a reduced (1,100 gpm) capacity due to the availability of only one well being available. Demands from the new water user are presented in gpm and assumes a 24 and 16-hour usage period.

Table 17. Peak Day Demand with Additional Large Water User-Day One Demands

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Brunz)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Peaking Factor	3	3	3	3	3	3	3	3	3
Peak Day Demand (gpd)	858,188	972,258	1,086,330	1,112,790	1,139,912	1,167,711	1,196,206	1,225,412	1,255,350
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000
Total Demand (gpd)	1,601,288	1,715,358	1,829,430	1,855,890	1,883,012	1,910,811	1,939,306	1,968,512	1,998,450
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
24-hour pumping supply from WTP (gallons)	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000
Total Supply	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000
Net Surplus/Deficiency	+1,232,714	+1,118,642	+1,004,570	+978,110	+950,989	+923,189	+894,694	+865,488	+835,550
Demand/Storage Percentage	56.5%	60.5%	64.6%	65.5%	66.4%	67.4%	68.4%	69.5%	70.5%

Table 18. Residential Fire Flow with new water user, day one demands, 24-hour water usage

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Brunz)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000
Total Demand (gpd)	1,029,162	1,067,186	1,105,210	1,114,030	1,123,071	1,132,337	1,141,835	1,151,571	1,161,550
Total Demand (gpm)	715	741	768	774	780	786	793	800	807
Residential Fire Demand (gpm)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total Demand (gpm)	2,215	2,241	2,268	2,274	2,280	2,286	2,293	2,300	2,307
Total 2-hour Demand (gallons)	265,764	268,932	272,101	272,836	273,589	274,361	275,153	275,964	276,796
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
2-hour pumping supply from WTP (gallons)	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000
Total Supply	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000
Net Surplus/Deficiency	+1,116,237	+1,113,068	+1,109,899	+1,109,164	+1,108,411	+1,107,639	+1,106,847	+1,106,847	+1,105,204
Demand/Storage Percentage	19.2%	19.5%	19.7%	19.7%	19.8%	19.9%	19.9%	20.0%	20.0%

Table 19. Commercial Fire Flow with new water user, day one

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000
Total Demand (gpd)	1,029,162	1,067,186	1,105,210	1,114,030	1,123,071	1,132,337	1,141,835	1,151,571	1,161,550
Total Demand (gpm)	715	741	768	774	780	786	793	800	807
Commercial Fire Demand (gpm)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Total Demand (gpm)	4,215	4,241	4,268	4,274	4,280	4,286	4,293	4,300	4,307
Total 3-hour Demand (gallons)	758,645	763,398	768,151	769,254	770,384	771,542	772,729	773,946	775,194
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
3-hour pumping supply from WTP (gallons)	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000
Total Supply	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000
Net Surplus/Deficiency	+689,355	+684,602	+679,849	+678,746	+677,616	+676,458	+675,271	+674,054	+672,806
Demand/Storage Percentage	52.4%	52.7%	53.0%	53.1%	53.2%	53.3%	53.4%	53.4%	53.5%

Table 20. Peak Day Calculations, New Water User at Full Buildout

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Peaking Factor	3	3	3	3	3	3	3	3	3
Peak Day Demand (gpd)	858,186	972,258	1,086,330	1,112,790	1,139,912	1,167,711	1,196,206	1,225,412	1,255,350
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Total Demand (gpd)	2,326,286	2,440,358	2,554,430	2,580,890	2,608,012	2,635,811	2,664,306	2,693,512	2,723,450
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
24-hour pumping supply from WTP (gallons)	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000
Total Supply	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000
Net Surplus/Deficiency	+507,714	+393,642	+279,570	+253,110	+225,989	+198,189	+169,694	+140,488	+110,550
Demand/Storage Percentage	82.1%	86.1%	90.1%	91.1%	92.0%	93.0%	94.0%	95.0%	96.1%

Table 21. Average day plus fire flow, new water user at full buildout

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Total Demand (gpd)	1,754,162	1,792,186	1,830,210	1,839,030	1,848,071	1,857,337	1,866,835	1,876,571	1,886,550
Total Demand (gpm)	1,218	1,245	1,271	1,277	1,283	1,290	1,296	1,303	1,310
Residential Fire Flow Demand (gpm)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total Demand (gpm)	2,718	2,745	2,771	2,777	2,783	2,790	2,796	2,803	2,810
Total 2-hour Demand (gallons)	326,160	329,349	332,518	333,253	334,006	334,778	335,570	336,381	337,212
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
2-hour pumping supply from WTP (gallons)	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000
Total Supply	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000
Net Surplus/Deficiency	+1,055,820	+1,052,651	+1,049,483	+1,048,748	+1,047,994	+1,047,222	+1,046,430	+1,045,619	+1,044,788
Demand/Storage Percentage	23.6%	23.8%	24.1%	24.1%	24.2%	24.2%	24.3%	24.3%	24.4%

Table 22. Average day plus commercial fire flow, new user at full buildout

	2020	2021	2030	2031	2040	2041	2050	2051	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,088	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Total Demand (gpd)	1,754,162	1,792,188	1,830,210	1,839,030	1,848,071	1,857,337	1,866,835	1,876,571	1,886,550
Total Demand (gpm)	1,218	1,245	1,271	1,277	1,283	1,290	1,296	1,303	1,310
Commercial Fire Flow Demand (gpm)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Total Demand (gpm)	4,718	4,745	4,771	4,777	4,783	4,790	4,796	4,803	4,810
Total 3-hour Demand (gallons)	849,270	854,022	858,778	859,879	861,009	862,167	863,354	864,571	865,819
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
3-hour pumping supply from WTP (gallons)	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000
Total Supply	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000
Net Surplus/Deficiency	+598,730	+593,977	+589,224	+588,121	+586,991	+585,833	+584,646	+583,429	+582,181
Demand/Storage Percentage	58.7%	59.0%	59.3%	59.4%	59.5%	59.5%	59.6%	59.7%	59.8%

The calculations performed in the preceding tables indicate that the combination of the elevated storage and supply from the WTP are adequate to meet a peak day and average day with commercial and residential fire flow, both under current demand assumptions and once the additional water user is added to the system, both under day one demand assumptions and full buildout.

The calculations performed in the preceding tables are repeated, assuming that demands occur over a 16-hour period rather than a 24-hour period. A 16-hour demand period would stress the water system more than a 24-hour period, as it would have to accommodate the same demands for a shorter duration and higher flow rate. The 16-hour calculations are included in the following tables.

Table 23. Residential Fire Flow with day one new water user demands, 16-hour water usage

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000
Total Demand (gpd)	1,029,162	1,067,186	1,105,210	1,114,030	1,123,071	1,132,337	1,141,835	1,151,571	1,161,550
Total Demand (gpm)	1,072	1,112	1,151	1,160	1,170	1,180	1,189	1,200	1,210
Residential Fire Flow Demand (gpm)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total Demand (gpm)	2,572	2,612	2,651	2,660	2,670	2,680	2,689	2,700	2,710
Total 2-hour Demand (gallons)	308,645	313,398	318,151	319,254	320,384	321,542	322,729	323,948	325,194
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
2-hour pumping supply from WTP (gallons)	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000
Total Supply	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000
Net Surplus/Deficiency	+1,073,355	+1,068,602	+1,063,849	+1,062,746	+1,061,616	+1,060,458	+1,059,271	+1,058,054	+1,056,806
Demand/Storage Percentage	22.3%	22.7%	23.0%	23.1%	23.2%	23.3%	23.4%	23.4%	23.5%

Table 24. Commercial Fire Flow with new water user day one demands, 16-hour water usage.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000	575,000
Total Demand (gpd)	1,029,162	1,067,186	1,105,210	1,114,030	1,123,071	1,132,337	1,141,835	1,151,571	1,161,550
Total Demand (gpm)	1,072	1,112	1,151	1,160	1,170	1,180	1,189	1,200	1,210
Commercial Fire Flow Demand (gpm)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Total Demand (gpm)	4,572	4,612	4,651	4,660	4,670	4,680	4,689	4,700	4,710
Total 2-hour Demand (gallons)	822,068	830,097	837,227	838,881	840,578	842,313	844,094	845,920	847,791
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
2-hour pumping supply from WTP (gallons)	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000
Total Supply	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000
Net Surplus/Deficiency	+625,932	+617,903	+610,773	+609,119	+607,424	+605,687	+603,906	+602,080	+600,209
Demand/Storage Percentage	56.8%	57.3%	57.8%	57.9%	58.1%	58.2%	58.3%	58.4%	58.5%

Table 25. Peak Day with new water user at full buildout

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Peaking Factor	3	3	3	3	3	3	3	3	3
Peak Day Demand (gpd)	858,186	972,258	1,086,330	1,112,790	1,139,912	1,167,711	1,196,206	1,225,412	1,255,350
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Total Demand (gpd)	2,326,286	2,440,358	2,554,430	2,580,890	2,608,012	2,635,811	2,664,306	2,693,512	2,723,450
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
24-hour pumping supply from WTP (gallons)	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000	1,584,000
Total Supply	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000	2,834,000
Net Surplus/Deficiency	+507,714	+393,642	+279,570	+253,110	+225,989	+198,189	+169,694	+140,488	+110,550
Demand/Storage Percentage	82.1%	86.1%	90.1%	91.1%	92.0%	93.0%	94.0%	95.0%	96.1%

Table 26. Average day plus fire flow, new water user at full buildout.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,086	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Total Demand (gpd)	1,754,162	1,792,186	1,830,210	1,839,030	1,848,071	1,857,337	1,866,835	1,876,571	1,886,550
Total Demand (gpm)	1,827	1,867	1,906	1,916	1,925	1,935	1,945	1,955	1,965
Residential Fire Flow Demand (gpm)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total Demand (gpm)	3,327	3,367	3,406	3,416	3,425	3,435	3,445	3,455	3,465
Total 2-hour Demand (gallons)	399,270	404,022	408,778	409,870	411,009	412,187	413,354	414,571	415,819
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
2-hour pumping supply from WTP (gallons)	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000
Total Supply	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000	1,382,000
Net Surplus/Deficiency	+982,730	+977,977	+973,224	+972,121	+970,991	+969,833	+968,646	+967,429	+966,181
Demand/Storage Percentage	28.9%	29.2%	29.6%	29.7%	29.7%	29.8%	29.9%	30.0%	30.1%

Table 27. Average day plus commercial fire flow, new user at full buildout.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
Population (including Bruno)	2,919	3,307	3,695	3,785	3,877	3,972	4,069	4,168	4,270
Per Capita Water Demand (gpcd)	98	98	98	98	98	98	98	98	98
Average Day Demand (gpd)	286,062	324,066	362,110	370,930	379,971	389,237	398,735	408,471	418,450
Michael Foods Demand (gpd)	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100	168,100
Additional Water User Demand (gpd)	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Total Demand (gpd)	1,754,162	1,792,166	1,830,210	1,839,030	1,848,071	1,857,337	1,866,835	1,876,571	1,886,550
Total Demand (gpm)	1,218	1,245	1,271	1,277	1,283	1,290	1,296	1,303	1,310
Commercial Fire Flow Demand (gpm)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Total Demand (gpm)	4,718	4,745	4,771	4,777	4,783	4,790	4,796	4,803	4,810
Total 3-hour Demand (gallons)	849,270	854,023	858,778	859,879	861,009	862,167	863,354	864,571	865,819
Elevated Storage (gallons)	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
Clearwell Storage (gallons)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
3-hour pumping supply from WTP (gallons)	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000	198,000
Total Supply	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000	1,448,000
Net Surplus/Deficiency	+598,730	+593,977	+589,224	+588,121	+586,991	+585,833	+584,646	+583,429	+582,181
Demand/Storage Percentage	58.7%	59.0%	59.3%	59.4%	59.5%	59.5%	59.6%	59.7%	59.8%

As indicated in the preceding tables, the water system can accommodate all demand conditions, both at 16 and 24-hour demand simulations.

9. HYDRAULIC MODEL

Olsson developed a hydraulic model using InfoWater software by Innovyze, Inc. The InfoWater model creates a computerized representation of the water distribution system, which allows for analysis to determine its fire flow capability and to identify potential deficiencies in the system.

9.1 Hydraulic Model Setup

The InfoWater model was developed using an AutoCAD map of the City's existing water system map as a basis. The Hazen-Williams roughness value, (also referred to as the C-factor), helps the system to calculate friction head loss, or pressure loss due to friction between the water in the system and the interior pipe walls. A roughness value of 100 was initially entered as for all existing water mains. New water mains are assumed to have a roughness value of 120 or

greater, depending upon the pipe material. The roughness value tends to decrease as a pipe ages and it starts to lose capacity as corrosion starts to build up on the internal walls of the pipe. PVC water mains generally retain their capacity longer than DIP or CIP pipe due to the absence of corrosion forming on plastic pipe.

Nodes are input in the model at each end of a pipe in the InfoWater model, where pipes intersect, and other key locations in the water system. A combination of USGS Quadrangle maps and Google Earth are used to initially enter elevations into each of the nodes, and are refined further during model calibration.

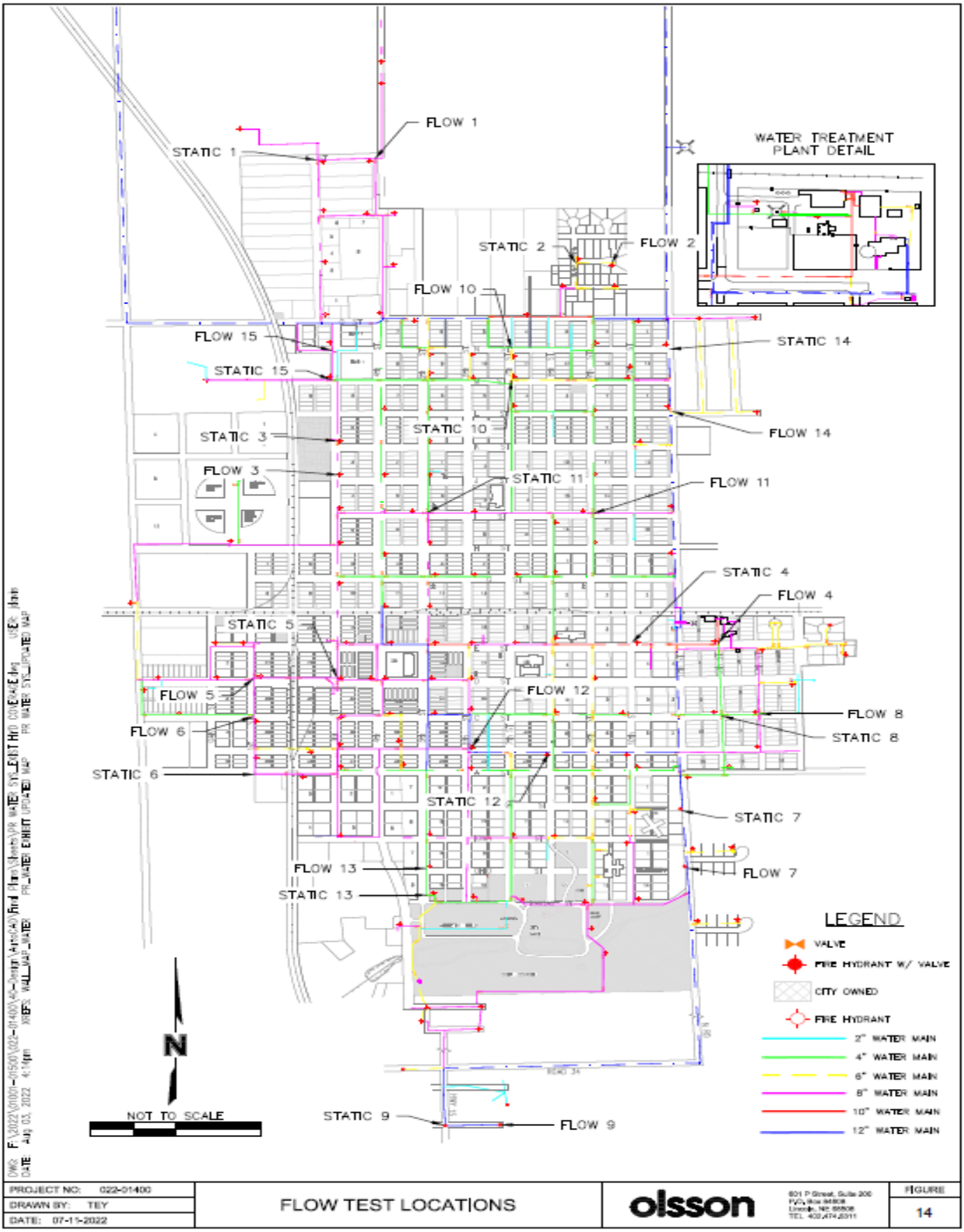
9.2 Fire Flow Tests/Hydraulic Model Calibration

The hydraulic model is calibrated to field conditions using fire flow tests as a basis. A representative sample of hydrants throughout the water system are identified, and each test consists of a flow hydrant and static hydrant. A pressure gauge is installed on the static hydrant, and its pressure is measured and recorded. The flow hydrant is opened, and the flow leaving the hydrant is measured using a pitot gauge. The pressure drop observed at the static hydrant with the flow hydrant fully open is measured and recorded.

Figure 12. Example Static Hydrant

Flow testing occurred on March 16, 2022. The water tower was full during flow testing, and the HSPs at the WTP were not running. The fire flow test locations are provided in Figure 14. During the testing period, the water main at the corner of 7th and A street had a valve closed due to a valve replacement. This pipe was closed in the water model during calibration but opened when determining the fire flow capabilities later in the study.

