

VERMILLION RIVER WATERSHED JOINT POWERS ORGANIZATION STANDARDS

FORWARD

The following document presents the Standards for the Vermillion River Watershed Joint Powers Organization (VRWJPO).

TABLE OF CONTENTS

FORWARD		i
SECTION 1	POLICY STATEMENT	1
SECTION 2	RELATIONSHIP WITH MUNICIPALITIES AND COUNTIES	3
SECTION 3	DEFINITIONS	6
SECTION 4	FLOODPLAIN ALTERATION STANDARDS	12
	4.1 Policy	12
	4.2 Regulation	12
	4.3 Criteria	12
SECTION 5	WETLAND ALTERATION STANDARDS	14
	5.1 Policy	14
	5.2 Regulation	14
	5.3 Criteria	15
SECTION 6	BUFFER STANDARDS	15
	6.1 Policy	15
	6.2 Regulation	16
	6.3 Criteria	16
	6.4 Exceptions	20
	6.5 Trading	21
SECTION 7	STORMWATER MANAGEMENT STANDARDS	21
	7.1 Policy	21
	7.2 Regulation	22
	7.3 Criteria	23
	A. Construction Erosion Control Criteria	23
	B. Post Construction Water Quality Criteria	24
	C. Runoff Temperature Control Criteria	25
	D. Peak Runoff Rate Control Criteria	26
	E. Runoff Volume Control Criteria	27
	7.4 Maintenance	29
	7.5 Easements	29
	7.6 Covenants	29
	7.7 Waivers	29
	7.8 Trading	30
	7.9 Exceptions	30
SECTION 8	DRAINAGE ALTERATION STANDARDS	31
	8.1 Policy	31
	8.2 Regulation	31
	8.3 Criteria	31
	8.4 Exceptions	32
SECTION 9	AGRICULTURAL STANDARDS	33

SECTION 1: POLICY STATEMENT

The Vermillion River Watershed Joint Powers Organization (VRWJPO) is a watershed management organization as defined in the Metropolitan Surface Water Management Act (Minn. Statutes Chapter 103B). This Act provides the VRWJPO with the power to accomplish its statutory purpose – to protect, preserve and manage surface and groundwater systems within the Vermillion River Watershed (Watershed).

The VRWJPO has adopted a Watershed Plan pursuant to the Acts and Minn. Rules Chapter 8410 in November 2005. This plan identified the following issues facing the Vermillion River Watershed:

- ❖ River flows have increased
- ❖ Surface water quality is threatened or impaired
- ❖ Vermillion River channel/corridor is impacted and sensitive to change
- ❖ Sensitive resources are present and/or threatened or impaired
- ❖ Groundwater quality is threatened or impaired
- ❖ Additional development is expected
- ❖ Data for making informed decisions is limited
- ❖ Public awareness about water resources in the Watershed and appropriate stewardship is limited

The Watershed Plan provides the management goals, policies and objectives that the VRWJPO will use to protect, improve, preserve, and manage water resources in the Watershed, and the need and reasonableness for standards, rules, and ordinances to enforce the objectives of the plan. The following Standards implement the plan's policies, objectives, and actions.

Many of the issues identified in the Plan are interrelated. The most notable interrelationship is the hydrology of the Vermillion River (River) and the potential changes associated with anticipated urban development. Increased river flow has already been documented in several studies. The challenge regarding this issue is in assessing the causes of the increased flow and related water quality factors, including temperature. As discussed in the plan, the increased flow is likely caused by a combination of factors, including: increased precipitation, agricultural drainage practices, runoff from urban development, and expanded wastewater treatment plant discharges. In the future, additional development is expected in the watershed, while wastewater discharges from the Empire WWTP and Elko/New Market will be diverted from the river. Hydrologic modeling has shown that peak flows and volumes will increase if this development is completed without adequate stormwater management. These changes have the potential to further impact flooding, water quality, sensitive resources including wetlands and groundwater.

With an increase in water quantity, there is usually a corresponding decrease in water quality. Water quality is an important amenity in the Watershed – both in terms of surface water and groundwater. Stormwater can carry a variety of pollutants, which can affect downstream areas as well as groundwater through infiltration. Water bodies assessed in terms of water quality and found to be impaired will appear on the Minnesota Pollution Control Agency (MPCA) 303(d) list of impaired waters. For each of these impairments, a total maximum daily load (TMDL) study is required. TMDLs are a process by which the sources of the pollutant are studied and allowable loads are calculated and allocated to each source so that the waterbody will meet its intended use without impairment. Additional pollutants in runoff from expanding development cannot only affect the TMDLs and the ability to address existing impairments, but could create or expand other water quality threats such as temperature affects on aquatic life, particularly trout, which is an important local issue.

The 1999 Vermillion River Assessment found numerous streambank and channel stability problems, and that the stream types along the Main Branch are very sensitive to disturbance, providing high sediment supplies and having a very high potential for streambank erosion. This susceptibility to change, along with riparian community alterations and changes in flow volume and duration, has contributed to channel instability along the river. There are also economic implications due to increased volumes and flow of stormwater. In addition to flooding, unstable stream channels over time have the ability to depress land values, damage property, endanger high value structures and render prime building locations unbuildable, directly impacting the health, safety and welfare of the Watershed. Accelerated streambank erosion can also increase the rate and severity of stream channel migration and resulting property loss. In addition, unstable channels undermine bridges, clog culverts, and can otherwise damage infrastructure, requiring costly repairs and ensuring legal issues for both public agencies and private individuals.

A number of sensitive habitats and communities exist in the watershed including designated trout stream areas, natural communities, rare species, and wetlands. The designated trout stream area was recently expanded and trout populations are sustainable. Trout and their habitats may be threatened by anticipated urban development, if development is completed without appropriate stormwater management. Other sensitive resources, such as natural communities, rare species, and wetlands have been largely depleted or have been substantially altered throughout the Watershed. This has increased the value of remaining natural communities and resources. Wetlands can be impacted directly by development and land disturbing activities; and indirectly by hydrologic and water quality changes associated with development and land disturbing activities. Wetlands provide a variety of functions and values, which are important to the overall character and function of the Watershed.

Cities and residents throughout the Watershed derive their drinking water from groundwater. High nitrates have already been documented in groundwater and wells in the eastern portions of the Watershed

near the City of Hastings. The nitrates have largely been linked to agricultural activities and individual sewage treatment systems (ISTS). Future activities without adequate controls may further impact groundwater quality.

These Standards address the issues identified in the VRWJPO Watershed Plan and protect the public health, safety, welfare and natural resources of the VRWJPO by regulating the improvement or alteration of land and waters within the Watershed to reduce the severity and frequency of high water, to preserve floodplain and wetland storage capacity, to improve the chemical and physical quality of surface waters, to reduce sedimentation, to preserve the hydraulic and navigational capacities of waterbodies, to preserve and protect channels and drainageways, to promote and preserve natural infiltration areas, protect groundwater, and to preserve natural shoreline features. In addition to protecting natural resources, these Standards are intended to minimize future public expenditures and liability on issues caused by the improvement or alteration of land and waters.

The following Standards each begin with a subsection on Policy. The policies, objectives and actions listed in these subsections are either paraphrased or copied from the approved VRWJPO Watershed Plan. These policies, objectives and actions provide the rationale for the Standards as well as other activities and programs of the VRWJPO. The articulated policies, objectives and actions support why the Standards are written the way they are, but it is not the intent of the VRWJPO to accomplish these policies, objectives and actions solely through regulatory Standards.

SECTION 2: RELATIONSHIP WITH MUNICIPALITIES AND COUNTIES

The VRWJPO recognizes that the control and determination of appropriate land use is the responsibility of the Local Units of Government (LGUs; i.e., municipalities and counties). In March 2007, the VRWJPO adopted Rules consistent with these Standards in the event it acquires the authority of a watershed district under Minn. Stat. § 103B.211, Subd. 1(a)(3) .

