



Minnesota Pollution Control Agency

Guidance on What Discharges Should be Included in the TMDL Wasteload Allocation for MS4 Stormwater

November 2011

The following guidance, developed by MPCA's Stormwater Program in conjunction with MPCA's TMDL Program, discusses recommended procedures for addressing wasteload allocations for current or future municipal stormwater discharges regulated under a National Pollutant Discharge Elimination System (NPDES) permit. The guidance clarifies previous policy for setting wasteload allocations for stormwater and will be modified to address new issues as they arise in TMDLs. The guidance provides clarity about existing stormwater discharges that are covered under a NPDES permit and is specific to municipal stormwater discharges (not industrial or construction).

Summary of Guidance

- The Wasteload Allocation (WLA) must include all discharges that originate within a regulated municipality or township and that are to a Municipal Separate Storm Sewer System (MS4) owned or operated by the municipality or township. The WLA may include all future discharges that originate within a regulated municipality or township and that are to a regulated Municipal Separate Storm Sewer System (MS4) owned or operated by the municipality or township.
- For regulated counties, watershed districts, and non-traditional MS4s, the WLA should only include discharges originating within the MS4 or from property owned or operated by the regulated entity.
- Current or future discharges originating outside a regulated municipality or township must be included in the Load Allocation (LA).
- A separate Reserve Capacity cannot be developed for regulated stormwater. Future discharges may be included in the WLA or the Load Allocation (LA).

- Future discharges from MS4s that are currently permitted can be determined using land use plans or similar documents.
- MS4s currently not under permit coverage but that will be under NPDES permit coverage, based on one or more criteria described later in this document, may be accounted for in the WLA. These MS4s should receive individual WLAs.
- Load may be transferred from either the LA or WLA to a WLA. The TMDL should state that the process for transferring load will be consistent with the method used to establish the TMDL.
- Direct discharges from nonpoint sources to an impaired water cannot be regulated under a NPDES permit. However, for purposes of practicality, loads associated with these discharges may be placed into the WLA if they are not easily quantifiable and constitute a small percentage of the total WLA.
- The WLA for stormwater may include discharges from municipal, construction, and industrial stormwater if all industrial and construction stormwater discharges occur within the current or future boundaries of a regulated municipality or township.

Definition of Wasteload Allocation

The Wasteload Allocation (WLA) is the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation (40 CFR 130.2). NPDES-permitted stormwater discharges must be included in the WLA.

Definitions of Regulated MS4s

To understand the basis for making decisions about what should or should not go into the WLA, it is necessary to understand the definition of an MS4.

- 1) An MS4 is any publicly owned or operated separate storm sewer system. An MS4 is not a municipality, township, county, etc. – it is the conveyance system owned or operated by one of those public entities.¹
- 2) Regulated MS4s are those stormwater systems covered under a NPDES permit. MS4s include the following:
 - a) MS4s owned or operated by municipalities – the permit covers any MS4 within the entire jurisdictional area of a regulated municipality;
 - b) MS4s owned or operated by townships – the permit covers any MS4 within the entire jurisdictional area of a regulated township;
 - c) MS4s owned or operated by counties – only MS4s owned or operated by a county within a U.S. Census Bureau Urban Area are covered under permit;

¹ MS4 is often used incorrectly in reference to the public entity that owns a conveyance. For example, Minneapolis may be called an MS4, but this is incorrect. The actual MS4 is Minneapolis' conveyance system. This document applies the term 'MS4' to a conveyance system and the term 'permittee' to the owner or operator of a regulated conveyance.

- d) MS4s owned or operated by a watershed district – only MS4s owned or operated by a watershed district within a U.S. Census Bureau Urban Area are covered under permit;
- e) MS4s owned or operated by MnDOT (Minnesota Department of Transportation) – only MS4s owned or operated by MnDOT within a U.S. Census Bureau Urban Area are covered under permit; and
- f) MS4s owned or operated by a nontraditional entity such as a hospital or university – only MS4s owned or operated by a nontraditional entity within a U.S. Census Bureau Urban Area are covered under permit.

Figure 1 illustrates the seven Urban Areas that occur in Minnesota based on the 2000 U.S. Census. They include the Twin Cities, St. Cloud, Duluth, Rochester, Fargo-Moorhead, Grand Forks-East Grand Forks, and La Crosse-La Crescent metropolitan areas. At the time of this guidance preparation, Mankato was projected to be declared an Urban Area following completion of the 2010 census, but a final determination had not been made.

- 3) It is only the conveyance system owned or operated by the regulated entity that is covered under permit.

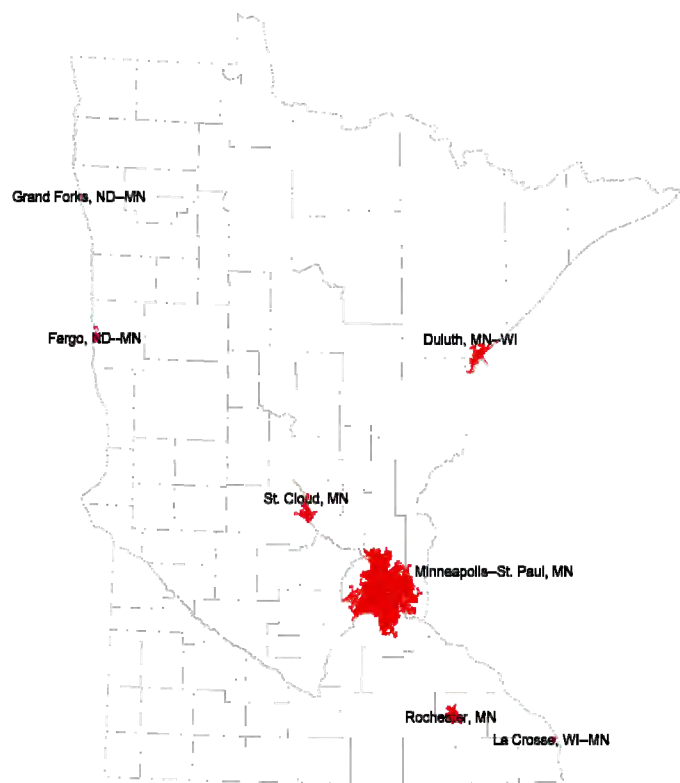


Figure 1: Location of Minnesota's seven urban areas, based on the 2000 U.S. Census.

Definition of Conveyance

Minnesota's MS4 General Permit defines MS4 as a "conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)". This term may lead to

confusion, however, since some of these features may also be classified as waters of the state and therefore protected for compliance with water quality standards. Minnesota Rules 7050.0130 Subp. 2 states "... disposal systems or treatment works operated under permit or certificate of compliance of the agency are not "waters of the state." Therefore, an MS4 cannot also be a water of the state. For example, some ditches are assessed as 2B waters and therefore cannot be MS4s. Any waterbody that could be considered a water of the state should be treated as such and therefore be included in the LA unless the MPCA has made a determination that they are MS4s.

