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Memorandum

To: Paul Nelson, Scott County
From: Karen Chandler
Subject: Rural Trunk Stormwater System Analysis in Detailed Area Plan (DAP) Area
Date: August 27, 2009
Project: 23701006

1. Introduction

Scott County is the land use and zoning authority for the unincorporated areas within the County. The Scott County 2030 Comprehensive Plan Update was adopted by the County Board March 29, 2009. The 2030 Plan identifies a 73-square-mile area in the southeast part of the County as future rural residential without public utilities as its end land use (not an interim land use). At full development, the County estimates the population in this area will increase from 8,000 (current) to about 30,000. Prior to rezoning of additional land to rural growth densities, Scott County realized the need for a Detailed Area Plan (DAP) to address environmental issues related to additional density and the conversion from agricultural uses to rural residential uses. Scott County received a grant from the McKnight Foundation to prepare the DAP for this area. Although no urban water and sewer services will be provided in the area, Scott County wishes to know if a rural trunk stormwater system is needed to manage stormwater at ultimate development.. The main stormwater conveyance system in this rural residential region currently largely consists of public and private ditches, and the natural draws and streams. In more urban developed areas, the draws and ditches typically give way to underground pipes and roadway curbs and gutters. The larger public storm sewers and streams become known as the trunk storm sewer system in an urbanizing area. However, in the DAP area, the above-ground system of draws, ditches, and streams will remain in place. Many of these above-ground drainageways operate as a trunk storm sewer system. With this in mind, Scott County anticipates they will need to address future issues regarding 1) the ownership of such a trunk stormwater system, and 2) the responsibility for operating, maintaining, and repairing the system, and for treating stormwater. The McKnight Foundation grant is being used by the County to address these (and other) issues, culminating in a DAP for managing the surface water conveyance system.

The goal of this project was to address the following items should it be decided that a rural trunk stormwater system is needed for the buildout of this area:

- Define the trunk system – e.g., what parts of the system need to be under public purview, considering that some parts are already “public” (DNR public waters, county ditches)

- Describe the operation, maintenance, and other management needs for the rural trunk stormwater system
- Discuss options for funding the management needs of the rural trunk stormwater system

A subsequent goal or step would be to define the public entities that should be responsible for the operation, maintenance and other stormwater management needs (township, county, WMO, state agency).

Before a rural trunk stormwater system in the DAP area can be defined, we first needed to understand the components of the current (and future) stormwater system in the area. We also needed to gather information about the rural stormwater system and how and when it has been managed to date in the DAP area. The first steps in this process were a) a kick-off meeting between Barr staff and Paul Nelson (Scott County Natural Resources Program Manager), and b) phone interviews to gather this information. The attachment to this memorandum presents a summary of these discussions.

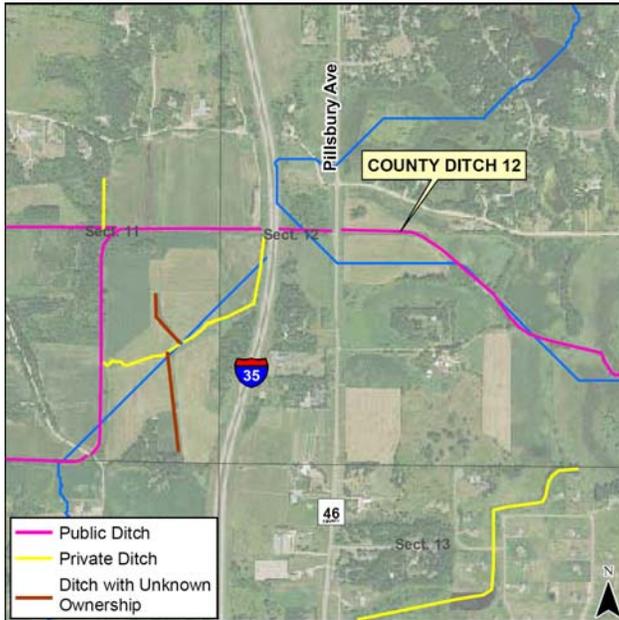
The remainder of this memorandum presents information about the stormwater system in the DAP area, discusses current and future stormwater management needs, presents options for managing stormwater in the DAP area, and suggests a framework for a possible rural trunk stormwater system, including criteria for defining the system, management needs for the system, options for managing the system, and funding options for the system.

2. Stormwater System in DAP Area

The DAP area includes parts of four townships—Cedar Lake, Credit River, New Market, and Spring Lake. In the DAP area, there are also three watershed management organizations—Scott WMO, Prior Lake Spring Lake Watershed District (PLSLWD), and the Vermillion River Watershed Joint Powers Organization (VRWJPO)—each with their own standards that are adopted by reference into the Scott County Zoning Ordinance.

