

Riley-Purgatory-Bluff Creek Watershed District
Board of Managers Proposed Rules Special meeting/Board Workshop

Wednesday, April 16, 2014 – 4:00pm
Eden Prairie City Center
Heritage Room
8080 Mitchell Rd
Eden Prairie, MN 55344

Agenda

1. Call to Order
2. Approval of the Agenda **Action**
3. Hiring of Staff **Action**
4. Office Space **Action**
5. SWLRT Update **Information**
6. Rules Workshop **Information**
7. Adjournment **Action**

Memorandum

To: RPBCWD Board of Managers
From: Scott Sobiech, PE, CFM and Joe Waln, PE, CFM
Subject: **DRAFT** SWLRT Preliminary Alignment Review
Date: April 1, 2014
Project: 23270053

The purpose of this memorandum is to summarize the review of potential impacts from the Southwest Light Rail Transit (SWLRT) alignments currently under consideration in relation to the draft District Rules slated to be adopted in the coming months. This review is intended to proactively identify the potential natural resources impacts so that information can be submitted for consideration by the SWLRT design team to limit impacts on resources in the RPBCWD.

This is intended to be a high level review of the available information at the time of the review. This review in no way constitutes a complete assessment with respect to all aspects of the draft rules. All costs presented are relative orders of magnitude for discussion purposes only. Actual costs will vary significantly depending on final alignments and site conditions.

The portion of the proposed SWLRT alignment within RPBCWD is between Prairie Center Drive, east of the US Highway 212 interchange with Interstate 494, and Mitchell Road. As seen in figure 1 below, there are several permutations of the alignment segments, but this review focus is primarily on three scenarios.

- 1) North alignment is a combination of EPTC North and Mitchell North. This was the preferred alignment presented in the draft environmental impact statement, fall 2012.
- 2) The South alignment is a combination of EPTC South and Mitchell South, and appears to be the alignment Met Council will move forward to final design.
- 3) The Middle alignment is similar to the south alignment, except the route between Southwest station and Mitchell station avoids impacts to the Purgatory Creek recreational area by initially following the Mitchell North alignment and then cutting south through the MTS property. This alignment was identified and suggested to the SWLRT by RPBCWD in mid-January 2014.