Reasonable Assurances

The issuance of a NPDES permit provides reasonable assurance that the WLAs contained in a TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available waste load allocation" in an approved TMDL. The MPCA's Phase 1 permit requires Minneapolis and St. Paul to estimate pollutant loadings and compare those to any applicable WLA. The Phase 2 General Permit, to be re-issued in 2011 or 2012, will likely require permittees to demonstrate progress toward meeting any applicable WLA.

MS4 permits only cover water in a publicly-owned or -operated conveyance. Discharges to conveyances are not covered under permit. However, the conveyance must be in compliance with requirements of the permit, which means discharges to a public conveyance must also be managed. Municipalities and townships have necessary regulatory tools to control discharges to their system, although these authorities vary widely from location to location. Factors influencing local regulatory authority include local zoning ordinances, county regulations, and ditch law. Other MS4 permittees typically do not have these regulatory authorities.

Discussion of Guidance

MPCA policy on setting WLAs, drafted in 2008, provides a general framework for addressing WLAs, but experience with TMDLs indicated the policy needed updating. The following guidance provides clarification for the policy. The guidance will need to be updated as new TMDLs are developed and new issues arise.

Which loads should go into the WLA?

When assessing which pollutant loads should be placed into the WLA, it is necessary to clearly define what is covered under a NPDES permit. Minnesota's Phase 2 General Permit states "Only your [the permittee's] system and the portions of the storm sewer system that are under your operational control are authorized by your permit" (<http://www.pca.state.mn.us/publications/wq-strm4-51.pdf>). MPCA interprets this to mean an MS4 is responsible for ensuring its discharge is in compliance with water quality based effluent limits (WQBELs), since the discharge is within the publicly owned or operated conveyance system. The permittee must take appropriate measures to bring its MS4 into compliance. All discharges originating within a regulated MS4 or to a regulated MS4 from property owned or operated by the regulated MS4 are put into the

WLA. Other discharges to an MS4 are also put into the WLA when the permittee has regulatory authority to control the discharges.

TMDLs may narrowly define the sources that are part of the WLA. For example, individual pipes can receive a WLA. This typically will not be the case because there is rarely adequate information to assign WLAs this narrowly. WLAs, however, should be defined as narrowly as data allow. Table 1 summarizes the above discussion for the general case where contributing sources are not narrowly defined. For a list of MS4s covered by permit, see <http://www.pca.state.mn.us/water/stormwater/stormwater-ms4.html>.

MS4	Discharges originating within the conveyance system	Nonpoint discharges originating within a regulated municipality or township and to a regulated conveyance	Nonpoint discharges not to a regulated conveyance	Discharges originating outside an MS4 jurisdiction
Municipality	Yes	Yes	No	No
Township	Yes	Yes	No	No
Watershed District	Yes	No unless MS4 discharges to a regulated municipal or township MS4	No	No
County	Yes	No unless MS4 discharges to a regulated municipal or township MS4	No	No
Nontraditionals	Yes	No unless MS4 discharges to a regulated municipal or township MS4	No	No

Table 1: Summary describing whether pollutant loads should or should not be placed into the WLA. For cases in which a nonpoint discharge is to a regulated conveyance, the load is assigned to the municipality or township in which the discharge originates, unless the overall WLA is categorical. This table does not consider future discharges.

Table 1 reveals several complexities. These are discussed below. The flowchart in Figure 1 illustrates a decision process. Examples are provided in Appendix A.

- Any discharge originating within a regulated stormwater conveyance must go into the WLA. This includes publicly owned or operated pipes and includes discharges originating on publicly-owned or –operated land (e.g. a city street, sidewalk, park or state college) that enter a regulated conveyance. Ditches should not be considered stormwater conveyances unless the MPCA has made a

determination that a particular ditch is a conveyance. Nonpoint discharges to ditches should therefore be in the LA.

- Point and nonpoint discharges that originate within a regulated municipality or township and that enter the regulated conveyance system must be in the WLA. This includes stormwater runoff from permitted construction projects, permitted industrial facilities, private lawns, agricultural land use, parkland that is not publicly owned, etc. Construction or industrial discharges covered under a NPDES permit may receive a separate WLA or be incorporated into an overall WLA that includes municipal discharges if the construction and industrial discharges are to a regulated MS4.
- If a discharge originating outside a stormwater conveyance is to a watershed district, county, or nontraditional MS4 (including MnDOT), and the discharge does not originate on property owned by one of these entities, the discharge should go into the LA unless the discharge ultimately is to a regulated conveyance owned by a municipality or township and the discharge originates within the township or municipality. In this case, the township or municipality receives the WLA, except for the conveyance(s) owned by a watershed district, county, or nontraditional MS4.
- Nonpoint discharges that are not to a regulated conveyance system must be in the LA unless the discharge will, in the future, be to a regulated conveyance owned by a municipality or township. If a future discharge originates within a municipality or township, the discharge may be part of the WLA for the municipality or township. This future discharge may also be part of the LA provided the TMDL report describes a process for transferring pollutant load from the LA to the WLA. The next section discusses future discharges.
- Discharges originating outside the jurisdiction of a municipality or township will be in the LA unless the area will eventually be under the jurisdiction of the municipality or township and the discharge will be to a regulated municipality or township conveyance, in which case the discharge may be part of the WLA. An example would be a regulated city that annexes adjacent land that is not currently covered under a NPDES permit. This load may also be placed in the LA provided the TMDL report describes a process for transferring pollutant load from the LA to the WLA. The next section discusses future discharges.