The stormwater system in the DAP area is made up of the following components – county ditches, private ditches, private drain tiles, public waters (wetlands, lakes, and watercourses), undesignated drainageways, landlocked basins, stormwater ponds, culverts/bridges, and on-line detention basins. These are described and illustrated in the following paragraphs:

County ditches –There are four county ditches in the DAP area – Ditch 4, over portions of the Credit River; Ditch 5, covering portions of Porter Creek in Cedar Lake Township in the Bradshaw Lakes WMA vicinity, Ditch 6, lying in the northeast corner of Cedar Lake Twp and the northwest corner of New Market Township, and Ditch 12, over portions of the Vermillion River. County ditches come under the jurisdiction of the ditch authority (Scott County) and Minnesota Statutes 103E (“ditch law”). To illustrate this component of the stormwater system, the following map shows a segment of County Ditch 12, in New Market Township:



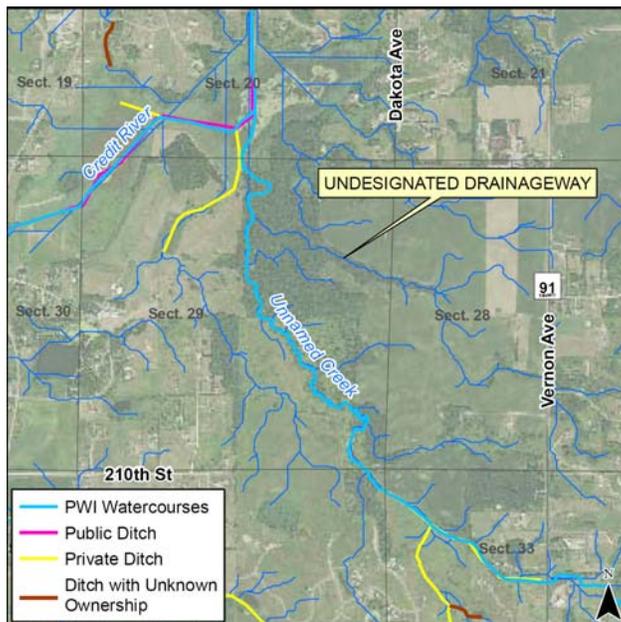
Private ditches and drain tiles –There are numerous private ditches and drain tiles in the DAP area. There is at least one private drain tile in the DAP area that is very long and of large-diameter (Section 22 in Spring Lake Township). These ditches and drain tiles are owned and maintained by the private property owners. Private ditches are usually smaller than the county ditches and are often viewed as lateral systems that discharge into the county ditches. Other private ditches (and drain tiles) discharge to public watercourses, and others are even designated as public watercourses. To illustrate this component of the stormwater system, the following map shows a long private ditch (over a mile long) discharging into an unidentified drainageway in Section 21 and 28 of Credit River Township.



Public waters –There are numerous public waters (wetlands, lakes, and watercourses) in the DAP area. Public waters come under the jurisdiction of the Minnesota Department of Natural Resources (MDNR). Work below the ordinary high water (OHW) elevation of MDNR-designated public waters requires a permit from the MDNR. This provides the MDNR with the ability to regulate activities in public waters or to modify or remove unpermitted activities by land owners that cause problems, but does not provide for maintenance of waterways that are public waters. To illustrate this component of the stormwater system, the following map shows an unnamed public waters watercourse in Section 2 of Spring Lake Township that discharges into St. Catherine Lake (a public waters lake):



Undesignated drainageways – There are a number of well-defined drainageways in the DAP area that are not designated as MDNR public waters, county ditches or private ditches. These can range from draws, gullies and ravines to swales and intermittent streams. These are generally privately owned. To illustrate this component of the stormwater system, the following map shows an undesignated drainageway in Section 28 and 29 of Credit River Township:



Landlocked basins – There are a number of potential landlocked basins in the DAP area. A landlocked basin does not have a natural outlet at or below the basin’s 100-year flood elevation. The County identified potential landlocked basins by using a screening process with high resolution topographic data. Field verification is needed to confirm that these identified basins do not have outlets. The Scott WMO, Prior Lake Spring Lake Watershed District (PLSLWD), and the Vermillion River Watershed Joint Powers Organization (VRWJPO) have special rules/standards regulating inflows into and outlets from landlocked basins, and regulating low floor elevations for various types of structures that could be impacted by high water levels. To illustrate this component of the stormwater system, the following map shows a landlocked basin (McMahon Lake) in Section 36 of Spring Lake Township and Section 1 of Cedar Lake Township:



Stormwater ponds – There are a number of constructed stormwater ponds associated with rural development in the DAP area. Newer facilities are likely covered by drainage and utility easements that are required when the developed is platted. To illustrate this component of the stormwater system, the map following the culverts/bridges discussion also shows stormwater ponds in Section 32 of Credit River Township.

Culverts/bridges – There are numerous road crossings where culverts or bridges are in place in the DAP area. These are under the jurisdiction of the townships, Scott County, or the Minnesota Department of Transportation (MNDOT), depending on road ownership. To illustrate this component of the stormwater system, the following map shows the location of a likely culvert or bridge crossing under County Road 8 (217th St. W.) in Section 32 of Credit River Township:



On-line detention basins – Road crossings and other constructed flow control devices can also create on-line detention basins, where stormwater accumulates after rainfall/runoff events. The road crossing or flow control device restricts flows, which causes water to pond upstream of the crossing.

Potential regional stormwater basins – the Scott WMO completed studies for the Sand Creek and Credit River watersheds that identified the locations for potential future regional stormwater detention basins. One or more of these basins could be constructed, if found to be feasible and necessary.

