CITY of NOVI CITY COUNCIL

Agenda Item 1
February 23, 2015

SUBJECT: Approval of Text Amendment 15-57.02, as recommended by the Ordinance Review Committee, to amend Chapter 34, Utilities, of the City of Novi Code to update the City's Cross Connection Ordinance for consistency with the requirements of the Michigan Safe Drinking Water Act (Public Act 399, as amended). **FIRST READING**

SUBMITTING DEPARTMENT: Department of Public Services, Water and Sewer Division TDK

CITY MANAGER APPROVAL:

BACKGROUND INFORMATION:

The City's Cross Connection Control program is an important service that the Department of Public Service's Water and Sewer Division provides to protect drinking water quality. By definition, a cross connection is any arrangement of piping on a building's plumbing system that could result in backflow of contaminants into the potable water system. The Cross Connection Control program is in place to provide for inspection and testing of such cross connections to minimize the risk of water system contamination.

Based on our 2013 Michigan Department of Environmental Quality (MDEQ) Annual Water System Review, the Department of Public Services' Water and Sewer Division has updated the Cross Connection Control Program to meet current State mandates, which require the City to include inspection and testing of residential cross connections as part of the program. In order to meet the needs of the new testing and inspection requirements, the Water and Sewer Division has filled a new full-time Cross Connection Specialist position, which was included in the FY 2014-2015 budget. The Division proposes to formalize the MDEQ requirements by modifying the City's Code of Ordinances to reference the updated Cross Connection Control Program. Key revisions to the ordinance include:

1. Designation of management of the program to DPS's Water and Sewer Division.
2. Formal inclusion of residential customers as part of the program as it relates to inspection of cross connections and testing of backflow prevention devices.
3. A formal schedule for testing and inspections under the program.
4. Key enforcement language for users that are in violation of the Cross Connection Control Program.

The Water and Sewer Division is actively working with water system customers to facilitate compliance with Cross Connection requirements. The Division recognizes that compliance with the mandates may require water system customers to invest in the testing and upgrade of existing plumbing systems. As such, the Division has enforcement discretion to allow corrective action schedules of greater than 30 days with the possibility of multi-year corrective action schedules in order to spread out the required expenditures over several budget years in an effort to reduce the financial impact to our customers. The attached memorandum dated January 5, 2015 provides a full description of the Cross Connection Control Program. The Ordinance Review Committee has reviewed the proposed changes and has recommended that City Council approve the proposed ordinance amendment to comply with State mandates. The proposed text amendment has been

favorably reviewed by Johnson, Rosati, Schultz, and Joppich (JRSJ) per the attached review letter, which contains a marked-up version showing the revisions.

RECOMMENDED ACTION: Approval of Text Amendment 15-57.02, as recommended by the Ordinance Review Committee, to amend Chapter 34, Utilities, of the City of Novi Code to update the City's Cross Connection Ordinance for consistency with the requirements of the Michigan Safe Drinking Water Act (Public Act 399, as amended). **FIRST READING**

	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Casey				
Council Member Markham				

	1	2	Y	N
Council Member Mutch				
Council Member Poupard				
Council Member Wrobel				

JRSJ REVIEW LETTER OF ORDINANCE REVISIONS

JOHNSON ROSATI SCHULTZ JOPPICH PC
27555 Executive Drive Suite 250 ~ Farmington Hills, Michigan 48331
Phone: 248.489.4100 | Fax: 248.489.1726

Elizabeth Kudla Saarela
esaarela@jrsjlaw.com

www.jrsjlaw.com

December 8, 2014

Timothy Kuhns, P.E., Water and Sewer Engineer
CITY OF NOVI
Department of Public Services
Field Services Complex
26300 Lee BeGole Drive
Novi, MI 48375

Re: Cross Connection Ordinance Amendment

Dear Mr. Kuhns:

We have reviewed the Memorandum discussing proposed amendments to Chapter 34 of the City of Novi Code to update the City's Cross Connection Ordinance for consistency with the requirements of state law for inspections. The proposed amendments are generally for the purpose of incorporating the procedures and requirement for a cross connection control program as specified in the Rules Manual published and adopted by the Michigan Department of Environmental Quality (MDEQ). We note that you have incorporated revisions recommended by the MDEQ for consistency with state law. You have also included our recommended revisions making a violation of the ordinance a municipal civil infraction subject to an injunctive order by the District Court. We have no additional recommendations for revisions at this time.

Please feel free to contact me with any questions or concerns in regard to this matter.

Very truly yours,

JOHNSON, ROSATI, SCHULTZ & JOPPICH, P.C.

Elizabeth Kudla Saarela

EKS
C: Maryanne Cornelius, Clerk

Rob Hayes, Public Services Director
Scott Roselle, Water and Sewer Manager
Thomas R. Schultz, Esquire

PROPOSED ORDINANCE REVISIONS

Sec. 34-36. Protection of potable water supply; labeling of outlets not supplied by system.

The potable water supply made available on the properties served by the public water supply shall be protected from possible contamination as specified by this division and by the state plumbing code. Any water outlet which could be used for potable or domestic purposes and which is not supplied by the potable system must be labeled in a conspicuous manner as:

WATER UNSAFE FOR DRINKING

(Ord. No. 73-57, § 5.01, 5-21-73; Ord. No. 82-57.01, Pt. I, 5.01, 12-20-82)

Sec. 34-37. ~~State department of public health~~ Michigan Department of Environmental Quality rules and the City of Novi Cross Connection Control Program are adopted by reference.

The city adopts by reference the water supply cross-connection rules of the ~~state department of public health~~ Michigan Department of Environmental Quality being ~~1979 AACS~~ R325.11401—R325.11407 of the *Michigan Administrative Code,* and the City of Novi Cross Connection Control Program. (Ord. No. 73-57, § 1.01, 5-21-73)

Sec. 34-38. Division supplementary to state plumbing code, and residential code

This division does not ~~supercede~~ supersede the state plumbing code, and residential code, but is supplementary to it.

(Ord. No. 73-57, § 6.01, 5-21-73; Ord. No. 82-57.01, Pt. I, § 6.01, 12-20-82)

Sec. 34-39. Right of entry; right to information from owners, lessees, occupants.

The representative of the department of ~~building and safety~~ public services, water and sewer division shall have the right to enter at any reasonable time any property served by a connection to the public water supply system of the city for the purpose of inspecting the piping system thereof for cross-connections. On request the owner, lessees or occupants of any property so served shall furnish to the inspection agency any pertinent information regarding the piping system on such property.

The refusal of such information or refusal of access, when requested, shall be deemed evidence of the presence of cross-connections.

(Ord. No. 73-57, § 3.01, 5-21-73)

Sec. 34-40. Inspections.

It shall be the duty of the department of ~~building and safety~~ public services, water and sewer division to cause inspections to be made of all properties served by the public water supply where cross-connections with the public water supply is deemed possible. The frequency of inspections and re-inspections based on potential health hazards involved shall be as established ~~by~~ in the ~~city~~City's cross connection control program ~~and~~ in accordance with the ~~as approved by the state department of public health~~Michigan Department of Environmental Quality Cross Connection Rules Manual, 2008 Edition.

(Ord. No. 73-57, § 2.01, 5-21-73)

Sec. 34-41. Authority to discontinue water service, take other measures for violation.

The ~~water department~~Department of Public Services, Water and Sewer Division is hereby authorized and directed to discontinue water service after reasonable notice to any property wherein any connection in violation of this division exists, and to take such other precautionary measures deemed necessary to eliminate any danger of contamination of the public water supply system. Water service to such property shall not be restored until the cross-connection has been eliminated in compliance with the provisions of this division.

(Ord. No. 73-57, § 4.01, 5-21-73)

The following is additional language that should be put into the ordinance:

Sec.34-42 Testing of testable backflow prevention devices.

All testable backflow prevention devices shall be tested at the time of installation, relocation and after any repair. Subsequent testing of devices shall be conducted at a time interval specified by the City's cross connection program in accordance with the Michigan Department of Environmental Quality Cross Connection Rules Manual,

2008 Edition.Each tester shall be approved by the city. Individual(s) performing assembly testing shall certify the results of his/her testing.

Sec.34-43 Violations of ordinance.