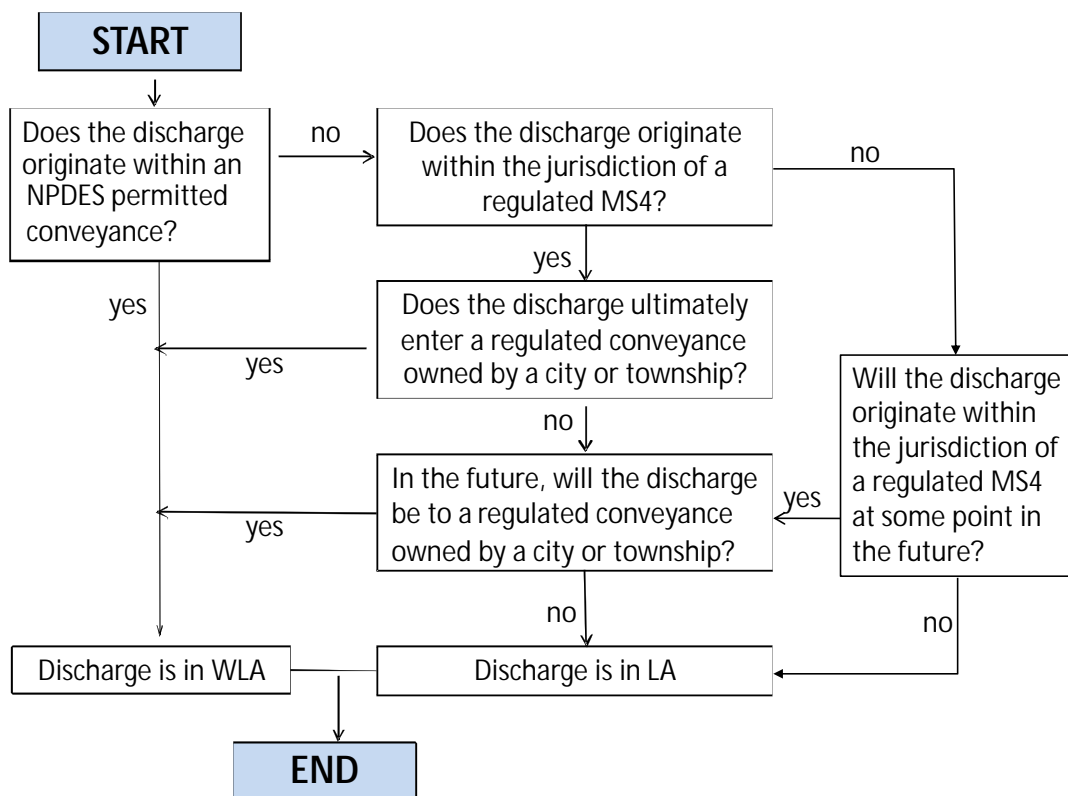


Figure 1: Flowchart for determining whether a discharge goes into the WLA or the LA.

Addressing Future Regulated Discharges in the WLA

Stormwater discharges (pollutant loads) that typically go to the LA can be included in the WLA if the discharge will eventually be regulated under a NPDES permit. Accounting for future growth in this manner potentially provides incentives to MS4s to implement Low Impact Design (LID) Best Management Practices (BMPs) as development occurs. Incorporating future loads into the WLA also reduces the likelihood that pollutant load will have to be transferred from the Load Allocation (LA) to the WLA which can be problematic if the TMDL report does not clearly establish the procedure for LA to WLA transfers. **NOTE:** Per EPA's recent memorandum discussing WLAs for regulated stormwater, LA to WLA transfers are now acceptable without having to re-notice the TMDL, provided the TMDL report explains how the transfer will occur.

MPCA does not advocate individual terms for Reserve Capacity. Reserve Capacity should be built into the WLA or LA. Generally, the WLA will be a lumped total that may include future loads. However, the TMDL can break the WLA down into current and future loads. This is not recommended because it makes accounting of loads difficult.

This guidance on future loads applies to nonpoint discharges that currently do not end up in a regulated conveyance system. There are six cases where loads normally put into the LA could be put into the WLA (see below). Note that in all cases, the TMDL

report must either assign a WLA to all entities that will come under permit coverage or describe how load transfers will occur once growth occurs. For example, a regulated municipality that will annex a non-regulated township may be given additional WLA to account for growth. If the municipality includes a state highway and a state college, the highway and college should either be given WLAs or the TMDL must describe the mechanism by which WLA will be transferred from the municipality to the other MS4s (see the section on Transfer of Loads).

1. **Extension of an existing conveyance system within a regulated MS4.** For example, an area of a city that is currently served by private septic systems and that does not have a stormwater conveyance system may be retrofitted and served by a municipal sewer and stormwater system. Once this occurs, the discharge will be to a regulated MS4. City development and land use plans can be used to make this determination.
2. **Annexation.** Many townships adjacent to the Twin Cities Metro area, and possibly other metro areas in the state, will be partly or fully annexed by a municipality over the next several years. Some of these townships are not currently covered under a NPDES permit. Once annexation occurs by a regulated municipality, any discharge to the municipality's conveyance will be covered under permit and therefore could be part of the WLA. Orderly annexation plans and to some extent comprehensive land use plans can be used to make this determination.
3. **A non-regulated MS4 meets criteria for NPDES designation.** Designation criteria are discussed in Minnesota Rule Chapter 7090. For example, the cities of Morris and Thief River Falls both exceeded 5000 in population but were not identified as discharging to an impaired water when the MS4 General Permit was re-issued in 2006. In 2008, discharges from these cities were considered to occur to newly listed impaired waters, so the cities would now meet designation criteria.
4. **A non-regulated MS4 will meet criteria for NPDES designation.** An example is a city that does not meet designation criteria, discharges to an impaired water, and is projected to meet designation criteria in the future. Prior to release of the 2010 census data, examples included rapidly growing cities in the Twin Cities Metro Area, such as Rogers and Albertville.

NOTE: This guidance document specifically pertains to MS4 stormwater. There may be a situation where a non-regulated point source is identified that is not an MS4 but discharges stormwater. These discharges may be regulated but not under an MS4 permit. These discharges would receive their own WLA. An example would be a pipe that discharges stormwater from a non-regulated, private facility directly to a receiving water.

5. **Expansion of an Urban Area following a new census.** Urban areas typically expand with each census. New MS4s may be incorporated into the Urban Area as a result. An example is Mankato, which may be designated as an Urban Area following the 2010 census. If this occurs, Skyline and portions of Lime Township, Mankato Township, Blue Earth

County, Nicollet County, MnDOT (outstate), and Mankato State University within the Urban Area will come under permit coverage.

6. **Designation through petition process.** This occurs when MPCA designates an MS4 for permit coverage through the petition process under Minn. R. ch. 7090. There are several criteria that can be used to designate an MS4 through the petition process, including potential for rapid growth, ineffective water quality control(s), or an approved TMDL that requires reduction of a pollutant. Specific MS4s likely to be designated through the petition process cannot be predicted. TMDL writers and Project Managers should consult with Stormwater Program staff to determine if it is appropriate to assign a WLA to an MS4 based on the potential for designation through the petition process.

WLAs assigned for situations 3 through 5 should be individual. WLAs for situation 6 must be individual. Assigning loads for these situations represents an over-allocation based on current land use. The MS4s essentially grow into the allocation. For situations where discharges to impaired waters trigger designation for permit coverage, MPCA's stormwater program will not designate new MS4s unless they are given a WLA in a U.S. EPA-approved TMDL.

Appendix B contains a list of MS4s that meet designation criteria but have not yet been designated for permit coverage and a list of MS4s that are likely to become mandatory MS4s as a result of a change in an Urban Area. Appendix B is based on 2010 census data.

Addressing Future Regulated Discharges in the LA

A memo by the U.S. EPA, dated November 12, 2010, indicates that transfers from the LA to the WLA are acceptable (http://www.epa.gov/npdes/pubs/establishingtmdlwla_revision.pdf). This represents a change in U.S. EPA guidance. When LA to WLA transfers are allowed, there is no need to identify future growth areas and account for them in the TMDL. LA to WLA transfers are appropriate for addressing any future growth situation. However, the TMDL report must clearly define the process of such a transfer.