3. Stormwater Management Issues in the DAP Area

From the interviews and discussions with township officials/staff, county staff, and the attorney that represents a number of townships in the County, it is apparent that defining a rural trunk stormwater system is a new concept. In fact, this analysis may be the first, or one of the first, attempts to define rural “trunk” stormwater systems in Minnesota. Although the townships and the county are making progress with respect to stormwater pond maintenance in private developments, the townships generally have not

thought about the overall system and the downstream or upstream impacts of their actions and/or land use changes. This is especially true when it comes to roadway maintenance and culvert sizing. Also, as the DAP area evolves into more rural residential development, it is likely that a significant proportion of the homeowners associations/individual property owners will not perform the needed stormwater maintenance in their developments. This means the townships (if given the ability in a developer's agreement) will be faced with performing the maintenance and charging the cost of such maintenance back to the homeowners associations/individual property owners, or paying for this work from general funds. As more development occurs, as the stormwater systems age, and as stormwater quality treatment becomes mandated, the townships may have difficulty keeping up with their authority to perform maintenance and system modifications. The County has typically viewed these as local problems that need to be addressed locally (not by the County), but the County is open to discussing taking on this responsibility if the townships desire, and if there is a funding mechanism.

In the Scott WMO portion of the DAP area, construction, repair and replacement of bridge and culvert crossings requires a County permit. However, many of these activities may be illicitly occurring without a permit from (or knowledge of) the Scott WMO. The PLSLWD has a very similar rule, and the County provides the permitting under this rule in the unincorporated areas of PLSLWD, except for County sponsored projects. In the VRWJPO portion of the DAP area, there is not a similar requirement. Township officials and staff may not recognize that upsizing culverts/bridges can have negative impacts downstream (higher flows, more flooding, and increased flashiness), or that downsizing culverts/bridges can have negative impacts upstream (aside from road washout possibilities). Also, since township engineers are typically on contract, their involvement is sometimes limited in an effort to keep costs down. The combination of all of these issues creates a situation where increased flooding, streambank erosion, and other damages could occur, albeit unintentional.

Stormwater management issues for county ditches include ensuring there are adequate funds to perform needed maintenance, obtaining/developing official ditch profiles, writing legal descriptions for the ditches or obtaining ditch easements, and providing/purchasing buffers before a reassessment of benefits can be performed. Because the county ditch system provides a "prescriptive" easement (the ditch authority/County owns an easement simply because the county ditch has been in operation for a considerable period of time) for drainage, it is important for the County to preserve this right. However, although the County is the ditch authority, the County does not own the county ditches. The county ditches are owned by the individual property owners that were originally assessed the cost of the ditch when it was constructed.

Stormwater management issues for private ditches and private drain tiles include lack of information regarding their location because they are not usually mapped or not accurately mapped (this is especially a problem for drain tiles) and they are often not covered by either defined or prescriptive public drainage easements, and they were typically constructed without the benefit of engineering design.

For MDNR public waters, it is clear that permits are required for proposed projects below the OHW, but it is not clear who is responsible for removing downed trees, debris, etc. from the public waters or for repairing erosion sites. This problem is most apparent in the public waters watercourses.

Undesignated drainageways may cause problems if not managed properly, especially those that are longer in length, as they travel across more than one property.

For landlocked basins, it is important that the entire watershed (not just the immediate watershed) tributary to the landlocked basin be managed so as to not increase flooding problems on the basin. It is also important that outlets from landlocked basins and water level lowering by pumping be allowed only if or when they do not cause flooding and/or water quality problems downstream. The Scott WMO, PLSLWD, and VRWJPO rules/standards should provide adequate protection, assuming the rules/standards are applied as intended.

On-line detention basins are located upstream of road crossings. The crossing (bridge or culvert), simply by its existence, acts as a restriction, which causes water to be somewhat pooled and detained upstream of the road during flooding events, thus creating a detention basin. This notion of on-line detention is typically not understood until a roadway is washed out and then the standard practice is to repair the washout and add more culvert or bridge capacity. The additional area inundated is not likely covered by a defined easement or considered part of the county ditch (if it is a county ditch crossing), but it may be covered by default in a prescriptive easement.

The stormwater management needs in the DAP area may be lessened through implementation of low impact development techniques and by converting agricultural land to rural residential development. The combination of these two actions may actually decrease the amount of stormwater runoff generated in the DAP area.

4. Options for Managing Stormwater in the DAP Area

Assuming the County does not want to perform stormwater maintenance work in private developments (unless some part of the system is defined as part of the rural trunk stormwater system), the County's rules/ordinances may need expanding to fill "holes" and the County's requirements for development agreements need to be more uniformly applied to ensure that stormwater maintenance is addressed and carried out. The content of the three-way (developer, township, and County) development agreements can vary widely from one township to another, and can vary from one development to another. The County needs to ensure that all of the three-way (developer, township, and County) development agreements include/meet all of the County's requirements. The County currently requires the following to be included in the development agreements:

- 1) Easements – The County subdivision ordinance currently requires that the agreement include/describe easements that cover the stormwater drainage system and allow access to the drainage system; there may be some residual problems from developments predating this requirement.

- 2) Maintenance – County ordinance 6A-10 requires that the township take responsibility for maintenance of stormwater systems in the subdivision. In the development agreements, some townships assign the maintenance responsibility to the homeowners association, but give the township the ability to step in and complete the work, and then assess the costs back to the property owners if the homeowners association does not perform the needed maintenance. Other townships do not include this type of language. Other options for townships including assigning the maintenance responsibility over to the individual property owners or a designated third party land management company.

The townships need to ensure that they have necessary funding to address stormwater maintenance problems by either a) assessing the costs back to the homeowners association/individual property owners, b) paying for the costs out of the township's general funds, or c) establishing and using a subordinate service district to pay for the maintenance costs.