Any person, firm or corporation determined to have been in violation of the provisions of this article shall be responsible for a municipal civil infraction and subject to the provisions of section 1-11 of this Code. Each day upon which a violation of the provisions of this act shall occur shall be deemed a separate and additional violation for the purpose of this ordinance.

c:

DRAFT

ORDINANCE REVIEW COMMITTEE

January 26, 2015 | 5:30 p.m.

Council Conference Room | Novi Civic Center | 45175 Ten Mile Road

Council member Mutch called the meeting to order at 5:00 p.m.

ROLL CALL: Mayor Gatt * absent excused, Council Member Mutch, Council Member Wrobel

ALSO PRESENT: Victor Cardenas, Assistant City Manager

Tim Kuhns, Sr. Engineer – Water and Sewer Senior Manager

Charles Boulard, Community Development Director

Thomas Schultz, City Attorney

APPROVAL OF AGENDA: Agenda was unanimously approved as presented.

AUDIENCE COMMENT: None

MATTERS FOR DISCUSSION:

1. Approval of minutes from November 10, 2014 and November 19, 2014

ORCM 15-01-01 **Moved by Wrobel, seconded by Mutch; CARRIED UNANIMOUSLY:**

To approve the Ordinance Review Committee meeting minutes from November 10, 2014 and November 19, 2014.

2. Medical Marijuana

Discussion was held that the City received 2 requests related to this topic. The City should prepare for the possibility of more requests and have some type of ordinance in place to clarify specific details. Attorney Schultz will have a draft prepared for the next Ordinance Review Committee meeting to address such items as a grow operation or dispensary. Surrounding communities have either used the special land use option or not addressed it.

3. Cross Connection Program

A program is being proposed by DPS including a brochure that details the City of Novi's Cross Connection Control Program. The city's original program didn't include residential testing and inspection. A proposed ordinance amendment assigns management of the program to the Water and Sewer Division. It will also include residential customers in order to comply with testing requirements mandated by the State. Also the current ordinance doesn't include any provision for enforcement for users who may be in violation of the Cross Connection Control Program requirements. The proposed ordinance revisions include a remedy. Discussion was held that every 3 years makes it expensive for homeowners. Mr. Kuhn noted that part of the inspection process utilizes a survey asking for any devices such as hose bib vacuum breaker or pressure vacuum breaker on an irrigation system. If there is a location not in compliance, the owner would be notified. The City staff now includes a cross connection specialist to assist with these inspections.

ORCM 15-01-02 **Moved by Wrobel, seconded by Mutch; CARRIED UNANIMOUSLY:**

To recommend to City Council the proposed ordinance amendment for cross connection based on compliance with State mandate.

4. Milkweed – Noxious Weeds

This proposed ordinance removes the Latin names for weeds and clarifies other kinds of grasses to be addressed. Discussion was held regarding how the ordinance would be written to differentiate plants from weeds since this applies to anything over 8 inches and within 150 from the roadway. This would authorize the City to go on property and order it to be mowed or issue a ticket to enforce the landscaping of weed beds. The ordinance will be brought back to the Ordinance Review Committee since issues such as how much land could have wildflowers also needs to be addressed as well as what qualifies as unhealthy growth.

The meeting was adjourned at 6:20 p.m.

Recorded by: Maryanne Cornelius

City Clerk

MEMORANDUM

TO: ROB HAYES, DIRECTOR OF PUBLIC SERVICES/CITY ENGINEER

FROM: TIM KUHNS, WATER AND SEWER SENIOR MANAGER TDK

SUBJECT: ORDINANCE REVISIONS - CROSS CONNECTION PROGRAM

DATE: JANUARY 5, 2015

The City's Cross Connection Control program is an important service that the Department of Public Service's Water and Sewer Division provides to protect drinking water quality. By definition, a cross connection is any arrangement of piping on a building's plumbing system that could result in backflow of contaminants into the potable water system. An example of a cross connection is a building's fire suppression (sprinkling) system, which could contain an anti-freeze additive. If a water main break were to occur where pressures become low in the distribution system, there is a potential for backflow of the fire suppression system's toxic contents into the water distribution system if proper backflow devices are not used on the building's plumbing system. The Cross Connection Control program is in place to provide for inspection and testing of such cross connections to minimize the risk of water system contamination.

The current ordinance that addresses cross connection control incorporates the program by reference in the Novi Code of Ordinances (Chapter 34, Division 2, Sections 34-36 through 34-41) and due to limited staffing resources, the program has historically only applied to commercial/industrial users as these users presented the highest hazard. A copy of the current Cross Connection Control Program is provided as an attachment. In the 2013 Water System Survey, the Michigan Department of Environmental Quality (MDEQ) indicated that the City's current Cross Connection Program needed to be updated to include inspection and testing of residential cross connections. A copy of the 2013 MDEQ Water System survey is provided as an attachment.

In response to the MDEQ requirement, the Water and Sewer Division has updated the Connection Control Program to meet MDEQ requirements. In addition, the City of Novi approved funding for a new full-time Cross Connection Specialist position within the FY 14/15 budget to allow for the necessary staffing to implement the Cross Connection Control Program as prescribed by the MDEQ. A copy of the updated Cross Connection Control Program is provided as an attachment.

The Water and Sewer Division proposes to formalize the MDEQ requirements by modifying the Code of Ordinances to reference the updated Cross Connection Control Program. Proposed modifications to the ordinance language and a Johnson, Rosati, Schultz, and Joppich (JRSJ) review letter of the proposed revisions are provided as an attachment. The ordinance revisions make the following substantive changes to the program:

1. Program Oversight
   The current ordinance makes management of the program the duty of the "department of building and safety." Given that the Water and Sewer Division has traditionally managed the program, the proposed ordinance revisions make the Water and Sewer Division responsible for the program.

2. Inclusion of Residential Customers
   The current ordinance does not differentiate between residential and commercial/industrial customers. The proposed ordinance revisions, by reference to the proposed Cross Connection Control Program, mandate that all water system users, including residential customers, comply with inspection and testing requirements.

3. Requirements for Cross Connection Inspections and Backflow Prevention Device Testing
   The current City of Novi Cross Connection Program was incorporated into the Code of Ordinances by reference; however, the current program only specifies frequency of inspection by hazard code, without any requirements for scope of inspection or backflow device testing. The proposed ordinance revisions, by reference to the proposed Cross Connection Control Program, mandate scope and frequency of cross connection inspection and backflow device testing.

4. Enforcement
   The current ordinance does not include any provision for enforcement for users who are in violation of the Cross Connection Control Program requirements. The proposed ordinance revisions include a proposed section that identifies enforcement remedies for those users in violation of the Cross Connection Control Program.

We look forward to presenting these proposed revisions to the Ordinance Review Committee in the near future. Please let me know if you have any questions or comments regarding the matters discussed in this memorandum.

Cc: Scott Roselle, Water & Sewer Asset Manager

Additional Backflow Device-Specific Requirements

Lawn Irrigation Atmospheric Vacuum Breaker
Shall not be installed when subjected to continuous pressure. Down stream shut off valves are not permitted.

Lawn irrigation systems with chemicals introduced into the system's drinking water supply via installed product tanks and/or pumping systems shall be protected against backflow by a reduced pressure principle backflow preventer (RPZ) tested pursuant to ASSE 1013 or other approved testing in accordance with the Michigan Residential Code.

The potable supply to a boiler (15 psi or less / untreated) must be equipped with a backflow preventer with an intermediate atmospheric vent compliant with ASSE 1012 or other approved testing.

The potable water supply to a solar energy system must be protected with a backflow preventer with an intermediate atmospheric vent compliant with ASSE 1012 or other approved testing. Where chemicals are used, the system must be protected with a reduced pressure principle backflow preventer (RPZ) tested pursuant to ASSE 1013 or other approved testing.

Water supplies to pool fills, fire sprinkler systems and water-activated sump pumps must also be protected against backflow and back pressure.

Who may test, repair and install backflow assemblies?

Pursuant to State of Michigan Law – Public Act 733 (State Plumbing Act) of 2002, only Licensed Plumbing Contractors may perform work on a commercial, industrial, or residential plumbing system. Act 733 states that backflow preventers are a part of the plumbing systems, and that only Licensed Plumbers may perform work on them.