Transfer of Loads

Both LA to WLA and WLA to WLA transfers are acceptable. In no case can the overall TMDL change unless the TMDL is resubmitted to the U.S. EPA.

We strongly recommend all TMDL reports describe a process for transferring either LA or WLA to WLA regardless of the likelihood that such transfers will occur. Example language is provided below. Note item 5, which also addresses future point sources that are not MS4s but discharge stormwater.

It may be necessary to transfer load in the future. This can occur in the following situations.

1. *New development occurs within a regulated MS4. Newly developed areas that are not already included in the WLA must be given additional WLA to accommodate the growth. This will involve transferring LA to the WLA.*

2. *One regulated MS4 acquires land from another regulated MS4. Examples include annexation or highway expansions. In these cases, the transfer is WLA to WLA.*
3. *One or more non-regulated MS4s become regulated. If this has not been accounted for in the WLA, then a transfer must occur from the LA.*
4. *Expansion of an urban area encompasses new regulated areas for existing permittees. An example is existing state highways that were outside an Urban Area at the time the TMDL was completed, but are now inside a newly expanded Urban Area. This will require either a WLA to WLA transfer or a LA to WLA transfer.*
5. *A new MS4 or other stormwater-related point source is identified and is covered under a NPDES permit. In this situation, a transfer must occur from the LA.*

Load transfers will be based on methods consistent with those used in setting allocations in the TMDL. In cases where WLA is transferred from or to a regulated MS4, the permittees will be notified of the transfer.

The last paragraph in this language indicates the method(s) of transfer will be consistent with the method(s) used to establish the allocations in the TMDL. It is preferred that this methodology be included in the above language. For example, the paragraph may state the following:

Load transfers will be based on the method used in setting allocations in the TMDL. Load transfers will therefore be based on the land area requiring WLA and an assumption that loading rates are equivalent for all land uses in the watershed. For example, conversion of 10 percent of the watershed from LA to WLA will result in a 10 percent decrease in the LA and a 10 percent increase in the WLA. In cases where WLA is transferred from or to a regulated MS4, the permittee(s) will be notified of the transfer.

Practical Application

When feasible, it is best to accommodate future loads in the WLA rather than transfer load from the LA. Having growth accounted for in the WLA does not require re-visiting a TMDL every time growth occurs. Placing future loads into the WLA also may provide a better estimate of ultimate loading for an MS4, which in turn may allow permittees to better plan for future loads and future growth.

When determining WLAs using the above guidance, TMDL authors should use the best available data and professional judgment in making determinations about what goes into a WLA. When appropriate, TMDL authors should consult with Stormwater program staff to ensure consistency across all TMDLs. Some factors that may influence the amount of rigor involved in determining the WLA include the following.

1. **Limited opportunities for retrofitting.** In many cases existing nonpoint discharges to a regulated MS4 can be addressed more effectively than retrofitting. An example would be implementation of BMPs in agricultural areas that discharge to an MS4. Also, in a future load situation, it may be more effective to implement

BMPs in newly developing areas than in built-out areas. In these cases, it may be best to place as much load into the WLA as possible.

2. Comprehensive land use planning and orderly annexation plans. Many MS4s have comprehensive land use plans and orderly annexation plans. The level of detail in these varies. Plans that illustrate conveyances, often as roads, are more reliable than those that do not. Local planning authorities will often be able to provide insight into likely ownership of conveyances. In the case of annexation, a more conservative approach may be best. Annexation typically will not occur for several years. If an MS4 is provided extra load to accommodate growth that will not occur for many years, the permittee may be discouraged from implementing stormwater management practices.
3. GIS may provide valuable insight into drainage patterns within an MS4. Road and DNR catchment coverages may be useful.

In general, we want to avoid a situation where there is a gross over- or under-allocation. An under-allocation occurs when insufficient load is included to accommodate future growth. This forces a permittee to reduce loading from the MS4 within its' existing area and limits flexibility in choosing BMPs. An over-allocation occurs when too much load is included in the WLA. In this situation, permittees can easily demonstrate they meet their WLA, which results in the permittee not having to implement any BMPs even though their current discharge may contribute to a water quality violation.

Case studies can be found at MPCA's stormwater webpage

(<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/stormwater-management/stormwater-programs-and-impaired-waters.html?menuid=&redirect=1>).

Compliance Schedules

Permittees are required to include compliance schedules in their permits when a TMDL will not be achieved within the current five-year permit cycle. The TMDL may define the time frame for achieving the TMDL, considering projections of future loads.

Basing Future Loads on Land Use

It is typically not practical to base future loads on knowledge of where stormwater runoff flows. Future loads should therefore be estimated using land use information. In general, areas projected to be urbanized (medium and high density residential, commercial, industrial) can be placed into the WLA because they will likely be served by a regulated MS4. Other land uses, such as agriculture, can be placed into the WLA if there is adequate information to indicate these discharges will be to a regulated MS4 owned or operated by a municipality or township. Some land uses are difficult to assign to the WLA or LA. Appendix C provides a guide for determining how to assign loads based on projected land use.

Definitions

Conveyance - a system designed for transporting stormwater runoff and owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, or stormwater. Often referred to as an MS4.

Development Plan - a comprehensive plan that guides future land use

Metropolitan Urban Service Area (MUSA) - the area in the seven counties in which the Metropolitan Council ensures that regional services and facilities, such as sewers and major highways, are provided or planned. Currently there is an approved 2020 MUSA line.

MS4 (Municipal Separate Storm Sewer System) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

1. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, Storm Water, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management Agency under section 208 of the CWA (33 U.S.C. § 1288) that discharges to waters of the United States;
2. Designed or used for collecting or conveying Storm Water;
3. Which is not a combined sewer; and
4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR § 122.2.

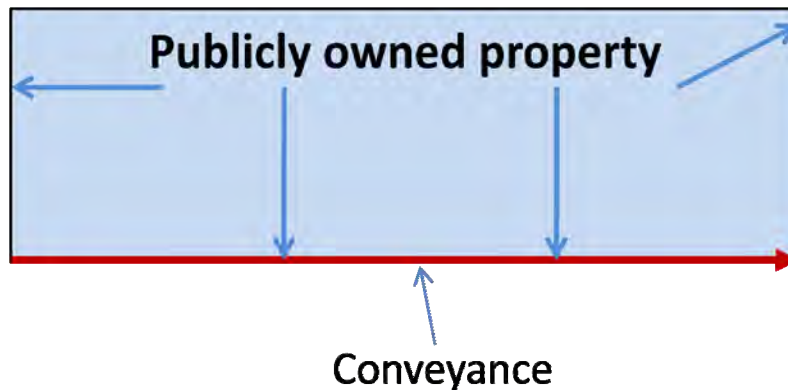
Regulated Stormwater – stormwater discharges covered under a National Pollutant Discharge Elimination System (NPDES) permit

Urban Area (or Urban Cluster) – a core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile.