LGUs are responsible for adopting Local Water Plans (LWP) that implement the VRWJPO Watershed Plan. These Standards were incorporated into the VRWJPO Watershed Plan through a plan amendment enacted in November 2006. Pursuant to Minn. Stat. § 103B.235, the LGUs must complete Local Plans within a time period specified in the Watershed Plan, which is two years from the original Watershed Plan approval. The VRWJPO original Watershed Plan was approved November 2005, thus Local Plans by the LGUs are required November 2007. After approval of the Local Plans the LGUs have 120 days to begin implementing the plans and 180 days to amend their official controls. During the interim period between VRWJPO rule adoption and local government adoption of ordinances and controls (estimated to be between December 2006 and December 2007), the VRWJPO will, in LGUs without Local Water Plans approved by the VRWJPO:

1. Work with local governments to revise/adopt their ordinances and other controls for conformance with the VRWJPO Plan.
2. Assist the townships in developing a model ordinance that incorporates the VRWJPO Standards.
3. Prior to local government issuing a permit, require that local governments submit proposed land alteration plans to the VRWJPO for review and comment, if the plans include any of the following conditions:
 - ❖ Variances from the local government's ordinance that affect surface water or impact surface water/groundwater interactions
 - ❖ Diversions
 - ❖ Intercommunity flows (upon request of adjoining communities)
 - ❖ Project site size of 40 acres or more
 - ❖ Other proposed activities, as identified in the VRWJPO Plan.

The VRWJPO may also conduct other selected project reviews in order to evaluate the implementation of LGU ordinances and permitting programs.

The Cities are the LGUs within their corporate limits. The Townships are the planning and zoning authority in the unincorporated areas in Dakota County; while Dakota County maintains authority for Shorelands, Floodplain and Individual Sewage Treatment Systems in unincorporated areas; both the County and Townships are considered LGUs for unincorporated areas in Dakota County. Dakota County will have authority over Floodplain, Individual Sewage Treatment Systems, and general Shoreland regulations in Shoreland areas. In Scott County, the County is the planning and zoning authority in addition to maintaining authority over Shorelands and Floodplain and Individual Sewage Treatment Systems in unincorporated areas. Thus, in the Scott County portions of the Watershed, cities are the LGUs in incorporated areas and Scott County is the LGU in unincorporated areas.

The VRWJPO envisions three categories of permitting responsibility following adoption of the VRWJPO rules:

- | | |
|------------|--|
| Category 1 | VRWJPO assumes responsibility for all permitting. |
| Category 2 | LGUs assume responsibility for all permitting. |
| Category 3 | LGUs assume responsibility for all permitting, with VRWJPO permitting required if requested by the LGU for plans including any of the following conditions: <ul style="list-style-type: none"> ❖ Variances from the local government's ordinance that affect surface water or impact surface water/groundwater interactions |

- ❖ Diversions
- ❖ Intercommunity flows (upon request of adjoining communities)
- ❖ Project site size of 40 acres or more
- ❖ Projects that are adjacent to or appear to impact major waterways or unique natural resources

Following VRWJPO rule adoption, the VRWJPO will evaluate local government ordinances to determine if they match the VRWJPO Standards. If a local government's ordinances are found to be insufficient (i.e., do not meet the VRWJPO Standards), the VRWJPO will implement a permitting program in that community (Category 1).

If an LGU incorporates the VRWJPO Standards into its ordinances and controls, and demonstrates compliance with the VRWJPO Standards, that LGU will be responsible for permitting (Category 2). The VRWJPO will require LGUs responsible for permitting to submit some proposed land alteration plans to the VRWJPO for review and comment each year through a VRWJPO evaluation program. Land alteration plans with the following conditions are particularly important to the VRWJPO for review:

- ❖ Diversions
- ❖ Intercommunity flows (upon request from adjoining communities)
- ❖ Project site size of 40 acres or more
- ❖ Projects that are adjacent to or appear to impact major waterways or unique natural resources

All land alteration plans that require an amendment to or a variance from the adopted local water plan must be submitted to the VRWJPO for review and approval or denial as prescribed by Minn. Stat. § 103B.211.

The VRWJPO can enforce its permits and Rules as allowed by Minn. Stat. § Chs. 103B and 103D (Category 1 and Category 3). The VRWJPO may also evaluate local government permitting programs. If these evaluations show non-compliance with the VRWJPO's Standards and/or the local government's ordinances, the VRWJPO will implement a permitting program in that local government.

The VRWJPO may establish special subtaxing districts to collect funds to cover its cost to implement the permitting program in communities where the VRWJPO has permitting authority. As an alternative to setting up special subtaxing districts, the VRWJPO will consider collecting permit fees to offset the costs of implementing the permitting program.

The following presents the VRWJPO’s interpretation of how the policies, objectives, and actions in the Watershed Plan should be translated into Standards. LGUs may adopt more restrictive standards. In addition, the VRWJPO recognizes that LGUs have different authorities and different ways of implementing programs that will necessitate language and varying approaches than presented in the following Standards.

SECTION 3: DEFINITIONS

Unless the context clearly indicates otherwise, the following words and phrases shall have the meanings ascribed to them in this section. Unless specifically defined herein, terms used in these Standards shall have the same definition as provided in Minn. Stat. § Chs. 103B and 103D and Minn. R. Ch. 8410 as may be amended, and if not defined there, shall have common usage meaning. For purposes of these Standards, the words “must” and “shall” are mandatory and the word “may” is permissive.

- 3.1 Agricultural Activity** – The use of land for the growing and/or production and wholesale distribution of field crops, livestock, and livestock products for the production of income or own use, including but not limited to the following:
- A. Field crops, including but not limited to, barley, beans, corn, hay, oats, potatoes, rye, sorghum, and sunflowers
 - B. Livestock, including but not limited to, dairy and beef cattle, goats, sheep, hogs, horses, poultry, game birds and other animals, including deer, rabbits and mink
 - C. Livestock products, including but not limited to, milk, butter cheese, eggs, meat, fur, and honey
 - D. Trees, shrubs, bushes, and plants for wholesale distribution
 - E. Sod farming
 - F. Orchards
- 3.2 Agricultural Preserve** – A land area created and restricted according to Minn. Stat. § 473H.05 to remain in agricultural use.
- 3.3 Alteration or Alter** – When used in conjunction with public waters or wetlands, any activity that will change or diminish the course, current or cross-section of public waters, public waters wetlands, or wetlands.
- 3.4 Bankfull Channel Width** – The channel width of a stream, creek, or river at bankfull stage.
- 3.5 Bankfull Stage** – The water level in a stream channel, creek, or river where the flow just begins to leave the main channel and enter the connected floodplain.

- 3.6 Best Management Practices or BMPs** – Techniques proven to be effective in controlling runoff, erosion and sedimentation, including those documented in the Minnesota Construction Site Erosion and Sediment Control Planning Handbook (BWSR, 1988); Protecting Water Quality in Urban Areas (MPCA, 2000); the Minnesota Small Sites BMPs Manual (Metropolitan Council, 2001); The Minnesota Stormwater Manual (MPCA 2005); and, other sources as approved by the VRWJPO: as such documents may be amended, revised or supplemented.
- 3.7 BWSR** – The Minnesota Board of Water and Soil Resources
- 3.8 Buffer** – An area of natural, minimally maintained, vegetated ground cover abutting or surrounding a major waterway, public waters wetland, or wetland
- 3.9 Compensatory Storage** – Excavated volume of material below the floodplain elevation required to offset floodplain fill.
- 3.10 Dakota SWCD** – The Dakota County Soil and Water Conservation District.
- 3.11 Dead Storage** – The volume of space located below the overflow point of a basin, pond or landlocked basin.
- 3.12 Development** – The construction of any public or private improvement project, infrastructure, structure, street or road, or the subdivision of land.
- 3.13 Drain or Drainage** – Any method for removing or diverting water from water bodies, including excavation of an open ditch, installation of subsurface drainage tile, filling, diking or pumping.
- 3.14 Erosion** – The wearing away of the ground surface as a result of wind, flowing water, ice movement or land disturbing activities.
- 3.15 Erosion and Sediment Control Plan** – A plan of BMPs or equivalent measures designed to control runoff and erosion and to retain or control sediment on land during the period of land disturbing activities with standards.
- 3.16 Excavation** – The artificial removal of soil or other earth material.
- 3.17 Fill** – The deposit of soil or other earth materials by artificial means.

