City of Rochester, New Hampshire
PUBLIC WORKS DEPARTMENT
209 Chestnut Hill Road • Rochester, NH 03867
(603) 332-4096
www.RochesterNH.ngov

MEMO PUBLIC WORKS & BUILDING COMMITTEE AGENDA

TO: **PUBLIC WORKS AND BUILDINGS COMMITTEE**

FROM: **PETER C. NOURSE, PE**
DIRECTOR OF CITY SERVICES

DATE: October 12, 2023

SUBJECT: Public Works & Buildings Committee Meeting
Meeting Date ***Thursday October 19, 2023, at 7PM***

There will be a Public Works and Buildings Committee Meeting held on Thursday October 19, at 7PM. This meeting will be at City Hall in City Council Chambers

AGENDA

1. Approval of the September 21, 2023, PWC Minutes
2. Public Input
3. Sewer System Master Plan Update by Weston Sampson Engineers
4. Suitability of Public Waste and Drinking Water Utilities to Support the Granite Ridge Development District-Initial Review
5. Proposed Disposition of Polychlorinated Biphenyls (PCB) Class action Lawsuit Settlement Funding
6. Other

Public Works and Buildings Committee
City Hall Council Chambers
Meeting Minutes
September 21, 2023

MEMBERS PRESENT

Councilor Donald Hamann, Chairman
Councilor Jim Gray, Vice Chairman
Councilor John Larochelle
Councilor Alexander de Geofroy
Councilor Steve Beaudoin

OTHERS PRESENT

Peter C. Nourse PE, Director of City Service
Lisa Clark, DPW Deputy Director
Dan Camara, Coordinator GIS & Asset Mgmt.

MINUTES

Councilor Hamann called the Public Works and Building Committee to order at 7PM

1. **Approval of July 27, 2023, Meeting Minutes**
   Councilor de Geofroy made a motion to accept the minutes of the June 15, 2023, meeting as presented. Councilor Beaudoin seconded the motion. The motion passed unanimously.

2. **Public Input**
   There was no public input.

3. **NH Memorial to Public Works Employees Who Have Died in Service (attached brochure)**

   Mr. Nourse stated that on Tuesday, September 12, 2023, he and a few other employees from Rochester Public Works were present for the second reading of the dedication of names. He noted the first reading was in 2019. Mr. Nourse gave history on the memorial. Fourteen years ago, he mentioned Governor John Lynch signed into law an act establishing a committee to design, construct and maintain a memorial honoring public works employees who died while performing their public works duties. The committee was made up of 13 members and they selected the site, invited high school seniors and college students to submit designs and then selected the design. The design is a reflection garden. Mr. Nourse stated there are 24 shovels marking the 24 hours in a day that a public works employee may be called to work, four large granite monuments and granite benches to sit and reflect. Mr. Nourse mentioned there is a large black granite monument in the shape of New Hampshire that welcomes visitors. He stated the memorial was completed in June of 2019 and was then dedicated and presented to Governor Sununu as a gift to the State of New Hampshire. Mr. Nourse further explained that in June of 2019 there were thirty-seven names that were read aloud at the September 12, 2023, dedication and fifteen additional names, including Kenneth Guild of Rochester Public Works. Mr. Nourse stated he worked

with the Committee in 2019 to get Mr. Guild added, but the process was not completed for the 2019 reading. Mr. Nourse stated this memorial serves as a permanent reminder of those who gave the ultimate sacrifice, and it demonstrates the need for on-the-job safety for all involved in public service in New Hampshire.

4. New Hampshire Public Works Mutual Aid Program

Mr. Nourse stated that with increasing storms there is an increasing number of requests for assistance from the public works community. He noted that these requests are largely from smaller communities with less resources than that of Cities. He mentioned in July there was a large storm and Alton requested several large trucks. Mr. Nourse further stated he did not have the personnel to support that request and if he did, he did not feel comfortable sending such assistance until it was discussed with the committee. Mr. Nourse stated he wanted to have the discussion for some time now to see how the City Council feels about DPW sending resources to other communities when requested. Mr. Nourse explained there are two ways to send aid-informally without membership to the Public Works Mutual Aid Program and formally as a member. He stated that the program is authorized under RSA 53-A:3 which permits municipalities to cooperate with others to reduce loss of life and damage to public property through coordination of disaster preparedness, mitigation, response and recovery. Mr. Nourse noted that he last discussed potential membership with this Committee about 10 years ago and at that time there the Committee did not have an interest in becoming a member of the program. Mr. Nourse stated his observation of the membership list is that most of our sister Cities are not members and that may be because cities in general would be most likely to be donors versus recipients. Mr. Nourse stated things to consider are; membership provides that assistance membership provides that assistance (equipment and personnel) be rendered, if a community is able to, and that such assistance will be funded by the requestor. Membership does not obligate a community to dispatch assistance, but it is expected. Mr. Nourse stated that he has checked with Primex, the City's insurance carrier, as to whether or not the City's equipment is still covered by insurance if working in another community and if personnel are covered by workman's compensation. Primex stated that wherever equipment and staff are performing work as long as they are working in the capacity of their assigned duties they are covered. Mr. Nourse stated that there are 3 options to consider. The City can become a member of the Mutual Aid Program. The City can elect not to become a member but could continue to follow current practice to use the DPW personnel and equipment to aid another community when requested and when available if it is not a detriment to the City of Rochester at the discretion of DPW. He noted they would not need a motion for this option, the third option is to do nothing. Mr. Nourse stated that he advocates for the second option, he has a little concern about being a member and having the resources to commit to a request. He stated that our City's highway crew is not large enough to be effective for much of its regular work to be performed. He believes that we could render aid when possible, under a non-membership status giving us more flexibility. Mr. Nourse noted that this was discussed with the City Attorney and that he is in agreement. Councilor Larochelle said he is fine with helping if it makes sense. Councilor de Geofroy stated his support for the second option of no membership and the use of Department of Public Works personnel and equipment at the discretion of the Public Works Department. Councilor Beaudoin asked the question how would the City bill for mutual aid and would the distance be at the

discretion of DPW. Mr. Nourse said it would be billed from the time staff and equipment left the area by the administrative staff. He stated actual hours of work, including over-time, and the current FEMA equipment rates would be charged for vehicles and equipment. Councilor Larochelle stated that he recommends and supports option two, which includes non-membership but allows assistance to other communities at the discretion of the DPW. Councilor Beaudoin agreed and seconded the recommendation. The Committee voted and the vote was unanimous. Mr. Nourse stated that this is the current practice, and he was comfortable continuing with the same.

5. **Tebbetts Road/Old Dover Road Intersection Improvements; Public Concerns Meeting at City Hall Council Chambers on 9/26/2023 at 7PM (will stream live via website www.rochesternh.gov and will be recorded for future viewing, it will also be broadcast live on channel 26 for Breezeline customers and channel 22 for Comcast customers)**

Mr. Nourse stated there will be a Public Concerns Meeting at City Hall Council Chambers on September 26, 2023. He noted a Road Safety Audit was conducted in 2019 following a fatality. The project was entered into the NHDOT Highway Safety Improvement Program to improve the intersection's safety. Mr. Nourse stated that there are several option to be considered for improvements and that this forum will be a chance to show those options and receive comments from the public. (This meeting will be streamed live via website www.rochesternh.gov and will be recorded for future viewing. He noted it will also be broadcast live on channel 26 for Breezeline customers, and channel 22 for Comcast customers).

6. **Strafford Square Roundabout**

Mr. Nourse stated to the committee that the roundabout is now quickly taking shape. He stated that it is anticipated that the roundabout operation will be in effect as early as November. Mr. Nourse explained the contractor will be leaving the current configuration in place while they continue to finish the perimeter curbing, sidewalks, and islands. Mr. Nourse mentioned when roundabouts are constructed there is typically a period of adjustment for the public, and fender benders can be expected. Mr. Nourse stated that there is literature posted on the website regarding navigation of the roundabout and there are copies of a brochure available at City Hall in the corridor. Mr. Nourse stated that he is preparing a memo for the City Council to summarize the project from start to finish. Councilor Hamann stated he had one comment from a resident. He stated they had inquired to see if the curbing installation was the type to allow trucks to roll over without causing damage. Mr. Nourse stated the curbing being placed is designed for semi-trucks to transit and roll over if necessary. Councilor Beaudoin said a question was raised during public comment last week regarding the level installation of curbs. He inquired if engineering is on site checking this out to make sure it is being built to specifications. Mr. Nourse stated that the City has a private consulting resident engineer on site always that is doing inspections for the City, and a City inspector regularly checks in to insure that the contractor is meeting the specifications. He noted that the geometry and grades are very specific for this roundabout.

7. **The Cyber Security of the Industrial Control Systems of Water and Wastewater Treatment Facilities**

Mr. Nourse stated Cyber threats are on the rise globally and they don't just consist of malware or ransomware targeting individuals and financial institutions. Cyber threats are increasingly targeting public utilities including drinking and wastewater utilities. He stated that bad actors see such targets as pressure points of their enemies. Mr. Nourse further stated Water and wastewater facilities in 7 states have been hit by ransomware attacks since 2019. Attacks have been on billing software, device restarts, attempts to manipulate treatment trains, exfiltrate business, network and personal info and delete programs. Some attacks are known to originate in China and Russia and some attacks were from former employees. He noted that the Cyber Security and Infrastructure Security Agency (CISA) is the Federal advisory agency. He stated that CISA leverages the National Institute of Standards and Tech (NIST), the cyber security standards and best practices. Mr. Nourse stated that the EPA is the Water & Wastewater sector risk management enforcement agency. He explained that CISA regularly issues advisories to ongoing cyber threats to US water and wastewater systems. Mr. Nourse stated that there are many agencies involved including CISA, NSA, FBI and EPA. He stated that there is a profound amount of information available on-line from these agencies and that you could spend weeks drilling down on these resource guides and templates on best practices. Mr. Nourse explained that The Protected Critical Infrastructure Information Program encourages public and private sector owners of physical and cyber critical infrastructure to voluntarily share sensitive security and proprietary data with CISA. He stated that this program protects information from Federal, State and local disclosure laws, allowing partners to securely share their critical information. Mr. Nourse stated in March the EPA required states to evaluate cybersecurity of Public Water Systems and he noted that CISA offers Cyber Resilience Review on a voluntary, no cost basis. Mr. Nourse stated that this review evaluates the maturity of an organization's capacities and capabilities in performing, planning, managing, measuring, and defining cybersecurity across 10 domains. He stated that cybersecurity in water and wastewater facilities is mainly focused on industrial control systems (ICS) also referred to as Supervisory Control and Data Acquisition (SCADA). Mr. Nourse stated that the general term that is used is Operational Technology (OT). It is a remotely operated system that is designed to minimize externally accessible human interface. Mr. Nourse stated that OT exists in many industries such as auto manufactures or food processing. It consists of programmable logic controllers, actuators, sensors, diagnostics, switches and runs on a low-level ladder logic language. He further stated that OT is NOT IT. "Information Technology (IT) is a business application and OT existed decades before IT and as such, was not originally created with cybersecurity in mind. Unlike IT, OT has historically been proprietary systems. Mr. Nourse explained that all organizations stress that IT and OT systems should remain completely separated as most attacks are payloads through IT systems (email). Mr. Nourse stated that in June of 2022 we had CISA conduct a Cyber Resilience Review at the WWTF. He stated that this allowed us to obtain a $50K grant of ARPA funding through NHDES to improve our security posture. Mr. Nourse stated that in June of 2023 we had a CISA review of the Drinking Water Facility and have submitted for another $50K ARPA grant to improve our security posture. Mr. Nourse explained that the results of the reviews are protected information, and he would not be providing details. He did say that in both cases the City

scored above the median level in most domains, sometimes greatly above. He noted that there are areas to improve and that we are using the grant funds to improve our security posture. He also stated that the City will take advantage of future grant funds as they become available, and he will also request funds in our upcoming budgets to support the progression of security: Mr. Nourse stated that the threat is always there; however, the reviews indicate Rochester is in a good place and it will get better. He noted that the reason this was on the agenda was to inform the Committee and Council that we are on top of the industry's cyber security concerns and that we understand the threat and are taking action to improve our security posture. Councilor de Geofroy asked if he could see the reports, Mr. Nourse said he would have to look into it as he was unsure of the ability to share the information and reports. He suggested a non-public meeting could be arranged. Councilor Larochelle asked if this governs control of the Reservoir system. Mr. Nourse said this is separate, but CISA did do a physical security evaluation of the drinking water system.

8. Champlin Ridge Road

Mr. Nourse updated the committee on the Champlin Ridge Road pavement concerns that were discussed at the Public Input portion of the July PWC Meeting. Mr. Nourse stated that he examined the roadway shortly after and there are a couple of issues. He noted there is only about 1.5" of pavement and the pavement is largely failing on the sides. He stated that this is because water cannot get to the ditches due to a berm along much of the road. Mr. Nourse stated this road was accepted in the mid-2000's and did not meet City standards. He stated that staff were dispatched this week to start shaving the berm down. Mr. Nourse noted that the DPW will run the annual PCI (pavement condition index) next month to see what priority the road may have for paving. He noted that it is unlikely this road will make the paving list, and he stated that staff can shim road to get it by for a while longer.

9. Other

Public Relations Event

Mr. Nourse stated that the Public Relations event for the Rt 202A Water Main Extension Project will be held October 17th, 2023, at 10AM. Mr., Nourse solicited the Public Works Committee for comments for the format of the 202A ceremony to see what they would like, no specifics were provided. He stated that the representatives from NHDES Drinking Water Trust Fund Bureau have been very excited about this project as it provides municipal drinking water to upwards of 160 households who have experienced poor well water quality. He noted that it is a d $13.5Million project funded in large part through grants and loans. He noted that the City Manager and Mayor are interested in this event along with other State of NH dignitaries. The rain date for the event is October 24, 2023.

NH Route 108 Complete Streets Public Information Meeting

Mr. Nourse noted that the NH Route 108 Complete Streets Public Information Meeting – Rochester Public Works Department, 209 Chestnut Hill Rd. 9/26/23 at 6:00 pm. This is not a Department of Public Works Project. This is a $31Million project to improve multi-modal transportation along Route 108 from NH Route 9/Indian Brook Drive in Dover to Innovation Drive in Rochester 5 miles. He stated that this project is in the 2023-2032 ten-

year plan and that it is currently in design with construction scheduled for 2024-2026. He noted that this will have a public hearing date later in 2023 or early 2024. Mr. Nourse explained that the purpose of project is to improve multi-modal use, access and safety for about 5 miles of Rt 108 from Indian Brook Drive in Somersworth to Innovation Dr. in Rochester. He stated that there are three public meetings to review the proposed designs for the project.

Dover City Hall on 9/19/2023 at 6:00.

Somersworth City Hall on 9/21/2023 at 6:00

Rochester Public Works on 9/26/2023 at 6:00 pm.

Councilor Gray stated that this was discussed at the Chamber of Commerce Government Affairs meeting this morning and they would like to see it broadcasted and recorded so it could be viewed later. Ms. Clark stated this was discussed at the City Department level as well and it could be recorded, she would make the request.