Appendix A - Examples

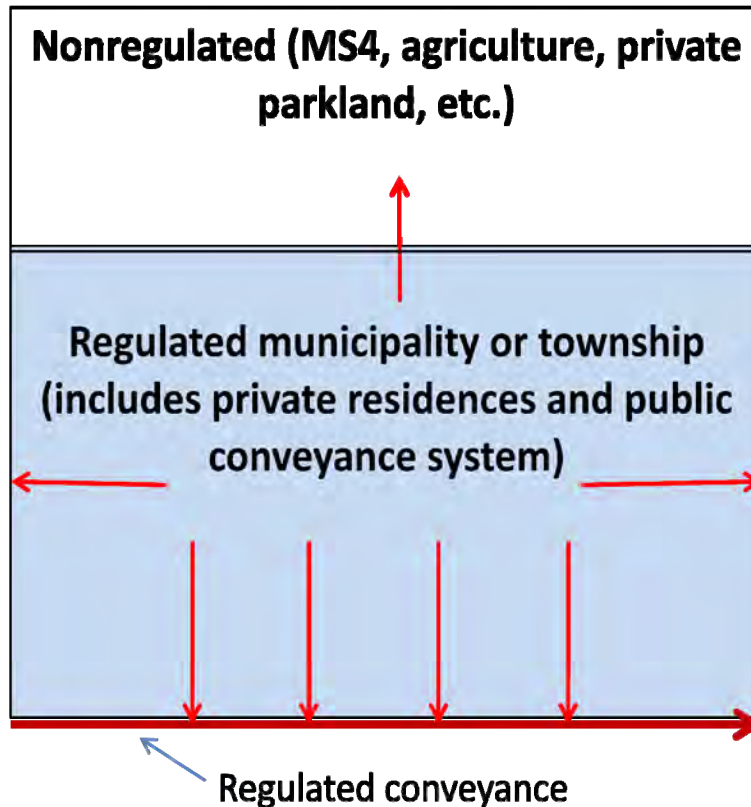
Example 1

In the example below, any discharge that originates within the publicly owned property and enters the regulated conveyance is part of the WLA. If the discharge is off the property and not to the regulated conveyance, it should go into the LA. However it may be impractical to clearly identify where stormwater discharges, so it will generally be acceptable to place the entire area below into the WLA. In the example below, the publicly owned property may be a city park, the grounds of a state hospital, or a municipal parking lot.



Example 2

In the example below, all discharges that originate within the municipality or township and end up in the MS4 (conveyance) should be put into the WLA. Discharges from private property within the municipality or township that do not enter the regulated conveyance should be placed into the LA but may be placed into the WLA if the discharges will be to a regulated MS4 at some point in the future. Discharges from publicly-owned property that do not enter the regulated conveyance should go into the LA but may be placed into the WLA as a matter of practicality. Discharges originating in the non-regulated area should go into the LA unless the area will be regulated in the future.

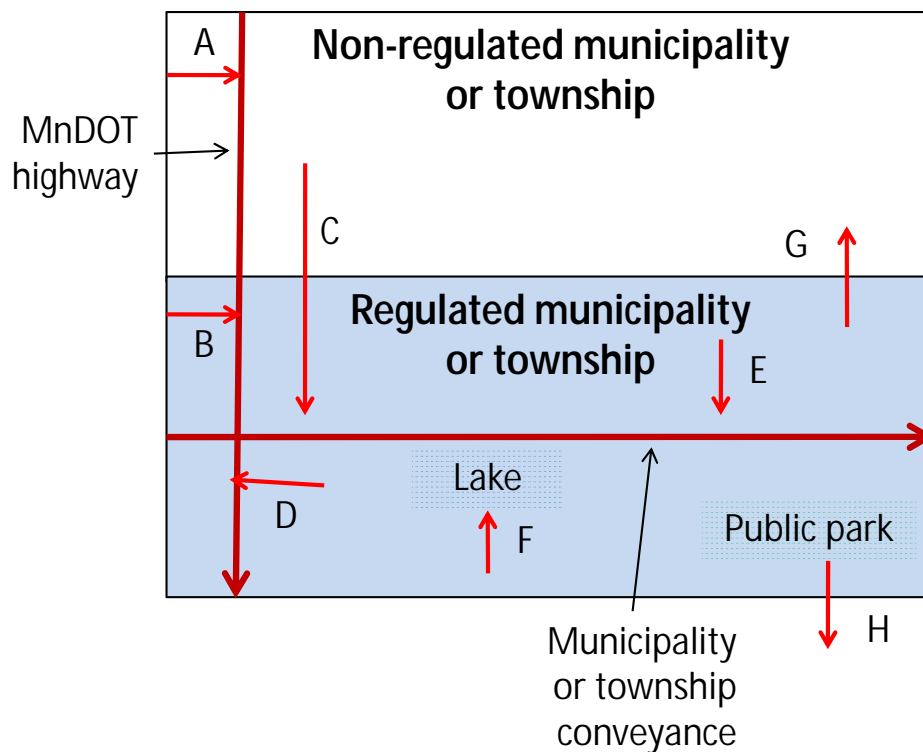


Example 3

The diagram below illustrates a more complicated situation. In cases such as these, MPCA staff should be consulted if there is confusion. Note that the discharges are considered only at the point of origin, that is, additional loads along a flow arrow are not considered. In the diagram below, the following loads should be addressed in the manner described below. Although discharges D, F and G should properly be placed into the LA, they are often placed into the WLA in TMDLs. This is partly because of the difficulty in assigning specific loads to specific conveyances.

- Discharge A – The discharge originates outside a regulated area. Even though the discharge eventually reaches a regulated conveyance, put the discharge into the LA unless the area will eventually be covered under a NPDES permit in the future. Note that MnDOT has no authority to regulate the discharge to its conveyance.
- Discharge B – The discharge originates on private property but within a regulated municipality or township. It reaches a regulated conveyance owned or operated by MnDOT and eventually reaches a regulated conveyance owned or operated by a municipality or township. Put the discharge into the WLA for the municipality or township. The municipality or township has authority within its jurisdiction to control discharges to its system.
- Discharge C – The discharge originates outside a regulated municipality or township. Even though the discharge reaches a regulated conveyance, it goes into the LA unless the area will eventually be covered by a NPDES permit.