- 3.18 Filtration** – A process by which stormwater runoff is captured, temporarily stored, and routed through a filter, vegetated strip, or buffer to improve water quality and slow down stormwater runoff.
- 3.19 Floodplain** – The area adjacent to a water body that is inundated during a 100-year flood.
- 3.20 Floodplain Storage** – The volume of space available for flood waters within the floodplain.
- 3.21 Fragmentation** – The breaking up of an organism's habitat into discontinuous chunks.
- 3.22 Grassed Waterway** – A natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff. (Minnesota NRCS Conservation Practice Standard Code 412, November 2006)
- 3.23 Green Acres** – Real property or real estate that qualifies as agricultural property having agricultural use under the Minnesota Agricultural Property Tax Law, Minn. Stat. § 273.111.
- 3.24 Infiltration** – A stormwater retention method for the purpose of reducing the volume of stormwater runoff by transmitting water into the ground through the earth's surface.
- 3.25 Impervious Surface** – A constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.
- 3.26 Infrastructure** – The system of public works for a county, state, or LGU, including, but not limited to, structures, roads, bridges, culverts, sidewalks, stormwater management facilities, conveyance systems and pipes, pump stations, sanitary sewers and interceptors, hydraulic structures, permanent erosion control and stream bank protection measures, water lines, gas lines, electrical lines and associated facilities, and phone lines and supporting facilities.
- 3.27 Land Disturbing Activity** – Any activity on property that results in a change or alteration in the existing ground cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to, development, redevelopment, demolition, construction, reconstruction, clearing, grading, filling, stockpiling, excavation and borrow pits. The use of land for new and continuing agricultural activities and routine vegetation management activities shall not constitute a land disturbing activity under these Standards.

- 3.28 Landlocked Basin** – A basin that is one acre or more in size and does not have a natural outlet at or below the existing 100-year flood elevation as determined by the 100-year, 10-day snowmelt runoff event.
- 3.29 Local Governmental Unit or LGU** – All cities, counties, and townships lying in whole or part within the Vermillion River Watershed.
- 3.30 Lot** – A parcel of land designated by metes and bounds, registered land survey, or other accepted means and separated from other parcels or portions by said description for the purpose of sale, lease, or separation thereof, as designated by Scott or Dakota County.
- 3.31 Lot of Record** – Any lot that legally existed prior to March 22, 2007, as designated by Scott or Dakota County.
- 3.32 Major Waterways** – Intermittent and perennial streams as shown on Map 1 attached to these Standards.
- 3.33 Meander** – A sinuous bend of a river, stream, or creek
- 3.34 Meander Belt** – The area between lines drawn tangential to the extreme limits of fully developed meanders.
- 3.35 Minimum Impact Alignment** – Is the alignment for a proposed road, street, utility, path or access that creates the smallest area of impact to a buffer, waterway, or floodplain. For activities that cross a buffer, waterway, or floodplain the minimum impact alignment is one that crosses perpendicular, or near perpendicular, to the longitudinal orientation of the buffer, waterway, or floodplain as reasonable to serve to intended purpose of the improvement.
- 3.36 MPCA** – The Minnesota Pollution Control Agency.
- 3.37 Native Vegetation** – Plant species that are indigenous to Minnesota, or that expand their range into Minnesota without being intentionally or unintentionally introduced by human activity, and are classified as native in the Minnesota Plant Database (Minnesota DNR, 2002).
- 3.38 Natural Retention or Detention** – Retention or detention storage of rainwater and runoff that occurs due to the natural landscape and is not artificially constructed.

- 3.39 **Noxious Weeds** – Any plant listed as a prohibited, restricted or secondary weed under Minn. R. Ch. 1505.
- 3.40 **NPDES** – National Pollutant Discharge Elimination System.
- 3.41 **NRCS** – United States Department of Agriculture Natural Resources Conservation Service.
- 3.42 **Ordinary High Water (OHW) Level** – The boundary of water basins, watercourses, public waters, and public waters wetlands and:
- A. The ordinary high water level is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominately aquatic to predominately terrestrial;
 - B. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel; and
 - C. For reservoirs and flowages, the ordinary high water level is the operating elevation of the normal summer pool.
- 3.43 **Outlot** – A parcel of land shown on a subdivision plat as an outlot, as designated by Scott or Dakota County, and designated alphanumerically, (for example – Outlot A.). Outlots are used to designate one of the following: Land that is part of the subdivision but is to be subdivided into lots and blocks at a later date; land that is to be used for a specific purpose as designated in a developer’s agreement or other agreement between the Local Governmental Unit and the developer; or for a public purpose that may have restricted uses such as a buffer.
- 3.44 **Plat** – The drawing or map of a subdivision prepared for filing of record pursuant to Minn. Stat. § Ch. 505.
- 3.45 **Pre-development Condition** – The land use on a site that exists immediately prior to a proposed alteration.
- 3.46 **Public Waters Wetland** – Any public waters wetland as defined in Minn. Stat. § 103G.005, subd. 15a.
- 3.47 **Redevelopment** – The rebuilding, repair, or alteration of a structure, land surface, road or street, or facility that creates less than 1 acre of new impervious surface, and disturbs, replaces, or alters more than 1 acre of existing impervious surface. Note: for the purposes of these Standards, if an

activity creates more than 1 acre of new or additional impervious surface, the activity is considered new development and exceptions in these Standards for redevelopment do not apply to the increased (new) impervious surface exceeding 1 acre.

- 3.48** **Right-Of-Way** – A strip of land occupied or intended to be occupied by a street, railroad, electric transmission line, oil or gas pipeline, water main, sanitary or storm sewer main, or another special use; and dedicated to public use by the recording of the plat on which such right-of-way is established.
- 3.49** **Runoff** – Rainfall, snowmelt or irrigation water flowing over the ground surface.
- 3.50** **Rural Preserves** – Class 2a or 2b property that had been assessed under Minnesota Stat. § 2006, section 273.111, or that is part of an agricultural homestead under Minnesota Stat. § 2006, section 273.13, subdivision 23, paragraph (a),
- 3.51** **Scott SWCD** – The Scott County Soil and Water Conservation District.
- 3.52** **Sediment** – Soil or other surficial material transported by surface water as a product of erosion.
- 3.53** **Sedimentation** – The process or action of depositing sediment.
- 3.54** **Sinuuous** – The curving patterns of a river, stream, or creek.
- 3.55** **Stewardship Plan** – A conservation plan completed for agricultural land and activities accepted by the Dakota SWCD, the Scott SWCD, or the VRWJPO.
- 3.56** **Stream Type** – One of numerous stream types based on morphology defined by Rosgen D. 1996. *Applied River Morphology*.
- 3.57** **Stormwater Pollution Prevention Plan or SWPPP** – A plan for stormwater discharge that includes erosion prevention measures and sediment controls that, when implemented, will decrease soil erosion on a parcel of land and decrease off-site nonpoint pollution.
- 3.58** **Structure** – Anything manufactured, constructed or erected which is normally attached to or positioned on land, including portable structures, earthen structures, water and storage systems, drainage facilities and parking lots.
- 3.59** **Subdivision** – The separation of an area, lot, or tract of land under single ownership into two or more parcels, tracts, or lots.

- 3.60 **USDA** – United States Department of Agriculture.
- 3.61 **VRWJPO** – Vermillion River Watershed Joint Powers Organization.
- 3.62 **Wetland** – Any wetland as defined on Minn. Stat. § 103G.005, subd. 19
- 3.63 **Wetland Conservation Act or WCA** – The Minnesota Wetland Conservation Act of 1991, as amended.