Figure 13. Example Pitot Tube Measurement


FLOW 1
STATIC 1
WATER TREATMENT PLANT DETAIL
STATIC 2
FLOW 2
FLOW 10
FLOW 15
STATIC 14
STATIC 15
STATIC 10
FLOW 14
STATIC 3
FLOW 3
STATIC 11
FLOW 11
STATIC 4
FLOW 4
STATIC 5
FLOW 5
FLOW 12
FLOW 8
FLOW 6
STATIC 8
STATIC 6
STATIC 12
STATIC 7
FLOW 13
FLOW 7
STATIC 13
LEGEND
VALVE
FIRE HYDRANT W/ VALVE
CITY OWNED
FIRE HYDRANT
2" WATER MAIN
4" WATER MAIN
6" WATER MAIN
8" WATER MAIN
10" WATER MAIN
12" WATER MAIN
N
NOT TO SCALE
STATIC 9
FLOW 9
PROJECT NO: 022-01400
DRAWN BY: TEY
DATE: 07-15-2022
FLOW TEST LOCATIONS
olsson
FIGURE
14

Fire flow test information collected in the field is used to adjust the elevations at each until the static model pressures are within 2 psi of the values measured in the field. The static pressures recorded in the ISO report were used to calibrate the model as a second source of information. The pressure recorded leaving the flow hydrant is converted to a flow using the following equation:

$$Q = 29.83CD^2\sqrt{P}$$

Q = Flow (gpm)
C = Opening Coefficient (0.90 used for a circular outlet at the hydrant)
D = Opening Diameter (inches)
P = Pitot tube pressure (psi)

Table 28. Hydraulic Model Calibration Results

Test Number	Flow Location	Residual Location	Field Static Pressure (psi)	Model Static Pressure (psi)	Δ (psi)	Field Residual Pressure (psi)	Model Residual Pressure (psi)	Δ (psi)	Calculated Flow at test (gpm)
1	S St./Hwy 15	S & Industrial	67	68	1	57	56	1	1,183
2	Bicentennial Circle	Silver & Bicentennial Circle	58	58	2	50	45	5	904
3	3rd & J	3rd & K	69	71	2	40	37	3	2,431
4	12th & E	10th & E	69	71	2	62	65	3	1,007
5	1st & D	3rd & D	70	72	2	43	50	7	2,034
6	1st & C	1st & A	75	76	1	65	67	2	1,138
7	11th & Ohio	11th & Nebraska	69	68	1	35	40	5	2,307
8	13th & C	12th & C	72	72	0	37	44	7	2,175
9	Airport-East	Airport East @ Highway 15	77	75	2	32	34	2	1,883
10	7th & N	7th & M	65	63	2	28	41	13	731
11	9th & I	5th & I	68	69	1	49	50	1	2,550
12	6th & B	6th & B	72	73	1	43	48	5	2,491
13	5th & Ohio	5th & Kansas	69	69	0	36	41	5	557
14	11th & L	11th & N	59	59	0	43	46	3	2,883
15	3rd & N	3rd & M	67	69	2	42	35	7	2,550
				ISO Flow Tests					
1	3rd & D		70	71	1				
2	6th & B		70	72	2				
3	7th & E		70	72	2				
4	5th & E		69	73	4				
5	Highway 15, NW Hydrant		72	72	0				
6	7th & Kansas		72	74	2				
7	10th & Iowa		70	72	2				
8	3rd & H		68	70	2				
9	2nd hydrant north of O Street on 4th		62	65	3				
10	5th & K		64	67	3				

As depicted in Table 28, the model was calibrated at static conditions in all test locations, but one test was not able to be calibrated at flow conditions. The flow testing performed with the ISO report was used as a second check for another set of hydrants, but elevations were not adjusted significantly as the conditions during the testing were not known.

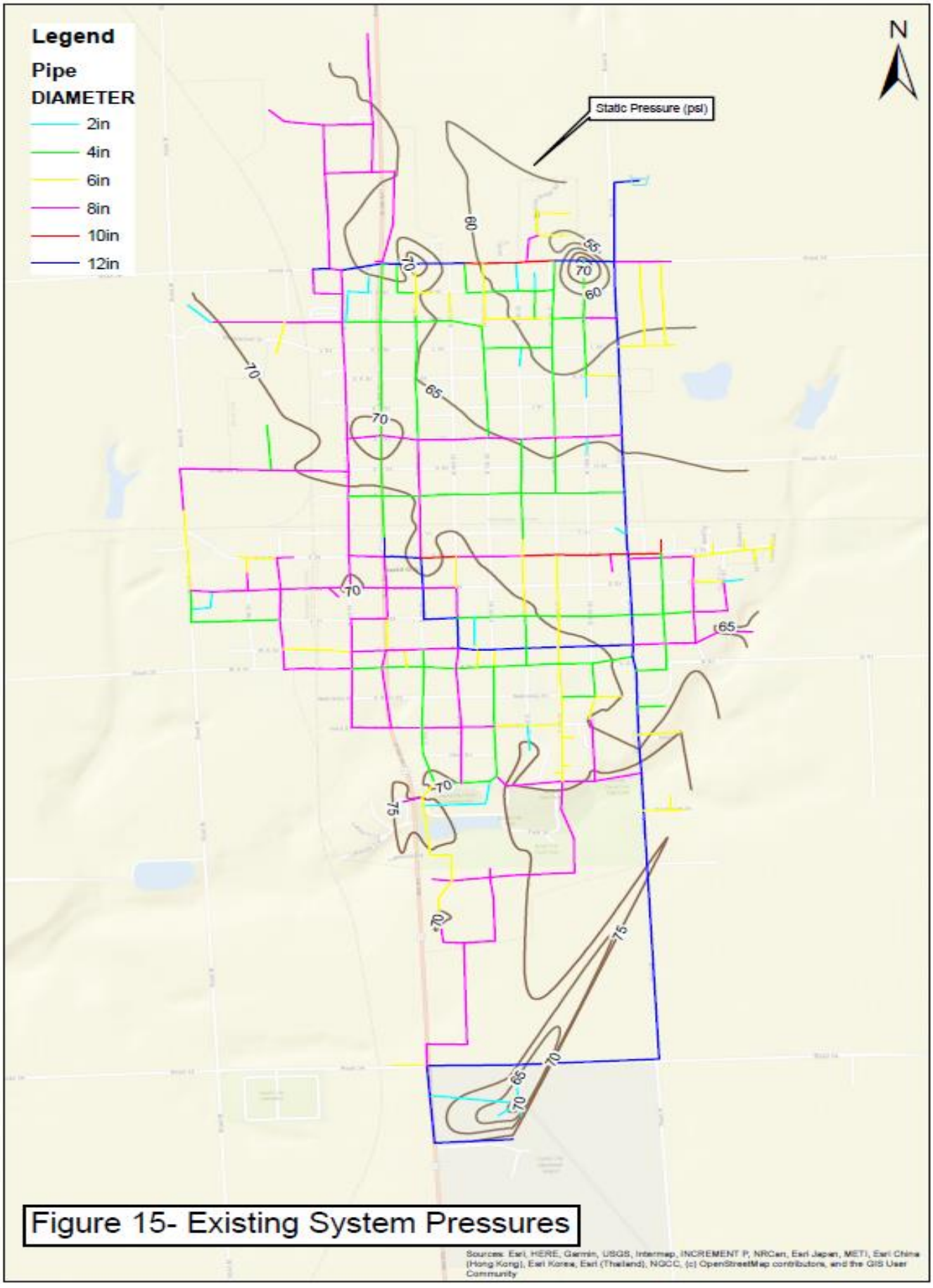


Figure 15- Existing System Pressures

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

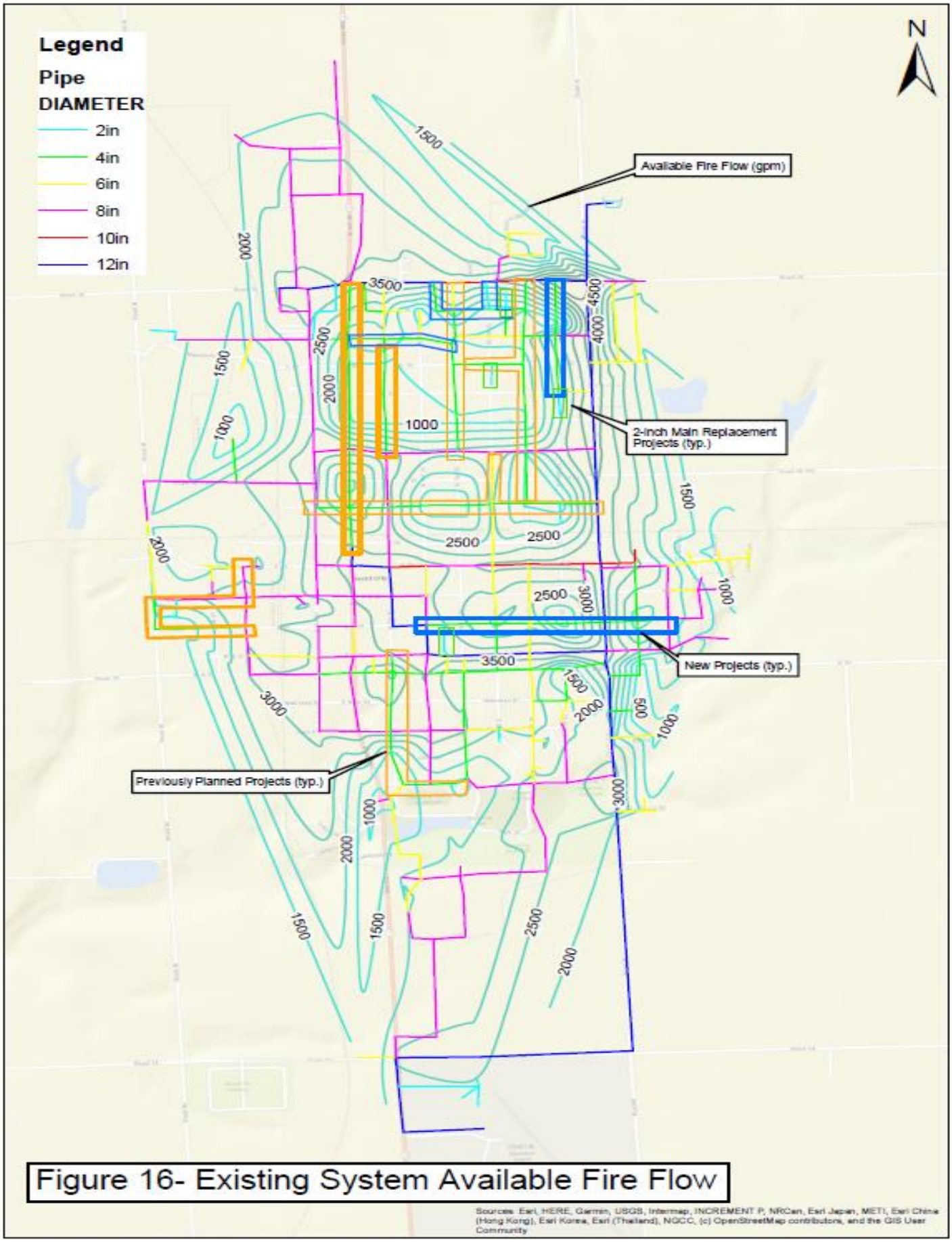


Figure 16- Existing System Available Fire Flow

9.3 Hydraulic Model Results

9.3.1 System Pressures

With the calibrated model generated, it may be used to determine the pressure and fire flow capabilities of the water system. Ten States Standards (Part 7-Finished Water Storage, Section 7.3, Distribution System Storage) indicate that normal working pressures in a water system should range from 60 to 80 psi, with a minimum of 35 psi. The hydraulic model indicates that the pressures in David City range from approximately 55 to 85 psi systemwide, placing it within an acceptable range. The current system pressures are depicted in Figure 15.

9.3.2 Fire Protection

Fire protection demand is defined as the capacity a water system must provide while maintaining a residual pressure of 20 psi. As calculated in a previous section, David City has a residential fire flow demand of 1,500 gpm, and the ISO report indicates that the maximum commercial fire flow demand is 3,500 gpm.

The hydraulic model is utilized to determine potential deficiencies in the water system's ability to provide fire protection using the Fire Flow scenario within InfoWater. This command applies an increased demand at each of the water system nodes until the pressure drops to 20 psi. The demand associated with a residual pressure of 20 psi is defined as that location's fire protection capacity. The available fire flow throughout the water system is provided in Figure 16.

The hydraulic model is used to identify improvements to address the potential deficiencies and provide the highest level of service to water users. Potential improvements could be upsizing existing water mains or removing dead end mains by looping them into the existing system.

There are several 2-inch lines within the hydraulic model, which were removed from consideration when performing the fire flow calculations, as they do not provide fire protection to the system. These small diameter lines are effectively long services for multiple water users but may provide better service if upsized to a 4-inch or larger main. These cases are discussed later in the report.

10. PROPOSED IMPROVEMENTS

10.1 Water Main Replacement Projects

The hydraulic model was utilized in the previous section to determine the fire flow capabilities of the water system in its current configuration. Where potential deficiencies are identified, the model is used to identify potential projects to address them and determine the anticipated benefits of each project on the overall water system.

When calibrating the hydraulic model, the roughness values within a high number of water mains had to be dropped to low levels (40-60 in some cases) to most accurately replicate field conditions. A low roughness value in the hydraulic model can be indicative of corrosion within water mains, restricting flow through the pipes and resulting in a loss in pressure and fire protection capabilities.

New water mains are added with a roughness value/C-Factor of 120. New mains are initially added as 6-inch mains, and upsized further if necessary to meet fire flow demands. Figure 17 shows the anticipated effects of constructing the new water mains on the system's fire protection capabilities.

Thirteen water main replacement projects were identified to increase fire protection capabilities to the water system. The proposed improvements are displayed in Figure 18.These locations were compared with the 2001 JHC report, which included six water replacement projects that had been identified using the water model developed with that study.

Previously Planned Projects:

A. 4th Street, O to F: Upsize 4" to 12". The JHC report recommended that the existing 4-inch mains should be replaced from G to M Streets, while the updated model indicates three more blocks should be replaced. This will provide a 12" loop throughout a majority of the system from 4th to 11th Streets, and from O to A Streets, including through downtown.
B. 7th Street, O to I: Upsize 4" to 6". The JHC study recommended replacing the water main from I to M in 7th Street, but the updated hydraulic model found that three additional blocks of main replacements were needed.
C. G Street, 3rd to 11th: Upsize 4" to 8". The JHC study recommended replacing the mains from 5th to 11th, while the updated model shows that two more blocks need replacement. Upsizing the 4-inch main from G to I in 8th Street should be combined with this project.
D. 5th Street, I to M: Upsize 4" to 6". This project was also recommended in the JHC study.
E. 5th Street, B to Kansas, upsize 4" main to 6" main. The hydraulic model indicated that this project should extend to include the main in 5th from A to B and in Kansas from 5th to 7th Street.
F. 1st & C Street, west to M Road, north to D Street, east to 1st Street, and then north to E Street: Upsize 4" to 8".

G. 9th Street, G to O, L Street, 7th to 9th: Upsize 4" to 6". The JHC report recommended replacing the mains in 9th Street from I to M Streets, the updated model includes three more blocks should be replaced. This project is combined with a previously planned project to upsize the main in 9th Street from G to I.

New projects identified with the updated water model:

H. M Street, 4th to 7th: Upsize 4" to 6".
I. O Street, between 6th & 7th Streets, south to N Street, then east to 9th Street, 8th Street, O to N: Upsize 4" to 6"
J. 10th Street, O to K: Upsize 4" to 6"
K. C Street, 6th to 11th: Upsize 4" to 6".

10.2 1 and 2-inch Water Main Replacements

Several 2-inch water mains are in place within the David City distribution system. While they are not used for fire protection, they are potential bottlenecks in the system's ability to provide fire protection and pressures to water users. Olsson worked with the City to identify which of these mains should be upsized, and which ones should be left in place. The 2-inch water main replacement recommendations are summarized in Table 29 and displayed in Figure 18.

Table 29. 2-Inch Main Replacements Summary

Project	Location	Action
AA	N Street, in alley between 8th & 9th	Upsize to 4-inch main and install flushing hydrant
BB	10th Street, south of K Street	Upsize to a 4-inch main and install flushing hydrant
CC	8th Street, south of L Street	Upsize to a 4-inch main and install flushing hydrant-combine with L Street main replacement
DD	Between 6th & 7th from A to C	Upsize to 4-inch main
EE	1" main in the alley between 5th & 6th, N and O Street	Upsize to 4-inch main
FF	2" Main on the east side of 7th Street from N to O Street	Upsize to 4-inch main
GG	1" main on the west side of 8th Street from N to O	Upsize to 4-inch main

