



## Standard Operating Procedure: Implementation of the Inspection and Maintenance Program Under the Long Creek Watershed Management Plan

- PURPOSE:** The Long Creek Watershed Management District (“LCWMD”) was formed as a quasi-municipal special purpose district to implement the Long Creek Watershed Management Plan (the “Plan”). Implementation of the Plan is required by those landowners and operators in the Long Creek Watershed who have chosen to participate in the implementation of the Plan (“Participating Landowners”) through the *General Permit - Post Construction Discharge of Stormwater in the Long Creek Watershed* issued by the Maine Department of Environmental Protection (“Maine DEP”) on November 6, 2009 and its renewal, reissuance, or replacement, as such may be modified from time-to-time (the “Long Creek General Permit”).

The Plan requirements include, but are not limited to: design, engineering, construction, reconstruction, installation, operation, modification, alteration, use, maintenance, repair, replacement, inspection and monitoring of public and private stormwater management structures, facilities and improvements, including structural and non-structural Best Management Practices (“BMPs”), in and along Long Creek and within the Long Creek Watershed, and the assessment of fees upon Participating Landowners for implementation of the Plan. The Plan calls for the development and implementation of pollution prevention and good housekeeping tools including pavement sweeping and a “Private Facility Inspection & Maintenance Program.”

The Plan requirements are made applicable to Participating Landowners by the Long Creek General Permit. Compliance with the Long Creek General Permit is the responsibility of Participating Landowners. LCWMD implements certain requirements of the Plan on behalf of Participating Landowners. The respective obligations of LCWMD and Participating Landowners are set forth in agreements between LCWMD and Participating Landowners (“Participating Landowner Agreements”).

The purpose of this Standard Operating Procedure is to ensure that LCWMD and Participating Landowners meet their respective obligations to implement the pollution prevention and good housekeeping tools required by the Plan, as further detailed in Participating Landowner Agreements, and to ensure that these obligations are implemented in accordance with the LCWMD Board of Director’s (“Board”) policy determinations. Furthermore, LCWMD has entered into a Services Agreement for administrative services with the Cumberland County Soil & Water Conservation District (“CCSWCD”) to assist in the implementation of the Plan, which includes implementation of certain aspects of the

pollution prevention and good housekeeping requirements identified in the Plan. This Standard Operating Procedure is also intended to provide an efficient procedure when CCSWCD staff are providing services to LCWMD related to the pollution prevention and good housekeeping tools required by the Plan.

2. **APPLICABILITY:** This Standard Operating Procedure applies to inspections, maintenance, and follow-up activities conducted by LCWMD pursuant to its obligations under the Plan and by Participating Landowners under the Participating Landowner Agreements. LCWMD's inspection and maintenance obligations extend to primarily the following areas: (1) pavement sweeping on Participating Landowner parcels; (2) annual inspection and maintenance of LCWMD-owned-or-operated BMPs; (3) annual inspection of Participating Landowner parcels as related to "pollution prevention" and "good housekeeping," as those terms are defined in the Plan; and (4) annual catch basin inspection and cleaning on Participating Landowners parcels.
3. **DEFINITIONS:**
  - A. **Best Management Practices ("BMPs").** *Best Management Practices ("BMPs")* means structural and/or non-structural stormwater treatment units, and includes public and private stormwater management structures, facilities, and improvements.
  - B. **Board.** *Board* means the Long Creek Watershed Management District Board of Directors.
  - C. **Contracted Staff.** *Contracted Staff* means CCSWCD staff when they are providing administrative services related to pollution prevention and good housekeeping tools to LCWMD under the Services Agreement.
  - D. **Inspection and/or Maintenance Contractor.** *Inspection and/or Maintenance Contractor* means a third-party contractor performing inspection or maintenance services under contract to LCWMD.
  - E. **Executive Director.** *Executive Director* means the Executive Director of LCWMD.
  - F. **Fiscal Agent.** *Fiscal Agent* means the person designated as Fiscal Agent under LCWMD's Documentation of Internal Financial Control Structure.
  - G. **Priority Issues.** *Priority Issues* means failure to pay annual LCWMD assessments; failure to maintain structural BMPs such that they are not functioning as designed; and evidence of discharges of priority pollutants (e.g. sanitary waste, food waste, grey water, hazardous substances, chemicals, oil, sediment, leachate) to Long Creek or surfaces or infrastructure draining to Long Creek.