GACIT Public Input September 28, 2023 4-6 Council Chambers

Mr. Nourse explained that the Government Advisory Council (GACIT) Public Input meet is to be held Thursday September 28, 2023, 4-6 PM at City Hall in City Council Chambers. The purpose of these Public Hearings is to receive public comments and testimony on transportation projects and priorities included in the draft 2025-2034 Ten-Year Transportation Improvement Plan as recommended by the New Hampshire Department of Transportation. Those not able to attend the meetings can submit written testimony until November 3, 2023, at 4 PM. The New Hampshire RSA 228:99 and RSA 240 require that the New Hampshire Department of Transportation (NHDOT) propose a plan for improvements to the State's transportation system every two years. The purpose of the Ten-Year Plan is to develop and implement a plan allowing New Hampshire to fully participate in federally supported transportation improvement projects as well as to outline projects and programs funded with State transportation dollars. Selected projects would be added to the tail end 2 years of the 2025-2034 TYP or 2033/34. $40M of Rochester projects currently in the plan in various stages but SRPC budget about $5M/cycle.

Volunteers are being Solicited for the Rochester Accessibility Audit-Strafford Regional Planning Commission on September 25, 22023 3-7 PM

Mr. Nourse noted that this is an effort made by the Strafford Regional Planning Commission. They ask that the public join in for a walk-through downtown Rochester to help make the streets and sidewalks more accessible for all. He stated that on September 25th, the City of Rochester, along with partners from Strafford Regional Planning Commission and Strafford County Public Health Network are conducting an Accessibility Audit of Downtown Rochester. He mentioned that volunteers are needed on September 25th to observe and evaluate the accessibility of streets and sidewalks in downtown Rochester. He stated that they will meet at the Rochester Performance & Arts Center (RPAC) to begin the audits. There will be two chances to participate: the first audit is at 3pm, the second audit starts at 5pm. Refreshments will be provided. All ages and abilities are welcome! RSVP is required by September 22nd one of three ways: Complete the a

Google-Form-athttps://forms.gle/HYChCTzyQGFjLGMJ9Email-at acleveland@strafford.org or Call 603-994-3500. As of yesterday, they had 8 volunteers.

Lead Update

Mr. Nourse stated and updated Councilor Larochelle on the lead sampling. He explained that there are seventy (70) sites for sampling and that they alternate between sites every three years. Mr. Nourse stated that this year there are thirty-three (33) sites in the pool, and of that pool twenty-seven (27) had zero hits for lead and six of them (10%) tested at 3.1 parts per billion. He stated that this is nowhere close to the maximum contaminant level (MCL). Mr. Nourse stated that the service line inventory continues to evolve. He noted that of our approximate seventy five hundred connections there are twenty-seven connections of unknown materials, eighty-one galvanized pipe connections and one thousand brass connections. Councilor Beaudoin asked how long has the City been using copper for connections. Mr. Nourse said starting in the 1950's it started to get used a lot. Mr. Nourse said they had a choice back then to use lead or copper. Mr. Nourse said that this fall that they should be able to see what the scope of the problem is when EPA comes out with it new restrictions.

Woodman Street Project

Councilor Beaudoin made a comment that this project is going very well and making great progress. He asked if the project was on schedule and Mr. Nourse said yes, but the project will go through 2024.

Paving on Rt 202A and Fiddlehead

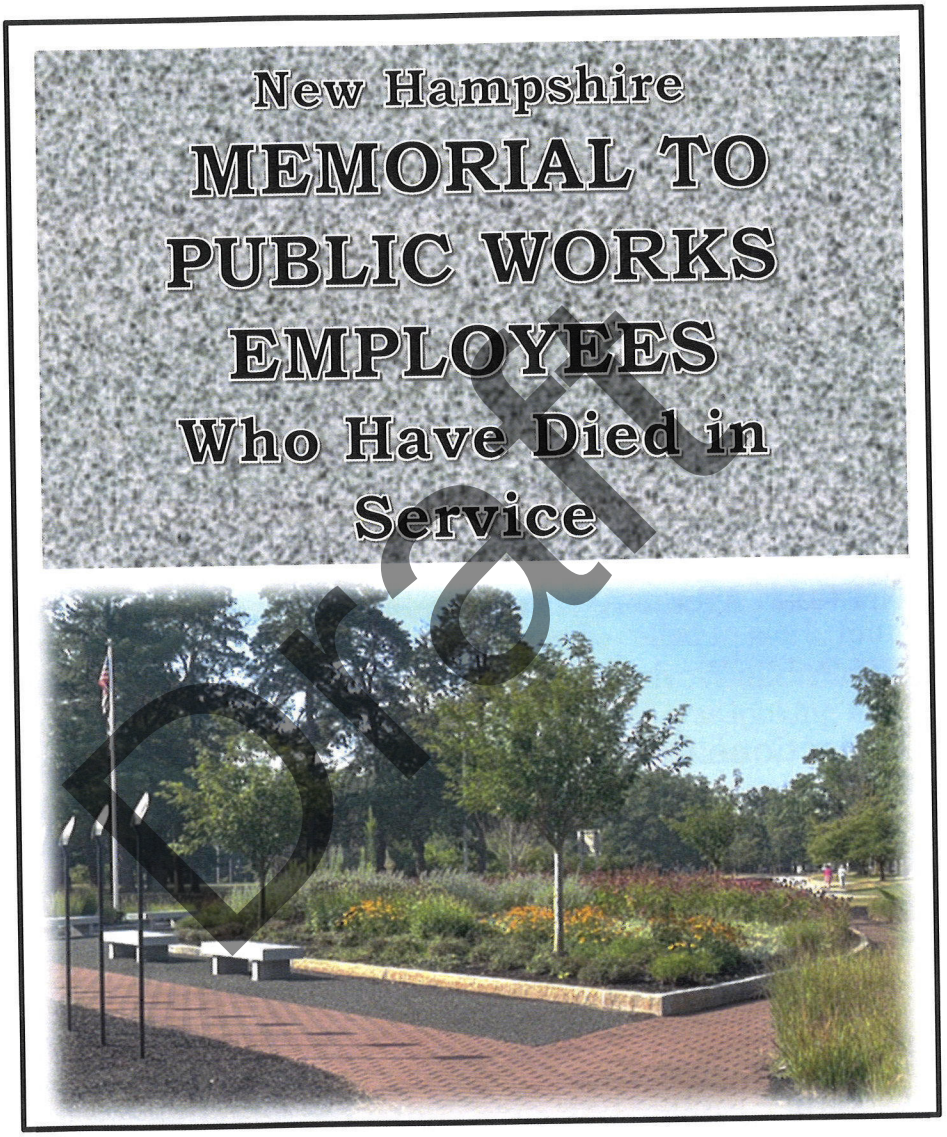
Councilor Hamann asked if the paving was completed on 202A Project including Fiddlehead Lane? Mr. Nourse said it is not completed as it has not received the wear course of pavement. He stated it will likely be next spring.

Circle for Sig Saur Status

Councilor Hamann asked the status of the Sig Sau intersection improvements. Mr. Nourse stated that it is still in the preliminary design stages and DPW is working with the Sig Sau campus engineering on drainage. Mr. Nourse stated that he had met with all the business abutters and is making some accommodation for them and he noted that there is a purchase order out to demolish the old Trinket and Treasure building. Mr. Nourse stated that this will be designed next year and per agreement with Sig need to finish construction June 2025.

Councilor Hamman made a motion for adjournment at 7:51 PM

Minutes respectfully submitted by Laura McDormand, Admin, Services & Utility Billing Supervisor



DEDICATION of NAMES

Tuesday, September 12, 2023
9:00 a.m. – 10:30 a.m.
7 Hazen Drive, Concord, NH

Dedication Ceremony

Welcome – Richard Arcand, Master of Ceremonies
NHDOT Public Information Officer

Prayer Offering & Blessing – Pastor Jason Rose
One Church Outpost Pastor and
Concord Police Department Chaplain

Governor – The Honorable
Governor John Lynch 2005-2013

NHDOT Commissioner – William Cass

NH Road Agents Association, President – Brian Barden

NH Public Works Association, President – Dan Hudson

Reflections from a Family Member - Meg Perez
Granddaughter to Ernest J. Cliche,
Died March 9, 1938, in Dalton, working for the State of NH
Public Works & Highways *(Now NHDOT District 1)*

Reading of Names – Jim Rivers, Family Member
Assigned to the Committee by the Governor
..... *(Turn the Page for the Names)*

Closing – Richard Arcand, Master of Ceremonies

PUBLIC WORKS EMPLOYEE MEMORIAL of New Hampshire

Welcome to our second Dedication of Names.

Fourteen years ago, Governor John Lynch signed into law an act establishing a committee to design, construct and maintain a memorial honoring public works employees who died while performing their public works duties on behalf of the State of New Hampshire, a city, town, or county. Republicans and Democrats alike sponsored this bipartisan legislation that took effect on August 14, 2009.

The 13-member Committee selected the site, invited high school seniors and college students to submit designs and then selected the design of Kelsie Lee, a senior at Colby Sawyer College. Her design of a reflection garden, 24 shovels marking the 24 hours in a day that a public works employee may be called to work, four large granite monuments and granite benches to sit and reflect, all captured the essence of what the committee was looking for. A large black granite monument in the shape of New Hampshire welcomes visitors. Through the generosity of many private monetary donations and in-kind donations of heavy equipment, labor, time and materials, the memorial was completed in June of 2019, then dedicated and presented to Governor Sununu as a gift to the State of New Hampshire.

May it serve as a permanent reminder of those who gave the ultimate sacrifice and the need for on-the-job safety for all involved in public works service in New Hampshire.

Public Works Employee Memorial
c/o Commissioner's Office
NHDOT, PO Box 483
Concord, NH 03302-0483
E-mail: highwaymaintenance@dot.nh.gov - Memorial Phone: (603) 271-2693

New Hampshire Public Works Employees

Who Have Died In Service

1. Daniel Carswell, NHDOT Turnpikes (1997)
2. Ryan Haynes, New London Public Works (2005)
3. Rudolph Demurs, Dover Dept. Public Works (1971)
4. Alphonse "Al" Napolitano, NHDOT Bridge Maintenance (2004)
5. Jim "Richard" Hayes, NHDOT Bridge Maintenance (2012)
6. William Jennings, Manchester Water Works (1977)
7. Jeffrey Robinson, Manchester Water Works (2012)
8. Robbie Gonyer, NHDOT Highway Maintenance (2004)
9. Carl Richardson, NH Public Works & Highways (1973)
10. Archie Page, Loudon Public Works (1973)
11. Ephriam J. "Steve" Rivers, NH Public Works & Highways (1959)
12. Stephen Blood, Antrim Highway Dept. (2009)
13. Bruce Harting, Wolfeboro Transfer Station (2002)
14. Albert Pinard, Manchester Highway Dept. (1977)
15. George Prive, Manchester Public Works (1994)
16. Raymond LeBlanc, Manchester Highway Dept. (1971)
17. Irenee Boissoneault, Manchester Highway Dept. (1969)
18. Luchien Sarette, Manchester Highway Dept. (1965)
19. David Kemmeur, Manchester Highway Dept. (1956)
20. Patrick Griffin, Manchester Highway Dept. (1950)
21. Arthur Coleman, Manchester City Street Commission (1910)
22. John Conroy, Manchester City Street Commission (1898)
23. Timothy Sheehan, Manchester City Street Commission (1896)
24. Fortuant Allaire, Manchester City Street Commission (1897)
25. Etienne Duval, Manchester City Street Commission (1893)
26. David Nelson, Charlestown Public Works (1950)
27. Stephen McKinley, NHDOT Highway Maintenance (2005)
28. Milton Reed, NHDOT Highway Maintenance (2011)
29. Leo Scannell, NH Public Works & Highways (1965)
30. Richard D. Milliken, NH Public Works & Highways (1956)
31. Frederick Scroggins, NH Public Works & Highways (1971)
32. Thomas E. Wooten, Northfield Dept. of Public Works (2016)
33. Charles E. Damour, Henniker Wastewater Plant (1985)
34. Paul H. Paradis, Sr., Rye Public Works Dept. (1982)
35. Emery D. Eaves, NH Public Works & Highways (1973)
36. James Costello, Manchester City Street Commission (1898)
37. Wilfrid Brisson, Manchester Highway Dept. (1944)

Names Dedicated on September 12, 2023

38. Carrol F. Blair, NHDOT Highway Maintenance (1992)
39. Francis Hoganson, Lancaster Transfer Station (1995)
40. Brent W. Jackson, NHDOT Bureau of Traffic (2006)
41. Walter T. Box, NHDOT Highway Maintenance (2005)
42. William G. Archie, Hampton Public Works Dept. (1969)
43. Kenneth Guild, Rochester Public Works Dept. (1981)
44. Alfred H. Lehan, NH Public Works & Highways (1952)
45. Kenneth R. Ekmarck, Nashua Board of Public Works (1956)
46. Meade Edwin Baldwin, Hillsborough Highway Dept. (1981)
47. Craig S. Belyea, NHDOT Highway Maintenance (2019)
48. Richard C. Glynn, NH Public Works & Highways (1980)
49. John H. Tucker, NH Public Works & Highways (1964)
50. Ernest J. Cliche, State Highway Dept. (1938)
51. Patrick M. Gagnon, Manchester Public Works Dept. (2021)
52. Joseph H. Germain, NH Public Works & Highways (1975)

Memorial to Public Works Employees – Committee Members

Voting Members - as determined by Legislation:

Michael Servetas, Chairperson & Commissioner's Designee, NHDOT

James Major, NH Public Works Association

Brian Barden, NH Road Agents Association

Bruce Tatro, NH Municipal Association

Jim Rivers, Governor's Appointee

Gary Morrison, State Employees Association

Non-Voting Members:

Chris Bonoli, Administrative Assistant, NHDOT Highway Maintenance

Peter Goodwin, Tata & Howard Inc., and Past President, NH Water Pollution Control Association

Alan G. Hanscom, State Maint. Engineer, NHDOT Highway Maintenance

Kevin King, Maintenance Supervisor, NHDOT Highway Maintenance

Susan Klasen, Assistant Director of Operations, NHDOT

Brian Mitchell, Co-Director, NH Coalition for Occupational Health & Safety

Kevin Sheppard, Retired Director, Manchester Public Works

New Hampshire Laws of 2009 Chaptered Law 0109 (Now RSA 4:9)

Title: establishing a committee to oversee the design and construction of a public works employee memorial for public works employees who died in the course of performing public duties.

Original Sponsors of House Bill 608

Representative Lerandeau, Cheshire, District 6

Representative Campbell, Hillsborough, District 24

Representative Cloutier, Sullivan, District 4

Representative Chandler, Carroll, District 1

Representative Graham, Hillsborough, District 18

Senator Kelly, District 10

Senator Gallus, District 1

Senator Letourneau, District 19

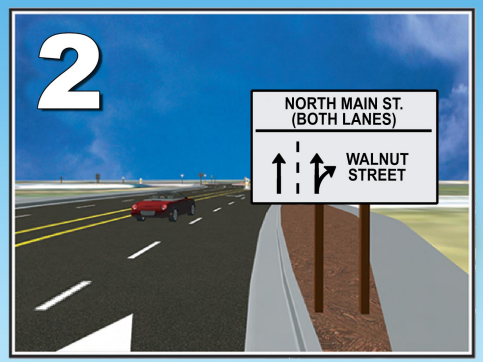
Senator DeVries, District 18

A Gracious Thank you to:

Steven Dross for Donating Equipment and Running Sound

United Site Rentals for Donating the Porta-Potties

Roundabout Ahead
Slow Down.



