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

**August, 2010**

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

**Summary of Guidance**

* The Wasteload Allocation (WLA) should include all current and future discharges that originate within a regulated municipality or township and that are to a regulated Municipal Separate Storm Sewer System (MS4) owned by the municipality or township.
* The WLA should not include current or future discharges originating outside a regulated MS4 owned by a county, watershed district, road authority, or other non-traditional entity even when those discharges are to the regulated MS4.
* Discharges originating outside a regulated municipality’s or township’s jurisdiction should not be included in the WLA even when that discharge is to a MS4 owned by the municipality or township.
* Future discharges must be included in the WLA. A separate Reserve Capacity cannot be developed for regulated stormwater.
* 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 should be accounted for in the WLA. These MS4s must receive individual WLAs.
* The TMDL should clearly define the process for transferring load in the case that such transfers are needed to account for growth or because of changes to an MS4.
* Direct discharges to an impaired water cannot be regulated under an NPDES permit. However, 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.

**MPCA Policy**

 MPCA policy states the following: “There are two conditions in which the WLA may include areas currently not covered under a NPDES permit. First, areas that will be covered by a NPDES permit in the future can be incorporated into the WLA. This is a desirable method for allowing future growth. To prevent a scenario that allows for unlimited growth, the WLA should include all pollutant loading within municipal boundaries or within identified growth areas within municipal boundaries. A second scenario for incorporating nonpoint sources (Load Allocation) into the WLA is when reasonable assurances can be provided that the WLA will be met. In both cases where a WLA includes areas not currently covered under a NPDES permit, the TMDL must contain language that clearly defines the WLA and provides reasonable assurances the WLA can be met.”

**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 how the permit applies to different MS4s.

1. An MS4 is any publicly owned separate storm sewer system. This document often refers to an MS4 as a conveyance. Note that, under the strict definition, an MS4 is not a municipality, township, county, etc. – it is the conveyance system owned by one of those public entities.[[1]](#footnote-1)
2. Regulated MS4s are those conveyances covered under an NPDES permit. There are six types of regulated MS4s.
	1. Municipalities – the entire jurisdictional area of a regulated municipality is covered under permit.
	2. Townships - the entire jurisdictional area of a regulated township is covered under permit.
	3. Counties – only that portion of a county within a US Census Bureau Urban Area is covered under permit.
	4. Watershed District – only that portion of a Watershed District within a US Census Bureau Urban Area is covered under permit.
	5. MnDOT – only that portion of MnDOT within a US Census Bureau Urban Area is covered under permit.
	6. Nontraditionals (e.g. hospitals, universities, etc.) – only that portion of a nontraditional entity within a US Census Bureau Urban Area is 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.

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

1. It is only the conveyance system owned by the regulated entity that is covered under permit. For example, all stormwater conveyances within a regulated municipality are covered under permit, while all conveyances within the Urban Area and owned by a regulated county are covered under permit.

**Reasonable Assurances**

 The issuance of an NPDES permit provides reasonable assurance that the WLAs contained in the 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 demonstrate they meet the WLA. The Phase 2 General Permit, to be re-issued in 2011, will contain a similar requirement.

The permit only covers publicly-owned conveyances. Discharges from private lawns, agricultural fields, non-public parklands, etc. 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 MS4s typically do not have these regulatory authorities.

**Discussion of Guidance**

 The MPCA policy discussed above provides a general framework for addressing WLAs, but experience with TMDLs has shown the policy to be ambiguous and open to interpretation. This 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 conveyance system. The MS4 must take appropriate measures to bring its discharge into compliance. Clearly, all discharges originating within a regulated MS4 or from property owned by the regulated MS4 are put into the WLA. Other discharges to an MS4’s conveyance are also put into the WLA when the MS4 has regulatory authorities 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. Table 1 summarizes the above discussion for the general case where contributing sources are not narrowly defined. Table 1 only considers current loads, not future loads. For a list of MS4s covered by permit, see <http://www.pca.state.mn.us/water/stormwater/stormwater-ms4.html>.

Table 1 reveals several complexities. These are discussed below. The flowchart in Figure 1 illustrates the 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 pipes, ditches, etc. This also includes discharges originating on publicly-owned land such as a city street, sidewalk, park or state college that enter a regulated conveyance.
* 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 an NPDES permit may receive a separate WLA or be incorporated into an overall WLA that includes municipal discharges.
* If a discharge that originates outside a stormwater conveyance is to a Watershed District, County, or nontraditional MS4 (including MnDOT), 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 such a discharge originates within a municipality or township, the discharge should be part of the WLA for the municipality or township.
* Discharges originating outside the jurisdiction of a municipality or township should go into 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 should be part of the WLA. An example would be a regulated city that annexes adjacent land that is not currently covered under an NPDES permit.