**H. Qualified Third-Party Inspector.** *Qualified Third-Party Inspector* means a person whose name is on the list of approved third-party inspectors maintained by the District's Executive Director, or is approved by the District's Executive Director prior to conducting inspections. Qualified Third-Party Inspectors shall meet the following criteria: (a) have a college degree in an environmental science or civil engineering, or comparable expertise, (b) have a practical knowledge of stormwater hydrology and stormwater management techniques, including the maintenance requirements for BMPs, and (c) have the ability to determine if BMPs are performing as intended.

**4. INSPECTION AND MAINTENANCE AUTHORITIES:** The authority for LCWMD to conduct inspection and maintenance of LCWMD-owned-or-operated BMPs and Participating Landowner parcels derives from several sources. Long Creek General Permit coverage for Participating Landowners is contingent upon the Participating Landowner's participation in the implementation of the Plan. The Plan requires the implementation and development of pollution prevention and good housekeeping tools which include the "Private Facility Inspection & Maintenance Program" identified in the Plan. To implement the requirements contemplated by the Plan, the Long Creek General Permit required LCWMD to submit for Maine DEP review and approval the "[i]nspection and maintenance details" of the Plan. Maine DEP approved this Standard Operating Procedure as the "[i]nspection and maintenance details" of the Plan on August 24, 2017 (hereinafter the "Inspection and Maintenance Plan"). Under Participating Landowner Agreements, the Participating Landowner and record owner, if different, agree to allow LCWMD to enter onto the Participating Landowner's parcel with people and machines, with reasonable notice, for the purpose of construction, reconstruction, installation, operation, modification, alteration, use, maintenance, repair, replacement, inspection, and monitoring of BMPs.

**5. INSPECTION AND MAINTENANCE RESPONSIBILITIES:** The inspection and maintenance requirements of the Inspection and Maintenance Plan are allocated among LCWMD and individual Participating Landowners by the Participating Landowner Agreements and site-specific inspection and maintenance plans developed by LCWMD. LCWMD and individual Participating Landowners each have distinct and separate obligations with respect to the inspection and maintenance requirements of the Inspection and Maintenance Plan as implemented through Participating Landowner Agreements and site-specific inspection and maintenance plans. These obligations are summarized as follows:

	<b>Participating Landowner</b>	<b>LCWMD</b>
ASSESSMENTS	<b>Payment of LCWMD Assessments</b>	<b>Ensure that All Due LCWMD Assessments Have Been Paid</b>
STRUCTURAL BMPS	<b>Stormwater Post-Construction BMP Inspections for Private Structural BMPS</b>	<b>Stormwater Post-Construction BMP Inspections for LCWMD-owned-or-operated Structural BMPS</b>
	<b>Stormwater Post-Construction BMP Maintenance for Private Structural BMPS to Ensure that Structural BMPS are Functioning as Designed</b>	<b>Stormwater Post-Construction BMP Maintenance for LCWMD-owned-or-operated Structural BMPS to Ensure that Structural BMPS are Functioning as Designed</b>
	<b>Inspection and Maintenance Reports for Private Structural BMPS</b>	<b>Inspection and Maintenance Reports for LCWMD-owned-or-operated Structural BMPS</b>
PARCEL-SPECIFIC REQUIREMENTS	<b>Annual Parcel Documentation (reporting):</b>	<b>Annual Parcel Inspections:</b>
	Provide Description of Landscape Management BMPS to LCWMD	Inspect Dumpster Location and Management
	Provide Pavement Sealing Schedule and Type of Materials Used to LCWMD	Inspect Outdoor Hazardous Materials Handling and Storage
	Provide Description of Winter Deicer Applications to LCWMD	Inspect Private Stormwater Management Infrastructure Other than Structural BMPS

	Provide Description of Pavement Shading Efforts to LCWMD	Conduct Outfall Stability Evaluations
	Provide Third-Party Inspection Reports for Private Structural BMPs to LCWMD	Receive Annual Third-Party Inspection Reports for Private Structural BMPs
PAVEMENT SWEEPING		<b>Implementation of Pavement Sweeping Program</b>
CATCH BASIN INSPECTION AND CLEANING		<b>Conduct Catch Basin and Pipe Inlet BMP, if present, Inspection and Cleaning</b>