- Discharge D – Assume the discharge originates from private property within the jurisdiction of a regulated municipality or township. The discharge ends up in a regulated conveyance owned or operated by MnDOT, which has no authority to control the discharge. The load goes into the LA unless there is information to demonstrate the discharge will eventually be to a regulated township or municipality.
- Discharge E – The discharge is to a regulated conveyance owned or operated by the municipality or township. Although the discharge originates within private property, put the load into the WLA.
- Discharge F – The discharge originates from private property within a regulated municipality or township. The discharge is to a waterbody (e.g. lake in this case) and does not enter a public conveyance. The load should be assigned to the LA.
- Discharge G – The discharge originates from private property within a regulated municipality or township but is not to a regulated conveyance. Put the load into the LA unless the discharge is from land owned or operated by the municipality or township or if the non-regulated area will eventually be covered under a NPDES permit.
- Discharge H – The discharge originates from a publicly owned park and does not reach a publicly owned or operated conveyance. The discharge should be in the LA but may be placed in the WLA if the park is owned or operated by the municipality or township.



Appendix B - New candidates for NPDES coverage.

MS4s in an Urban Area must be covered under a NPDES stormwater permit². MS4s outside of urbanized areas that have been designated by the MPCA for permit coverage under Minn. R. ch 7090 must be covered under a NPDES stormwater permit. MS4s designated by rule are cities and townships with a population of at least 10,000 and cities and townships with a population of at least 5,000 and discharging or having the potential to discharge to valuable or polluted waters. The list of mandatory and designated MS4s is found at

<http://www.pca.state.mn.us/water/stormwater/stormwater-ms4.html>. However, the list will change with time as a result of at least four conditions.

- a. When EPA's 303(d) list of impaired waters is released every two years, MS4s with a population greater than 5000 based on the latest U.S. Census and that have been assigned a WLA in an approved TMDL are eligible for designation. The list of MS4s that should be given WLAs if found to be causing or contributing to a water quality impairment includes the following:
 - i. Albertville
 - ii. Belle Plaine
 - iii. Corcoran
 - iv. Crookston
 - v. Delano
 - vi. International Falls
 - vii. Isanti
 - viii. Jordan
 - ix. Kasson
 - x. Lake City
 - xi. Morris
 - xii. New Prague
 - xiii. Rogers
 - xiv. St. Francis
 - xv. Stewartville
 - xvi. Thief River Falls
 - xvii. Virginia
 - xviii. Wyoming
 - xix. Zimmerman
- b. There may be municipalities in Minnesota that had populations less than 5000 following the 2010 U.S. Census, are rapidly growing and are likely to meet designation criteria in the next census. Developing a comprehensive list of these cities is impossible since it would require projecting populations. Consequently, TMDL writers and Project Managers should consult with appropriate stormwater staff during the early stages of a TMDL, preferably when the TMDL workplan is submitted, to identify cities that are likely to eventually require permit

² Permit coverage can be waived in some situations. See 40 CFR 122.32(d),(e).

coverage. Many of these cities are located on the Metro Area fringe or in the rapidly growing corridor between the Twin Cities and St. Cloud. Appropriate discharges for these MS4s may be placed into the WLA. Since these MS4s are currently not under permit coverage, the WLA only becomes applicable once the MS4 comes under permit coverage. Consequently, these MS4s should receive individual WLAs or be included in the LA. If included in the LA, the TMDL should describe a process for transferring load once the entity becomes regulated. A partial list of cities will be developed and modified as TMDLs are developed. This partial list has been started based on current population and considerations for growth. Discharges from the following MS4s could be given individual WLAs:

- i. Becker
 - ii. Cannon Falls
 - iii. Princeton
 - iv. Rockford
- c. Every ten years following the Census, the U.S. Census Bureau delineates Urban Areas. Currently, there are seven Urban Areas wholly or partially in Minnesota. MS4s that are part of Urban Areas are automatically covered under the Phase 2 permit as mandatory MS4s. It is nearly impossible to project the boundaries of Urban Areas. However, it appears likely that the City of Mankato and the surrounding area will be designated an urban area in 2010. Consequently, TMDLs should incorporate appropriate discharges from the following MS4s into a WLA:
 - i. Skyline
 - ii. Portions of Lime Township within the likely urban area
 - iii. Portions of Mankato Township within the likely urban area
 - iv. Portions of MnDOT (outstate) within the likely urban area
 - v. Portions of Blue Earth County within the likely urban area
 - vi. Portions of Nicollet County within the likely urban area
 - vii. Mankato State University
- d. The MPCA may designate any MS4 for permit coverage through petition. See <http://www.pca.state.mn.us/water/stormwater/stormwater-ms4.html>. MPCA's stormwater program will likely not designate MS4s for permit coverage based on impaired water considerations unless requested to do so by other permittees identified in the TMDL study area and if the TMDL demonstrates that the non-regulated MS4 is an important contributor to the water quality impairment and permitting is required to provide reasonable assurances that the TMDL will be met.

Appendix C – Met Council Land Use Classifications

Land Use Classifications

The following land uses are discussed in Met Council's various planning documents. The list contains a mixture of land use. For each item in the list, a short statement discussing the relationship with the WLA is included in italics.

1. 01 - Single Family Residential: Includes all individual, free standing single family housing (including manufactured housing). Within the MUSA (metropolitan urban service area) and in residential developments outside the MUSA, the lot lines visible on the photos were used for determining residential land use boundaries. Where residential developments were visibly not complete, the undeveloped area was classified as vacant. For the scattered, rural residential areas outside the MUSA, only the portion of lots used for residences was assigned to the residential category. *MPCA comment: This includes a wide range of land uses, some of which may be agricultural. Within the MUSA, it is generally appropriate to place this in the WLA.*
2. 02 - Multi-Family Residential: Includes all multiple dwelling units such as duplexes, bungalows, twin homes, townhouses, quad homes and apartment complexes. Also, buildings that are primarily apartments that have some group dining facilities are included (however, not those buildings that fit the census definition of 'Group Quarters', such as, dormitories, nursing homes or medical care facilities). *MPCA comment: It will generally be appropriate to place this in the WLA, particularly within the MUSA.*
3. 03 – Commercial: Includes all retail sales, services, hotels and motels, health care facilities (e.g. medical and dental clinics and offices and medical laboratories, but not hospitals and nursing homes) and recreational services that are predominantly privately owned and operated for profit (e.g. theaters, bowling alleys, equestrian ranches) except golf courses. Hospitals and nursing homes are included in the 'Public & Semi-Public' category and golf courses are in the 'Parks & Recreation Areas' class. For large shopping centers, only actual developed areas are shown. This is done so that over the years new development can be shown (e.g. restaurants or gas stations on perimeter roads). *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
4. 04 – Industrial: Includes the Federal Standard Industrial Classification (SIC) codes 14 through 50. This includes manufacturing, transportation, construction, communications, utilities, and wholesale trade. Also included in the 'Industrial' category are some horticultural specialty land uses (e.g. large greenhouses that do not sell to the public). As of 1997, gravel pits and quarrying have been placed in a new category called 'Extractive' and all publicly owned areas that are predominantly of industrial nature have been placed in a new category called 'Public Industrial.' *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
5. 05 - Public Semi-Public: Includes the land under and adjacent to schools (public and private), hospitals, churches, cemeteries, ice arenas and all facilities of local, state and federal governments, including convalescent homes, mental institutions and penal facilities maintained by any level of government. All lands within the

