New Jersey Department of Environmental Protection
Water Resources Management
Water Monitoring and Standards
Bureau of Freshwater and Biological Monitoring

Work/Quality Assurance Project Plan

Stream Monitoring for Effects on Water Quality by Road Salt Application Phase 1

2016-2017

1.0 Project Name : Stream Monitoring for Effects on Water Quality by Road Salt Application; 2016-2017

2.0 Project Requested by :
NJDEP, Bureau of Freshwater and Biological Monitoring

3.0 Date of Project :
2016-2017

4.0 Project Fiscal Information: Job Number 33340000, Activity Code V38A

5.0 Project Officer :
Katherine Axt, Bureau of Freshwater and Biological Monitoring
(katherine.axt@dep.nj.gov)

6.0 Quality Assurance Officer :
Marc Ferko, Office of Quality Assurance
(Marc.Ferko@dep.state.nj.us)

7.0 Special Training Needs/Certification

Assistants to the project will be trained in the operation and use of all sampling equipment. The training will entail calibration methods, deployment techniques and data retrieval from the equipment. The Project Officer or designee will be responsible for any necessary training.

BFBM is certified by the Office of Quality Assurance (certified lab ID # 11896) for the following parameters during field work for this project: temperature, pH, conductance, dissolved oxygen (DO), turbidity.

8.0 Project Description :

8.1 Objective

Through continuous year-round monitoring, develop a specific conductance database that will examine critical high winter specific conductance levels, the duration of elevated levels, and comparisons to baseline levels and normal fluctuations throughout the year in a variety of New Jersey's non-tidal, freshwater streams. Historical specific conductance data obtained through discrete sampling shows that during winter months (December to March), levels of specific conductance in non-tidal freshwater streams increase significantly during and after significant snowfall events. This suggests that road salt application may be impacting water quality in these streams, but little is known about the duration or maximum values of these elevated levels.
Studies have shown (i.e. Water Pollution and Associated Effects of Street Salting, USEPA, EPA-R2-73-257, May 1973 and Estimating Concentrations of Road-Salt Constituents in Highway-Runoff from Measurements of Specific Conductance, USGS Water Resources Investigation Report 99-4077, 1999) significant transfer

of total dissolved solids and chloride from impervious surfaces (i.e. road ways and parking lots) to adjacent water bodies after winter snowfall events. This transfer can be evident in specific conductance measurements, since specific conductance is sometimes used as a surrogate measurement of total dissolved solids and chloride.

Because the melting of snow after snowfall events is somewhat unpredictable, it is difficult to deploy staff to take targeted, discrete total dissolved solids and chloride samples. The use of data loggers should provide additional insight into scheduling such discrete sampling events.

Data obtained through this project will allow for more in-depth assessment of specific conductance data as it relates to winter precipitation/snow events. In addition, data will assist in the determination of site-specific relationships between specific conductance, chloride and total dissolved solids. Information on these relationships may inform as to the determining factors influencing surface water chloride and TDS levels. Finally data will be evaluated against geographic information system (GIS) coverages to potentially determine proportional impacts from State, county, municipal and private/commercial road salting operations. Due to the range of variation in stream type, ground water / surface water interactions and adjacent land uses; a statewide database of continuous specific conductance data of this kind will require years to develop. The data collected for this project will build on the Bureau's previous work (2011-2014). In addition, the United States Geological Survey maintains a limited number of stations where continuous specific conductance is recorded. This information can also be used to evaluate some of the objectives of this project.

Phase 1 of the project will concentrate on sites that expected to show salt effects through a gradient of different roadway types and jurisdictions and sites showing episodic elevation in parameters associated with road salting, but do not show multiple excursions from thresholds to exceed water quality criteria and listing for impairment.

Phase 2 of the project will use information gathered in Phase 1 to inform site selection and data collection frequency to enhance assessments made for listing purposes in the Integrated Report Water Quality and Assessment Report (Integrated Report). Phase 2 sites will be selected by and/ or in coordination with BEARS.