SECTION 4: FLOODPLAIN ALTERATION STANDARDS

4.1 Policy

It is the policy, objective, or action of the VRWJPO to:

- A. Protect the natural function of the floodplain storage areas from encroachment.
- B. Work to maintain no net loss of floodplain storage.
- C. Manage floodplains to maintain critical 100-year storage volumes.
- D. Require Local Plans to include a provision that restricts construction of new structures in flood prone areas.
- E. Require Local Governments to adopt floodplain ordinances that are consistent with Dakota and Scott County water resources plans and ordinances.
- F. Limit floodplain alterations in order to obtain “no net loss” of floodplain storage, and including the preservation, restoration, and management of floodplain wetlands.
- G. Ensure that local governments require compensatory storage for new developments within the floodplain.

4.2 Regulation

No person or political subdivision shall alter or fill land, or build a structure or infrastructure below the 100-year critical flood elevation of any major waterway, public waters, public waters wetland, or other wetland without first obtaining a permit from the appropriate LGU.

4.3 Criteria

- A. Floodplain alteration or filling shall not cause a net decrease in flood storage capacity below the projected 100-year critical flood elevation unless it is shown that the proposed alteration or filling, together with the alteration or filling of all other land on the affected

reach of the waterbody to the same degree of encroachment as proposed by the applicant, will not cause high water or aggravate flooding on other land and will not unduly restrict flood flows.

- B. Where 100-year flood critical elevations have been established, all new structures shall be constructed with the low floor consistent with the minimum elevations as specified in State of Minn. R. Ch. 6120: Shoreland and Floodplain Management; Dakota County Ordinance No. 50: Shoreland and Floodplain Ordinance; or Scott County Zoning Ordinance 71: FP, Floodplain District; as applicable.
- C. Projects involving development, redevelopment, or the subdivision of land, shall establish flood storage, flowage, and drainage easements over areas below the 100-year critical flood elevation of any public water, public waters wetland, or wetland.
- D. Setbacks for floodplain alterations, fill, and new underground utilities, such as water, sanitary and storm sewers and interceptors, gas lines, phone lines, and pipelines; shall be established and used along major waterways. These setbacks shall be established as follows. The exception is for utilities that need to reach or cross the major waterway, provided the minimum impact alignment is used.
 - 1. Where a major waterway has a sinuous flow pattern and a meander belt can be identified, the setback for new underground utilities shall be setback 15 feet from the outer edge of the meander belt.
 - 2. Where a sinuous flow pattern and meander belt are not readily identifiable because of past channel alterations and/or the geomorphology of the channel, the setback established for new underground utilities shall provide for the potential for restoration and a sinuous flow pattern as follows.
 - 3. Where there are existing encroachments that limit full restoration of the stream to the meander widths appropriate for the stream type, the setback shall be 15 feet from the reasonably achievable restoration width for the meander belt given the existing encroachments.
 - 4. Where full restoration is possible, the setback shall be 15 feet from a meander belt width established along the stream reach that has a width 10 times the bankfull channel width. An assessment of the stream type may be completed, and meander belt widths established according to the stream type, in place of using the above 10x formula. Note: the 1999 Vermillion River Assessment Report, or amendments thereto, provide assessment of stream type for many reaches of the Vermillion River and is available at the Dakota SWCD or the Dakota County offices of the VRWJPO.

5. Where buffers are required, above ground encroachments, alterations, and fill shall be consistent with the prohibited and allowed uses and widths specified in the Buffer Standard.
- E. Projects that alter floodplain boundaries, such as bridge crossings and regional ponds that increase upstream high water levels are allowed provided that:
1. The applicant submits easements or other documentation in a form acceptable to the LGU or the VRWJPO demonstrating and recording the consent of the owner of any land affected by the increased high water levels,
 2. The action is consistent with other portions of these Standards; and Local, State and Federal Regulations, and
 3. The upstream impacts, riparian impacts and habitat impacts of the proposed action are analyzed and no detrimental impacts result, or adverse impacts are mitigated.

SECTION 5: WETLAND ALTERATION STANDARDS

5.1 Policy

It is the policy, objective, or action of the VRWJPO to:

- A. Work to achieve no net loss of wetlands in the Watershed.
- B. Replace lost wetlands in the same subwatershed whenever possible.
- C. Provide equal or greater functions and values for lost wetlands at the replacement ratios dictated by the WCA.
- D. Avoid direct or indirect wetland disturbance in accordance with State and Federal requirements and approved local wetland management plans.
- E. Limit the use of high quality wetlands for stormwater management where other alternatives exist.
- F. Avoid fragmentation of natural areas and corridors when feasible and mitigate when unavoidable.

5.2 Regulation

No person or political subdivision shall drain, fill, excavate, or otherwise alter a wetland or public waters wetland without first submitting a wetland application and obtaining the approval from the LGU with jurisdiction over the activity.

5.3 Criteria

- A. Any drainage, filling, excavation, or other alteration of a public waters wetland or wetland shall be conducted in compliance with Minn. Stat. § 103G.245, the WCA, Minn. R. Ch. 8420, Minn. R. Ch. 7050.0186, and regulations adopted hereunder.
- B. In order to preserve WCA exemption or no loss determination, projects involving excavation in Types 1, 2, 6, and 7 wetlands must demonstrate a beneficial purpose, such as habitat or water quality improvements, and minimize loss of wetland function as determined by the VRWJPO or LGU.
- C. A high quality (or equivalent value) public waters wetland or wetland, as determined using the Minnesota Routine Assessment Method (MNRAM 3.0 as amended) or other state accepted functional assessment method for vegetative diversity, may not be used for stormwater management and treatment unless the use will not adversely affect the function and public value of the wetland and other alternatives do not exist.
- D. Wetland replacement/mitigation siting must follow the priority order below:
 - 1. Mitigation on-site
 - 2. Mitigation within the same minor subwatershed as established by the Minnesota Department of Natural Resources for the “1979 Watershed Mapping Project” pursuant to Minnesota Laws 1977, chapter 455, section 33, subdivision 7, paragraph (a).
 - 3. Mitigation within the JPO boundary
 - 4. Mitigation within Dakota or Scott County
- E. Transportation projects shall pursue wetland mitigation projects to the extent practical using the criteria above. However, this does not preclude the use of the BWSR Replacement Program.

SECTION 6: BUFFER STANDARDS

6.1 Policy

It is the policy, objective, or action of the VRWJPO to:

- A. Require buffers, acting as filter strips around every wetland based on its management classification.
- B. Avoid fragmentation of natural areas and corridors when feasible and mitigate when unavoidable.
- C. To protect wetlands from chemical, physical, biological, or hydrological changes so as to prevent significant adverse impacts.

As a means of implementing these policies, the following Objective/Action was also adopted in the VRWJPO Watershed Plan:

Surface Water Quality Objective 3: Action 5 – Implement a program to establish buffers along major waterways, wetland and other water bodies, part 4: Implement the buffer program through cost sharing with other voluntary programs and through requirement of local ordinances that mandate creation of buffers as part of approval of developments and land-disturbing activities.

Based on program evaluation, water quality monitoring, and research the VRWJPO may in the future modify the standards to vary by subwatershed, or to require buffers on existing land in addition to developing land, in order to meet water quality objectives.

6.2 Regulation

For any lot created after March 22, 2007 or the adoption of local ordinances implementing the VRWJPO standards, a buffer shall be maintained around the perimeter of all wetlands, major waterways, and public waters wetlands. The buffer provisions shall not apply to any lot of record as of March 22, 2007 until such lot is subdivided, and as long as the lots created are eligible for Green Acres, Rural Preserves, or Agricultural Preserve. Buffer strip establishment shall apply to all lots of the proposed development as a whole, regardless of whether or not the major waterway, wetland, or public waters wetland is on a specific lot within a proposed development.

