Aldrich + Elliott
WATER RESOURCE ENGINEERS

August 16, 2018

Mr. Robert Pelosi
Vermont Department of Environmental Conservation
One National Life Drive
Montpelier, VT 05620

RE: **Clean Water Infrastructure Asset Management Plan**
Town of Wilmington
2016-CWI-AMP-10
A+E Project 16067

Dear Robert,

On behalf of the Town of Wilmington, we are pleased to submit this Final Performance Report for the above Clean Water Asset Management Grant.

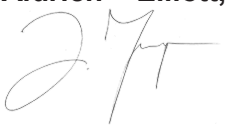
Attached you will final all previously submitted performance measures (deliverables) in one document. These deliverables are listed below.

Deliverable 1 – Asset Inventory & Condition Assessment
Deliverable 2 – System Assets Map
Deliverable 3 – Level of Service
Deliverable 4 – Risk Assessment
Deliverables 5 & 6 – Capital Improvement Plan and Funding Strategy Narrative

If you have any questions, please feel free to contact us.

Sincerely,

Aldrich + Elliott, PC



Joseph S. Krupa, PE
Project Engineer

Attachments

Attachment D
Vermont DEC – Clean Water Infrastructure Asset Management Grant Program
Final Performance Report

Title: Clean Water Infrastructure Asset Management Plan
Organization: Town of Wilmington
Grant Number: 2016-CWI-AMP-10

Report Date: August 8-16-2018

Summary: Final Performance Report contains all grant milestones.

CWI Funding:
Total Project Costs:

Performance Measures:

- Performance Measure 1 - Asset Inventory & Condition Assessment
- Performance Measure 2 - System Assets Map
- Performance Measure 3 - Level of Service
- Performance Measure 4 - Risk Assessment
- Performance Measure 5
- Performance Measure 6 - Capital Improvement Plan & Funding Strategy Narrative

Town of Wilmington
Asset Management Program
Private Sewer Lines
A+E Project #: 16067

Pipe ID Matrix	
Label	**Description**
EM1	Street Code: East Main Street Section 1
EM2	Street Code: East Main Street Section 2
WM	Street Code: West Main Street Section
PVT	Privately owned sewer
SER	Building sewer service
##	Number indicates either privately owned sewer in sequence or address of building service.

Material Key	
Type	**Description**
PVC	Polyvinyl Chloride
CI	Cast Iron
DI	Ductile Iron
AC	Asbestos Cement
VC	Vitrified Clay

Pipe Condition	
Rating	**Description**
4	Collapsed or Collapse Imminent
3	Significant defects and/or localized pipe failures
2	Mid-life. Collapse unlikely, minor sags/defects
1	New or like new sewer line

Town of Wilmington
Asset Management Program
Sewerline Inventory
A+E Project #: 16067
Date: 10/2017

Pipe ID	Street Name	Location (Street Address or VT State Plane Coordinates)			Street Code	Pipe Diameter (in.)	Pipe Material	Depth of Cover (ft)	Segment Length (ft)	Pipe Condition (1-5)	Current Year	Installation Date[1]	Age	Notes
		Address Number	Downstream Coordinate	Upstream Coordinate										
EM1 - PVT - 1	East Main	--	(N) 133474.5000 (E) 1541602.2960	(N) 133600.1070 (E) 1541633.4880	EM1	6	AC	6	130	2	2017	1960	57	Connects to Town owned manhole
EM1 - PVT - 2	East Main	--	(N) 133600.1070 (E) 1541633.4880	(N) 133679.8890 (E) 1541611.1350	EM1	4	DI	5 to 16	80	2	2017	1960	57	Steep slope to Cleanout connection with EM1-PVT-1
EM1 - PVT - 3	East Main	--	(N) 133679.8890 (E) 1541611.1350	(N) 133765.5870 (E) 1541620.8470	EM1	4	DI	5	90	2	2017	1960	57	Under driveway of #37
EM1 - PVT - 4	East Main	--	(N) 133765.5870 (E) 1541620.8470	(N) 133914.6910 (E) 1541708.1880	EM1	4	DI	6	170	2	2017	1960	57	Under driveway of #37
EM1 - PVT - 5	East Main	--	(N) 133914.6910 (E) 1541708.1880	(N) 133987.6890 (E) 1541552.4940	EM1	4	DI	1 to 7	175	3	2017	1960	57	Depth increases from 1ft to 7ft
EM1 - SER - 28	East Main	28	--	--	EM1	4	PVC	2 to 1	70	2	2017	1960	57	House Service
EM1 - SER - 34	East Main	34	--	--	EM1	4	PVC	3.5	30	2	2017	1960	57	House Service
EM1 - SER - 36	East Main	36	--	--	EM1	4	CI	**	60	2	2017	1960	57	House Service
EM1 - SER - 37	East Main	37	--	--	EM1	4	CI	3	25	2	2017	1960	57	House Service
EM1 - SER - 38	East Main	38	--	--	EM1	4	CI	5 to 7	40	2	2017	1960	57	House Service
EM1 - SER - 40	East Main	40	--	--	EM1	4	CI	4 to 7	35	2	2017	1960	57	House Service
EM2 - PVT - 1	East Main	63, 65, 69, 71	--	--	EM2	4	CI / PVC / VC	3 to 5	270	4	2017	1960	57	Runs under structures below the basement floor slabs.
EM2 - PVT - 2	East Main	73	--	--	EM2	4	PVC	6	30	1	2017	2010	7	Replaced recently by property owner.
WM - PVT - 1	West Main Street	--	(N) 134481.7410 (E) 1540500.9035	(N) 134702.4200 (E) 1540645.8920	WM	6	VC	4 to 6	260	2	2017	1960	57	Located in gravel driveway between Memorial Hall and #16
WM - PVT - 2	West Main Street	--	(N) 134702.4200 (E) 1540645.8920	(N) 134710.2250 (E) 1540659.8710	WM	4	VC	4	20	2	2017	1960	57	Transitions to 6" pipe WM-PVT-1
WM - PVT - 3	West Main Street	--	(N) 134710.2250 (E) 1540659.8710	(N) 134654.2050 (E) 1540759.6180	WM	4	VC	3.6	115	2	2017	1960	57	Bends 90 degrees from WM-SER-9
WM - SER - 9	West Main Street	9	--	--	WM	4	PVC	3.5	15	2	2017	1960	57	House Service
WM - SER - 11	West Main Street	11	--	--	WM	**	**	**	50	2	2017	1960	57	House Service
WM - SER - 15	West Main Street	15	--	--	WM	4	PVC TO CI	4	40	2	2017	1960	57	House Service
WM - SER - 16	West Main Street	16	--	--	WM	4	CI	3.5	30	2	2017	1960	57	House Service