It is also important that the development agreement require that the township, the homeowners association/individual property owners, or the County perform systematic and regular inspections of the stormwater system. Credit River Township and Spring Lake Township are already required to perform these inspections as part of their NPDES MS4 permits. New Market Township and Cedar Lake Township are not required to perform these inspections, as they are not covered by an NPDES MS4 permit.

Whether or not the County defines/establishes a rural trunk stormwater system, the County and/or the WMOs have an important role to fill with respect to permitting the construction, repair and replacement of private, township, County, or state bridge and culvert crossings. Although the PLSLWD and the Scott WMO both have rules in place requiring such permits, private parties, the townships, and the state may not be aware of the permit requirement. Also, the VRWJPO does not have such a standard in its rules. A way for the County to address this would be to add the bridge and culvert crossings standards directly to the County ordinances and to initiate a notification program to inform townships, WMOs, and state agencies of the County's permitting requirements. This issue also points to the need for the County and/or WMOs to require/perform calculations of sufficient detail to allow the County/WMOs to assess the downstream and upstream impacts of proposed changes to road crossings. For smaller crossings (smaller tributary watersheds), it is likely that only simple calculations would be required. For larger crossings (especially bridges), it may be necessary for the County/WMOs to perform hydrologic/hydraulic modeling to sufficiently assess the impacts. In the DAP area, there are already hydrologic/hydraulic models available for Credit River, Vermillion River, Porter Creek, and for the portion of the PLSLWD in the DAP area. These models could be used/modified to assess the impacts of proposed changes at bridge and culvert crossings. Ideally, these models would enable the County/WMOs to perform a comparative analysis of before and after conditions, including: a) peak discharge upstream and downstream, b) area flooded upstream and downstream, c) length of inundation upstream and downstream, and d) velocity of flows upstream and downstream. .

For county ditches, it is not a viable option for the WMOs (Scott WMO, VRWJPO, and PLSLWD) to petition the ditch authority (Scott County) to transfer all or part of the drainage systems to the WMOs. It is not a viable option because 1) the Scott WMO is not a separate unit of government from the County, 2) the County could not transfer the authority to the VRWJPO, because it is a joint powers organization where the membership/decision-making process is dominated by an organization (i.e., another county) that does not represent any of the benefited property owners, and 3) there are no county ditches in the PLSLWD portion of the DAP area.

For private drain tiles that are either within a proposed development or that would receive drainage from a proposed development, it is important to note that County ordinance does not allow a development to rely on private drain tiles, and County ordinance also requires that developers perform a downstream assessment to show that the proposed activity will not negatively affect downstream property owners (including downstream private drain tiles). For private drain tiles within proposed developments, this means the development agreement and development plans must include provisions for accommodating the on-site and upstream drainage in a manner approved by the township. The development agreement must also assign maintenance responsibility for the system. These requirements may result in the dedication of a public easement over the drainage path/facilities used to accommodate the on-site and upstream drainage. For downstream private drain tiles that would receive drainage from a proposed development, the developer's downstream assessment would need to show that the proposed development has no detrimental impact on the private drain tile. If the assessment shows there is a detrimental impact, the developers would need to either 1) obtain an easement from the downstream drain tile owner (that also assigns maintenance responsibility) and improve the downstream tile system; or 2) limit their development proposal to what can be accommodated by the downstream system without damage.

If the County decides to identify/establish a rural trunk stormwater system, and a portion of the system is part of a proposed development, the development agreement must acknowledge and identify this information. The township could also set up a "subordinate service district" (SSD) to establish a means to fund inspection, monitoring and maintenance of the rural trunk stormwater system. Under Minnesota Statute 365A, townships can set up a SSD over a part of the township, but only in response to a petition by at least 50% of the property owners in the proposed SSD area. (Note: Counties can also form SSDs, but only those counties that are outside the seven-county metropolitan area; this option is therefore not available to Scott County.)

5. Rural Trunk Stormwater System in DAP Area

Assuming the County wishes to define and manage a rural "trunk" stormwater system in the DAP area, it is necessary to first define the criteria that must be met for a stormwater component to be considered part of the rural trunk system. The County also needs to understand the operation, monitoring, maintenance and other stormwater management needs for the rural trunk system, and the options available for funding the system's management needs.

A. Defining a Rural Trunk Stormwater System in the DAP Area

Establishing and defining a rural trunk stormwater system in the DAP area could help the County, townships and WMOs address and manage the stormwater management issues identified earlier in this memorandum. To establish the system, criteria need to be set for stormwater components to be included as part of the rural trunk stormwater system. We suggest that if any of the following criteria are met that the stormwater system component be considered part of the rural trunk stormwater system:

- A stormwater system component with a tributary watershed greater than a certain acreage and the system component provides drainage for multiple properties. For discussion purposes, a drainage area criterion of 320 acres was selected. This was based on the professional judgment of County staff that this watershed size could generate significant stormwater flows and put infrastructure and property at risk, but is not so small that the County or the townships would end up managing localized drainage systems. The smaller systems (tributary watersheds of more than 100 acres) would be managed by the regulations and permitting efforts per the bridge and culvert crossing rules.
- Constructed outlets on landlocked basins and emergency overflow paths (these may all have a tributary watershed greater than 320 acres).
- County ditches (these too may all have a tributary watershed greater than 320 acres).
- MDNR public waters (these too may all have a tributary watershed greater than 320 acres).
- A petition from a township or a group of landowners requesting that a stormwater component with a tributary watershed smaller than 320 acres be established as part of the rural trunk system.