**6. INSPECTION PROGRAM:** LCWMD implements its inspection obligations through third-party contractors, such as CCSWCD, a quasi-state entity, and private Inspection and Maintenance Contractors. Participating Landowners implement their inspection obligations through Qualified Third-Party Inspectors. These obligations are as follows:

- A. Inspection of LCWMD Structural BMPs.** LCWMD has an obligation to annually inspect the BMPs it has constructed and installed on public property and on Participating Landowners’ property to determine whether maintenance is needed to ensure that the BMP is functioning as designed. Inspections of LCWMD structural BMPs will be conducted by LCWMD’s structural BMP Inspection Contractor(s).
- B. Private Structural BMP Inspections.** Participating Landowners must conduct annual inspections of their privately owned BMPs and they must conduct maintenance as needed; this applies to all BMPs. Inspections of private structural BMPs must be conducted by Qualified Third-Party Inspectors. LCWMD may offer to provide inspection services for Participating Landowners’ privately-owned BMPs. The decision of whether or not to offer such services, how the services will be provided, and the applicable rates for such services, are at the discretion of the LCWMD Board. If LCWMD offers inspection services for privately-owned BMPs, inspections will be conducted by, and in accordance with, the requirements of inspections conducted by a Qualified Third-Party Inspector. If LCWMD offers inspection services for privately-owned BMPs, the availability of such services and the associated rates will be conveyed to all Participating Landowners.

- C. Annual Parcel Inspections.** Contracted Staff will conduct annual inspections of Participating Landowners parcels. Parcel inspections will include inspection and documentation of: dumpster location and management; hazardous materials handling and storage; stormwater management infrastructure including vegetated areas, stormwater channels, culverts, roadway and parking surface, buffers, and outfall stability; and confirmation that good housekeeping activities for which assessment credits have been received have been performed. The scope of these inspections is further detailed in the LCWMD Facility Inspection and Maintenance Program Form.
- D. Catch Basin Inspections.** More than 800 catch basins have been identified on Participating Landowners parcels, excluding municipally-owned structures. LCWMD's catch basin Inspection and Cleaning Contractor will conduct inspections of catch basins located on Participating Landowner parcels simultaneously with catch basin cleaning. Catch basin inspection and reporting will be conducted as part of cleaning activities. Contracted Staff will inspect pipe inlet BMPs, if present, annually.

## **7. MAINTENANCE PROGRAM:**

- A. Maintenance of LCWMD Structural BMPs.** LCWMD has an obligation to maintain the BMPs it has constructed and installed on public property and on Participating Landowners' property. LCWMD will conduct routine maintenance per either an LCWMD-developed inspection and maintenance plan specific to the BMP or, if there is no BMP-specific inspection and maintenance plan, maintenance as recommended by the manufacturer. In addition, LCWMD will conduct maintenance beyond routine maintenance that is needed to keep the BMP functioning as designed.
- B. Maintenance of Private Structural BMPs.** Participating Landowners have an obligation to maintain BMPs on the Participating Landowners' property. Participating Landowners are obligated to conduct routine maintenance per either a Participating Landowner-developed inspection and maintenance plan specific to the BMP or, if there is no BMP-specific inspection and maintenance plan, maintenance as recommended by the manufacturer. In addition, the Participating Landowner must conduct any maintenance beyond routine maintenance that is needed to keep the BMP functioning as designed.
- C. Pavement Sweeping.** Pavement sweeping managed by the Long Creek Watershed Management District ("LCWMD") falls into three categories.

  - i. Types of Pavement Sweeping.**

    - (1) Most traditional pavement in the Long Creek Watershed is considered **Non-Targeted**; this category of pavement totals approximately 260 acres. This category of pavement is swept twice a year: the first sweeping occurs as soon as

snow has melted (“Large Particle Collection”), and the second sweeping occurs shortly thereafter to collect fines (“Collection of Fines”).