8.2 Data Usage

Project data will be used to help assess levels of specific conductance in relation to winter precipitation/snow events. By developing a database which exhibits winter maximum values, staff (BFBM and BEARS) can assess whether or not the application of road salt before, during and after snowfall events and below freezing temperatures, has a significant impact on water quality. Data will also be used to determine the severity of impacts from distinct road deicing entities (State, county municipal and private/commercial). That information can then be used to inform and develop specific education and outreach materials in terms of best practices to minimize impacts of road de-icing. The Bureau of Freshwater and Biological Monitoring (BFBM) and The Bureau of Environmental Analysis

and Restoration (BEARS) will also review data to determine if additional study or a modification of the study is necessary to effectively assess impacts of road salt operations on stream water quality.

8.3 Monitoring Design

Specific conductance data loggers are deployed year-round in targeted non-tidal, freshwater streams (See Site List Attachment A, Table 1), which are expected (based on historical discrete sample data) to exhibit elevated levels of specific conductance in winter months (December – March).

Discrete samples for total dissolved solids and chloride will also be collected at least six times annually (January, March, May, July, September, November) during data logger deployment. Samples will be collected as grab samples and submitted to a certified laboratory (New Jersey Department of Health; NJDOH).

Sites were specifically targeted for the following reasons:

1. Sites were targeted along the Shabakunk Creek as a pilot to show baseline levels and normal fluctuations of parameters affected by road salts and the road salt effects through a gradient of different roadway types and jurisdictions (state, county, municipal roads and private lots). This gradient of conditions also takes into account incoming tributaries s and land uses that could also influence the effects of road salts. Data will be compared against documented weather conditions and available practices (road salt timing and extent) for the authorities applying the de-icing materials.
2. The remaining sites targeted in Table 1 were chosen because they showed an elevation in parameters associated with road salting, but do not show multiple excursions from thresholds to exceed water quality criteria and listing for impairment. Data from these sites will inform sampling frequency and duration for future monitoring designs.

8.4 Monitoring Methods/Frequency

Locating data loggers in free flowing areas will ensure that data loggers record data which is representative in terms of stream flow (i.e. not in impounded areas or areas where flow is impeded by debris or adjacent structures). Data loggers will be secured to the stream bottom using stainless steel cable, the units positioned approximately six inches off the bottom. Units will also be placed in deeper areas of the stream, to reduce the possibility of the unit being frozen in ice.

Data loggers will be deployed year-round. Specific conductance measurements will be recorded every 0.5 hrs to monitor general trends and brief, but potentially significant changes in specific conductance.

Discrete grab samples for total dissolved solids and chloride will be collected six times annually during data logger deployment. In addition, analyze immediately parameters will be measured on site at the time of sample collection.

9.0 Data Quality Requirements

Data Loggers

Data will be collected using ONSET HOBO Conductivity Data Loggers (model #s 024-001 and U24-002). The data loggers will be deployed and utilized in accordance with the manufacturer's instructions. Additional information is available at manufacturer's website
http://www.onsetcomp.com/products/data-loggers/conductivity-and-salinity

Prior to deployment and immediately following deployment, data loggers will be checked with a conductance standard to ensure readings are within manufacturer's stated accuracy. The standard used to verify readings will be certified traceable to NIST Aqueous Electrolytic Standard Reference Solution 3193 (750 uS/cm @ 25.0 °C , since this will be the approximate expected conductivity at selected stations). To verify data quality side by side specific conductance readings will be made with a specific conductance meter probe that has been calibrated according to manufacturer's instructions at the time of data logger deployment and when data loggers are retrieved. Specific conductance measurements from the data logger will not be accepted if comparative measurements are not within the stated accuracy of the method, which is +/- 1 %. Below are the manufacturers stated accuracies for the units being deployed.

	U24-001	U24-002 & U24-002C
Range	0-10,000 uS/cm	100-65,000 uS/cm
Accuracy		
Low Range:	0 – 2,500 uS/cm 3% or 5 uS/cm Whichever is greater	100 – 55,000 uS/cm 3% or 50 uS/cm Whichever is greater
Full Range:	0 – 10,000 uS/cm 3% or 20 uS/cm	100 – 65, 000 uS/cm up to 5%

Data handling is accomplished by downloading specific conductance measurements using HOBO unit software (HOBOware)directly to an Excel Spreadsheet, then into a DEP database. Automated data handling eliminates transcription errors associated with manual data entry.

Field Measurements of Analyze immediately Parameters

The Bureau of Freshwater and Biological Monitoring is certified by DEP's Office of Quality Assurance for specific conductance, pH, dissolved oxygen, water temperature and turbidity measurements.