** Unknow/Could not be inspected

(1) Date assumed to be 1960 based on approximate installation date of Town sewer system.

LEGEND

SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . .
- 8" GRAVITY SEWER (PUBLIC) . .
- FORCEMAIN (4" PUBLIC) . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

N

PLAN
SCALE: 1"=100'

GRAPHIC SCALE
0 100 150 200
(IN FEET)

Aldrich + Elliott
WATER RESOURCE ENGINEERS
6 Market Place, Suite 2
Essex Jct., VT 05452
P: 802.879.7733
AEengineers.com

No.	DATE	DESCRIPTION	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

PRIVATE WASTWATER SYSTEM MAP

DESIGNED	PROJECT NO.
JK	16067
DRAWN	FIGURE
JEN	1
CHECKED	
WAE	
DATE	
OCT. 2017	

LEGEND

SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . . .
- 8" GRAVITY SEWER (PUBLIC) . . .
- FORCEMAIN (4" PUBLIC) . . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40 60 80
(IN FEET)

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No.	DATE	DESCRIPTION	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

WEST MAIN STREET

DESIGNED	PROJECT NO.
JK	16067
DRAWN: JEN	FIGURE: 2
CHECKED: WAE	
DATE: OCT. 2017	

LEGEND

SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . .
- 8" GRAVITY SEWER (PUBLIC) . .
- FORCEMAIN (4" PUBLIC) . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40 60 80
(IN FEET)

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No.	DATE	DESCRIPTION	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

EAST MAIN STREET 1

DESIGNED	PROJECT NO.
JK	16067
DRAWN JEN	FIGURE 3
CHECKED WAE	
DATE OCT. 2017	

LEGEND

SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . .
- 8" GRAVITY SEWER (PUBLIC) . .
- FORCEMAIN (4" PUBLIC) . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40 60 80
(IN FEET)

Aldrich + Elliott
WATER RESOURCE ENGINEERS
6 Market Place, Suite 2
Essex Jct., VT 05452
P: 802.879.7733
AEengineers.com

No.	DATE	DESCRIPTION	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

EAST MAIN STREET 2

DESIGNED	PROJECT NO.
JK	16067
DRAWN: JEN	FIGURE: 4
CHECKED: WAE	
DATE: OCT. 2017	

TOWN OF WILMINGTON
WASTEWATER COLLECTION SYSTEM
LEVEL OF SERVICE GOALS & PERFORMANCE MEASURES

Policy Statement: The Town of Wilmington Wastewater Collection System will review, assess, and modify, as necessary, the Level of Service Agreement, which includes the goal and performance measures, on an annual basis. The Wastewater Collection System will report to the Town Selectboard annually on the progress and achievements of the Level of Service Agreement over the past year.

