Town of Conesus
Conesus Highway Department

- Stormwater Management Program
- Pollution Prevention Program
- Erosion and Sediment Control Program

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Goals:

Structure the Conesus Highway Departments operations and daily highway and facility maintenance activities in the Conesus and Hemlock Lake Watersheds in a manner that mitigates with the intention of preventing polluted rain and stormwater runoff as well as erosion and sediment issues caused by nature as well as the department's normal day to day activities.

Rationale for best management practices selection and measurable goals:

These best management practices have been approved by the Cornell Local Roads Program, Ithaca College, Ithaca, NY, the National Oceanic and Atmospheric Administration – Fisheries Division, New York State Department of Environmental Conservation and the Sate University of New York College of Environmental Science and Forestry as they relate to routine highway and road maintenance.

The Conesus Highway Department began program implementation in 2006 during the DEC Phase II requirement, and will continue to develop the monitoring and evaluation elements during '2007-2015'.

The evaluation of this minimum control measure will follow the assessment process. This plan will also be furnished to the New York State Department of Environmental Conservation, United States Department of Natural Resources Conservation Service and Conesus and Hemlock Lake Watershed Authorities for evaluation and feedback.

The evaluation and assessment tools include field inspections, map data analysis, Highway Superintendent and equipment operators training and adaptive management techniques.

Changes, updates and additional information will be added as it becomes available through the agencies listed above and following the department's annual working evaluation during 2007 – 2015.

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I. STORMWATER MANAGEMENT AND POLLUTION PREVENTION/GOOD HOUSEKEEPING PROGRAM OUTLINE

1. Pollution Prevention Program:
   The Pollution Prevention Program is administered through CHD Highway Superintendent. The CHD Highway Superintendent will work closely with CHD staff to ensure that the Best Management Practices are properly applied and monitored.

2. Training Program:
   The training program described in the Best Management Practices section of this minimum control measure will use many of the same materials that will be used for outreach and education of the public. These include posters on erosion control ("Stormwater for the Construction Industry"), brochures such as "After the Storm; A Citizens Guide to Understanding Stormwater", and a copy of the BMP manual (more for internal use). Stormwater management training for crews will consist primarily of the training they receive on BMPs, with some additional material relating directly to stormwater quality. The Highway Superintendent will attend stormwater management, as well as erosion and sediment control training sessions provided by the DEC, the New York State University of Environmental Science and Forestry and the Cornell Local Roads Program as well as other applicable courses pertaining to highway departments impact and concerns with environmentally sensitive issues.

3. 1200-Z Facilities:
   Conesus Highway owns no 1200-Z (33 CFR 323.2(c) (1978) permitted industrial facilities that are in the census urban area or ultimately discharging to the watershed. The Town of Conesus currently does not have any MS4 considerations.

4. Maintenance schedules:
   CHD maintenance activities that have the potential to cause water quality problems (i.e. ditching, brine application, use of rock salt for ice control, etc.) are typically done on an as-needed basis. This helps ensure that these activities are limited to only the amount necessary. Those activities intended to improve water quality (i.e. street sweeping and vacuuming, catch basin cleaning, etc.) will have a regular schedule for maintenance activities. During the first year of SWMP implementation, we will collect data on the number of times these facilitates need to be maintained in a given year. We will develop and implement regular cleaning schedules based on these findings. (e.g. Those sets of catch basins that consistently have greater quantities of sediments will be cleaned more frequently than those that rarely fill with sediment.) Large scale ditching projects will be conducted using permanent erosion control devices such as catch dams, light, medium and large gabion stone and rip rape as well as silt fencing in accordance with DEC and watershed guidelines. As an additional note, the CHD maintains Joy and the Dacola Shores Roads. These roads will

be scheduled for vacuum-broom cleaning each spring to ensure all salt and sand residues is completely removed from the lake area. The village (Railroad Ave, North and Elm Streets will also be scheduled for vacuum-broom cleaning each spring to keep salt sand residues from entering into catch the catch basins and stormwater sewer system (see Para. 12)

5. Best Management Practices:

These best management practices have been approved by the Cornell Local Roads Program, Ithaca College, Ithaca, NY,. The New York State Department of Environmental Conservation (Standards for Erosion and Sediment Control Blue Book) and the Sate University of New York College of Environmental Science and Forestry. These Best Management Practices will be used by CHD Operations and Maintenance staff to prevent or reduce pollutant runoff caused by Highway Departmental activities. These Best Management Practices have also been reviewed by

National Oceanic and Atmospheric Administration – Fisheries (NOAA-F) as part of the Limit 10 coverage under Section 4(d) of the Federal Endangered Species Act. Portions of the maintenance manual that were not relevant to the SWMP were deleted, but the original document format was preserved for the sake of continuity between Conesus the Clean Water Act and Endangered Species Act compliance efforts.

II. THE BEST MANAGEMENT PRACTICES

A. Road Maintenance Activities

The purpose of the Conesus Highway Department road maintenance program is to provide a transportation system that is safe and efficient for motorists and residents. Public and personal safety is always the primary concern for our department and maintenance crews. The best management practices in this section are designed to eliminate the adverse impacts of road maintenance activities as they relate water quality and wildlife habitat without compromising public safety. In general, the BMPs are designed to:

- To the extent it is feasibly possible; keep rock, sediment, and foreign matter out of ditches, catch basins, and streams.
- To the extent it is feasibly possible; reduce the occurrences of gravel road erosion on roads with steeper grades.
- Promote the ability of ditches to naturally filter contaminants.
- Reduce the occurrences of ditch erosion where ever possible and feasible

1. Gravel Road Maintenance

a. Description

Restoring gravel roadway cross slopes, drainage systems, and grades by blading, reshaping, and smoothing of existing surface materials using a motor grader. Also includes, transporting and placing of suitable aggregate material on existing gravel roads to repair soft spots and potholes, providing a suitable driving surface.

b. Concerns

- Rock and sediment deposits in ditches
- Opening ditches to a faster flow rate of stormwater and stormwater run off and erosion from freshly disturbed road surface
- Dust
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Perform activity in dry weather, but while moisture is still present in the soil and aggregate to minimize dust, when possible.
- Use any practical means to prevent rock or sediments from entering the ditches, such as a boot on the grader where appropriate.

- Maintain a clear buffer space from the edge of the road surface to the ditch, where the width of the road surface meets minimum standards, to prevent material from falling into the ditch.
- When practicable, maintain existing vegetation along road shoulders.
- Seed all exposed soil within 7 days from the time it is exposed using mulch, grass seed and/or hydra seeding.
- The aggressive use of check dams using gabion stone and rip rap.
- Refuel equipment a minimum of 50 feet from watercourses
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine the work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

2. Dust Abatement

a. Description

Dust abatement practices will help to stabilize gravel roads and reduce damage and maintenance costs. Depending on the type of road treated, application of dust palliatives creates a hard, compact surface that resists potholing, rutting and loss of aggregate.

In addition, control of road surface dust reduces the short-term, localized air quality hazards associated with unpaved roads. For people living on dirt roads, dust can cause many other inconveniences as well as health hazards from dust settling on their property.

Of further concern is the fact that the road dust contains particles from vehicle breaks, vehicle emissions, antifreeze, petroleum and oil particles and particles from vehicle tires. If left untreated, these pollutants are carried with the dust resulting in further environmental and health concerns.

The Department will do its best to react to situations where residents request additional dust control.

It is important to note that left untreated, gravel roads will loose approximately 1" of material a year.

Of further importance is the fact that one vehicle traveling one mile of dirt road once a day for 365 days has the potential of generating over 1 ton of dust, if the road is left untreated (Ref: Cornell, Local Roads Program).

Application; dust suppression involves the application of a dust palliative to non-paved road surfaces to temporarily stabilize surface soils, leading to a reduction of dust. The town will provide dust abatement with highway funding.

Private contractors will apply dust palliatives to town roads for residents to reduce the amount of dust produced by passing vehicles, as the town's expense.

Application of dust palliatives usually occurs at the beginning of the summer and depending on the road surface and grade, two "light" applications will be applied in order to avoid any run off the palliative from the road surface.

Further application throughout the summer months as needed. In preparation for palliative application, roads are graded and "roughed up" to allow for greater penetration of the palliative.

Application normally consists of 0.5 to 1.0 gallon of material per square yard of road and is applied using an applicator truck and will not be used on any road that exceeds a 10 percent grade, on wet roads, just prior to rain or if rain is forecasted at 50% or more.

The Department will operate in accordance within all guidelines as set forth by the New York State Department of Conservation and any other regulatory authority

Materials

The following materials are proposed for use in town road dust abatement practices on unpaved roads. They have been selected because of their effectiveness in controlling fugitive dust, as well as minimizing potential environmental impacts.

Calcium Chloride (preferred method)

Calcium chloride is the preferred material because it contains the least amount of contaminants. It is readily available at no cost to the town and is a naturally occurring element. It is extracted from salt-water solutions such as those found in seawater. To extract the calcium chloride brine, water is removed from the salt water by solar

evaporation, other energy, and a simple refinement process until other chemicals have been extracted resulting in Salt / calcium chloride brine. This brine is often further dehydrated to produce calcium chloride solids.

Calcium chloride can be adapted and designed to provide highest efficiency depending on prevailing dust conditions, anticipated traffic, and type of soil. Dilution can also be varied to obtain the greatest possible economy and minimize environmental impact. Some soil types may be best treated with a one-time heavy application of product, whereas others may require several light applications. As a general rule, the rate of penetration of magnesium chloride is rapid in sandy soils, moderately fast in silty soils and slow in clay.

A materials data sheet for the calcium chloride used by CHD is attached as Appendix C.

Magnesium Chloride

Magnesium chloride (like calcium chloride) is also naturally occurring element and is extracted from salt-water solutions such as those found in seawater. To extract the magnesium chloride brine, water is removed from the salt water by solar evaporation, other energy, and a simple refinement process until other chemicals have been extracted resulting in magnesium chloride brine. This brine can then be further dehydrated to produce magnesium chloride solids.

Magnesium chloride can be adapted and designed to provide highest efficiency depending on prevailing dust conditions, anticipated traffic, and type of soil. Dilution can also be varied to obtain the greatest possible economy and minimize environmental impact. Some soil types may be best treated with a one-time heavy application of product, whereas others may require several light applications. As a general rule, the rate of penetration of magnesium chloride is rapid in sandy soils, moderately fast in silty soils and slow in clay.

Magnesium chloride is not as readily available as the calcium chloride.

Lignosulfonates (least preferred)

Due to expense and availability, the least preferred is lignosulfonates. Lignin is a polymer in the secondary cell wall of woody plant cells that helps to strengthen and stiffen the wall. During the various pulping processes, lignin by-products are produced. Lignosulfonate is a byproduct of the sulfite method for manufacturing paper from wood pulp.

Sometimes it is called sulfonated lignin. Lignosulfonate is a complex mixture of small- to moderate-sized polymeric compounds with sulfonate groups attached to the molecule.