All pH meters, dissolved oxygen meters, conductivity meters and thermometers shall be operated and maintained according to the "Regulations Governing the Certification of Laboratories and Environmental Measurements", N.J.A.C. 7:18. BFBM is certified by the Office of Quality Assurance (certified lab ID # 11896) for all parameters listed below:

Temperature, pH, Conductance and DO are measured using a Hach model # HQ40D. The Hach HQ40D is a multi-parameter water quality system that combines temperature, pH, conductance, and luminescent dissolved oxygen (LDO) probes into one meter.
Temperature: The probe is calibrated with a NIST certified thermometer on a quarterly basis. Records of the calibration shall be maintained by the BFBM.
pH: The probe is calibrated on a daily basis per the manufacturer recommendations. The pH meter is calibrated each day of use, including calibration with two standard pH buffers bracketing the value to be measured. After calibration, a standard buffer with pH within the calibration range shall be measured without any control adjustments to check the calibration. When the pH meter is in use for longer than a 3 hour period, the pH of the third buffer shall be checked once every three hours. If the pH differs by more than 0.2 pH units from the standard buffer value, the meter shall be recalibrated. Records of all calibrations and calibration checks shall be maintained in the field log.
Conductance: The probe is calibrated on a daily basis per the manufacturer recommendations. The probe is calibrated each day of use with a certified standard which corresponds to the expected range of the values to be measured. Records of all calibrations and calibration checks shall be maintained in the field log.
DO: A Winkler check is performed on a weekly basis and the meter (Hach HQ40D) is barometrically compensated and checked at each sampling site. Records of all calibrations and calibration checks shall be maintained in the field log.
Turbidity: HACH Model 2100P turbidimeter is calibrated once a month per manufacturer recommendations. The meter is then checked with certified standards for accuracy within the calibration range during each day of use. Records of all calibrations and calibration checks shall be maintained in the field log.

Other Parameters:
Barometer: Thommen TX Mechanical Barometer. Measured for LDO meter compensation only. Not used for project's data objectives.
Ambient Air Temperature: Measured for general information purposes only. Not used for project's data objectives.

Relevant Documents
Bureau of Water Monitoring Certified SOP, for field measurements and calibrations.
NJDEP Field Sampling Procedures Manual (2005).

NJAC 7:18 - Regulations Governing the Certification of Laboratories and Environmental Measurements.

Discrete samples for total dissolved solids and chloride

Total dissolved solids and dissolved chloride samples will be collected as per "NJDEP Field Sampling Procedures Manual," August 2005; the document available online at the NJDEP's webpage, <http://www.state.nj.us/dep/srp/guidance/fspm/ >. The chemical and field parameters that will be collected as part of this project are listed in Attachment A. Tables 4 and 5

Laboratory Analysis

Analytical samples will be delivered to the NJ Dept. of Health (DOH certification # 11036) and testing will be done by a method for which the laboratory has certification. Quality control procedures (including required calibrations and quality control procedures required by regulation or by the method) shall be defined in the laboratory's Quality Manual (QM) or Standard Operating Procedures (SOPs). The QM and SOPs must be approved by the NJDEP Office of Quality Assurance (OQA).
The reporting levels listed in Attachment A. Table 6 are **required** for this project.

Sample Containers: Sample containers shall be dedicated, single-use. Sample containers shall be provided by the DOH certified laboratory.

Sample Retention: All samples must be retained by the laboratory until such time that the BFBM approves the reported results or holding times expire.

Chain of Custody: Chain of custody forms are required for all samples forwarded to a NJ certified laboratory for testing. Information to be recorded includes all information required by N.J.A.C. 7:18-5.6(d) and 8.5(c).

Resource Needs: Approximately 0.5 FTEs will be required for this project.