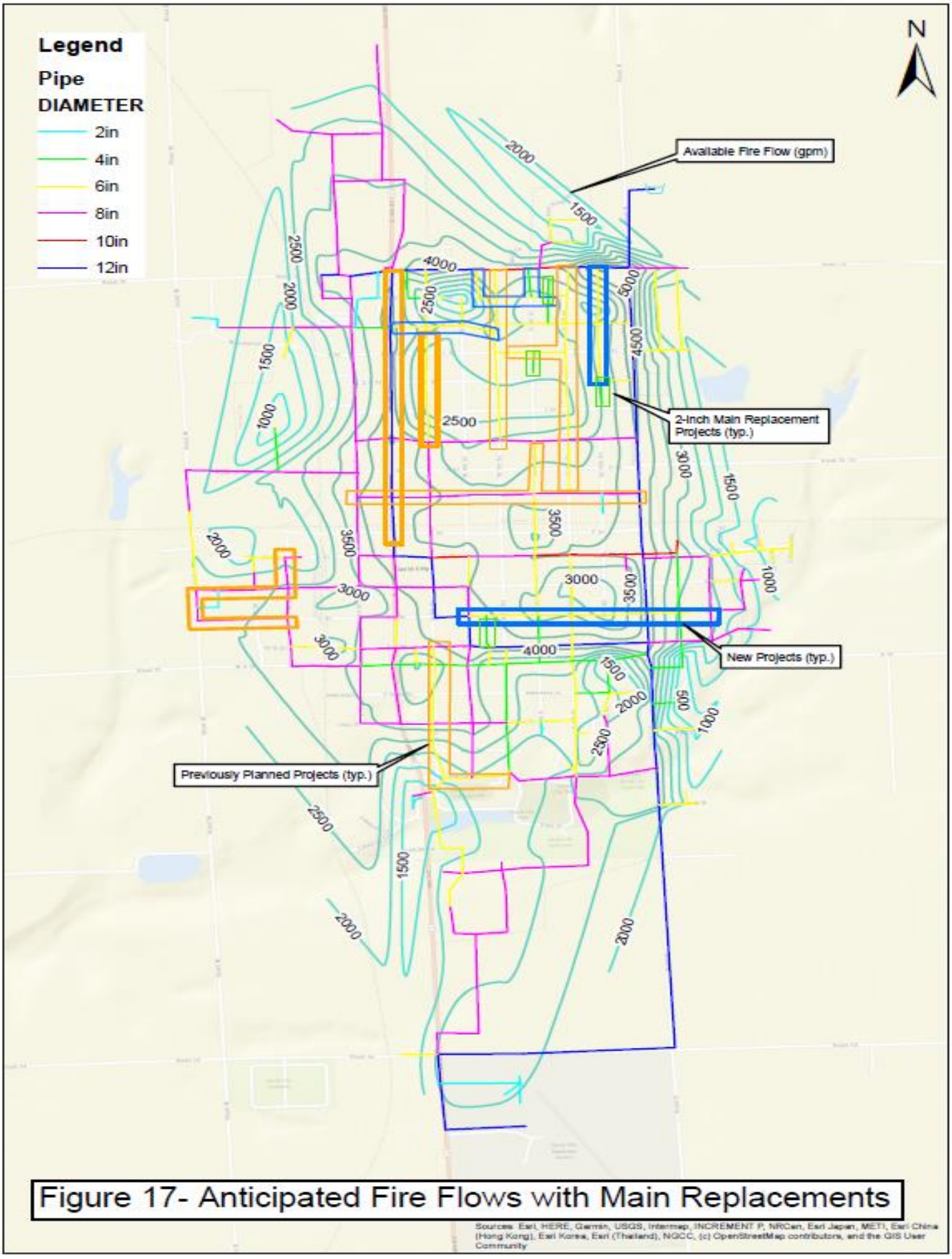
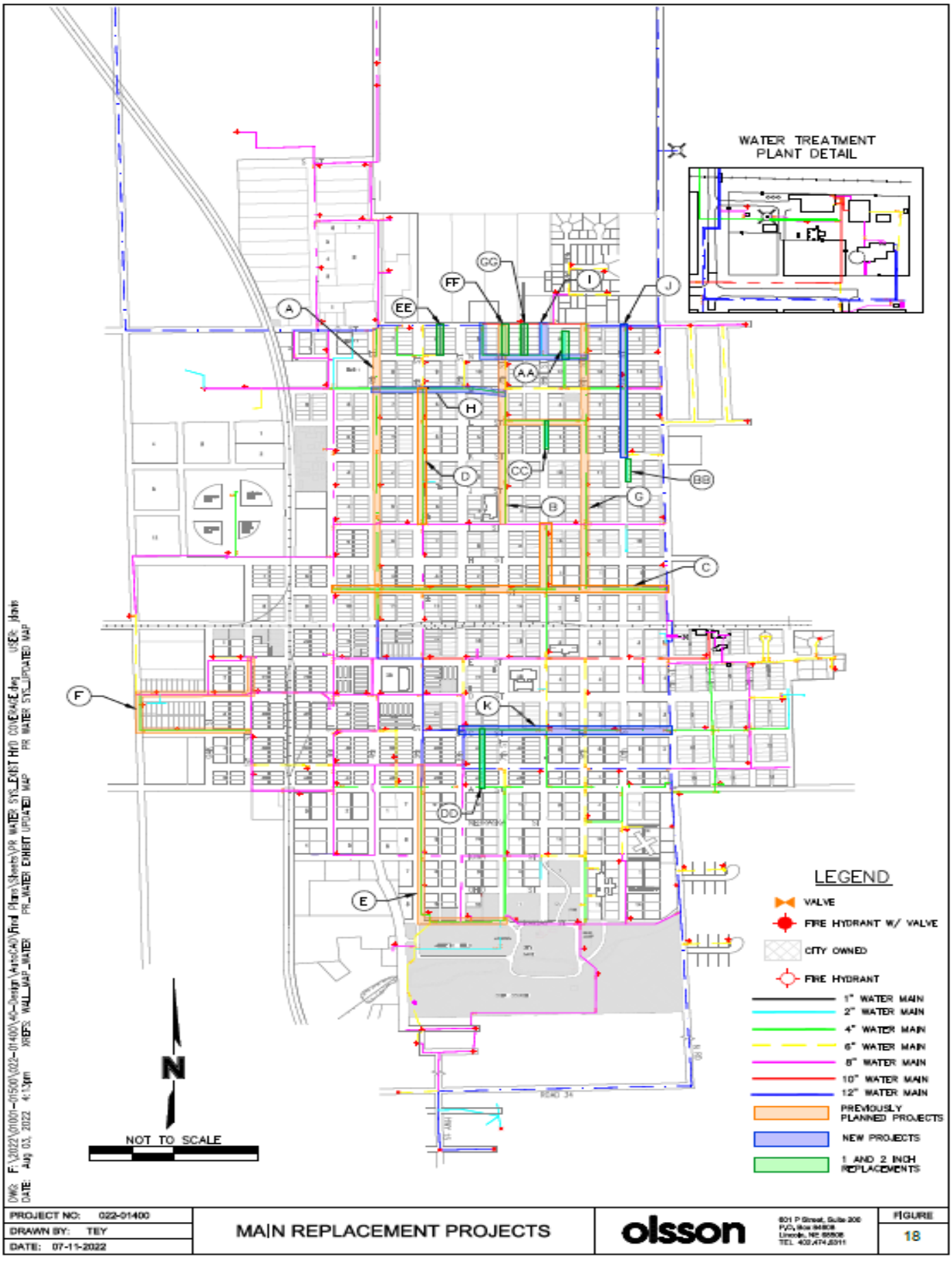


Figure 17- Anticipated Fire Flows with Main Replacements


WATER TREATMENT PLANT DETAIL
A
AA
B
BB
C
CC
D
DD
E
EE
F
FF
G
GG
H
I
J
K
LEGEND
VALVE
FIRE HYDRANT W/ VALVE
CITY OWNED
FIRE HYDRANT
1" WATER MAIN
2" WATER MAIN
4" WATER MAIN
6" WATER MAIN
8" WATER MAIN
10" WATER MAIN
12" WATER MAIN
PREVIOUSLY PLANNED PROJECTS
NEW PROJECTS
1 AND 2 INCH REPLACEMENTS
N
NOT TO SCALE
DWG: F:\2022\01001-01500\022-01400\40-Design\Maps\40\Final Plans\Sheets\PR_WATER SYS_EXIST HYD COVERAGE.dwg USER: jhaw
DATE: Aug 03, 2022 4:13pm XREFS: WALL_MAP_WATER PR_WATER EXHIBIT UPDATED MAP PR WATER SYS_UPDATED MAP
PROJECT NO: 022-01400
DRAWN BY: TEY
DATE: 07-11-2022
MAIN REPLACEMENT PROJECTS
olsson
FIGURE
18

10.3 Future Expansion Projects

There are currently two proposed developments and a new industrial user planned for construction in David City, outside of the current water system, which will require water main extensions to serve them.

10.3.1 North Addition

North Addition is a new development planned southeast of Highway 15 and County Road 37. The development in its current configuration includes eight commercial lots, 21 Office lots, an apartment complex, 22 townhomes, and 159 residential lots.

Figure 19. North Addition Conceptual Layout, JEO Consulting Group, 2022

To accommodate this new development, it is recommended that a 16-inch main be extended along Road N north to Road 37, west to Highway 15, and connect into the existing 8-inch main in Highway 15.

10.3.2 Northland Addition

A Final Plat has been developed for a residential subdivision north of O Street, between 5th and 6th Streets. An 8-inch loop is proposed to be constructed with this development, tying into the existing main in O Street. Since it is anticipated that the new mains will be constructed in conjunction with the development, cost for a future expansion project are not included in this report.

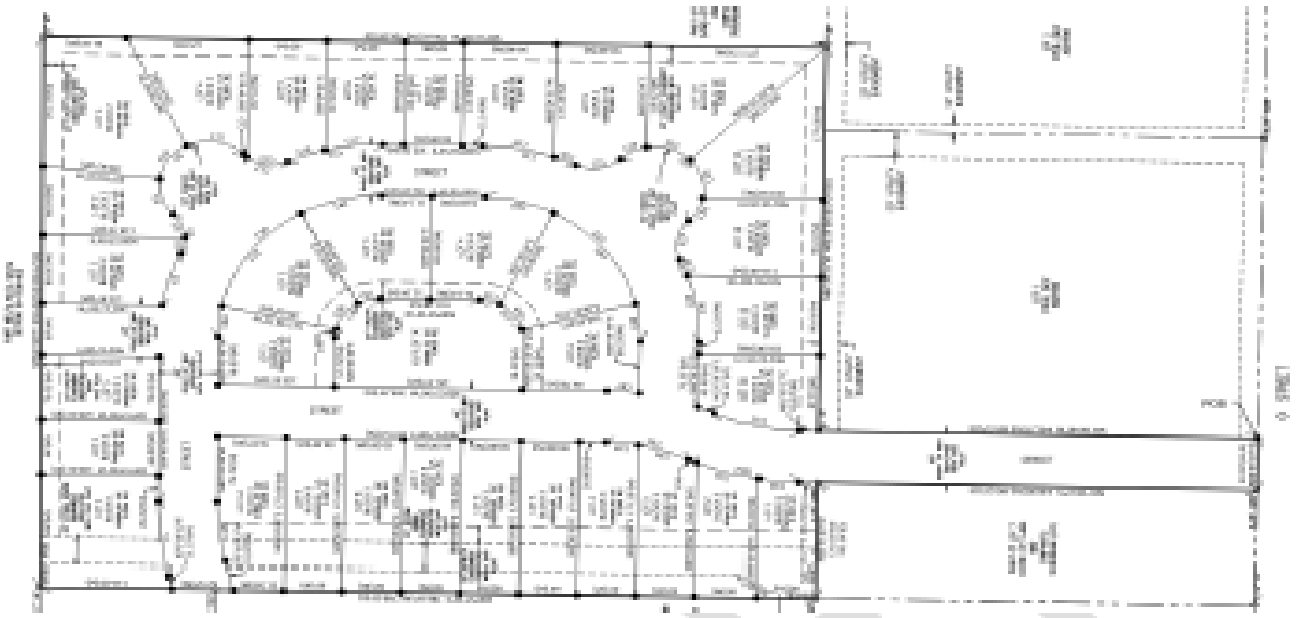


Figure 20. Northland Addition Layout, Olsson, 2022

10.3.3 New Industrial Water User

A new industrial development is planned near Road M and Road 37, which will require the extension of water mains to serve it with potable water and fire protection.

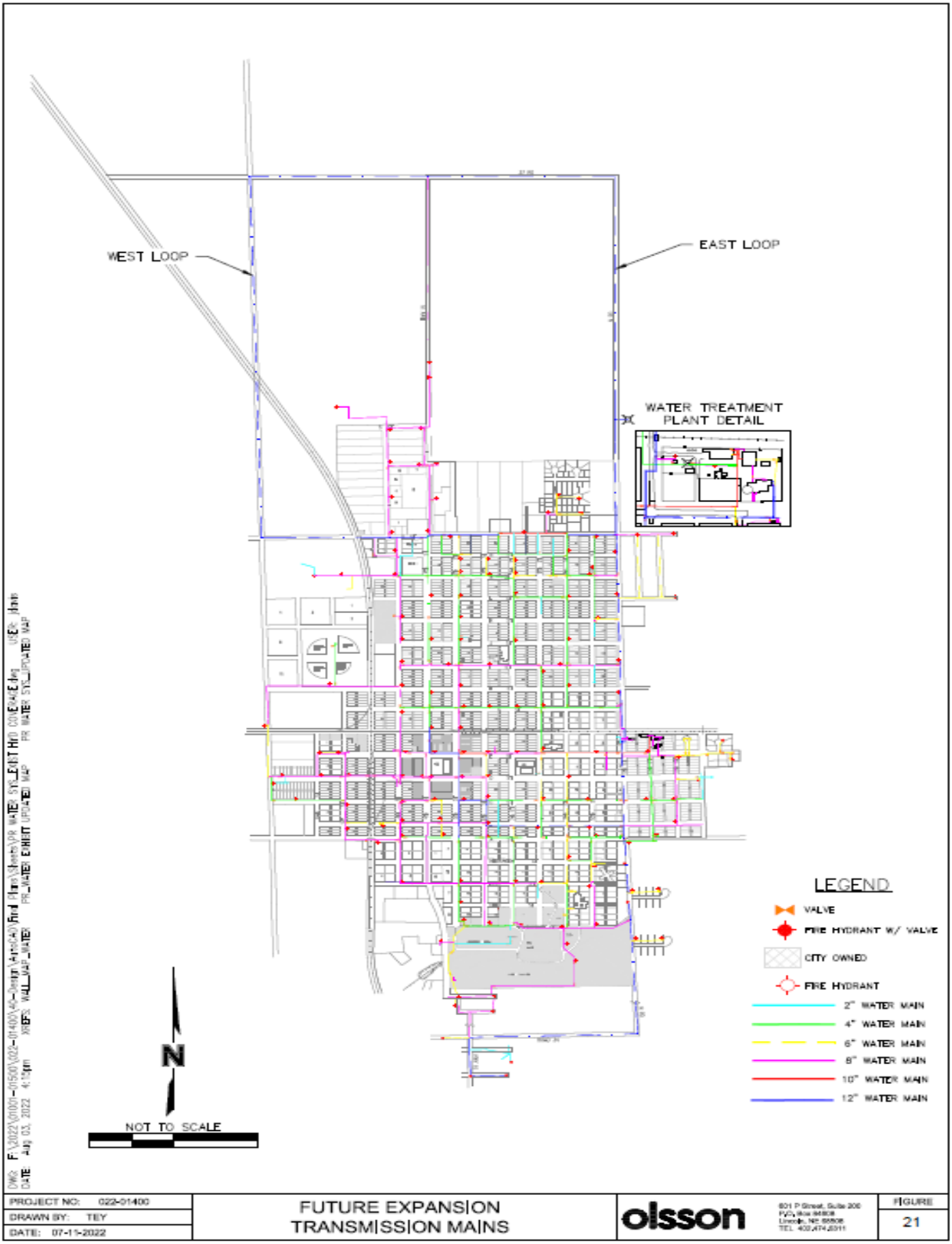
The anticipated demands are 210 MG per year, and processes will run 24 hours a day, seven days a week for an average day demand of 575,000 gpd or 400 gpm. Water mains are sized to provide velocities between 2 and 10 fps during peak conditions. Using the anticipated demands from the new facility, it was determined that 10 to 16-inch mains are needed to provide these velocities.

The hydraulic model discussed previously in this study was utilized to simulate installing 10 through 16-inch mains and determine their ability to provide adequate pressures and fire protection to the proposed industrial site. The site is anticipated to provide fire protection via fire pumps that would draw from an onsite fire water tank. A line will be in place to fill this tank, and a separate line will provide daily domestic and industrial flows.

After simulating the full range of water mains, the hydraulic model determined that two 16-inch water main loops are needed:

- West Loop: connect to existing 12-inch main at West O Street and 2nd Street, extend west to Road M, north to Road 37, and then east to Highway 15. Extend existing 8-inch main in Highway 15 north to 73 Road.
- East Loop: Connect to existing 12-inch main in Road N (west of the existing water tower), extending north to 37 Road, then west to Highway 15.

Besides an ability to provide fire protection, the water mains must be evaluated to ensure that water age is not a concern. While a larger water main will provide more fire protection than a smaller diameter main, if the water stored within the mains is more than is used on a regular basis, it can lead to stagnant water within them and require additional flushing and chlorination to maintain a drinkable water supply. Water age calculations were performed on the proposed 16-inch mains, which determined that with the facility planning to use water nearly 24 hours a day, there was little risk of water quality issues within these mains, and 16-inch mains could be used.


WEST LOOP
EAST LOOP
WATER TREATMENT PLANT DETAIL
LEGEND
VALVE
FIRE HYDRANT W/ VALVE
CITY OWNED
FIRE HYDRANT
2" WATER MAIN
4" WATER MAIN
6" WATER MAIN
8" WATER MAIN
10" WATER MAIN
12" WATER MAIN
N
NOT TO SCALE
PROJECT NO: 022-01400
DRAWN BY: TEY
DATE: 07-11-2022
FUTURE EXPANSION
TRANSMISSION MAINS
olsson
FIGURE
21

10.4 Backup Power

It is recommended that provisions for backup power be installed at each of the wells to ensure a redundant supply of water into the distribution system. Only one of the existing wells (Well 12) currently has provisions for backup power. In the event of a power outage, the WTP would be forced to run at a reduced capacity with only one well in operation.

Wells 10 and 11 both have 75 hp pumps that operate on VFDs. Well 14 is also on a VFD and has a 150 hp pump. Since Well 14 has a larger capacity than Wells 10 and 11, providing permanent backup power at this well will increase the firm pumping capacity much more significant degree than if one were added at Wells 10 and 11. Budget costs were obtained from a supplier, based upon the horsepower required at each well for both temporary and permanent generators at Wells 10 and 11 for evaluation purposes.

Assumptions used in determining the materials cost are provided below.

- Wells 10 and 11:
  - Option 1-Portable Generator with MTS
  - Option 2-Permanent Generator with ATS, belly tank w/24-hour fuel supply
- Well 14:
  - Permanent diesel-fired generator w/ATS
  - Belly tank with 24 hour fuel supply time

The budget cost of each option is provided in Table 34.

11. BUDGET COST ESTIMATES

Budget costs were prepared for each of the improvements identified in the preceding sections. The costs assume that the projects are designed by a professional engineer, and the work is performed by a contractor with complete plans and specifications. It is assumed that all projects are to be installed within public right of way, therefore costs of easements or land purchase are not included.

11.1 Budget Unit Prices

For proposed water distribution system improvement projects, a budget cost per inch diameter of water main was used to estimate the potential cost for each project. The budget cost includes hydrants, valves, testing and disinfection, and other miscellaneous items of construction associated with each project.

Budget costs are separated into two categories, with the first being associated with the replacement of water mains within established residential or commercial locations. The second category is associated with future expansion projects, constructed in open ROW.

The budget cost/in-ft for projects in established areas is $22.00/in-ft, while the cost in unestablished areas is $15.30/in-ft. The current ENR CCI (June 2022) is 13110.5, which can be used to scale budget costs in the future. Budget unit costs are provided in Table 30 and Table 31.

Table 30. Budget Unit Costs-Projects in established locations

Pipe Size (in.)	Cost/LF
4	$88.00
6	$132.00
8	$176.00
10	$220.00
12	$264.00
16	$352.00

Table 31. Budget Unit Costs-Projects in unestablished areas

Pipe Size (in.)	Cost/LF
6	$91.80
8	$122.40
10	$153.00
12	$183.60
16	$244.80

These costs do not include engineering design, but do include a measure of contingency.

11.2 Budget Project Costs

11.2.1 Main Replacement Projects

Thirteen main replacement projects were identified in a previous section. The budget costs for each project are included in Table 32. Main Replacement Projects Budget Costs. Linear foot quantities are rounded to the nearest 100 feet, and overall project costs are rounded to the nearest thousand dollars.

Table 32. Main Replacement Projects Budget Costs

#	Item	Quantity (LF)	Cost/ Unit	Extension (rounded)	Engineering	Total w/ Engineering
A	12-inch Water Main	3,700	$264.00	$977,000	$195,000	$1,172,000
B	6-inch Water Main	2,300	$132.00	$304,000	$61,000	$365,000
C	8-inch Water Main	3,200	$176.00	$563,000	$113,000	$676,000
D	6-inch Water Main	1,600	$132.00	$211,000	$42,000	$253,000
E	6-inch Water Main	1,800	$132.00	$238,000	$48,000	$286,000
F	8-inch Water Main	2,900	$176.00	$510,000	$102,000	$612,000
G	6-inch Water Main	3,900	$132.00	$515,000	$103,000	$618,000
H	6-inch Water Main	1,200	$132.00	$158,000	$32,000	$190,000
I	6-inch Water Main	1,800	$132.00	$238,000	$48,000	$286,000
J	6-inch Water Main	1,500	$132.00	$198,000	$40,000	$238,000

11.2.2 1 and 2-inch Main Replacement Projects

Seven projects (AA-GG) were identified to upsize existing 1 and 2-inch mains. Two projects were identified to be combined with another proposed main replacement project and are not included in these figures.