Stormwater facilities constructed with new development and located within public easements may not be part of the rural trunk stormwater system, but are part of the public system. By County ordinance, the townships are responsible for maintaining these public systems.

A subsequent step to this project would be to develop detailed GIS coverage and produce a map showing the rural trunk stormwater system, based on these criteria.

B. Operation, Maintenance, and Other Management Needs for the Rural Trunk Stormwater System

Based on the stormwater management issues discussed under Section 3, we anticipate the following operation, maintenance and other stormwater management activities will be needed for the rural trunk stormwater system:

- County ditches – overseeing ditch maintenance and repairs, obtaining/developing official ditch profiles, writing legal descriptions for the ditches or obtaining ditch easements, performing a reassessment of benefits (but need to provide/purchase buffers beforehand), record-keeping, and ensuring there are adequate funds in the ditch accounts to perform all of this work.

- Bridge and culvert crossings – administering the current permit program in Scott WMO and PLSLWD, and expanding education/outreach, inspection, and enforcement efforts to increase awareness about the permit program and to ensure required permits are obtained (in Scott WMO and possibly in PLSLWD). A similar program would likely need to be put into place in the VRWJPO portion of the DAP area. Alternatively, the County could include the bridge and culvert standards in its countywide zoning ordinance. A significant operational need is for the permit administrators (County or WMOs) to require/perform calculations of sufficient detail to allow them to assess the downstream and upstream impacts of proposed changes to road crossings. As noted previously, these could range from simple calculations for smaller crossings (smaller tributary watersheds) to hydrologic/hydraulic modeling for larger crossings (especially bridges). Easements may be needed for the on-line detention basins located upstream of the crossings to cover the temporarily flooded areas, if not already covered by a prescriptive easement.
- Private ditches and private drain tiles (that meet the rural trunk stormwater system criteria, e.g., drainage area greater than 320 acres) – surveying and mapping the location of these ditches and tiles, and ensuring that adequate easements are obtained, or the system is purchased by the County or township, when upstream development connects into these systems. Ongoing monitoring, maintenance and repair of these systems will also be necessary.
- MDNR public waters – removing downed trees, debris, etc., repairing erosion sites, removing accumulated sediment, and coordinating with MDNR regarding who is responsible for these activities.
- Potential landlocked basins – confirming land locked status by survey or at the time of development (if confirmation occurs at time of development, then the current inventory of potential landlocked basins should be used to flag the potential situation for review once development is proposed), administering current permit programs, installing and systematically recording water level gage readings, and operating temporary drawdown facilities.
- Development agreements – ensuring that development agreements include a description of any parts of the rural trunk stormwater system within the development.
- Undesignated drainageways – removing downed trees, debris, etc., repairing erosion sites, removing accumulated sediment, and coordinating between affected property owners.

C. Options for Managing the Rural Trunk Stormwater System

The following options are available for managing the rural trunk stormwater system in the DAP area:

1. Scott County manages everything

Under this option, Scott County would expand its management authority beyond the county ditches and the permitting within the Scott WMO to encompass permitting and other management activities throughout the DAP area. This option would require special agreements with the

WMOs (Scott WMO, VRWJPO, and PLSLWD), as they have permitting authority in the DAP area.

If hydrologic and hydraulic models are used/modified to assess the impact of proposed changes at bridge and culvert projects, it may make sense for the models to be administered by the County on a watershed basis.

2. The WMOs manage everything

Under this option, the WMOs would expand their management authority to include all stormwater management activities in the DAP area, except for county ditches. As noted previously, it is not viable for the WMOs to petition the ditch authority (Scott County) to transfer all or part of the drainage systems in the DAP area to the WMOs. For the WMOs to manage (almost) everything, the VRWJPO must enact new rules regarding bridge and culvert crossings. .

If easements are obtained for all or part of the rural trunk stormwater system, this option may require that the easements be dedicated to the WMOs.

If hydrologic and hydraulic models are used/modified to assess the impact of proposed changes at bridge and culvert projects, it may make sense for the models to be administered by the WMO on a watershed basis.

3. Scott County, the townships, and the WMOs share management responsibility

This is similar to the “status quo” situation, but with the “holes” filled – development agreements that meet all of the County requirements (including requirements for downstream easements, where applicable), new bridge and culvert crossing standards in the VRWJPO, adequate funding for township/private property owner costs, locating/mapping of private drainage systems, and clarification of responsibilities for maintenance and repair activities in MDNR public waters. A joint powers agreement or memorandum of understanding between all of these entities may be useful for documenting responsibilities

4. Status quo

This option is not recommended because of the current and future issues identified earlier in this memorandum (see Section 3). The most significant current issue appears to be access to drainage easements/stormwater components in older developments and the construction, repair and replacement of bridge and culvert crossings. The lack of awareness of the permit program in Scott WMO (and possibly in PLSLWD), coupled with the lack of standards in the VRWJPO, point to the danger of maintaining the status quo.

Under this option, Scott County prepares rules and regulations that are incorporated into the county ordinances; the townships can keep their authority by adopting these ordinances or allow the county to take over and administer the ordinances in the township. The County prepared the local water plan for the unincorporated areas that the WMOs subsequently reviewed and approved. The townships have the authority to prepare their own local water management plans if they wish.

Regardless of the selected management option, it is recommended that the County complete a review in five years to assess how well the selected option is working.