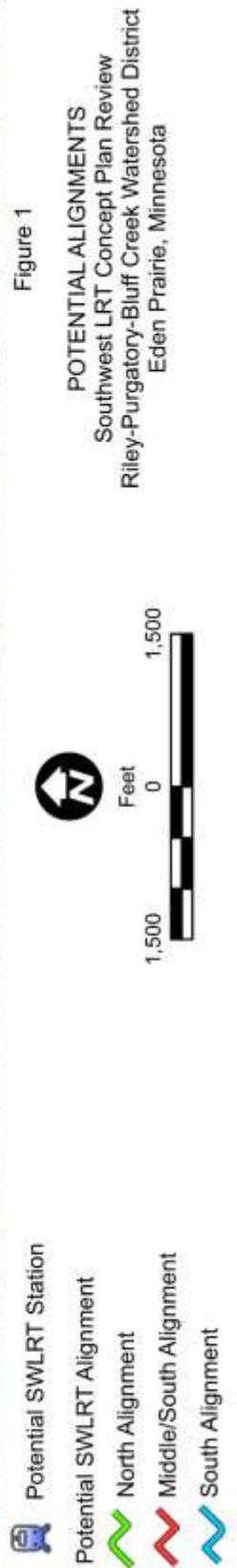
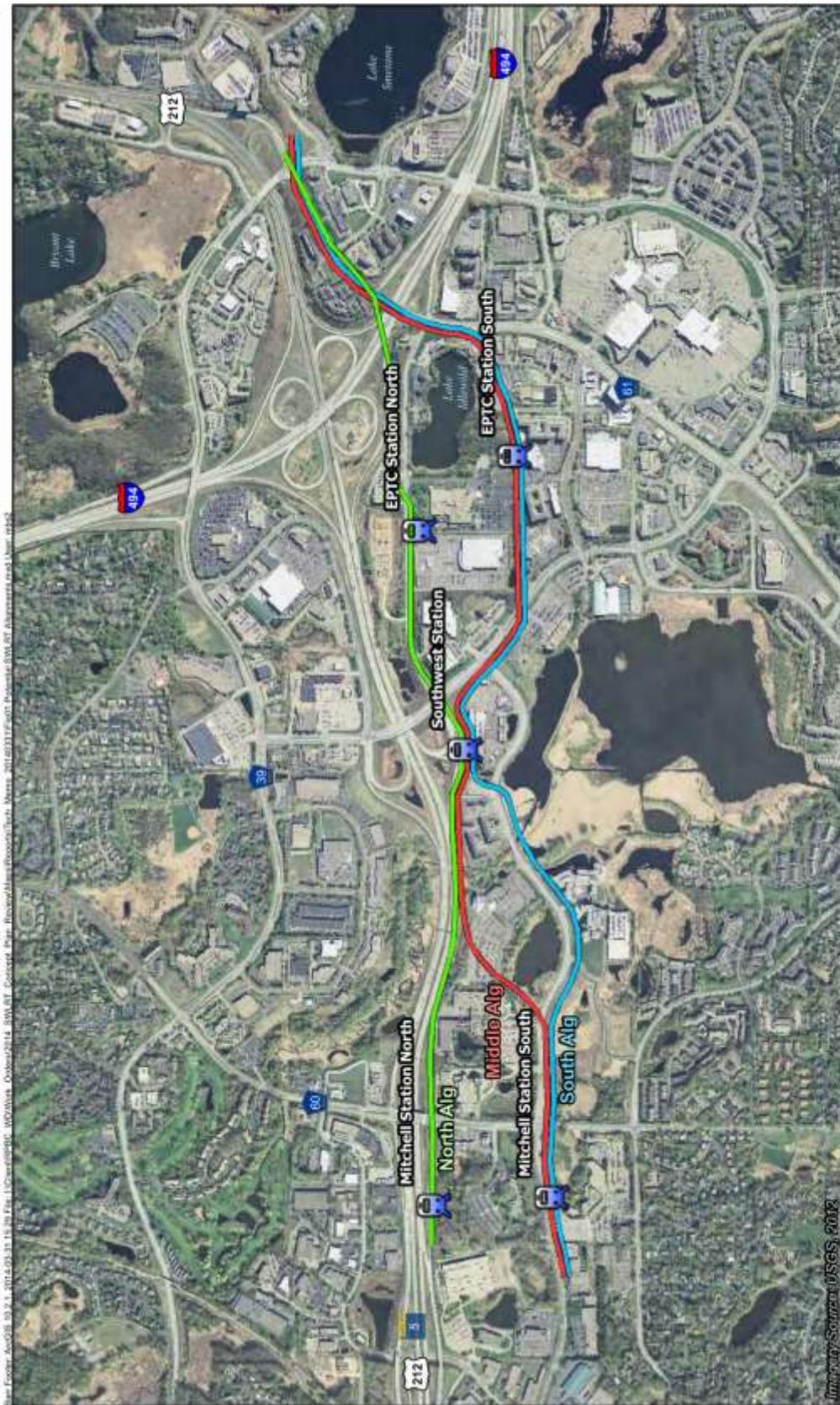


Figure 1

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Limited engineering design data were available for this review. Assumptions were made based on expected construction methods and footprint for the proposed track alignments and associated design features.