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| **MS4** | **Discharges originating within the conveyance system** | **Nonpoint discharges 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 municipal or township MS4 | No | No |
| County | Yes | No unless MS4 discharges to a municipal or township MS4 | No | No |
| Nontraditionals | Yes | No unless MS4 discharges to a municipal or township MS4 | No | No |

Table 1: Summary of which loads can or cannot 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.



Figure 1: Flowchart for determining whether a discharge goes into the WLA or the LA. It is assumed that all conveyance systems are regulated under an NPDES permit.

**Addressing Future Regulated Discharges (loads)**

 Stormwater discharges (loads) that typically go to the load allocation (LA) can be included in the WLA if the discharge will eventually be regulated under an 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 would require a public notice process. In a rapidly growing community, public noticing the TMDL each time an urban area expands would be cumbersome.

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 originate within a regulated city or township and currently do not end up in a regulated conveyance system. There are six cases where loads normally put into the LA should be put into the WLA. Note that in all cases below, the TMDL 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 next 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 an NPDES permit. Once annexation occurs by a regulated municipality, any discharge to the municipality’s conveyance system should 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 exceed 5000 in population but were not within ½ mile of an impaired water when the MS4 General Permit was re-issued in 2006. In 2008, waters within ½ mile of these cities were listed as impaired, so the cities would now meet designation criteria.
4. **A non-regulated MS4 will meet criteria for NPDES designation.** An example is a city within ½ mile of an impaired water that does not have a population of 5000 at the last Census, but that will exceed 5000 at the next Census. Examples include rapidly growing cities in the Twin Cities Metro Area, such as Rogers and Albertville.
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 is likely to become a designated 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. Note, it is extremely difficult to predict the extent of future Urban Areas.
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 a MS4 through the petition process, including potential for rapid growth, ineffective water quality control, 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 likelihood 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. MPCA’s stormwater program will not designate new MS4s for permit coverage unless they are given a WLA in a US EPA-approved TMDL.

Appendix B contains a list of MS4s that meet designation criteria but have not yet been designated for permit coverage, a list of MS4s that are likely to exceed 5000 population in the next Census and are within ½ mile of an impaired water, and a list of MS4s that are likely to become mandatory MS4s as a result of a change in an Urban Area. The lists in Appendix B should be viewed as an approximation, since it is impossible to predict populations.

**Transfer of Loads**

The following guidance should be applied when transferring loads following TMDL approval. In no case can the overall TMDL change.

1. **WLA to WLA transfers**. All TMDLs with a WLA for municipal stormwater should describe a process for transferring WLA to WLA. This transfer will not need to be public noticed if the TMDL clearly describes the process for transferring loads, if the WLA is written in the form of load per unit area per unit time (e.g. lbs-P/day/acre), or if the WLA is written as a uniform reduction in loading for all MS4s (e.g. all MS4s require a 25 percent reduction in loading). MS4s involved in the transfer must be notified of the change in their loads. The process for transferring load should be the same process as used for calculating loads. Consider the following example. City X (a regulated MS4) is given a WLA that includes future growth based on its 2030 Comprehensive Plan. As growth occurs, a state highway is built within the newly expanded area. If the state highway comes under permit coverage, the Minnesota Department of Transportation (MnDOT) must be given WLA. One way to transfer this load would be on an area basis (i.e. MnDOT’s load is proportional to the area of its highway). When load is transferred from City X to MnDOT, both City X and MnDOT must be notified of the transfer. Similarly, load transfers may be required as urban areas expand and new entities become permitted, or as growth occurs through annexation. The TMDL should contain a standard statement describing this transfer process. A case study can be found on page 41 of the Lake Burandt TMDL (<http://www.pca.state.mn.us/publications/wq-iw7-09e.pdf>). An example of a standard statement would be the following: ‘*In the event that additional stormwater discharges come under permit coverage within the watershed, WLA will be transferred to these new entities based on the process used to set wasteload allocations in the TMDL. MS4s will be notified and will have an opportunity to comment on the reallocation.”* Another example of a load transfer occurs when one MS4 receives a WLA based on its current load, but the MS4 is later annexed. In this case, the TMDL should state that the WLA will transfer to the MS4 conducting the annexation. An example is found in the Reitz Lake TMDL: *If and when annexation of land within Laketown Township by either Waconia or Victoria occurs, the corresponding WLAs associated with those areas will be transferred to the annexing city.*

Note that the transfers discussed above basically represent trades as a particular parcel of land comes under permit coverage. MPCA advocate transfer of WLA from one MS4 to another as a parcel of land changes. The MPCA currently does not advocate transfer of WLA from one MS4 to another based on other criteria. However, such transfers may occur if new information exists to support such transfers.