- (2) A subset of Non-Targeted pavement in the Long Creek Watershed is considered **Targeted**. LCWMD Targeted pavement totals approximately 55 acres (the 260 acres of Non-Targeted pavement includes the 55 acres of Targeted pavement). This category of pavement includes curbed roads and/or high deposition curbed parking surfaces and is swept three times per year in addition to the Non-Targeted sweeping events identified above. The Targeted pavement sweeping events are identified as “Hot Spot Sweeping Events.”
- (3) In addition, LCWMD assists in maintaining a limited section of **porous pavement** on Maine Mall Road. LCWMD-swept porous pavement totals approximately 1.2 acres per event. This porous pavement is swept four times per year by LCWMD.

ii. Pavement Sweeping Events.

(1) Spring Sweeping – Large Particle Collection

The Large Particle Collection component of the Spring Sweeping is a thorough sweep and cleanup, performed as soon as possible after snow melt. This is a gross-level cleanup, intended to remove the bulk of winter sand, salt, grit, and other debris from shoulders and roadways.

The Large Particle Collection component of the Spring Sweeping will be performed on all 260 acres of Non-Targeted pavement.

It is anticipated that the Annual Spring Sweeping event will be performed in mid-April of each year.

(2) Spring Sweeping – Collection of Fines

The Collection of Fines component of the Spring Sweeping is a thorough sweep and cleanup, performed after the Large Particle Collection component of the Spring Sweeping has been completed. This is a fine cleanup, intended to capture materials near the curb line and fine sediments that were not captured during the Large Particle Collection component.

The Collection of Fines component of the Spring Sweeping will be performed on all 260 acres of Non-Targeted pavement.

It is anticipated that the Collection of Fines component of the Spring Sweeping will be performed in May of each year.

(3) Hot Spot Sweeping Events

Hot Spot Sweeping Events are a thorough sweep and cleanup, performed three times in the calendar year after the Spring Sweeping events have been completed. These are fine cleanups, intended to capture materials near the curb line and all sediments that are deposited after initial sweeping events earlier in the year.

Hot Spot Sweeping Events will each be performed on the 55 acres of Targeted Pavement.

It is anticipated that Hot Spot Sweeping Events will be performed in August, October, and November of each year.

(4) Porous Pavement Sweeping

Porous Pavement Sweeping is a thorough sweep and cleanup performed four times a year *in addition to* sweeping performed by the City of South Portland. This is a fine cleanup, intended to capture materials near the curb line and all fine sediments that have been retained in the pavement voids.

It is anticipated that Porous Pavement Sweeping events will be performed each year in the following windows: January/February; April/May; July/August; and October/November.

iii. Sweeping Equipment. The following table provides information on the type of sweeping equipment that must be used for the sweeping events described in Section 7(C)(ii).

Sweeping Event	# of Acres per Year	Type of Sweeping Technology to Be Used
Spring Sweeping: Large Particle Collection	260	Mechanical Broom <u>or</u> Vacuum <u>or</u> Regenerative Air
Spring Sweeping: Collection of Fines	260	Vacuum <u>or</u> Regenerative Air
Hot Spot Sweeping Event 1	55	Vacuum <u>or</u> Regenerative Air
Hot Spot Sweeping Event 2	55	Vacuum <u>or</u> Regenerative Air

<b>Hot Spot Sweeping Event 3</b>	55	Vacuum <u>or</u> Regenerative Air
<b>Porous Pavement Sweeping</b>	5	Vacuum <u>or</u> Regenerative Air

**D. Catch Basin Cleaning.** There are approximately 800 catch basins in the Long Creek Watershed maintained by LCWMD. LCWMD has determined that it is more cost-effective and more beneficial to water quality in Long Creek to clean all catch basins on a rotating basis, rather than annually inspecting, and then cleaning selected, catch basins. Catch basins and pipe inlet BMPs, if present, will be scheduled for cleaning on a rolling basis at a rate of 200 to 400 catch basins annually. In addition, catch basins that have indicators of a discharge of priority pollutants or that have pipe inlet BMPs requiring maintenance will be scheduled for cleaning in that calendar year.

**8. PARTICIPATING LANDOWNER DOCUMENTATION:** On an annual basis, Participating Landowners must provide to LCWMD, the following documentation: a description of landscape management BMPs; a pavement sealing schedule and type of materials used; a description of winter deicer applications; and a description of pavement shading efforts. If not submitted by the time that Contracted Staff completes its annual parcel inspection report for a given parcel, the LCWMD parcel inspection report must request submission of required documentation by the end of the calendar year as a requested corrective action.