Get In Your Lane
(Multilane Only).

Yield to Pedestrians
and Cyclists.

Yield to Existing Traffic(4).
Keep to the Right(5).

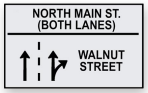
Exit at your Destination.

Yield to Pedestrians
and Cyclists.

"Stay in Lane and Follow the Signs"

Sign Designations

Roundabout Ahead Signs Indicate a Roundabout Intersecting Ahead. SLOW DOWN.



Lane Assignment Signs Tell Drivers Which Lane to Travel in. GET IN YOUR LANE.

All Vehicles Must YIELD to Pedestrians and Bicycles at Roundabouts.

Vehicles Must Yield to Traffic in the Roundabout.

All Vehicles Must Turn RIGHT and Circulate in a Counter Clockwise Direction.

Street Signs Will Indicate Your Exit Destination.

HEAR SIRENS?
If You Have Not Yet Entered the Roundabout Pull Over to the Right.
If you are Inside the Roundabout Continue to Your Exit Then Pull Over to the Right.

Rochester
NEW HAMPSHIRE

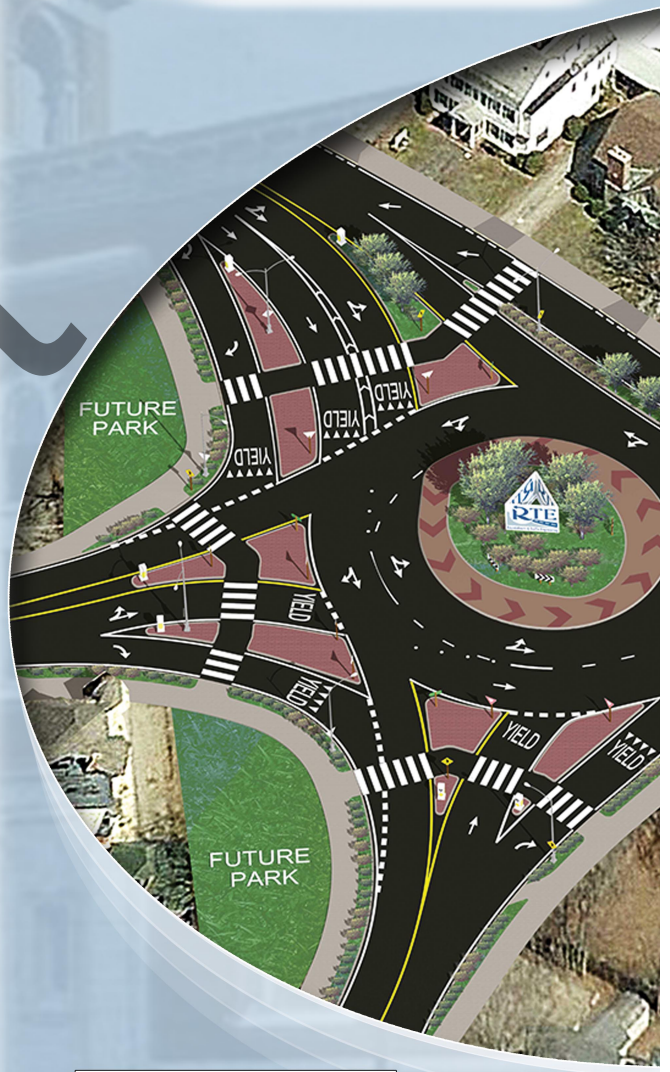
For more information about modern roundabouts and informational materials contact the City of Rochester at http://www.rochesternh.net/

Additional information may be obtained by contacting the
Insurance Institute for Highway Safety at www.iihs.org or
The Federal Highway Administration at www.fhwa.dot.gov and
Roundabouts & Traffic Engineering at www.roundabouts.us

Provided by:
RTE
Roundabouts & Traffic Engineering
www.roundabouts.us

Driving

ROCHESTERS'S ROUNDABOUTS



Rochester
NEW HAMPSHIRE

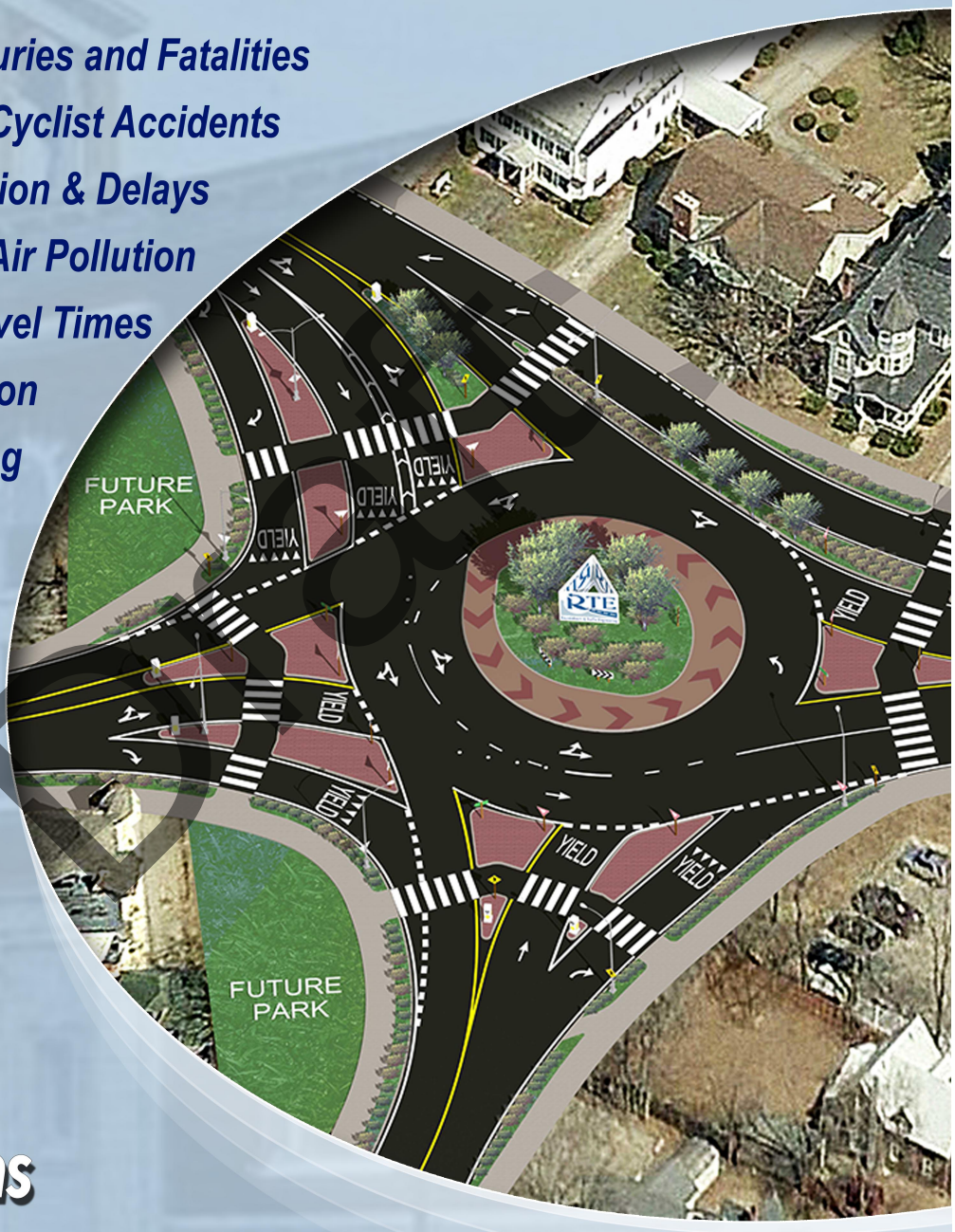
A HOW TO GUIDE

Rochester
NEW HAMPSHIRE

INTERSECTION SAFETY

The Modern Roundabout SOLUTION

- Fewer Accidents, Injuries and Fatalities
- Fewer Pedestrian & Cyclist Accidents
- Less Traffic Congestion & Delays
- Reduced Noise and Air Pollution
- Faster Commute Travel Times
- Less Driver Frustration
- No Red Light Running
- Slower Speeds



Your Community Deserves

Safer Intersections

The Right System...
at the Right Time...
at the Right Cost...

Rochester
NEW HAMPSHIRE

For more information about modern roundabouts and informational materials contact the City of Rochester.

Provided by: Scott Ritchie, President
Roundabouts & Traffic Engineering
RTE

A Modern Roundabout...

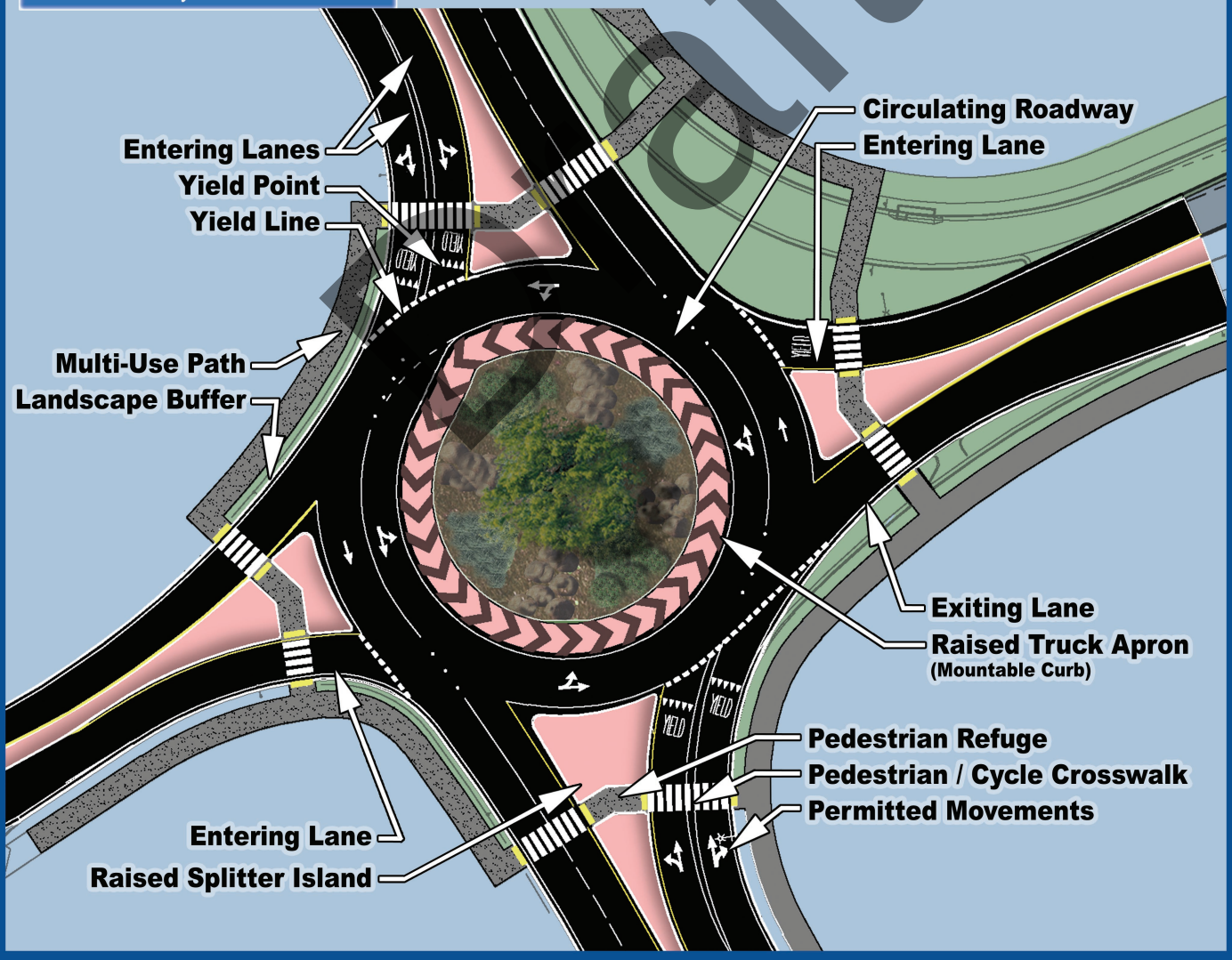
is a one-way circular intersection without a traffic signal or stop signs. Traffic flows in one direction around a center island.

Slower, more consistently paced traffic increases safety and results in faster overall travel times.

Modern Roundabouts are a relatively new type of intersection traffic control device in the United States and differ significantly from traffic circles used primarily for "traffic calming" in residential areas or older rotaries or traffic circles frequently found on the east coast. The basic difference between a Modern Roundabout and a signalized intersection is lower intersection speed, reduced accident and injury rate and control of intersection entry and exit.

"Modern Roundabouts, in place across the country, effectively and safely accommodate high volume traffic situations in major roadway intersections and freeway interchanges"

Increasing traffic volumes, stop signs and traffic lights hinder quick and efficient traffic flow. Stop... go... slow-down... speed-up traffic motion during peak rush hour commutes causes driver frustration congestion and travel delay. Stopping for a red light during early morning or later evening off peak travel times, when no cars are in sight, also causes unnecessary delays. A Modern Roundabout eliminates these enforced traffic pauses and provides safe, efficient and continuous traffic flow.



Modern Roundabouts are a circular intersection design with traffic control features that control driver behavior. These features include entering traffic yield signs, chanalized approaches and design that helps to insure relatively low and safe travel speeds.

Modern Roundabout design controls speeds through intersections and provides a traffic calming effect that significantly reduces the number and severity of accidents.

A 22 m.p.h. average roundabout speed allows drivers more time to react to potential conflicts. A lower speed differential between vehicles, pedestrians and cyclists means all road users are traveling at similar rates of speed and accident severity is significantly less.

The Modern Roundabout is a self regulating traffic control device using intersecting roadway widths and curves, medians, signing and landscaping to regulate speeds. The layout of a Modern Roundabout is typically compact with a raised central island fit into a circle of generally 100 to 300-feet in diameter. Design is very flexible and allows several variations depending on traffic flow and public right-of-way constraints. On approach, roundabouts may flare from one lane to two lanes in a very short distance. This feature greatly increases intersection capacity without widening the corridor along its entire length.

Modern Roundabouts are unique from other intersections in that they use "splitter islands" (curved medians) and raised concrete curbs to control traffic entering and traveling through the roundabout. Splitter islands increase intersection safety by slowing vehicle speeds, deterring "wrong-way" drivers and by providing safe refuge for pedestrian crossings. Entering and exiting traffic streams are physically separated.

Modern Roundabouts convert all traffic movement into right-turns only

Approaching drivers slow down and yield to the counterclockwise flow of circulation traffic in the roundabout. Drivers travel around rather than through the intersection and exit by making a slight right-turn towards the desired destination.

