

MS4 General Permit
Town of Killingly [2018] Annual Report
New MS4 Permittee
Permit Number GSM 201703135
[January 1, 2018 – December 31, 2018]

This report documents Killingly's efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2018 to December 31, 2018.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach (Section 6 (a)(1) / page 19)

1.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
1-1 Implement public education and outreach	In progress	Created a Stormwater section on the Towns website Created general info brochure available at the Town Hall.		Engineering	Jul 1, 2019	Completed, 2018	
1-2 Address education/ outreach for pollutants of concern*	In progress	Same as above, continue general education.		Engineering/Planning	Jul 1, 2019	Anticipate completing by the July 1, 2019 deadline	
1-3 Integrate water quality into school curriculum	Not Started		Coordinated with school officials to determine feasibility of program, educate students on common stormwater topics	Engineering	-	Plan to implement program during 2019-2020 school year	Reason for addition: Extend public education program to schools

1.2 Describe any Public Education and Outreach activities planned for the next year, if applicable.

-Additional Fact Sheet and stormwater quality education materials will be made available to the public on the town website and/or at town gathering places
-Continue to post educational info
-Inform all groups and commissions in town

1.3 Details of activities implemented to educate the community on stormwater

Program Element/Activity	Audience (and number of people reached)	Topic(s) covered	Pollutant of Concern addressed (if applicable)	Responsible dept. or partner org.
Educational Stormwater page on the Town website	Website visitors (approx. 500)	General info on stormwater runoff and pollutants		Engineering
Brochures distributed at the Town Hall	Developers, Residence (approx. 150)	General info on stormwater runoff and pollutants		Engineering
E&S installation packets distributed in P&Z	Developers, home owners (approx. 150)	E&S information		Planning

2. Public Involvement/Participation (Section 6(a)(2) / page 21)

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
2-1 Continue availability of Final Stormwater Management Plan	Completed	Continued availability Stormwater Management Plan	Continue availability Stormwater Management Plan	Engineering	Ongoing	4/3/2017	
2-2 Comply with public notice requirements for Annual Reports	Completed	Update and post annual report	Update and post annual report	Engineering	Feb 15, 2019	2/20/2019	
2-3 Promote community stormwater management efforts and more Town wide clean-up days	In Progress		Schedule more town wide clean ups	Engineering/Planning	-	Summer 2019	

2.2 Describe any Public Involvement/Participation activities planned for the next year, if applicable.

-Continue Community outreach and involvement
 -Schedule more clean-up efforts
 -Household Hazardous Waste Day

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan to public	Yes	3/30/2017	https://www.killingly.org/sites/killinglyct/files/uploads/ms4_stormwater_general_permit.pdf
Availability of Annual Report announced to public	Yes	3/28/2019	https://www.killingly.org/sites/killinglyct/files/uploads/ms4annualreport2018.pdf

3. Illicit Discharge Detection and Elimination (Section 6(a)(3) and Appendix B / page 22)

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
3-1 Develop written IDDE program	In progress	Town is in process of completing written IDDE program using the CT IDDE program template	Develop written plan of IDDE program	Planning	Jul 1, 2019	Anticipate completing by the deadline of July 1, 2019	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	In progress	Mapping all drainage in Town focusing on priorities. Created a base AutoCAD and GIS map	Finish Maps	Engineering	Jul 1, 2020	Anticipate completing by the deadline of July 1, 2020	
3-3 Implement citizen reporting program	In progress	Added Contact info to the new Stormwater page on website and SeeClickFix link	Create Stormwater section on website	Engineering	Jul 1, 2017	7/1/2017 Revised Fall 2018	
3-4 Establish legal authority to prohibit illicit discharges	Not started	Create Regs/ordinance to prohibit illicit discharges and enable town to enforce rules	Publish Regs and establish legal authority	Planning	Jul 1, 2019	Anticipate completing by the deadline of July 1, 2019	
3-5 Develop record keeping system for IDDE tracking	In progress	Created a section in the IPS software to track IDDE	Enter all IDDE	Engineering/ Planning	Jul 1, 2017	7/1/2017 Revised Fall 2018	
3-6 Address IDDE in areas with pollutants of concern	Not started	Investigate complaints, or observations from town staff. Also use Outfall screening data to tract any IDDE that the town becomes aware of.	Evaluate screening data to determine area to investigate for IDDE	Engineering/ Planning	Not specified		