Lignosulfonates have a long history of use on roads as a method for dust control and surface stabilization. Lignosulfonates have a natural adhesive property when moist. When applied to gravel roads, the lignosulfonate solution coats individual road particles with a thin adhesive-like film that binds the particles together. The lignosulfonate acts as a dispersant. By attaching to the particle surface, it keeps the particle from being attracted to other particles and reduces the amount of water needed to use the product effectively. This allows the particles to pack closer together for a stronger surface. Consequently, water uptake by the roadbed surface is greatly reduced and the binder is less likely to be washed away by rain.

Lignosulfonates used for road applications are usually shipped in a concentrated solution and diluted with water on the job site to about a 25 percent solid content. Road conditions and climate can affect the application rate. However, as a general rule for dust control, a diluted solution of lignosulfonate is applied at a rate of one-half gallon per square yard.

CHD has never used Lignosulfonates and most likely will not, however it has been included in this document due to the fact it is an accepted practice making it future possibility.

b. Concerns

- Runoff into streams and into the watershed
- Biochemical oxygen demand
- Aquatic toxicity
- Chemical spills (lignosulfonates)

c. Best management practices for CHD will be to:

- Refuel equipment a minimum of 50 feet from watercourses
- Perform applications in dry weather, but while moisture is still present in the soil and aggregate to minimize dust, when possible.
- During preparation for application of dust palliatives, gravel roads will be tight bladed or processed (cut 2” and watered, then laid gravel back to grade and roll) to bring fines to the surface.
- Prior to application the gravel will be “york” raked at extremely slow speeds and them firmly compacted with a vibratory roller (to avoid erosion during application)

- During preparation for application of dust palliatives to roads within 25' of a water body of the state, 6" gravel berms will be constructed on the low shoulders to inhibit palliatives from running off road surfaces.
- A 1-foot buffer zone on the edge of gravel will be used if the road width allows.
- The machinery used to apply palliatives will carry adequate spill protection equipment during application.
- Dust palliatives will not be applied while raining. (Where practicable, a 3-day forecast of clear weather should follow any application of dust palliatives).
- Environmentally sensitive cleaning agents will be used on trucks and equipment used for palliative application. Cleaning will take place at the areas within the town designated for truck maintenance and cleaning.
- Excess materials will be disposed of at areas designated and approved for receiving such materials.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

3. Grading and Cutting Road Shoulders

a. Description

Restoration of unpaved shoulder sections by adding, reshaping, and compacting aggregate material. This action also includes removing excess shoulder material and/or vegetation for safety, to improve drainage, and to prevent standing water on roadways.

b. Concerns

- Rock and sediment deposits in streams
- Dust
- Disposal of material
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Install check dams as erosion control devices when the potential exists for sediments to flow downstream.
- Blade in dry weather, but while moisture is still present in the soil and aggregate, when possible.

- Where practicable, evaluate the width of the grading activity and if appropriate, modify the width to minimize disturbance of vegetation.
- Use any practical means to prevent rock or sediments from entering the ditches, such as a boot on the grader where appropriate.
- Pick up excess gravel when within 50 feet of salmon habitat and other flowing watercourses.
- Incorporate methods from the vegetation management program, such as mowing and seed selection, to minimize the need for shoulder grading.
- Permanently stabilize disturbed soils with reseeding, where appropriate.
- Evaluate specific sites for alternatives such as berming, curbing, or paving the shoulder.
- Excess material will be deposited above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation.
- Refuel equipment a minimum of 50 feet from watercourses
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

4. Road Base Construction

a. Description

Processing or construction of a gravel road base in preparation for paving; also used for major base repair of paved roads. Gravel is placed on the road surface in 4-6 inch lifts, bladed, compacted, and then watered. Weeps/drains may be installed where necessary.

b. Concerns

- Rock and sediment deposits in ditches or catch basins.
- Weeps and drains increasing water volume in road ditches
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Properly place base on roadway, compact, and water to minimize the release of suspended solids into the environment.
- Use any practical means to prevent rock or sediments from entering the ditches or catch basins.
- Cover catch basins, when appropriate.
- If pumping is required, use appropriate fish and wetland wildlife screen on pump inlets, ensure that relevant water laws are observed, and consult with the Environmental Specialist to ensure stream hydrology and ecology are not affected.
- Install erosion control devices where the potential for runoff of sediments exists, especially when installing weeps and drains.
- Refuel equipment a minimum of 50 feet from watercourses
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

5. Stockpiling Materials

a. Description

Loading, hauling, mixing, or stockpiling materials used for routine maintenance activities. Placement of material at Conesus Highway sites follows DEC guidelines.

b. Concerns

- Erosion and sediment run off
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Select stockpiling sites that do not carry a high risk for erosion and are out of the 100-year flood plain as well as 75 feet from wetlands, streams, or riparian areas.

- Establish appropriate preventative measures to eliminate any potential for runoff of sediments (i.e. berms, detention basins, silt fencing). See the erosion control table for appropriate measures in Appendix A.
- Hydroseed the stockpiles if they are expected to be in place longer than 30 days. Consult with Environmental Specialist for seed species approval.
- Refuel equipment a minimum of 50 feet from watercourses
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated.

6. Gravel Road Paving (O-11 Process)

a. Description

Application of alternating layers of emulsified rubber asphalt and rock over base material. Emulsified asphalt is applied to the road surface in five stages and does not runoff unless rained on prior to setting.

b. Concerns

- Asphalt spills
- Rock and sediment deposits in ditches
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Only pave in dry weather conditions.
- Use any practical means to prevent gravel and asphalt from entering the ditches.
- If pumping is required, use appropriate fish and wetland wildlife screens on pump inlets.
- Ensure that relevant water laws are observed, and if necessary consult with the Environmental Specialist to ensure stream hydrology and ecology are not affected.
- In case of spills, contain with a dike composed of native materials until diapers, berms, or pillows can be set up.
- Refuel equipment a minimum of 50 feet from watercourses.
- Load asphalt emulsions away from watercourses.

- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

7. Slurry Seal

a. Description

Mixing and placing a liquid emulsified asphalt and sand mixture over existing asphalt to seal and maintain the road surface. This activity also includes crack sealing prior to slurry seal. Road surface cracks are cleared with a hot air lance and then filled with hot liquid asphalt, no sand. The slurry ingredients are combined from contractor tank vehicles and transported to the job site where they are mixed and applied by contractors.

b. Concerns

- Asphalt spills and runoff
- Sand deposits in ditches or catch basins

c. Best management practices for CHD will be to:

- Perform activity in dry weather only.
- Use all practical means to prevent asphalt and sand from entering ditches, streams, or catch basins.
- Cover drain inlets, manholes, and catch basins prior to slurry seal.
- When needed, use environmentally sensitive cleaning and releasing agents such as vegetable oil based release agents. (no diesel.).
- Use less water in the slurry mixture when operating near roadside ditches or other watercourses to minimize movement of the slurry as it is applied.
- Carry supplies for small spill containment (Diapers, Rice Ash, and Shovel etc) and follow spill containment plan.
- Dispose of used cleaning agents with a licensed waste recycler.
- Dispose of extra asphalt and other materials in an approved, environmentally-sound manner at the CHD shop yard (i.e. mix with existing grindings pile).
- Require contractors to comply with all CHD BMPs by including them as part of the project specifications

- and instructing on them during the pre-construction conference.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

8. Pavement Overlays

a. Description

Placement and compaction of hot mix asphalt concrete (a uniform mixture of hot asphalt oil and fine aggregate which hardens by cooling) over existing asphalt surfaces. Preparation work may include grinding of existing surface in some areas. Rock is added to the shoulders, afterward, to make them level with the new surface. This activity is performed by contractors and overseen by CHD inspectors.

b. Concerns

- Asphalt spills and runoff
- Rock and sediment deposits in ditches and catch basins
- Disposal of material
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Perform activity in dry weather.
- Use all practical means to prevent asphalt and aggregate from entering ditches or catch basins.
- Isolate activities near watercourses to avoid contact between fresh concrete and water.
- Cover catch basins during milling and paving activities.
- Sweep up and remove milled material.
- Fully contain any material that is used as a cleaning agent in a recovery tank located on the spray trailer, or through another equally safe system.
- Use environmentally sensitive releasing agents, such as vegetable oil based release agents. (No diesel.)

- Add only as much rock to the shoulder as is needed to meet the new road surface.
- Prevent shoulder rock from entering ditches. Shoulder grading equipment will have a boot on the end, or another equally protective mechanism, to prevent side-casting of the gravel.
- Carry supplies for spill containment (Diapers, rice ash, shovel, etc.) and follow spill containment plan.
- Dispose of used cleaning agents with a licensed waste recycler.
- Excess material will be deposited above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation.
- Require contractors to comply with all CHD BMPs by including them as part of the project specifications and instructing on them during the pre-construction conference.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

For Bridges: (Use **Pavement Overlays** BMPs as well as the following)

- Cover scuppers and drains before performing the activity and clean them to remove any material after the activity.
- Use all practical means to prevent asphalt and aggregate from falling off the bridge deck and entering the stream.
- Mill the surface down, sweep up, and dispose of all loose material. Excess material will be deposited above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation.

9. Pavement Repair

a. Description

Major and minor patching of intermittent potholes, small depressions, and edge breaks, and any surface irregularities with plant mixed asphalt concrete material. Preparation work may include grinding of existing surface in some areas.

b. Concerns

- Rock and sediment deposits in ditches and catch basins
- Asphalt spills and runoff
- Disposal of materials

c. Best management practices for CHD will be to:

- Use heat sources to heat and clean tack nozzles during operations.
- Use environmentally sensitive releasing and cleaning agents such as vegetable oil based release agents. (no diesel.).
- Refuel equipment a minimum of 50 feet from watercourses.
- Carry supplies for small spill containment (Diapers, Rice Ash, and Shovel etc) and follow spill plan as directed by Highway Superintendent.
- Work in dry weather, whenever possible.
- Isolate activities near watercourses to avoid contact between fresh concrete and water.
- Cover catch basins during milling and paving activities.
- Sweep up and remove milled material.
- Dispose of used cleaning agents with a licensed waste recycler.
- Excess material will be deposited above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation.

- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

10. Chip Sealing

a. Description

Applying a single layer each of liquid asphalt material and aggregate (normally 1^{ST} and/or 1A stone) to a paved roadway to seal the surface, restore surface life, flexibility, and skid resistance. Excess stone is later swept onto the shoulders.

b. Concerns

- Stone and rock entering into the ditches or streams
- Asphalt spills and runoff
- Fuel spills during equipment refueling

c. Best management practices for CHD will be to:

- Use environmentally sensitive releasing and cleaning agents (No diesel).
- Use all practical means to prevent rock from entering streams.
- Use water, as needed, to reduce dust during sweeping.
- Chip seal in dry weather only.
- Cover drop inlet grates and drains prior to chip sealing on or near bridge decks; follow with bridge drainage cleaning, when possible.
- Sweep up and remove excess gravel on bridge decks.
- Pick up gravel within 50 feet of salmon habitat or other watercourses.
- Place sediment barriers in site-specific locations along stream routes or direct drainage routes, to route sweeping material away from watercourse, where appropriate and practical.
- Carry supplies for small spill containment (Diapers, Rice Ash, and Shovel etc.) and follow spill plan as directed by Highway Superintendent.
- Refuel equipment a minimum of 50 feet from watercourses.

- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

11. Road Striping and Pavement Marking

a. Description

Center line, shoulder line, intersection, and miscellaneous pavement painting activities including paint, beads, etc. Disposal of waste paint. Use of a grinder to remove markings, graffiti, and center and shoulder lines.

b. Concerns

- Total Suspended Solids
- Rock in ditches and catch basins
- Possibility of pain spill

c. Best management practices for CHD will be to:

- Only paint on dry paved roads.
- Clean up spills on site (with absorbent, shovels, & buckets) and return to shop for proper disposal.
- Perform activity on calm days to minimize drift, as possible.
- Use shovels, brooms, buckets, and vacuums to collect all grindings and shot and return to shop for proper disposal.
- Cover catch basins prior to grinding.
- Use only federally approved, low volatile organic compound (VOC) paint.
- Carry supplies for small spill containment (Diapers, Rice Ash, Shovel etc) and follow spill plan as directed by Highway Superintendent
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

12. Road Vacuum Sweeping

a. Description

The use vacuum sweeping equipment on roadways to remove dirt, debris, and other loose material; these materials must be removed to another location for disposal. While vacuum sweeping can be performed in most any weather for spring cleaning of salt and sand residue as well as preparing for resurfacing, for striping, remove sanding material and pavement marking debris, and to improve aesthetics it may be necessary to wet the area being swept with water to avoid excess dust.

b. Concerns

- Total Suspended Solids
- Oil & Grease
- Metals
- Disposal of removed materials
- Generation of dust during the operation

c. Best management practices for CHD will be to:

- Store and dispose of removed materials above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation. Follow erosion control guidelines in Appendix A.
- Emphasize recycling of materials where appropriate.
- Schedule in damp weather, when possible, to minimize dust.
- Remove sweepings produced within 50 feet of identified salmon bearing streams if the design of the facility allows.
- When feasible, coordinate crews to follow sweeping with bridge drainage cleaning. Sweep material away from scuppers.
- Use water, as needed, to reduce dust while sweeping.
- Perform activity more frequently during rainy season to minimize contamination of runoff.
- Refuel equipment a minimum of 50 feet from watercourses.

- Reference Environmentally Sensitive Zone maps: General Road Maintenance and Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

13. General Excavation

a. Description

General excavation and/or embankment of native materials. General earthwork related to vision improvement, right-of-way clearing, road widening and typical cut and fill work. Excavated material is compacted and used as fill elsewhere.

b. Concerns

- Erosion
- Fuel spills during equipment refueling
- De-watering

c. Best Management Practices for CHD will be to:

- During construction phases, follow NYC DEC - Erosion and Sediment Control (Blue Book), or current version of this document, as summarized below.
- For projects disturbing >1 acre of ground, initiate and follow all conditions of Conesus Highway's SEQR.
- For projects disturbing >1 acre of ground, if found as required by the SEQR, initiate and follow all conditions of the DEC approved Stormwater Pollution Prevention Plan
- Install all specified perimeter controls prior to any major site grubbing operation. Perimeter controls include side ditches, berms in fill areas, and sediment fences or straw bales along the banks of existing streams and toes of slopes.
- Develop a schedule to assure that appropriate erosion controls are implemented and maintained during the wet season work and work suspension periods.
- Document all weekly inspections, as necessary, IAW DEC and SWPPP requirements
- Temporarily stabilize bare soils and slopes not at finished grade, and bare soils and slopes at finished grade but outside permanent seeding dates as suggested in Table 4.

- Stabilize or complete appropriate control measures within 7 days of exposure of any areas within 30 m of waterways, wetlands, and other sensitive areas and within 14 days for all other areas.
- Permanently stabilize soils and slope at finished grade through permanent seeding and mulching, riprap protection or bio-engineered slope stabilization.
- If pumping is required, use appropriate fish and wildlife screen on pump inlets, ensure that relevant water laws are observed, and when necessary, check with DEC to ensure stream hydrology and ecology is not affected.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone and Sensitive Area maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

14. Ditch Shaping, Grading, and Cleaning

a. Description

Machine cleaning, grading, and reshaping of ditches to maintain or improve drainage including removal, loading, hauling, and disposing of excess materials.

Ditch: a facility, typically parallel to a road or parking lot, which carries stormwater runoff draining from the road or other constructed facilities. It is not a channelized stream.

Stream: a channel that is usually flowing but can be dry. It may or may not be in its natural course, and can be parallel or perpendicular to the road. It may contain fish or other wildlife, but not necessarily so. The stream collects drainage water from its whole watershed, rather than just a facility.

NOTE: The Town of Conesus has an extensive number of dirt roads that require grading. The CHD will use as much caution as feasibly possible to avoid pushing dirt into ditches and creating burms between the ditches and roadways however it is impossible to keep all dirt and sediment from moving into the ditches or eroding over banks.

b. Concerns

- Erosion
- Debris
- Disposal of material

c. Best management practices for CHD will be to:

- Minimize amount of material removed and disturbance to side slopes to protect existing vegetation. Avoid disturbing sides of ditch and avoid creating vertical back slopes.
- Machine brush ditches instead of ditching when removal of soil is unnecessary and control of vegetation growth is adequate to ensure drainage. CHD is acquiring new ditch cleaning equipment designed to minimize disturbances to the ditches.
- Use erosion control measures such as aggregate check dams, bio-filter bags, or skip ditching when the potential exists to have sediments flow downstream. Further guidelines are provided in Appendix A. Erosion control devices will be regularly inspected and maintained.
- Maintain erosion control devices until vegetation is reestablished either naturally or through hydro seeding.
- Perform work when water flow in the ditch is low, except in cases of emergency where water is backed up onto the roadway or adjacent property.
- Store and dispose of removed materials above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation. Follow erosion control guidelines in Appendix A.
- When practical, reshape ditches to have flatter side-slopes where space exists and where vegetation can quickly re-establish.
- Evaluate and modify, where feasible and appropriate, existing ditch slopes to trap sediments, and support development of vegetation.
- If pumping is required, use appropriate fish and wetlands wildlife screen on pump inlets, ensure that relevant water laws are observed, and consult with the DEC Environmental Specialist to ensure stream hydrology and ecology is not affected.

- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

NOTE: The Town of Conesus has an extensive number of dirt roads that require grading. The CHD will use as much caution as feasibly possible to avoid pushing dirt into ditches and creating burms between the ditches and roadways however it is impossible to keep all dirt and sediment from moving into the ditches or eroding over banks.

15. Slot Drain Installation and Ditch Tiling

a. Description

Installation of a slot drains to help direct water into a ditch. Slot drains are normally installed at intersections and the bottom of steep driveways to prevent water from running onto the roadway and creating a road hazard. For ditch tiling, a pipe is placed to carry the flow of water and the ditch is filled in.

b. Concerns

- Erosion
- Sediment from Gravel Roads
- Water quality

c. Best management practices for CHD will be to:

- Divert runoff into a vegetated or rock-lined ditch, where possible and financially feasible.
- Avoid the practice of ditch tiling, as it inhibits the ditch’s ability to store and naturally filter contaminants. Only perform activity when necessary for the widening of a driveway or a similar circumstance to be reviewed by engineering staff.
- Use any practical means to prevent materials from entering waterways.
- If pumping is required, use appropriate fish and wildlife screens on pump inlets, ensure that relevant water laws are observed, and if necessary, consult

with the Environmental Specialist to ensure stream hydrology and ecology is not affected.

- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

NOTE: The Town of Conesus has an extensive number of dirt roads that require grading. The CHD will use as much caution as feasibly possible to avoid pushing dirt into ditches and creating burms between the ditches and roadways however it is impossible to keep all dirt and sediment from moving into the ditches or eroding over banks.

16. Construct, Clean, and Repair Catch Basins

a. Description

- Construction, cleaning, or repair of catch basins or junction boxes. Some catch basins are cleaned mechanically with a vacuum truck. Beginning in the spring of 2007, the vacuumed material will be stockpiled at a covered site at CHD and where it will be dewatered, and tested for contaminants following the recommendations of an Environmental Engineer. If contamination levels exceed NYS DEC environmental quality recommendations, the material will be disposed of in an appropriate solid waste facility.

b. Concerns

- Sediment deposits in catch basins being removed prior to discharge downstream
- Disposal of removed material

c. Best management practices for CHD will be to:

- Clean catch basins as roadway sediments build-up. Catch basins should all have a sump to help collect sediments that can be removed with a vacuum during normal maintenance activities.
- Dispose of vacuumed materials at the detention pad at the Conesus Highway Department, which is tested for hazardous constituents.

- Construct, clean, or repair basins prior to the rainy season. If construction is necessary during wet weather, use pre-cast structures.
- Isolate construction activities immediately adjacent to watercourses to avoid contact between fresh concrete and water.
- Report location of catch basins with signs of illicit dumping (i.e. used motor oil) to Highway Superintendent.
- Use erosion control measures to prevent sediments from flowing downstream during construction or repair activities. Erosion control devices will be regularly inspected and maintained.
- During construction, follow appropriate water quality and stormwater management regulations, such as NPDES Phase II, or other DEC requirements or permits. Consult Environmental Specialist to review relevant regulations.
- If pumping is required, use appropriate fish and wetlands wildlife screen on pump inlets, ensure that relevant water laws are observed, and consult with the Environmental Specialist to ensure stream hydrology and ecology are not affected.
- Refuel equipment a minimum of 50 feet from watercourses**.**
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

17. Minor Culvert and Inlet Cleaning and Repair

a. Description

Cleaning of culverts, siphons, box culverts (that are less than 6' in width), drop inlets, and other minor drainage facilities of dirt and debris to restore proper operation. Due to the number of culverts in the town and village and the difficulty of predicting which will soon present drainage problems, cleaning occurs mainly on an emergency basis when a back up of water indicates the need. Cleaning is performed manually, as needed, with shovels and pitchforks. Material and debris are scattered or removed.

Some culverts and drop boxes can be cleaned mechanically with a vacuum truck. The vacuumed material is stockpiled and may be recycled as fill. Repairing and replacing may require excavating, diverting or impounding water, restoring, and backfilling. These situations are reviewed for priority, funding and possible contract work.

b. Concerns

- Total Suspended Solids
- Debris
- Oil & Grease
- Metals
- Disposal or storage of material

c. Best management practices for CHD will be to:

- Provide erosion/sediment control during culvert/trash rack cleaning or repair, as needed.
- Perform work at low flow, when possible, and divert flow, as needed, to minimize turbidity.
- Store and dispose of removed materials above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation. Follow erosion control guidelines in Appendix A.
- Clean culverts in watercourses containing flowing water during the DEC/Army Corps in-stream work window, or as negotiated with DEC/Army Corps in water areas, except in cases of emergency, where water is backed up or threatening to back up onto a roadway or adjacent property. If at all possible and feasible, in the event of an emergency DEC and the Army Corps must be notified with an emergency notification prior to work being initiated.
- If pumping is required, use appropriate fish screen on pump inlets, ensure that relevant water laws are observed, and consult with the Environmental Specialist to ensure stream hydrology and ecology is not affected.
- Consult with the Environmental Specialist prior to routine work at culverts on watercourses that may carry salmon, as shown on the Environmentally Sensitive Zone maps. The Highway Superintendent is responsible for consulting with DEC or other appropriate agencies and securing permits.