The review consisted of evaluating the potential impacts on:

1. Floodplain Management and Drainage Alterations (Rule B)
2. Erosion and Sediment Control (Rule C)
3. Wetland, Lake and Creek Buffers (Rule D)
4. Shoreline and Streambank Stabilization (Rule F)
5. Waterbody Crossings and Structures (Rule G)
6. Stormwater Management (Rule J)
7. Soil and Structural Stability

The remainder of this memo discusses each of the evaluation areas. The discussion format for each evaluation area is:

- Summary of the intent of the rule
- Table summarizing impacts, mitigation requirements, estimated cost range of mitigation
- Additional discussion and assumptions

1.0 Floodplain Management and Drainage Alterations (Rule B)

Rule B regulates any alteration or filling of land below the 100-year flood elevation, and any alteration of surface water flows below the 100-year flood elevation. Any reduction in floodplain storage from the project would need to be mitigated with compensatory storage. Table 1 summarizes impacts, mitigation requirements, and estimated cost of mitigation.

Table 1 Summary of Floodplain Management and Drainage Alteration Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts	minimal or no impact	~20,000 cy of fill in the floodplain for tracks & trail	~7,000 cy of fill in the floodplain
Mitigation	n/a	compensatory storage	compensatory storage
Cost	n/a	\$400k to \$500k	\$200k to \$300k
Summary	There would not likely be significant impacts on floodplain management for this alignment.	This alignment passes through the Purgatory Creek Recreation Area which serves as a flood storage area and community amenity.	This alignment avoids impacts to the Purgatory Creek Recreation Area, but would likely require fill in the pond southeast of the MTS building.

The fill quantities and estimated cost of mitigation assume that the project would place the tracks on fill material. Alternatively the project could be elevated to reduce impacts to flood storage. There would still be some compensatory storage requirements related to the volume of piers supporting the elevated track.

2.0 Erosion and Sediment Control (Rule C)

Rule C regulates projects that disturb 5,000 square feet or more of land within the District. Both project alignments would trigger erosion and sediment control permit requirements. Areas of concern for each alignment are listed below. Table 2 summarizes impacts and mitigation requirements. Since sediment and erosion control plans are standard parts of a set of construction plans, costs were not estimated.

Table 2 Summary of Erosion and Sediment Control Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts	Project footprint: ~10 acres of track ~1 acre for stations ~8 acres of redevelopment	Project footprint: ~12 acres of track ~1 acre for stations ~8 acres of redevelopment	Project footprint: ~12 acres of track ~1 acre for stations ~8 acres of redevelopment
Mitigation	erosion and sediment control BMPs	erosion and sediment control BMPs	erosion and sediment control BMPs
Cost	not estimated	not estimated	not estimated
Summary	There is a low level of concern for erosion and sediment control issues for the North Alignment. The erosion and sediment control plan will need to address impacts to the existing drainage ditch along the south side of Highway 212 and how the project will prevent sediment from being carried downstream by that ditch.	There are significantly greater erosion and sediment control challenges for the South Alignment due to the proximity of the project corridor to the waterbodies along Technology Drive. The erosion and sediment control plan will need to address how the project will prevent sediment contamination of these waterbodies.	There are moderate erosion and sediment control challenges for the Middle Alignment due to the proximity of the project corridor to the MTS Pond. The erosion and sediment control plan will need to address how the project will prevent sediment contamination of the pond and impacted wetlands.

In addition to District requirements, a NPDES construction permit will be required from the MPCA.

Erosion and sediment control plans and BMPs will be required regardless of the alignment selected. A greater project footprint will mean additional erosion and sediment control costs. Close proximity of a given alignment to water bodies and wetlands will likely make erosion and sediment control for the South Alignment more expensive than for the Middle or North alignments.

3.0 Wetland, Lake, and Creek Buffers (Rule D)

Rule D regulates the preservation of natural resources, recreational, habitat, water treatment and water storage functions of water resources. Compliance with Rule D is triggered by activities that disturb water resources in a way that requires a permit under Rules B, E, F, G and J. Table 3 summarizes impacts, mitigation requirements, and estimated cost of mitigation.