Table 33. 2-inch Water Main Replacements

Project	Item	Quantity (LF)	Cost/Unit	Extension
AA	4-inch Water Main	400	$88.00	$35,000.00
BB	4-inch Water Main	400	$88.00	$35,000.00
CC	4-inch Water Main	400	$88.00	$35,000.00
DD	4-inch Water Main	400	$88.00	$35,000.00
EE	4-inch Water Main	400	$88.00	$35,000.00
FF	4-inch Water Main	400	$88.00	$35,000.00
GG	4-inch Water Main	400	$88.00	$35,000.00

11.2.3 Future Expansion Projects

Two projects were identified to accommodate future expansion in David City, the east and west transmission main loops. The project costs will be included as part of the project design, which will be provided by others. The values presented in this report can be used to approximate the anticipated costs, if desired.

11.2.4 Generator Costs

The need for generators at three of the four existing wells was discussed in a previous section. The budget costs for each project are presented in Table 34. Each project assumes a cost of 50% of the purchase cost (provided by a supplier on July 26th, 2022) for costs related to installation of equipment. A 30% installation cost was used for the portable generator option. A 25% contingency is applied to each project.

Table 34. Generator Budget Costs

Item	Quantity	Unit	Cost/Unit	Contingency (25%)	Extension (Construction Cost Only)
Wells 10 and 11, Option 1 (portable generator)	1	LS	$124,000	$36,000	$160,000
Wells 10 and 11, Option 2 (permanent generator), each	1	LS	$68,000	$17,000	$85,000 ($170,000 total)
Well 14 Permanent Generator	1	LS	$87,000	$23,000	$110,000

Though the costs for having a portable generator are nearly that of having permanent generator sets at Wells #10 and #11, the same unit could be used by the City for other purposes, if desired.

12. PRIORITIZATION OF PROJECTS

A series of projects were recommended in preceding sections, including water main replacement projects and future expansion projects. The schedule of constructing projects required to allow for future expansion of the system will be driven by the speed in which the proposed developments and new industry is constructed, therefore they are not considered in this section.

The costs that were estimated for the distribution system improvements provide one method of comparison of the proposed projects. However, when prioritizing and budgeting for the improvements, each project should be analyzed for its anticipated benefit to the overall water system.

The City has stated that their priority is to replace and upsize the 1 and 2-inch water mains in town to 4-inches to better serve its residents who's services are connected to these mains. It is recommended that Project A, which extends a 12-inch main in 4th Street from O to G be constructed first, as it will provide the highest boost to the fire protection capacity to the system, and will complete a 12-inch loop through the heart of the water system, connecting to the upsized water main in the downtown area. Following Project A should be Projects C, G, and B, which would create and internal 8-inch loop and increase fire flows to the north and east parts of town.

Adding a permanent generator to Well 14 would significantly increase the firm pumping capacity of the well field and should be prioritized. If funds are available, a portable generator should be purchased to power Wells 10 and 11, and manual transfer switches should be installed at each location.

The approximate cost to replace the 1 and 2-inch water mains, adding a generator to Well 14, and completing Projects A, C, G, and B, as defined herein, is $3.2 million.

Project E and K should be installed next, which will increase capacity to the south and southeast extremities of the water system.

These project locations were compared to the City's most recent (2022) 1 and 6 year streets plan. There was minimal to no overlap with the recommended water system projects. The City may wish to compare these project locations as part of their subsequent 1 and 6 year plan reviews.

The remaining projects should be installed as budgets and/or funding allows. While they increase the fire flow capacity to the areas that they serve, these locations will get the benefit of the larger 12-inch main extension projects providing a loop throughout the system.

13. FUNDING OPTIONS

There are several possible options available to fund the proposed projects. Some of the most widely used funding sources include Revenue Bonds, General Obligation Bonds, Public-Private Partnerships, and WWAC, which includes CDGB, DWSRF, and USDA-RD programs. An overview of potential funding options has been provided in recent projects completed for the City. It is recommended that the City consider what projects should be combined into a single funding request, and then submit a pre-application to the WWAC to determine which funding options will be most beneficial to the City.

The best funding option for David City is likely an NDEE SRF loan. To be considered for an SRF loan, David City should add their desired projects to the 2023 IUP for funding consideration at WWAC and begin the preapplication process.

APPENDIX A

ISO Report

1000 Bishops Gate Blvd. Ste 300
Mt. Laurel, NJ 08054-5494

t1.800.444.4554 Opt2
f1.800.777.3929

December 18, 2017

Mr. Doug Matulka, President
David City FPSA
PO Box 254
David City, Nebraska, 68632

RE: David City Fpsa, Butler County, Nebraska
Public Protection Classification: 04/4Y
Effective Date: April 01, 2018

Dear Mr. Doug Matulka,

We wish to thank you and Chief Matt Hilger for your cooperation during our recent Public Protection Classification (PPC) survey. ISO has completed its analysis of the structural fire suppression delivery system provided in your community. The resulting classification is indicated above.

If you would like to know more about your community's PPC classification, or if you would like to learn about the potential effect of proposed changes to your fire suppression delivery system, please call us at the phone number listed below.

ISO's Public Protection Classification Program (PPC) plays an important role in the underwriting process at insurance companies. In fact, most U.S. insurers – including the largest ones – use PPC information as part of their decision- making when deciding what business to write, coverage's to offer or prices to charge for personal or commercial property insurance.

Each insurance company independently determines the premiums it charges its policyholders. The way an insurer uses ISO's information on public fire protection may depend on several things – the company's fire-loss experience, ratemaking methodology, underwriting guidelines, and its marketing strategy.

Through ongoing research and loss experience analysis, we identified additional differentiation in fire loss experience within our PPC program, which resulted in the revised classifications. We based the differing fire loss experience on the fire suppression capabilities of each community. The new classifications will improve the predictive value for insurers while benefiting both commercial and residential property owners. We've published the new classifications as "X" and "Y" — formerly the "9" and "8B" portion of the split classification, respectively. For example:

- A community currently graded as a split 6/9 classification will now be a split 6/6X classification; with the "6X" denoting what was formerly classified as "9."
- Similarly, a community currently graded as a split 6/8B classification will now be a split 6/6Y classification, the "6Y" denoting what was formerly classified as "8B."

- Communities graded with single "9" or "8B" classifications will remain intact.
- Properties over 5 road miles from a recognized fire station would receive a class 10.

PPC is important to communities and fire departments as well. Communities whose PPC improves may get lower insurance prices. PPC also provides fire departments with a valuable benchmark, and is used by many departments as a valuable tool when planning, budgeting and justifying fire protection improvements.

ISO appreciates the high level of cooperation extended by local officials during the entire PPC survey process. The community protection baseline information gathered by ISO is an essential foundation upon which determination of the relative level of fire protection is made using the Fire Suppression Rating Schedule.

The classification is a direct result of the information gathered, and is dependent on the resource levels devoted to fire protection in existence at the time of survey. Material changes in those resources that occur after the survey is completed may affect the classification. Although ISO maintains a pro-active process to keep baseline information as current as possible, in the event of changes please call us at 1-800-444-4554, option 2 to expedite the update activity.

ISO is the leading supplier of data and analytics for the property/casualty insurance industry. Most insurers use PPC classifications for underwriting and calculating premiums for residential, commercial and industrial properties. The PPC program is not intended to analyze all aspects of a comprehensive structural fire suppression delivery system program. It is not for purposes of determining compliance with any state or local law, nor is it for making loss prevention or life safety recommendations.

If you have any questions about your classification, please let us know.

Sincerely,

Alex Shubert

Alex Shubert
Manager -National Processing Center

cc: Mr. Travis Hays, Water Superintendent, David City Water Department
Chief Matt Hilger, Chief, David City Fire Department
Mr. Rick Schnoider, Administrator, Butler County E-911

Public Protection Classification

(PPC™)

Summary Report

David City FPSA

NEBRASKA

Prepared by

Insurance Services Office, Inc.
1000 Bishops Gate Blvd., Ste. 300
P.O. Box 5404
Mt. Laurel, New Jersey 08054-5404
1-800-444-4554

Report Created December 2017

Effective April 1, 2018

Background Information

Introduction

ISO collects and evaluates information from communities in the United States on their structure fire suppression capabilities. The data is analyzed using our Fire Suppression Rating Schedule (FSRS) and then a Public Protection Classification (PPC™) grade is assigned to the community. The surveys are conducted whenever it appears that there is a possibility of a PPC change. As such, the PPC program provides important, up-to-date information about fire protection services throughout the country.

The FSRS recognizes fire protection features only as they relate to suppression of first alarm structure fires. In many communities, fire suppression may be only a small part of the fire department's overall responsibility. ISO recognizes the dynamic and comprehensive duties of a community's fire service, and understands the complex decisions a community must make in planning and delivering emergency services. However, in developing a community's PPC grade, only features related to reducing property losses from structural fires are evaluated. Multiple alarms, simultaneous incidents and life safety are not considered in this evaluation. The PPC program evaluates the fire protection for small to average size buildings. Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual PPC grade.

A community's investment in fire mitigation is a proven and reliable predictor of future fire losses. Statistical data on insurance losses bears out the relationship between excellent fire protection – as measured by the PPC program – and low fire losses. So, insurance companies use PPC information for marketing, underwriting, and to help establish fair premiums for homeowners and commercial fire insurance. In general, the price of fire insurance in a community with a good PPC grade is substantially lower than in a community with a poor PPC grade, assuming all other factors are equal.

ISO is an independent company that serves insurance companies, communities, fire departments, insurance regulators, and others by providing information about risk. ISO's expert staff collects information about municipal fire suppression efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a PPC grade – a number from 1 to 10. Class 1 represents an exemplary fire suppression program, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria.

ISO's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. A community's PPC grade depends on:

- **Needed Fire Flows**, which are representative building locations used to determine the theoretical amount of water necessary for fire suppression purposes.
- **Emergency Communications**, including emergency reporting, telecommunicators, and dispatching systems.
- **Fire Department**, including equipment, staffing, training, geographic distribution of fire companies, operational considerations, and community risk reduction.
- **Water Supply**, including inspection and flow testing of hydrants, alternative water supply operations, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires up to 3,500 gpm.

Data Collection and Analysis

ISO has evaluated and classified over 46,000 fire protection areas across the United States using its FSRS. A combination of meetings between trained ISO field representatives and the dispatch center coordinator, community fire official, and water superintendent is used in conjunction with a comprehensive questionnaire to collect the data necessary to determine the PPC grade. In order for a community to obtain a grade better than a Class 9, three elements of fire suppression features are reviewed. These three elements are Emergency Communications, Fire Department, and Water Supply.

A review of the **Emergency Communications** accounts for 10% of the total classification. This section is weighted at **10 points,** as follows:

- Emergency Reporting 3 points
- Telecommunicators 4 points
- Dispatch Circuits 3 points

A review of the **Fire Department** accounts for 50% of the total classification. ISO focuses on a fire department's first alarm response and initial attack to minimize potential loss. The fire department section is weighted at **50 points,** as follows:

- Engine Companies 6 points
- Reserve Pumpers 0.5 points
- Pump Capacity 3 points
- Ladder/Service Companies 4 points
- Reserve Ladder/Service Trucks 0.5 points
- Deployment Analysis 10 points
- Company Personnel 15 points
- Training 9 points
- Operational considerations 2 points
- Community Risk Reduction 5.5 points (in addition to the 50 points above)

A review of the **Water Supply** system accounts for 40% of the total classification. ISO reviews the water supply a community uses to determine the adequacy for fire suppression purposes. The water supply system is weighted at **40 points,** as follows:

- Credit for Supply System 30 points
- Hydrant Size, Type & Installation 3 points
- Inspection & Flow Testing of Hydrants 7 points

There is one additional factor considered in calculating the final score – **Divergence.**

Even the best fire department will be less than fully effective if it has an inadequate water supply. Similarly, even a superior water supply will be less than fully effective if the fire department lacks the equipment or personnel to use the water. The FSRS score is subject to modification by a divergence factor, which recognizes disparity between the effectiveness of the fire department and the water supply.

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

PPC Grade

The PPC grade assigned to the community will depend on the community's score on a 100-point scale:

PPC	Points
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

The classification numbers are interpreted as follows:

- Class 1 through (and including) Class 8 represents a fire suppression system that includes an FSRS creditable dispatch center, fire department, and water supply.
- Class 8B is a special classification that recognizes a superior level of fire protection in otherwise Class 9 areas. It is designed to represent a fire protection delivery system that is superior except for a lack of a water supply system capable of the minimum FSRS fire flow criteria of 250 gpm for 2 hours.
- Class 9 is a fire suppression system that includes a creditable dispatch center, fire department but no FSRS creditable water supply.
- Class 10 does not meet minimum FSRS criteria for recognition, including areas that are beyond five road miles of a recognized fire station.

New PPC program changes effective July 1, 2014

We have revised the PPC program to capture the effects of enhanced fire protection capabilities that reduce fire loss and fire severity in Split Class 9 and Split Class 8B areas (as outlined below). This new structure benefits the fire service, community, and property owner.

New classifications
Through ongoing research and loss experience analysis, we identified additional differentiation in fire loss experience within our PPC program, which resulted in the revised classifications. We based the differing fire loss experience on the fire suppression capabilities of each community. The new PPC classes will improve the predictive value for insurers while benefiting both commercial and residential property owners. Here are the new classifications and what they mean.

Split classifications
When we develop a split classification for a community — for example 5/9 — the first number is the class that applies to properties within 5 road miles of the responding fire station and 1,000 feet of a creditable water supply, such as a fire hydrant, suction point, or dry hydrant. The second number is the class that applies to properties within 5 road miles of a fire station but beyond 1,000 feet of a creditable water supply. We have revised the classification to reflect more precisely the risk of loss in a community, replacing Class 9 and 8B in the second part of a split classification with revised designations.

What's changed with the new classifications?
We've published the new classifications as "X" and "Y" — formerly the "9" and "8B" portion of the split classification, respectively. For example:

- A community currently displayed as a split 6/9 classification will now be a split 6/6X classification; with the "6X" denoting what was formerly classified as "9".
- Similarly, a community currently graded as a split 6/8B classification will now be a split 6/6Y classification, the "6Y" denoting what was formerly classified as "8B".
- Communities graded with single "9" or "8B" classifications will remain intact.

Prior Classification	New Classification
1/9	1/1X
2/9	2/2X
3/9	3/3X
4/9	4/4X
5/9	5/5X
6/9	6/6X
7/9	7/7X
8/9	8/8X
9	9

Prior Classification	New Classification
1/8B	1/1Y
2/8B	2/2Y
3/8B	3/3Y
4/8B	4/4Y
5/8B	5/5Y
6/8B	6/6Y
7/8B	7/7Y
8/8B	8/8Y
8B	8B

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Page 4

What's changed?
As you can see, we're still maintaining split classes, but it's how we represent them to insurers that's changed. The new designations reflect a reduction in fire severity and loss and have the potential to reduce property insurance premiums.

Benefits of the revised split class designations

- To the fire service, the revised designations identify enhanced fire suppression capabilities used throughout the fire protection area
- To the community, the new classes reward a community's fire suppression efforts by showing a more reflective designation
- To the individual property owner, the revisions offer the potential for decreased property insurance premiums

New water class
Our data also shows that risks located more than 5 but less than 7 road miles from a responding fire station with a creditable water source within 1,000 feet had better loss experience than those farther than 5 road miles from a responding fire station with no creditable water source. We've introduced a new classification —10W — to recognize the reduced loss potential of such properties.

What's changed with Class 10W?
Class 10W is property-specific. Not all properties in the 5-to-7-mile area around the responding fire station will qualify. The difference between Class 10 and 10W is that the 10W-graded risk or property is within 1,000 feet of a creditable water supply. Creditable water supplies include fire protection systems using hauled water in any of the split classification areas.

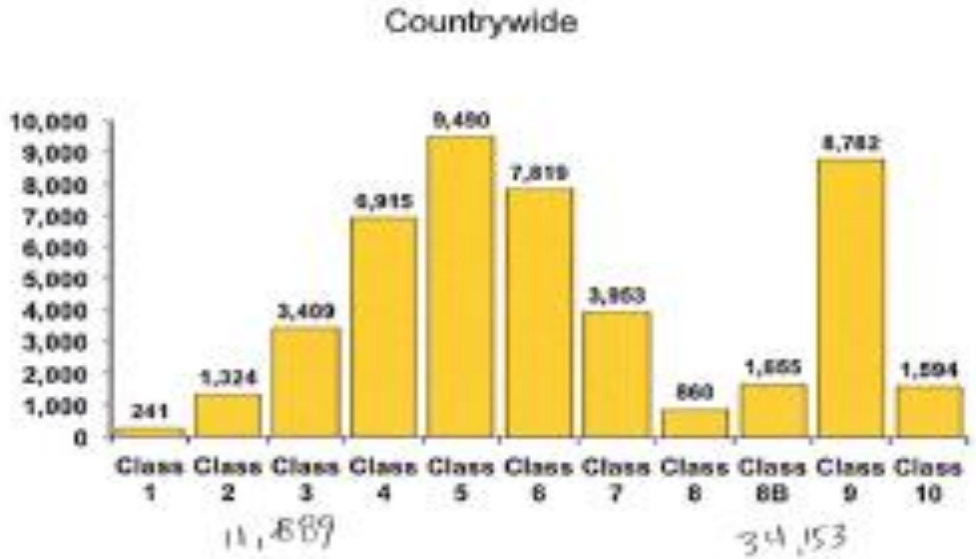
What's the benefit of Class 10W?
10W gives credit to risks within 5 to 7 road miles of the responding fire station and within 1,000 feet of a creditable water supply. That's reflective of the potential for reduced property insurance premiums.

What does the fire chief have to do?
Fire chiefs don't have to do anything at all. The revised classifications went in place automatically effective July 1, 2014 (July 1, 2015 for Texas).

What if I have additional questions?
Feel free to contact ISO at 800.444.4554 or email us at PPC-Cust-Serv@iso.com.

Distribution of PPC Grades

The 2017 published countrywide distribution of communities by the PPC grade is as follows:



Assistance

The PPC program offers help to communities, fire departments, and other public officials as they plan for, budget, and justify improvements. ISO is also available to assist in the understanding of the details of this evaluation.

The PPC program representatives can be reached by telephone at (800) 444-4554. The technical specialists at this telephone number have access to the details of this evaluation and can effectively speak with you about your questions regarding the PPC program. What's more, we can be reached via the internet at www.isomitigation.com/talk/.

We also have a website dedicated to our Community Hazard Mitigation Classification programs at www.isomitigation.com. Here, fire chiefs, building code officials, community leaders and other interested citizens can access a wealth of data describing the criteria used in evaluating how cities and towns are protecting residents from fire and other natural hazards. This website will allow you to learn more about the PPC program. The website provides important background information, insights about the PPC grading processes and technical documents. ISO is also pleased to offer Fire Chiefs Online — a special, secured website with information and features that can help improve your PPC grade, including a list of the Needed Fire Flows for all the commercial occupancies ISO has on file for your community. Visitors to the site can download information, see statistical results and also contact ISO for assistance.