3.2 Describe any IDDE activities planned for the next year, if applicable.

-Establish written IDDE programs
-Maintain master IDDE tracking on IPS and ensure all employees involved in IDDE program understand the logging process

3.3 List of citizen reports of suspected illicit discharges received during this reporting period.

Date of Report	Location / suspected source	Response taken
None Reported This Period		

3.4 Provide a record of illicit discharges occurring during the reporting period and SSOs occurring July 2012 through end of reporting period using the following table.

Location (Lat long/ street crossing /address and receiving water)	Date and duration of occurrence	Discharge to MS4 or surface water	Estimated volume discharged	Known or suspected cause / Responsible party	Corrective measures planned and completed (include dates)	Sampling data (if applicable)
460 Putnam Pike	2/17/2013	N/A	200 Gallons	Grease and wipes	Jetted line clean	
31 Wauregan Rd (WPCA Facility)	4/7/2013	N/A	200 Gallons	Bio-tower bar rack blocked	Cleaned Bar Rack	
31 Wauregan Rd (WPCA Facility)	12/4/2013	N/A	100 Gallons	Sludge spill in parking lot	Shoveled, vacuumed, and washed	
Main St (RT12)/Morin Ave	12/12/2013	N/A	50 Gallons	Grease, Roots, and Rags Blocking Line	Jetted line clean	
51 Adelaide St	1/3/2014	N/A	100 Gallons	Rags Blocking Line	Jetted line clean	
Morin Ave	9/4/2015	N/A	50 Gallons	Roots Blocking Line	Cut roots and jetted line clean	
99 Morin Ave	9/14/2015	N/A	50 Gallons	Roots Blocking Line	Cut roots and jetted line clean	
137 Woodward St	1/15/2016	Davis Brook/Five	2000 Gallons	heavy grit and grease blocking	Jetted line, Town later had the line vacuumed, jetted and video inspected	

		Mile River		line		
Cat Hollow	5/13/2016	N/A	100 Gallons	Roots and Cloth blocking line in manhole	Removed blockage, jetted line and made small earth dam by shovel to contain overflow	
31 Wauregan Rd (WPCA Facility)	2/17/2016	N/A	200 Gallons	Sloughed solids at trickling filter	Cleaned bar rack	
31 Wauregan Rd (WPCA Facility)	3/25/2016	N/A	800 Gallons	Trickling filter	Cleaned bar rack	
31 Wauregan Rd (WPCA Facility)	3/25/2016	N/A	4500 Gallons	Trickling filter broke media and blocked rack	Fixed issues that cause overflow and spread lime on fields to neutralize	
31 Wauregan Rd (WPCA Facility)	7/20/2016	N/A	<1 Gallons	Trickling filter wall seams	Contracted a company to repair seams	

3.5 Briefly describe the method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

-Citizens and report on "SeeClickFix", by phone, by email, or walk-in.
 -Town staff tracks illicit discharge in the town IPS software. Engineering, Wetlands, Zoning and Public Works Departments all investigate in the field as well as observe during routine site inspections.

3.6 Provide a summary of actions taken to address septic failures using the table below.

Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
NEDDH handles septic failures, no full failures reported this period		

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	Mapping Underway
Estimated or actual number of interconnections	Mapping Underway
Outfall mapping complete	Estimated 25%
Interconnection mapping complete	Estimated 20%
System-wide mapping complete (detailed MS4 infrastructure)	18%-Mapping Underway
Outfall assessment and priority ranking	40%-Mapping Underway
Dry weather screening of all High and Low priority outfalls complete	0
Catchment investigations complete	0
Estimated percentage of MS4 catchment area investigated	0%

3.8 Briefly describe the IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often is it given (minimum once per year).

Employees involved in IDDE tasks have taken training provided by NEMO an UCONN CLEAR and will continue to do so.