You must obtain the services of a Licensed Plumbing Contractor to perform backflow assembly testing, installations, and repairs. If a backflow preventer is to be replaced or installed, a Plumbing Permit must be first obtained from the Community Development Department located at 45175 W. Ten Mile.

Why is testing required?

Backflow assemblies are mechanical devices and are subject to failure from wear and tear, corrosion, freezing, water conditions, and misuse. Testing ensures that the assemblies are operating as required to prevent backflow of contaminated water into the public drinking water supply.

How much does testing cost?

Residents should contact a licensed plumber to obtain pricing to test their residential backflow devices. Cost of testing varies between contractors and by the number of backflow devices within the plumbing system.

CITY OF NOVI
cityofnovi.org

For more information contact:
Department of Public Services (DPS)
Water & Sewer Division

City of Novi | 26300 Lee BeGole Drive
Novi, Michigan 48375 | 248.735.5661

7/25

Department of Public Services Water and Sewer Division

Residential Cross Connection Control Program

A new MDEQ Mandate requires all testable backflow devices for all residential properties to be tested. All device testing, repair and replacement must be completed by an approved licensed plumbing contractor at the resident's expense.

All test reports must be submitted on a City of Novi provided test report form.

FREQUENTLY ASKED QUESTIONS

CITY OF NOVI
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All testing must be performed by a licensed plumbing contractor

What is a Cross Connection?

A Cross Connection is any arrangement of a piping on a building's plumbing system that could result in backflow of contaminants into the public drinking water supply system. A common example is a garden hose attached to an outdoor hose faucet with the end of the hose lying in a mud puddle. Other examples are hoses attached to a laundry tub with the end of the hose submerged in a tub full of detergent, supply lines connected to bottom-fed tanks, and supply lines connected to boilers.

What is backflow?

In Cross Connection terms, a backflow refers to a reversal of flow from a building's plumbing system back into the public drinking water supply system. A backflow may occur when there is a pressure drop in the public drinking water supply system from a water main break or other failure. A backflow may also occur when a plumbing fixture such as a boiler or pump generates more pressure than the public supply system and pushes water back into the public drinking water supply system.

What are common causes of backflow contamination?

Irrigation systems may contain pesticides, herbicides, and biological organisms such as bacteria and worms, animal droppings, and other contaminants.

Garden hoses may be submerged in swimming pools, mud puddles, utility sinks, buckets, etc. and can act as a siphon hose.

Boilers create back pressure that pushes contaminated water back into the water supply. Boiler tanks can contain bacteria and mold.

Responsibilities

The City of Novi Department of Public Services Water & Sewer Division is the entity charged with providing safe drinking water to Novi residents and businesses. State and Federal Laws (Safe Drinking Water Acts) require that the City of Novi protect the public water supply to the customer's tap. The Plumbing Code, Michigan Residential Code, and the City of Novi Code of Ordinances also require that the City verify that cross connections on private plumbing systems do not pose a contamination risk to the public water supply through the enforcement of the Michigan Department of Environmental Quality (MDEQ) Law and Rules for Cross Connection Control.

As part of the cross connection control program, the Water and Sewer Division will be performing inspections of residential, commercial, and industrial cross connections to ensure that backflow prevention devices are installed on plumbing systems. This may include testable and non-testable devices. Testable devices must be tested.

Consumers also share in the responsibility for protecting the water supply by properly maintaining their plumbing systems in a safe condition.

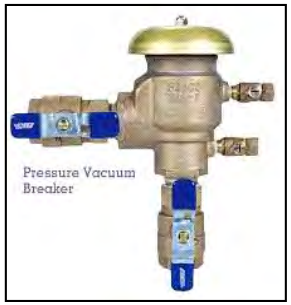
Due to the recent MDEQ requirements for all residential properties to be included in a municipality's Cross Connection Program, the City of Novi Water & Sewer Division shall require that all testable backflow devices be tested every 3 years.

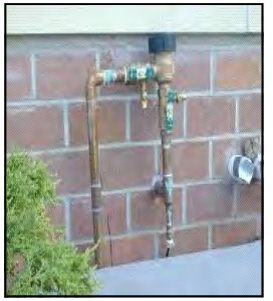
This shall require a licensed and approved Certified Backflow device testing plumber to access the property to perform testing on, and repair or replace, if necessary, all testable backflow assemblies at the resident's expense.

Typical Testable Backflow Device

Pressure Vacuum Breaker (PVB) installed in Lawn Irrigation System under continuous pressure

This backflow prevention device is common to most irrigation systems and is typically installed on the outside of the building or residence. The device is designed to prevent any irrigation system contaminants such as pesticides or herbicides from back flowing into the public water supply system. An approved PVB is required on **all** irrigation systems.





Typical Non-Testable Backflow Device

Hose Bib Vacuum Breaker

This backflow prevention device is common to most hose bib systems and is an effective way of preventing contaminants from back flowing through a garden hose and into the public water supply system. An approved Hose Bib Vacuum Breaker is required on **all** hose bibs. Various types of devices are commercially available such as frost free and anti-siphon.

CURRENT CROSS CONNECTION CONTROL PROGRAM

CITY OF NOVI
CROSS CONNECTION PROGRAM

(Revised 4-16-97…Approved by: Brian Thurston & Richard Lehner of DEQ)

By authority of Novi Code of Ordinances, Section 34, Division 2, Sections 34-36 through 34-41

Hazard Codes	**Description**	**Frequency** (see attached schedule)
H1	Sites that are traditionally dangerous, such as: hospitals, clinics, dentist, photo labs, dry cleaners.	Inspected Yearly
H2	Sites that have their own internal plumber, and sites that have BFP in place.	Inspected every other year
M	This type of user has potential of adding equipment that could present possible cross connection.	Inspected every third year
L	This type of user is in a building or suite that just has an office(s) and bathroom(s).	Upon notification from the plumbing inspector as changes occur.

CROSS CONNECTION INSPECTION
Frequency Schedule

HIGHS		MEDIUMS	LOWS
H^1 Yearly	H^2 Every Other Year	Every 3rd Year	Every 5th Year
2006			
2007	2007	2007	
2008			2008
2009	2009		
2010		2010	
2011	2011		
2012			
2013	2013	2013	2013
2014			
2015	2015		
2016		2016	
2017	2017		
2018			2018
2019	2019	2019	
2020			
2021	2021		
2022		2022	
2023	2023		

MDEQ ANNUAL WATER SYSTEM SURVEY

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHEAST MICHIGAN DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

August 20, 2013

Mr. Rob Hayes, Director of Public Services
City of Novi
26300 Lee BeGole Drive
Novi, Michigan 48375

WSSN: 4870

Dear Mr. Hayes:

SUBJECT: City of Novi - Water System Sanitary Survey

This letter will confirm my visit with you, Mr. Tim Kuhns, and Mr. Scott Roselle on August 2, 2013, and summarize the subsequent review and discussion of the water supply facilities serving the City of Novi (City). The purpose of this meeting was to evaluate the water system with respect to the requirements of the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399). In addition, the enclosed Water System Review form was updated to gather information on the City's water supply system. Based on our visit and review of Department of Environmental Quality (DEQ) records, we have rated the water system ***satisfactory***. We have included a copy of the *Water System Review* data form for your records and verification.

The previous evaluation, dated April 18, 2011, requested an update to the Emergency Response Plan. We are pleased that the Emergency Response Plan was revised soon afterwards and is updated as changes occur, most recently in March, 2013.

We are also pleased that the City is conducting a study regarding the construction of a two million gallon elevated storage tank. We look forward to working with you in the planning stages and eventual construction of the structure.