In addition, on-line access to the FSRS and its commentaries is available to registered customers for a fee. However, fire chiefs and community chief administrative officials are given access privileges to this information without charge.

To become a registered fire chief or community chief administrative official, register at www.isomitigation.com.

PPC Review

ISO concluded its review of the fire suppression features being provided for David City FPSA. The resulting community classification is **Class 04/4Y**.

If the classification is a single class, the classification applies to properties with a Needed Fire Flow of 3,500 gpm or less in the community. If the classification is a split class (e.g., 6/XX):

- The first class (e.g., "6" in a 6/XX) applies to properties within 5 road miles of a recognized fire station and within 1,000 feet of a fire hydrant or alternate water supply.
- The second class (XX or XY) applies to properties beyond 1,000 feet of a fire hydrant but within 5 road miles of a recognized fire station.
- Alternative Water Supply: The first class (e.g., "6" in a 6/10) applies to properties within 5 road miles of a recognized fire station with no hydrant distance requirement.
- Class 10 applies to properties over 5 road miles of a recognized fire station.
- Class 10/W applies to properties within 5 to 7 road miles of a recognized fire station with a recognized water supply within 1,000 feet.
- Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual classification.

FSRS Feature	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	1.65	3
422. Credit for Telecommunicators	2.80	4
432. Credit for Dispatch Circuits	2.25	3
440. Credit for Emergency Communications	6.70	10
Fire Department		
513. Credit for Engine Companies	5.24	6
523. Credit for Reserve Pumpers	0.00	0.50
532. Credit for Pump Capacity	3.00	3
549. Credit for Ladder Service	3.55	4
553. Credit for Reserve Ladder and Service Trucks	0.00	0.50
561. Credit for Deployment Analysis	8.79	10
571. Credit for Company Personnel	3.18	15
581. Credit for Training	2.04	9
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	27.80	50
Water Supply		
616. Credit for Supply System	26.25	30
621. Credit for Hydrants	2.33	3
631. Credit for Inspection and Flow Testing	4.80	7
640. Credit for Water Supply	33.38	40
Divergence	-5.57	--
1050. Community Risk Reduction	1.33	5.50
Total Credit	63.64	105.50

Emergency Communications

Ten percent of a community's overall score is based on how well the communications center receives and dispatches fire alarms. Our field representative evaluated:

- Communications facilities provided for the general public to report structure fires
- Enhanced 9-1-1 Telephone Service including wireless
- Computer-aided dispatch (CAD) facilities
- Alarm receipt and processing at the communication center
- Training and certification of telecommunicators
- Facilities used to dispatch fire department companies to reported structure fires

	Earned Credit	Credit Available
414. Credit Emergency Reporting	**1.65**	3
422. Credit for Telecommunicators	**2.80**	4
432. Credit for Dispatch Circuits	**2.25**	3
Item 440. Credit for Emergency Communications:	**6.70**	**10**

Item 414 - Credit for Emergency Reporting (3 points)

The first item reviewed is Item 414 "Credit for Emergency Reporting (CER)". This item reviews the emergency communication center facilities provided for the public to report fires including 911 systems (Basic or Enhanced), Wireless Phase I and Phase II, Voice over Internet Protocol, Computer Aided Dispatch and Geographic Information Systems for automatic vehicle location. ISO uses National Fire Protection Association (NFPA) 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems* as the reference for this section.

Item 410. Emergency Reporting (CER)	Earned Credit	Credit Available
A./B. Basic 9-1-1, Enhanced 9-1-1 or No 9-1-1 For maximum credit, there should be an Enhanced 9-1-1 system, Basic 9-1-1 and No 9-1-1 will receive partial credit.	20.00	20
1. E9-1-1 Wireless Wireless Phase I using Static ALI (automatic location identification) Functionality (10 points); Wireless Phase II using Dynamic ALI Functionality (15 points); Both available will be 25 points	25.00	25
2. E9-1-1 Voice over Internet Protocol (VoIP) Static VoIP using Static ALI Functionality (10 points); Nomadic VoIP using Dynamic ALI Functionality (15 points); Both available will be 25 points	10.00	25
3. Computer Aided Dispatch Basic CAD (5 points); CAD with Management Information System (5 points); CAD with Interoperability (5 points)	0.00	15
4. Geographic Information System (GIS/AVL) The PSAP uses a fully integrated CAD/GIS management system with automatic vehicle location (AVL) integrated with a CAD system providing dispatch assignments. The individual fire departments being dispatched do not need GIS/AVL capability to obtain this credit.	0.00	15
Review of Emergency Reporting total:	55.00	100

Item 422- Credit for Telecommunicators (4 points)

The second item reviewed is Item 422 "Credit for Telecommunicators (TC)". This item reviews the number of Telecommunicators on duty at the center to handle fire calls and other emergencies. All emergency calls including those calls that do not require fire department action are reviewed to determine the proper staffing to answer emergency calls and dispatch the appropriate emergency response. The 2013 Edition of NFPA 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems*, recommends that ninety-five percent of emergency calls shall be answered within 15 seconds and ninety-nine percent of emergency calls shall be answered within 40 seconds. In addition, NFPA recommends that eighty percent of emergency alarm processing shall be completed within 60 seconds and ninety-five percent of alarm processing shall be completed within 106 seconds of answering the call.

To receive full credit for operators on duty, ISO must review documentation to show that the communication center meets NFPA 1221 call answering and dispatch time performance measurement standards. This documentation may be in the form of performance statistics or other performance measurements compiled by the 9-1-1 software or other software programs that are currently in use such as Computer Aided Dispatch (CAD) or Management Information System (MIS).

Item 420. Telecommunicators (CTC)	Earned Credit	Credit Available
A1. Alarm Receipt (AR) Receipt of alarms shall meet the requirements in accordance with the criteria of NFPA 1221	20.00	20
A2. Alarm Processing (AP) Processing of alarms shall meet the requirements in accordance with the criteria of NFPA 1221	10.00	20
B. Emergency Dispatch Protocols (EDP) Telecommunicators have emergency dispatch protocols (EDP) containing questions and a decision-support process to facilitate correct call categorization and prioritization.	0.00	20
C. Telecommunicator Training and Certification (TTC) Telecommunicators meet the qualification requirements referenced in NFPA 1061, *Standard for Professional Qualifications for Public Safety Telecommunicator,* and/or the Association of Public-Safety Communications Officials - International (APCO) *Project 33.* Telecommunicators are certified in the knowledge, skills, and abilities corresponding to their job functions.	20.00	20
D. Telecommunicator Continuing Education and Quality Assurance (TQA) Telecommunicators participate in continuing education and/or in-service training and quality-assurance programs as appropriate for their positions	20.00	20
Review of Telecommunicators total:	70.00	100

Item 432 - Credit for Dispatch Circuits (3 points)

The third item reviewed is Item 432 "Credit for Dispatch Circuits (CDC)". This item reviews the dispatch circuit facilities used to transmit alarms to fire department members. A "Dispatch Circuit" is defined in NFPA 1221 as "A circuit over which an alarm is transmitted from the communications center to an emergency response facility (ERF) or emergency response units (ERUs) to notify ERUs to respond to an emergency". All fire departments (except single fire station departments with full-time firefighter personnel receiving alarms directly at the fire station) need adequate means of notifying all firefighter personnel of the location of reported structure fires. The dispatch circuit facilities should be in accordance with the general criteria of NFPA 1221. "Alarms" are defined in this Standard as "A signal or message from a person or device indicating the existence of an emergency or other situation that requires action by an emergency response agency".

There are two different levels of dispatch circuit facilities provided for in the Standard – a primary dispatch circuit and a secondary dispatch circuit. In jurisdictions that receive 730 alarms or more per year (average of two alarms per 24-hour period), two separate and dedicated dispatch circuits, a primary and a secondary, are needed. In jurisdictions receiving fewer than 730 alarms per year, a second dedicated dispatch circuit is not needed. Dispatch circuit facilities installed but not used or tested (in accordance with the NFPA Standard) receive no credit.

The score for Credit for Dispatch Circuits (CDC) is influenced by monitoring for integrity of the primary dispatch circuit. There are up to 0.90 points available for this item. Monitoring for integrity involves installing automatic systems that will detect faults and failures and send visual and audible indications to appropriate communications center (or dispatch center) personnel. ISO uses NFPA 1221 to guide the evaluation of this item. ISO's evaluation also includes a review of the communication system's emergency power supplies.

Item 432 "Credit for Dispatch Circuits (CDC)" = 2.25 points

Fire Department

Fifty percent of a community's overall score is based upon the fire department's structure fire suppression system. ISO's field representative evaluated:

- Engine and ladder/service vehicles including reserve apparatus
- Equipment carried
- Response to reported structure fires
- Deployment analysis of companies
- Available and/or responding firefighters
- Training

	Earned Credit	Credit Available
513. Credit for Engine Companies	5.24	6
523. Credit for Reserve Pumpers	0.00	0.5
532. Credit for Pumper Capacity	3.00	3
549. Credit for Ladder Service	3.55	4
553. Credit for Reserve Ladder and Service Trucks	0.00	0.5
561. Credit for Deployment Analysis	8.79	10
571. Credit for Company Personnel	3.18	15
581. Credit for Training	2.04	9
730. Credit for Operational Considerations	2.00	2
Item 590. Credit for Fire Department:	**27.80**	**50**

Basic Fire Flow

The Basic Fire Flow for the community is determined by the review of the Needed Fire Flows for selected buildings in the community. The fifth largest Needed Fire Flow is determined to be the Basic Fire Flow. The Basic Fire Flow has been determined to be 2250 gpm.

Item 513 - Credit for Engine Companies (6 points)

The first item reviewed is Item 513 "Credit for Engine Companies (CEC)". This item reviews the number of engine companies, their pump capacity, hose testing, pump testing and the equipment carried on the in-service pumpers. To be recognized, pumper apparatus must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* which include a minimum 250 gpm pump, an emergency warning system, a 300 gallon water tank, and hose. At least 1 apparatus must have a permanently mounted pump rated at 750 gpm or more at 150 psi.

The review of the number of needed pumpers considers the response distance to built-upon areas; the Basic Fire Flow; and the method of operation. Multiple alarms, simultaneous incidents, and life safety are not considered.

The greatest value of A, B, or C below is needed in the fire district to suppress fires in structures with a Needed Fire Flow of 3,500 gpm or less: **2 engine companies**

a) **1 engine companies** to provide fire suppression services to areas to meet NFPA 1710 criteria or within 1½ miles.

b) **2 engine companies** to support a Basic Fire Flow of 2250 gpm.

c) **2 engine companies** based upon the fire department's method of operation to provide a minimum two engine response to all first alarm structure fires.

The FSRS recognizes that there are **2 engine companies** in service.

The FSRS also reviews Automatic Aid. Automatic Aid is considered in the review as assistance dispatched automatically by contractual agreement between two communities or fire districts. That differs from mutual aid or assistance arranged case by case. ISO will recognize an Automatic Aid plan under the following conditions:

- It must be prearranged for first alarm response according to a definite plan. It is preferable to have a written agreement, but ISO may recognize demonstrated performance.
- The aid must be dispatched to all reported structure fires on the initial alarm.
- The aid must be provided 24 hours a day, 365 days a year.

FSRS Item 512.D "Automatic Aid Engine Companies" responding on first alarm and meeting the needs of the city for basic fire flow and/or distribution of companies are factored based upon the value of the Automatic Aid plan (up to 1.00 can be used as the factor). The Automatic Aid factor is determined by a review of the Automatic Aid provider's communication facilities, how they receive alarms from the graded area, inter-department training between fire departments, and the fire ground communications capability between departments.

For each engine company, the credited Pump Capacity (PC), the Hose Carried (HC), the Equipment Carried (EC) all contribute to the calculation for the percent of credit the FSRS provides to that engine company.

Item 513 "Credit for Engine Companies (CEC)" = 5.24 points

Item 523 - Credit for Reserve Pumpers (0.50 points)

The item is Item 523 "Credit for Reserve Pumpers (CRP)". This item reviews the number and adequacy of the pumpers and their equipment. The number of needed reserve pumpers is 1 for each 8 needed engine companies determined in Item 513, or any fraction thereof.

Item 523 "Credit for Reserve Pumpers (CRP)" = 0.00 points

Item 532 – Credit for Pumper Capacity (3 points)

The next item reviewed is Item 532 "Credit for Pumper Capacity (CPC)". The total pump capacity available should be sufficient for the Basic Fire Flow of 2250 gpm. The maximum needed pump capacity credited is the Basic Fire Flow of the community.

Item 532 "Credit for Pumper Capacity (CPC)" = 3.00 points

Item 549 – Credit for Ladder Service (4 points)

The next item reviewed is Item 549 "Credit for Ladder Service (CLS)". This item reviews the number of response areas within the city with 5 buildings that are 3 or more stories or 35 feet or more in height, or with 5 buildings that have a Needed Fire Flow greater than 3,500 gpm, or any combination of these criteria. The height of all buildings in the city, including those protected by automatic sprinklers, is considered when determining the number of needed ladder companies. Response areas not needing a ladder company should have a service company. Ladders, tools and equipment normally carried on ladder trucks are needed not only for ladder operations but also for forcible entry, ventilation, salvage, overhaul, lighting and utility control.

The number of ladder or service companies, the height of the aerial ladder, aerial ladder testing and the equipment carried on the in-service ladder trucks and service trucks is compared with the number of needed ladder trucks and service trucks and an FSRS equipment list. Ladder trucks must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* to be recognized.

The number of needed ladder-service trucks is dependent upon the number of buildings 3 stories or 35 feet or more in height, buildings with a Needed Fire Flow greater than 3,500 gpm, and the method of operation.

The FSRS recognizes that there are **1 ladder companies** in service. These companies are needed to provide fire suppression services to areas to meet NFPA 1710 criteria or within 2½ miles and the number of buildings with a Needed Fire Flow over 3,500 gpm or 3 stories or more in height, or the method of operation.

The FSRS recognizes that there are **0 service companies** in service.

Item 549 "Credit for Ladder Service (CLS)" = 3.55 points

Item 553 – Credit for Reserve Ladder and Service Trucks (0.50 points)

The next item reviewed is Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)". This item considers the adequacy of ladder and service apparatus when one (or more in larger communities) of these apparatus are out of service. The number of needed reserve ladder and service trucks is 1 for each 8 needed ladder and service companies that were determined to be needed in Item 540, or any fraction thereof.

Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)" = 0.00 points

Item 561 – Deployment Analysis (10 points)

Next, Item 561 "Deployment Analysis (DA)" is reviewed. This Item examines the number and adequacy of existing engine and ladder-service companies to cover built-upon areas of the city.

To determine the Credit for Distribution, first the Existing Engine Company (EC) points and the Existing Engine Companies (EE) determined in Item 513 are considered along with Ladder Company Equipment (LCE) points, Service Company Equipment (SCE) points, Engine-Ladder Company Equipment (ELCE) points, and Engine-Service Company Equipment (ESCE) points determined in Item 549.

Secondly, as an alternative to determining the number of needed engine and ladder/service companies through the road-mile analysis, a fire protection area may use the results of a systematic performance evaluation. This type of evaluation analyzes computer-aided dispatch (CAD) history to demonstrate that, with its current deployment of companies, the fire department meets the time constraints for initial arriving engine and initial full alarm assignment in accordance with the general criteria of in NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*.

A determination is made of the percentage of built upon area within 1½ miles of a first-due engine company and within 2½ miles of a first-due ladder-service company.

Item 561 "Credit Deployment Analysis (DA)" = 8.79 points

Item 571 – Credit for Company Personnel (15 points)

Item 571 "Credit for Company Personnel (CCP)" reviews the average number of existing firefighters and company officers available to respond to reported first alarm structure fires in the city.

The on-duty strength is determined by the yearly average of total firefighters and company officers on-duty considering vacations, sick leave, holidays, "Kelley" days and other absences. When a fire department operates under a minimum staffing policy, this may be used in lieu of determining the yearly average of on-duty company personnel.

Firefighters on apparatus not credited under Items 513 and 549 that regularly respond to reported first alarms to aid engine, ladder, and service companies are included in this item as increasing the total company strength.

Firefighters staffing ambulances or other units serving the general public are credited if they participate in fire-fighting operations, the number depending upon the extent to which they are available and are used for response to first alarms of fire.

On-Call members are credited on the basis of the average number staffing apparatus on first alarms. Off-shift career firefighters and company officers responding on first alarms are considered on the same basis as on-call personnel. For personnel not normally at the fire station, the number of responding firefighters and company officers is divided by 3 to reflect the time needed to assemble at the fire scene and the reduced ability to act as a team due to the various arrival times at the fire location when compared to the personnel on-duty at the fire station during the receipt of an alarm.

The number of Public Safety Officers who are positioned in emergency vehicles within the jurisdiction boundaries may be credited based on availability to respond to first alarm structure fires. In recognition of this increased response capability the number of responding Public Safety Officers is divided by 2.

The average number of firefighters and company officers responding with those companies credited as Automatic Aid under Items 513 and 549 are considered for either on-duty or on-call company personnel as is appropriate. The actual number is calculated as the average number of company personnel responding multiplied by the value of AA Plan determined in Item 512.D.

The maximum creditable response of on-duty and on-call firefighters is 12, including company officers, for each existing engine and ladder company and 6 for each existing service company.

Chief Officers are not creditable except when more than one chief officer responds to alarms; then extra chief officers may be credited as firefighters if they perform company duties.

The FSRS recognizes **0.00 on-duty personnel** and an average of **11.43 on-call personnel** responding on first alarm structure fires.

Item 571 "Credit for Company Personnel (CCP)" = 3.18 points

Item 581 – Credit for Training (9 points)

Training	Earned Credit	Credit Available
A. Facilities, and Use For maximum credit, each firefighter should receive 18 hours per year in structure fire related subjects as outlined in NFPA 1001.	2.03	35
B. Company Training For maximum credit, each firefighter should receive 16 hours per month in structure fire related subjects as outlined in NFPA 1001.	13.11	25
C. Classes for Officers For maximum credit, each officer should be certified in accordance with the general criteria of NFPA 1021. Additionally, each officer should receive 12 hours of continuing education on or off site.	6.00	12
D. New Driver and Operator Training For maximum credit, each new driver and operator should receive 60 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.	0.50	5
E. Existing Driver and Operator Training For maximum credit, each existing driver and operator should receive 12 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.	0.00	5
F. Training on Hazardous Materials For maximum credit, each firefighter should receive 6 hours of training for incidents involving hazardous materials in accordance with NFPA 472.	0.33	1
G. Recruit Training For maximum credit, each firefighter should receive 240 hours of structure fire related training in accordance with NFPA 1001 within the first year of employment or tenure.	0.75	5
H. Pre-Fire Planning Inspections For maximum credit, pre-fire planning inspections of each commercial, industrial, institutional, and other similar type building (all buildings except 1-4 family dwellings) should be made annually by company members. Records of inspections should include up-to date notes and sketches.	0.00	12

Item 580 "Credit for Training (CT)" = 2.04 points

Item 730 – Operational Considerations (2 points)

Item 730 "Credit for Operational Considerations (COC)" evaluates fire department standard operating procedures and incident management systems for emergency operations involving structure fires.