4. Construction Site Runoff Control (Section 6(a)(4) / page 25)

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	In progress	Reviewing draft ordinances/regulations	Write draft ordinance	Engineering/Planning	Jul 1, 2020	Anticipate completing by the July 1, 2020 deadline	
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	In progress	All applications are reviewed by staff	Review all applications	Engineering/Planning	Jul 1, 2017	Pre-existing requirement	
4-3 Review site plans for stormwater quality concerns	In progress	All applications received are reviewed for Stormwater quality	Review all applications	Engineering/Planning	Jul 1, 2017	Pre-existing requirement	
4-4 Conduct site inspections	In progress	Regular site inspections are conducted, and documented in MS4 section of IPS	Site-inspections weekly or as needed	Engineering/Planning	Jul 1, 2017	Pre-existing requirement	
4-5 Implement procedure to allow public comment on site development	In progress	Public hearings are held for most applications	Continue to follow existing regulations	Planning	Jul 1, 2017	Pre-existing requirement	
4-6 Implement procedure to notify developers about DEEP construction stormwater permit	In progress	Applicants are notified upon submitting applications	Continue to follow existing regulations	Planning	Jul 1, 2017	Pre-existing requirement	
4-7 Develop stormwater compliance write-ups for every new application	In progress	In the plan review process record concerns and compliance to Stormwater quality	Standardize plan review	Planning	-	Jul 1, 2019	Reason for addition: Make it easier to ensure compliance with stormwater regulations

4.2 Describe any Construction Site Runoff Control activities planned for the next year, if applicable.

Inform developers what is required/expected for E&S control during the review process as well as handing out E&S control procedures.

5. Post-construction Stormwater Management (Section 6(a)(5) / page 27)

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	In progress	Reviewing draft ordinances/regulations	Continued implementation and upgrades of regulations	Engineering/Planning	Jul 1, 2022	Anticipate completing by the July 1, 2022 deadline	
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	In progress	Inspection of construction sites and communication with site contractors	Continued enforcement of regulations	Engineering/Planning	Jul 1, 2022	Anticipate completing by the July 1, 2022 deadline	
5-3 Identify retention and detention ponds in priority areas	In progress	Town knows location of most detention ponds in priority areas	Develop list of retention and detention ponds and map them on GIS	Engineering/Planning/DPW	Jul 1, 2020	Anticipate completing by the July 1, 2020 deadline	
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	In progress	All catch basins are cleaned annually, detention ponds cleaned as needed	Develop a written maintenance plan	Engineering/Planning	Jul 1, 2020	Anticipate completing by the July 1, 2020 deadline	Confirming all detention ponds have maintenance plans
5-5 DCIA mapping	In progress	Creating town-wide GIS and AutoCAD maps, also using impervious cover maps from CLEAR	Calculation of impervious coverage to each out fall	Engineering/Planning	Jul 1, 2020	Anticipate completing by the July 1, 2020 deadline	
5-6 Address post-construction issues in areas with pollutants of concern	In progress	Not Started		Engineering/Planning	Not specified		

5.2 Describe any Post-Construction Stormwater Management activities planned for the next year, if applicable.

Draft a maintenance plan and record keeping maintaining highest priority retention ponds with Town crews.

5.3 Post-Construction Stormwater Management reporting metrics

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	7,167.91 acres
DCIA disconnected (redevelopment plus retrofits)	0.03 acres this year / 0.03 acres total
Retrofits completed	2
DCIA disconnected	.000004% this year / .000004% total since 2012
Estimated cost of retrofits	Unknown
Detention or retention ponds identified	#2 /# 11 total

5.4 Briefly describe the method to be used to determine baseline DCIA.

Utilized CT NEMO/CLEAR impervious land cover mapping to determine basins greater than or equal to 11% impervious coverage and urban areas. Also using spreadsheet template from NEMO to track DCIA.