6.3 Criteria

- A. Where acceptable natural vegetation exists in buffer areas, the retention of such vegetation in an undisturbed state is required unless approval to replace such vegetation is received. A buffer has acceptable vegetation if it:
 - 1. Has a continuous, dense layer of perennial grasses that has been uncultivated or unbroken for at least 5 consecutive years; or
 - 2. Has an overstory of trees and/or shrubs that has been uncultivated or unbroken for at least 5 consecutive years; or
 - 3. Contains a mixture of the plant communities in 1 and 2 above that has been uncultivated or unbroken for at least 5 years.
- B. Buffers shall be staked and protected in the field prior to construction unless the vegetation and the condition of the buffer are considered inadequate. Existing conditions vegetation will be considered unacceptable if:

1. Topography or sparse vegetation tends to channelize the flow of surface water
 2. Some other reason the vegetation is unlikely to retain nutrients and sediment
- C. Where buffer vegetation and conditions are unacceptable, or where approval has been obtained to replant, buffers shall be replanted and maintained according to the following Standards:
1. Buffers shall be planted with a native seed mix approved by MnDOT, BWSR, NRCS or the Dakota or Scott SWCD, with the exception of a one-time planting with an annual nurse or cover crop. Plantings of native forbs and grasses may be substituted for seeding. All substitutions must be approved by the LGU. Groupings/clusters of native trees and shrubs, of species and at densities appropriate to site conditions, shall also be planted throughout the buffer area.
 2. The seed mix and planting shall be broadcast/installed according to MnDOT, BWSR, NRCS or Dakota or Scott SWCD specifications. The selected seed mixes and plantings for permanent cover shall be appropriate for the soil site conditions and free of invasive species.
 3. Buffer vegetation (both natural and created) shall be protected by erosion and sediment control measures during construction.
 4. During the first five full growing seasons, except where the LGU has determined vegetation establishment is acceptable, the owner or applicant must replant buffer vegetation where the vegetative cover is less than 90%. The owner or applicant must assure reseeding/or replanting if the buffer changes at any time through human intervention or activities.
- D. Where a buffer is required, the LGU shall require the protection of the buffer under a conservation easement, acceptable to the LGU, or include the buffer in a dedicated outlot as part of platting and subdivision approval, except where the buffer is located in a public transportation right-of-way. Buffers shall also be monumented to clearly designate the boundaries of all new buffers within new residential subdivisions. A monument shall consist of a post and a buffer strip sign approved by the LGU.
- E. Alterations, including building, storage, paving, routine mowing, burning, plowing, introduction of noxious vegetation, cutting, dredging, filing, mining, dumping, grazing livestock, agricultural production, yard waste disposal, or fertilizer application are prohibited within any buffer. Periodic mowing or burning, or the use of fertilizers and pesticides for the purpose of managing and maintaining native vegetation is allowed with approval of the LGU. Noxious weeds may be removed and mechanical or spot herbicide treatments may be used to control noxious weeds, but aerial or broadcast spraying is not

acceptable. Prohibited alterations would not include plantings that enhance the natural vegetation or selective clearing or pruning of trees or vegetation that are dead, diseased or pose similar hazards, or as otherwise clarified in Criteria 6.

- F. The following activities shall be permitted within any buffer, and shall not constitute prohibited alterations:
1. The following activities are allowed within both the minimum and average buffer width areas:
 - a) Use and maintenance of an unimproved access strip through the buffer, not more than 10 feet in width, for recreational access to the major waterway or wetland and the exercise of riparian rights;
 - b) Structures that exist when the buffer is created;
 - c) Placement, maintenance, repair, or replacement of public roads and utility and drainage systems that exist on creation of the buffer or are required to comply with any subdivision approval or building permit obtained from the LGU or county, so long as any adverse impacts of public road, utility, or drainage systems on the function of the buffer have been avoided or minimized to the extent practical;
 - d) Clearing, grading, and seeding is allowed if part of an approved Wetland Replacement Plan, or approved Stream Restoration Plan.
 - e) Construction of a multipurpose trail, including boardwalks and pedestrian bridges, provided it is constructed to minimize erosion and new impervious surface, and has an undisturbed area of vegetative buffer at least ten (10) feet in width between the trail and the wetland or public waters wetland edge, or the bank of the major waterway; or where needed to cross the major waterway, the minimum impact alignment is used.
 - f) The construction of underground utilities such as water, stormwater, and sanitary sewers and pipelines provided the minimum impact alignment is used, the area is stabilized in accordance with Criteria 2 above, and setbacks established in the Floodplain Alterations Standard Criteria 4 are met.
 2. The following activities are allowed within those portions of the average buffer width that exceed the minimum buffer width:
 - a) Stormwater management facilities, provided the land areas are stabilized in accordance with Criteria 2 above, and alterations prohibited in Criteria 5 above are upheld.

- b) The area of shallow vegetated infiltration and biofiltration facilities, and water quality ponds not to exceed 50 percent of the pond area, adjacent to wetlands and major waterways may be included in buffer averaging provided the facilities do not encroach into the minimum buffer width, and the land areas are stabilized in accordance with Criteria 2 above, and alterations prohibited in Criteria 5 above are upheld.

G. A wetlands functional assessment for vegetative diversity using the Minnesota Routine Assessment Method (MNRAM 3.0 as amended) or other state accepted functional assessment method, will be completed with each wetland and public waters wetland, delineated for a project and buffers established according to the management classification in the following table.

Buffer Requirement	Exceptional Quality Wetland (Preserve)	High Quality Wetland (Manage 1)	Medium Quality Wetland (Manage 2)	Low Quality Wetland (Manage 3)
Average Buffer Width	50 feet	40 feet	30 feet	25 feet
Minimum Buffer Width	30 feet	30 feet	25 feet	16.5 feet

H. Buffers shall be established adjacent to major waterways as shown and classified on Map 1 attached to these Standards, and as described for the various classifications below.

Classification	Buffer Width Standard
Conservation Corridor	<p>Lower Reach (Vermillion River downstream of Biscayne Avenue) – 150-foot average, 100-foot minimum measured from the edge of the meander belt of the river.</p> <p>Upper Reach (Vermillion River upstream of Biscayne Avenue and South Branch Vermillion River) – 150 foot average, 100-foot minimum .measured from the edge of the meander belt of the river.</p>
Aquatic Corridor – Principal Connector	Required buffer width 100-foot average, 65-foot minimum measured from the edge of the meander belt of the river.
Aquatic Corridor – Principal Connector with Trout Stream Designation	100 foot, no averaging, as required by the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program Permit MN R100001 (NPDES General Construction Permit) issued by the Minnesota Pollutant Control Agency, August 1, 2003.
Aquatic Corridor – Tributary Connector	50-foot average, 35-foot minimum: plus 2 feet for every 1 percent of slope .measured from the edge of the meander belt of the tributary.
Water Quality Corridor	30-foot average, 20-foot minimum where there is a flow path for concentrated surface runoff measured from the center line of the flow path.

6.4 Exceptions

- A. The Buffer Standards do not apply to any wetland or public waters wetland with an applicable exemption listed under the WCA, and to those portions of wetlands that will be filled under approved wetland replacement plans per the WCA.
- B. If a LGU or county has adopted a BWSR or VRWJPO approved Comprehensive Wetland Management Plan (prior to the adoption of VRWJPO Standards), which prescribes required buffer widths for public waters wetlands, wetlands, and major waterways; the applicable ordinance shall govern buffer widths, restrictions, allowable uses, and monumentation until such time as the VRWJPO completes second generation Watershed Plan in 2015. With the 2015 Plans the LGUs need to include standards equivalent to the VRWJPO Buffer Standards, or have updated plans approved by BWSR or VRWJPO.
- C. The Buffer Standards for Water Quality Corridors do not apply to lots of record as of March 22, 2007 that are less than 1 acre in size.
- D. An existing grassed waterway approved by Dakota or Scott SWCD or NRCS and constructed according to USDA Field Office Technical Guide requirements acts as a buffer in a Water Quality Corridor as long as it meets or exceeds the required buffer width and is properly maintained as a grassed waterway. Grassed waterways effectively

acting as buffers technically remain grassed waterways until such time as one of the following applies:

- i. The land use zoning is changed from an agricultural land use to some other use to accommodate development.
 - ii. The dimensions of the grassed waterway have fallen below the required buffer width.
 - iii. The land use designation is changed as managed under a conditional use permit to a non-agricultural use.
 - iv. The land encompassing the grassed waterway has become ineligible for USDA or State cost share to maintain or reconstruct the grassed waterway.
- E. In areas where land use zoning provides for agricultural zoning with one building eligibility per every quarter of a quarter section (40 acres) of property, the buffer requirement will not be exercised until such time as the land use zoning is changed to an alternate use zoning or a higher density of residential building eligibilities. At that time, the buffer requirement will be fully implemented. For all properties seeking a permit under this exemption, the permit will require that setbacks are met which allow the future implementation of the buffer requirement with no impact to permanent structural elements. This exemption does not include transfer of building eligibilities for purposes of clustering.
- F. The Buffer Standards do not apply to existing outlots that received preliminary plat approval in the two year period preceding March 22, 2007 (unless extended by the LGU).
- G. Where a stream meandering project has been completed, the buffer width shall be established by the LGU and shall be no less than the minimum.