D. Funding Options for Managing the Rural Trunk Stormwater System

Subordinate Service District (SSD) – the townships are allowed to set up a SSD to pay for the costs of maintaining the rural trunk stormwater system. Under Minnesota Statute 365A, townships can set up a SSD over a part of the township, but only in response to a petition by at least 50% of the property owners in the proposed SSD area. (Note: Counties can also form SSDs, but only those counties that lie outside the seven-county metropolitan area; this option is therefore not available to Scott County.)

County Ditch funds – the ditch authority (Scott County) has a separate “ditch fund” for each county ditch, which are used for ditch maintenance and repair. Minnesota Statute 103E.735 limits the dollar amount that can be held in each fund to 20 percent of the assessed benefits of the drainage system, or \$40,000, whichever is greater. These funds can only be used for the designated county ditch.

WMO funds – all of the WMOs in the DAP area (PLSLWD, VRWJPO, and Scott WMO) have the authority to levy ad valorem taxes. County WMOs (Scott WMO and VRWJPO) may apportion costs by subwatershed units or by cities and towns, and may establish one or more watershed management tax districts (Minnesota Statute 103B.245). Similarly, watershed districts (PLSLWD), may apportion costs district-wide or by subwatershed units and require the establishment of more than one tax district in the watershed (Minnesota Statute 103B.251).

Scott County general funds – the County Board could direct portions of the County’s general funds to pay for some or all of the costs of maintaining a particular component of the rural trunk stormwater system.

Township general funds – the township boards could direct portions of the township’s general funds to pay for some or all of the costs of maintaining a particular component of the rural trunk stormwater system.

Stormwater utility – the townships and the PLSLWD in the DAP area have the authority to set up and administer stormwater utilities; the fees collected could be used to pay for the costs of constructing, repairing and maintaining the rural trunk stormwater system. (Cities also have this authority, but there are currently no cities within the DAP area.) The Scott WMO and the VRWJPO do not have this authority.

Development trunk stormwater fee – the townships or the County could charge a one-time fee at the time of development (e.g., a certain dollar amount per lot created) to help defray the costs for managing the trunk stormwater system. In setting up such a fee, the township/county must show that the fess is necessary, and that the fee is reasonable

Special assessments – the townships, County, and the WMOs all have the authority to pay for projects using special assessments (county ditch work is paid for using this mechanism), but it might be combersome to use this funding mechanism for small ongoing maintenance-type activities.

6. Conclusions

The current management of the stormwater system in the DAP area and the gaps and problems with the current management are summarized in the following table:

Stormwater System Component	Current Management	Gaps/Problems
Stormwater infrastructure: Bridge and culvert crossings	Scott County Public Works, Scott County ordinances, Scott WMO rules, township operations	Lack of knowledge regarding permit requirement, lack of coordination between entities, lack of similar standard in VRWJPO
Stormwater ponds, etc. in developments	Townships have ultimate responsibility, but responsibility often assigned to homeowners associations in the development agreement, easements over facilities given to townships	Potential lack of funding capacity and/or capability on part of the homeowners association and/or townships to perform maintenance
Public ditches	Scott County is the ditch authority; county assesses benefited properties	Some count ditch funds may be running low; potential ditch capacity issues in the future as the area develops
Landlocked basins	Scott WMO, PLSLWD and VRWJPO rules	No gaps
Private ditches/tiles	Scott County ordinance requires “downstream assessment”	May be downstream impacts or unknowns that limit upstream development (i.e., developers may not be allowed to develop to the full 2.5-acre density); lack of knowledge regarding size and location of private systems, particularly subsurface tiles
Public waters	MDNR – public waters permit	The MDNR is not responsible for removing downed trees/debris, repairing erosion sites, etc.; although not defined, the responsibility typically falls on a local unit of government (city, township, county, or WMO)

By addressing the gaps in stormwater management, the County will be able to ensure that infrastructure and structures in the DAP area are out of harm’s way with respect to stormwater runoff.

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7. Next Steps

If the County decides to identify/establish a rural trunk stormwater system, one of first steps includes developing a map showing the rural trunk stormwater system, based on the criteria presented in Section 5B or other criteria selected by the County. The other “next steps” in the process of establishing a rural trunk stormwater system will depend on the management option chosen in Section 5C above. After selection of the preferred option, the County will need to understand and document the details with respect to logistics and legal ramifications of the selected option.

Attachment: Kick-off Meeting and Interviews

To start this project, Steve Klein and I met with Paul Nelson to further discuss the project scope. At the meeting, we agreed it would be helpful to gather information about the rural stormwater system and its management in the DAP area. I then conducted the phone interviews to gather information, working from a list of recommended contacts supplied by Paul Nelson, Scott County Natural Resources Program Manager. I interviewed the following people:

Townships:

1. Cedar Lake – Gerald Williams, Township Board chair
2. Credit River – Al Aspengren, Township Board supervisor
3. New Market – George Silverness, Township Board supervisor
4. Spring Lake – Kathy Nielsen, Township clerk

Scott County staff:

1. Surveyor's office – Dan Wormer — regarding ditches, including status of ditch fund
2. Public works maintenance – Gene Busacker
3. Natural resources – Jason Swenson – agreements for township easements, three-way developer's agreements

Attorneys:

1. Bob Ruppe, of Couri, MacArthur & Ruppe – works for townships in Scott County (including the DAP area) and in other counties

Prior to conducting the above interviews, I reviewed the standards/rules for the watershed management organizations (WMO) having jurisdiction in the DAP area – Scott WMO, Prior Lake Spring Lake Watershed District, and the Vermillion River Watershed Joint Powers Organization. I also briefly reviewed the ditch law (Minnesota Statutes 103E).