6. Pollution Prevention/Good Housekeeping (Section 6(a)(6) / page 31)

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
6-1 Develop/implement formal employee training program	Not Started		Create or find a training program for DPW that incorporates MS4 topics	Engineering	Jul 1, 2019		
6-2 Implement MS4 property and operations maintenance	In progress	Continue cleaning catch basins, sweeping, and general housekeeping of town facilities	Maintain Town owned MS4 facilities and map them	Engineering/DPW	Jul 1, 2018	On-going	
6-3 Implement coordination with interconnected MS4s	In progress	The Town has begun its mapping efforts to help identify interconnections	Coordinate with DOT regarding stormwater management program activities associated with adjacent MS4's	Engineering	Not specified		Town will coordinate with interconnected MS4's as necessary
6-4 Develop/implement program to control other sources of pollutants to the MS4	Not Started		Program will be developed and implemented as necessary	Engineering/Planning	Not specified		
6-5 Evaluate additional measures for discharges to impaired waters*	Not Started		Discharges will be evaluated as necessary	Engineering/Planning	Not specified		
6-6 Track projects that disconnect DCIA	In progress	Use template DCIA spreadsheet from NEMO	Continue to track DCIA	Engineering	Jul 1, 2017	On-going	

6-7 Implement infrastructure repair/rehab program	In progress	DPW currently does this on an as needed basis, repairs preformed via complaints and inspections	From a Record keeping system, using GIS and spreadsheet Continue to perform rehab/repairs	DPW/Engineering	Jul 1, 2021	Anticipate completing by the July 1, 2021 deadline	
6-8 Develop/implement plan to identify/prioritize retrofit projects	Not Started		Track total acreage of DCIA that is disconnected annually as a result of redevelopment or retrofits	Engineering/Planning	Jul 1, 2020	Anticipate completing by the July 1, 2020 deadline	
6-9 Implement retrofit projects to disconnect 2% of DCIA	In progress	Look for locations ideal for disconnections	Will need to change planning and zoning regulations	Engineering/Planning	Jul 1, 2022	Anticipate completing by the July 1, 2022 deadline	
6-10 Develop/implement street sweeping program	In progress	DPW currently does this and sweeps all roads 1-2 times a year	Form a record keeping system of roads swept and quantity of material picked up	DPW/Engineering	Jul 1, 2018	On-going	
6-11 Develop/implement catch basin cleaning program	In progress	DPW currently does this and cleans all catch basins 1 times a year	Form a record keeping system of catch basins cleaned and quantity of material picked up	DPW/Engineering	Jul 1, 2020	Anticipate completing by the July 1, 2020 deadline	
6-12 Develop/implement snow management practices	In progress	Currently have a written Snow/Ice removal plan.	Form a record keeping system of quantity of material picked used	DPW/Engineering	Jul 1, 2018	July 1, 2018	

6.2 Describe any Pollution Prevention/Good Housekeeping activities planned for the next year, if applicable.

None Planned at this time.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	NEMO & CLEAR
Street sweeping	
Curb miles swept	245
Volume (or mass) of material collected	Unknown
Catch basin cleaning	
Total catch basins in priority areas	~1,800
Total catch basins in MS4	~3,250
Catch basins inspected	TBA
Catch basins cleaned	~1,500 est
Volume (or mass) of material removed from all catch basins	500 cy est
Volume removed from catch basins to impaired waters (if known)	Unknown
Snow management	
Type(s) of deicing material used	Salt
Total amount of each deicing material applied	lbs or tons
Type(s) of deicing equipment used	Truck Spreaders
Lane-miles treated	265 miles
Snow disposal location	80 Edwardson St
Staff training provided on application methods & equipment	Annually As Needed
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	None
Reduction in turf area (since start of permit)	0 acres
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	\$0.0

6.4 Catch basin cleaning program

Provide any updates or modifications to your catch basin cleaning program.

Was the first year of the two designated posions for catch basin cleaning. It worked well for documenting catch basins that needed repairs/replacement. Will continue to work with the crew to provide better documentations of catch basins cleaned and volumes removed.

6.5 Retrofit program

Briefly describe the Retrofit Program identification and prioritization process, the projects selected for implementation, the rationale for the selection of those projects and the total DCIA to be disconnected upon completion of each project. [Provide information, if available, in 2018 report. Section to be completed for the 2019 Annual Report.]

Developing for 2019 Annual Report

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years. [Provide information, if available, in 2018 report. Section to be completed for the 2019 Annual Report.]

Developing for 2019 Annual Report

Describe plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years. [Provide information, if available, in 2018 report. Section to be completed for the 2019 Annual Report.]