Modern Roundabouts are designed and sized to ensure specific travel speeds and accommodate traffic flows, large trucks and vehicles. The raised center island and right-turn conversion of all traffic flow through the intersection substantially reduces vehicle-to-vehicle conflicts.

Modern Roundabout Benefits

- ***Lives Saved - Major Reduction in Injury and Fatal Accidents***
- ***Reduced Travel Delays and Congestion***
- ***Enhanced Pedestrian Safety***
- ***Reduced Intersection Speeds***
- ***Reduced Environmental Impact Noise Levels***
- ***Reduced Vehicle Emissions***
- ***Reduced Fuel Consumption***
- ***Provides Traffic Calming***
- ***Red-light Running Incidence Eliminated***
- ***Increased Intersection Capacity***
- ***Faster Overall Roadway Travel Times***
- ***Less Right-of-Way Needs Construction and Maintenance Costs***
- ***Opportunity for Community Aesthetic Enhancement***

Traffic Calming

"Crashes that do occur tend to be minor because speeds are slower"

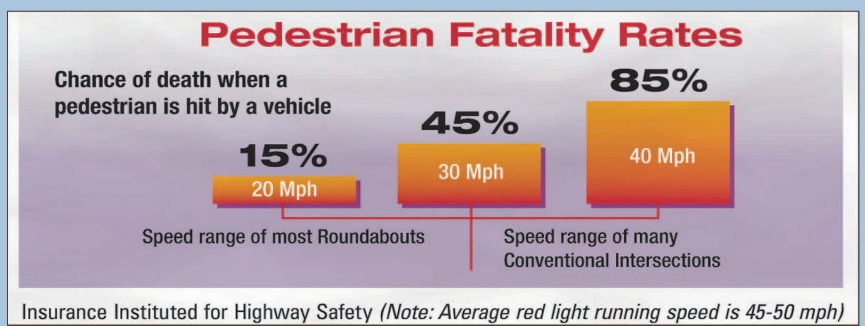
The radius of the circular road and the angle of entry points of a Modern Roundabout can be designed to slow vehicle speeds. Lower speeds allow drivers more time to judge and react to other vehicles and pedestrians.

- ***Reduced Speed***
- ***Controlled Entry Angle***

Pedestrian and Bicyclist Safety

By reducing speed and eliminating through and left-turn traffic movement at an intersection, pedestrian safety rises considerably and pedestrian / vehicle conflict points are decreased by 50 percent. The traditional signalized intersection has up to 16 potential pedestrian / vehicle points of conflict and a Modern Roundabout has only eight pedestrian / vehicle points of conflict. Fewer conflict points and lower rates of speed also reduce the likelihood of driver and pedestrian perception error and correspondingly the number of vehicle / pedestrian crashes.

Bicyclists have the option of traveling through the Modern Roundabout either by riding in the travel lane as a vehicle, or by exiting the roadway and using the shared-use path and pedestrian crosswalks. Most Modern Roundabouts typically provide a multi-use path at the perimeter of the roundabout to accommodate pedestrians, wheelchairs, strollers and bicyclists with highly visible roadway crossings set back behind the traffic yield line.



Insurance Instituted for Highway Safety *(Note: Average red light running speed is 45-50 mph)*

Modern Roundabouts = Safety and Capacity

Public Safety is About Saving Lives

"The most serious kinds of crashes at conventional intersections are virtually eliminated with modern roundabouts"

"Slower traffic movement at roundabout intersections significantly reduce accident severity and eliminates the potential threat associated with fast moving vehicles"

Modern Roundabouts Save Lives

38% to 40% Reduction in All Crash Types

74% to 78% Decrease in injury Accidents

90% Decrease in Fatalities or Incapacitating Injuries

30% to 40% Decrease in Pedestrian Accidents

Source: Insurance institute for Highway Safety (IIHS) and Federal Highway Administration (FHWA) 2003

User Guidelines

Motorists

1. Slow down prior to roundabout approach.
2. Select desired destination from map sign.
3. Select desired destination lane (multi-lane approaches only).
4. Yield to pedestrian crossings and cyclists in roadway or waiting to cross.
5. Yield to traffic already circulating around or in the roundabout.
6. Stay in lane and keep to the right when entering the roundabout.
7. Stay in lane while circulating inside the roundabout and exit at your desired destination.

"Remember to obey roadway signs at all times"

Pedestrians

Always use caution and use crosswalks.

Bicyclists

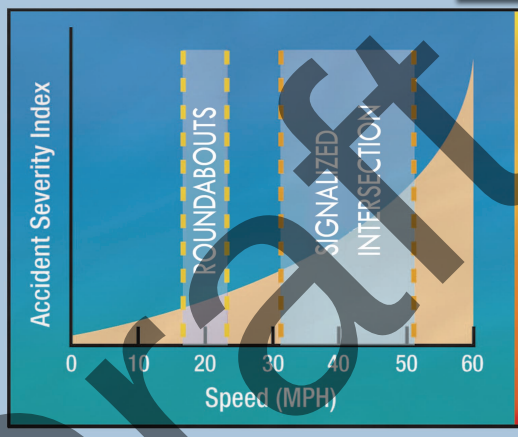
Follow the rules of the road or walk your bike in crosswalks.

Large Trucks, RVs and Boat and Horse Trailers

This Modern Roundabout is designed to accommodate nearly all large trucks and wheel bases while staying in lane (either left or right lane). All trucks and trailers using the left lane should use the truck apron and stay in lane.

Emergency Vehicles

Motorists yield to emergency vehicles and pull over when safe after exiting the roundabout.



Accident Severity & Speeds[2]

Slower average vehicle speeds and lower differential speeds between the vehicles, cyclists and pedestrians significantly reduce the accident severity of collisions at Modern Roundabouts.

Public safety is the driving force and highest-ranking priority in all intersection designs. Accident injury and fatality rates are the traffic engineer's most compelling indicator of the operational and safety performance of an intersection. While speed, traffic volume, congestion and capacity demands are factoring design components, the constant challenge and primary objective of traffic engineering is to reduce and minimize incident rates at existing intersections and incorporate all possible public safety elements into every new intersection design.

Federal Modern Roundabout guidelines state that accident frequency and severity is less for a roundabout intersection than a traffic signal. Roundabouts have fewer conflict points for vehicles, pedestrians and bicyclists and the potential for many hazardous incidents, such as right-angle "T-bone", conflicting left-turn or head on crashes are eliminated with Modern Roundabouts.

Safety study findings worldwide provide and support quantitative evidence that in most circumstances the selection of a Modern Roundabout intersection design, over the more conventional intersection traffic control options, can have significantly positive traffic safety implications.

In 2002 more than 1.8 million intersection crashes occurred in the United States. 219,000 of the crashes were the result of red light running and the cause of nearly 1,000 deaths and 181,000 injuries. Federal Highway Administration (FHWA) 2002, American Trauma Society.

One in three Americans knows someone who has been injured or killed in a red light running crash.

- Continuous Traffic Flow
- Reduced Congestion and Delay
- Less Driver Frustration

Travel Benefits

A Modern Roundabout's continuous traffic flow means decreased traveler delays. All roundabout lanes and legs operate simultaneously. Both the Modern Roundabout and traffic signal intersection are capable of relieving traffic congestion, but in many circumstances, Modern Roundabouts can offer higher traffic flow volumes and overall operational performance, meaning vehicles can more easily, efficiently and safely navigate through an intersection. In certain circumstances, a Modern Roundabout also has a higher potential for meeting the increasing traffic demands of a growing community and relieving congestion caused by future traffic growth because of its unique capacity capabilities. In some situations, as much as a 75 percent reduction in travel delay time has been realized where Modern Roundabouts replaced existing traffic signal intersections.

Community Benefits

Landscaped buffers separating pedestrian and traffic encourage pedestrians to cross only at designated crossings and provide the city of Prescott the opportunity to enhance the aesthetics of an intersection.

By design, a Modern Roundabout is itself a traffic calming measure slowing vehicle speed and reducing noise as well. With slower speeds and shorter congestion-related delays business access is safer, easier and more flexible. Municipalities benefit from the economic savings associated with a roundabout intersection. The "life" or longevity of a Modern Roundabout is generally two times longer than a signalized intersection. Construction costs and right-of-way requirements are typically less with fewer lanes required than traditional signalized intersections.

- Slower Speed Equals Reduced Fatalities
- Reduced Pedestrian and Vehicle Conflict Points
- Shorter Crosswalk Distance
- Predictable One-Way Vehicular Direction
- Protective Splitter Islands

- Attractive Community Entrance
- Traffic Calming
- Enhanced Business Access
- Enhanced Pedestrian Safety
- Lower Construction and Maintenance Costs
- Less Public Right of Way Required

Environmental Benefits

Modern Roundabouts reduce the number and duration of vehicle stops and eliminate red-light sitting engine idle time (auto emissions are often worse than that of a moving vehicle). These combined benefits results in reduced noise, air pollution and reduced fuel consumption.

- Reduced Fuel Consumption
- Reduced Auto Emissions
- Reduced Noise Pollution

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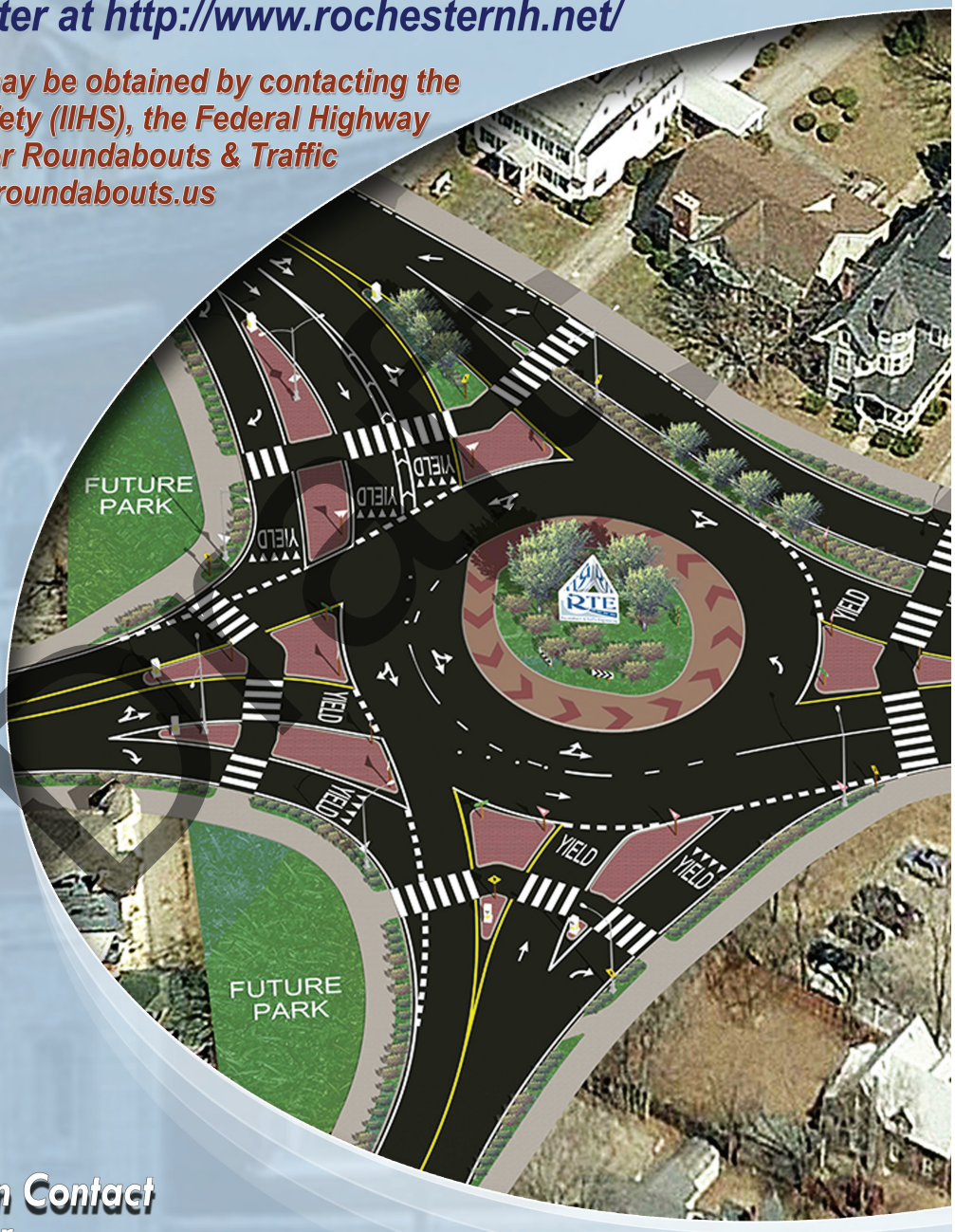
For more information about Modern Roundabouts and informational materials please contact the City of Rochester at http://www.rochesternh.net/

Additional information may be obtained by contacting the institute for Highway Safety (IIHS), the Federal Highway Administration (FHWA) or Roundabouts & Traffic Engineering (RTE) www.roundabouts.us



For More Information Contact the City of Rochester

Written and Provided by: Scott Ritchie
Roundabouts & Traffic Engineering

and threats to ICS and highlight the growing number of attack vectors available to threat actors.

Table 2 below lists the incidents covered in this paper temporally.

Table 2. ICS Incidents Covered in this Paper.

YEAR	ATTACK TYPE	VICTIM(S)	SUMMARY
2018	Third-party / supply chain	Energy Services Group	Attack on billing software company disrupts a natural gas company
2019	Insider Threat	Unidentified Power Plant	Employee installed ransomware via infected peripheral device
2019	Remote Exploit	sPower	Remote exploit caused Denial-of-Service (DoS) and device restarts
2019	Insider threat	Post Rock Water District, Ellsworth County (KS)	Ex-employee attempted to alter water disinfectant levels using still-valid user credentials
2019	Brute Force	Energy Companies Across Europe and U.S.	APT actors use Kubernetes cluster in brute force attacks
2020	Remote Exploit	Camrosa Water District (CA)	Cyber actors encrypt files, exfiltrate personal information
2020	Word Press vulnerability / watering hole	Florida Water Infrastructure Construction Company	Cyber actors turn legitimate water sector site into a watering hole attack page
2021	Unauthorized Remote Access	San Francisco Bay-area Water Treatment Plant (CA)	Cyber actors use TeamViewer to delete programs used to treat water
2021	Ransomware in the IT environment	Eletrobras & Copel Electric Power Utilities	Ransomware affects operations at two plants; cyber actors exfiltrate sensitive business and network data
2021	Unauthorized Remote Access	Oldsmar (FL) Water Treatment Plant (WTP)	Cyber actors use remote access in attempt to change water chemistry
2021	Unknown ransomware in the OT environment	Nevada-based WWS	Ransomware affects the ICS/ SCADA environment
2021	Supply chain	Metropolitan Water District of Southern California (MWD)	China-based APT cyber actors compromise MWD device using Pulse Secure exploit

2021	Ransomware in the IT environment	City of Tulsa (OK)	Ransomware affects city services and customer-facing website
2021	Ryuk ransomware in the IT environment	Volue ASA (Norway)	Ransomware disrupts operations; company lauded for transparency and accountability in public response
2021	Ransomware in the IT environment	Colonial Pipeline	Ransomware disrupts operations on US' largest pipeline
2021	ZuCaNo ransomware in OT environment	Maine-based WWS	Treatment center needed to be run manually until operations returned to normal
2021	Ghost variant ransomware in the OT environment	California-based WWS	Ransomware sat on several SCADA servers for a month until detected

Chronological List of ICS Incidents

Energy Services Group LLC

In March 2018, unidentified cyber actors compromised a software platform developed by Energy Services Group LLC that is used for billing and customer transactions (Lyngaas 2018) The attack on the billing software impacted the Texas-based Energy Transfer Partners LP, a natural gas and propane pipeline company, with more than 71,000 miles of pipelines across 38 states and Canada (Energy Transfer 2018). The attack specifically targeted an Electronic Data Interchange (EDI) for the Eastern Panhandle pipeline serviced by Energy Services Group LLC and caused the system to be taken offline. Taking the system offline did not disrupt the flow of natural gas in the pipeline (Ciscomag 2020).