Table 3 Summary of Wetland, Lake, and Creek Buffer Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts	~0.6 acre of medium value wetland impacts	~1.3 acres of medium value wetland impacts ~0.5 acre of high value wetland impacts	~1 acre of medium value wetland impacts
Mitigation	~1.2 acres of new wetlands 40 foot average buffer width	~3.6 acres of new wetlands 40 to 75 foot average buffer width	~2 acres of new wetlands 40 foot average buffer width
Cost	\$50k to \$100k	\$200k to \$300k	\$100k to \$200k
Summary	This alignment has the least number of wetland impacts primarily because it follows existing transportation corridors.	This alignment has the most wetland impacts primarily because it affects the Riley Purgatory Recreational Area.	This alignment has moderate wetland impacts, but avoids impacting the recreational area.

For a project with the potential for wetland impacts, the design sequencing should first explore all options for avoiding the impacts. Next, if there are unavoidable impacts, those impacts should be minimized to the extent possible. Finally, any resulting impacts must be mitigated.

Mitigation sequencing has not been presented by SWLRT. However, Eden Prairie is the local government unit (LGU) for the portion of the project in RPBCWD. Based on WCA and EP requirements the SWLRT will likely need to mitigate wetland impacts at a 2 to 1 ratio, which means for every one acre of wetland impacted two acres must be created.

Wetland mitigation will likely be achieved through the purchase of wetland mitigation credits, which are estimated to cost \$45,000 per acre. Alternatively the project could create new wetland areas for mitigation. However, the land acquisition, design, and construction costs associated with creating new wetlands is likely much higher than purchasing from a wetland mitigation bank.

The SWLRT will need to provide buffers adjacent to the various water bodies impacted by the project. Based on the anticipated impacts, it appears that an average buffer width of 40 to 75 feet will be required for this project.

4.0 Shoreline and Streambank Stabilization (Rule F)

Rule F regulates the installation of shoreline and streambank stabilization measures including, but not limited to riprap, bioengineered installation, sand blankets, and retaining walls. Table 4 summarizes impacts, mitigation requirements, and estimated cost of mitigation.

Table 4 Summary of Shoreline and Streambank Stabilization Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts	- 100 feet of impact to Purgatory Creek stream banks	- 1000 feet of shoreline impact to Purgatory Creek Recreational Area - 100 feet of impact to Purgatory Creek stream banks	- 300 feet of shoreline impacts to pond south east of MTS Systems Corporation building - 100 feet of impact to Purgatory Creek stream banks
Mitigation	stabilization and vegetative restoration of stream banks	stabilization and vegetative restoration of shoreline and stream banks	stabilization and vegetative restoration of shoreline and stream banks
Cost	\$20k to \$40k	\$200k to \$400k	\$50k to \$100k
Summary	Crosses Purgatory creek and will require restoration and streambank stabilization.	This alternative has the most shoreline and streambank impacts. Restoration will be required for the Purgatory Creek Recreational Area. The crossing of Purgatory Creek will require restoration and bank stabilization.	This alternative has moderate shoreline impacts associated with the pond southeast of the MTS Systems Corporation building. It also crosses Purgatory creek and will require restoration and streambank stabilization.

The costs associated with restoration depends on the size and complexity of the site. Unit cost for restoration tends to go up for smaller sites like these due to fixed mobilization costs. The unit cost for streambank and shoreline restoration was assumed to be \$200 per lineal foot based on recent construction projects.

The amount and type of restoration that will be required will depend on the amount of disturbed area and the type of construction methods used. For example, an alternative under consideration by the SWLRT is to elevate the tracks on a bridge structure to reduce impacts for the South Alignment. An elevated track will create permanent shaded areas which will require different restoration strategies. The costs presented in this analysis assume the tracks are constructed on fill.

5.0 Waterbody Crossings and Structures (Rule G)

Rule G regulate the construction, improvement, modification, replacement or removal of waterbody crossings. Table 5 summarizes impacts, mitigation requirements, and estimated cost of mitigation.