- Culvert replacement or extension will frequently require permits outside the scope of this guide, potentially including a DEC permit, U.S. Army Corps of Engineers 404 permit, or a DEC Army Corps joint permit, DSL permit, and other permits. Any culvert replacement or extension may be required to meet provisions for water volume, fish and wildlife passage.
- Inspect and prioritize repairs, incorporating fish-and wildlife friendly elements in repairs.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: Minor Culvert and Inlet Cleaning and Repair. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

18. Emergency Maintenance

Emergency Contacts
Livingston County Highway Dept
585.243.6700

NYS DEC
Region 8
585.226.5366

Army Corp of Engineers
716.879.4014

NYS DOT
Lakeville, NY
585.346.3036

Livingston County Emergency Management
585.243.7160

Storms, Floods, and other Events

a. Description

These actions include fixing damage to roadways, the roadside and structures (bridges) caused by storms, floods, and other unanticipated events. These actions may not receive a state or federal declaration of emergency; however, failure to perform them may result in an immediate loss of life or property.

b. Concerns

- Road ditch and grade erosion
- Gravel and dirt road surface erosion
- Road washouts contributing to dirt and sediment contamination
- Impact to wetlands and stream morphology
- Disposal of material
- Fuel spills during equipment refueling

c. Best Management Practices

- Conduct weekly road checks for possible deficiencies and potential problems and schedule transportation infrastructure repairs to address known maintenance issues in a timely manner and avoid emergency response situations.

- The Highway Superintendent or designated representative will provide a quick response and first inspection, and notify appropriate resource staff in a timely manner e.g. county and state roads within the township as well as town roadways
- If situation is impacting an environmentally protected/sensitive area, immediately consult with Environmental Specialist and secure appropriate emergency work permits from NYS DEC.
- In coordination with the Environmental Specialist, CHD will repair any damage to water resources caused by CHD maintenance responses to the emergency.
- CHD maintenance and repairs will make every effort to avoid additional impacts to wetlands and streams were possible.
- CHD will provide, if possible, adequate erosion control or bank stabilization necessary to keep material from entering watercourses. Erosion control devices will be regularly inspected and maintained.
- Remedial actions for emergencies will include bioengineering, erosion and sediment control designs, where practicable for stability and safety.
- Store and dispose of removed materials above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation. Follow erosion control guidelines in Appendix A.
- If pumping is required, use appropriate fish and wetland wildlife screens on pump inlets; ensure that relevant watershed laws are observed, and consult with the Environmental Specialist to ensure stream hydrology and ecology are not affected.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

Settlements and Slides

a. Description

Repairing roadway settlements and slides, including loading, hauling, and placing of suitable replacement materials. On settlements, the hole is filled and the grade is maintained. Slide material is moved to the side or shoulder of the road and clearly marked for visibility until it can be disposed of properly. Every possible attempt will be made to ensure soil does not erode back into the ditch or any adjacent grades.

b. Concerns

- Erosion and sediment
- Special considerations to gravel road issues
- Impact to wetlands
- Disposal of material

c. Best management practices for CHD will be to:

- Provide quick response and first inspection, and notify appropriate resource staff in a timely manner.
- Provide erosion control and bank stabilization in a timely manner, including seeding, mulching, and/or the placement of sediment fences.
- Avoid additional impacts to watercourses where possible.
- Take precautionary measures on identified eroding areas where they can be successfully and safely applied. Emphasize bioengineering solutions.
- Coordinate with DEC Environmental Specialist in the event it is necessary to secure permits and perform repairs.
- Employ bioengineering and wildlife friendly designs for remedial actions, where practicable.
- Store and dispose of removed materials above the 100-year floodplain at a Highway Superintendent-approved site; and not within 75 feet of a stream, wetland, or riparian area. Appropriate erosion control measures will be used to minimize erosion and sedimentation. Follow erosion control guidelines in Appendix A.
- Permanent solutions to chronically unstable areas will be pursued through the project development process. Solutions could include artificial hillside drainage or permanent shoring.

- Reference Sensitive Area Maps. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

19. Fence and Sign Maintenance

a. Description

Repair and replace right of way and access control fences to provide screening and restrict livestock access. Install and repair road signs.

b. Concerns

- Total Suspended Solids
- Debris from repairs

c. Best management practices for CHD will be to:

- Pick up debris.
- Use sound erosion control practices to ensure sediment and other materials do not enter waterways.
- Replace any material removed during sign or fence post installation.
- Repair any damage to wildlife habitat caused by CHD actions.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

20. Hazardous Materials Response

a. Description:

Guidelines for the proper containment and cleanup of hazardous material releases involving private citizens, the commercial transportation industry, illegal dumping and CHD equipment failures or spills occurring during routine road maintenance activities.

b. Concerns:

- Vehicle fuels and fluids including
  1) Diesel
  2) Gasoline
  3) Antifreeze
  4) Hydraulic Oils and other fluids
- Hazardous materials transported over town roads.
- Unknown hazardous materials illegally dumped on town roadways.
- Hazardous materials used as part of CHD road maintenance activities including:
  1) Various herbicides,
  2) Road oils including CSS 1 or HFE 901-S
  3) Anti-icing agent Freeze Guard
  4) Dust control agent(s)
  5) Road marking paints

c. Best management practices for CHD will be to:

- Train our field staff at the Awareness, Operational or 40 Hour Hazwoper levels. (training is pending)
- Primary response is to notify Highway Superintendent and Livingston County Sheriffs Dispatch as to the nature and location of spills.
- Respond only within the scope of each employee's level of Haz-Mat training.
- A stock of cleanup materials is located in:
  1) The south end of the Conesus Highway's shop building.
  2) All outlying work areas.
- If the spill is beyond your level of training or larger than the immediately available cleanup materials contact the Livingston County Sheriffs Dispatch (585) 243-7100. If further assistance is required contacted DEC Environmental Services at (585) 243-5366.
- Unknown material spills shall be isolated and the area secured. Make no effort to cleanup until material has been identified.
- Contain spills using the appropriate absorbent cleanup materials.
- If no absorbent materials are immediately available, use native soil or rock to temporarily contain the spill.
- Isolate and contain spill to restrict movement into or from further contamination of waterways.
- Dispose of materials in an approved manner per DEC and EPA requirements.

- Notify third party cleanups of Conesus Highway best management practices.

21. Snow Removal and Road Sanding

a. Description

Applying abrasives or deicing chemicals to the roadway to provide a safe driving surface. Removing snow, ice, and slush from the roadway and shoulders, including ramps and intersections, by plowing or blading.

- Oil and Stone Town Roads; Move towards using salt from the desalinization plant mixed 50-50 with Rock salt and then mixed 75% salt – 25% with sand. It is less abrasive to the oil and stone and contains less chemicals including cyanide components
- Gravel Town Roads; Move towards salt from the desalinization plant mixed with sand at a 75% sand 25% salt mix. Use of rock salt results in rapid road deterioration, the mix described is less abrasive and a possible solution to our goal to replace cinders that have been used.
- State and County roads (except East Lake Road; use pure/straight rock salt. East Lake Road we will use a 50% rock salt with 50% dry sand mix.

(Laboratory analysis report for AKZO salt from the desalinization plant is enclosed in Appendix C)

b. Concerns

- Calcium magnesium acetate (CMA)
- Magnesium Chloride and/or Calcium Chloride Solutions
- Rock salt ingredients include various anti clumping agents that contain cyanide components.
- Rocks plowed from gravel road surface into ditches

c. Best management practices for CHD will be to:

- Reduce plowing speed when adjacent to rivers, streams, or approaches to bridges. This reduces sidecast.

- Modify blade angles when within 50 feet of a watercourse to reduce sidecast.
- Apply ice control chemicals and sand at the least rate that is consistent with environmental, meteorological, and traffic conditions. Normal rate applications should not exceed 150 to 200 lbs per mile in surface treated roads.
- Identify and create facilities to capture sanding material where appropriate.
- Pick up or sweep gravel and sand away from bridge structures or flowing watercourses when within 50 feet of them, when possible.
- Clean larger culverts and bridge sculptors after snow or ice hazard has passed, prior to first rain where possible.
- Move toward using chemical deicers such as calcium chloride as the primary deicing method, as opposed to road sanding, in areas where there is a 25 foot vegetation buffer between the road surface and a watercourse or where there is a 100:1 or greater dilution factor in the adjacent water body.
- Store all deicing materials in the covered facility that does not allow spills or runoff to enter local watercourses.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities and Application of Deicing Chemicals. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

B. VEGETATION MANAGEMENT

The purposes of vegetation management are to provide a safe road system, free of sight-hindering brush and limbs, maintain adequate drainage in ditches, and control noxious weeds (as defined by the Oregon Dept. of Agriculture.) Public safety and integrity of public facilities will be maintained, but with careful evaluation of impacts of disturbance to the watersheds and environment. CHD employs a number of techniques to accomplish these goals including:

o **Mechanical:** Use of equipment such as mowers, brushers, chain saws, etc. to physically remove vegetation.

- **Cultural:** Vegetation planning that incorporates native, or more appropriate, plant material to out-compete the pest.
- **Chemical:** Contractor Application of herbicides. (CHD does not apply any chemical controls internally.

CHD Best Management Practices for Vegetation Management focus on minimizing the disturbance to native vegetation and maintaining ground cover to prevent erosion. When possible, CHD will control vegetation through mechanical and cultural means before resorting to chemical methods.

1. Brush Cutting, Mowing, and Tree Removal

a. Description

Hand cutting, mechanical mowing, removing, and disposing of brush, trees, and other undesirable vegetation, on Town right-of-way to maintain sight distance, vertical and horizontal vehicle clearance, and general public safety. Removal of hazardous vegetation disturbed by snow, ice, or windstorms is also performed

b. Concerns

- Disposal of brush
- Riparian destruction, loss of shade
- Erosion
- Dust

c. Best management practices for CHD will be to:

- Limit mowing, and other methods of vegetation removal, to the area from the edge of pavement to the catch point of the ditch line. Vegetation within the Town right-of-way on the backside of the ditch will not be brushed, except where sight distance, drainage, or public safety is of concern. See Figure 1.
- Remove vegetation up to 10 feet beyond guardrails to maintain visibility.
- Provide a brush buffer of 10 feet, or up to the back slope of the ditch line, along watercourses except where sight distance is of concern.
- Leave brush that is cut in riparian areas in place where doing so does not interfere with sight distance, create safety issues, result in fire hazards, involve noxious weeds, or hinder the proper functioning of highway features (e.g. drainage).