10.0 Data Validation

The Project Officer and/or the Supervisor are responsible for all initial data validation. If apparent anomalous data is suspected (e.g. dissolved values larger than total values; field blank values larger than ambient values), the Project Officer and/or the Supervisor will review the sampling procedures with the field sampler to make sure the proper collection and preservation procedures were followed. The field sampler, Project Officer and/or the Supervisor may perform further water quality logic tests on the suspect data, as described in the U.S. Geological Survey Open File Report 02/383; 2003, entitled, *"Methods For Quality Assurance Review of Water Quality Data in New Jersey."*

Preliminary analytical data will be available to BFBM, from the laboratory employed for this project, to the Project Officer, within 21 calendar days from receipt of sample. A report in electronic format (i.e. data feed) will be provided to the Project Officer within 28 days from receipt of the sample.
If any laboratory analyzed data is suspect, the NJ certified laboratory (NJDOH) will be contacted. An internal review of their laboratory procedures and/or calculations used in the analysis of the suspect sample, with special emphasis on transcription of data to assure that no transposition of figures occurred will be conducted. The NJ certified laboratory will be asked to check on equipment calibration. They may be further requested to reanalyze the retained portion of the sample. If no problems are found in the analytical laboratory procedures, the data may then be compared to any historical data that might have been collected at the same site prior to the most recent sampling event to see if similar anomalies might have been found previously. The suspect data may also be compared to literature values or standard analytical treatises to verify whether or not the results are within the limits of accuracy of the test method.

For continuous monitoring of conductivity and water temperature, once the data has been downloaded, it will be screened by the Project Officer. Usability of the dataset will be determined by checks for Drift, errors present (if any) and their extent. Data loggers deployed in the field will be checked for Drift at both time of deployment and retrieval. This check will consist of using another meter alongside the first and comparing readings between the two units

For the Drift check, the difference between the two units will be measured and checked against the following parameter criteria:

Parameter	**Minimum**	**Maximum**
Temperature	0.1° C	1.5° C
Specific Conductivity	1%	25%

Should the difference found to be below the Minimum criteria threshold, then the data will be reported as is.

Should the difference fall between the Minimum and Maximum values, the data will then be reported with a qualifier, modifying the value listed via a plus/minus percentage or unit(s).

Should the difference exceed the Maximum range, then the data for that parameter will be deleted. Once the comparison check is completed, the data will be screened for errors. Sources of errors can be attributed to the following:

1. Non-stream conditions readings (open air, data outside realistic ranges)
2. Hardware failure
3. Tampering by non DEP personnel (causing non stream readings)
4. Fouling.

Errors involving loss of data (i.e. out of water) will be truncated from the dataset. Errors that involved hardware failure and fouling will result in the truncation of data from the moment of failure to the point of normal operation (if any).

If no obvious problems are found after these reviews, the complete data set will be reported with the suspect data identified as such. The BFBM will then conduct its own review of the data, as it relates to the objectives(s) and data accuracy required in this project.

11.0 Data Storage

Continuous Data:

Continuous specific conductance data from data loggers will be stored in NJDEP's DWM&S Continuous Data Monitoring Program's website (http://njdep.marine.rutgers.edu/buoy/#data). Graphical representations of the data will be stored internally in BFBM databases/spreadsheets.

Precipitation Data

Daily precipitation data collected by the National Oceanic and Atmospheric Administration
(http://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/quality-controlled-local-climatological-data-qclcd)
is available to assess the amount of precipitation and more specifically, snowfall. BFBM staff will download applicable data and store locally in order to compare with continuous and analytical data.

Field and Laboratory Analyses

Analytical data for grab samples submitted to laboratory and data from analyze immediately parameters will be entered into New Jersey's Water Quality Data Exchange (WQDE) and USEPA STORET Data Warehouse and will be accessible through the USEPA, USGS and National Water Monitoring Council's Water Quality Portal by June of the following year it is received from the analytical laboratory. All raw data records shall be maintained for a period of no less than five years. See Attachment A for Data Management information.

12.0 Performance System Audits

All NJ certified laboratories used are subject to audits and to the requirements of the OQA Laboratory Certification Program as well as internal performance evaluations. The OQA will be notified of field monitoring schedules for possible audits.

13.0 Data Reporting

Continuous Data

Continuous Data will be available through NJDEP's DWM&S Continuous Data Monitoring Program's website (http://njdep.marine.rutgers.edu/buoy/#data) within 6 months of completion of the project.

Analytical Data

Data analyzed in the field and laboratory will be accesiible through the USEPA, USGS and National Water Monitoring Council's Water Quality Portal. b
Data Analysis/Summary

Data analyzed to determine relationships between specific conductance, chloride, and TDS and between specific conductance and precipitation events will be available on the Bureau's website (http://www.state.nj.us/dep/wms//bfbm/) within 6 months of completion of the project.