Level of Service Goal	Goal/Target Level	Data Needed to Measure Goal	Period of Measurement	Current Level	Goal Achievement	Employee(s)	Notes/Comments
Public Health & Safety							
Within 1 hour of discovery, the operator shall notify the State and local health officer of a sanitary sewer overflow (SSO).	1 hours of event	• SSO Event Form	Per occurrence	Meeting	Meeting	Chief Operator	
System Maintenance							
Flush and clean critical sections of the sewer collection system each year	Annual Flushing	• Flushing invoices or reports	Yearly	Meeting	Meeting	Operator(s)	
Flush and clean all main sewer lines every 3 years.	Every 3 years	• Flushing invoices or reports	Every 3 years	Meeting	Meeting	Operator(s)	
Complete manhole inspections for the sewer collection system every five years	Every 5 Years	• Inspection Sheets	Per occurrence	In-Progress	Meeting	Operator	
Customer Service & Response Time							
Review Town Sewer Ordinance every five years	Every 5 Years	• Copy of Sewer Ordinance	Every 5 Years	Meeting	Meeting	Town Manager Chief Operator	
Provide sewer customers with 24 hours' notice for any planned disruptions, 95% of the time. Planned outages are any sewer collection system disruptions known 48 hours in advance.	24 hours' notice, 95% of occurrences	• Notice records	Per occurrence	Meeting	Meeting	Chief Operator	
Respond within 2 hours to customer reports of sewer collection system issues, 95% of the time.	2-hour response time, 95% of occurrences	• Monthly Report of Customer Service	Monthly	Meeting	Meeting	Town Manager Chief Operator	

Pipe ID Matrix	
Label	**Description**
EM1	Street Code: East Main Street Section 1
EM2	Street Code: East Main Street Section 2
WM	Street Code: West Main Street Section
PVT	Privately owned sewer
SER	Building sewer service
##	Number indicates either privately owned sewer in sequence or address of building service.

Material Key	
Type	**Description**
PVC	Polyvinyl Chloride
CI	Cast Iron
DI	Ductile Iron
AC	Asbestos Cement
VC	Vitrified Clay

Pipe Condition	
Rating	**Description**
4	Collapsed or Collapse Imminent
3	Significant defects and/or localized pipe failures
2	Mid-life. Collapse unlikely, minor sags/defects
1	New or like new sewer line

Remaining Useful Life Rating	
Rating	**Description**
3	Exceeded Useful Life
2	Midway thru Life
1	Recently put in Service

Material Rating	
Rating	**Description**
4	Asbestos Cement Pipe
3	Metal Pipe (Suseptible to Corrosion)
2	Vitrified Clay Pipe
1	PVC Pipe

Criticality of Line	
Rating	**Description**
3	Failure results in direct damage to property or discharge of sewer to waters of the State
2	Failure likely results in main line blockages and possible discharge of sewer to ground surface
1	Failure results in localized damage to served property

Risk Rating Calculation

Risk Rating = Pipe Condition * Remaining Useful Life Rating * Material Rating * Criticality of Line Rating

Town of Wilmington
Asset Management Program
Sewerline Inventory
A+E Project #: 16067
Date: 2/2018