- Leave vegetated buffer strip widths at 100 feet for the McMillan Creeks, and 50 feet for the remaining small streams in the Town, unless there is an existing road through the area. Such roads will follow the three preceding BMPs.
- Maintain shade trees along watercourses, when possible. Exception: Consider any trees or snags, on or near a roadway/bridge, that are found to be weakened, unsound, undermined, leaning, or exposed so that they may fall across a roadway/bridge as exceptions to the above BMPs. Trees determined to be such will be removed to insure public safety. Mitigation requirements will still be followed in these cases.
- If trees providing shade or bank stabilization within 50 feet of watercourses are determined to be a risk to public safety as defined above, the trees will be removed in consultation with the Environmental Specialist. Mature trees (greater than 12 in. diameter at breast height) that are removed will be replaced with appropriate native trees at a 2:1 ratio within the same watershed, as close as possible to the removed trees. Work crews will consult with the Highway Superintendent and/or an Environmental Specialist to ensure the trees are planted in an area that will not pose a future threat to bridge structures.
- Properly dispose of brush that is cut outside of riparian areas. Brush will be sent through a chipper and disposed of at a pre-approved site out of the 100-year flood plain.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: Brush Cutting, Mowing, and Tree Removal. Examine the work area on this map, and in person, and determine if there are any “caution” areas within the work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

Bridge Brush Maintenance:

- Remove brush on either side, either end, and under the structure only as needed to maintain sight distance and safety of the structure or control noxious weeds; this includes maintaining adequate air flow to prevent moisture build-up on wood, steel, and concrete bridge components; dispose of brush appropriately.

- Maintain trees that lean, but pose no danger to structures or facilities.
- Remove 10 feet of brush, upstream, downstream, and on each side of culverts that are 6 feet in diameter or greater. Removal of noxious weeds may extend beyond this limit.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: Brush Cutting, Mowing, and Tree Removal. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

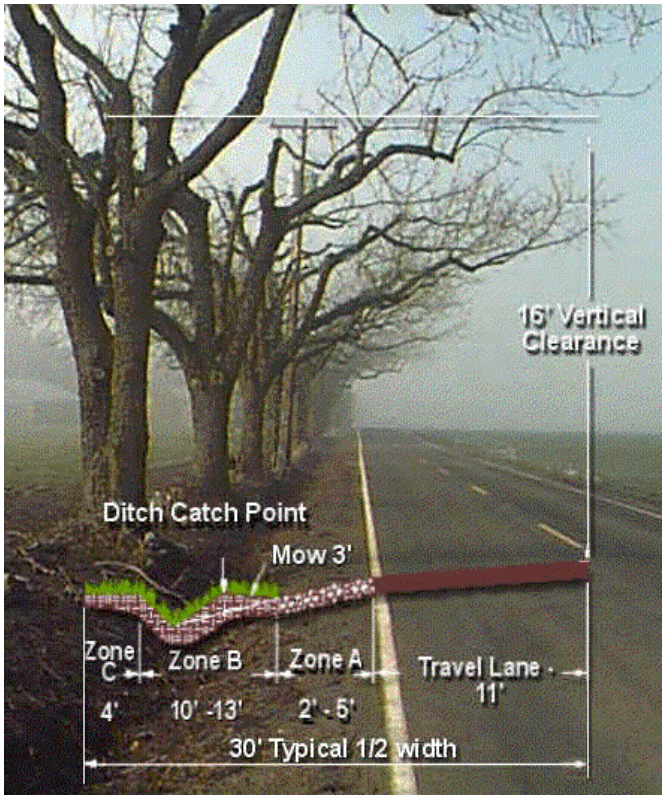
Figure 1: Vegetation Management Standards (ensure chemical and vegetation control contractors receive a copy of this document)

Zone A:
Vegetation free zone maintained with herbicide spraying.
Spray width is
2 feet for local roads
3 feet for collector roads
5 feet for arterial roads

Zone B:

Mow to Ditch Catch Point	**May-Oct.**
Brush every 7 years	**Sept.-Oct.**
Spot spray noxious weeds	**Sept.-Oct.**

Zone C:
No maintenance except for:
1. Emergency and/or dangerous circumstances
Vision hazard
Vegetation in Zone C is encroaching into Zones A or B, adversely affecting other maintenance activities and within the 16 foot vertical clearance.
Tree limbs overhanging into the roadway or Zone A will be trimmed flush with Zone C.



2. Shoulder Spraying & Foliar Spraying

a. Description

Applying herbicides along the roadside to eradicate, prevent, or retard the growth of noxious weeds, brush, and other undesirable vegetation. Tree stumps are hand-painted with stump killer. Shoulder spraying is truck applied. Foliar spraying is either truck applied, or hand/backpack applied. CHD does not use any restricted-use chemicals to control vegetation. Herbicides used include broad-based foliar-active herbicides and soil residual herbicides.

b. Concerns

- Chemical runoff
- Overspray
- Spills

c. Best management practices for CHD will be to:

- Use the least amount of chemical necessary to effectively provide vegetation control and seek safe, cost-effective alternatives.
- When practical, work with landowners to establish low growing vegetation in ditches, minimizing maintenance requirements.
- Spray shoulders no further than two, three, or five feet from edge of pavement except around road signs and when foliar spraying. See Figure 1.
- Maintain a no-machine-spray buffer zone within 50 feet of flowing watercourses including irrigation ditches, either dry or water-carrying. See Figure 2.
- Maintain a no-hand-spray buffer zone within 10 feet unless a bridge is present. Hand-spray around such structures with Rodeo only, or an herbicide of equal or less aquatic toxicity. See Figure 2.
- Do not spray triclopyr, diuron, or 2,4-D within 60’ of a salmon-bearing stream with any method (hand or machine). Check with vegetation foreman or environmental specialist for maps of salmon streams.
- Check with vegetation Highway Superintendent or environmental specialist before using any pesticide not listed in Table 1.
- Hand spraying herbicide is allowed within 25' of bridges if 1) removal of vegetation is critical to the function of the structure, 2) mechanical removal is not practical, 3) rain is not forecast for 24 hours, and 4) an aquatic approved herbicide is used at the minimum required quantity. Fig. 2.

- No herbicides will be applied to:
  - Culvert crossings or ditches, when residual chemical can be carried by rain following application.
  - Within 200 feet of the McMillan Creek drainage upstream of Conesus Lake, except for specific applications related to noxious weeds and approved by the Environmental Specialist.
  - Mission, Powell and Dugway Roads and feeder roads in the Hemlock Lake watershed, except for specific applications related to noxious weeds and approved by the Environmental Specialist.
  - Driveways or field entrances, where they could be tracked off of the shoulder.
  - Where farmers have obviously sprayed.
  - In front of schools, along paved or unpaved pedestrian walkways, or in high density residential areas except during road surface preparations such as slurry seals.
  - Areas of known threatened or endangered (T&E) plants
  - Private maintenance agreement (PMA) areas e.g. Dacola Shores DEC agreement.

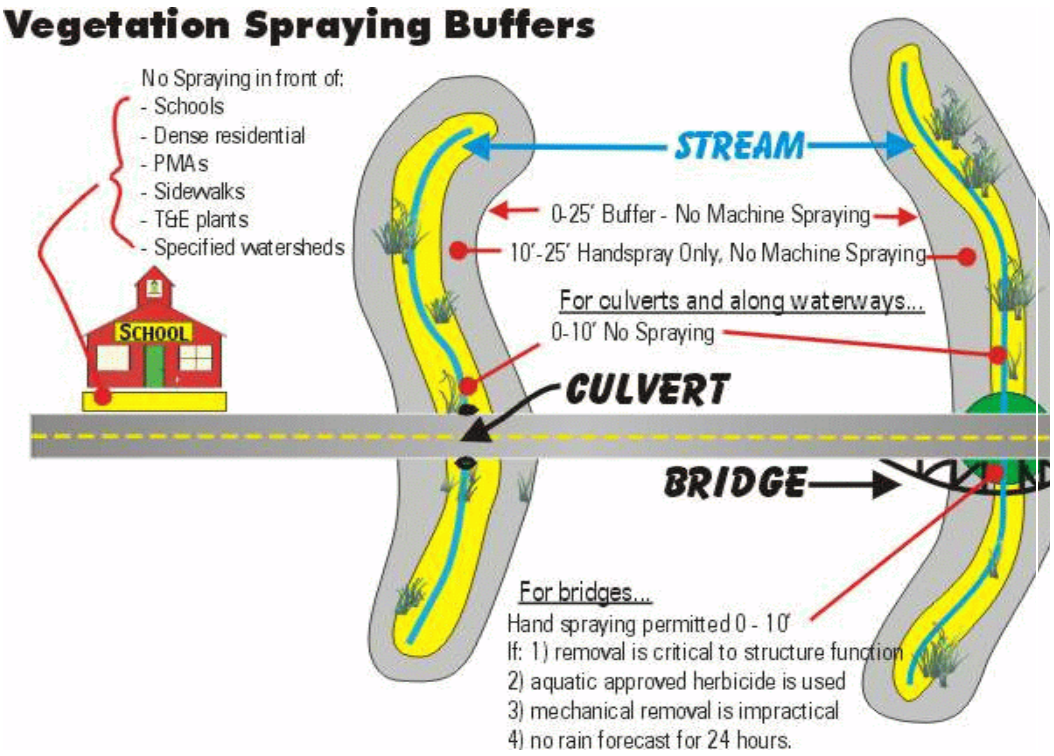
- Use herbicides in accordance with EPA labels.
- Apply only when wind speeds are within EPA label guidelines. Wind speed will be measured and logged prior to application and logged (periodically) throughout the day.
- Use lowest pressure compatible with adequate coverage.
- Dispose of empty herbicide containers in accordance with EPA guidelines.
- Carry booms and diapers in case of spill.
- Require that all herbicide applicators carry a current roadside applicators license. Anyone preparing or mixing herbicide will be licensed as well.
- Maintain a record-keeping system that documents (at least) the date, amount of pesticide applied, location of application, and temperature and wind-speed at the beginning and end of application.
- Prior to each season, applicators will collectively review current labels for each chemical to be used.
- Training on these BMP's will apply to contract applicators.

- Reference Environmentally Sensitive Zone maps: Shoulder Spraying and Foliar Spraying. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

Figure 2: Vegetation Spraying Buffers The following table lists the chemicals currently employed by CHD for vegetation management. Toxicity results were obtained from research done at Oregon State University and manufacturers= MSDS. Adjutants are not included because they are added at significantly smaller concentrations. This table may be updated as new products and information become available.

Table 1. Herbicides in Use for Vegetation Management

Herbicide	Trade Name	Use	Toxicity Classification	Toxicity (mg/L)	
				OSU	MSDS
imazapyr	Arsenal, Chopper	Stump Treatment	Minimal	>100	NA
dimethylamine salt of dicamba	Banvel, Weed master	Foliar Spraying, Parks	Minimal	135	NA
dichloberlil	Casoron, Norosac	Parks	Slight-Moderate	>18 (48h, guppy)	NA



diuron	Diuron, Direx, Karmex	Shoulder Spraying & Parks	Moderate	6	NA
metsulfuron methyl	Escort	Foliar Spraying and Parks	Minimal	NA	>150
tribenuron methyl	Express	Parks	Minimal	NA	>1000
triclopyr	Garlon 3A	Foliar Spraying	Minimal	117	400[a]
azafenidin	Milestone	Potential Foliar Spray	Slight	NA	33
sulfometuron methyl	Oust	Shoulder Spraying	Minimal-Slight	13	>148
glyphosate	Rodeo, Round-up	Shoulder & Foliar Spraying, Parks	Slight	38[a]	20 (chinook)
chlorsulfuron	Telar	Foliar Spraying	Minimal	NA	>980 (sheepshead minnow)
clopyralid	Transline	Stump Treatment	Minimal	NA	>100 (for most sensitive species)
2,4-D	Weedar 64	Foliar Spraying	Minimal-Slight	1-100[a]	240

[a] *Toxicity depends on the formulation*

3. Noxious Weed Program

a. Description

Researching, mapping locations, monitoring, and coordinating control of the NYS Department of Agriculture defined noxious weeds. The Department is developing a formal noxious weed program that includes collaborative infestation control/prevention, community education, and information management.

b. Concerns

- Chemical contaminants
- Displacement of native habitat types with noxious weeds.
- Accidentally spreading hog weed or other noxious weeds
- Hogweed

c. Best management practices for CHD will be to:

- Favor physical, mechanical or biological removal of weeds over chemical methods, whenever possible.