**9. POST INSPECTION AND MAINTENANCE REPORTS AND ACTIONS:**

**A. LCWMD Structural BMP Inspections.** Inspection and Maintenance Contractors will complete inspection and maintenance logs for LCWMD-owned-or-operated BMPs using the inspection and maintenance logs provided in LCWMD’s inspection and maintenance Standard Operating Procedures. Inspection and Maintenance Contractors will submit a copy of inspection and maintenance logs to LCWMD as required by the Inspection and Maintenance Contractor’s agreement with LCWMD. Upon receipt, inspection and maintenance reports will be reviewed by Contracted Staff to determine whether additional action is needed to keep the BMP functioning as designed. Inspection and Maintenance logs will be maintained in the relevant project file.

**B. Private Structural BMP Inspections.** Participating Landowners must document inspections of private structural BMPs conducted by Qualified Third-Party Inspectors in accordance with, at a minimum, the requirements of Maine DEP’s Stormwater Management rule, 06-096 CMR 500, Appendix B, as in effect at the time the inspection is conducted. Participating Landowners must submit annual third-party inspection reports for private structural BMPs to LCWMD. If not submitted by the time when Contracted Staff completes its annual parcel inspection report for a given parcel, the LCWMD parcel inspection report must request submission of third-party structural BMP inspection reports by the end of the calendar year as a requested corrective action.

Upon receipt, inspection and maintenance reports will be reviewed by Contracted Staff to determine whether the BMP is functioning as designed and to confirm that inspections for which assessment credits have been received have been performed. Inspection and Maintenance logs will be maintained in the relevant parcel file.

- C. Participating Landowner Parcel Inspections.** Because of the relationship between LCWMD and Participating Landowners, most compliance issues documented by LCWMD will be reported only to the Participating Landowner. It is then the Participating Landowner's obligation to address compliance issues documented by LCWMD at the Participating Landowner's discretion as the Participating Landowner is the party directly responsible for compliance with the Long Creek General Permit. LCWMD may recommend in the inspection report that the Participating Landowner take corrective measures, and may request follow-up documentation and conduct follow-up inspections for discharges and priority issues to ensure that all Participating Landowners realize full value for their participation in implementing the Plan. In addition, the LCWMD may report compliance issues to the respective municipality or regulatory agency or agencies, such as Maine DEP: (1) when noncompliance with the requirements of the Plan is significant enough to defeat the larger purposes of the Plan, (2) when the noncompliance threatens the loss of benefits to Participating Landowners received under the Long Creek General Permit, (3) when the noncompliance materially impairs other Participating Landowners' value in participating in the implementation of the Plan, (4) when the noncompliance puts other Participating Landowners at a material competitive disadvantage, and/or (5) where there is an imminent threat of, or ongoing, noncompliance which may endanger health or the environment.

The LCWMD internal responsibilities for responding to noncompliance are as follows:

- i. Active Discharges.** When Contracted Staff discover active discharges of priority pollutants to Long Creek or surfaces or infrastructure draining to Long Creek:
- (1) *Incident Report:* An Incident Report will immediately be completed by Contracted Staff and provided to the Participating Landowner, the respective municipal stormwater coordinator if the discharge is impacting a Municipal Separate Stormwater Sewer System ("MS4"), and the Executive Director.
  - (2) *Corrective Action:* The Incident Report must include a request to the Participating Landowner to take appropriate corrective action to immediately cease the discharge.
  - (3) *Request Follow-up Documentation:* The Incident Report must request that the Participating Landowner provide LCWMD with documentation of corrective actions taken within a prescribed period of time, typically within ten (10)

calendar days, but this time may be adjusted based on the circumstances of the particular event.