1. If growth occurs in areas outside the projected growth areas, load will have to be shifted from the LA to the WLA. This change requires the TMDL to be public noticed. Considering and describing LA to WLA transfers in a TMDL is not recommended. If the TMDL allows for such a transfer, the TMDL should specify how load transfers will occur. It is recommended that the same approach for the original allocations be used when transferring load.

**Practical Application**

 During TMDL development, it is not possible to clearly determine what discharges should go into the WLA or LA. The TMDL process allows for adaptive management, meaning we can determine the WLA as accurately as possible and make adjustments later if necessary. These adjustments may require re-opening a TMDL.

 When determining WLAs using the above guidance, TMDL authors should use the best available data and their 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 MS4 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 MS4 to reduce load within its existing area, limits flexibility in choosing BMPs, and may require a re-opening of the TMDL if load must be transferred from the LA to the WLA. An over-allocation occurs when too much load is included in the WLA. In this situation, MS4s can easily demonstrate they meet their WLA, which results in the MS4 not having to implement any BMPs even though their current discharge may contribute to a water quality violation. Under-allocations are most likely in largely built out MS4s, while over-allocations are most likely in MS4s that have considerable room for growth.

 Consider the following case studies.

1. Potential under-allocation – Reitz Lake TMDL. Much of the watershed is not built out and currently does not discharge to a regulated MS4. However, nearly all of the watershed is targeted for orderly annexation. The WLA for this TMDL was set based on input from the municipalities regarding their future land use. If growth is greater than expected, or if the conveyance system extends beyond its anticipated boundaries, the WLA will be under-allocated.
2. Potential over-allocation – Prior Lake-Spring Lake TMDL. Currently only about 10 percent of the watershed is built out and discharges to an MS4. A portion of the watershed is targeted for annexation, but about 70 percent of the watershed will not discharge to an MS4 following annexation. Only the portion of the watershed targeted for annexation should be included in the WLA.

**It is not possible to exactly determine the load that should be in the WLA. TMDL authors will have to use best available data and best professional judgment to make these determinations. In complex situations, the MPCA Stormwater Program should be consulted.**

**Compliance Schedules**

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

**Basing Future Loads on Land Use**

 It is often difficult to determine if water at a particular location flows to or will flow to a regulated MS4s. Consider the diagram below. A township road, shown in red, runs north-south through a township. Assume the township is currently not urbanized. It is not possible from this information to determine where water within the township flows toward or away from the road.



Figure 2: Schematic used to illustrate difficulty in determining what portion of the non-developed township should be in the WLA and what should be in the LA.

In Figure 2, we can assign loads if we have projected land use information for the township. 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 LA. 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.

Urban land use – for purposes of setting WLAs in TMDLs, urban land uses include any non-agricultural land use that discharges to a regulated MS4. Typically these include areas designated for commercial, industrial, residential with one or more units per acre, retail, office, or a mixture of these. Land uses designated as utility, transportation, institutional, undeveloped (including forested), preserve, park, recreational, green space, or water (including wetland) can be included when adjacent to one of the above land uses. Land uses designated as rural reserve, farmstead, hobby farm, and agriculture are not considered urban land uses. Residential land use with less than one unit per acre will generally have to be evaluated on a case-by-case basis to determine if they are suitable for inclusion in the WLA.

**Appendix A - Examples**

Example 1 – Does the discharge originate within a regulated publicly-owned facility?

In the example below, any discharge that originates within the publicly owned property is part of the WLA if the public entity is covered an NPDES permit. For example, the publicly owned property may be a city park, the grounds of a state hospital, or a municipal parking lot.

Example 2 – Does the discharge originate within the jurisdiction of a regulated MS4 and if yes, does it ultimately discharge to a regulated municipality or township?

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. If the discharge to the non-regulated area is from privately-owned property, the discharge should go into the LA unless the non-regulated area is a municipality or township that will eventually be covered by an NPDES permit. If the discharge to the non-regulated area is from publicly-owned property it should go into the WLA. All 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. 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 an NPDES permit. 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 by MnDOT and eventually reaches a regulated conveyance owned by a municipality or township. Put the discharge into the WLA. 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 an 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 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 originates within private property in a regulated municipality or township and is to a regulated conveyance owned by the municipality or township. 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 lake 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 by the municipality or township or if the non-regulated area will eventually be covered under an NPDES permit.
* Discharge H – The discharge originates from a publicly owned park and does not reach a publicly owned conveyance. The discharge should be in the WLA because it originated on public property.



**Appendix B - New candidates for NPDES coverage.**

MS4s in an Urban Area are required to obtain a NPDES stormwater permit[[2]](#footnote-2). MS4s outside of urbanized areas that have been designated by the MPCA for permit coverage under Minn. R. ch 7090 are required to obtain 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.