This incident demonstrates the reliance OT systems have on IT infrastructure for many critical infrastructure operations. Even though OT systems may still function correctly, if the owner/operator cannot properly determine usage or billing rates, they may choose to take a service offline. This incident also highlights the supply chain and third-party concerns inherent to OT environments as more of their control systems are regulated by IT systems. While the ICS owner/operator may be secure, their IT partners that manage their data can be compromised which can still lead to service interruptions.

Unidentified Power Plant

Sometime in early 2019 cyber actors convinced a trusted visitor of an unidentified power plant outside of the United States to plug a universal serial bus (USB) mouse

Co-Authored by:




TLP:WHITE
Product ID: AA21-287A
October 14, 2021

Ongoing Cyber Threats to U.S. Water and Wastewater Systems

SUMMARY

Note: *This Alert uses the MITRE Adversarial Tactics, Techniques, and Common Knowledge (ATT&CK®) framework, version 9. See the ATT&CK for Enterprise.*

This joint advisory is the result of analytic efforts between the Federal Bureau of Investigation (FBI), the Cybersecurity and Infrastructure Agency (CISA), the Environmental Protection Agency (EPA), and the National Security Agency (NSA) to highlight ongoing malicious cyber activity—by both known and unknown actors—targeting the information technology (IT) and operational technology (OT) networks, systems, and devices of U.S. Water and Wastewater Systems (WWS) Sector facilities. This activity—which includes attempts to compromise system integrity via unauthorized access—threatens the ability of WWS facilities to provide clean, potable water to, and effectively manage the wastewater of, their communities. **Note:** although cyber threats across critical infrastructure sectors are increasing, this advisory does not intend to indicate specific targeting of the WWS Sector versus others.

Immediate Actions WWS Facilities Can Take Now to Protect Against Malicious Cyber Activity

- Do not click on suspicious links.
- If you use RDP, secure and monitor it.
- Update your OS and software.
- Use strong passwords.
- Use multi-factor authentication.

To secure WWS facilities—including Department of Defense (DoD) water treatment facilities in the United States and abroad—against the TTPs listed below, CISA, FBI, EPA, and NSA strongly urge organizations to implement the measures described in the Recommended Mitigations section of this advisory.

To report suspicious or criminal activity related to information found in this Joint Cybersecurity Advisory, contact your local FBI field office at www.fbi.gov/contact-us/field-offices, or the FBI's 24/7 Cyber Watch (CyWatch) at (855) 292-3937 or by e-mail at CyWatch@fbi.gov. When available, please include the following information regarding the incident: date, time, and location of the incident; type of activity; number of people affected; type of equipment used for the activity; the name of the submitting company or organization; and a designated point of contact. To request incident response resources or technical assistance related to these threats, contact CISA at CISAServiceDesk@cisa.dhs.gov.

THREAT OVERVIEW

Tactics, Techniques, and Procedures

WWS facilities may be vulnerable to the following common tactics, techniques, and procedures (TTPs) used by threat actors to compromise IT and OT networks, systems, and devices.

- Spearphishing personnel to deliver malicious payloads, including ransomware [T1566].
  - Spearphishing is one of the most prevalent techniques used for initial access to IT networks. Personnel and their potential lack of cyber awareness are a vulnerability within an organization. Personnel may open malicious attachments or links to execute malicious payloads contained in emails from threat actors that have successfully bypassed email filtering controls.
  - When organizations integrate IT with OT systems, attackers can gain access—either purposefully or inadvertently—to OT assets after the IT network has been compromised through spearphishing and other techniques.
  - Exploitation of internet-connected services and applications that enable remote access to WWS networks [T1210].
  - For example, threat actors can exploit a Remote Desktop Protocol (RDP) that is insecurely connected to the internet to infect a network with ransomware. If the RDP is used for process control equipment, the attacker could also compromise WWS operations. **Note:** the increased use of remote operations due to the COVID-19 pandemic has likely increased the prevalence of weaknesses associated with remote access.
- Exploitation of unsupported or outdated operating systems and software.
  - Threat actors likely seek to take advantage of perceived weaknesses among organizations that either do not have—or choose not to prioritize—resources for IT/OT infrastructure modernization. WWS facilities tend to allocate resources to physical infrastructure in need of replacement or repair (e.g., pipes) rather than IT/OT infrastructure.
  - The fact that WWS facilities are inconsistently resourced municipal systems—not all of which have the resources to employ consistently high cybersecurity standards—may contribute to the use of unsupported or outdated operating systems and software.
- Exploitation of control system devices with vulnerable firmware versions.
  - WWS systems commonly use outdated control system devices or firmware versions, which expose WWS networks to publicly accessible and remotely executable vulnerabilities. Successful compromise of these devices may lead to loss of system control, denial of service, or loss of sensitive data [T0827].

WWS Sector Cyber Intrusions

Cyber intrusions targeting U.S. WWS facilities highlight vulnerabilities associated with the following threats:

- Insider threats from current or former employees who maintain improperly active credentials
- Ransomware attacks

WWS Sector cyber intrusions from 2019 to early 2021 include:

- In August 2021, malicious cyber actors used Ghost variant ransomware against a California-based WWS facility. The ransomware variant had been in the system for about a month and was discovered when three supervisory control and data acquisition (SCADA) servers displayed a ransomware message.
- In July 2021, cyber actors used remote access to introduce ZuCaNo ransomware onto a Maine-based WWS facility's wastewater SCADA computer. The treatment system was run manually until the SCADA computer was restored using local control and more frequent operator rounds.
- In March 2021, cyber actors used an unknown ransomware variant against a Nevada-based WWS facility. The ransomware affected the victim's SCADA system and backup systems. The SCADA system provides visibility and monitoring but is not a full industrial control system (ICS).
- In September 2020, personnel at a New Jersey-based WWS facility discovered—what they believed to be—Makop ransomware had compromised files within their system.
- In March 2019, a former employee at Kansas-based WWS facility unsuccessfully attempted to threaten drinking water safety by using his user credentials, which had not been revoked at the time of his resignation, to remotely access a facility computer.

RECOMMENDED MITIGATIONS

The FBI, CISA, EPA, and NSA recommend WWS facilities—including DoD water treatment facilities in the United States and abroad—use a risk-informed analysis to determine the applicability of a range of technical and non-technical mitigations to prevent, detect, and respond to cyber threats.

WWS Monitoring

Personnel responsible for monitoring WWS should check for the following suspicious activities and indicators, which may be indicative of threat actor activity:

- Inability of WWS facility personnel to access SCADA system controls at any time, either entirely or in part;
- Unfamiliar data windows or system alerts appearing on SCADA system controls and facility data screens that could indicate a ransomware attack;
- Detection by SCADA system controls, or by water treatment personnel, of abnormal operating parameters—such as unusually high chemical addition rates—used in the safe and proper treatment of drinking water;
- Access of SCADA systems by unauthorized individuals or groups, e.g., former employees and current employees not authorized/assigned to operate SCADA systems and controls.
- Access of SCADA systems at unusual times, which may indicate that a legitimate user's credentials have been compromised.
- Unexplained SCADA system restarts.
- Unchanging parameter values that normally fluctuate.

Remote Access Mitigations

Note: The increased use of remote operations due to the COVID-19 pandemic increases the necessity for asset owner-operators to assess the risk associated with enhanced remote access to ensure it falls within acceptable levels.

- Require multi-factor authentication for all remote access to the OT network, including from the IT network and external networks.
- Utilize blocklisting and allowlisting to limit remote access to users with a verified business and/or operational need.
- Ensure that all remote access technologies have logging enabled and regularly audit these logs to identify instances of unauthorized access.
- Utilize manual start and stop features in place of always activated unattended access to reduce the time remote access services are running.
- Audit networks for systems using remote access services.
    - Close unneeded network ports associated with remote access services (e.g., RDP – Transmission Control Protocol [TCP] Port 3389).
- When configuring access control for a host, utilize custom settings to limit the access a remote party can attempt to acquire.

Network Mitigations

- Implement and ensure robust network segmentation between IT and OT networks to limit the ability of malicious cyber actors to pivot to the OT network after compromising the IT network.
    - Implement demilitarized zones (DMZs), firewalls, jump servers, and one-way communication diodes to prevent unregulated communication between the IT and OT networks.
- Develop/update network maps to ensure a full accounting of all equipment that is connected to the network.
    - Remove any equipment from networks that is not required to conduct operations to reduce the attack surface malicious actors can exploit.

Planning and Operational Mitigations

- Ensure the organization's emergency response plan considers the full range of potential impacts that cyberattacks pose to operations, including loss or manipulation of view, loss or manipulation of control, and threats to safety.
    - The plan should also consider third parties with legitimate need for OT network access, including engineers and vendors.
    - Review, test, and update the emergency response plan on an annual basis to ensure accuracy.
- Exercise the ability to fail over to alternate control systems, including manual operation while assuming degraded electronic communications.
- Allow employees to gain decision-making experience via tabletop exercises that incorporate loss of visibility and control scenarios. Utilize resources such as the Environment Protection

Agency's (EPA) Cybersecurity Incident Action Checklist as well as the Ransomware Response Checklist on p. 11 of the CISA-Multi-State Information Sharing and Analysis Center (MS-ISAC) Joint Ransomware Guide.

Safety System Mitigations

- Install independent cyber-physical safety systems. These are systems that physically prevent dangerous conditions from occurring if the control system is compromised by a threat actor.
    - Examples of cyber-physical safety system controls include:
        - Size of the chemical feed pump
        - Gearing on valves
        - Pressure switches, etc.
    - These types of controls benefit WWS Sector facilities—especially smaller facilities with limited cybersecurity capability—because they enable facility staff to assess systems from a worst-case scenario and determine protective solutions. Enabling cyber-physical safety systems allows operators to take physical steps to limit the damage, for example, by preventing cyber actors, who have gained control of a sodium hydroxide pump, from raising the pH to dangerous levels.

Additional Mitigations

- Foster an organizational culture of cyber readiness. See the CISA Cyber Essentials along with the items listed in the Resources section below for guidance.
- Update software, including operating systems, applications, and firmware on IT network assets. Use a risk-based assessment strategy to determine which OT network assets and zones should participate in the patch management program. Consider using a centralized patch management system.
- Set antivirus/antimalware programs to conduct regular scans of IT network assets using up-to-date signatures. Use a risk-based asset inventory strategy to determine how OT network assets are identified and evaluated for the presence of malware.
- Implement regular data backup procedures on both the IT and OT networks.
    - Regularly test backups.
    - Ensure backups are not connected to the network to prevent the potential spread of ransomware to the backups.
- When possible, enable OT device authentication, utilize the encrypted version of OT protocols, and encrypt all wireless communications to ensure the confidentiality and authenticity of process control data in transit.
- Employ user account management to:
    - Remove, disable, or rename any default system accounts wherever possible.
    - Implement account lockout policies to reduce risk from brute-force attacks.
    - Monitor the creation of administrator-level accounts by third-party vendors with robust and privileged account management policies and procedures.
    - Implement a user account policy that includes set durations for deactivation and removal of accounts after employees leave the organization or after accounts reach a defined period of inactivity.

- Implement data execution prevention controls, such as application allowlisting and software restriction policies that prevent programs from executing from common ransomware locations, such as temporary folders supporting popular internet browsers.
- Train users through awareness and simulations to recognize and report phishing and social engineering attempts. Identify and suspend access of users exhibiting unusual activity.

FBI, CISA, EPA, and NSA would like to thank Dragos as well as the WaterISAC for their contributions to this advisory.

RESOURCES

Cyber Hygiene Services

CISA offers a range of no-cost cyber hygiene services—including vulnerability scanning and ransomware readiness assessments—to help critical infrastructure organizations assess, identify, and reduce their exposure to cyber threats. By taking advantage of these services, organizations of any size will receive recommendations on ways to reduce their risk and mitigate attack vectors.

Rewards for Justice Reporting

The U.S. Department of State's Rewards for Justice (RFJ) program offers a reward of up to $10 million for reports of foreign government malicious activity against U.S. critical infrastructure. See the RFJ website for more information and how to report information securely.

StopRansomware.gov

The StopRansomware.gov webpage is an interagency resource that provides guidance on ransomware protection, detection, and response. This includes ransomware alerts, reports, and resources from CISA and other federal partners, including:

- CISA and MS-ISAC: Joint Ransomware Guide
- CISA Insights: Ransomware Outbreak
- CISA Webinar: Combating Ransomware

Additional Resources

For additional resources that can assist in preventing and mitigating this activity, see:

- FBI-CISA-EPA-MS-ISAC Joint CSA: Compromise of U.S. Water Treatment Facility
- WaterISAC: 15 Cybersecurity Fundamentals for Water and Wastewater Utilities
- American Water Works Association: Cybersecurity Guidance and Assessment Tool
- EPA: Cybersecurity Incident Action Checklist
- EPA: Cybersecurity Best Practices for the Water Sector
- EPA: Supporting Cybersecurity Measures with the Clean Water and Drinking Water State Revolving Funds
- CISA: Cyber Risks & Resources for the Water and Wastewater Systems Sector infographic
- CISA: Critical ICS Cybersecurity Performance Goals and Objectives

- CISA Fact Sheet: Rising Ransomware Threat to Operational Technology Assets
- CISA-MS-ISAC: Joint Ransomware Guide
- NSA CSA: Stop Malicious Cyber Activity Against Connected OT
- CISA: Insider Threat Mitigation Resources
- NIST: Special Publication (SP) 800-167, Guide to Application Whitelisting
- NIST: SP 800-82 Rev. 2, Guide to Industrial Control Systems (ICS) Security (Section 6.2.1)

DISCLAIMER OF ENDORSEMENT

The information and opinions contained in this document are provided "as is" and without any warranties or guarantees. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by the United States Government, and this guidance shall not be used for advertising or product endorsement purposes.