Developing for 2019 Annual Report

Part II: Impaired waters investigation and monitoring [This section required beginning with 2019 Annual Report]

1. Impaired waters investigation and monitoring program

1.1 Indicate which stormwater pollutant(s) of concern occur(s) in your municipality or institution. This data is available on the MS4 map viewer: <http://s.uconn.edu/ctms4map>.

Nitrogen/ Phosphorus ☐ Bacteria ☐ Mercury ☐ Other Pollutant of Concern ☐

1.2 Describe program status

Discuss 1) the status of monitoring work completed, 2) a summary of the results and any notable findings, and 3) any changes to the Stormwater Management Plan based on monitoring results.

None yet, currently locating outfalls to the impaired waters.

2. Screening data for outfalls to impaired waterbodies (Section 6(i)(1) / page 41)

2.1 Screening data

Complete the table below for any outfalls screened during the reporting period. Each Annual Report will add on to the previous year's screening data showing a cumulative list of outfall screening data.

Outfall ID	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required?
Still locating outfalls					

3. Follow-up investigations (Section 6(i)(1)(D) / page 43)

Provide the following information for outfalls exceeding the pollutant threshold.

Outfall	Status of drainage area investigation	Control measure implementation to address impairment
	Still locating outfalls	

4. Prioritized outfall monitoring (Section 6(i)(1)(D) / page 43)

Once outfall screening has been completed for at least 50% of outfalls to impaired waters, identify 6 of the highest contributors of any pollutants of concern. Begin monitoring these outfalls on an annual basis by July 1, 2021.

Outfall	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)
			Still locating outfalls	

Part III: Additional IDDE Program Data [[This section required beginning with 2019 Annual Report](#)]

1. Assessment and Priority Ranking of Catchments data (Appendix B (A)(7)(c) / page 5)

Provide a list of all catchments with ranking results (DEEP basins may be used instead of manual catchment delineations).

1. Catchment ID (DEEP Basin ID)	2. Category	3. Rank
Not Started		

2. Outfall and Interconnection Screening and Sampling data (Appendix B (A)(7)(d) / page 7)

2.1 Dry weather screening and sampling data from outfalls and interconnections

Provide sample data for outfalls where flow is observed. Only include Pollutant of concern data for outfalls that discharge into stormwater impaired waterbodies.

Outfall / Interconnection ID	Screening / sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken
Not Started										

2.2 Wet weather sample and inspection data

Provide sample data for outfalls and key junction manholes of any catchment area with at least one System Vulnerability Factor.

Outfall / Interconnection ID	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or Enterococcus	Surfactants	Water Temp	Pollutant of concern
Not Started									

3. Catchment Investigation data (Appendix B (A)(7)(e) / page 9)

3.1 System Vulnerability Factor Summary

For those catchments being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) document the presence or absence of System Vulnerability Factors (SVF). If present, report which SVF's were identified. An example is provided below.

Outfall ID	Receiving Water	System Vulnerability Factors
	Not Started	

Where SVFs are:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.
2. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.
3. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.
4. Common or twin-invert manholes serving storm and sanitary sewer alignments.
5. Common trench construction serving both storm and sanitary sewer alignments.
6. Crossings of storm and sanitary sewer alignments.
7. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.
9. Areas formerly served by combined sewer systems.
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.

11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).
12. History of multiple local health department or sanitarian actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

3.2 Key junction manhole dry weather screening and sampling data

Key Junction Manhole ID	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants
Not Started					

3.3 Wet weather investigation outfall sampling data

Outfall ID	Sample date	Ammonia	Chlorine	Surfactants
Not Started				

3.4 Data for each illicit discharge source confirmed through the catchment investigation procedure

Discharge location	Source location	Discharge description	Method of discovery	Date of discovery	Date of elimination	Mitigation or enforcement action	Estimated volume of flow removed
Not Started							

Part IV: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Chief Elected Official or Principal Executive Officer	Document Prepared by
Print name: <i>Mary T. Calor, D</i>	Print name: <i>Mathew Dube</i>
Signature / Date: <i>Mary T. Calor</i> 3/25/19	Signature / Date: <i>Mathew Dube</i> 3-25-2019