Operational Considerations	Earned Credit	Credit Available
Standard Operating Procedures The department should have established SOPs for fire department general emergency operations	50	50
Incident Management Systems The department should use an established incident management system (IMS)	50	50
Operational Considerations total:	100	100

Item 730 "Credit for Operational Considerations (COC)" = 2.00 points

Water Supply

Forty percent of a community's overall score is based on the adequacy of the water supply system. The ISO field representative evaluated:

- the capability of the water distribution system to meet the Needed Fire Flows at selected locations up to 3,500 gpm.
- size, type and installation of fire hydrants.
- inspection and flow testing of fire hydrants.

	Earned Credit	Credit Available
616. Credit for Supply System	**26.25**	30
621. Credit for Hydrants	**2.33**	3
631. Credit for Inspection and Flow Testing	**4.80**	7
Item 640. Credit for Water Supply:	**33.38**	**40**

Item 616 – Credit for Supply System (30 points)

The first item reviewed is Item 616 "Credit for Supply System (CSS)". This item reviews the rate of flow that can be credited at each of the Needed Fire Flow test locations considering the supply works capacity, the main capacity and the hydrant distribution. The lowest flow rate of these items is credited for each representative location. A water system capable of delivering 250 gpm or more for a period of two hours plus consumption at the maximum daily rate at the fire location is considered minimum in the ISO review.

Where there are 2 or more systems or services distributing water at the same location, credit is given on the basis of the joint protection provided by all systems and services available.

The supply works capacity is calculated for each representative Needed Fire Flow test location, considering a variety of water supply sources. These include public water supplies, emergency supplies (usually accessed from neighboring water systems), suction supplies (usually evidenced by dry hydrant installations near a river, lake or other body of water), and supplies developed by a fire department using large diameter hose or vehicles to shuttle water from a source of supply to a fire site. The result is expressed in gallons per minute (gpm).

The normal ability of the distribution system to deliver Needed Fire Flows at the selected building locations is reviewed. The results of a flow test at a representative test location will indicate the ability of the water mains (or fire department in the case of fire department supplies) to carry water to that location.

The hydrant distribution is reviewed within 1,000 feet of representative test locations measured as hose can be laid by apparatus.

For maximum credit, the Needed Fire Flows should be available at each location in the district. Needed Fire Flows of 2,500 gpm or less should be available for 2 hours; and Needed Fire Flows of 3,000 and 3,500 gpm should be obtainable for 3 hours.

Item 616 "Credit for Supply System (CSS)" = 26.25 points

Item 621 – Credit for Hydrants (3 points)

The second item reviewed is Item 621 "Credit for Hydrants (CH)". This item reviews the number of fire hydrants of each type compared with the total number of hydrants.

There are a total of 158 hydrants in the graded area.

620. Hydrants, - Size, Type and Installation	Number of Hydrants
A. With a 6 -inch or larger branch and a pumper outlet with or without 2½ -inch outlets	87
B. With a 6 -inch or larger branch and no pumper outlet but two or more 2½ -inch outlets, or with a small foot valve, or with a small barrel	36
C./D. With only a 2½ -inch outlet or with less than a 6 -inch branch	35
E./F. Flush Type, Cistern, or Suction Point	0

Item 621 "Credit for Hydrants (CH)" = 2.33 points

Item 630 – Credit for Inspection and Flow Testing (7 points)

The third item reviewed is Item 630 "Credit for Inspection and Flow Testing (CIT)". This item reviews the fire hydrant inspection frequency, and the completeness of the inspections. Inspection of hydrants should be in accordance with AWWA M-17, *Installation, Field Testing and Maintenance of Fire Hydrants*.

Frequency of Inspection (FI): Average interval between the 3 most recent inspections.

Frequency	Points
1 year	30
2 years	20
3 years	10
4 years	5
5 years or more	No Credit

Note: The points for inspection frequency are reduced by 10 points if the inspections are incomplete or do not include a flushing program. An additional reduction of 10 points are made if hydrants are not subjected to full system pressure during inspections. If the inspection of cisterns or suction points does not include actual drafting with a pumper, or back-flushing for dry hydrants, 20 points are deducted.

Total points for Inspections = 2.40 points

Frequency of Fire Flow Testing (FF): Average interval between the 3 most recent inspections.

Frequency	Points
5 years	40
6 years	30
7 years	20
8 years	10
9 years	5
10 years or more	No Credit

Total points for Fire Flow Testing = 2.40 points

Item 631 "Credit for Inspection and Fire Flow Testing (CIT)" = 4.80 points

Divergence = -5.57

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

Community Risk Reduction

	Earned Credit	Credit Available
1025. Credit for Fire Prevention and Code Enforcement (CPCE)	**0.04**	2.2
1033. Credit for Public Fire Safety Education (CFSE)	**0.41**	2.2
1044. Credit for Fire Investigation Programs (CIP)	**0.88**	1.1
Item 1050. Credit for Community Risk Reduction	**1.33**	**5.50**

Item 1025 – Credit for Fire Prevention Code Adoption and Enforcement (2.2 points)	Earned Credit	Credit Available
Fire Prevention Code Regulations (PCR) Evaluation of fire prevention code regulations in effect.	0.00	10
Fire Prevention Staffing (PS) Evaluation of staffing for fire prevention activities.	0.00	8
Fire Prevention Certification and Training (PCT) Evaluation of the certification and training of fire prevention code enforcement personnel.	0.00	6
Fire Prevention Programs (PCP) Evaluation of fire prevention programs.	0.80	16
Review of Fire Prevention Code and Enforcement (CPCE) subtotal:	0.80	40

Item 1033 – Credit for Public Fire Safety Education (2.2 points)	Earned Credit	Credit Available
Public Fire Safety Educators Qualifications and Training (FSQT) Evaluation of public fire safety education personnel training and qualification as specified by the authority having jurisdiction.	0.00	10
Public Fire Safety Education Programs (FSP) Evaluation of programs for public fire safety education.	7.50	30
Review of Public Safety Education Programs (CFSE) subtotal:	7.50	40

Item 1044 – Credit for Fire Investigation Programs (1.1 points)	Earned Credit	Credit Available
Fire Investigation Organization and Staffing (IOS) Evaluation of organization and staffing for fire investigations.	4.00	8
Fire Investigator Certification and Training (IQT) Evaluation of fire investigator certification and training.	6.00	6
Use of National Fire Incident Reporting System (IRS) Evaluation of the use of the National Fire Incident Reporting System (NFIRS) for the 3 years before the evaluation.	6.00	6
Review of Fire Investigation Programs (CIP) subtotal:	16.00	20

Summary of PPC Review
for
David City FPSA

FSRS Item	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	1.65	3
422. Credit for Telecommunicators	2.80	4
432. Credit for Dispatch Circuits	2.25	3
440. Credit for Emergency Communications	6.70	10
Fire Department		
513. Credit for Engine Companies	5.24	6
523. Credit for Reserve Pumpers	0.00	0.5
532. Credit for Pumper Capacity	3.00	3
549. Credit for Ladder Service	3.55	4
553. Credit for Reserve Ladder and Service Trucks	0.00	0.5
561. Credit for Deployment Analysis	8.79	10
571. Credit for Company Personnel	3.18	15
581. Credit for Training	2.04	9
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	27.80	50
Water Supply		
616. Credit for Supply System	26.25	30
621. Credit for Hydrants	2.33	3
631. Credit for Inspection and Flow Testing	4.80	7
640. Credit for Water Supply	33.38	40
Divergence	-5.57	--
1050. Community Risk Reduction	1.33	5.50
Total Credit	63.64	105.5

Final Community Classification = 04/4Y

INSURANCE SERVICES OFFICE, INC.

HYDRANT FLOW DATA SUMMARY

City David City Fire

County Nebraska(Butler) State NEBRASKA (26) Witnessed by: Insurance Services Office Date: Oct 18, 2017

TEST NO.	TYPE DIST.*	TEST LOCATION	SERVICE	FLOW - GPM $Q=(29.83)(C)(d^2)(p^{0.5})$ INDIVIDUAL HYDRANTS			TOTAL	PRESSURE PSI STATIC	PRESSURE PSI RESID.	FLOW -AT 20 PSI NEEDED **	FLOW -AT 20 PSI AVAIL.	REMARKS***	MODEL TYPE
1.0		3rd St & D St.	David City Water Department. Main	1690	0	0	1690	70	43	3500	2400		
10		6th & B St.	David City Water Department. Main	2020	0	0	2020	70	52	2500	3500		
2.0		7th St. & E L	David City Water Department. Main	1210	0	0	1210	70	62	2000	3300		
3.0		5th St. & E St.	David City Water Department. Main	1240	0	0	1240	69	60	2250	3100		
4		S hwy 15 NW Hydrant	David City Water Department. Main	1010	0	0	1010	72	45	2250	1400		
5.0		7th & Kansas	David City Water Department. Main	1560	0	0	1560	72	38	1500	2000		
6.0		10th & Iowa	David City Water Department. Main	1810	0	0	1810	70	38	2000	2300		
7		3rd & H	David City Water Department. Main	2020	0	0	2020	68	26	3000	2200		
8		2nd hydrant North of O St. on 4th St.	David City Water Department. Main	1030	1030	0	2060	62	46	2000	3500		
9		5th & K	David City Water Department. Main	1150	0	0	1150	64	25	1000	1200		

THE ABOVE LISTED NEEDED FIRE FLOWS ARE FOR PROPERTY INSURANCE PREMIUM CALCULATIONS ONLY AND ARE NOT INTENDED TO PREDICT THE MAXIMUM AMOUNT OF WATER REQUIRED FOR A LARGE SCALE FIRE CONDITION.

THE AVAILABLE FLOWS ONLY INDICATE THE CONDITIONS THAT EXISTED AT THE TIME AND AT THE LOCATIONS WHERE TESTS WERE WITNESSED.

*Comm = Commercial; Res = Residential.

**Needed is the rate of flow for a specific duration for a full credit condition. Needed Fire Flows greater than 3,500 gpm are not considered in determining the classification of the city when using the Fire Suppression Rating Schedule.

*** (A)-Limited by available hydrants to gpm shown. Available facilities limit flow to gpm shown plus consumption for the needed duration of (B)-2 hours, (C)-3 hours or (D)-4 hours.

WATER DISTRIBUTION SYSTEM EVALUATION

David City, Nebraska - 2022

August 2022

Olsson Project No. 022-01400

The next item on the agenda was the consideration of the bid received for the old City Office building located at 557 N. 4th Street. Appraisal of the building at 557 N. 4th Street was $228,000. The only bid received for the property at 557 N. 4th Street was the bid made by David City Dental Holdings, LLC. The City had the right to accept or reject all bids.

Council member Pat Meysenburg made a motion to reject a bid received for the old City Office building located at 557 N. 4th Street. Council Member Kevin Woita seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Sealed Bid

Date submitted: 7-29-22

Address Bidding for: 557 N. 4th Street, David City, NE, 68632

Amount of Bid: $ 25,000

Name of Bidder(s) David City Dental Holdings LLC

Address: 1045 N. 4th Street, David City, NE, 68632

Contact Numbers: Phone: Heath:402-270-5400 Ellen:319-930-1695

For Office Use Only

Date Bid Opened & Reviewed: August 1, 2022

Opened & Reviewed By: Jami Comte

Decision: Accept ☐ Reject ☒

Council member Tom Kobus made a motion to approve the Certification of City Street Superintendent and Resolution No. 15-2022 signing of the Year-End Certification of City Street Form 2022. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Do not recreate or revise the pages of this document, as revisions and recreations will not be accepted. Failure to **return both pages of the original document** by the filing deadline (October 31, 2022) may result in the suspension of Highway Allocation funds until the documents are filed.

RESOLUTION

SIGNING OF THE MUNICIPAL ANNUAL CERTIFICATION OF PROGRAM COMPLIANCE 2022

Resolution No. 15-2022

Whereas: State of Nebraska Statutes, sections 39-2115, 39-2119, 39-2120, 39-2121, and 39-2520(2), requires an annual certification of program compliance to the Nebraska Board of Public Roads Classifications and Standards; and

Whereas: State of Nebraska Statute, section 39-2120 also requires that the annual certification of program compliance by each municipality shall be signed by the Mayor or Village Board Chairperson and shall include the resolution of the governing body of the municipality authorizing the signing of the certification.

Be it resolved that the Mayor ☑ Village Board Chairperson ☐ of David City
(Check one box) (Print name of municipality)
is hereby authorized to sign the Municipal Annual Certification of Program Compliance.

Adopted this 10th day of August (Month), 2022 at David City Nebraska.

City Council/Village Board Members

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

City Council/Village Board Member_____
Moved the adoption of said resolution
Member _____ Seconded the Motion
Roll Call: _____ Yes _____ No _____ Abstained _____ Absent
Resolution adopted, signed and billed as adopted.

Attest:

_____
(Signature of Clerk)

Do not recreate or revise the pages of this document, as revisions and recreations will not be accepted. Failure to **return both pages of the original document** by the filing deadline (October 31, 2022) may result in the suspension of Highway Allocation funds until the documents are filed.

MUNICIPAL
ANNUAL CERTIFICATION OF PROGRAM COMPLIANCE
TO
NEBRASKA BOARD OF PUBLIC ROADS CLASSIFICATIONS AND STANDARDS
2022

In compliance with the provisions of the State of Nebraska Statutes, sections 39-2115, 39-2119, 39-2120, 39-2121, and 39-2520(2), requiring annual certification of program compliance to the Board of Public Roads Classifications and Standards, the City [X] Village [ ] of David City
(Check one box) *(Print name of municipality)*
hereby certifies that it:

- ✓ has developed, adopted, and included in its public records the plans, programs, or standards required by sections 39-2115 and 39-2119;
- ✓ meets the plans, programs, or standards of design, construction, and maintenance for its highways, roads, or streets;
- ✓ expends all tax revenue for highway, road, or street purposes in accordance with approved plans, programs, or standards, including county and municipal tax revenue as well as highway-user revenue allocations;
- ✓ uses a system of revenue and costs accounting which clearly includes a comparison of receipts and expenditures for approved budgets, plans, programs, and standards;
- ✓ uses a system of budgeting which reflects uses and sources of funds in terms of plans, programs, or standards and accomplishments;
- ✓ uses an accounting system including an inventory of machinery, equipment, and supplies;
- ✓ uses an accounting system that tracks equipment operation costs;
- ✓ has included in its public records the information required under subsection (2) of section 39-2520; and
- ✓ **has included in its public records a copy of this certification and the resolution of the governing body authorizing the signing of this certification by the Mayor or Village Board Chairperson.**

Signature of Mayor [X] Village Board Chairperson [ ] (Required)	8/10/22 *(Date)*
Signature of City Street Superintendent (Optional)	*(Date)*

Return the completed original signing resolution and annual certification of program compliance by October 31, 2022 to:

Nebraska Board of Public Roads Classifications and Standards
PO Box 94759
Lincoln NE 68509

Council member Pat Meysenburg made a motion to approve joining SENDD (Southeast Nebraska Development District) for the 2022-2023 year. Council Member Tom Kobus seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

The Southeast Nebraska Development District (SENDD) Board and staff would like to thank you for your continued support. SENDD is your regional community and economic development organization, and we strive to improve services and programs.

In the last three annual membership letters, I have written about some sort of calamity impacting our region or the nation, saying that next year things will be better, well... The pandemic-related supply chain issues and global inflation are the latest catastrophes. In spite of these challenges, our 16-county region has weathered the storm. SENDD staff have spent more time listening to community leaders and learning how we can better serve you. We attended city council, village board, public, and county meetings (virtually) across southeast Nebraska. As a result, **the agency was able to leverage $4.5 million in local funds to successfully capture $29.4 million in state and federal funds.** These dollars improved 118 homes, offered low-interest financing for four workforce housing units, assisted 10 communities with public works and downtown improvements, and created jobs. This does not include the recently funded $1 million U.S. Economic Development Administration (EDA) revolving loan fund (RLF) that will be used to support small, local businesses. As an aside, the RLF was funded in January 2022 and immediately benefited a start-up restaurant in Seward.

The only way these activities can continue is through your membership, which has remained steady since 2006. Membership dollars provide match for federal and state funded agency services, resulting in a 118:1 dollar return on investment. **In 2021-2022, your assessment dollars helped return over $30 million of your federal tax dollars back into the region.**

We pledge to remain by your side in these difficult times, and we look forward to making an impact across the region by growing our regional economy, identifying new opportunities, and building local wealth. Above all, we will continue to listen. For up-to-date information on grant programs, community and legislative updates, and news alerts, please go to our new website at www.sendd.org, sign up for our e-newsletter, or "Like" our Facebook page.

Once again, thank you for your support, and know that SENDD is here to help. As always, I want to extend an open invitation to all members: please, visit the SENDD offices when you are in Auburn or Lincoln, or call and schedule a time for us to attend your city council or county supervisor meeting. To help us better serve you now and in the future, I encourage you to call our staff with your ideas, suggestions, and thoughts.

We look forward to your next visit.

Sincerely,

Tom Bliss
Executive Director

MEMBERSHIP

FULL MUNICIPAL MEMBERSHIP

Includes any municipality paying the membership dues assessment established by the SENDD Board of Directors and located within a dues paying county. Services available to a Full Member include, but are not limited to:

- Monthly newsletter
- Special notices regarding programs of interest
- Unlimited visits to discuss requirements of specific programs
- Assistance with grant and loan applications, generally at no cost
- Special studies associated with grant and loan applications
- Census data and special reports maintained by SENDD
- Labor/Workforce data maintained by SENDD
- Staff consultation on specific employment generating projects
- Access to Economic Development Curriculum and Toolkit (Tentative Availability - Jan 1, 2023)

GENERAL MUNICIPAL MEMBERSHIP

Includes any municipality which is not a dues paying member itself but is located within a county that is paying membership dues. Services available to a General Member include, but are not limited to:

- Monthly newsletter
- Special notices regarding programs of interest
- Limited visits to discuss requirements of specific programs

VOLUNTARY HOUSING DUES

The Housing Dues assessment was established by SENDD in 2003 and payment of the assessment is voluntary. The voluntary assessment was established in lieu of increasing General Membership dues.