SAFEGUARDING OUR FUTURE

U.S. Business Risk: People's Republic of China (PRC) Laws Expand Beijing's Oversight of Foreign and Domestic Companies

OVERVIEW

Since 2015, the PRC has passed or updated comprehensive national security, cybersecurity, and data privacy laws and regulations, expanding Beijing's oversight of domestic and foreign (including U.S.) companies operating within China. Beijing views inadequate government control of information within China and its outbound flow as a national security risk. These laws provide the PRC government with expanded legal grounds for accessing and controlling data held by U.S. firms in China. U.S. companies and individuals in China could also face penalties for traditional business activities that Beijing deems acts of espionage or for actions that Beijing believes assist foreign sanctions against China. The laws may also compel locally-employed PRC nationals of U.S. firms to assist in PRC intelligence efforts.

LAWS AND THEIR IMPLICATIONS

2023 COUNTER-ESPIONAGE LAW UPDATE

INTENDED PURPOSE:

- Broadens the scope of the PRC's counterespionage law
- Expands the definition of espionage from covering state secrets and intelligence to any documents, data, materials, or items related to national security interests, without defining terms
- Comes into effect 1 July 2023

IMPLICATIONS:

- Potential to create legal risks or uncertainty for foreign companies, journalists, academics, and researchers
- Any documents, data, materials, or items could be considered relevant to PRC national security due to ambiguities in the law

2021 CYBER VULNERABILITY REPORTING LAW

INTENDED PURPOSE:

- Requires all (including U.S.) companies with China-based equities to report cyber vulnerabilities discovered in their systems or software to PRC authorities
- Vulnerabilities cannot be publicly disclosed or shared overseas until PRC authorities complete an assessment

IMPLICATIONS:

- May provide PRC authorities the opportunity to exploit system flaws before cyber vulnerabilities are publicly known

2021 PERSONAL INFORMATION PROTECTION LAW

INTENDED PURPOSE:

- Codifies the privacy rights of PRC citizens
- Requires domestic and foreign (including U.S.) companies to comply with reviews

IMPLICATIONS:

- Controls handling of personal data within and outside mainland PRC when providing products or services to persons within the PRC
- Restricts ability of companies in China to gather and retain personal data
- Authorizes the PRC government to collect personal data for actions Beijing deems to be in the public interest

2021 ANTI-FOREIGN SANCTIONS LAW

INTENDED PURPOSE:

- Provides grounds for the PRC to take countermeasures against foreign sanctions and authorizes PRC actions against foreign persons or entities that implement or assist foreign sanctions against China

IMPLICATIONS:

- Facilitates Beijing's ability to retaliate against foreign entities that it judges have "assisted" in implementing foreign sanctions
- Threshold for assisting in implementing foreign sanctions is unspecified in the law
- May compel U.S. companies to heed PRC regulations rather than U.S. requirements, or face legal consequences

LAWS AND THEIR IMPLICATIONS (CONTINUED)

2021 DATA SECURITY LAW

INTENDED PURPOSE:

- Classifies data in a tiered system according to Beijing's interpretation of the data's importance to state security
- Subjects cross-border data flows to additional regulatory requirements and prohibitions
- Positions Beijing to control or deny cross-border data transfers and refuse foreign government data transfer requests

IMPLICATIONS:

- Expands the PRC's access to, and control of, companies and data within China
- Expands the PRC's ability to control the outbound flow of data
- Imposes stricter penalties on China-based businesses (including U.S.) for noncompliance

2017 NATIONAL INTELLIGENCE LAW

INTENDED PURPOSE:

- Stipulates that citizens or private organizations must assist the PRC's Ministries of Public Security and State Security in national intelligence efforts

IMPLICATIONS:

- Creates "affirmative" legal responsibilities for PRC and foreign (including U.S.) entities to provide access to, or collaborate with, the PRC's intelligence agencies
- May force locally employed PRC nationals of U.S. companies to assist in PRC national intelligence efforts

2017 CYBERSECURITY LAW

INTENDED PURPOSE:

- Outlines PRC's approach to cybersecurity
- Mandates that critical infrastructure companies (undefined in the law) retain their data within China's borders
- Requires data stored in the PRC to be accessible to its intelligence services

IMPLICATIONS:

- Companies must localize certain types of data held within China's borders, including the data of foreign (including U.S.) companies working in undefined critical industries

2015 NATIONAL SECURITY LAW

INTENDED PURPOSE:

- Outlines whole-of-society responsibilities for the PRC's national security posture
- Stipulates that PRC citizens and private organizations must assist the PRC government and intelligence services with security issues when ordered

IMPLICATIONS:

- Mandates that domestic companies and citizens within China provide assistance to all security agencies and assist Beijing on national security issues
- May compel locally employed PRC nationals of U.S. companies to assist in investigations that may expose operating elements of U.S. companies/citizens

This information is current as of 20 June 2023.

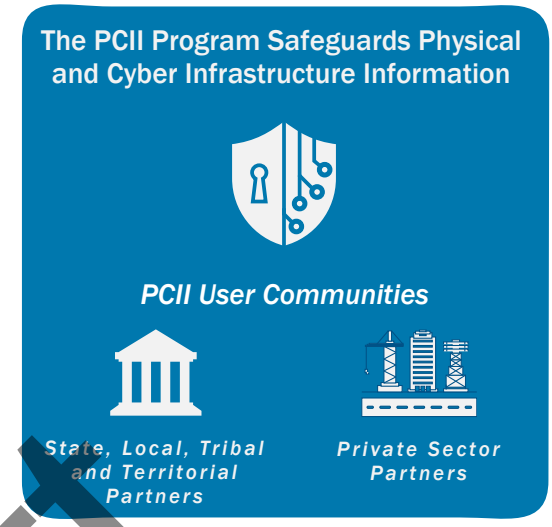
This document contains a general overview of certain PRC laws to facilitate discussion and should not be relied upon for legal analysis or treated as legal advice.

PROTECTED CRITICAL INFRASTRUCTURE INFORMATION PROGRAM

PCII PROGRAM AT A GLANCE

The Protected Critical Infrastructure Information (PCII) Program was created by Congress under the Critical Infrastructure Information Act of 2002 and implemented in 6 Code of Federal Regulations part 29. The Program encourages public and private sector owner(s) and operator(s) of physical and cyber critical infrastructure to voluntarily share sensitive security and proprietary data with CISA. The PCII Program protects information from federal, state, and local disclosure laws, allowing partners to securely share their critical infrastructure information. The PCII Program supports the U.S. Government's ability to understand and identify:

- Security risks and threats from physical and cyber-attacks
- Vulnerabilities and mitigation strategies
- Critical infrastructure security during planning and emergencies



PCII PROGRAM PROVIDES LEGAL PROTECTION TO SENSITIVE INFORMATION

The PCII Program offers the following legal protections to participating private sector and state, local, tribal and territorial governments who voluntarily share CII (including the submitter's identity):

- **Freedom of Information Act (FOIA) Requests**
- **Use in Regulatory Proceedings**
- **State, Local, Tribal and Territorial Disclosure Laws Or "Sunshine Laws"**
- **Use in Civil Actions**

QUALIFICATIONS FOR PCII PROGRAM PROTECTIONS

Information must relate to the security of critical infrastructure and the submitter attest it is:

- Voluntarily submitted
- Not customarily found in the public domain
- Not submitted in lieu of compliance with any regulatory requirements

SUBMITTING CRITICAL INFRASTRUCTURE INFORMATION SECURELY IN 4 EASY STEPS

1. Provide your information at pciims.dhs.gov/esubmissions
2. **Complete Express and Certification Statements**
3. **Drag documents to upload**
4. **SUBMIT**

   Submit, and your data is PROTECTED!*

*The submission is protected immediately upon the federal government's receipt and throughout the validation process. For more information on the electronic submission process, visit *cisa.gov/electronic-submit-cii-pcii-protection*

CYBER RESILIENCE REVIEW

The Cyber Security Evaluation program, within the Department of Homeland Security's (DHS) Office of Cybersecurity & Communications, conducts a no-cost, voluntary, non-technical assessment to evaluate operational resilience and cybersecurity capabilities within Critical Infrastructure and Key Resources sectors, as well as State, Local, Tribal, and Territorial governments through its Cyber Resilience Review (CRR) process.

OVERVIEW

The goal of the CRR is to develop an understanding of an organization's operational resilience and ability to manage cyber risk to its critical services during normal operations and times of operational stress and crisis. The CRR is based on the CERT Resilience Management Model [http://www.cert.org/resilience/rmm.html], a process improvement model developed by Carnegie Mellon University's Software Engineering Institute for managing operational resilience.

One of the foundational principles of the CRR is the idea that an organization deploys its assets (people, information, technology, and facilities) in support of specific operational missions (i.e., critical services). Applying this principle, the CRR seeks to understand an organization's capacities and capabilities in performing, planning, managing, measuring, and defining cybersecurity practices and behaviors in the following ten domains:

1. **ASSET MANAGEMENT**
2. **CONTROLS MANAGEMENT**
3. **CONFIGURATION AND CHANGE MANAGEMENT**
4. **VULNERABILITY MANAGEMENT**
5. **INCIDENT MANAGEMENT**
6. **SERVICE CONTINUITY MANAGEMENT**
7. **RISK MANAGEMENT**
8. **EXTERNAL DEPENDENCY MANAGEMENT**
9. **TRAINING AND AWARENESS**
10. **SITUATIONAL AWARENESS**

The CRR seeks participation from a cross-functional team consisting of representatives from business, operations, security, information technology, and maintenance areas within an organization. These representatives may include personnel with the following roles and responsibilities within the organization:

- **IT policy & procedures** (e.g., Chief Information Security Officer)
- **IT security planning & management** (e.g., Director of Information Technology)
- **IT infrastructure** (e.g., network/system administrator)
- **IT operations** (e.g., configuration/change manager)
- **Business operations** (e.g., operations manager)
- **Business continuity & disaster recovery planning** (e.g., BC/DR manager)
- **Risk analysis** (e.g., enterprise/operations risk manager)

RELATIONSHIP TO THE NIST CYBERSECURITY FRAMEWORK

While the CRR predates the establishment of the National Institute of Standards and Technology (NIST) Cybersecurity Framework (CSF), the inherent principles and recommended practices within the CRR align closely with the central tenets of the CSF. The CRR enables an organization to assess its capabilities relative to the CSF and a crosswalk document that maps the CRR to the NIST CSF is included as a component of the CRR self-assessment package. Though the CRR can be used to assess an organization's capabilities, the NIST CSF is based on a different underlying framework and as a result an organization's self-assessment of CRR practices and capabilities may fall short of or exceed corresponding practices and capabilities in the NIST CSF.

HOW TO CONDUCT A CRR

Organizations have two options in conducting a CRR: a self-assessment available free for download from www.us-cert.gov/ccubedvp/self-service-crr or an on-site facilitated session involving DHS representatives trained in the use of the CRR. Both options use the same assessment methodology and will lead to a variety of benefits, including:

- A better understanding of the organization's cybersecurity posture;
- An improved organization-wide awareness of the need for effective cybersecurity management;
- A review of capabilities most important to ensuring the continuity of critical services during times of operational stress and crises;
- A verification of management success;
- An identification of cybersecurity improvement areas; and
- A catalyst for dialog between participants from different functional areas within an organization.

The CRR, whether through the self-assessment tool or facilitated session, will generate a report as a final product. The report contains each of the questions and answers contained within the assessment along with relevant options for consideration. These options for consideration are based on recognized standards, best practices, or references to the CERT Resilience Management Model. Additionally the final report contains an overall mapping of the relative maturity of the organizational resilience processes in each of the ten domains.

The CRR Report is for the organization's use and DHS does not share these results. The self-assessment does not collect any information; DHS uses information collected during the on-site assessment for anonymized data analytics only. This information is afforded protection under the DHS Protected Critical Infrastructure Information (PCII) Program [www.dhs.gov/pcii].

HOW DO I REQUEST A REVIEW?

To schedule a facilitated CRR or to request additional information please email the Cyber Security Evaluation program at CSE@hq.dhs.gov. To obtain the CRR self-assessment materials visit the webpage at www.us-cert.gov/ccubedvp/self-service-crr.

New Hampshire Public Works Mutual Aid Program
Mutual Aid and Assistance Agreement

This Agreement is entered into by each of the entities that executes and adopts the understandings, commitments, terms, and conditions contained herein:

WHEREAS, the State of New Hampshire is geographically vulnerable to a variety of natural and technological disasters; and

WHEREAS, Chapter 53-A:3 of the New Hampshire Revised Statutes Annotated, permits municipalities to make the most efficient use of their powers by enabling them to cooperate with other municipalities on a basis of mutual cooperation and recognizing this vulnerability and providing that this Agreement's intended purposes are to:

(1) Reduce vulnerability of people and property of this State to damage, injury, and loss of life and property;

(2) Prepare for prompt and efficient rescue, care, and treatment of threatened or affected persons;

(3) Provide for the rapid and orderly rehabilitation of persons and restoration of property; and

(4) Provide for cooperation and coordination of activities relating to emergency and disaster mitigation, preparedness, response, and recovery; and

WHEREAS, in addition to the State, the Federal Emergency Management Agency (FEMA) has recognized the importance of the concept of coordination between the State and local governments; and

WHEREAS, under Chapter 53-A:3 and other chapters of the New Hampshire Revised Statutes Annotated, entities entering into mutual aid and assistance agreements may include provisions for the furnishing and exchanging of supplies, equipment, facilities, personnel, and services; and

WHEREAS, the entities which have chosen to become signatories to this Agreement wish to provide mutual aid and assistance among one another at the appropriate times.

THEREFORE, pursuant to RSA 53-A:3, these entities agree to enter into this Agreement for reciprocal emergency management aid and assistance, with this Agreement embodying the understandings, commitments, terms, and conditions for said aid and assistance, as follows:

SECTION I: DEFINITIONS

The following definitions will apply to the terms appearing in this Agreement:

A. *"Agreement"* means this document, the New Hampshire Public Works Mutual Aid Program Mutual Aid and Assistance Agreement.

B. *"Aid and assistance"* includes personnel, equipment, facilities, services, supplies, and other resources.

C. *"Authorized Representative"* means a party's employee who has been authorized, in writing by that party, to request, to offer, or to otherwise provide assistance under the terms of this Agreement. The list of Authorized Representatives for each party executing this Agreement shall be attached to the executed copy of this Agreement. (In the event of a change in personnel, unless otherwise notified, the presumption will be that the successor to that position will be the authorized representative.)

D. *"Disaster"* means a calamitous event threatening loss of life or significant loss or damage to property, such as a flood, hurricane, tornado, dam break, or other naturally-occurring catastrophe or man-made accidental, military, or paramilitary cause.

E. *"Emergency"* means a natural or human caused event or circumstance causing, or imminently threatening to cause, loss of life, injury to person or property, human suffering or financial loss, and includes, but is not limited to, fire, explosion, flood, severe weather, drought, earthquake, volcanic activity, spills or releases of oil or hazardous material, contamination, utility or transportation emergencies, disease, blight, infestation, civil disturbance, riot, intentional acts, sabotage and war that is, or could reasonably be beyond the capability of the services, personnel, equipment, and facilities of a Mutual Aid and Assistance Program Member to fully manage and mitigate internally.