- Replant removal areas when erosion is a concern. Use native seeds when practical.
- Work with and fully support NYS DEC's Hogweed eradication program
- Follow best management practices for spraying when chemical methods are employed.
- Return all equipment to the CHD shop and clean all mowing, cutting and excavating equipment and tools with an environmentally safe cleaning solvent following removal of noxious weeds to avoid accidentally spreading them other areas. Water run off from cleaning will run into the separator tank.
- Reference Environmentally Sensitive Zone maps: Shoulder Spraying and Foliar Spraying and Brush Cutting, Mowing, and Tree Removal. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

4. Planting

a. Description

Research, purchase, and placement of plants for miscellaneous beautification and stabilization programs. Roadside areas with chronic sight distance problems are often replanted with low-growing plants. CHD will develop and test native seed mixes to replant areas where vegetation is disturbed.

b. Concerns

- Erosion
- Displacement of native habitat types with noxious weeds.
- Accidental spreading of noxious weeds such as hog weed.

b. **Best management practices for CHD will be to**:

- Select vegetation that is best suited for the given situation, with preference given to local-genotype native plants.
- Utilize planting techniques that minimize the disturbance of soils such as hydroseeding, manual planting, no-till planting and mulching.
- Avoid the unnecessary use of fertilizers that can result in nutrient loading.
- Return all equipment to the CHD shop and clean all mowing, cutting and excavating equipment and tools

with an environmentally safe cleaning solvent following removal of noxious weeds to avoid accidentally spreading them other areas. Water run off from cleaning will run into the separator tank.

- Consult with Environmental Specialist/Botanist to develop appropriate seed mixes.
- Reference Sensitive Area Maps. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

D. BRIDGE MAINTENANCE

Best management practices for bridge maintenance are especially cautious due to the proximity to stream habitat. They are aimed to protect habitat areas and prevent all foreign matter from entering waterways by requiring containment, sound housekeeping practices, minimal removal of materials from stream habitat, and proper timing of activities.

1. Seasonal Bridge and Box Culvert Maintenance

a. Description

All seasonal maintenance of bridge structures, approaches, and box culverts, including sweeping/shoveling debris off of bridge decks, pressure washing deck and rails, brushing, and painting bridge rails. Maintenance and repair of box culverts includes concrete patching of rails.

b. Concerns

- Debris from deck may carry contaminants into water or flood plain.
- Paint may accidentally spill into water or flood plain.
- Loose concrete or form material can fall into water.

c. Best management practices for CHD will be to:

- Make all practical efforts to prevent any material or debris from entering the stream. Any material that does enter the waterway will be removed, if possible.
- Place sweepings from the bridge deck in carts and properly dispose away from bridge.
- Capture paint overspray and contain it with a shield.
- Pressure wash only at times of high water level and only with low volume, high-pressure water.

- Temporarily block deck drains over streams when pressure washing, sandblasting, or scraping structures, to route water off deck and into vegetated areas.
- If pumping is required, use appropriate fish screen on inlets.
- Cease pressure washing if paint is displaced and set up containment to keep paint chips from entering the stream.
- If structures have lead-based paint, bridge crews will consult with the Environmental Specialist to set up appropriate containment processes.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

2. Repair Bridges / Structures

a. Description

General bridge repair activities. Remove and replace deteriorated bridge components such as caps, pilings, posts, rails, wheel guards, decks, and stringers. Repair damaged concrete rails/posts.

b. Concerns

- Debris can fall into water or flood plain
- Sawdust from cutting on pressure treated lumber

c. Best management practices for CHD will be to

- Operate on a scaffold work platform that will catch falling debris and sawdust that might otherwise fall into water or flood plain.
- Coordinate structural repairs that require in-water work with the Environmental Specialist to minimize impacts and secure necessary permits.
- Coordinate with the Environmental Specialist when replacing riprap within the two-year floodplain. (Additional riprap, beyond replacement levels, requires a permit as well. Ensure that all permit requirements are met.)
- Place booms in the water, as necessary, to prevent debris from entering the water.

- Use cofferdams for structural repairs as appropriate.
- Ensure that the active, flowing stream will not come into contact with fresh, plastic concrete.
- If pumping is required, use appropriate fish screen on inlets.
- Dispose of refuse material in an approved manner.
- Prohibit use of creosote or “Penta” treated wood for permanent structures.
- Consider the use of bioengineering solutions when installation of riprap is needed, where practicable.
- Make every attempt to incorporate fish passage solutions and enhancements with major repairs (i.e. adding roughness, reducing velocities), as coordinated with The Environmental Specialist.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

3. Drift Removal / Channel Clearance

a. Description

Removal of drift material and channel clearance are performed to protect in-water structures from hazardous debris. Wood and debris are removed from pilings and piers. On rare occasions, gravel deposits that cause detrimental flow and currents around pilings and piers, or that change the channel alignment to threaten headers or embankments are cleared and redistributed downstream.

b. Concerns

- Activity can temporarily increase turbidity
- Wood debris that may be creating habitat would be removed
- Destruction of spawning habitat

c. **Best management practices for CHD will be to**:

- Only interfere with drift and gravel beds after consulting with appropriate environmental authorities.
- Evaluate the need for gravel deposit removal on a case-by-case basis and follow NYS DEC and Army Corps of Engineers permit processes. Removal should only occur after due consideration of all environmental issues via the appropriate legal

channels. Whenever necessary consult with the Environmental Specialist regarding permits and agency coordination.

- Minimize amount of material removed.
- Allow wood to float free of bridge to perhaps lodge and create habitat elsewhere.
- Repair and restore riparian areas temporarily impacted by machinery during drift removal. Long-term access for drift removal will be coordinated with the Environmental Specialist.
- Perform channel clearance during non-fish run periods as per the ODFW In-Water Work Timing Guide.
- Reference Sensitive Area Maps. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

4. Metal Guardrail Maintenance, Construction, & Inspection

a. Description

Construction, maintenance, repair, and inspection of metal guardrail and posts. All new construction is contracted outside of CHD.

b. Concerns

- Erosion

c. Best management practices for CHD will be to:

- Use caution to control the dispersal of excess soil and gravel.
- In unstable situations, areas downslope from guardrail replacement will be protected with erosion control measures (i.e. sediment fences).
- Inform outside contractors of CHD best management practices.
- Reference Sensitive Area Maps. Examine your work area on this map, and in person, and determine if there are any "caution" areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

E. BUILDING / FACILITY MAINTENANCE

1. Shop Maintenance

a. Description

Miscellaneous routine maintenance performed on buildings, structures, and facilities such as septic tank maintenance, steam cleaner area cleanup and maintenance, oil separation tank, etc.

b. Concerns

- Site runoff into adjacent creeks or wetland areas

c. Best management practices for CHD will be to:

- Take necessary precautions to contain any chemicals used to prevent their release into the environment.
- Provide oil and sediment control on outfalls, and if practical on catch basins and drains closer to the source.

2. Grounds Maintenance

a. Description

General yard maintenance activities such as lawn mowing, weeding, spraying, pruning, cleanup, etc.

b. Concerns

- Disposal of material
- Chemical runoff into the adjacent creeks or wetland areas

c. Best management practices for CHD will be to:

- Dispose of yard debris at a mulch pile. The mulch is processed and reused by homeowners.
- Minimize drift by spraying on calm days.
- Use herbicides in accordance with EPA labels.
- Maintain a 25 foot spray buffer from any watercourses.
- Dispose of empty herbicide containers in accordance with EPA guidelines.
- Have booms and diapers available in case of spill.
- Maintain a record-keeping system that documents the date, amount of pesticide applied location of application, and temperature and wind-speed at the beginning and end of application.
- Refuel equipment a minimum of 50 feet from watercourses.

- Reference Environmentally Sensitive Zone maps: Shoulder Spraying and Foliar Spraying. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

F. FLEET MAINTENANCE

1. Vehicle Washing

a. Description

Vehicles are washed on concrete pads in the CHD shop:

1) Vehicles are washed with water only (no detergent) and the water runs to an oil/water separator. The separator is emptied by Safety-Kleen annually.
2) Vehicles are pressure washed (sometimes with soap) and the wash water is collected in oil/water separator. The separator is emptied by Safety-Kleen annually

b. Concerns

- Sediment
- Oil & grease
- Biochemical oxygen demand in water discharged to creek

c. Best management practices for CHD will be to:

- Complete routine maintenance checks of all components of the water system to ensure proper operation at all times.
- Clean shop drainage trough bimonthly, or as needed.
- Keep the water maze clean.

2. Vehicle Maintenance

a. Description

General maintenance and repair of town vehicles includes adding fluids. Work is performed at town shops.

b. Concerns

- Chemical storage
- Oil/Chemical spills
- Disposal of materials

c. Best management practices for CHD will be to:

- Avoid putting equipment in usage prior to repairing oil leakage.
- Perform field maintenance at least 100 feet from watercourses.
- Store chemicals at town the shop with proper containment.
- Carry supplies for spill containment (diapers, rice ash, etc.).
- Dispose of materials in an approved manner.
- Maintain a low tolerance for oil leakage on equipment.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

G. PARK MAINTENANCE

Note: The Highway Department does not currently maintain any of the Town Parks. This Section has been included as a guide to contract mowers who do maintain the Town Parks

1. Parks and Property Mowing

a. Description

Mowing of developed and undeveloped park land. Specific project and/or property mowing activities utilizing a tractor mounted mechanical mower. Parks are trim mowed, leaving 3-4 inches of vegetation and undeveloped field parks are rough mowed, leaving 6-8" of vegetation. No cutting occurs in riparian areas

b. Concerns

- Total Suspended Solids

c. Best management practices will be to:

- Avoid mowing at the within 100' of riparian areas.
- Refuel equipment a minimum of 50 feet from watercourses.

2. Water Systems Maintenance

This section is not currently applicable. It has been added in the event of future need.

4. Trail and Path Maintenance

This section is not currently applicable. It has been added in the event of future need.

5. Yard and Facility Maintenance

Note: facility and yard maintenance at the Town of Conesus Highway Department Property

a. Description

Weed-eating, spreading bark dust, repairing traffic barriers, cleaning parking lot, pavement markings, fence repair, removal of vandalism and litter pick-up.

b. Concerns

- Litter
- Dust
- Paint
- Sewage

c. Best management practices for CHD will be to:

- Pick up litter several times a week during the open seasons of spring and summer.
- Operate leaf blowers when there is sufficient moisture to minimize dust.
- Minimize painting activities.
- Picnic tables are removed in the winter and painted, as needed, at town shops.
- Refuel equipment a minimum of 50 feet from watercourses.
- Dispose paint and cleaning solution properly. Pump out restroom tanks annually, or more if needed, and send to a local municipality for treatment.