Pipe ID	Street Name	Location (Street Address or VT State Plane Coordinates)			Street Code	Pipe Diameter (in.)	Pipe Material	Depth of Cover (ft)	Segment Length (ft)	Pipe Condition (1-5)	Current Year	Installation Date[1]	Estimated Age	Expected Useful Life	Remaining Useful Life[2]	Remaining Useful Life Rating (1-3)	Material Rating (1-4)	Criticality of Line Rating (1-3)	Risk Rating[3] (2.4-49)	Risk Rating (0-10)	Notes
		Address Number	Downstream Coordinate	Upstream Coordinate																	
EM1 - PVT - 1	East Main	--	(N) 133474.5000 (E) 1541602.2960	(N) 133600.1070 (E) 1541633.4880	EM1	6	AC	6	130	2	2018	1960	58	50	(8)	3	4	2	48	7	Connects to Town owned manhole
EM1 - PVT - 2	East Main	--	(N) 133600.1070 (E) 1541633.4880	(N) 133679.8890 (E) 1541611.1350	EM1	4	DI	5 to 16	80	2	2018	1960	58	50	(8)	3	3	2	36	5	Steep slope to Cleanout connection with EM1-PVT-1
EM1 - PVT - 3	East Main	--	(N) 133679.8890 (E) 1541611.1350	(N) 133765.5870 (E) 1541620.8470	EM1	4	DI	5	90	2	2018	1960	58	50	(8)	3	3	2	36	5	Under driveway of #37
EM1 - PVT - 4	East Main	--	(N) 133765.5870 (E) 1541620.8470	(N) 133914.6910 (E) 1541708.1880	EM1	4	DI	6	170	2	2018	1960	58	50	(8)	3	3	2	36	5	Under driveway of #37
EM1 - PVT - 5	East Main	--	(N) 133914.6910 (E) 1541708.1880	(N) 133987.6890 (E) 1541552.4940	EM1	4	DI	1 to 7	175	3	2018	1960	58	50	(8)	3	3	2	54	7	Depth increases from 1ft to 7ft
EM1 - SER - 28	East Main	28	--	--	EM1	4	PVC	2 to 1	70	2	2018	1960	58	50	(8)	3	1	1	6	1	House Service
EM1 - SER - 34	East Main	34	--	--	EM1	4	PVC	3.5	30	2	2018	1960	58	50	(8)	3	1	1	6	1	House Service
EM1 - SER - 36	East Main	36	--	--	EM1	4	CI	**	60	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service
EM1 - SER - 37	East Main	37	--	--	EM1	4	CI	3	25	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service
EM1 - SER - 38	East Main	38	--	--	EM1	4	CI	5 to 7	40	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service
EM1 - SER - 40	East Main	40	--	--	EM1	4	CI	4 to 7	35	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service
EM2 - PVT - 1	East Main	63, 65, 69, 71	--	--	EM2	4	CI / PVC / VC	3 to 5	270	4	2018	1960	58	50	(8)	3	3	2	72	10	Runs under structures below the basement floor slabs.
EM2 - PVT - 2	East Main	73	--	--	EM2	4	PVC	6	30	1	2018	2010	8	50	42	1	1	2	2	0	Replaced recently by property owner.
WM - PVT - 1	West Main Street	--	(N) 134481.7410 (E) 1540500.9035	(N) 134702.4200 (E) 1540645.8920	WM	6	VC	4 to 6	260	2	2018	1960	58	50	(8)	3	2	3	36	5	Located in gravel driveway between Memorial Hall and #16
WM - PVT - 2	West Main Street	--	(N) 134702.4200 (E) 1540645.8920	(N) 134710.2250 (E) 1540659.8710	WM	4	VC	4	20	2	2018	1960	58	50	(8)	3	2	3	36	5	Transitions to 6" pipe WM-PVT-1
WM - PVT - 3	West Main Street	--	(N) 134710.2250 (E) 1540659.8710	(N) 134654.2050 (E) 1540759.6180	WM	4	VC	3.6	115	2	2018	1960	58	50	(8)	3	2	3	36	5	Bends 90 degrees from WM-SER-9
WM - SER - 9	West Main Street	9	--	--	WM	4	PVC	3.5	15	2	2018	1960	58	50	(8)	3	1	1	6	1	House Service
WM - SER - 11	West Main Street	11	--	--	WM	**	**	**	50	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service
WM - SER - 15	West Main Street	15	--	--	WM	4	PVC TO CI	4	40	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service
WM - SER - 16	West Main Street	16	--	--	WM	4	CI	3.5	30	2	2018	1960	58	50	(8)	3	3	1	18	2	House Service

** Unknown/Could not be inspected

(1) Date assumed to be 1960 based on approximate installation date of Town sewer system.

(2) Remaining useful life is set as 50 years.

(3) Risk Rating = Pipe Condition * Remaining Useful Life Rating * Material Rating * Criticality of Line Rating

Aldrich + Elliott
WATER RESOURCE ENGINEERS

MEMORANDUM

DATE: June 11, 2018

TO: John Lazelle, Wilmington Wastewater District
Robert Pelosi, Vermont DEC

FROM: Joseph S. Krupa, PE

RE: Town of Wilmington, CWI Asset Management Grant 2016-CWI-AMP-10
Deliverables 5 & 6 - Capital Improvement Plan and Funding Strategy Narrative
A+E Project No. 16067

BACKGROUND

In January of 2017, The Town of Wilmington (through the Wilmington Wastewater District) retained Aldrich + Elliott, PC (A+E) to develop an Asset Management Plan in (3) locations. The goal of the project is to further investigate three (3) sections of the existing sewer collection system where several residential and commercial buildings are connected to shared private sewerlines. The locations of these pipeline segments are named West Main Street, East Main Street 1, East Main Street 2, and can be found on the attached mapping, Figure 1.

The objectives of this plan are to:

- Determine how many buildings are connected to each private sewerline
- Verify where the services connect
- Verify where the private sewers connect to the mainline sewer
- Document the pipe sizes and materials
- Assess the condition of the pipe
- Evaluate alternatives to eliminate these private lines and potential funding sources

This memo evaluates proposed concepts to eliminate these private sewer lines, discusses the District's responsibilities under existing ordinances, and identified potential funding sources.

TOWN ORDINANCES

Under the existing Wilmington Wastewater District Sewer Ordinance dated October 2, 2013, "a separate and independent sewer connection shall be provided for each and every building…" (Section 505). The District's ordinance allows for combined sewer connections or private sewers in limited circumstances if "independent connections are not feasible or if shared connections are in the best interest of the Town."