The following table summarizes our findings from our survey of the water system:

Survey Element	Findings
Source	Not applicable
Treatment	Not applicable
Distribution System	Recommendations made
Finished Water Storage	Not applicable
Pumps	No deficiencies/recommendations
Monitoring & Reporting	No deficiencies/recommendations
Management & Operations	Recommendations made
Operator Compliance	No deficiencies/recommendations
Security	No deficiencies/recommendations
Financial	No deficiencies/recommendations
Other	No deficiencies/recommendations

The following items need your attention, as they are requirements of Act 399 and the Rules promulgated pursuant to the Act:

1. Part 12, *Reliability*, Rule 1203, requires that a water system's Reliability Study be updated every five years. Our records indicate that the most recent Reliability Study was completed in November, 2008, and is currently being completed in conjunction with the Master Plan. As stated in the previous evaluation, the rules of Part 12 were recently revised to incorporate five year and 20 year projections, as well as additional basic information that must be presented in the study. The minimum information which must be incorporated is outlined in the Rules and includes the following:
   a. Basic planning data, such as current population and service connection values.
   b. Sufficient water production and consumption data, as specifically stated in Rule 1203(3)(b), to identify projected trends.
   c. A water shortage response plan for emergencies.

2. Part 16, *General Plans*, was recently revised to include additional General Plan requirements. As stated in the previous evaluation, according to Rule 1606, publicly owned water supplies must include a Capital Improvements Plan that identifies water systems needs for five year and twenty year planning periods. Our records indicate that the most recent General Plan and Capital Improvements Plan were completed in conjunction with the last Reliability Study in 2008. **We ask that you incorporate the additional Capital Improvements Plan requirements by January 1, 2016, or as you update the City's Master Plan and Reliability Study.**

3. Part 14, *Cross-Connections*, requires a water utility to develop a comprehensive control program for the elimination and prevention of all cross connections. As mentioned in the previous evaluation, the updated Cross Connection Rules Manual, 2008 edition, requires that the minimum testing frequency for any testable backflow prevention device be reduced from every five years to every three years. Our records indicate that the City has complied with this requirement. We are pleased that the system submits the Cross Connection Report annually and routinely inspects all commercial and industrial accounts. However, to fully comply with the rules, the City must include residential accounts in the program, as Act 399 does not differential between residential and other customer types. We suggest that residential customers who pose the greatest risk receive priority for inspections. Cross connections most commonly found in residential settings include lawn irrigation/fertilization systems, water assisted sump pumps, in-ground pools and spas, private irrigation wells, water softeners and solar panels. Once a residential customer has been identified as having a known or suspected cross connection, they must be assigned a routine reinspection frequency and any testable assemblies must be tested in accordance with departmental guidelines. **We ask that the cross connection control program be updated to reflect the change in device testing frequency and that residential inspections be phased into your cross connection control program.**

Finally, a systematic valve turning program is highly recommended to enhance system reliability, increase the working knowledge of the system, and extend valve life. We encourage the City to exercise each valve every three to five years. Detailed maintenance records should be kept of all valve activity, including location, size, open, closed or inoperable status, condition and dates of operation.

We would like to thank you, Mr. Tim Kuhns, and Mr. Scott Roselle for your time and assistance during the visit. If you have any questions, please contact me by phone at 586-753-3781, by email at lopeza5@michigan.gov, or by mail at the address above.

Sincerely,

Amber Lopez P.E.

Amber Lopez, P.E.
Environmental Engineer
Office of Drinking Water and Municipal Assistance
Southeast Michigan District Office

Enclosure

cc: Mr. Tim Kuhns, City of Novi
Mr. Scott Roselle, City of Novi
Ms. Kris Donaldson, DEQ

27700 Donald Court
Warren, Michigan 48092
Phone: 586-753-3781
Fax: 586-753-3831

WSSN: 4870

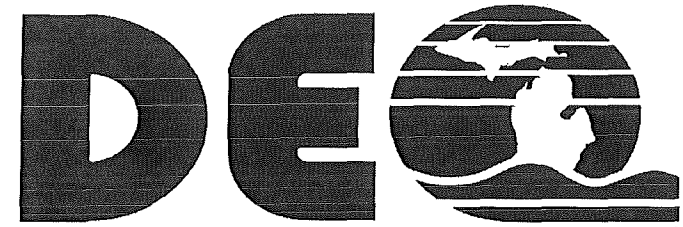
Office of Drinking Water and Municipal Assistance

Southeast Michigan District Office

Water System Sanitary Survey

City of Novi Water System

2013



Sanitary Survey of Community Water Supply - Review Summary

Water Supply: City of Novi
County: Oakland
Evaluator: Lopez

WSSN: 04870
District: 44
Date: 8/2/2013

Category	Comment	N/A	NotEv	NoD/R	Rec	Def	SigDef
Source		x					
Construction & Maintenance							
Standby Power							
Isolation							
Source Water Protection							
Capacity							
Treatment		x					
Disinfection							
Fluoride							
Phosphate Addition							
Softening							
Iron/Manganese Removal							
Arsenic Removal							
Pretreatment							
Filtration (gravity or membranes)							
C*T							
Other							
Distribution System					x		
Interconnections w/ Other WS				x			
Hydrants & Valves	*Valve turning program recommended*				x		
Service Lines & Metering				x			
General Plan	*2016 General Plan requirements*				x		
Cross Connections	*Residential inspections/program update*				x		
Construction & Maintenance				x			
Capacity				x			
Finished Water Storage		x					
Construction & Maintenance							
Controls							
Capacity							
Pumps (All Pumping Facilities)				x			
Construction & Maintenance				x			
Controls				x			
Capacity				x			
Monitoring & Reporting				x			
Bacteriological Monitoring				x			
Chemical Monitoring				x			
Annual Pumpage Report				x			
Consumer Confidence Report				x			
Analytical Capabilities				x			
System Management & Operations					x		
Owner Responsibility				x			
Capacity Development				x			
Reliability Study	*Reliability Study update requested*				x		
Operations Oversight				x			
Permits				x			
Operator Compliance				x			
Operator Certification				x			
Technical Knowledge & Training				x			
Security				x			
Emergency Response Plan				x			
Site Security (Fences, Alarms...)				x			
Financial				x			
Rates				x			
Budget & Capital Imp. Plan				x			
Other				x			

N/A - Not Applicable
NotEv - Not Evaluated
NoD/R - No Deficiencies/Recommendations Made
Rec - Recommendations Made
Def - Deficiencies Identified
SigDef - Significant Deficiencies Identified

WATER SYSTEM REVIEW

Customer Supply

WSSN:	4870	Supply:	City of Novi	County:	Oakland
Date:	8/2/2013	Reviewed by:	Amber Lopez	District:	44

Contact Information

Copy To:	Rob Hayes, P.E.	Contact:	Tim Kuhn, P.E.	Copy To:	Scott Roselle
Title:	Director of Public Services	Title:	Senior Engineer	Title:	Water and Sewer Asset Manager
Telephone:	248-735-5606		Water and Sewer Division		in charge of operations for system
Cell Phone:	248-343-4169	Telephone:	248-735-5647	Telephone:	248-735-5644
Dept Phone:	248-735-5640	Cell Phone:		Emerg Pho	248-343-1303
Fax:	248-735-5659	Fax:		Fax:	248-735-5659
e-mail:	rhayes@cityofnovi.org	e-mail:	tkuhns@cityofnovi.org	e-mail:	sroselle@cityofnovi.org
DPS Address:	City of Novi DPS	DPS Address:	City of Novi DPS	DPS Address:	DPS, Field Services Complex
	26300 Lee BeGole Drive		26300 Lee BeGole Dr		26300 Lee BeGole Dr
	Novi, MI 48375		Novi, MI 48375		Novi, MI 48375

City Engineer	OHM
Supplier of water:	DWSD

Classification and Certification

Population Served:	44,000	Year:	2013	Basis:	14,745 accts x 3.0

2010 Census: total population of city ~55,000, not all on municipal water
SEMCOG Average household size 2.46

Distribution Classification: **S-1**

	Operator	Certification	Oper No.	Expiration Date
Operator in Charge:	Scott Roselle	S - 1	4417	1/15/2015
Back-up Operator:	Drew Gariepy	S - 2	3476	7/15/2015
Other Operators:	Chris Brendel	S - 4	14358	4/15/2016
	Jim Cheyne	S - 4	5416	1/15/2015
	Larry Karvonen	S - 4	14359	1/15/2016
	Anthony Marino	S - 3	14547	1/15/2015
	Dean Reid	S - 4	16429	7/15/2015
	Chris Stanley	S - 4	7461	**7/15/2013**expired
	Linda Slepetski	S - 4	14573	4/15/2016
	Ryan Trainer	S - 4	7589	10/15/2014