6.5 Trading

The VRWJPO anticipates developing a trading system for stream temperature. For buffers this may include consideration of “trading” re-vegetation of streamside areas with inadequate shading or inadequate stabilization for smaller buffer widths, or trading reduced buffer widths in one area for establishing buffers in identified critical areas.

SECTION 7: STORMWATER MANAGEMENT STANDARDS

7.1 Policy

It is the policy, objective, or action of the VRWJPO to:

- A. Manage stormwater to minimize erosion.

- B. Require land disturbing activities including new development and redevelopment (urban/rural), road construction, agricultural protections and other rural uses within the watershed to address impacts on water resources, including cumulative impacts.
- C. Require development plans to consider impacts on local natural resources and corresponding receiving waters.
- D. Minimize impacts of runoff from land disturbing activities including new development and redevelopment (urban/rural), road construction, agricultural production, and other rural land uses, and preserve a viable cold-water fishery by developing stormwater rate and volume control techniques.
- E. Develop standards that include requirements for controlling stormwater runoff by minimizing impervious surfaces, maximizing infiltration, requirements for cities and townships to control stormwater rates crossing municipal boundaries, and creating stormwater storage that addresses not only peak flows for extreme events, but takes into account the cumulative effects of runoff volume, and will include stormwater rate control requirements.
- F. Mitigate and reduce impacts of past increases in stormwater discharge on downstream conveyance systems.
- G. Improve the condition of waterbodies in the watershed included on the MPCA impaired waters [303(d)] list so that these waterbodies can be removed from the list.
- H. Encourage the use of existing natural retention and detention areas for stormwater management to maintain or improve existing water quality.
- I. Minimize water quality impacts (including thermal impacts) from land disturbing activities, new development and redevelopment, (urban/rural), road construction, agricultural production, and other rural uses.
- J. Develop standards that include requirements for water quality treatment, requirements for addressing thermal impacts, address preservation of riparian buffers, potentially include measures for minimizing nitrate contamination in surface waters, and require erosion/sedimentation control practices consistent with the NPDES Phase II Rule.
- K. Ensure stormwater management systems are maintained by establishing Stormwater Management System Maintenance Standards for cities and townships within the watershed.

7.2 Regulation

No person or political subdivision shall commence a land disturbing activity or create new impervious surface, unless specifically exempted below, without first obtaining a permit from a LGU or the VRWJPO (if permitting has defaulted to the JPO) that incorporates and approves a SWPPP for the activity, development, or redevelopment. For sites disturbing less than one acre an alternative consisting of an Erosion and Sediment Control Plan can be used provided that the LGU has adopted an ordinance or

procedure for requiring erosion prevention and sediment control BMPs with building permits for retaining sediment on site.

7.3 Criteria

Stormwater management criteria are presented separately below for construction erosion control, post construction stormwater quality, runoff temperature control, peak runoff rate control, and runoff volume control.

A. Construction Erosion Control Criteria

1. Erosion and sediment control measures shall be consistent with Best Management Practices (BMPs), and shall be sufficient to retain sediment on site.
2. All temporary erosion and sediment controls shall be installed on all down gradient perimeters before commencing the land disturbing activity, and left in place and maintained as needed until removed per LGU approval after the site had been stabilized.. All permanent erosion control measures shall be installed and operational per the design and as required by the LGU.
3. Erosion and sediment controls shall meet the standards for the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program Permit MN R100001 (NPDES General Construction Permit) issued by the Minnesota Pollutant Control Agency, August 1, 2008, as amended, for projects disturbing more than 1 acre.
4. Final stabilization of the site must be completed in accordance with the NPDES General Construction Permit requirements.
5. All on-site stormwater conveyance channels shall be designed and constructed to withstand the expected velocity of flow from a 10-year frequency storm without erosion.
6. If the activity creates more than 1 acre of disturbed area, and the activity is taking place on a site where soils are currently disturbed (e.g., a tilled agricultural site that is being developed), areas that will not be graded as part of the development and areas that will not be stabilized according to the timeframes specified in the NPDES General Construction permit Part IV.B. 2, shall be seeded with a temporary or permanent cover before commencing the proposed land disturbing activity.
7. The VRWJPO or LGUs may at their discretion use turbidity measurements as an indicator of potential non-compliance with these Standards. If NTU measurements taken at a point of site stormwater discharge exceeds 50 NTUs (25 NTU for trout stream) a construction erosion control inspection of the site shall be completed. Enforcement procedures and timeframes to correct non-compliant conditions shall be as specified by

these Standards and NPDES General Construction Permit. Exceedence of the turbidity indicator alone shall not constitute non-compliance. Sampling and analysis of turbidity shall be completed as follows:

- a. Samples should be taken from the horizontal and vertical center of the outflow, and care should be taken to avoid stirring bottom sediments.
- b. A written narrative of site-specific analytical methods and conditions used to collect, handle and analyze the samples will be completed and kept on file, and a chain-of-custody record kept if the analysis is performed at a laboratory.
- c. All sampling shall be collected by “grab samples” and the analysis of these samples must be conducted in accordance with methodology and test procedures established by EPA method 180.1 or Standard Method 2130B.
- d. Other sampling protocol include:
 - ◆ Sample containers should be labeled prior to sample collection.
 - ◆ Samples should be well mixed before transferring to a secondary container.
 - ◆ Sample jars should be cleaned thoroughly to avoid contamination.
 - ◆ Sampling and analysis of receiving waters or outfall below the minimum detection limit should be reported at the detection limit.

B. *Post Construction Water Quality Criteria*

1. Post construction stormwater runoff quality measures shall meet the standard for the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the NPDES General Construction Permit issued by the Minnesota Pollution Control Agency, August 1, 2008, as amended; except where more specific requirements are provided in paragraphs 2, 3, 4, and 5 below.
2. Infiltration/filtration options, and Credits described under Runoff Volume Control Criteria 2, are the preferred approach to satisfying the water quality treatment requirements of the NPDES General Construction Permit in areas that drain to the trout stream portions of the Vermillion River and its tributaries where such areas do not first drain to a waterbody with 10 or more acres of open water.
3. Ponds with permanent wet pools are allowed in areas tributary to the trout stream portions of the Vermillion River and its tributaries where such areas do not first drain to a waterbody with 10 or more acres of open water, if the applicant demonstrates:
 - a. No net increase in the temperature of the discharge for the 2-year 24-hour event with the use of alternative technologies and has met the Volume Control requirements of these Standards; or
 - b. That the wet pond is designed for zero discharge for the 2-year, 24-hour storm; or
 - c. That the Volume Control requirements of these Standards are met and the following measures are used to the extent practical in order of decreasing

preference:

- ◆ The wet pond is designed with a combination of measures such as shading, filtered bottom withdrawal, vegetated swale discharges, or constructed wetland treatment cells that will limit temperature increases.
 - ◆ Additional volume control measures and credits are used beyond that required to meet the Runoff Volume Standards as a means of limiting the frequency and duration of discharges from the pond.
4. The water quality control volumes necessary to meet the NPDES General Construction Permit that are satisfied using infiltration or filtration technologies (filtration only on Type C and D soils) can count toward the Volume Control requirements of these Standards.
 5. Ponds with overflows or outlets located below the seasonally high water table are allowed only where it can be demonstrated that there is a reasonable need for such an outlet to control seepage damage to existing structures.
 6. Redevelopment (see definitions) projects are required to incorporate water quality BMPs to the extent practical.