F. *"Mutual Aid Resource List"* means the list of Providers, equipment, and personnel maintained by the UNH Technology Transfer Center.

G. *"Party"* means a governmental entity which has adopted and executed this Agreement.

H. *"Program"* means the New Hampshire Public Works Mutual Aid Program.

I. *"Provider"* means the party which has received a request to furnish aid and assistance from another party (the "Recipient") in need. In the absence of any local governing body designation, the Provider shall be represented by the local agency charged with recovery and repair activities including, but not limited to, opening of public ways; removal of debris; building of protective barriers; management of physical damage to structures and terrain; transportation of persons, supplies, and equipment; and repair and operation of municipal utilities.

J. *"Recipient"* means the party setting forth a request for aid and assistance to another party (the "Provider"). In the absence of any local governing body designation, the Provider shall be represented by the local agency charged with recovery and repair activities

including, but not limited to, opening of public ways; removal of debris; building of protective barriers; management of physical damage to structures and terrain; transportation of persons, supplies, and equipment; and repair and operation of municipal utilities.

SECTION II: INITIAL RECOGNITION OF PRINCIPLE BY ALL PARTIES; AGREEMENT PROVIDES NO RIGHT OF ACTION FOR THIRD PARTIES

A. As this is a reciprocal contract, it is recognized that any party to this Agreement may be requested by another party to be a Provider. It is mutually understood that each party's foremost responsibility is to its own citizens. The provisions of this Agreement shall not be construed to impose an unconditional obligation on any party to this Agreement to provide aid and assistance pursuant to a request from another party. Accordingly, when aid and assistance have been requested, a party may in good faith withhold the resources necessary to provide reasonable and adequate protection for its own community, by deeming itself unavailable to respond and so informing the party setting forth the request.

B. Given the finite resources of any jurisdiction and the potential for each party to be unavailable for aid and assistance at a given point in time, the parties mutually encourage each other to enlist other entities in mutual aid and assistance efforts and to enter into such agreements accordingly. Concomitantly, the parties fully recognize that there is a highly meritorious reason for entering into this Agreement, and accordingly shall attempt to render assistance in accordance with the terms of this Agreement to the fullest extent possible.

C. Pursuant to RSA 53-A:3 and as elaborated upon in Section XI of this Agreement, all functions and activities performed under this Agreement are hereby declared to be governmental functions. Functions and activities performed under this Agreement are carried out for the benefit of the general public and not for the benefit of any specific individual or individuals. Accordingly, this Agreement shall not be construed as or deemed to be an agreement for the benefit of any third parties or persons and no third parties or persons shall have any right of action under this Agreement for any cause whatsoever. All immunities provided by law shall be fully applicable as elaborated upon in Section XI of this Agreement.

SECTION III: GOVERNING BOARD; POWERS

A. The Program shall be governed by a Board of Directors composed as follows:

(1) Two (2) members who shall be members of and appointed by the New Hampshire Road Agents Association;

(2) Three (3) members who shall be members of and appointed by the New Hampshire Public Works Association;

(3) One (1) member who shall be members of and appointed by the Municipal Management Association of New Hampshire;

(4) One (1) member who shall be members of and appointed by the New Hampshire Building Officials Association*;*

(5) One (1) member who shall be members of and appointed by the New Hampshire Water Works Association*;*

(6) One (1) member who shall be members of and appointed by the New Hampshire Water Pollution Control Association*;*

(7) The Commissioner of the Department of Transportation or a designee, *ex. officio*;

(8) The Commissioner of the Department of Environmental Services or a designee, *ex. officio*;

(9) The Director of the Department of Homeland Security and Emergency Management or a designee, *ex. officio*; and

(10) The Director of the University of New Hampshire Technology Transfer Center or a designee, *ex. officio*.

B. *Ex-officio* members shall be non-voting members and shall not be counted for a quorum.

C. A quorum at a duly called Board Meeting shall consist of a majority of the Directors attending the meeting, with a minimum of three (3) Directors present.

D. It is expected that all Directors shall use their best efforts to attend all Board meetings. If a vacancy is created by the removal or resignation of a Director or for any other reason, the entity identified in Section III A as being responsible for appointing the former Director shall promptly appoint a replacement Director to serve the remainder of the former Director's term.

E. All Board meetings of the Program shall comply with New Hampshire's Right-to-Know Law, RSA 91-A., as follows:

The Board of Directors will allow one or more Directors to participate in a meeting by electronic or other means of communication for the benefit of the public and the governing body, subject to the provisions of this paragraph.

(a) A member of the Board of Directors may participate in a Board meeting other than by attendance in person at the location of the meeting only when such attendance is not reasonably practical. Any reason that such attendance is not reasonably practical shall be stated in the minutes of the meeting.

(b) Except in an emergency, a quorum of the Board of Directors shall be physically present at the location specified in the meeting notice as the location of the Board

meeting. For purposes of this subparagraph, an "emergency" means that immediate action is imperative and the physical presence of a quorum is not reasonably practical within the period of time requiring action. The determination that an emergency exists shall be made by the chairman or presiding officer of the Board of Directors, and the facts upon which that determination is based shall be included in the minutes of the meeting.

(c) Each part of a Board meeting required to be open to the public shall be audible or otherwise discernable to the public at the location specified in the meeting notice as the location of the meeting. Each Director participating electronically or otherwise must be able to simultaneously hear each other and speak to each other during the meeting, and shall be audible or otherwise discernable to the public in attendance at the meeting's location. Any Director participating in such fashion shall identify the persons present in the location from which the member is participating. No Board meeting shall be conducted by electronic mail or any other form of communication that does not permit the public to hear, read, or otherwise discern meeting discussion contemporaneously at the meeting location specified in the meeting notice.

(d) Any Board meeting held pursuant to the terms of this paragraph shall comply with all of the requirements of this chapter relating to public meetings, and shall not circumvent the spirit and purpose of this chapter as expressed in RSA 91-A:1.

(e) A Director participating in a meeting by the means described in this Section is deemed to be present at the meeting for purposes of voting. All votes taken during such a meeting shall be by roll call vote.

F. The fiscal and business year of the New Hampshire Public Works Mutual Aid Program shall be from January 1 to December 31 of each year.

G. The Board of Directors shall meet at least one time each year in June.

H. The Board of Directors shall elect a Chair and a Vice Chair. The Chair and Vice Chair shall serve in their respective positions for a period of two years, provided that either may resign or be removed by the Board of Directors with or without cause. The Chair shall preside at all meetings of the Board of Directors and shall have such other duties as the Board may assign. In the absence of the Chair, the Vice Chair shall perform the duties of and have the authority of the Chair. The Vice Chair shall also have such other duties as the Board may assign.

I. The Board of Directors shall have the authority to elect a Treasurer/Secretary. The Treasurer/Secretary shall serve in their respective position for a period of two years, provided that they may resign or be removed by the Board of Directors with or without cause. As Treasurer they shall:

(a) have charge and custody of and be responsible for all funds and securities of the Program;

(b) receive and give receipts for moneys due and payable to the Program from any source whatsoever, and deposit all such moneys in the name of the Program in such banks, trust companies, or other depositaries as shall be selected by the Board of Directors; and

(c) in general perform all of the duties incident to those set forth in this Section III. D. and such other duties as from time to time may be assigned to the Treasurer by the Board of Directors.

As Secretary they shall:

(a) keep the minutes of the proceedings of the Board of Directors in one or more books provided for that purpose;

(b) be the custodian of the records of the New Hampshire Public Works Mutual Aid Program, or make adequate provision for alternative custody arrangements;

(c) when requested or required, authenticate any records of the New Hampshire Public Works Mutual Aid Program; and

(d) in general perform all of the duties incident to those set forth in this Section III. D. and such other duties as from time to time may be assigned to the Secretary by the Board of Directors.

J. The term of office of voting members shall be three (3) years or until their successor is appointed and qualified.

K. In addition to any other authority provided in this Agreement, the Board of Directors shall have the authority to:

(1) Enter into any necessary agreements on behalf of the participating units of government in furtherance of this Mutual Aid Agreement, subject to any necessary ratification by the participating units;

(2) Adopt an annual budget and establish an annual fee for participating in the Program;

(3) Propose modifications to the mutual aid agreement for ratification by participating units of government;

(4) Promulgate reasonable rules to govern the Program; and

(5) Perform any other function and undertake any other activity reasonably necessary to carry out the purpose of this agreement unless said function or activity is

subsequently disavowed by a majority vote of the governing bodies of the participating municipal government units.

SECTION IV: PROCEDURES FOR REQUESTING ASSISTANCE

Mutual aid and assistance shall not be requested unless the resources available within the stricken area are deemed inadequate by Recipient. When Recipient becomes affected by a disaster and deems its resources inadequate to rectify the given situation, it may request mutual aid and assistance by communicating the request directly to one or more Providers on the Mutual Aid Resource List, indicating the request is made pursuant to this mutual aid agreement. The request shall be followed as soon as practicable by a written confirmation of that request. All requests for mutual aid and assistance shall be transmitted as set forth below.

A. *METHOD OF REQUEST FOR MUTUAL AID AND ASSISTANCE:* Recipient shall directly contact Provider's authorized representative, setting forth the information in paragraph B of this Section (Section IV). All communications shall be conducted directly between Recipient and Provider. Recipient shall be responsible for the costs and expenses incurred by any Provider in providing aid and assistance pursuant to the provisions of this Agreement as noted in Section VIII of this Agreement.

B. *REQUIRED INFORMATION:* Each request for assistance shall be accompanied by the following information, in writing or by any other available means, to the extent known:

(1) Stricken Area and Status: A general description summarizing the condition of the community (i.e., whether the disaster is imminent, in progress, or has already occurred) and of the damage sustained to date;

(2) Services: Identification of the service function(s) for which assistance is needed and the particular type of assistance needed;

(3) Infrastructure Systems: Identification of the type(s) of public infrastructure system for which assistance is needed (water/sewer, storm water systems, streets) and the type of work assistance needed;

(4) Aid and Assistance: The amount and type of personnel, equipment, materials, and supplies needed and a reasonable estimate of the length of time they will be needed;

(5) Facilities: The need for sites, structures, or buildings outside Recipient's geographical limits to serve as relief centers or staging areas for incoming emergency goods and services; and

(6) Meeting Time and Place: An estimated time and a specific place for a representative of Recipient to meet the personnel and resources of any Provider.

C. *STATE AND FEDERAL ASSISTANCE:* If the severity of the emergency is expected to exhaust the reasonably available resources on the Mutual Aid Resource List, then the

Recipient shall be responsible for notifying the appropriate state agencies or coordinating requests for state and/or federal assistance.

SECTION V: PROVIDER'S ASSESSMENT OF AVAILABILITY OF RESOURCES AND ABILITY TO RENDER ASSISTANCE

When contacted by a Recipient in need, Provider's authorized representative shall assess Provider's own local situation in order to determine available personnel, equipment, and other resources. If Provider's authorized representative determines that Provider has available resources, Provider's authorized representative shall so notify the Recipient. Provider shall complete a written acknowledgment regarding the assistance to be rendered (or a rejection of the request) and shall transmit it by the most efficient practical means to the Recipient for a final response. Provider's acknowledgment shall contain the following information:

(1) In response to the items contained in the request, an acknowledgment of the personnel, equipment, and other resources to be sent;

(2) The projected length of time such personnel, equipment, and other resources will be available to serve Recipient, particularly if the period is projected to be shorter than one week (as provided in the "Length of Time for Aid and Assistance" section Section VIIof this Agreement.)

(3) The estimated time when the assistance provided will arrive at the location designated by the Authorized Representative of the Recipient; and

(4) The name of the person(s) to be designated as Provider's supervisory personnel (pursuant to the "Supervision and Control" section Section VI of this Agreement).

SECTION VI: SUPERVISION AND CONTROL

Provider shall designate supervisory personnel among any employees sent to render aid and assistance to Recipient. As soon as practicable, Recipient shall assign work tasks to Provider's supervisory personnel, and unless specifically instructed otherwise, Recipient shall have the responsibility for coordinating communications between Provider's supervisory personnel and Recipient.

Based upon such assignments set forth by Recipient, Provider's supervisory personnel shall:

(1) have the authority to assign work and establish work schedules for Provider's personnel. Further, direct supervision and control of Provider's personnel, equipment, and other resources shall remain with Provider's supervisory personnel. Provider should be prepared to furnish communications equipment sufficient to maintain communications among its respective operating units, and if this is not possible, Provider shall notify Recipient accordingly;

(2) maintain daily personnel time records, material records, a log of equipment hours, and other expenses; and

(3) shall report work progress to Recipient at mutually agreed upon intervals.

SECTION VII: LENGTH OF TIME FOR AID AND ASSISTANCE; RENEWABILITY; RECALL

A. Unless otherwise provided, the duration of Provider's assistance shall be presumed to be for an initial period of twenty-four (24) hours, starting from the time of arrival. Thereafter, assistance may be extended as the situation warrants for periods agreed upon by the authorized representatives of Provider and Recipient.

B. As noted in Section II of this Agreement, Provider's personnel, equipment, and other resources shall remain subject to recall by Provider to provide for its own citizens if circumstances so warrant. Provider shall make a good faith effort to provide at least twenty-four (24) hours advance notification to Recipient of its (Provider's) intent to terminate portions or all assistance, unless such notice is not practicable, in which case as much notice as is reasonable under the circumstances shall be provided.

SECTION VIII: COST DOCUMENTATION AND REIMBURSEMENT

A. *Personnel:* Provider shall continue to pay its employees according to its then prevailing ordinances, rules, regulations, and collective bargaining agreements. At the conclusion of the period of assistance, the Provider shall document all direct and indirect payroll costs plus any taxes and employee benefits which are measured as a function of payroll (i.e.; FICA, unemployment, retirement, etc.).

B. *Provider's Traveling Employee Needs:* - Provider shall document the basic needs of Provider's traveling employees, such as reasonable out-of-pocket costs and expenses of Provider's personnel, including without limitation to transportation expenses for travel to and from the stricken area, shelter, and subsistence.

C. *Equipment:* - Provider shall document the use of its equipment during the period of assistance including all repairs to its equipment as determined necessary by its on-site supervisor(s) to maintain such equipment in safe and operational condition, fuels, miscellaneous supplies, and repairs directly caused by provision of the assistance.

D. *Materials And Supplies:* Provider shall document all materials and supplies furnished by it and used or damaged during the period of assistance.

E. *Reimbursement:* The Recipient shall reimburse the Provider for each of the following categories of costs incurred during the specified Period of Assistance as agreed in whole or in part by both parties; provided, that any Provider may assume in whole or in part such loss, damage, expense, or other cost, or may loan such equipment or donate such services to the Recipient without charge or cost.

Personnel – The Provider shall be reimbursed by the Recipient for personnel costs incurred for work performed during the specified Period of Assistance. Provider personnel costs shall be calculated according to the terms provided in their employment contracts or other conditions of employment. The Provider's designated supervisor(s) must keep accurate records of work performed by personnel during the specified Period of Assistance. Recipient reimbursement to the Provider could consider all personnel costs, including salaries or hourly wages, costs for fringe benefits, and indirect costs.