Ownership

Ownership:	City of Novi
Consent Agreement:	na
Escrow Account:	na
Annual Fee:	Active

Comments:
Scada will be introduced to entire system with at time of tank construction (12)
Conducting study (OHM) to construct 2 MG storage tank
Master Plan/Reliability Study/General Plan/CIP being completed (OHM) 2013-14
City Works program in use
Country Cousins MHP connected 9/2007 (780 population)
Not all operators employed by city routinely work on drinking water system, but are available if necessary.
Lawn sprinkling/irrigation ordinace

Pumpage and Usage

Year	Max Day	Date	Avg. Day	Min. Day	Date	Max/Avg	G/C/D*	Total Annual
1998			5.60				289	2033.52
1999								
2000			5.44				282	1985.20
2001			5.44				282	1984.21
2002			5.89				220	2150.15
2003			6.03				225	2201.22
2004	18.38	08/23/04	5.86	0.94	5/2/2004	3.1	218	2138.17
2005	12.10	Aug-05	7.06	4.09	3/1/2005	1.7	263	2577.06
2006	11.52	Aug-06	6.08	0.98	Jan-06	1.9	203	2220.24
2007	17.24	07/15/07	6.96	3.03	10/26/2007	2.5	174	2541.89
2008	13.90	08/17/08	6.08	3.77	3.27/08	2.3	152	2225.90
2009	12.72	08/05/09	5.97	3.52	12/25/2009	2.1	149	2177.92
2010	12.68	08/29/10	5.57	3.62	12/25/2010	2.3	139	2034.00
2011	15.32	07/17/11	6.12	2.11	10/1/2011	2.5	153	2234.77
2012			7.00			na	175	2554.29

Five Year Max. Day	6.96	MG	2007
Ten year Max. Day	7.06	MG	2005
Five Year Avg. Day	**6.13**	MG	

Max Day for capacity requirements: 21.00 MG

Average System Pressure: Ranges from 40 - 110 psi, 4 Pressure Zones

Comment: *** High per capita usage, likely due to not having a separate irrigation account for customers. Also in part due to apartment, MHP & commercial connections.**
Lawn sprinkling ordinance (11pm-5am & even/odd days) has reduced max usage

DWSD Purchase Contract

Principle Parities of Contract: Detroit Water and Sewerage Department (DWSD)

Date of Contract: June 2009, Ammended 2010 Expiration Date: 30 years

Projected Annual Volume:	363,050 mcf in 2038
Minimum Annual Volume	181,525 mcf in 2038
Maximum Day Available by Contract:	21 mgd in 2038
Maximum Hour Available by Contract:	30.3 mgd in 2038
Maximum Pressure Allowed by Contract:	79 psi NV-02, 109 psi NV-04
Minimum Pressure Required by Contract:	52 psi NV-02, 81 psi NV-04

Maximum Connections Allowed by Contract:	(No. &/or Size)
Residential:	na
Commercial:	na
Industrial:	na

Meter Reading Responsibilities (by Whom):	
Master:	DWSD
Customer:	Novi

Storage and Pump Station Responsibilities	
Maintenance and Operation of Pump Stations	Novi
Maintenance of Storage Facilities	DWSD
Maintenance of Controls/Telemetering/SCADA:	DWSD

Comments:
Currently renegotiating contract.

Distribution Pump Station 1 of 2

Name: **Island Lake Station**
Location: Wixom Road & 11 Mile Road
Function: Inline Pressure Booster
Accepted from DWSD as of 2005

Pump Number	#1	#2	(Booster) #3	#4
Year Installed	2001	2001	2001	2001
Use	peal demand	peak demand	maintain pressure	fire
Type	centrifugal VFD	centrifugal VFD	centrifugal	centrifugal VFD
Permit Capacity	1450 gpm	1450 gpm	200 gpm	1450 gpm
Permit Total Dynamic Head				
Current Capacity	1450 gpm	1450 gpm	200 gpm	1450 gpm
Basis				
Current TDH				
RPM	1780	1780	1760	1780
HP	75	75	10	75
Last Complete Inspection	2008	2008	2008	2008
Last Efficiency Test	2001	2001	2001	2001
Classification	service pump	service pump	* booster pump	fire service

Comments: *#3 Booster pump/Jakey pump, runs almost continually
#3 modifications 2012: increase check valve size, VFD on motor, remap set point for efficiency
#4 used for fire service, #1 & #2 for increased pressure during high demand
Manufactured by Cornell. General model SD 250.

Booster Station Auxiliary Power

Power Type	Stationary	General 2000 Series
Power Rating (kWh)	250	277/480 AC
Fuel Type	Diesel	
Capacity (gpm)	X	
Starting Frequency	1/wk, automatically	
Load Testing Frequency	Annually	

Total Pump Capacity 4550 gpm

Firm Pump Capacity 3100 gpm

Auxiliary Power Capacity sufficient to run all four pumps

Max Day Demand @ this location na gpm

Peak Hour @ this location na gpm (Hydropneumatic Stations)

Avg Day Demand @ this location na gpm

Firm Pump Capacity/Max Day na %

Peak Hour/Firm Pumping Capacity na % (Hydropneumatic Stations)

Aux. Power Capacity/Avg Day >100 %

Comments:
Private contractor inspects the Standby Generator quarterly
City personel inspect the booster station as necessary
SCADA monitored 24-7

Distribution Pump Station 2 of 2

Name:	**West Park Booster Station**
Location:	12 Mile Road & W. Park Drive
Function:	Booster Station , 2 PRVs in parallel

Pump Number	#1	#2	#3	#4
Year Installed	2005	2005	2005	2006
Type	Horizontal	Horizontal	Horizontal	Horizontal
Permit Capacity	3200 gpm	3200 gpm	3200gpm	3200 gpm
Permit Total Dynamic Head	110ft	110ft	110ft	110 ft
Current Capacity	3200 gpm	3200 gpm	3200 gpm	3200 gpm
Basis				
Current TDH	110	110	110	110
HP	125	125	125	125
Last Complete Inspection	2008	2008	2008	2008
Last Efficiency Test	2008	2008	2008	2008

Comments:
Pumps not used to boost pressure regularly, due to increased pressure from DWSD 10" & 12" PRVs located in station, pressure automatically regulated through scada
Station currently serves as PRV, as demand designed for 5 year growth
receiving ~120psi through DWSD 24"
Total/firm pump capacity = 7900 gpm, based on pipe restrictions

Booster Station Auxiliary Power

Power Type	Stationary Generator
Power Rating (kWh)	250K
Fuel Type	Diesel
Capacity (gpm)	12,800 gpm
Starting Frequency	1/wk
Load Testing Frequency	Annually

Total Pump Capacity	12,800	gpm	18	mgd
Firm Pump Capacity	9,600	gpm	14	mgd
Auxiliary Power Capacity	12,800	gpm	18	mgd
Max Day Demand @ this location			na	mgd
Peak Hour @ this location			na	gpm (Hydropneumatic Stations)
Avg Day Demand @ this location			12,000	mgd
Firm Pump Capacity/Max Day			na	%
Peak Hour/Firm Pumping Capacity			na	% (Hydropneumatic Stations)
Aux. Power Capacity/Avg Day			>100	%

Comments:
Private contractor inspects the Standby Generator quarterly
City personel inspect the booster station as necessary
SCADA monitored 24-7

Storage: Construction, Controls & Maintenance

Storage owned and operated by DWSD*

Location	**14 Mile and Haggerty**
Volume	10 million gallons
Type	below ground storage
O.F. Elevation	
Date Constructed	2005
Date Inspected	2005
Date Painted Inside	2005
NSF Std 61 Compliant (Y/N)	yes
Date Painted Outside	refer to DWSD
Cathodic Protection	refer to DWSD
Tank Isolation Valve	refer to DWSD
Tank Drain (Hydrant)	yes
Altitude Valve	refer to DWSD
Mud Valve	refer to DWSD
High Alarm	refer to DWSD
Low Alarm	refer to DWSD
Type	refer to DWSD
Total Head Range (feet)	refer to DWSD
Normal High Water level	refer to DWSD
Normal Low Water level	refer to DWSD
Range of Operation	refer to DWSD
Normal/Average Pressure	120 psi
Telemetering System	refer to DWSD
Vents Screened	refer to DWSD
Overflow Screened	refer to DWSD
Access Hatches Locked	refer to DWSD
Expansion Collar Lubricated	refer to DWSD
Deflection Plate	refer to DWSD
Overflow Splash Pad	refer to DWSD
Site Fenced/Locked	yes