- boundaries of these institutions and facilities are included in this category. However, in certain instances unused lands were included in the 'Public & Semi-Public Vacant' category (e.g. the University of Minnesota's property in Rosemount, or part of the land adjacent to the Minnesota Veterans Home in Hastings). *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
6. 06 – Airports: All types of airports. *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
 7. 07 - Parks & Recreation Areas: Includes all parks (city, regional and state), wildlife refuges, playgrounds, zoos, gun clubs, golf courses and similar areas (this includes DNR wildlife management areas and scientific and natural areas). Parks are delineated using their actual boundaries taken directly off comprehensive plans, park maps or county parcel data. *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
 8. 08 - Vacant/Agricultural: Includes land identifiable from aerial photos as open and in agriculture uses, other uses where no buildings are present or unused land. Please note that indoor horticultural specialty land uses (the growing of nursery stock, flowers, seeds, sod and food crops in large greenhouses that do not sell to the public; and large concentrations of agricultural buildings (e.g., barns, sheds and silos)) are included in the 'Industrial' category where they can be delineated. Where residential uses are on larger lots, the residential land use category may include only the house and mowed portion of the parcel, with the rest being placed in this Vacant and Agricultural category. *MPCA comment: This contains a mixture of land uses. Agricultural areas should be placed into the LA. Vacant areas should be placed into the appropriate category based on the adjacent land use.*
 9. 09 - Major Four Lane Highways: Includes only the major interstate freeways and 4 lane divided highways with rights-of-way of 200 feet or greater. Also included in 1997 are all 4-lane roads with a Metropolitan Council functional class designation of 'Principal Arterial.' *MPCA comment: These will generally be owned and operated by MnDOT. Regulated portions (within urban areas) should be included in the WLA.*
 10. 10 - Open Water Bodies: Includes lakes of 5 or more acres and rivers 200 feet or wider. *MPCA comment: Water bodies are typically excluded from the WLA and LA.*
 11. 11 – Farmsteads: Includes only that portion of land that encompasses the buildings on the farmstead. *MPCA comment: Place into the LA.*
 12. 12 – Extractive: New category in 1997. Includes all gravel pits and quarries. *Placed into appropriate category based on surrounding land use.*
 13. 41 - Industrial Parks not Developed: Parcels of land in a designated (named) industrial park but not developed. *MPCA comment: Placed into appropriate category based on surrounding land use.*
 14. 51 - Public & Semi-Public Vacant: A government or university owned parcel of land that is undeveloped (e.g. part of arsenal site in Arden Hills or the University property in Rosemount). *MPCA comment: If it is not a regulated MS4, place into the appropriate category based on surrounding land use.*

15. 54 - Public Industrial: New category in 1997. Includes all publicly owned areas that are predominantly of an industrial nature (e.g. waste water treatment plants, city bus garages, and Dept. of Transportation sand and salt stockpiling areas). In the past, some of these have been coded as industrial and others as public. *MPCA comment: If it is not a regulated MS4, place into the appropriate category based on surrounding land use.*
16. SINGLE FAMILY RESIDENTIAL: Land used exclusively for residential purposes and containing a single dwelling unit. Includes the following four codes:
17. 111: FARMSTEAD: Land that encompasses the single family residential dwelling and associated buildings of a farm. Associated buildings of a farm may include buildings used for animal husbandry (barns, chicken coops, grain solos, etc.) along with accessory uses, provided that such accessory uses are incidental to the agricultural activities. *MPCA comment: Place into the LA.*
18. 112 - SEASONAL/VACATION: Land meeting the general definition of single-family residential containing a dwelling unit occupied seasonally or used as vacation property. *MPCA comment: Generally will be in the LA.*
19. 113 - SINGLE FAMILY DETACHED: Land meeting the general definition of single-family residential and detached from any other residential dwelling unit (i.e., with open space on all four sides, includes detached town homes). *MPCA comment: Generally will be in the WLA.*
20. 116 - MANUFACTURED HOUSING PARK: Land meeting the general definition of Single-Family, Detached dwelling and designated for the placement of multiple manufactured housing structures. Note: this classification IS NOT used for an individual manufactured home. *MPCA comment: Generally will be in the WLA.*
21. MULTIFAMILY RESIDENTIAL: Land used exclusively for residential multiple-family dwellings containing a building or multiple buildings. Includes the following two codes:
 - a. 114 - SINGLE FAMILY ATTACHED: Land meeting the general definition of multifamily residential containing two or more attached dwelling units (share a common wall, each with primary ground floor access to the outside regardless of the number of units or size. Ex: Attached townhouse, double bungalow, triplex, etc. *MPCA comment: Generally will be in the WLA.*
 - b. 115 - MULTIFAMILY: Land meeting the general definition of multifamily residential containing two or more attached dwelling units, one or more not having primary ground floor access to the outside. Ex: Apartment building, condominiums or elderly housing - with minimal assisted living facilities - with a main entrance for all residents. *MPCA comment: Generally will be in the WLA.*
22. COMMERCIAL Includes the following two codes:
 - a. 120 - RETAIL AND OTHER COMMERCIAL: Land used for the provision of goods or services. This category is for general sales and services that comprise the vast majority of establishments typically associated with commercial land use. This category is used as the default for commercial/retail land uses. Examples include: store, restaurant, hotel,

bank, Metrodome, Excel Center - large commercial stadiums or arenas, mini-storage, Canterbury Downs, YMCA, seasonal RV-Parks, American Legion, thrift stores (e.g. Goodwill, Salvation Army, etc) skeet clubs and outdoor gun ranges (large game/gun clubs (80+ acres) should be Park, Recreation or Preserve). *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*

- b. 130 – OFFICE: Land used predominantly for administrative, professional, or clerical services. Examples are: law offices, accounting firms, clinics (but not hospitals), and veterinarian clinic or hospital. *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*

23. INDUSTRIAL Includes the following two codes:

- a. 151 - INDUSTRIAL AND UTILITY: Land containing manufacturing, transportation, construction companies, communications, utilities (including water towers) or wholesale trade. This category includes publicly owned industrial lands (e.g. waste water treatment plant, warehouses (including commercial warehouses), automotive junk yards, and some special horticultural uses (large greenhouses that do not sell to the public). *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
- b. 153 – EXTRACTIVE: Land containing extractive industry (Ex: Gravel Pits and Quarries). *MPCA comment: Placed into appropriate category based on surrounding land use.*
- c. 160 – INSTITUTIONAL: Land used primarily for religious, governmental, educational, social, cultural or major health care facilities - patients with overnight stays (Ex: hospitals, schools, places of worship, cemeteries, city halls, museums, and county and state fairgrounds). *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*