C. *Runoff Temperature Control Criteria*

1. Post construction runoff criteria for controlling temperature increases relies on the establishment of buffers as specified in the Buffer Standard; the prioritization of temperature sensitive BMPs such as infiltration and filtration, and the designation of temperature sensitive wet pond design approaches in the Post Construction Water Criteria above; and the control of runoff volume increases and the use of credits with the Runoff Volume Control Criteria below. No additional specific temperature criteria are incorporated since these other areas of the Standards emphasize approaches sensitive to runoff temperature. However, since these other areas of the Standards allow flexibility, and in some cases waivers: permit applications involving the creation of one or more acres of new impervious surface in the trout stream portions of the Vermillion River and its tributaries where such areas do not first drain to a waterbody with 10 or more acres of open water;
 - a. Must include a narrative description of the temperature sensitive practices incorporated; and
 - b. The LGU or the VRWJPO may limit or deny waivers, or may require additional runoff temperature BMPs, if the LGU or the VRWJPO finds that the site design does not minimize the potential for runoff temperature increases.

D. Peak Runoff Rate Control Criteria

1. A hydrograph method based on sound hydrologic theory will be used to analyze runoff for the design or analysis of flows and water levels.
2. Runoff rates for proposed activities, and development shall:
 - a. Apply land cover conditions existing in 2005 as the baseline for existing conditions in runoff calculations.
 - b. Not exceed existing runoff rates for the 1-year, and 10-year critical duration storm events.
 - c. Be implemented by LGUs such that peak runoff rate controls keep future peak flood flows for the Vermillion River 100-year, 4-day event from increasing above existing conditions peak flows.
 - d. Numerical flow standards must be adopted at intercommunity boundaries as identified in the VRWJPO Hydrologic Model (2009) for the communities of Burnsville, Apple Valley, Rosemount, Lakeville, Farmington, Hastings, and Elko-New Market. Those communities must apply the VRWJPO Hydrologic Model values in the calibration of their own local hydrologic models.
3. Detention basins with permanent wet pools are allowed in area's tributary to the trout stream portions of the Vermillion River provided Post Construction Water Quality Criteria 3 above is met.

E. *Runoff Volume Control Criteria*

1. Development that creates one acre or more of new impervious surface must incorporate volume control practices into the design sufficient to prevent an increase in the runoff volume for the 2-year 24-hour storm above pre-development conditions unless waived in accordance with Runoff Volume Control Criteria 7. Determination of the necessary control volume to achieve this Standard can be completed by the LGU on a regional basis and included in an approved Local Water Plan, or calculated on a site-by-site basis for each individual proposal.
2. Credits for site design are the preferred methods for meeting the Volume Control requirements and shall be considered prior to the design of infiltration or filtration facilities. The following practices are allowed a ½ inch depth credit per unit area of the practice. To receive the credit, applicants must request the credit and provide calculations and documentation showing that the applicable criteria from the following list are met:
 - a. Natural area conservation credit that gives a credit for the net runoff volume conserved compared to how the property could have been developed.
 - b. Rooftop disconnection credit that allows rooftop areas to not be counted as impervious area in the volume control calculation if roof drainage is directed to pervious areas.
 - c. Non-rooftop disconnection credit that allows small developed areas to not be counted for the volume control calculation if these areas are directed as sheet flow to pervious areas.
 - d. Permeable paver disconnection credit that allows some fraction or percentage of the surface area covered by permeable pavers to not be counted as developed area.
 - e. Grass channel credits that allows some credit for the use of grassed channels instead of lined channels or underground pipe.
 - f. Soil amendment credit that allows for a percentage reduction of impervious surface used in the volume control calculation for each acre of soil area amended. Amendment would include deep or chisel plowing and the addition of an amendment such as compost.
 - g. Green rooftop credit that allows some fraction or percentage of the area of green rooftop to not be counted as impervious surface in the volume control calculation.
 - h. Forest/Prairie cover credit that allows some percentage reduction of impervious surface used in the volume control calculation for each acre of new forest or prairie created.

- i. Reuse of stormwater for irrigation credit that allows for a fraction of runoff volume requirement reduction where stormwater from cisterns or wet ponds is preferentially used for irrigation instead of potable water supplies.

Which credits will be approved and adopted by the VRWJPO and their form are not known as of the date of these Standards.

- 3. The water quality control volumes necessary to meet the NPDES General Construction Permit that are satisfied using infiltration or filtration technologies (filtration only on Type C and D soils) can count toward the Volume Control requirements of these Standards.
- 4. When using infiltration for volume control,
 - a. Infiltration volumes and facility sizes shall be calculated:
 - Using the appropriate hydrological soil group classification and saturated infiltration rate from the table below, or
 - Using documented site specific infiltration or hydraulic conductivity measurements completed by a licensed soil scientist or engineer, or
 - Using the method provided in the Minnesota Stormwater Manual (MPCA 2006) Chapter 12-7, and
 - b. The design shall consider the infiltration rates of the least permeable horizon within the first five feet below the bottom of the infiltration practice, and
 - c. The system shall be capable of infiltrating the required volume in 72 hours.

Hydrologic Soil Type	Infiltration Rate	Soil Texture
A	0.30 inches/hour	Sand, loamy sand, or sand loam
B	0.15 inches/hour	Silt loam or loam
C	0.07 inches/hour	Clay loam, silty clay loam, silty clay or clay

Source: Urban Hydrology or Small Watersheds (SCS, 1986), as amended.

- 5. Constructed infiltration facilities, such as infiltration basins and trenches:
 - a. Can only be used if there is pretreatment of stormwater runoff designed to protect the infiltration system from clogging with sediment and to protect groundwater quality;
 - b. Cannot be used within 400 feet of a municipal or other community supply well or within 100 feet of a private well unless specifically allowed by an approved wellhead protection plan;
 - c. Cannot be used for runoff from fueling and vehicle maintenance areas and industrial areas with exposed significant materials;

- d. Cannot be used on areas with less than 3 feet vertical separation from the bottom of the infiltration system and the seasonal high water table; and
 - e. Cannot be used in Type D soils.
 6. Infiltration areas must be fenced or otherwise protected from disturbance before the land disturbing activity starts.
 7. Volume control amounts may be waived by the LGU or the VRWJPO for sites with predominately Type C and D soils, or where a shallow water table prevents construction of infiltration systems, provided the following are met in order of decreasing preference:
 - a. Credits and site design practices to minimize the creation of connected impervious surfaces are used to the extent practical.
 - b. Underdrains are used to promote filtration instead of infiltration.
 8. Vegetation used in conjunction with infiltration systems must be tolerant of urban pollutants, and the range of soil moisture conditions anticipated.

7.4 Maintenance

All stormwater management structures and facilities shall be maintained in perpetuity to assure that the structures and facilities function as originally designed. The responsibility for maintenance shall be assumed either by the city, township or county with jurisdiction over the structures and facilities, or by the applicant entering into a compliance agreement with the LGU.

7.5 Easements

The applicant shall establish, in a form acceptable to the LGU, temporary and perpetual easements, or dedicated outlots, for ponding, flowage, and drainage purposes over hydrologic features such as waterbodies and stormwater basins. The easements, or outlots, shall include the right of reasonable access for inspection, monitoring, maintenance, and enforcement purposes.

7.6 Covenants

The LGU may require that the land be subjected to restrictive covenants, a conservation easement, or easement in form acceptable to the LGU, to prevent the future expansion of impervious surface and the loss of infiltration capacity.

7.7 Waivers

The VRWJPO or applicable LGU may waive on-site runoff rate, water quality, and runoff volume criteria if an LGU has an approved local water plan that provides for off-site stormwater facilities capable of meeting the Standards.