14.0 Assessment, Oversight, and Response

The Project Officer will be responsible for the oversight of all activities relating to this project. The Project Officer will assess field collection functions and make corrections when necessary to maintain the data accuracy as defined in this plan. If any changes or modifications are made to this plan regarding data collection, as it relates to the objectives(s) and data accuracy required in this project, all original signees of the QAPP will be notified.

APPENDIX A:
DATA MANAGEMENT TABLES

For Data Management purposes, Water Chemistry is defined as parameters analyzed by a lab; Field measurements are defined as analyze immediately parameters.

Table 1. Monitoring Locations

Station ID(WQDE compliant and referenced)	Waterbody/Location	Latitude-dd	Longitude-dd	County	Site exists in WQDE already?	Location Type
BFBM000244	Shabakunk Ck trib at I-95 onramp at Hopewell Twp NJ	40.29045887640	-74.78862329770	Mercer	NO	River/stream
BFBM000243	Shabakunk Ck trib off 1-95 at Hopewell Twp NJ	40.29085592560	-74.79077446560	Mercer	NO	River/stream
BFBM000245	Shabakunk Ck trib off Bull Run Rd	40.28934353760	-74.78434299430	Mercer	NO	River/stream
01463740	Shabakunk Ck at Sylva Lake Dam at Ewingville NJ	40.27118787840	-74.77283531870	Mercer	NO	River/stream
BFBM000248	West Br Shabakunk Ck at Ewing NJ	40.25163885250	-74.74965333000	Mercer	NO	River/stream
FIBI041	Shabakunk Ck at Lawrence Twp NJ	40.25180171620	-74.74965792260	Mercer	YES	River/stream
01463750	Shabakunk C at Ewingville NJ	40.26320090010	-74.75970190280	Mercer	NO	River/stream
BFBM000247	Shabakunk Ck at Green Ln	40.26624254840	-74.77104132750	Mercer	NO	River/stream
BFBM000246	Shabakunk Ck at Ewingville Rd	40.27565987440	-74.77420634590	Mercer	NO	River/stream
AN0113	Shabakunk Ck at Bull Run Rd	40.28500073760	-74.76645679520	Mercer	YES	River/stream
01463810	Shabakunk Creek near Lawrenceville NJ	40.25530102610	-74.73758171620	Mercer	NO	River/stream
1379200	DEAD RIVER NEAR MILLINGTON	40.64972892890	-74.52420152120	Somerset	YES	River/stream
01379525	CANOE BROOK ON PARSONAGE HILL ROAD	40.74898877990	-74.33653877100	Essex	YES	River/stream
01378560	COLES BROOK AT HACKENSACK	40.91109991990	-74.03999513610	Bergen	YES	River/stream
01377358	PASCACK BROOK ON NOTTINGHAM ROAD	41.04316074110	-74.03113594850	Bergen	YES	River/stream

Table 2. Sample Types

STATION ID	Field Msr/Obs	Flow	Water Chemistry	Continuous Monitoring	Biological Sampling	Sediment Collection	Bacteria Collection	Habitat	Metrics	Indices
BFBM000244	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
BFBM000243	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
BFBM000245	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01463740	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
BFBM000248	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
FIBI041	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01463750	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
BFBM000247	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
BFBM000246	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
AN0113	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01463810	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01379200	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01379525	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01378560	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
01377358	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO

Table 3. Partner Information

STATION ID	Field Msr/Obs	Flow	Water Chemistry	Continuous Monitoring	Biological Sampling	Sediment Collection	Bacteria Collection
BFBM000244	DEP	DEP	DEP	DEP	No	No	No
BFBM000243	DEP	DEP	DEP	DEP	No	No	No
BFBM000245	DEP	DEP	DEP	DEP	No	No	No
01463740	DEP	DEP	DEP	DEP	No	No	No
BFBM000248	DEP	DEP	DEP	DEP	No	No	No
FIBI041	DEP	DEP	DEP	DEP	No	No	No
01463750	DEP	DEP	DEP	DEP	No	No	No
BFBM000247	DEP	DEP	DEP	DEP	No	No	No
BFBM000246	DEP	DEP	DEP	DEP	No	No	No
AN0113	DEP	DEP	DEP	DEP	No	No	No
01463810	DEP	DEP	DEP	DEP	No	No	No
01379200	DEP	DEP	DEP	DEP	No	No	No
01379525	DEP	DEP	DEP	DEP	No	No	No
01378560	DEP	DEP	DEP	DEP	No	No	No
01377358	DEP	DEP	DEP	DEP	No	No	No