In order to enforce this ordinance, it may be possible for the District to force separation of the private sewer into independent connections under Section 1001, however, utilization of this section for this purpose may be impractical and financially unreasonable. This is true for the private sewers servicing the West Main and East Main 1 systems which would require expansion of the District sewer system prior to decommissioning the existing private sewer. As a result, it is in the “best interest of the Town” to allow these private sewers until a time that the public system can be extended to these areas.

It may be appropriate for the District to exercise Section 1001 for East Main #2 where separate sewer services are possible. In the case of East Main 2, the private sewer running under the homes will have to remain in service until all homes have separate sewer services installed. Section 1001 may help ensure timeliness of this work by each owner and prevent home owners from maintaining a private sewer they are no longer connected to due to the sewer’s location under their home.

CAPITAL IMPROVEMENT PLAN, PROPOSED WORK, AND COSTS

As indicated above, this work specifically evaluates (3) locations that consist of multiple sewer customers on private sewerlines. As such, a diligent improvement plan is required that clearly identifies the public and private division of responsibilities and ensures that public funds are spent only on improvements that work to the public’s benefit and fulfills District obligations to its users.

The attached mapping illustrates conceptual proposed improvements to eliminate the combined private sewer lines and create separate sewer connections for each building. Each location is described in detail below.

WEST MAIN STREET

West Main Street is currently serviced by (2) two public sewerlines as shown on Figure WM. One sewerline runs behind the buildings on the westside of West Main Street along the river. The other begins to the northwest of #15 West Main Street and flows northwest.

Improvements to West Main Street require extending the existing public sewer line southeast approximately 250 linear feet in order to connect (3) three of the (4) four structures currently serviced by the West Main Private sewer. Services for numbers 9, 11, and 15 would be connected to the new sewer as part of this work, however, #16 would remain on the existing private sewerline due to the building’s sewer service location.

Consideration should be given to #16 to allow the owner to reconfigure the structure’s interior plumbing and connect to the new sewer in the future. However, this work would be funded and executed by the building owner and not the District.

Tables 1 and 2 below provides a summary of estimated budget costs for this work. The estimated construction cost for the overall improvements is approximately $73,000, and work at House #16 is estimated at $10,000 to $15,000.

TABLE 1 – West Main Street Public Improvements Construction Cost Estimate

	Unit Description	Total Quantity	Unit	Engineer's Estimate Unit Price	Engineer's Estimate Total Cost
1	8" PVC Gravity Sewer	250	L.F.	$ 75.00	$ 18,750.00
2	4" Diameter Sewer Manholes	8	V.F.	$ 550.00	$ 4,400.00
3	4" Sewer Services	20	L.F.	$ 70.00	$ 1,400.00
4	6" Sewer Services	10	L.F.	$ 80.00	$ 800.00
5	8" x 4" Wyes	2	EA.	$ 200.00	$ 400.00
6	8" x 6" Wyes	1	EA.	$ 200.00	$ 200.00
7	Permanent Bit. Pavement Repair – Town Roads	150	S.Y.	$ 75.00	$ 11,250.00
8	Concrete Sidewalk	250	L.F.	$ 60.00	$ 15,000.00
9	Concrete Curb	250	L.F.	$ 45.00	$ 11,250.00
10	Contingency (15%)	1	L.S.	$ 9,517.50	$ 9,517.50
			TOTAL		**$ 72,967.50**
			USE		**$ 73,000.00**

Notes:
1. ENR = 11045 (June 2018)

TABLE 2 – #16 West Main Street Private Improvements Construction Cost Estimate

	Unit Description	Total Quantity	Unit	Engineer's Estimate Unit Price	Engineer's Estimate Total Cost
1	Interior Replumb	1	EA.	$ 3,500.00	$ 3,500.00
2	6" Sewer Services	40	L.F.	$ 80.00	$ 3,200.00
3	8" x 6" Wyes	1	EA.	$ 200.00	$ 200.00
4	Permanent Bit. Pavement Repair – Town Roads	45	S.Y.	$ 75.00	$ 3,375.00
5	Concrete Sidewalk	10	L.F.	$ 60.00	$ 600.00
6	Concrete Curb	10	L.F.	$ 45.00	$ 450.00
7	Contingency (15%)	1	L.S.	$ 1,698.75	$ 1,698.75
			TOTAL		**$ 13,023.75**
			USE		**$ 14,000.00**

Notes:
1. ENR = 11045 (June 2018)

EAST MAIN STREET 1

Similar to West Main Street, East Main Street 1 (as shown on Figure EM1) requires extending the existing public sewer line west approximately 520 linear feet in order to connect (5) five of the (6) six structures currently serviced by the East Main 1 Private sewer. Services for numbers 28, 34, 36, 38 and 40 would be connected to the new sewer as part of this work.

#37 would remain on the existing private sewerline for the foreseeable future due to the building service location and elevation. Table 4 illustrates costs for a future replumb of the structure and connection to the new main that would be paid for by the property owner.