Dues cover costs specifically associated with housing, including:

- Training for staff members in housing grant application development
- Training on changing regulations related to Federal/State funding for housing programs
- State certifications involving lead-based paint and clearance testing
- Assistance to member communities with applications to partially underwrite the cost of housing needs studies; assistance to communities and private developers with packaging grant and loan applications
- Ongoing expenses related to housing projects after the project is closed and grant funds are depleted

TYPES OF HOUSING PROGRAMS

- Rehabilitation programs for income-qualified owner-occupied residential units
- Down-payment assistance programs to aid income-qualified first-time homebuyers
- Purchase/Rehab/Resale programs which may be coupled with down-payment assistance
- Construction of rent-to-own, single-family residential units
- Financial packaging assistance to developers of single and multi-family residential units for income-qualified occupants

MEMBER SERVICES

Housing & Contracting

- Owner Occupied Rehabilitation
- Purchase Rehab Resale
- Nuisance Abatement Programs
- Down Payment Assistance Loans
- Housing Quality Standards Inspections
- New Construction Services
- Housing Condition Studies
- Lead-Based Paint Inspections
- USDA Loan Packaging
- General Contracting Services
- Rural Workforce Housing

Economic Development

- Revolving Loan Funds
- GIS Mapping/Location Intelligence
- Support businesses and communities with analytical decision making
- Market reports/analysis
- Technical Assistance for Business Startups and Expansions
- Economic Development & Leadership Certified Community
- Economic Development Curriculum & Toolkit

Emergency & Disaster Relief

- Review Disaster Recovery Plans
- Assess infrastructure, vulnerabilities, and needs of communities impacted by disaster
- Regional Recovery Guide
  - Community and Business Resiliency and Recovery Resources
- Flood and Floodplain Management
- Assist communities to meet National Flood Insurance Program (NFIP) guidelines
  - Potential insurance premium discount for Community Rating System

Community Development

- Grant Writing and Administration
  - **Community Development Block Grant** (Downtown Revitalization, Economic Development, Planning, Public Works, Tourism, Youth Job Training)
  - Community & Civic Center Financing Fund
  - Land & Water Conservation Fund
- Household Income Studies
- Community Needs Assessment
- Workforce Availability Studies
- Project Specific Environmental Review
- Strategic Planning
- Broadband

SENDD members can take advantage of our wide variety of services. We are continually looking for additional ways to better serve our member communities.

RETURN ON INVESTMENT

Last year, SENDD generated a return on investment of $118 for every $1 in membership/housing dues

In the past decade, SENDD has been involved in local projects that have retained and create over 500 jobs

Since 2017, SENDD helped members secure a total of nearly $100 million dollars within the region

RESOURCES*

USDA-RURAL DEVELOPMENT
Business & Industry | Energy | Value Added Producer | Housing | Community Facilities

NEBRASKA DEPARTMENT OF ECONOMIC DEVELOPMENT
Rehabilitation | Infrastructure | Tourism | Revitalization | Community Facilities | Planning

ECONOMIC DEVELOPMENT ADMINISTRATION
Infrastructure | Economic Adjustment | Build to Scale | Job Growth

NEBRASKA GAME AND PARKS
Land & Water | Recreational Trails

NEBRASKA ENTERPRISE FUND
Direct | GAP | Invoice | Loan Guarantees | Intermediary Lending

NEBRASKA DEPARTMENT OF ENVIRONMENT & ENERGY
Waste & Recycling | Brownfields | Water | Deconstruction | Weatherization

ENVIRONMENTAL PROTECTION AGENCY
Brownfields | Local Foods Local Places | Air Quality

RURAL ENTERPRISE ASSISTANCE PROJECT
Direct | GAP | Invoice | Loan Guarantees | Intermediary Lending

***This list indicates some of SENDD's most used resources, but is not a comprehensive list. We regularly research additional funding opportunities from a variety of resources.**

Interim City Administrator/City Clerk Tami Comte presented to the Mayor and City Council the information about the Nebraska Department of Environment and Energy Drinking Water Division Public Water System Security Sub-grant. The sub-grant would help with making our systems at the Water Plant more secure with upgrades to Scada, security cameras, GIS mapping, steel frame doors, etc. Security is a big deal with protecting the water system.

Council member Tom Kobus made a motion to approve applying for the Nebraska Department of Environment & Energy Drinking Water Division Public Water System Security Sub-grant. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

DEPT. OF ENVIRONMENT AND ENERGY

Pete Ricketts, Governor

Nebraska Department of Environment & Energy
Drinking Water Division
Public Water System Security Sub-grant

INTENT

The intent of this grant is to provide funds to Community or Non-Transient Non-Community public water systems, operated by political subdivisions with populations of ten thousand inhabitants or less, which demonstrate serious financial hardships, to improve their security and emergency response capabilities. Funding will be provided to systems as a reimbursement, following completion of, and payment for, an eligible project.

ELIGIBILITY REQUIREMENTS:

Each eligible system must:

- Be a Community or Non-Transient Non-Community public water system owned by a political subdivision with a residential population of 10,000 or less.
- Have a local Median Household Income (MHI) that is less than 120% of State MHI.
- Have a current Public Water System Emergency Response Plan that has been approved by the Department.
- The designated water system operator, or other individual closely associated with the operation and/or management of the the PWS, has successfully obtained certification for completed courses on Incident Command and the National Incident Management System (Courses ICS100, ICS200 & IS700) and has provided copies of the certification to the department. (Not required for application)
- Provide a 10% match to improve the protection of public water systems.
- Pay Davis Bacon wage provisions if the contract cost is greater than $2000.00 (two thousand dollars and no cents). If the public water system performs the work (i.e., Force Account), the Davis Bacon wage provisions do not apply.
- Obtain a minimum of 3 written bids for all contracted work not completed by the PWS. (Not required for application)
    - With prior approval from the Department, a noncompetitive proposal may be used for certain professional services (i.e., GIS Mapping)
    -

Eligible projects may include, but are not limited to:

- Entry/Intrusion Alarm Systems
- SCADA Upgrades (must provide auto. notification to PWS personnel)
- Security Cameras/Lighting
- Hardened Locks
- Emer. Power (generator, trans. switch, right-angle drive, etc.)
- GIS Mapping
- Security Fencing (Min. 6' tall chain link w/barbed wire top-strand)
- Emergency Chlorinators
- Replacement Steel-frame Doors/Security Windows
- Sample Stations (Must ensure that sample stations are provided for all five microbiological sample sites of at least one zone.)

(OVER)

AMOUNT OF AWARDS

The Department may grant up to a **maximum of $10,000.00** to each public water system that submits a complete application and meets the above stated eligibility requirements. The Department intends that these monies be used to address identified public water system security shortcomings and emergency response needs by funding public water system security and emergency response improvements which will enhance the security of the public water system.

THE SUBGRANT PROCESS

A completed application (page 3) must be submitted by the applicant no later than **September 30, 2022.** The applicant may be contacted for clarification of the intent of the sub-grant request.

Allocation of funds to eligible public water systems will be based on the date the completed application is received by the Department, however not purely on a "first-come, first-served basis". Priority will be given to applications submitted by public water systems that have not received a PWS Security Grant in the previous two grant periods.

Once an award decision has been made, the applicant will be notified of the decision. The applicant is required to have a DUNS number in order to receive funding. Information on how to obtain a DUNS number will be included in that notification. Upon receipt of the DUNS number and W-9 form, if applicable, the Department will generate the sub-grant document.

The recipient will be notified via e-mail that the sub-award is ready for signature. The e-mail will provide instruction on how to complete the electronic signature process. Once the applicant has signed the sub-grant document, it will be forwarded for the Department's signature.

The sub-grant **will not** become effective until it is signed by both the Department, and the recipient.

No expenses incurred prior to the applicant being notified that the Department has signed the sub-grant, will be eligible for reimbursement.

The sub-grant expiration date will be September 30, 2023.

Sub-grant applicants not receiving an allocation will be notified in writing.

Questions regarding Public Water System Water Security Sub-grant should be directed to:

Andy Kahle
NDEE – Drinking Water Division
P.O. Box 98922
Lincoln, NE 68509-8922
Telephone: 402/471-0521
Fax: 402/471-2909
Email: andy.kahle@nebraska.gov

NEBRASKA
Good Life. Great Resources.
DEPT. OF ENVIRONMENT AND ENERGY

2022 - 2023
Nebraska Department of Environment & Energy
Public Water System Security Sub-grant Application

(Completed Applications Due September 30, 2022)

1. **Public Water System Name:**_____
   Public Water System ID #: NE31-_____
   County: _____ Federal Tax ID #: _____
   Address:_____
   _____
   _____
2. **Mayor/Board Chairperson/Owner**
   Name/Title:_____
   Phone:_____ Email:_____
   (valid phone number and e-mail address required)
3. **Contact Person for Further Information on Application**
   Name/Title:_____
   Phone:_____ Email:_____
   (valid phone number and e-mail address required)
4. **Identify the security/emergency response improvements that will be addressed by this public water system security grant for each facility (well, storage, etc.) and include estimated cost for each facility. Please make this an itemized list with the individual cost associated with each item (i.e., locks, $$$; cameras, $$$, etc.). [*Attach additional page(s) if needed.*]**

_____
PWS Representative Name/Title (Please Print) **Phone**

_____
Signature **Date**

Fax, E-mail, or Mail Completed Application to:
Andy Kahle
NDEE - Drinking Water & Groundwater Division
PO Box 98922
Lincoln, NE 68509-8922
Fax: (402) 471-2909
andy.kahle@nebraska.gov

The City Council discussed the contribution of $7,500 for the rubber mulch at the Jaycee Park. A few of the council members had questions about funding, purchase of the equipment, and payment for the equipment. The council would like to talk to the Friends of David City at the next council meeting for clarification and funding information.

Council member Pat Meysenburg made a motion to table the contribute $7,500 for the rubber mulch at the Jaycee Park. Council Member Tom Kobus seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Keith Marvin of Marvin Planning Consultants introduced himself. Keith explained that he had a meeting with Joe Johnson from JEO Consulting, Council Member Tom Kobus and Special Projects Coordinator Dana Trowbridge. They discussed doing a blight and substandard study to help with the Tax Increment Financing for the AGP Area. The blight and substandard study would go through three meetings, to the City Council to refer to the Planning Commission, the Planning Commission would then have a public hearing, and then if the Planning Commission approves the blight and substandard study it would then come back to the City Council.

Council member Tom Kobus made a motion to approve the hiring of Marvin Planning Consultants to conduct a blight and substandard study for the proposed AGP area. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

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MARVIN PLANNING CONSULTANTS

August 4, 2022

Tami Comte
City Clerk
City of David City
David City, NE 68632

RE: AGP Blighted and Substandard Study
David City, NE

Tami;

First, I would like to say thank you for the opportunity to work with your organization . MPC will provide the City with the services as laid out below on this project.

The study will include:

- Complete field work and photographs within the designated study area as previously discussed.
- Review and identify all of the necessary and eligible items based upon state statutes.
- All necessary maps for convey the findings.
- Attendance at three meetings during the review and passage of the Study.
- Copies of all final documents.

Project costs are as follows:

- $3,000.00 for the development area, including all meetings and report
- Additional meetings will be charged at a rate of $500.00 per meeting.
- Study to be completed by end of August 2022 if not sooner.
- Billing will occur once the Study portion is complete even thought the meetings have not begun.

Again, thank you for the opportunity to present our qualifications. We are confident in our abilities and experience and are anxious to discuss this project further. If you have questions or comments, please contact me at 402.367.5031 or 402.606.6405.

For the Team,

Keith A. Marvin, AICP
President/Project Manager

Marvin Planning Consultants, Inc

_____ _____
Keith A. Marvin AICP Date

City of David City

_____ _____
Mayor Date

Marvin Planning Consultants, Inc.
382 North 4th Street
P.O. Box 410
David City, NE 68632
402.367.5031
402.606.6405

Mayor Zavodny opened the public hearing at 7:45 p.m. to consider the Final Plat of the Northland Subdivision to the City of David City, Butler County, Nebraska.

Special Coordinator Dana Trowbridge introduced himself and gave the council an update on the final plat. There are 32 lots ready to begin the selling process. He appreciated all of the input and cooperation for getting the Northland Subdivision to the final plat.

Hearing no further comments, Mayor Zavodny closed the public hearing at 7:48 p.m.

Council member Pat Meysenburg introduced Ordinance No. 1404 to accept the final plat of the "Northland Subdivision". Mayor Zavodny read Ordinance No. 1404 by title. Council member Kevin Woita made a motion to suspend the statutory rule that requires an ordinance to be read on three separate days. Council Member Tom Kobus seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea, Mayor Zavodny: Yea. Yea: 5, Nay: 0, Absent: 2.

Council member Jessica Miller made a motion to adopt Ordinance No. 1404 on 3rd and final reading: AN ORDINANCE ACCEPTING AND APPROVING THE FINAL PLAT OF THE "NORTHLAND SUBDIVISION" TO THE CITY OF DAVID CITY, BUTLER COUNTY, NEBRASKA; REPEALING ANY ORDINANCE OR RESOLUTION IN CONFLICT THEREWITH; PROVIDING AN EFFECTIVE DATE THEREOF; AND PROVIDING FOR PUBLICATION OF THE ORDINANCE IN PAMPHLET FORM. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

ORDINANCE NO. 1404

AN ORDINANCE ACCEPTING AND APPROVING THE FINAL PLAT OF THE "NORTHLAND SUBDIVISION" TO THE CITY OF DAVID CITY, BUTLER COUNTY, NEBRASKA; REPEALING CONFLICTING ORDINANCES AND SECTIONS; AUTHORIZING THE FILING OF A SUBDIVISION PLAT; PROVIDING AN EFFECTIVE DATE; AND PROVIDING FOR PUBLICATION OF THE ORDINANCE IN PAMPHLET FORM.

WHEREAS, the Community Development Agency, ("Owner") owns of a tract of land legally described as follows:

LEGAL DESCRIPTION OF NORTHLAND SUBDIVISION TO THE CITY OF DAVID CITY, BUTLER COUNTY, NEBRASKA

A tract of land located in Lots 6 and 7, David City Land and Lot Company's Suburban Lots, located in the SW1/4 SE1/4 of Section 18, Township 15 North, Range 3 East of the 6th P.M., Butler County, Nebraska, described as follows: Beginning at a point on the South line of said Lot 7, said point being 130.74 feet East of the Southwest corner of said Lot 7, and assuming the West line of said Lot 7 to have a bearing of N00°23'53"E: thence N00°32'08"E, 449.25
feet; thence N89°35'57"W, 131.54 feet, to a point on the West line of said Lot 7; thence N00°23'53"E, 788.63 feet, to the Northwest corner of said Lot 7; thence N89°43'00"E, 638.12 feet, to the Northeast corner of said Lot 6; thence S00°20'16"W, 796.95 feet, on the East line of said Lot 6, to a point on the North line of Sypal

East Addition to David City; thence N89"30'38"W, 447.27 feet, to the Northwest corner of said Sypal East Addition; thence
S00°33'20"W, 449.37 feet, to the Southwest corner of said Sypal East Addition; thence N89°27'18"W, 60.00 feet, to the Point of Beginning
AND
All that part of the W1/2 SW1/4 of Section 19, Township 15 North, Range 3 East of the 6th P.M., Butler County, Nebraska, known as Outlot 3, in the City Clerk's West Addition to David City, Nebraska, described as follows: Beginning at a point on the West line of Oak Street in Miles 4th Addition to David City, Nebraska, 320 feet South of the South line of Right-of-Way of Fremont, Elkhorn, and Missouri Valley Railroad Company across said W1/2 SW1/4 of Section 19, thence running West in a direct line 637 feet more or less to the West Section line of said Section 19, thence running South on said Section line 187 feet more or less, thence running East 637 feet to the West line of Oak Street, thence running North on said West line of Oak Street 187 feet more or less, to the place of beginning, Less that portion of Real Estate Deeded in Book 82, Page 238 described as follows: Beginning at the Northeast corner of Lot 5, Block 1, Hall's Addition to David City, Nebraska; running thence North at right angles to said Block 1, a distance of 20 feet; running thence West in a line parallel to the North line of said Block 1, a distance of 75 feet; running thence South, a distance of 20 feet to the Northwest corner of the E1/2 of Lot 6, in said Block 1, Hall's Addition to David City, Nebraska, running thence East along the North line of said Block 1, a distance of 75 feet to the point of beginning.
AND
That part of the W1/2 SW1/4 of Section 19, Township 15 North, Range 3 East of the 6th P.M., Butler County, Nebraska, described as follows: Beginning at a point on the West line of Oak Street in Miles 4th Addition to David City, Nebraska, 320 feet South of the South line of right-of-way of the F. E. and M.V.R.R., thence running North 320 feet to said South line of the right-of-way; thence running West along said South line of right-of-way 659 1/2 feet to the Section line; thence running South along said Section line 323 3/4 feet; thence running East on direct line to the point of beginning. A strip of land 100 feet wide located South of and adjoining the right-of-way of the Union Pacific Railroad Company and extending across that part of the NW1/4 SW1/4 of Section 19, Township 15 North, Range 3 East, which lies West of the Westerly line of Lot 2, in Block 1, of Miles 4th Addition to David City, Nebraska, said strip of land being 50 feet in width on each side of the center line of the railroad (now removed) of the party of the first part, as said railroad center line was originally surveyed and established over and across the above described premises; EXCEPT the following described real estate, to wit A tract of land located in the W1/2 SW1/4 of Section 19, Township 15 North, Range 3
East of the 6th P.M., Butler County, Nebraska, described as follows: Beginning at a point on the West line of Oak Street in Miles 4th Addition to David City, Nebraska, said point being 393.92 feet South of the South line of the Union Pacific Railroad; thence Southerly, 26.08 feet, on the West line of said Oak Street; thence Westerly 649 feet, more or less, to a point on the West line of said Section 19, said point being 423.75 feet South of the South line of
said Union Pacific Railroad; thence Northerly 32 feet on the West line of said Section 19; thence Easterly, 649.86 feet to the Point of Beginning.
EXCEPT
A tract of land located in West Addition to David City, and in the SW1/4 of Section 19, Township 15 North, Range 3 East of the 6th P.M., Butler County, Nebraska, described as follows: Commencing at the Southeast corner of Outlot 3 in said West Addition to David City, said point also being the Northeast corner of Hall's Addition to David City; thence N0°00'00" E on an assumed bearing on the east line of said Outlot 3, 187 feet, to the Point of Beginning;
thence N89°30'30" W, parallel with the North line of said Hall's Addition, 564.37 feet thence N48°52'50" E, 95.79 feet: thence N86°42'30" E, 205.70 feet; thence N40°57'50" E, 128.00 feet; thence S46°04'59" E, 149.02 feet; thence S0°33'15" W, 14.83 feet; thence S89°59'30" E, 96.15 feet: thence S0°00’00” W, 58.07 feet, to the Point of Beginning.
AND EXCEPT
A tract of land located in West Addition to David City, and in the SW1/4 of Section 19, Township 15 North, Range 3 East of the 6th P.M., Butler County, Nebraska, described as follows: Commencing at the Southeast corner of Outlot 3 in said West Addition to David City, said point also being the Northeast corner of Hall's Addition to David City; thence N0°00’00" E on an assumed bearing on the east line of said Outlot 3, 140 feet to the Point of Beginning,