* 1. 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 within one-half mile of impaired water (excluding mercury impaired waters) become designated. MPCA does not formally designate these MS4s every time the 303(d) list is developed.[[3]](#footnote-3) Nevertheless, [appropriate discharges](#appropriatedischarges) associated with these MS4s should be included in the WLA since they will eventually be formally designated. Consequently, appropriate discharges from the following cities should be included in the WLA even though these MS4s have not been formally designated:
		1. Morris
		2. Crookston
		3. Thief River Falls
		4. Virginia
		5. Stewartville
	2. Several MS4s in Minnesota that had populations less than 5000 following the 2000 U.S. Census are rapidly growing and are likely to meet designation criteria in the next 20 years. 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 coverage. Many of these cities are located on the Metro Area fringe. Appropriate discharges for these MS4s should 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. A partial list of cities will be developed and modified as TMDLs are developed. This partial list has been started based on current population estimates (not U.S. Census Bureau estimates). Appropriate discharges from the following MS4s should be included in the WLA:
		1. Rogers
		2. Delano
		3. Rockford
		4. Belle Plaine
		5. Jordan
		6. St. Francis
	3. 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 the WLA:
		1. Skyline
		2. Portions of Lime Township within the likely urban area
		3. Portions of Mankato Township within the likely urban area
		4. Portions of MnDOT (outstate) within the likely urban area
		5. Portions of Blue Earth County within the likely urban area
		6. Portions of Nicollet County within the likely urban area
		7. Mankato State University
	4. 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 regulated MS4s 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. *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). *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). *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.' *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). *Within the MUSA, it is generally appropriate to place this in the WLA.*
6. 06 – Airports: All types of airports. *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. *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. *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.' *These will generally be owned and operated by the 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. *Water bodies are typically excluded from the TMDL.*
11. 11 – Farmsteads: Includes only that portion of land that encompasses the buildings on the farmstead. *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. *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). *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. *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. *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. *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). *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. *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:
	1. 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. *Generally will be in the WLA.*
	2. 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. *Generally will be in the WLA.*
22. COMMERCIAL Includes the following two codes:
	1. 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). *Within the MUSA, it is generally appropriate to place this in the WLA.*
	2. 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. *Within the MUSA, it is generally appropriate to place this in the WLA.*
23. INDUSTRIAL Includes the following two codes:
	1. 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). *Within the MUSA, it is generally appropriate to place this in the WLA.*
	2. 153 – EXTRACTIVE: Land containing extractive industry (Ex: Gravel Pits and Quarries). *Placed into appropriate category based on surrounding land use.*
	3. 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). *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:
	1. 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. *Within the MUSA, it is generally appropriate to place this in the WLA.*
	2. 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. *Within the MUSA, it is generally appropriate to place this in the WLA.*
	3. 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. *Within the MUSA, it is generally appropriate to place this in the WLA.*
25. PARK AND RECREATION: Includes the following two codes:
	1. 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. *Placed into appropriate category based on surrounding land use.*
	2. 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. *Placed into appropriate category based on surrounding land use.*
26. TRANSPORTATION Includes the following three codes:
	1. 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.' *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.

* 1. 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. *Placed into appropriate category based on surrounding land use.*
	2. 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. *Placed into appropriate category based on surrounding land use.*
1. 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. *Place this into the LA.*
2. 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. *Placed into appropriate category based on surrounding land use.*
3. 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). *Water bodies are typically excluded from the TMDL. If included, the appropriate category is based on surrounding land use.*
4. 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. *Place this into the LA.*
5. 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. *Place this into the LA.*

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| **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 by the city or township | if adjacent to WLA or owned by a MS4 | Include railways, etc. |
| Parks/Recreation | When adjacent to permit covered areas or owned by the city or township | if adjacent to WLA or owned by a 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 by the city or township | if adjacent to WLA or owned by a 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 by the city or township | if adjacent to WLA or owned by a MS4 |   |
| Public/semi-public vacant | When adjacent to permit covered areas or owned by the city or township | if adjacent to WLA or owned by a MS4 |   |
| Public industrial | When adjacent to permit covered areas or owned by the city or township | if adjacent to WLA or owned by a 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 |

1. MS4 is often used in reference to the public entity that owns a conveyance. For example, Minneapolis may be called an MS4. The actual MS4 is Minneapolis’ conveyance system. To avoid confusion with historic use of the term MS4, this document refers to MS4s as either a conveyance or the public entity that owns a conveyance. [↑](#footnote-ref-1)
2. Permit coverage can be waived in some situations. See 40 CFR 122.32(d),(e). [↑](#footnote-ref-2)
3. Formal designation is likely to occur every ten years when additional MS4s are brought under permit coverage following completion of the U.S. Census. [↑](#footnote-ref-3)