6. Tree Maintenance and Removal

a. Description

Pruning and removal of trees for public safety. Also includes tree planting.

b. Concerns

- Erosion
- Loss of shade

c. Best management practices for CHD will be to:

- Remove hazardous trees that are within 100 feet of a trail; otherwise they are left for habitat.
- Maintain shade trees along watercourses, unless those trees are a hazard to the public. If a tree providing shade or bank stabilization within 100 feet of a watercourse is determined to be a hazard that must be removed, tree removal will be coordinated with the Environmental Specialist.
- Mature trees (over 12-inch dbh) that are removed from riparian areas will be replanted at a 2:1 ratio within the same watershed. Conesus Highway will consult with the Environmental Specialist to ensure the trees are planted in an appropriate area.
- Branches providing shade over waterways will not be pruned unless they pose a hazard to the public.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: Brush Cutting, Mowing, and Tree Removal. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

7. Herbicide Application

a. Description

Spraying chemical herbicides to control and manage vegetation, mostly grasses and broadleaf’s, and remove non-native plants. Spraying usually occurs along gravel trails and to control Himalayan blackberry bushes. Round-up, Escort, Casoron, Norsac, and Crossbow are used.

b. Concerns

- Chemical runoff
- Drift

c. Best management practices for CHD will be to:

- Keep herbicide use to a minimum.
- Apply herbicides with a backpack sprayer or a low ground pressure machine, using lowest effective pressure.

- Apply no herbicides to riparian areas or anywhere in the North Santiam parks.
- Apply no herbicides to walking paths.
- Apply herbicides on calm days and using drift control (No drift Staput).
- Maintain a record-keeping system that documents the amount of pesticide applied, location of application, and temperature and wind-speed at the beginning and end of application.
- Apply bark dust where possible after spraying activities to keep weeds from returning.
- Prior to each season, applicators will collectively review current EPA labels for each chemical to be used to ensure herbicides are being used in accordance with them.
- Require that all herbicide applicators carry a current roadside applicators license. Anyone preparing or mixing herbicide will be licensed as well.
- Reference Environmentally Sensitive Zone maps: Shoulder Spraying and Foliar Spraying. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

H. SPECIAL SERVICE DISTRICTS

Not applicable

I. SURVEYING

1. Surveying

a. Description

Recording the contour, dimensions, position, or other particulars of town land, including locating government corners and right-of-way and construction staking. Sometimes vegetation must be cut back to increase visibility. On occasion, excavation may be required to locate a government corner.

b. Concerns

- Loss of stream shade
- Disturbance to stream banks

c. Best management practices for CHD will be to:

- Avoid cutting any limb that provides shade to a stream or flowing ditch, when possible.
- Leave brush that is cut in riparian areas in place unless the plant is a noxious weed.
- Consult with an Environmental Specialist if mature trees providing shade or bank stabilization within 50 feet of watercourses must be removed to access a government corner or increase visibility. Any mature trees (greater than 12 in. diameter at breast height) that are removed will be replaced at a 2:1 ratio within the same watershed.
- Install erosion control devices when excavating in or near a watercourse.
- Replace any excavated material when surveying work is completed in riparian areas and maintain erosion control devices until vegetation is reestablished either naturally or with hydroseeding.
- Refuel equipment a minimum of 50 feet from watercourses.
- Reference Environmentally Sensitive Zone maps: General Road Maintenance Activities. Examine your work area on this map, and in person, and determine if there are any “caution” areas within your work area. Follow best management practices as indicated. Maps are available through the Highway Superintendent.

Appendix A.

Section I: Erosion and Sediment Control Techniques

For project with > 1 acre disturbance, follow all conditions in the DEC Phase II Stormwater Permit. See the Highway Superintendent or a DEC Environmental Specialist for a copy. Erosion control devices must be regularly inspected and maintained.

Aggregate Construction Entrance	A driveway of coarse aggregate designed to allow removal of soil from equipment tires before entering the public road. Generally used for work in undeveloped sites accessed by paved roads.
Erosion Control Matting	A net of plastic and wood shavings designed to temporarily protect bare soil from raindrop impact.
Straw Bale Sediment Barrier	Straw or hay bale sediment barriers are not recommended by the DEC Stormwater and Erosion Control (Blue Book) Use Sediment Fence
Sediment Fence	Permeable filter fabric staked perpendicular to the ground allowing water to pass, but trapping sediments.
Aggregate Check Dam	A dam of coarse aggregate in roadside ditches designed to produce a slack water condition in the ditch during heavy rains.
Sediment Biofilter Bags	Mesh bags of organic material, usually wood chips, designed to slow water in ditches, allowing sediments to settle.
Temporary Sediment Basin	A temporary pond designed to allow soil to settle out before water is discharged from the site.
Plastic Sheeting	A waterproof membrane designed to protect bare soil on steep slopes where vegetative matter is undesirable.
Seed, Fertilize, and Mulch	A process where seed, inorganic fertilizer, and mulch is applied to protect bare soil and to provide a permanent vegetative cover. Native plant seeds are now being used due to suitability for the climate and low maintenance. Generally all disturbed areas are planted.
Surface Roughening	Includes cat tracks, stair-step, furrows, and grooving immediately prior to seeding and mulching to achieve optimum seed germination and growth.
Ditch Lining Mat	A thick synthetic mat designed to hold soil and allow plant materials to grow through. Used on ditches where long-term erosion is likely due to flow or slope.
Riprap / Armor	A 100-150 mm layer of 150 mm angular rock over riprap geotextile designed to improve the ditch's long-term resistance to erosion without promoting vegetative growth.
Skip Ditching	When cleaning ditches, skip ditching is the practice of leaving sections of the ditch undisturbed, allowing for filtration of sediments through existing vegetation.
Bioengineered Stabilization	The use of natural, native habitat materials to stabilize stream banks
Oil Pillows	Material designed to absorb oil and other contaminants.
Inlet Protection	A filter fabric barrier to water entering a catch basin designed to block larger soil particles.

II. FISH ANDS WILDLIFE PASSAGE AND WILDLIFE PROTECTION PROGRAM

Culvert Remediation

Design new culverts and retrofit existing culverts to perform within the specifications described SUNY ESF standard ”Culvert Fish Passage Improvement”: How to Retrofit/Remediate Existing Culverts That Don’t Pass Fish.”

Stream crossing culverts must:

1. Pass the peak flow required by regulations in a manner that protects the road and culvert.

2. Have water velocities during all periods when listed fish move upstream in the system that is below that allowed for the juvenile fish species present during that period.

3. Have water depths during all periods when listed fish move upstream or downstream that are greater than the minimum allowable for the largest fish for that period.

4. Have entrance (for upstream migrating fish) jump heights during all periods when listed fish move upstream in the system that are less than the feasible entrance jump for the weakest fish species present during that period.

5. Have adequate durability so as to require maintenance at an economically feasible frequency.

from Culvert Hydraulics for Fish Passage, Marvin Pyles (1998).

Initial elements to be considered in the design or retrofit of culverts include:

Fish species:	What are the passage requirements for the affected species?
Life stages:	Does this area provide habitat or passage for adults, juveniles, smolt, fry, or eggs?
Run timing:	When are the affected species present in the stream?
Hydrology:	What are the peak flow and low flow limits?
Hydraulics:	How will the water behave in the culvert and stream? (Velocity, direction, drops, pooling, etc.)
Morphology:	How will the culvert type work with the stream flow, shape, and composition?
Construction:	Which type of culvert is most appropriate? How and when should it be placed? What sort of remediation is needed in the construction area?

III. TRAINING PROGRAM

Employees will be instructed on the elements of this plan, dependent upon their responsibilities with the CHD. The goals of the training program are:

1. To educate our staff on Best Management Practices (BMPs) to avoid possible pollution of the watershed.
2. To educate our staff on the requirements of erosion and sediment control.
3. To interest our staff so they take ownership.
4. When necessary, to modify our practices to enhance our environment.
5. To develop our standards to do so, and to establish what resources we need to stockpile.
6. To establish consistency throughout the township.
7. To provide sufficient training and information that staff members can suggest improvements to the recommended BMPs and other pollution, erosion and sediment control efforts.

Training on Best Management Practices has been divided in to five sections:

Course Contents	**Crews to be instructed**	**Instructor**
Overview, Road Maintenance. Pollution avoidance, Erosion and Sediment Control	All Operators and Crew	The Highway Superintendent and Cornell Local Roads Program
Vegetation Management	All Operators and Crew	The Highway Superintendent and Cornell Local Roads Program
Building and Grounds Maintenance	All Operators and Crew	The Highway Superintendent and Cornell Local Roads Program
Fleet Maintenance	All Operator/mechanics	
Park Operations and Maintenance	TBD	Parks Management

Note: All employees will be instructed to monitor their work activities and observe their work environment for any issues that may potentially threaten the environment or cause potential issues within the Conesus and Hemlock Lake watersheds. If any issues arise, employees are directed to immediately contact the Highway Superintendent or a DEC Environmental Specialist. In emergency situations, where work stoppage is impractical, employees are directed to also determine any short-term remedies for the immediate situation. In non-emergency situations, employees are directed to stop any activities directly threatening the environment and watershed and work with the Highway Superintendent and/or the DEC Environmental Specialist to address the issues.

The training program will be implemented as follows:

- Formal training programs on Best Management Practices will be developed and implemented. Training will be documented in the existing training database. (MS Access database, built by CHD Highway Superintendent, and updated regularly upon receipt of new information) This database provides a record of all formal training and professional development received by each employee. These training sessions, performed by Highway Superintendent and outside consultants, will ensure that employees and staff understands the intent and language of the best management practices.
- The Highway Superintendent will ensure that the funds are budgeted for supervisor training.
- All employees will be provided an overview of wildlife habitat needs, to encourage awareness and provide motivation to CHD employees.
- Operations/field employees (maintenance staff) will receive instruction on the plan, with an emphasis on Best Management Practices, during departmental new-employee orientations.
- The Highway Superintendent will be responsible for instructing sub-contractors on appropriate BMPs.
- Appropriate staff members will attend training (seminars, conferences, workshops) to increase their knowledge of road maintenance, erosion control, hazardous materials spill response and handling, and the National Pollutant Discharge Elimination System Phase II. These staff members will integrate relevant material into future BMP development, maintenance activities, and training of other staff and employees.
- As new information, tools, activities, and educational materials are developed, they will be integrated into the training program. Conesus Highway will actively look for and, when appropriate, develop these new resources.
- New information and improved practices will be covered at quarterly departmental meetings.
- Management, Highway Superintendent, and staff will have direct access to this manual.

IV. MONITORING PROCESS

Field Inspections

During BMP implementation, there will be field inspections of each major construction project to ensure compliance with BMPs and relevant environmental regulations. Additionally, the implementation of each category of BMPs will be inspected annually in the field. Any compliance problems observed during inspection will be resolved during, or shortly after, the inspection. The results of these inspections will be incorporated into the annual report. Complaints regarding PW activities - whether from PW staff, agency personnel or the public, will be investigated immediately, addressed appropriately, and incorporated in the annual report.