Tables 3 below provides a summary of estimated budget costs for this work at an estimated construction cost of $159,000.

TABLE 3 – East Main Street 1 Public Improvements Construction Cost Estimate

	Unit Description	Total Quantity	Unit	Engineer's Estimate	
				Unit Price	Total Cost
1	8" PVC Gravity Sewer[2]	520	L.F.	$ 90.00	$ 46,800.00
2	4" Diameter Sewer Manholes	16	V.F.	$ 550.00	$ 8,800.00
3	4" Sewer Services	50	L.F.	$ 70.00	$ 3,500.00
6	8" x 4" Wyes	6	EA.	$ 200.00	$ 1,200.00
7	Permanent Bit. Pavement Repair – Town Roads	300	S.Y.	$ 75.00	$ 22,500.00
8	Concrete Sidewalk	520	L.F.	$ 60.00	$ 31,200.00
9	Concrete Curb	520	L.F.	$ 45.00	$ 23,400.00
10	Contingency (15%)	1	L.S.	$ 20,610.00	$ 20,610.00
			TOTAL		**$ 158,010.00**
			USE		**$ 159,000.00**

Notes:
1. ENR = 11045 (June 2018)
2. There are potential conflicts with an existing watermain on East Main 1. The 8" Gravity Sewer unit price has been increased to capture potential costs associated with resolving these conflicts.

TABLE 4 – East Main Street 1 Private Improvements Construction Cost Estimate

	Unit Description	Total Quantity	Unit	Engineer's Estimate	
				Unit Price	Total Cost
1	Interior Replumb	1	EA.	$ 3,500.00	$ 3,500.00
2	4" Sewer Services	90	L.F.	$ 70.00	$ 6,300.00
3	8" x 4" Wyes	1	EA.	$ 200.00	$ 200.00
4	Permanent Bit. Pavement Repair – Town Roads	45	S.Y.	$ 75.00	$ 3,375.00
5	Concrete Sidewalk	10	L.F.	$ 60.00	$ 600.00
6	Concrete Curb	10	L.F.	$ 45.00	$ 450.00
7	Contingency (15%)	1	L.S.	$ 2,163.75	$ 2,163.75
			TOTAL		**$ 16,588.75**
			USE		**$ 17,000.00**

Notes:
1. ENR = 11045 (June 2018)

EAST MAIN STREET 2

The East Main Street 2 location is currently serviced by a public sewerline running across the field south of the (5) homes in the study area as shown on Figure EM2. The homes are connected to the public system via a private sewerline that runs under the foundations of each home before connecting into a manhole.

Improvements would require each homeowner to replumb their buildings and extend new services out the back of the home to the existing service. #73 East Main Street would remain on the last length of the existing private sewerline. The homeowner recently replaced this sewerline, and it is believed to be in good condition.

Table 5 below provides a summary of estimated budgeting costs for this work at an estimated construction cost of $44,000.

TABLE 5 – East Main Street 2 Private Improvements Construction Cost Estimate

	Unit Description	Total Quantity	Unit	Engineer's Estimate	
				Unit Price	Total Cost
1	Interior Replumb	4	EA.	$ 3,000.00	$ 12,000.00
2	4" Sewer Services	310	L.F.	$ 80.00	$ 24,800.00
3	8" x 4" Wyes	4	EA.	$ 200.00	$ 800.00
4	Contingency (15%)	1	L.S.	$ 5,640.00	$ 5,640.00
			TOTAL		**$ 43,240.00**
			USE		**$ 44,000.00**

Notes:
1. ENR = 11045 (June 2018)

The cost of these improvements would be bore by each homeowner individually for an estimated $10,000 to $12,000 each ($44,000/4).

The Wilmington Wastewater District views each of these locations as a short-term (5-10 year) priority of improvement. This is especially true for West Main and East Main 1 due to their proximity to the downtown area, and planned sidewalk improvements on East Main Street.

SEWER RATES

The Wilmington Wastewater District generates the majority of its wastewater collection system revenue through its sewer rates. The sewer rates are billed semi-annually using an ECU classification system, so 1.00 ECU's is equal to a single-family house. For FY18, the sewer rate is $445.50/ECU based on a total of 728 ECUs.

Realized impact to the sewer rates will depend on the District's approach to addressing each of these areas. As described above, several of these assets are private and will remain private. Cost for correcting these assets could be borne by the private owners and not impact Town sewer rates.

For those areas that will fall under the District's jurisdiction, impacts to sewer rates will depend on the current year's expenses and sewer rates, and District indebtedness. If timed correctly, the District could close existing loans prior to opening a new loan for this work. As a result, sewer rates would likely remain unchanged.

FUNDING STRATEGY

Several options exist for the Town and private owners to fund improvements to these assets. Although the District does not have direct responsibility over these private lines, the Sewer Commissioners has made addressing these lines a priority. It is anticipated that a number of these improvements will be privately funded, however, the District is open to discussing options for joint funding.