7.8 Trading

The VRWJPO allows trading for stream temperature on a case-by-case basis. An example of stream temperature trading may include consideration of “trading” re-vegetation of streamside areas with inadequate shading for a lower degree of on-site temperature control with individual developments.

7.9 Exceptions

No permit, SWPPP, or Erosion Control Plan shall be required for the following land disturbing activities:

1. Minor land disturbing activities such as home gardens, repairs and maintenance work.
2. Construction, installation, and maintenance of individual sewage treatment systems other than those on steep slopes (e.g., 6 percent or greater), or on riparian lots within a Shoreland District.
3. Construction, installation, and maintenance of public utility lines or individual service connections unless the activity disturbs more than 1 acre, in which case the Standards apply.
4. A land disturbing activity that creates less than 1 acre of new impervious surface and does not cause off-site erosion, sedimentation, flooding or other damage, and disturbs:
 - a. In a Shoreland District, an area less than 10,000 square feet or less than 100 linear feet of shoreline; provided that the LGU has adopted an ordinance or procedure for requiring erosion prevention and sediment control BMPs with building permits in a manner consistent with the Standards; or
 - b. Outside of a Shoreland District, an area of less than 1 acre provided that the LGU has adopted an ordinance or procedure for requiring erosion prevention and sediment control BMPs with building permits in a manner consistent with the Standards.
5. Installation of any fence, sign, telephone or electric poles, or other kinds of posts or poles.
6. Emergency activity necessary to protect life or prevent substantial harm to persons or property.
7. Minor wetland impacts that have received a “certificate of exemption or no loss” determination by the LGU administering the Wetland Conservation Act, as amended.
8. All maintenance, repair, resurfacing and reconditioning activities of existing road, bridge, and highway systems, which do not involve land disturbing activities outside of the existing surfaces roadway.
9. Construction of any structure on an individual lot in a subdivision with an approved SWPPP, so long as any land disturbing and stormwater management activity complies with the approved plan.

10. Development or redevelopment of, or construction of a structure on, an individual lot with a land disturbing activity that does not cause off-site erosion, sedimentation, flooding or other damage, and create less than 1 acres of cumulative impervious surface.

SECTION 8: DRAINAGE ALTERATION STANDARDS

8.1 Policy

It is the policy, objective, or action of the VRWJPO to:

1. Use existing natural retention and detention areas for stormwater management to maintain or improve existing water quality.
2. Manage stormwater to minimize erosion.
3. Allow outlets from landlocked basins, provided such outlets are consistent with State and Federal regulations, and the downstream impacts, riparian impacts, and habitat impacts of such outlets have been analyzed and no detrimental impacts result.
4. Mitigate and reduce the impact of past increase in stormwater discharge on downstream conveyance systems.
5. Address known flooding/erosion problems that cross jurisdictional boundaries and address other boundary issues and the diversion/alteration of watershed flows in local water plans.
6. Address gully erosion problems in the watershed.
7. Maximize upstream floodwater storage.

8.2 Regulation

No person or political subdivision shall artificially drain surface water, or obstruct or divert the natural flow of runoff so as to affect a drainage system, or harm the public health, safety, or general welfare of the VRWJPO, without first obtaining a permit from the LGU or the VRWJPO.

8.3 Criteria

1. Outlets from landlocked basins with a tributary drainage area of 100 acres or more will be allowed, provided such outlets are consistent with other portions of these Standards, State and Federal regulations, and the downstream impacts, riparian impacts, and habitat impacts of such outlets have been analyzed and no detrimental impacts result. The analysis and determination of detrimental impacts shall:
 - a. Use a hydrograph method based on sound hydrologic theory to analyze runoff for the design or analysis of flows and water levels;
 - b. Ensure a hydrologic regime consistent with the Peak Runoff Rate Control Criteria and the Runoff Volume Control Criteria of these Standards;

- c. Ensure the outlet does not create adverse downstream flooding or water quality conditions, or materially affect stability of downstream major waterways;
 - d. Maintain dead storage within the basin to the extent possible while preventing damage to property adjacent to the basin;
 - e. Ensure that the low floors of new structures adjacent to the basin are set consistent with the Floodplain Alterations Standards; and
 - f. Ensure that proposed development tributary to the land-locked basin has incorporated runoff volume control practices to the extent practical.
2. Artificial drainage, flow obstruction, and diversions involving waterways, public waters, public water wetland, wetlands with drainage areas of 640 acres or more will be allowed provided such alterations or diversions are consistent with other portions of these Standards, State and Federal regulations, and the downstream impacts, riparian impacts and habitat impacts of such alterations or diversions have been analyzed and no detrimental impacts result. Proposals for drainage alterations and diversions shall demonstrate that:
- a. There is a reasonable necessity for such drainage alteration or diversion to improve or protect human health and safety, or to improve or protect aquatic resources;
 - b. Reasonable care has been taken to avoid unnecessary injury to upstream and downstream land;
 - c. The utility or benefit accruing to the land on which the drainage will be altered reasonable outweighs the gravity of the harm resulting to the land receiving the burden; and
 - d. The drainage alteration or diversion is being accomplished by reasonably improving and aiding the normal and natural system of drainage according to its reasonable carrying capacity, or in the absence of a practicable natural drain, a reasonable and feasible artificial drainage system is being adopted.
3. Drainage alterations, diversions, and landlocked basin outlets shall be provided with stable channels and outfall.

8.4 Exceptions

- 1. No permit shall be required where it is demonstrated that the proposed drainage alteration or diversion does not cause off-site erosion, sedimentation, flooding, or other damage.
- 2. The LGU or the VRWJPO may waive the requirements regarding upstream and downstream flooding impacts if the applicant submits easements or other documentation in form acceptable to the LGU or the VRWJPO demonstrating and recording the consent of the owner of any burdened land to the proposed alteration.

SECTION 9: AGRICULTURAL STANDARDS

The VRWJPO approach to Agricultural Standards is voluntary at this time and is based on:

1. Requiring a Stewardship Management Plan as part of being eligible to receive cost share for incentive practices sponsored by the VRWJPO; and
2. Implementation of the State of Minnesota Nutrient Management Plan of 1990 and the Pesticide Management Plan of 2005.

The VRWJPO recognized that the Minnesota Department of Agriculture (MDA) is the lead state agency for most pesticide and fertilizer environmental and regulatory functions (Minn. Statute Ch. 18B and 18C). In accordance with the 1989 Groundwater Protection Act, MDA has developed a strategy for addressing groundwater contamination from agricultural sources. This strategy focuses on promoting new or updated voluntary BMPs. A regulatory approach may be taken, if the implementation of voluntary BMPs is ineffective and BMPs are not widely adopted given a reasonable timeframe for implementation. The processes for responding to fertilizer contamination in the Nutrient Fertilizer Management Plan (NFMP) and the Pesticide Management Plan are slightly different. The NFMP directs the designation of a special BMP promotion area as a standard part of the response process. A pesticide BMP promotion area is an optional process under the PMP. The potential transitional process from voluntary programs to enforceable regulation is outlined in the NFMP of 1990 and the PMP of 2005 as follows:

- ❖ A special BMP promotion area for nitrates or a pesticide BMP promotion area for pesticides may be established.
- ❖ Current agricultural practices and appropriate BMPs are evaluated.
- ❖ BMPs are aggressively promoted and demonstration projects are established.
- ❖ Ground water monitoring is conducted to evaluate BMP effectiveness for at least 4 years for nitrates.
- ❖ BMP adoption and effectiveness reevaluated.
- ❖ If BMPs are not effective and BMP adoption is unacceptable; Water Resource Protection Requirements (WRPRs) may be drafted.
- ❖ Final proposed WRPRs are reviewed by the Legislature.

The VRWJPO plans to adopt the approach developed by MDA as its standard for agriculture for the next five years. During that time period, the VRWJPO will collaborate with MDA, Dakota County and other partners to achieve water quality improvements. As a first step the VRWJPO anticipates developing and implementing a workplan relative to watershed application of the Nutrient Fertilizer Plan and the Pesticide Management Plan, and the promotion of BMPs. After the 5-year timeframe, the Standard will be reevaluated for effectiveness.