Capacity

Usable Storage	10,000,000	gal
Total Usable Storage	10,000,000	gal
Total Usable Storage/Max Day	na	
Total Usable Storage/Avg. Day	na	

Comments:
Conducting study for 2 MG storage tank
Scada will be introduced to entire system with construction of tower.
*** Refer to DWSD file for storage information**
Feeds transmission line to multiple systems

Interconnections with Other Supplies

Name of Principle Supplier(s)/Wholesaler(s):	DWSD
List WSSN number (s):	1800
No. of Regular Metered Connections:	5
No. of Emergency Connections:	6
No. of Pressure Control Valves:	6 (2 in parallel)

Location	Meter #	Main Size	Capacity	Metered?	Status	Connection	Maintenance
8 Mile Rd & Meadowbrook	NV-03	16"		Yes	Regular	DWSD	DWSD
Center Street, N of 8 Mile	NV-02	12-20"		Yes	Regular	DWSD	DWSD
10 Mile & Haggerty	NV-01	16"		Yes	Regular	DWSD	DWSD
W. Park & N. Haven	NV-05	24"		Yes	Regular	DWSD	DWSD
14 Mile Rd & Decker	NV-04	30-36"		Yes	Regular	DWSD	DWSD
Haggerty & JR Blvd	6" GV	6"		No	Emergency	Farm Hills	Novi
14 Mile & Beachwalk Drive	8" GV	8"		No	Emergency	Walled Lk	Novi
Windward bay Condos	8" GV	8"		No	Emergency	Walled Lk	Novi
Beck Rd & Ardmore Ct	8" GV	8"		No	Emergency	Wixom	Novi
Beck Rd @ Shopped At the Trail	12" GV	12"		No	Emergency	Wixom	Novi
12 Mile Rd near Pinewood	12" GV	12"		No	Emergency	Wixom	Novi

If emergency, are valves exercised annually? (Y/N) Yes

Flushed? (Y/N) Yes

Calibration of Master Meters? DWSD

Comments:

Hospital pressure increased, 24" line, near DWSD tank & booster station
Additional crossing goes through booster station
Valve sharing agreement with Wixom, agreement w/ Commerce Twp on northern end of town.
Memorandum of understanding w/ Wixom on Pontiac Trail & Beck where Wixom will own, and Novi will maintain emergency valves.

Pressure Control Valves

Location	PRV #	Main Size	Metered?	Pressure
Grand River			No	85*54 psi
Ten Mile Rd			No	105-55 psi
Novi Rd (North)			No	90-70 psi
Meadowbrook Rd			No	90-65 psi
West Park Booster Stn 10"			No	90-60 psi (Primary/low flow)
West Park Booster Stn 12"			No	90-57 psi (Secondary)

Operational Concerns & Maintenance

Are there areas where water main breaks are frequent? (Y/N) No

5-6 water main breaks per year, due to pressure

Are there areas where aesthetic water quality complaints are frequent? No

Do you receive complaints alleging illness due to the water? No

Is a procedure in place to respond to and track these complaints? Yes, CityWorks Asset Management Software

Are there areas where customers complain of low pressure? No, more high pressure problems

Comments

No low pressure in system due to DWSD pressure, tank & booster stations

Hospital no longer a concern (was a concern before there was the 24" main under 96)

Comments:

During summer months, permanent odd/even lawn watering restriction in effect. (1980 ordinance)
Watering schedules 11:00 PM to 5:00 AM (2009 Ordinance)
Many previous domestic wells now used as irrigation wells to alleviate burden.
Private wells disconnected from internal piping, inspected by plumber & city operators
Flush if complaints

Are there areas where fire flows cannot be maintained? (Y/N) No

Last ISO report date? 2004 **Rating** 5

Which, if any, of the above listed areas has the supply prioritized for main replacement, upgrading, or looping? Also, if a definite schedule for capital improvement has been established, list the proposed completion date.

Southeast section, oldest AC wm, installed in 1950-60's, may lower pressure to area

Distribution Piping

›ing Materials	Percentage	
Cast Iron	0 %	
Ductile Iron	70 %	
PVC	<1 %	
AC	20 %	
HDPE	<1 %	under freeway
Galvanized	0 %	
Concrete	10 %	

pe Diameters	Length	Percentage
2"	4,283 ft	0.3%
4"	16,817 ft	1.1%
6"	40,936 ft	2.7%
8"	917,894 ft	61%
10"	9,911 ft	0.7%
12"	279,926 ft	18% +
16"	131,447 ft	8.7%
20"	10,047 ft	0.7%
24"	54,775 ft	3.6%
" (Detroit wm)	10,809 ft	0.7%
30"	5,469 ft	0.4%
" (Detroit wm)	10,823 ft	0.7%
36"	13,693 ft	0.9%
42"	29 ft	0.0%
" (Detroit wm)	9,075 ft	0.6%
total	1,515,934 ft	based on info provided 2008

+ 1 mile D.I. added 2009

Hydrants

Number of Hydrants	4015+ (2013)
Number Without Auxiliary Shut-Off Valves	0%
Number that are Self-Draining	0%
Number of Inoperable Hydrants	0

Inspection:

Frequency of Hydrant inspection: every fall when winterized, by fire dept
Inspection Staff: Fire Department
Comments:
No specific flushing flow direction. Repairs completed immediately after being found

Are there areas where additional hydrants are needed? No
Hydrant location system: GIS computer system Accurate? Yes
program continually updated as changes occur
Are hydrants color coded for capacity? No
Has this information been provided to the fire department? Yes

Flushing:

Frequency and seasons of hydrant flushing: **1/4** of system flushed each yr during valve turning program
Purpose of flushing: complaints, taste and odor control, wm breaks
Is the public notified prior to flushing? Generally no, have not received complaints
Does flushing follow a specific format? According to schedule by fire department.
Is the volume of water used during flushing estimated? Yes
Is a record maintained of hydrant activities? Yes
Comments:

Hydrant records should include: Hydrant number, location of the hydrant, type of hydrant, size of barrel, size of bottom valve, size of lead, direction of turn, operable or inoperable, auxiliary valve type and size, weep holes plugged or unplugged, condition of hydrant (caps, chains, valve operation, operating nut, leakage & etc.), color coded capacity, flow data (gpm & psi) flushing dates, inspection dates.

Valves

Number of Valves: 2317 (2013) (not including hydrant valves)
Number of inoperable valves: 0
-Inoperable valves fixed immediately as found

Are there areas where additional valves are needed? no
Valve location system: quarter section maps Accurate? Yes
valve gps coordinates in computer program, continually updated/verified

Valve Turning Frequencies: **1/4** of system turned each year
Records Maintained? yes
comments:

Valve records should include: valve number, location of valve (with witness points), type of valve, size of valve, normal operating status (open or closed), condition of valve (operable or inoperable), direction of turn, number of turns, and dates of operation.

Customer Service Information

Total number of service connections (2013)	14,745
Number of residential accounts	12,110
Number of metered service connections	All

Identify service line materials and estimate percentages:

Copper	80%
PVC/PE/PB	some, discouraged
HDPE	20%
Galvanized	0%
Lead	0%

Ownership of Service	(CWS/Customer)
From Corp Stop to Curb Stop	Novi
From Curb Stop to Property Line	owner
From Property Line to Meter	owner
Meter	Novi

Customer Meters

Types of meters Used	Neptunes
Number of Meters with Touch Pads or Other Remote Reading Devices	radio reads
Size of Meters	
residential	5/8 to 6" (large for Apts, MHP)
commercial	10" average
Meter Testing/Maintenance Program	Yes
Average Age of Meter in System	8-9 yr average
Criteria for Changeout	age
Number or Percent Changeout per Year	10 year goal of replacement program

Meter Reading Staff/Contract: DPS Water and Sewer Staff

Percent By Usage

% Residential	70%
% Commercial/Industrial	30%
% Other	fire protection

% Large Users - List

- Fox Run
- Home Town Novi
- Twelve Oaks Mall
- Novi Meadows Mobil Home Community
- Providence Medical Center
- Twelve Mile Crossing
- Lifetime Fitness
- Novi Town Center
- Main Street
- Highland Hills Mobile Home Community

Comments:

Meters read with radio read - 12 Oaks Mall read monthly, the rest of the meters are read monthly.
Converted to radio read 2012-2013
Entire City can now be read in 3.5 days.