Table 4. Field Parameters

Field Name	WQDE Name	Media	Units
DO	Dissolved oxygen (DO)	Water	mg/l
Water Temp	Temperature, Water	Water	deg C
Spec Cond	Specific conductance	Water	uS/cm
pH	pH	Water	None
Flow	Flow	Water	cfs
Barometric Pressure	Barometric Pressure	Air	mmHg
DO Sat	Dissolved oxygen saturation	Water	%
Temperature, air	Temperature, air	Air	deg C

Table 5. Laboratory Parameters

Analysis (lab name)	EPA Characteristic Name	Result Sample Fraction	Result Measure Unit	Result Value Type	Sample Collection Type	Sample Collection Equipment
NEW JERSEY DEPARTMENT OF HEALTH - 11036	Chloride	Total	mg/l	Actual	Grab	Water Sampler (Other) Water Sampler (Other)
NEW JERSEY DEPARTMENT OF HEALTH - 11036	Total dissolved solids	Total	mg/l	Actual	Grab	Water Sampler (Other) Water Sampler (Other)

Table 6. Laboratory Analytical Methods and Detection Limits

Parameter	Laboratory	Lab Number	Method	Method ID Context	Lower Reporting Limit	units	Method Detection Limit	units	Upper Reporting Limit (MPN/100 ml)	units	Holding Time	Preservative
Chloride	NEW JERSEY DEPARTMENT OF HEALTH - 11036		4500-CL(E)	APHA	2.5	mg/l	0.113				28 days	Ice to 4 deg C
Total dissolved solids	NEW JERSEY DEPARTMENT OF HEALTH - 11036		2540-C	APHA	1	mg/l	1				7 days	Ice to 4 deg C

Table 7. Data Inventory Supplement

Geographic Regions	Statewide	Statewide
Counties	Mercer, Somerset, Essex, Bergen	
Dates	5/1/2016 - 4/30/2017	Choices available:
Status	Future/Planned	Future/Planned
Sample Frequency	Other	Other
Seasons Sampled	Spring, Summer, Fall, Winter	
Waterbody Type	River/Stream	Choices available:
Salinity Category	Fresh	Choices available:
Tidal Influence	Non-tidal	Choices available:
Project Description	Through continuous year-round monitoring, develop a specific conductance database that will examine critical high winter specific conductance levels and the duration of elevated levels in a variety of New Jersey's non-tidal, freshwater streams. Historical specific conductance data obtained through discrete sampling shows that during winter months (December to March), levels of specific conductance in non-tidal freshwater streams increase	Choices available:
Parameters analyzed type	Chemical/Physical (Conventionals)	See paramtype tab

Table 8. Data Management Supplement

QAPP network path file location?	V:\LUM\BFBM\Bfbm\Quality Assurance Plans\Calendar Year 2016 QAPPS\IBIICPR32016draft2-29-16	ex. V:\LUM\BFBM\Bfbm\Quality Assurance Plans\Calendar Year 2015 QAPPS
Where will data be recorded in field (media)	Paper	ex. Paper/tablet/phone/etc
If on tablets or phones, will download at office occur or will you connect wirelessly?	NA	
If on tablets or phones, who will do the download?	NA	Name of person
If data collected electronically, where will it be stored?		ex. Excel file in V:\LUM\BFBM\Bfbm\, or access database in V:\LUM\BFBM\biomon
Format to be received from Lab	LIMS	For every lab used, must provide description (excel in x format, or txt or something set from lims)
Method of receipt from lab/s		ftp/link/dropbox/email attachment, etc
Personnel receiving outside lab data	Carol O'Donnel-Kee	
Is data expected to go to WQDE/STORET?	Yes	yes/no (if no, why not?)
Data manager - (Bureau and Name)	BFBM Leigh Lager	IT staff who will handle the data

ADDENDUM

Effective 11/1/2016: Katherine Axt; Environmental Specialist 1 (NJDEP, Bureau of Freshwater and Biological Monitoring) is now Project Officer for this project (Stream Monitoring for Effects on Water Quality by Road Salt Application, Phase I).