Interview Results

Townships

Cedar Lake Township:

The township chair did not have any issues with stormwater management, and did not think this study was needed in their township.

Credit River Township:

In my conversation with one of the township supervisors, who is also on the DAP Steering Committee, we discussed the township's MS4 permit. To meet the permit requirements, the township has mapped culverts and township ditches, identified blocked culverts, and is in the process of identifying stormwater systems within developments. The township's surveys do not include going onto private land.

The township supervisor defined the rural trunk stormwater system as the parts that empty into large bodies of water, such as Cleary, Murphy, or Hanrehan Lakes, or into the Credit River.

As new development occurs, he would like to see no runoff from individual homes.

The township supervisor did not know about culvert replacements and road ditches, as those are the responsibility of another supervisor, who is in charge of summer road projects.

Maintenance of stormwater ponds in developments is technically the responsibility of the homeowners association, but in practice the township would perform the maintenance and pay for it. Outlets from stormwater ponds are likely the township's responsibility, which is okay for now.

New Market Township:

In my conversation with one of the township supervisors, we discussed maintenance of township road ditches and culvert repair/replacements. He mentioned that the township replaced three culverts with new culverts in the last year. He said that they usually replace the culvert with the same size as the existing culvert, but in some situations they have replaced a culvert with a larger sized culvert. They did not have the engineer involved in the most recent example of this situation.

The township requires property owners to obtain permits for driveway access to the road.

The township generally does not get involved in private ditches; they will only get involved when an issue is brought to their attention.

There have been some issues with maintenance of stormwater ponds in developments. The township supervisor thinks the developer's agreement should address stormwater maintenance and that the

homeowners association may be the best place to assign the responsibility. In one situation, the outflow from a stormwater pond was obstructed and the township had to get involved to cause the property owner to remove the obstruction.

The township has had situations where crossings were installed without permits. A recent example is a resident who built a road across the Vermillion River. However, this issue has been elevated to a level far above the township (possibly up to the federal level).

The township does not have staff; they have a township engineer on contract. The township supervisor would prefer Scott County staff to inspect and take care of stormwater maintenance issues because the county already has the staff available.

When we talked about a development's stormwater system connecting into a private ditch/tile system, the township supervisor noted that there was "some controversy about that in the past" and their township engineer would be asked to look into that type of situation.

When asked about the future, the township supervisor expressed concern about ensuring that infiltration ponds work properly so that the groundwater continues to be recharged for use by individual wells.

Spring Lake Township:

The township clerk was very familiar with township maintenance issues that are related to stormwater (e.g., road ditches and stormwater ponds in private developments), but had not heard of the concept of a rural trunk stormwater system. As part of their road maintenance duties, the township has deepened and widened the ditches along township roads and removed accumulated trash/debris at culverts. Other road ditch maintenance duties are aimed at controlling vegetation growth in the ditches (e.g., weed/brush spraying, tree removal). The clerk was also aware of a situation where a township road overtopped/washed out and the township replaced the culvert with a larger culvert.

The township requires a driveway and/or field access permit for property owners to connect to a township road (ordinance allows only one driveway or field access to a parcel). If work will impact a township road ditch, the property owner must obtain a utility permit from the township. In cases where crossings are installed without a permit, the township board requires the property owner to come before the board and they determine whether or not to require the property owner to remove the crossing.

For private ditches, the township will send letters to the property owner regarding needed maintenance (e.g., removing cattails). On occasion, the township will perform the maintenance work and then assess the cost back to the property owner. If a private system (tile or ditch) connects up to a county ditch, it is not a township issue.

With respect to development, the township gets involved in reviewing/approving the development and the roads. If there are private drainage tile lines on the development property, a drainage and utility easement will be needed.

In situations where a township road intersects a county ditch, the township would involve their engineer in reviewing the drainage requirements.

Future issues brought up by the clerk include:

- Maintenance of stormwater ponds – the township needs to have the correct legal structure in place so that the township can either assess property owners the cost of maintaining the ponds or have enough funds in the township budget to do the work themselves. The township has some concerns about leaving the maintenance responsibility to the homeowners association, and has had discussions with Scott County staff about whether ponds should be the responsibility of homeowners associations or if the ponds should be public property. In the past, the town has paid for this type of maintenance and then assessed the costs back to the property owners.
- Low impact development – the township may want to pursue this, but there are questions about its effectiveness in clay soils, and maintenance of rainwater gardens on private property
- Maintain rural character, but make sure that stormwater management methods work.

Scott County staff

Rural Residential Development

Scott County Natural Resources staff noted that the county is the permit authority in unincorporated areas and the County reviews subdivisions for performance oriented standards. The County's review focuses on whether the proposed subdivision meets the County's standards. Scott County ordinance requires that drainage and utility easements in subdivisions be dedicated to townships, who must accept ownership and maintenance responsibility for the easements. The townships (and their engineers) also review subdivisions, if it affects their infrastructure or is in their drainage and utility easements. The township reviews are typically more about the actual facilities constructed as part of the development that the township will be inheriting when drainage and utility easements are dedicated. The township, not the county, reviews for specific design standards (e.g., catch basins, skimmer structures, or pipe materials).