For example, improvements to the East Main #2 system call for new sewer services for each residence. It is anticipated that each new service would be funded by the property owner, and not by the Wilmington Wastewater District.

Proposed improvements for East Main #1 and West Main call for the installation of new public sewer to collect wastewater from most of the affected properties. The following funding options are potential funding sources.

State of Vermont Department of Environmental Conservation

The State of Vermont offers low interest loans for planning, design, and construction of municipal infrastructure improvements. The State of Vermont offers the Clean Water State Revolving Fund (CWSRF) loan program for this type of project. The CWSRF program provides loans with and interest rate of 2% for a term of 20 to 30 years, depending on the projected median household income (MHI) and the projected user cost criteria. The funding schedule depends on the individual project's priority ranking in comparison with other projects, and this project is currently eligible for funding.

It is worth nothing that the Department of Environmental Conservation is proposing to expand the statute to allow private entities to apply for funding as well. If passed, this source could be available to private owners in Wilmington seeking to improve their assets.

USDA Rural Development (RD)

The USDA Rural Development (RD) program includes both grants and loan, depending on the project and community's ability to pay, which is based on the District's sewer rates and median household income (MHI). Given the demographics of the service area and relatively low MHI, the District may be eligible for grants under the RD program. An additional condition of the USDA RD program is that pipe material be bid through a competitive process, which essentially limits the municipality to PVC over ductile iron piping per the material market costs. Current grant/loan terms through the USDA RD program are estimated to be 2.5% (Intermediate Rate) for 30 to 40 years. Depending on the median household income the District could qualify for a lower interest rate and grant up to 45%. USDA cannot issue a funding offer until a positive bond vote has occurred.

It is important to note that the USDA funding source is only available to the municipality for us on public infrastructure.

This memo represents the completion of milestones 5 & 6 for the Town of Wilmington's CWI Asset Management Grant 2016-CWI-AMP-10. Once reviewed and accepted, the Town will complete and submit the final report to complete all grant obligations.

Should you have any questions regarding the findings described above, please do not hesitate to contact us at (802) 879-7733.

LEGEND

EXISTING SEWER

- 4" GRAVITY SEWER (PRIVATE)
- 6" GRAVITY SEWER (PRIVATE)
- 6" GRAVITY SEWER (PUBLIC)
- 8" GRAVITY SEWER (PUBLIC)
- FORCEMAIN (4" PUBLIC)
- UNKNOWN PIPE
- FLOW DIRECTION
- MANHOLE
- CLEANOUT — C.O.
- PUMP STATION — PS

PROPOSED SEWER

- GRAVITY SEWER/SERVICE
- MANHOLE

N

PLAN
SCALE: 1"=100'

GRAPHIC SCALE
0 100 150 200
(IN FEET)

Aldrich + Elliott
WATER RESOURCE ENGINEERS
6 Market Place, Suite 2
Essex Jct., VT 05452
P: 802.879.7733
AEengineers.com