24. MIXED USE: Land containing a building with mixed uses. Includes the following three codes:

- a. 141 - MIXED USE RESIDENTIAL: Land containing a building with multiple uses in combination with at least a residential unit(s). Examples include: Galtier Plaza in St. Paul, a mom & pop bakery with living space above it. *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
- b. 142 - MIXED USE INDUSTRIAL: Land containing a building with multiple uses in combination with industrial uses and NO residential units. An example would be a building containing a warehouse, offices, and stores. *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*
- c. 143 - MIXED USE COMMERCIAL AND OTHER: Land containing a building with multiple uses but with NO residential units or industrial uses. An example would be a building containing commercial shops, childcare facility, offices, and/or restaurants. Downtown areas usually have buildings where the first and/or second floor is commercial and the rest is office (e.g. Lawson Software Building). These types of buildings

would be coded under this category. *MPCA comment: Within the MUSA, it is generally appropriate to place this in the WLA.*

25. PARK AND RECREATION: Includes the following two codes:

- a. 170 - PARK, RECREATIONAL OR PRESERVE: Land used for park and recreational assembly (Ex: community level ball fields, regional or small urban parks - public or private, playgrounds, rest areas, and other venues - indoors or outdoors - for sporting events or like purposes). Also includes passive activity uses such as park preserves, wildlife refuges, habitat area, public plazas, river walk, DNR owned land, greenways, and other public or private preserved land. *MPCA comment: Placed into appropriate category based on surrounding land use.*
- b. 173 - GOLF COURSE: Land used for golfing, including driving range and practice areas and in most cases includes all land belonging to a country club if the predominant land use is golf course. *MPCA comment: Placed into appropriate category based on surrounding land use.*

26. TRANSPORTATION Includes the following three codes:

- a. 201 - MAJOR HIGHWAY: Major roadway strips of land or area, on which a vehicular rights-of-passage exists under the following conditions: all interstate highways; all 4-lane divided highways with rights-of-way of 200 feet or greater in width; or all 4-lane roads with a Metropolitan Council functional class designation of 'Principal Arterial.' *MPCA comment: These will generally be owned and operated by the MnDOT. Regulated portions (within urban areas) should be included in the WLA.*

NOTE: Where closely aligned frontage roads exist along vehicular rights-of-way which meet the preceding criteria, these frontage roads will be included in the total rights-of-way. Additionally, land uses occurring within a Major Highway rights-of-way, as specified above, but which clearly have a different use (i.e., agriculture - row crops) are to be classified by its actual use. In addition, for consistency, if some major roadways that don't meet the above criteria yet have been classified as a Major Highway in past land use dataset, will remain Major Highway.

- b. 202 – RAILWAY: Land used and occupied or intended to be occupied by multiple railroad track lines or similar use including railroad classification, storage and repair yards, intermodal containerized freight and transload facilities, depots, etc. that could be classified under an industrial land use. *MPCA comment: Placed into appropriate category based on surrounding land use.*
- c. 203 – AIRPORT: Land used for the operation of aircraft and any related uses that are on the airport property (Ex: parking lot or car rental) Uses such as ball fields on the airport property would not be included in this category. *MPCA comment: Placed into appropriate category based on surrounding land use.*

27. 100 – AGRICULTURAL: Land used for agricultural purposes. Includes discernable cultivation (Ex: ground tillage or crop rows) horticulture, floriculture (exotic flowers), viticulture (grapes) activities, pasture, and a broad range of other agricultural activities (Ex: horse boarding and training, kennels, sod farms, tree

- farms, fish production and processing, storage areas or buildings). Agricultural buildings (including feedlots) that are not part of the farmstead (see definition below) are included in this category. Note: Not all agricultural lands are discernable based on available data (aerial photography and assessor's data). Thus, a significant amount of agricultural land may be placed in the Undeveloped category. Previously, large feedlots were put in the industrial category. *MPCA comment: Place this into the LA.*
28. 210 – UNDEVELOPED: Land not currently used for any defined purpose that may or may not contain buildings or other structures or has no discernable use based upon the aerial photos or available data. Undeveloped may include non-protected wetlands or lands currently under development. *MPCA comment: Placed into appropriate category based on surrounding land use.*
29. 220 – WATER: A body of open water or flowing waterway inclusive within a discernable shoreline. This typically does not include wetlands or periodically flooded areas. Generally only features three acres or greater in size are to be delineated. Areas definable as another land use type will not be depicted as in the Water category (e.g. major highway bridge over a river and marina). *MPCA comment: Water bodies are typically excluded from the WLA and LA.*
30. Rural Residential Areas: are immediately adjacent to Developing Areas and have large numbers of individual sewage treatment systems at densities of 2.5 acres or less. *MPCA comment: Place this into the LA.*
31. Diversified Rural Communities host the widest variety of farm and non-farm land uses in patterns that include a mix of a limited amount of large-lot residential and clustered housing with agriculture and other uses, including facilities and services requiring a rural location. *MPCA comment: Place this into the LA.*

Land Use	Likely to be covered by permit	Include in WLA	Notes
Single Family Residential	Always within MUSA line; variable outside MUSA	yes	likely to slightly overestimate WLA
Multi-family Residential	Always within MUSA line; variable outside MUSA	yes	likely to slightly overestimate WLA
Commercial	Always within MUSA line; variable outside MUSA	yes	likely to slightly overestimate WLA
Industrial	Always within MUSA line; variable outside MUSA	yes	likely to slightly overestimate WLA
Public/semi-public	Always within MUSA line; variable outside MUSA	yes	likely to slightly overestimate WLA
Airports	When adjacent to permit covered areas or owned or operated by the city or township	if adjacent to WLA or owned or operated by an MS4	Include railways, etc.
Parks/Recreation	When adjacent to permit covered areas or owned or operated by the city or township	if adjacent to WLA or owned or operated by an MS4	include golf courses, ballfields, etc.

Vacant/agricultural	Variable	no	slightly underestimates WLA; include undeveloped
Major 4 Lane Highway	A conveyance that may be covered	when permitted	similar for all roads
Open Water Bodies	When adjacent to permit covered areas or owned or operated by the city or township	if adjacent to WLA or owned or operated by an MS4	
Farmsteads	no	no	
Extractive	Covered under industrial permit	yes but as industry	
Industrial Parks not developed	When adjacent to permit covered areas or owned or operated by the city or township	if adjacent to WLA or owned or operated by an MS4	
Public/semi-public vacant	When adjacent to permit covered areas or owned or operated by the city or township	if adjacent to WLA or owned or operated by an MS4	
Public industrial	When adjacent to permit covered areas or owned or operated by the city or township	if adjacent to WLA or owned or operated by an MS4	
Agriculture	no	no	
Rural residential	possibly small portions	no	likely to slightly underestimate WLA
Diversified residential	possibly small portions	no	likely to slightly underestimate WLA
Seasonal/vacation	Variable	no	Part of residential so needs to be filtered out