- (4) *Follow-up Inspection:* Contracted Staff must perform a follow up inspection if no response is received from the Participating Landowner within the time prescribed to provide documentation of corrective actions to determine whether the discharge persists.
  - (5) *Referral to Executive Director:* If a follow up inspection documents that corrective action has not been taken, Contracted Staff will refer the matter to the Executive Director. If the Executive Director determines that an active discharge of a priority pollutant persists on a periodic or ongoing basis, the Executive Director may refer the matter to the respective municipality or regulatory agency or agencies, such as Maine DEP.
- ii. Priority Issues.** When Contracted Staff discover Priority Issues, other than failure to pay assessments:
- (1) *Inspection Report:* Contracted Staff will document the inspection by completing a Facility Inspection and Maintenance Program Report form and provide the report to the Participating Landowner within ten (10) calendar days of the date of the inspection.
  - (2) *Corrective Action:* The Facility Inspection and Maintenance Program Report must include a request to the Participating Landowner to take appropriate corrective action within a prescribed period of time, typically within fifteen (15) calendar days, but this time may be adjusted based on the circumstances of the particular situation.
  - (3) *Request follow-up Documentation:* The Facility Inspection and Maintenance Program Report must request that the Participating Landowner provide LCWMD with documentation of corrective actions taken within a prescribed period of time, typically within thirty (30) calendar days, but this time may be adjusted based on the circumstances of the particular situation.
  - (4) *Follow-up Inspection:* Contracted Staff must perform a follow up inspection if no response is received from the Participating Landowner within the time prescribed to provide documentation of corrective actions to determine whether the Priority Issue persists.
  - (5) *Referral to Executive Director:* If a follow up inspection documents that corrective action has not been taken, Contracted Staff will refer the matter to

the Executive Director. If the Executive Director determines that a Priority Issue persists on an ongoing or periodic basis, the Executive Director may refer the matter to the respective municipality or regulatory agency or agencies, such as Maine DEP.

**iii. Failure to Pay Assessments.** For noncompliance with payment of assessments under the Long Creek General Permit:

- (1) *Correspondence to Participating Landowner:* When a Participating Landowner fails to pay an assessment within fifteen (15) days of the payment due date, the Fiscal Agent will send correspondence to the Participating Landowner via regular mail requesting that the Participating Landowner make the payment within fifteen (15) days of the date of the Fiscal Agent's correspondence.
- (2) *Notice of Default:* If payment is not received within thirty (30) days of the payment due date, the Fiscal Agent will send a Notice of Default to the Participating Landowner via certified mail, return receipt requested, requesting that the Participating Landowner make the payment within thirty (30) days of receipt of said Notice of Default.
- (3) *Referral to Executive Director:* If payment is not received in response to the Fiscal Agent's Notice of Default, the Fiscal Agent will refer the matter to the Executive Director. If the Executive Director determines that payment has not been made following the Fiscal Agent's correspondence and demand letter, the Executive Director may refer the matter to Maine DEP.

**iv. For All Other Noncompliance.** When Contracted Staff document any other instances of noncompliance:

- (1) *Inspection Report:* Contracted Staff will document the inspection by completing a Facility Inspection and Maintenance Program Report and provide the report to the Participating Landowner within thirty (30) calendar days of the date of the inspection.
- (2) *Corrective Action:* The Facility Inspection and Maintenance Program Report must include a request to the Participating Landowner to take appropriate corrective action within a prescribed period of time, typically within thirty (30) calendar days, but this time may be adjusted based on the circumstances of the particular situation.

## 10. REFERENCES:

- A. **General Permit.** *General Permit – Post Construction Discharge of Stormwater in the Long Creek Watershed, W-9052-5Y-B-N, April 15, 2015.*
- B. **Management Plan.** *Long Creek Watershed Management Plan, July 2009.*

**NOTE: THIS GUIDANCE IS INTENDED AS INTERNAL GUIDANCE FOR THE CONVENIENCE OF LCWMD STAFF AND/OR ITS CONTRACTORS. THIS DOCUMENT IS NOT ENFORCEABLE AND DOES NOT HAVE THE FORCE OF LAW, RULE, OR REGULATION. THIS GUIDANCE NEITHER CREATES REQUIREMENTS UPON THE DISTRICT, PERMITEES, OPERATORS, OR LANDOWNERS NOR RELEASES ANY OF THEM FROM ANY REQUIREMENTS, STANDARDS, OR ACTIONS SET FORTH IN THE LONG CREEK GENERAL PERMIT OR ACCOMPANYING ATTACHMENTS OR PLANS. FAILURE TO PERFORM REQUIRED GOOD HOUSEKEEPING, POLLUTION PREVENTION, OR PROPER OPERATION OR MAINTENANCE OF BEST MANAGEMENT PRACTICES MAY RESULT IN ENFORCEMENT ACTION BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.**

**EFFECTIVE DATE: AUGUST 24, 2017**