System Growth

Year	No. of Residential Meters Installed	No. of Construction Permits Issued	Total Length Watermain Permitted
2001			
2002			
2003			
2004	447		
2005	498	39	
2006	368	25	
2007	219	28	
2008	166	20	
2009	87	6	
2010	137	4	
2011		5	3900
2012		11	10,150
2013		7	16,050

Permits

Applies for and obtains permits prior to construction (Y/N):	y
Reviews plans from engineers and/or developers prior to submittal to DEQ (Y/N):	y
If applicable, adheres to contract with supplier regarding plan submittal (Y/N):	y
Follows master plan for any construction (Y/N):	y
Develops as-built plans (Y/N):	y
Updates general plans (Y/N):	y
Date of Last Master Plan:	**2008**

Water Rates

What is your current rate schedule?	3.86/1000 gal with a fixed charge
Are current rates adequate to support O&M and CIPS?	Yes
When was last time rates were adjusted?	July 5, 1905
Has a water rate study been performed? When?	annually done in-house
Is there a meter charge or ready to serve charge?	Yes*
Is a copy of the water rate schedule and ordinance available?	Yes

Comments: *Meter: $10/quarter for all meters. Ready to serve: see document in file, rec'd at 6/19/07 visit

Repair Parts Inventory

Extra Mains (Sections for Each Size in Service)	Yes
Repair Clamps (2 or more for each size)	Yes
Tees, Crosses & Elbows	Yes
Hydrants	Yes
Valves	Yes
Services (Corp & Curb Stops, Clamps and Lines)	Yes

Safety Issues

Confined Space Entry Program in Place % Followed (Y/N)	Yes
Trench Safety Program in Place & Followed (Y/N)	Yes

Safety Committee responsible

Comments:

Extensive training provided in cooperation with fire department, twice annually

PROGRAM COMPLIANCE

Cross Connection Programs

Ordinance No. 82-57.01 Date: Copy in basic data, rec'd at 2007 visit (date unknown)
Approved Program (Y/N)? Yes Date: 1974 orig. Revised in 1997
Outline of program given at 2007 visit
Staff Assigned to Program, (No., Dept and/or who) Scott Rosell & Jim Scheyne
Is Annual Cross Connection report required (Y/N)? Yes
Was previous year's annual report received (Y/N)? Yes Date Received: 3/14/2013
Was previous year's annual report acceptable (Y/N)? yes
Inspection Status: Non-residential only
Device Testing Frequency High: (399) Annually. Low: (447) 1/3yrs
Recordkeeping: yes
Private Well Isolation/Abandonment Procedure: Oakland County Health Dept.
Must plug abandoned well when apply for tap connection
Comments: (Bentonite Plug required by county)
886 Accounts. Account considered high if one or more high hazard device maintained

Annual Pumpage Reports

Is Annual Pumpage Report required (Y/N)? Yes
Was previous year's annual report received (Y/N)? Yes Date Received: 3/14/2013
Comments:

Consumer Confidence Reports

Is the annual CCR requires? (Y/N) yes
Was the previous year's report received? (Y/N) yes Date: 6/24/2013
Was the previous year's acceptable? (Y/N) yes
Was the previous year's certification form received? (Y/N) yes Timely? yes Date: 6/24/2013
Comments: Posted on website, news, library, provided to each resident, packgs to mult. unit complexes, facebook...

Emergency Response Plan

Date of Most Recent Plan: **March 2013** Acceptable? Yes
Filed where? Novi Water Dept. (4 copies readily availabel at DPS)
Comments: Updated at least annually. Weekly table top exercises/emergency event preparedness activities

General Plan

Date of Most Recent Plan: 2008 Acceptable? Yes
Filed Where? basic data
Comments: continually updated
County-wide maps maintained by OCDC, to provide interjurisdictional oversight/communication

Reliability Study

Date of Most Recent Study: 2008 Acceptable? Updated requested every 5 years
Filed Where? basic data
comments Completed with Master Plan & CIP,2013-2014

MONITORING

Bacteriological Monitoring

Date of Approved Site Sampling Plan :	July-07
Are samples still being collected in accordance with the plan? (Y/N)	Yes
Number of samples required each month:	**10**
Basis for Setting Number of Monthly Samples:	20% of chart value, based on population
Certified Lab Used:	DWSD
MCL, Monitoring or Reporting Violation(s)? (Y/N)	No

Comments: (List dates of any violations and follow up actions taken)

Samples collected and analyzed by DWSD

Increased population to 43,030 in 2012, 20% of chart value is 10 samples.

Lead and Copper Monitoring

No. of Samples Required:	5	
Semi Annual/Annual/Triennial	triennial	
Exceedance of lead or copper action level (Y/N)	No	
If yes, was public education issued (Y/N)	NA	Date Issued: na
Next Monitoring Period:	2014	
Corrosion Control Program, if applicable	NA	
Lead service line replacement status, if applicable	NA	

Chemical and Radiological Monitoring

Are samples still being collected in accordance with the schedule? (Y/N)	NA - DWSD
DBP Sampling Done? (Y/N/Waived)	Stage 2 IDSE plan approved by EPA
If yes, done to site sampling plan? (Y/N)	yes

UPDATED CROSS CONNECTION CONTROL PROGRAM

City of Novi

CROSS CONNECTION CONTROL PROGRAM

cityofnovi.org

Cross Connection Control Program (CCCP) for the City of Novi

I. Introduction

In accordance to the requirements set forth by the Michigan Department of Environmental Quality (MDEQ), the City of Novi has officially adopted the state of Michigan cross connection rules to protect the public water supply system. The Department of Public Services (DPS) Water and Sewer Division (Water Utility) shall be responsible for the administration, inspection, and enforcement of the CCCP. Inspections shall include working in partnership with the Community Development Department Plumbing Official. A cross connection is defined as a connection or arrangement of piping or appurtenances through which a backflow could occur. Backflow is defined as the undesirable reversal of flow of water of questionable quality, wastes, or other contaminants into a public water supply. The purpose of this program is to prevent contamination of the public water supply by preventing and eliminating cross connections in commercial, industrial, and residential buildings and properties. It is the City of Novi's intent to carry out a comprehensive and effective cross connection control program (CCCP) to ensure public health is protected through the enforcement of the Michigan Safe Drinking Water Act (PA 399), Michigan Plumbing Code, and the Michigan Residential Code.

II. Authority

The authority to carry out and enforce the local CCCP is provided from the City of Novi Code of Ordinance 34, Division 2, Sections 34-36 through 34-41, (see Appendix A), the Michigan Safe Drinking Water Act (Act 399), the MDEQ, Water Bureau Cross Connection Rules Manual, the Michigan Plumbing Code, and the Michigan Residential Code.

III. Right of Entry

Whenever it is necessary to complete an inspection to enforce the provisions of the CCCP, or whenever the Water Utility has reasonable cause to believe that there exists in any building or upon any premises any conditions or violations of the CCCP that makes the public water supply unsafe, the Water Utility shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the Water Utility by the CCCP. If such building or premises is occupied, the CCCP inspector shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the Water Utility shall make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry.

IV. Program Approach

The objectives of this program will be met primarily by:

- Routinely inspecting water customers for cross connections or potential cross connections.
- Require water customers to test, testable backflow prevention assemblies and devices.
- Maintaining cross connection control records.
- Actively enforcing violations of the program.
- Providing public education.
- Reporting the status of the program to the MDEQ.

The City of Novi shall ensure that there are adequate personnel and resources to carry out the necessary field and administrative requirements for this program. The City of Novi adopts the MDEQ, Water Bureau Cross Connection Rules Manual as a guide to prevent and eliminate cross connections.