The county requires three-way agreements for developments. These agreements are signed by the township, the county, and the developer. The agreements vary in length, but even the shortest dedicate drainage easements and stormwater facilities to the township. However, there is a variety of approaches with respect to assigning maintenance responsibility, including:

- No assignment of responsibility for maintenance of the facilities.
- Assignment of the maintenance responsibility to the individual lot owner.

- Assignment of the maintenance responsibility to the homeowners association, with the township having the right to charge costs back to the homeowners if needed maintenance is not performed by the homeowners association.

County natural resources staff expressed concerns about the ability of homeowners associations to maintain the stormwater infrastructure, especially as the years pass. County public works maintenance staff also noted that there needs to be easements dedicated to allow access to stormwater ponds in developments.

WMO Rules/Standards

In the DAP area, there are three watershed management organizations—Scott WMO, Prior Lake Spring Lake Watershed District (PLSLWD), and the Vermillion River Watershed Joint Powers Organization (VRWJPO)—each with their own standards that are adopted by reference into the Scott County Zoning Ordinance.

The Scott WMO Standards and the PLSLWD Rules both contain a Standard H, Bridge and Culvert Crossings. The standard requires a permit from the appropriate LGU, the Scott WMO, or PLSLWD for modifications to or placement of bridges and culvert crossings where the tributary area is in excess of 100 acres. However, Scott County Natural Resources staff suspects that this permit requirement is not widely known and Scott County is not receiving permit applications for most of the proposed bridges and culvert crossings with drainage areas greater than 100 acres. In the past three years, staff have yet to see a culvert replacement permit except for county roads (and they don't see all of those – only the major ones) and some township projects. The VRWJPO Rules do not contain a similar standard, so such a standard would not apply in the VRWJPO portion of the DAP area, unless written into County Ordinance directly, or the VRWJPO were to revise its rules to incorporate a similar standard.

County Ditches

Scott County is the county ditch authority for ditches in Scott County, with much of the day-to-day responsibility residing in the County Surveyor's office. The County surveyor surveys the ditches, responds to resident concerns, designs and oversees maintenance work, and tracks the status of the ditch funds. County natural resources staff noted the need to obtain/develop official ditch profiles and perhaps formal defined easements, which will become the baseline for future development. The County surveyor staff is in the process of obtaining these profiles. The County has not performed a reassessment of benefits on any of the county ditches. Potential issues include: 1) the need to purchase buffers along the county ditches (to meet the requirements of Minnesota Statutes 103E), 2) resistance/objection by more recently-arrived property owners who do not know about the ditches or do not perceive a benefit, and 3) the staff time involved.

County surveyor staff offered the following comments regarding the county ditches (CD) in the DAP area:

- CD 4 – This ditch now serves people that grow hay and raise horses rather than farm, and more area is becoming residential. County staff felt it important to not abandon the ditch so as to preserve the right to use it for drainage.
- CD5 – The portion of this ditch in the DAP area is contained mostly within the Bradshaw Lakes Wildlife Management Area. We understand there are agreements between the County and the MDNR regarding the control structures in the WMA, which are on and/or off the ditch. County staff does not receive many calls about this ditch because of its location in the WMA.
- CD 6 – County staff have received only one or two requests for minor work; private property owner performed work once or twice, not knowing it was a county ditch. Even when drained, there are low areas on the ditch. The surrounding land is only used for haying. There is not a lot of interest in this ditch.
- CD 12 – This is a newer ditch, created in the 1950's. The surrounding property owners are aware of the ditch. There are sod farms and a few farmers. The farmers have private tiles that connect into the county ditch. More of the surrounding area is becoming residential.

County Maintenance

Every year, County public works maintenance staff inspects at least 25% of the county's culverts, along with ponds. In 2009, the County will be inspecting 40 – 50% of the culverts. The county is responsible for culverts crossing county roads/highways, plus any culverts that are located within a county right-of-way. This means the county is responsible for culverts crossing township roads, if that culvert is within the county right-of-way.

Erosion and Sediment Control

County public works maintenance staff are concerned that the townships and the Minnesota Department of Transportation (MNDOT) are not as rigorous as the County in their erosion and sediment control methods. County staff noted that the County employs erosion and sediment control techniques even for ditch cleanouts, whereas the township and MNDOT may not.

Attorneys

The attorney was interested in, but not familiar with, the concept of a rural trunk stormwater system. He told a story about an issue in the Willmar area, where many people connected up to a private tile system (paid for by the property owner) without the property owner's permission. He worked with the people to develop a drain tile (easement) agreement, which assigns responsibility for maintenance of the drain tile. Options for managing this type of situation (especially a large/long private tile) in the DAP area include: 1) the County buys and maintains the private system; or 2) the developer must provide the County with a signed easement that shows the property owners and/or the homeowners association responsible for maintenance.

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The attorney noted that it's important to obtain access easements, to allow for maintenance to occur.

The attorney believes that in general, the township officers are comfortable with the concept of stepping in and fixing problems in the private developments, but only if they can charge the resultant costs back to someone else (e.g., the homeowners association or the individual property owners). In other words, the townships are comfortable with being given the ability to fix problems, but do not want the obligation.

If the County decides to identify a rural trunk stormwater system, the developer's agreement could incorporate this information. The attorney offered the possibility of setting up a "subordinate service district" (SSD) to pay for the costs of maintaining the rural trunk stormwater system. Under Minnesota Statute 365A, townships can set up a SSD over a part of the township, but only in response to a petition. (Note: Counties can also form SSDs, but only outside the metropolitan area.)

The attorney noted that no one knows the location of private drain tiles because they are not usually mapped.