Staff allocations

Oversight for monitoring the implementation of BMPs in this report will be the responsibility of CHD Highway Superintendent. The Superintendent, with appropriate staff support, will produce the biannual updates and work with the department employees to ensure that the annual reports are completed and outstanding issues resolved during the course of the year. The Highway Superintendent and all employees will be responsible for implementation of the BMPs in the field.

V. DOCUMENTATION AND REPORTING

Annual Reports and Program Evaluation

Category specific, annual reports on BMP implementation will be produced by the Highway Department working with watershed and DEC authorities. This document will outline any unresolved problems that occurred during the course of the year and describe implementation problems that occurred on a regular basis. These reports will address each of the BMPs individually. In addition to supplying the annual BMP reports, management staff will meet annually to discuss the relevant implementation issues and ways to address potential problems. New technologies, techniques, and design standards will be presented at these meetings. This plan will be updated, as needed, at this time.

These meetings and category specific reports will be summarized in a master document. This document will discuss the particular implementation problems and suggest changes in training and implementation strategies. This document will also evaluate relevant permit applications and progress in the overall watershed protection, erosion and sediment control program (including funding by budget and grant efforts affecting the control of sediment and stormwater run off.

Process for Review

BMP' relating to stormwater quality on Conesus Town Highway's and within the watersheds are subject to change based on the annual review.

APPENDIX B

Conesus Highway Department Fact Sheet

Department Buildings and Facility Stormwater Pollution Prevention Plan (SWPPP)

To comply with federal and state stormwater requirements, Highway Department's, Departments of Public Works, and Recycling facilities must prepare a Stormwater Pollution Prevention Plan (SWPPP).

Before starting the SWPPP, be aware that:

- The SWPPP can be prepared by employees. A professional engineer is not required.
- The same basic information is required in more than one place in the SWPPP and, once accumulated, can be used again.
- Much of the information is based upon observation and common sense.

The major components of the SWPPP are:

- Pollution prevention team;
- Site map;
- Description of potential pollutant sources;
- Measures and controls for stormwater management; and
- Comprehensive site compliance evaluation.

Pollution Prevention Team. Appoint a team of one or more people to develop a Pollution Prevention Plan. In addition, the team is responsible for keeping the Plan current – this means modifying it whenever changes in locations, materials, processes or other activities would render the Plan invalid or inaccurate.

Site Map. The map should locate the site (street boundaries, identifying landmarks) and it should indicate topographic features of the site such as hills and ditches.

Draw or outline the site according to scale on a plain piece of paper or a section of enlarged topographic map. Make the site plan big enough to contain the required information below. Then walk the site during dry weather and locate the following on the yard area of the map:

- All buildings and driveways.
- Loading/unloading areas.
- Each stormwater outfall or drainage ditch that conveys water off-site.
- Each stormwater control measure to reduce pollutants in the runoff.
- Each outdoor activity such as dismantling, draining fluids, etc.
- Places where previous spills or leaks have occurred.
- Storage tanks for gasoline and other engine fluids.
- Vehicle storage areas.
- Parts storage, including batteries, tires and gas tanks.
- Scrap metal storage.
- Other materials or activities exposed to precipitation.
- Drainage patterns.

While walking the site, count the items and record the number, size or amount. Also note if dry weather flows are occurring (they should not be occurring), or if sludges, stains, colors or odors are present on the site. These may be indicators of a leak or other problem.

A second walk around the site during a rainfall will allow you to identify where the rainfall drains for each section of the yard. Drainage patterns must be indicated on the site map. After the storm, revisit areas where stormwater has accumulated and look for color, odor, turbidity, floating solids, suspended solids, foam, oil sheen or other obvious signs of stormwater pollution. The drainage patterns that were just observed will indicate the area where the problem originated. The source should be identified and corrected before filing the Notice of Intent. Compliance with the General Permit implies that stormwater leaving the site will not be polluted.

Description of Potential Pollutant Sources. Much of the information for this description has already been accumulated while developing the site plan. This section includes:

- Drainage and site map
- Inventory of exposed materials.
- Spills and leaks.
- Any existing sampling data.
- Risk identification and summary of potential sources.

Measures and Controls for Stormwater Management.

The Departments Stormwater Management, Pollution Protection and Erosion Control Plan will be used as a guide in the SWPPP and includes:

- Good housekeeping.
- Preventative maintenance.
- Spill prevention and response procedures.
- Inspection.
- Employee training.
- Recordkeeping.
- Non-stormwater discharges.
- Sediment and erosion control.
- Management of runoff.

Comprehensive Site Compliance Evaluation. This evaluation must be conducted periodically and not less than once per year. The evaluation may be conducted after your coverage under the General Permit begins, but must be conducted within one year. This requirement provides a mechanism for ensuring that the facility attains and remains in compliance. A description of the comprehensive site evaluation must be included in the SWPPP and should contain, at a minimum, a record of the following activities:

- Review the SWPPP, BMPs, records and site map.
- Walk the facility to verify compliance.
- Identify existing problems.
- Look for potential problems.
- Determine if BMPs are being implemented and are adequate.
- New sources of pollution should be identified and BMPs should be written.
- Revise the site map and the SWPPP if needed.
- Review monitoring results.
- Include the date and person responsible for the site evaluation.
- Record the findings. This information will be necessary for the annual report.

APPENDIX C

Conesus Highway Department

Use of Capitol Improvement Budget Line for the mitigation of Stormwater caused erosion

In 2008 the Town Board and The Highway Superintendent agreed to move $40,000.00 a year from Highway Maintenance (DA5130.4) to DA5110.4A creating a budget line to be used for Capitol Improvement Projects.

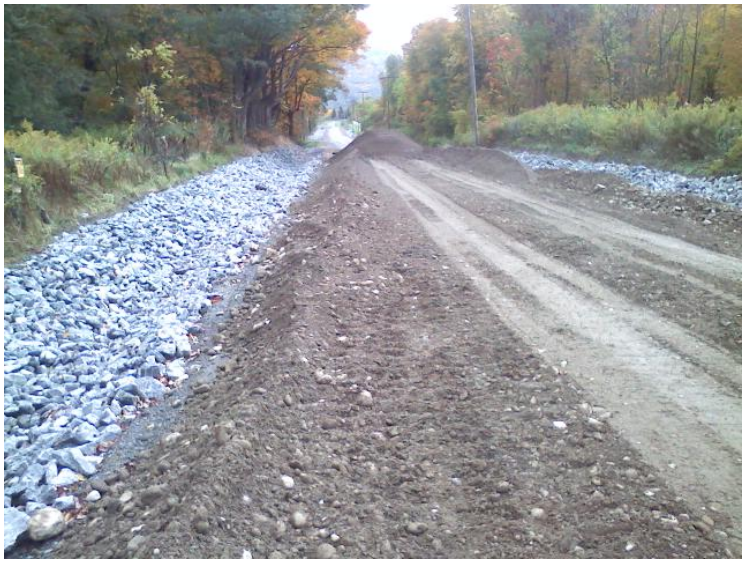
The definition of Capitol Improvement being established as the rebuilding of roadways that are dirt, gravel and/or roadways that has deteriorated and has been subject to repetitive repairs due to erosion and sediment control.

Capitol Improvement Projects will include all necessary proactive actions that will seal road surfaces, armor road ditches and seal road shoulders protecting them from potential erosion.

Capitol improvement funds will/can be used for:

- The purchase and installation of light fill stone, gabion stone and medium and heavy fill stone used to mitigate the flow of storm water and prolong the life of the road being rebuilt.
- The purchase of gravel products that will replace the road base that has been eroded and/or contaminated by sediment and as required for road stabilization.
- The purchase of emulsion/oil products such as medium set (MS-2), rapid set (RS-2) and/or RS/MS 2 P (polymer) that will be used in the application of an oil and stone road surface on road grades that have traditionally been an erosion problem. Normally roads with or on grades at 5% and greater and roadways with shoulder grades that have traditionally eroded resulting in the loss of the gravel driving surface and shoulders. (See bullet below)
- The purchase of 1A, 3/8th, 1 crushed and 1ST (surface treat) chipping stone. (See bullet above). That will be used to seal ALL erodible surfaces – from ditch line to ditch line.
- The purchase of black top and black top products that would be installed to secure and protect road and road shoulders from erosion.

Example of Roadway that is a traditional erosion problem; during spring thaws and/or rain storms the gravel surface material erodes into the road ditches resulting in severe roadway erosion, culvert plugging and actual washouts of road sections during inclement weather.



Example of gravel replacement being tied in with armored ditches. Geo textile fabric will be used under the stone in the ditches and under the gravel in the roadway to further mitigate possible contaminants moving “up” through the materials resulting in erosion.

Example of geotextile fabric being used to protect ditch and roadbed from contamination.

The finished road photo (below) shows how the roadway is stabilized with an oil and stone surface that is applied from ditch line to ditch line leaving no exposed/bare surfaces that would be subject to erosion

2010 Annual Review and Summary:

Highway Department:

The Department continued its commitment towards the improvement of infrastructure while simultaneously following the Stormwater Management, Pollution Prevention and Erosion and Sediment Control Programs.

Through the cooperation and support of the Town Board, the Department continues to budget an average of $10,000 annually for light (gabion) and medium fill stone that is used for culvert inlets, culvert outlets, ditch check dams and armoring ditches.

Through continuous assessment that focuses on yearly planning and/for budgeting for projects that compliment the Departments Highway Plan, the materials required for the use of fill stone check dams and armoring ditches has become more available.

Since the programs implementation in 2007, the Department has armored over 3.5 miles of ditch on roads with a 3 percent (and greater) grade. In addition the armoring ditches, Henderson Hill (in 2007 and 2008) and Bishop Road (in 2009 and 2010) we oiled and stoned the entire roadway from ditch to ditch in order to seal any and all areas of exposed soil and gravel in order to fully curtail all areas of potential erosion.

Employees:

As Highway Superintendent I could not be more pleased with our employees, and in particular our equipment operator's awareness, receptiveness and adherence to the Departments commitment towards Stormwater Management, Pollution Prevention and Erosion and Sediment Control.

The use of limited ditching, check dams and armoring the ditch where necessary has become second nature to our equipment operators. Every effort is made to ensure gravel and dirt are not bladed into the ditches during dirt/gravel road maintenance and operators are keenly aware of working with grades and take all possible actions to mitigate potential storm water and sediment run off.

Employees are extremely careful when refueling equipment handling oil, grease and other potentially hazardous materials to insure that none spills onto the ground.

Areas requiring improvement:

Due to our having a very small crew with a very large workload we often get so busy working on our roads that we fail to take time to ensure our shop floor is clean of oil that has leaked from trucks and equipment as well as old speedy dry that tends to collect in these areas. .

We also need to find time to clean and repaint our fuel and kerosene tanks and waste oil disposal tank. These tanks tend to become "dirty" externally due to the nature of the product stored in them.

We also need to become more aware of old tires that need to be disposed of. We tend to change tires and get right back to work and then forget to properly dispose old tires, rims and the such

These issues are more a matter of management scheduling time to ensure we are doing the right things at all times.

Steve Martucio 20 October 2014
Highway Superintendent