V. Inspections

The water connections and plumbing systems of all water customers or accounts shall be initially inspected for the presence of cross connections. As a result of the initial inspection, a detailed record of each account shall be established (see Section VII). A representative of the City of Novi DPS/ Water and Sewer Division or their designated agent shall be responsible for inspections. Individuals responsible for conducting inspections shall have obtained sufficient training on cross connection rules, identification, and corrective actions.

Inspections shall consist of entering a facility from the point where water service enters the facility (usually the meter) and tracing the piping to each end point of use. Using the inspection forms in Appendix B, the inspector shall identify and note the location and nature of any direct and potential cross connections, location and details of backflow prevention devices, and other pertinent information. If the inspector is refused proper access or if customer's plumbing is untraceable, the City of Novi will assume a cross connection is present and take the necessary action to ensure the public water supply is protected.

The highest priority for inspections shall be placed on facilities that pose a high degree of hazard, that have a high probability that back flow will occur, or are known/suspected to have cross connections.

Once initial inspections of all accounts are complete, then a re-inspection frequency shall be determined for each account based on the degree of

hazard and potential for backflow. The MDEQ Cross Connection Rules Manual will be a guide in classifying the degree of hazard of each account. However, in general, situations in which backflow could cause illness or death shall be considered high hazard. Accounts that pose a high hazard or have a high potential for back flow to occur, must be re-inspected at least once per year. All other accounts must be re-inspected once every 1-5 years based on the degree of risk, (See Appendix C for the City of Novi's frequency classification). Other factors such as new construction, water quality complaints, or abnormalities in customer billing, may prompt an immediate re-inspection. After initial cross connection inspections are complete, a comprehensive list or inventory of all backflow prevention devices shall be on record including all pertinent data.

Following an inspection, the City of Novi shall inform the customer of their compliance status with the cross connection rules. Template notices in Appendix D may be used to inform customers of upcoming inspections, required corrective actions, compliance status, etc.

VI. Testing Backflow Prevention Assemblies

When all initial inspections have been completed, a comprehensive list of backflow prevention devices installed on customer plumbing systems will be on record. The backflow prevention devices that are testable assemblies shall be placed on a routine testing schedule. All testable assemblies in commercial, industrial, or multi –family residential with a fire suppression system with chemical additives, must be tested annually. All irrigation (unless chemicals are added), residential, multi-family, (other than fire protection systems with chemical additives) devices must be tested once every 3 years. In addition, all assemblies must be tested immediately following installation, re-location, and/or repair.

Upon notice from the City of Novi, it shall be the responsibility of the water customer to arrange for the assembly to be tested and submit the completed test form. Test forms provided by the Water and Sewer Division must be utilized. No other test forms will be accepted.

Following the initial cross connection inspections and subsequent classification of accounts (e.g. assigning a degree of hazard), assembly testing notices shall be sent to customers each year for commercial, industrial, or multi –family residential (with chemical additives to the fire suppression systems). All irrigation (unless chemicals are added), residential, multi-family, (other than fire protection systems with chemical additives) will receive testing notices every 3 years. The notices shall be sent out in a timely manner in order to provide adequate time for customers to comply, and the timing will consider seasonal assemblies. Template notices in Appendix D may be used to inform customers of testing requirements.

These notices will:

Clearly identify the assembly requiring testing (size, make, model, serial number, location, etc.)

- Stipulate the date by which the assembly must be tested.
- Indicate that tests must be completed by a certified tester. Testers are those testers approved by the Water Utility.
- Enclose the required test form to be utilized (see Appendix E).

When assembly testing reports are received by the water utility, they will be checked for the following:

- Owners name and mailing address
- Building address
- Type of device
- Manufactures name, model number, serial number, and size of assembly.
- Physical location of assembly within the building (as descriptive as possible)
- Description of application (i.e. equipment or system served)
- Initial test results (pass-fail of first check and second check, relief valve discharge, air inlet opening, static line pressure)

- Test gauge manufacture, model number, serial number and last date of calibration
- Repairs made, repair parts used, cleaning performed
- Final test results, as applicable
- Printed name, signature and certification number of tester
- Type of certification (i.e. general tester or restricted tester)
- The assembly tested matches the assembly requiring testing (make, model, serial number, etc.)
- The assembly is ASSE certified, (page 45 cross connection manual) CSA Certified, approved pursuant to applicable standards of the MPC

A customer may be asked to have an assembly retested if the original test results do not appear valid. Test forms must be received and kept on record for each required test.

VII. Record Keeping

A system of cross connection record keeping shall be maintained. Special software specifically for cross connections may be used for:

- Efficient record searches
- Easy reporting
- Simple updating
- Automatic letter generation
- Automatic deadline notification
- Automatic violation notices

All cross connections account information must be recorded including:

- Address and location
- Owner name and contact information
- List of testable assemblies
- Description of other cross connections within the facility
- Air gaps
- Non-testable assemblies
- Degree of hazard classification and basis
- Required re-inspection frequency
- Photos or sketches if available

All testable assemblies must be in the records including:

- Location of the assembly
- Name and contact information of building or premises owner
- Make, model, serial number, and size of assembly
- Approved testing agency identification number (i.e., ASSE, CSA, etc.)
- Degree of hazard classification
- Required testing frequency and basis
- Seasonal or permanent status

Tracking changes in water use or tracking new customers is a critical part of the cross connection program. The City of Novi shall make every attempt to prevent/eliminate cross connections at installation to ensure future compliance. A coordinated effort between the Water and Sewer Division and the Community Development Department Plumbing Official will be a focus to meet the goals of the CCCP.

Standard letter, form, and report templates may be used to simplify the program requirements including:

- Inspection forms
- Assembly testing forms
- Inspection and/or assembly testing notification letters
- Non- compliance letters
- Water service termination notice
- Hydrant use authorization forms

Copies of the written cross connection control program, ordinance, and DEQ approval letter should be kept on file. Copies of the MDEQ annual reports shall be kept for a minimum of 10 years.

VIII. Enforcement

To protect public health, water customers found to be in violation of the cross connection rules will be brought into compliance in a timely manner or lose their privilege to be connected to the public water system. To properly enforce these rules the City of Novi ordinance provides authority to inspect facilities, terminate water service, and assess fines.

Following an inspection the customer will be sent either a compliance notice or a non-compliance notice. The timeframe to complete the necessary corrective actions is at the discretion of the water utility and will be based primarily on the degree of risk posed by the violation but should also consider the complexity of the necessary corrective actions. Cross connections that pose an imminent and extreme hazard shall be disconnected immediately and so maintained until proper protection is in place. Cross connections that do not pose an extreme hazard are generally expected to be eliminated within 30-60 days. The necessary corrective action and deadline shall be described in the non-compliance notice to the customer.

Failure to perform a required backflow prevention assembly test or pass a test constitutes a cross connection and must be corrected in a timely manner.

If water shut off is necessary to protect the public water system, the local health department, fire department, local law enforcement, and city manager may need to be notified.

IX. Public Education

The cross connection control program staff must have a good understanding of the program. The City of Novi shall ensure their cross connection control staff receives proper in-the-field training as well as classroom education focusing on terminology, back flow prevention devices, regulations, and hydraulic concepts. In addition, cross connection control staff will be encouraged to receive continuing education to be made aware of new backflow prevention devices, regulation changes (i.e. plumbing code updates), new water use devices that pose cross connection concerns, etc.

Furthermore, attempts to educate the public about cross connections will be made by distributing pamphlets on common residential cross connections, visiting schools, providing onsite education of facility management and maintenance staff during routine inspections, speaking at neighborhood association meetings, showing videos on local access channels, or posting newspaper announcements.

Cross connection staff shall also be available upon request to provide backflow prevention education to pertinent community officials and City of Novi employees.

X. Annual Report

Part 14 of the Michigan Safe Drinking Water Act (PA 399) requires that each community report the status of their program to the MDEQ annually. The report summarizes testing, inspection, and corrective action efforts. Cross connection records shall be on file to document each number on the report. The annual report form shall be filled out completely and submitted by the deadline.

A narrative description shall be included explaining any unusual numbers or significant events such as:

- The addition or loss of a cross connection staff person
- Greatly expanded/contracted number of cross connection accounts
- Status of accounts not currently in compliance