Equipment – The Recipient shall reimburse the Provider for the use of equipment during the specified Period of Assistance, including, but not limited to, reasonable rental rates, all fuel, lubrication, maintenance, transportation, and loading/unloading of loaned equipment. All equipment shall be returned to the Provider in good working order as soon as is practicable and reasonable under the circumstances. As a minimum, rates for equipment use must be based on the Federal Emergency Management Agency's (FEMA) Schedule of Equipment Rates. If a Provider uses rates different from those in the FEMA Schedule of Equipment Rates, the Provider must provide such rates orally or in writing to the Recipient prior to supplying the equipment. Mutual agreement on which rates are used must be reached in writing prior to dispatch of the equipment. Reimbursement for equipment not referenced on the FEMA Schedule of Equipment Rates must be developed based on actual recovery of costs. If Provider must lease a piece of equipment while its equipment is being repaired, Recipient shall reimburse Provider for such rental costs.

Materials and Supplies – The Recipient must reimburse the Provider in kind or at actual replacement cost, plus handling charges, for use of expendable or non-returnable supplies. The Provider must not charge direct fees or rental charges to the Recipient for other supplies and reusable items that are returned to the Provider in a clean, damage-free condition. Reusable supplies that are returned to the Provider with damage must be treated as expendable supplies for purposes of cost reimbursement.

Payment Period – The Provider must provide an itemized bill to the Recipient for all expenses incurred by the Provider while providing assistance under this Agreement. The Provider must send the itemized bill not later than (90) ninety dates following the end of the Period of Assistance. The Provider may request additional periods of time within which to submit the itemized bill, and Recipient shall not unreasonably withhold consent to such request. The Recipient must pay the bill in full on or before the forty-fifth (45^{th}) day following the billing date. The Recipient may request additional periods of time within which to pay the itemized bill, and Provider shall not unreasonably withhold consent to such request, provided, however, that all payment shall occur not later than one-year after the date a final itemized bill is submitted to the Recipient.

Records - Each Provider and their duly authorized representatives shall have access to a Recipient's books, documents, notes, reports, papers and records which are directly pertinent to this Agreement for the purposes of reviewing the accuracy of a cost bill or making a financial, maintenance or regulatory audit. Each Recipient and their duly authorized representatives shall have access to a Provider's books, documents, notes,

reports, papers and records which are directly pertinent to this Agreement for the purposes of reviewing the accuracy of a cost bill or making a financial, maintenance or regulatory audit. Such records shall be maintained for at least three (3) years or longer where required by law.

SECTION IX: RIGHTS AND PRIVILEGES OF PROVIDER'S EMPLOYEES

Whenever Provider's employees are rendering aid and assistance pursuant to this Agreement, such employees shall retain the same powers, duties, immunities, and privileges they would ordinarily possess if performing their duties within the geographical limits of Provider.

SECTION X: PROVIDER'S EMPLOYEES COVERED AT ALL TIMES BY PROVIDER'S WORKERS' COMPENSATION POLICY

Recipient shall not be responsible for reimbursing any amounts paid or due as benefits to Provider's employees due to personal injury or death occurring during the period of time such employees are engaged in the rendering of aid and assistance under this Agreement. It is mutually understood that Recipient and Provider shall be responsible for payment of such workers' compensation benefits only to their own respective employees. Further, it is mutually understood that Provider will be entirely responsible for the payment of workers' compensation benefits to its own respective employees.

SECTION XI: IMMUNITY

Pursuant to RSA 53-A:3, all activities performed under this Agreement are hereby declared to be governmental functions and the liability of both Provider and Recipient shall be governed by NH Statutes, RSA 107-C:10.

SECTION XII: PARTIES MUTUALLY AGREE TO HOLD EACH OTHER HARMLESS

Each party (as indemnitor) agrees to protect, defend, indemnify, and hold the other party (as indemnitee), and its officers, employees, and agents, free and harmless from and against any and all losses, penalties, damages, assessments, costs, charges, professional fees, and other expenses or liabilities of every kind and arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings, or causes of action of every kind in connection with or arising out of indemnitor's negligent acts, errors and/or omissions. Indemnitor further agrees to investigate, handle, respond to, provide defense for, and defend any such claims, etc. at indemnitor's sole expense and agrees to bear all other costs and expenses related thereto. To the extent that immunity does not apply, each party shall bear the risk of its own actions, as it does with its day-to-day operations, and determine for itself what kinds of insurance, and in what amounts, it should carry. Each party understands and agrees that any insurance protection obtained shall in no way limit the responsibility to indemnify, keep, and save harmless the other parties to this Agreement.

SECTION XIII: ROLE OF THE UNIVERSITY OF NH TECHNOLOGY TRANSFER CENTER & MANAGEMENT COMPANY

A. Under this Agreement, the responsibilities of the University of New Hampshire Technology Transfer Center (UNH T2) are:

(1) to maintain the Mutual Aid Resource List and website, and to provide this listing to each of the entities on an annual basis; and

(2) to train public works personnel and other local officials in the implementation of the Program.

B. Under this Agreement, the responsibilities of the Management Company, to be designated by the Board of Directors, are:

(1) to serve as the fiscal agent of the Program for the invoicing and collection of any dues or fees, recipient for special grants or awards, and for the processing of all accounts receivable and payable;

(2) to serve as the central depository for executed agreements; and

(3) to provide administrative support to the Board of Directors.

SECTION XIV: AMENDMENTS; ADDITIONAL MEMBERS

A. *Manner:* This agreement may be modified at any time by (1) a proposal of the Board of Directors and upon the consent of a majority of the participating government units who cast ballots within sixty (60) days following a special meeting, which the Board Chair duly warns, to present the proposed changes, or (2) upon the mutual written consent of the Recipient and the Provider.

B. *Addition of Other Entities:* Additional entities may become parties to this Agreement upon:

(1) acceptance and execution of this Agreement;

(2) sending said executed copy of the Agreement to the Management Company with payment of any dues or fees; and

(3) completing and returning the Mutual Aid Resource List.

SECTION XV: INITIAL DURATION OF AGREEMENT; RENEWAL; TERMINATION

This Agreement shall be binding for not less than one (1) year from its effective date, unless terminated upon at least sixty (60) days advance written notice by a party as set forth below. Thereafter, this Agreement shall continue to be binding upon the parties in subsequent

years, unless canceled by written notification served personally or by registered mail upon the Management Company, which shall provide notice to all other parties. The withdrawal shall not be effective until sixty (60) days after notice thereof has been sent to all other parties. A party's withdrawal from this Agreement shall not affect a party's liability or obligation under the terms of this Agreement incurred hereunder. Once the withdrawal is effective, the withdrawing entity shall no longer be a party to this Agreement, but this Agreement shall continue to exist among the remaining parties.

SECTION XVI: HEADINGS

The headings of various sections and subsections of this Agreement have been inserted for convenient reference only and shall not be construed as modifying, amending, or affecting in any way the express terms and provisions of this Agreement.

SECTION XVII: SEVERABILITY - EFFECT ON OTHER AGREEMENTS

Should any clause, sentence, provision, paragraph, or other part of this Agreement be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair, or invalidate the remainder of this Agreement. Each of the parties declares that it would have entered into this Agreement irrespective of the fact that any one or more of this Agreement's clauses, sentences, provisions, paragraphs, or other parts have been so declared invalid. Accordingly, it is the intention of the parties that the remaining portions of this Agreement shall remain in full force and effect without regard to the clause(s), sentence(s), provision(s), paragraph(s), or other part(s) invalidated.

SECTION XVIII: EFFECTIVE DATE

This Agreement shall take effect upon its approval by the entity seeking to become a signatory to this Agreement and upon proper execution hereof.

IN WITNESS WHEREOF, each of the parties have caused this New Hampshire Public Works Mutual Aid Program Agreement to be duly executed in its name and behalf by its chief executive officer, who has signed accordingly with seals affixed and attested with concurrence of a majority of its governing board, as of the date set forth in this Agreement.

BY (*signature*): _____

Printed Name: _____

Title: _____

Municipal Government Unit: _____

Date: _____

DULY AUTHORIZED REPRESENTATIVE
(the emergency contact for the mutual aid program)
Name: _____

Title: _____

Organization: _____

Address: _____

City/State/Zip: _____

Work Phone: _____

Cell/Emergency Phone: _____

Email: _____

Fax: _____

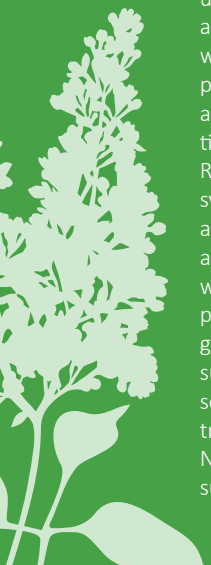
Pager: _____

Radio Frequency: _____

Original 5/26/1998
Revised 4/18/2011 & 9/10/15

The Route 202A Water Main Extension and Water Storage Tank project involves the construction of over 20,000 feet of new water main, the tallest glass fused to steel elevated water storage tank in New Hampshire at 156 feet, and the addition of 103 users to the City's public water system. This work showcases the City and the New Hampshire Department of Environmental Service's commitment to providing New Hampshire residents with a clean reliable supply of drinking water.

The hardboiled eggs above were prepared using tap water from the kitchen faucet of a home in the project area before public water was available. Water testing in private wells showed manganese levels at 15 times greater and iron levels at 60 times greater than recommended levels. Replacement of hot water heaters, septic systems, internal plumbing, and household appliances due to corrosion, clogging, and staining was common for private well owners. 11 homes in the area were previously identified as having MtBE, a gasoline related contaminant, in their water supplies. These homes relied on expensive, sometimes state provided and maintained, treatment systems to purify their water. Now they have access to a clean, reliable supply of public drinking water.



City of Rochester
Route 202A Water Main
Extension & Water Storage Tank

209 Chestnut Hill Road
Rochester, NH 03867
www.rochesternh.gov/public-works

ROCHESTER
NEW HAMPSHIRE

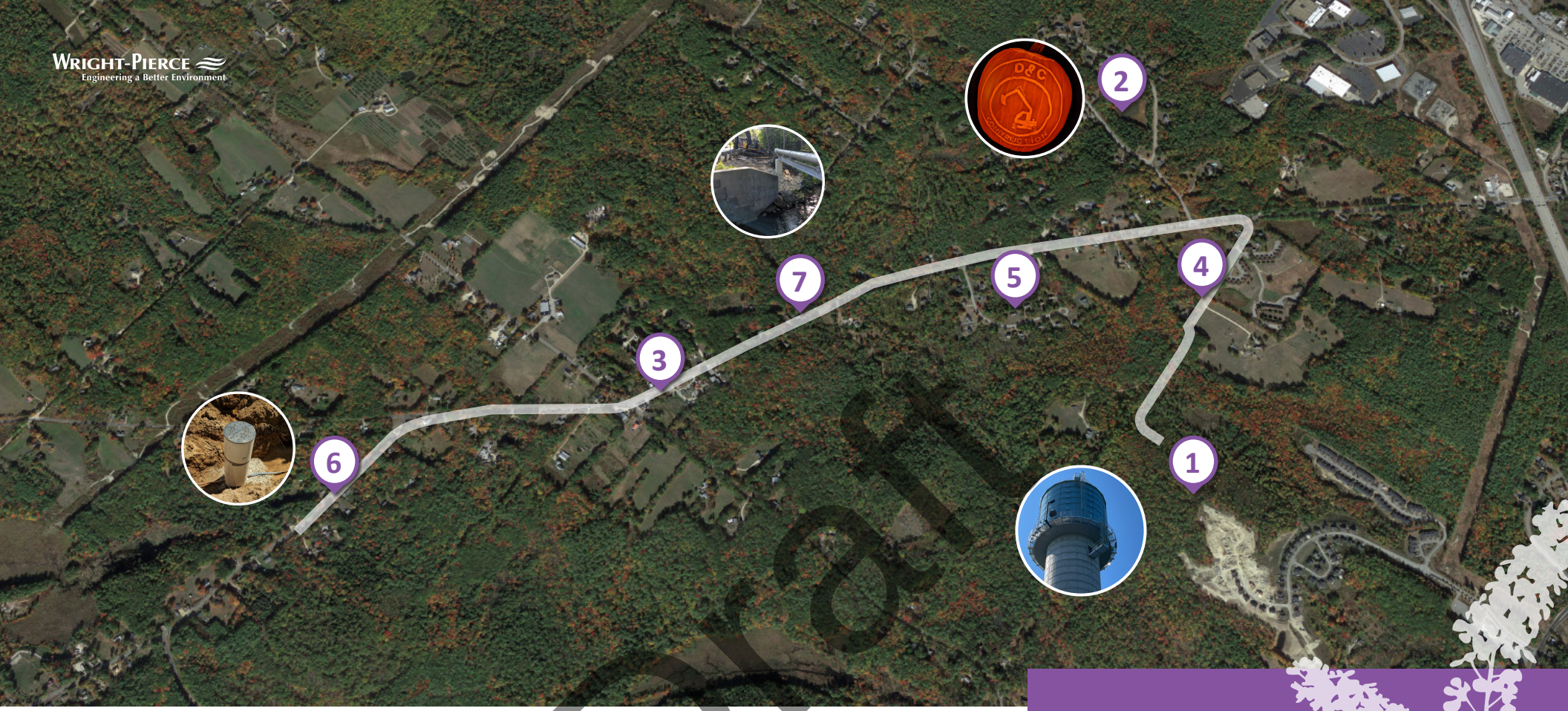
Route 202A Water Main Extension & Water Storage Tank

WRIGHT-PIERCE
Engineering a Better Environment

Brochure prepared by Wright-Pierce | Portsmouth, NH

DRAFT

WRIGHT-PIERCE
Engineering a Better Environment



1. Elevated Storage Tank

- 247,000 gallons of water storage
- 156 feet tall
- The tallest elevated glass fused to steel tank in New Hampshire
- Provides passive fire protection in zone

2. Winkley Farm Drive

- 21 new users to public water
- 5,200 feet of new water main and newly paved roads
- Provides relief from water quality and drought issues

3. NHDOT Route 202A

- 11 services funded by MtBE settlement funds
- 14 new connections to public water
- 10,300 feet of new water main

4. Bickford Road

- 3,300 feet of new water main installed from storage tank
- 62 new users to public water
- Dustin Homestead Condo complex converted to public water supply

5. Fiddlehead Lane

- 1,500 feet of new water main and newly paved roads
- 6 new users to public water

6. Autoflushing Hydrant

- The autoflushing hydrant is used to manage water age and maintain water quality while reducing operations costs

7. Ricker's Brook Crossing

- An above ground, self supported, 40 foot insulated water main crossing was installed to cross Ricker's Brook and avoid water main damage due to seasonal flows

The cost of this project is estimated to be $13.5 million. $3.5 million in City Contributions.

Funding sources included $3.3 million in grant from the MtBE Settlement Fund, $5.4 million in grant and $1.3 million in low interest loans from the State of New Hampshire Drinking Water Groundwater Trust Fund,

Over 64% of the project will be paid for using grants. The City offered homeowners the opportunity to pay their service installation costs over 10 years as part of their water bill.