said Point being the Northeast corner of a parcel of land conveyed by Deed recorded in Microfilm Book 16 Page 485; thence N89°31'10" W, 170 feet, to the northwest corner of said conveyed parcel; thence S0°00'00" W, 140 feet, to the southwest corner of said conveyed parcel; thence N89°31'10" W, on the North line of said Hall's Addition, 30.16 feet; thence N0°31'45" E, 19.85 feet: thence N89°38'10" W, 75.00 feet; thence S0°12’00” W, 20.00 feet. to a point on the North line of said Hall's Addition; thence N89°29'55" W, on the North line of said Hall's Addition, 368.77 feet, to a point on the West line of said Section 19; thence N1°45'20" W, on the West line of said Section 19, 142.70 feet: thence S89°29'55" E, 33.03 feet; thence N48°52'50" E, 67.31 feet; thence S89°30'30" E, parallel with the North line of said Hall's Addition, 564.37 feet, to a point on the East line of said West Addition; thence
S0°00'00" W, 47 feet, to the Point of Beginning.
AND EXCEPT
A tract of land out of and a part of Outlot 3, West Addition to David City, located ln the West Half of the Southwest Quarter of Section 19, Township 15 North, Range 3 East of the 6th P.M., more particularly described as follows: Beginning at the Southeast corner of said Outlot 3; thence N89°47'45" W, along and with the South line of said Outlot, a distance of 200.00 feet; thence N00°00'00" E, a distance of 170.00 feet; thence S89°47'45" E, parallel with the
South line of said Outlot, a distance of 200.00 feet, to a point on the East line of said Outlot 3; thence S0°00’00" W, along and with the East line of said Outlot 3, a distance of 170.00 feet, to the point of beginning.
AND EXCEPT
A tract of land out of and a part of Outlot 2, West Addition to David City located in the West Half of the Southwest Quarter of Section 19, Township 15 North, Range 3 East of the 6th P.M., David City, Butler County, Nebraska, more particularly described as follows: Commencing at the Northeast corner of said Outlot 2; thence S00°00'00" E, along and with the East line of said Outlot 2, a distance of 119.64 feet to the point of beginning; thence continuing S00°00'00" E, continuing along and with the East line of said Outlot 2, a distance of 176.19 feet; thence N43°38'08" W, a distance of 202.37 feet; thence N59°33'44" E, a distance of 58.68 feet; thence S90°00'00" E, a distance of 89.05 to the point of beginning.
AND EXCEPT
A tract of land out of and a part of Outlot 2, West Addition to David City located in the West Half of the Southwest Quarter of Section 19, Township 15 North, Range 3 East of the 6th P.M., David City, Butler County, Nebraska, more particularly described as follows: Commencing at the Northeast corner of said Outlot 2; thence S00°00'00" E, along and with the East line of said Outlot 2, a distance of 295.83 feet. to the point of beginning; thence continuing S00°00'00" E, continuing along and with the East line of said Outlot 2, a distance of 20.00 feet; thence N90°00'00" W, a distance of 30.98 feet; thence N43°38'08" W, a distance of 195.52 feet; thence N40°48'34" E, a distance of 25.56 feet, thence N59°33'44" E, a distance 11.08 feet; thence S43°38'08" W, a distance of 202.37 feet to the point of beginning.
AND EXCEPT
A tract of land out of and a part of Outlot 2, West Addition to David City located in the West Half of the Southwest Quarter of Section 19, Township 15 North, Range 3 East of the 6th P.M., David City, Butler County, Nebraska, more particularly described as follows: Commencing at the Northeast Corner of said Outlot 2; thence S00°00'00" E, along and with the East line of said Outlot 2, a distance of 315.83 to the point of beginning; thence continuing
S00°00'00" E, continuing along and with the East line of said Outlot 2, a distance of 20.00 feet; thence N90°00'00" W, a distance of 96.01 feet thence N46°04'59" W, a distance of 149.02 feet; thence N40°48'34" E, a distance of 57.23 feet; thence S43°38'08" W, a distance of 195.52 feet; thence S90°00'00" E, a distance of 30.98 feet to the point of beginning,

has filed said Plat with the City of David City, Nebraska, and has requested that said Plat be approved and accepted, and

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF DAVID CITY, NEBRASKA:

Section 1. Approval. The City hereby accepts and approves the Final Plat for the Subdivision, consisting of thirty-two (32) lots on the north side of "O" Street, between 5th and 7th Streets, and the City hereby gives Owner the right to plat said Subdivision to the City of David City, Nebraska.

Section 2. Recording. Owner shall record the Final Plat with the Office of the County Clerk and County Clerk of Butler County Nebraska, pay all recording fees, and provide one (1) copy of such recorded Final Plat to the City Clerk. Owner shall record the Final Plat within 30 days of the City passing this Ordinance.

Section 3. Subdivision Effect. The Subdivision shall become effective as of the date Owner records the Final Plat with the Office of the County Clerk of Butler County.

Section 4. Conflicts. The City hereby repeals any ordinance or section of any ordinance passed and approved prior to the passage, approval and publication or posting of this ordinance and in conflict with its provisions.

Section 5. Invalidity. If any section, paragraph, clause or provision of this ordinance shall, for any reason, be invalid, such invalidity shall not affect the validity of the remainder hereof.

Section 6. Effect. The City shall publish this Ordinance in pamphlet form and shall be in full force and effect from and after its passage and approval as provided by law.

PASSED AND APPROVED this 10th day of August, 2022.

Mayor Alan Zavodny

City Clerk Tami L. Comte

Special Projects Coordinator Dana Trowbridge explained to the City Council that this resolution will allow the city to do redesignate the downtown area as blighted which was a recommendation from SENDD (Southeast Nebraska Development District) to participate with them and ask for downtown redevelopment vitalization from the study that the University of Nebraska Lincoln did last summer. This would help area store fronts with repair and painting and helping with any code violations that some of the buildings currently may have. The project limit would be up to $400,000 of CDBG funds (Community Development Block Grant) that is administered by the State of Nebraska.

Council member Kevin Woita made a motion to adopt Resolution No. 16-2022 redesignating the downtown area as blighted. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

RESOLUTION NO. 16-2022

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF DAVID CITY, BUTLER COUNTY, NEBRASKA, PASSED THIS 10TH DAY OF AUGUST, 2022 MAKING DETERMINATIONS WITH RESPECT TO BLIGHTED AND SUBSTANDARD CONDITIONS OF CERTAIN AREAS WITHIN THE CITY OF DAVID CITY, NEBRASKA.

WHEREAS, there has been prepared for the City of David City and the Community Development Authority of the City of David City (as created pursuant to Ordinance No. 815) a study entitled "Blight and Substandard Area Determination Study, David City, Nebraska" by the firm Stahr and Associates, (the Study) dated May 2009 indicating that certain real estate within the

corporate limits of the City of David City is eligible to be declared blighted and/or substandard pursuant to Section 18- 2101 to 18-2144, R.R.S. Neb. 1943, as amended;

WHEREAS, there have been specific improvements to the study area, it has been determined that key aspects of the study are still present within the area indicating certain real estate within the corporate limits of the City of David City remain eligible to continue to be declared blighted and/or substandard pursuant to Section 18-2101 to 18-2144, R.R.S. Neb 1943, as amended;

WHEREAS, the redevelopment of the property herein designated as blighted and substandard will promote the economic development of the City of David City, by providing for better land utilization, greater employment opportunities, economic growth and will serve to eliminate areas that have been previously underutilized or unutilized;

NOW, THEREFORE, in consideration of the foregoing recitals, the Mayor and Council of the City of David City, Nebraska, do hereby resolve that:

Section 1. The findings and determinations of the review are hereby approved and adopted.

Section 2. Based upon the re-designation Study, the following described areas located within the City of David City, Nebraska, to-wit:

LEGAL DESCRIPTION OF BLIGHT AND SUBSTANDARD DETERMINATION AREA

Beginning at the intersection of the centerline of J Street and 9" Street in David City, Nebraska, thence eastward along the centerline of J Street to the centerline of 11th Street, thence southward along the centerline of 11th Street to the centerline of the Union Pacific Railroad tracks, thence westward along said centerline to said Railroad tracks to the centerline of 7th Street, thence southward along the centerline of 7th Street to the centerline of E Street, thence westward along the centerline of E Street to the centerline of 6th Street, thence southward along the centerline of 4th Street, thence southward along the centerline of 4th Street to the centerline of B Street, thence westward along the centerline of B Street to the west line of the Burlington Northern Railroad right-of-way, thence southward along said west line of Burlington Northern Railroad right-of-way to the centerline of A Street, thence southward along the west line of the Burlington Northern Railroad right-of-way, which line is also the corporate limit line of the City, to the point where said corporate limit line turns westward, thence westward along the corporate limit line to the point where the corporate limit line turns northward, thence northward along the corporate limit line to the centerline of A Street, thence westward along the centerline of A Street to the centerline of Butler County Road M, thence northward along the centerline of said Butler County Road M to the centerline of C Street, thence eastward along the centerline of C Street to the centerline of Oak Street, thence northward along the centerline of Oak Street to the rear lot of the twelve platted lots on the north side of D Street between Butler County Road M and Oak Street, thence westward along said rear lot line to the centerline of Butler County Road M, thence northward along the centerline of Butler County Road M to the centerline of H Street, thence eastward along the centerline of H Street to the centerline of the Burlington Northern Railroad tracks, thence northward along the centerline of said railroad tracks to a point that is equidistant between the centerline of I and J Streets, thence eastward from this point to a point on the centerline of 3rd Street, which is equidistant between the centerlines of I and J Streets, thence southward along the centerline of 3rd Street to the centerline of G Street, thence eastward along the centerline of G Street to the centerline of 9th Street, thence

northward along the centerline of 9th Street to the centerline of J Street, which is the point of beginning.

Generally, 'the Central-Southwestern Redevelopment Area' includes all of the David City Central Business District. The purpose and intent of the study is to qualify the described area as a Redevelopment area, thereby maximizing the development opportunities including funding sources for the core of the business community.

Be and the same area is hereby designated as a "blighted area" within the meaning of subsection (11) of Section 18-2103, R.R.S. Neb. 1943, as amended, in that one or more of the factors described in Subsection (11)(a) thereof is present and in that each of said area also meets at least one of the criteria set forth in (i) through (v) of subsection (11)(b) thereof, all as set forth in the Report. Said area is further determined, based upon the Report, to be a "substandard area" within the meaning of subsection (10) of Section 18-2103, R.R.S. Neb. 1943 as amended, in that one or more of the factors described in said subsection (10) is present, as described in the re-designation study.

Section 3. The Mayor and Council hereby further find and determine that the real property described herein and hereby designated as a "blighted area" within the City of David City, Nebraska, under Section 18-2103, R.R.S. Neb. 1943, as amended, will not, taken together with all other areas previously so designated by the Mayor and Council, exceed an area larger than 50% of the area of the City of David City, Nebraska. That such substandard and blighted condition is beyond the remedy and control solely by regulatory process and the exercise of police power and cannot be dealt with effectively by the ordinary operations of private enterprise without the aids provided by the Community Development Law. The elimination of said substandard and blighted condition under the authority of the Community Development Law is found to be a public purpose and in the public interest.

Section 4. This resolution shall be in force and take effect upon its passage and approval as provided by law. That it is hereby found and determined that said area is an eligible site for a redevelopment project under the provisions of Chapter 18, Article 21, Nebraska Revised Statutes of 1943, as amended.

PASSED AND APPROVED THIS 10th DAY OF AUGUST, 2022.

_____
Mayor

ATTEST:

_____
City Clerk

(SEAL)

Next item on the agenda was the consideration of the AGP trunk sewer connection.

Council member Tom Kobus said, “I don’t think we should even entertain a motion to go twenty-five feet deep with the sewer line because we will not be able to maintain it if something happens. I think that option should be out. Plus, we raise that flow up and gravity it to a normal dig it would be a lot easier to tap that thing. I have never heard of a sewer twenty-five feet deep. Maybe they do.”

Council member Kevin Woita said, “Well, considering the area there’s a lot of ground water there.”

Discussion continued.

Council member Tom Kobus made a motion to move forward with design including a lift station for AGP Trunk Sewer Connection and does not include a 25' deep force main. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

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VEENSTRA & KIMM INC.
3000 Westown Parkway
West Des Moines, Iowa 50266

515.225.8000 // 800.241.8000
www.v-k.net

August 8, 2022

Tammy Comte
City Clerk
City of David City
1220 E Street
David City, NE 68632

CITY OF DAVID CITY, NEBRASKA
AGP TRUNK SEWER
AGP CONNECTION OPTION 7

On August 5, 2022 the writer received preliminary information from AGP regarding the development of its onsite sewer system. The preliminary information from AGP provided an invert elevation of the sewer at the south edge of the actual plant facility.

During an earlier discussion with Bryan Sharp of AGP it was indicated the preliminary design of the plant developed by AGP would include a lift station and force main to pump the AGP flow south to the south property line where it would discharge to the City constructed trunk sewer at Road 35. Bryan Sharp indicated AGP would likely be interested in a gravity sewer connection if that option were determined feasible.

Based on the preliminary information provided by AGP it appears the invert elevation of the gravity sewer option at the south property line would have an invert elevation of about 1592 to 1594. The ground elevation at that location is about elevation 1615. If the City were to develop a sewer to serve AGP by gravity the northern end of the sewer would be in the depth range of 20 to 25 feet. This depth range is constructable in open areas, but would be deeper than what the City would utilize if AGP continues its current lift station based design.

By separate correspondence the writer has inquired of AGP whether it has an interest in the gravity sewer option or if it intends to move forward with the lift station option.

If AGP has an interest in the gravity sewer option, the City will need to determine whether it is in agreement with providing a somewhat deeper sewer that would serve AGP by gravity. The gravity sewer option would be slightly more costly to the City, but would likely be less costly to AGP. Conversely, the lift station option would allow the City to shallow its sewer and construct the sewer at a lower cost than a gravity option for AGP.

Tammy Comte
August 8, 2022
Page 2

Avoiding lift stations is preferable, even if the lift station is privately owned. Lift stations require ongoing operation and maintenance while the gravity sewers lower both the operating cost and future maintenance cost.

At this stage of the design, it is still too early to determine the cost impact of deepening the sewer for a gravity outlet option for AGP. It is not likely the gravity option will be fully evaluated unless AGP expresses an interest in that option.

The purpose of this letter is to inquire whether the City is open to constructing an option that would deepen the sewer and allow AGP to be served by gravity if that cost is not significant.

If you have any questions or comments concerning the project, please contact the writer at 515-225-8000, or at bveenstra@v-k.net.

VEENSTRA & KIMM, INC.

H. R. Veenstra Jr.

HRVJr:rdp
6472

Next item on the agenda was consideration of tolling the termination of the contract for Law Enforcement Services until January 31, 2023. This would allow the current contract to go until January 31, 2023, to allow for negotiation to the current contract, and to avoid interfering with the on-going election for Sheriff. This will allow for a longer negotiation period.

Council member Pat Meysenburg made a motion to approve tolling the termination of the contract for law enforcement services until January 31, 2023. Council Member Kevin Woita seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

P.O. Box 191
557 4th Street
David City, NE 68632

DAVID CITY
NEBRASKA

Phone: (402) 367-3135
FAX: (402) 367-3126
Website: www.davidcityne.com

August 11, 2022

Butler County Sheriff's Office
c/o Stephanie Laska, Butler County Clerk
451 North 5th Street
David City, Nebraska 68632

Butler County Board of Supervisors
c/o Anthony Whitmore, Chairman
451 North 5th Street
David City, Nebraska 68632

RE: Law Enforcement Contract with the City of David City

To Whom It May Concern:

On June 24, 2022, the City of David City (the "City") sent a letter giving notice of termination (the "Notice") of that certain Agreement between Butler County, Nebraska and the City of David City, Nebraska to Provide Law Enforcement Services, made and entered into October 28, 2020 (the "Agreement"). The June 24, 2022 letter also conveyed the City's desire to discuss the possibility of a new or extended contract. The parties to the Agreement are the City, the Sheriff and the Butler County Board of Supervisors (the "County Board").

According to the Agreement, the Notice leads to the Agreement terminating as of October 31, 2022. To allow time for negotiation, and to avoid interfering with the on-going election for Sheriff, the City proposes that the parties to the Agreement toll the termination until January 31, 2023. During this extended period, the Agreement would remain in full force and effect as-is.

If the Sheriff and the County Board are amenable to such an adjustment, please have the authorized representative sign and date below. Thank you.

Sincerely,

Tami L. Comte

Tami L. Comte, MMC
Interim City Administrator/City Clerk-Treasurer

CITY OF DAVID CITY, NEBRASKA

By: _____
Alan Zavodny, Mayor

Date: 8-10-2022

ATTEST:

_____
Tami Comte, David City Clerk

BUTLER COUNTY, NEBRASKA

By: _____
~~David W. Mach,~~ Chairman Anthony Whitmore
Butler County Board of Supervisors

Date: August 15, 2022

ATTEST:

_____
Stephanie L. Laska, County Clerk

BUTLER COUNTY SHERIFF'S DEPARTMENT, BUTLER COUNTY NEBRASKA

By: _____
Tom Dion, Sheriff

Date: 8-15-2022

Council member Pat Meysenburg made a motion to go into closed session to discuss the law enforcement contract at 8:01 p.m. Council Member Kevin Woita seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Council member Jessica Miller made a motion to come out of closed session 8:37 p.m. Council Member Pat Meysenburg seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

Council member Jessica Miller made a motion to adjourn at 8:37 p.m. Council Member Kevin Woita seconded the motion. The motion carried. Tom Kobus: Yea, Bruce Meysenburg: Absent, Pat Meysenburg: Yea, Jessica Miller: Yea, John Vandenberg: Absent, Kevin Woita: Yea. Yea: 4, Nay: 0, Absent: 2.

CERTIFICATION OF MINUTES

August 10, 2022

I, Lori Matchett, duly qualified and acting Deputy City Clerk for the City of David City, Nebraska, do hereby certify with regard to all proceedings of August 10, 2022; that all of the subjects included in the foregoing proceedings were contained in the agenda for the meeting, kept continually current and available for public inspection at the office of the City Clerk; that such subjects were contained in said agenda for at least twenty-four hours prior to said meeting; that the minutes of the meeting of the City Council of the City of David City, Nebraska, were in written form and available for public inspection within ten working days and prior to the next convened meeting of said body; that all news media requesting notification concerning meetings of said body were provided with advance notification of the time and place of said meeting and the subjects to be discussed at said meeting.

_____

Lori Matchett, Deputy City Clerk