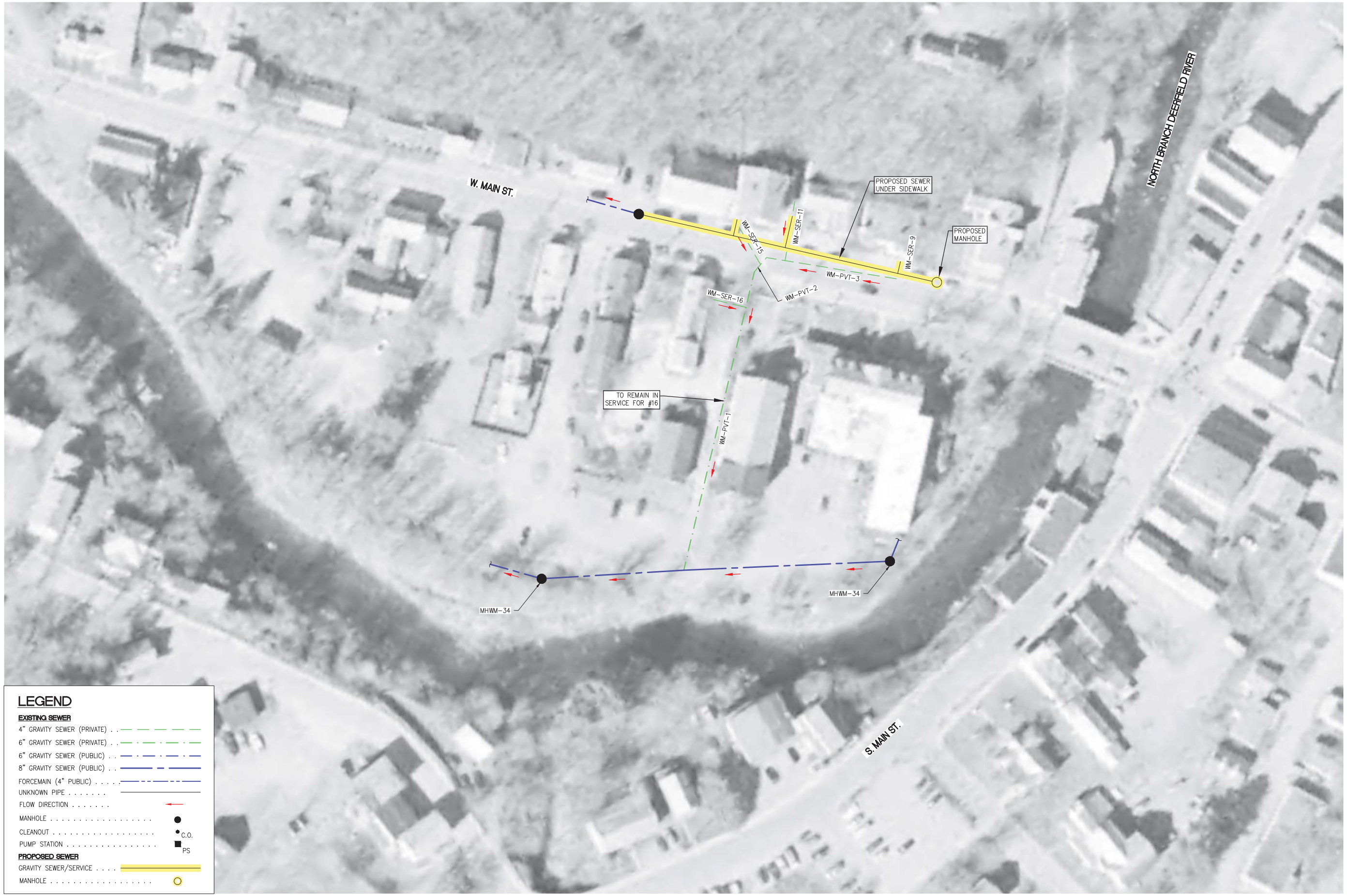
No.	DESCRIPTION	DATE	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

PRIVATE WASTWATER SYSTEM MAP

DESIGNED	PROJECT NO.
JK	16067
DRAWN: JEN	FIGURE: 1
CHECKED: WAE	
DATE: JUNE, 2018	



LEGEND

EXISTING SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . .
- 8" GRAVITY SEWER (PUBLIC) . .
- FORCEMAIN (4" PUBLIC) . . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

PROPOSED SEWER

- GRAVITY SEWER/SERVICE . . . .
- MANHOLE . . . . . .

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40 60 80
(IN FEET)

Aldrich + Elliott
WATER RESOURCE ENGINEERS
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No.	DATE	DESCRIPTION

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

WEST MAIN STREET

DESIGNED JK	PROJECT NO. 16067
DRAWN JEN	FIGURE WM
CHECKED WAE	
DATE JUNE, 2018	

Y:\16067-WILMINGTON\16067-FIG 2.dwg, 8/7/2018 8:34:10 AM

LEGEND

EXISTING SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . .
- 8" GRAVITY SEWER (PUBLIC) . .
- FORCEMAIN (4" PUBLIC) . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

PROPOSED SEWER

- GRAVITY SEWER/SERVICE . . . .
- MANHOLE . . . . . .

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40 60 80
(IN FEET)

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No.	DATE	DESCRIPTION	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

EAST MAIN STREET 1

DESIGNED	PROJECT NO.
JK	16067
DRAWN	FIGURE
JEN	EM1
CHECKED	
WAE	
DATE	
JUNE, 2018	

Y:\16067-WILMINGTON\16067-FIG 3.dwg, 8/7/2018 8:35:43 AM

LEGEND

EXISTING SEWER

- 4" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PRIVATE) . .
- 6" GRAVITY SEWER (PUBLIC) . .
- 8" GRAVITY SEWER (PUBLIC) . .
- FORCEMAIN (4" PUBLIC) . . . . .
- UNKNOWN PIPE . . . . . .
- FLOW DIRECTION . . . . . .
- MANHOLE . . . . . .
- CLEANOUT . . . . . C.O.
- PUMP STATION . . . . . PS

PROPOSED SEWER

- GRAVITY SEWER/SERVICE . . . .
- MANHOLE . . . . . .

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40 60 80
(IN FEET)

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No.	DATE	DESCRIPTION	CHECKED

TOWN OF WILMINGTON, VERMONT

ASSET MANAGEMENT PROGRAM

EAST MAIN STREET 2

DESIGNED JK	PROJECT NO. 16067
DRAWN JEN	FIGURE EM2
CHECKED WAE	
DATE JUNE, 2018	

Y:\16067-WILMINGTON\16067-FIG 4.dwg, 8/7/2018 8:37:14 AM