Table 5 Summary of Waterbody Crossing and Structure Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts	<ul style="list-style-type: none"> - New crossing of Purgatory Creek - Existing crossing of Drainage Ditch near SW Station 	<ul style="list-style-type: none"> - Crossing of Purgatory Creek - Crossing of Recreational Area - New crossing of Drainage Ditch near SW Station 	<ul style="list-style-type: none"> - New crossing of Purgatory Creek - Crossing of MTS pond - Existing crossing of Drainage Ditch near SW Station
Mitigation	<ul style="list-style-type: none"> - Bridge or culvert over Purgatory Creek - Demonstrate no adverse impact to conveyance capacity and floodway storage. 	<ul style="list-style-type: none"> - 1000-foot bridge over Recreational Area - Bridge or culvert over Purgatory Creek - Demonstrate no adverse impact to conveyance capacity and floodway storage. 	<ul style="list-style-type: none"> - Bridge or culvert over Purgatory Creek - 300-foot bridge over MTS - Demonstrate no adverse impact to conveyance capacity and floodway storage.
Cost	\$0.5M to \$1M	\$6M to \$10M	\$2M to \$4M
Summary	The project should not cause increases in upstream flood elevations for Purgatory Creek.	The project should not cause increases in upstream flood elevations for Purgatory Creek.	The project should not cause increases in upstream flood elevations for Purgatory Creek.

Costs are highly variable depending on crossing type and length. While bridging can be a cost effective way to address permitting issues and design challenges, generally the tradeoff is increased construction cost.

Crossing a public water requires a permit from the MnDNR.

There are two primary concerns for the district related to the crossing of Purgatory Creek. First, is the potential for an additional crossing of the creek to cause increases in upstream flood elevations. The project must provide the same or greater conveyance as the immediately upstream culvert in order to have no impact on flood levels. Second, is the loss of storage in the designated floodway. The project must demonstrate that filling in the designated floodway will have no impact (i.e., 0.00 feet) on regulatory flood levels.

6.0 Stormwater Management (Rule J)

Rule J regulates projects that disturb 5000 square feet or more of land within the District. The three primary considerations related to stormwater are volume control, rate control, and water quality. Table 6 summarizes impacts, mitigation requirements, and estimated cost of mitigation for replacing stormwater facilities.

Table 6 Summary of Stormwater Management Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts	Project footprint: ~11 acres impervious area ~8 acres of redevelopment ~1 acre of stormwater facilities affected	Project footprint: ~13 acres impervious area ~8 acres of redevelopment ~1.4 acres of stormwater facilities affected	Project footprint: ~13 acres impervious area ~8 acres of redevelopment ~1.5 acres of stormwater facilities affected
Mitigation	<ul style="list-style-type: none"> - Volume criteria - Rate control criteria - Water quality criteria - Replace impacted stormwater facilities 	<ul style="list-style-type: none"> - Volume criteria - Rate control criteria - Water quality criteria - Replace impacted stormwater facilities 	<ul style="list-style-type: none"> - Volume criteria - Rate control criteria - Water quality criteria - Replace impacted stormwater facilities
Cost	\$2M to \$4M	\$2M to \$4M	\$2M to \$4M
Summary	This alignment has the smallest overall footprint and the least amount of disturbance to existing stormwater facilities.	The south and middle alignments have a similar impervious area footprint.	The middle alignment impacts more existing stormwater facilities than the other two alignments.

All three alignments will result in the construction of close to 20 acres of impervious surface within the district. The project will need to meet volume control requirements that require 1.1 inches of abstraction for runoff from the project area, meet rate control requirements that keep post-project peak discharge rates similar to or less than existing discharge rates, water quality treatment requirements for TSS and TP, and mitigate for any impacts to existing stormwater management facilities.

The project will require two to four acres of land to meet stormwater management requirements. The cost ranges provided are based on rough estimates for land acquisition, design, and construction of stormwater BMPs in the metro area. Actual costs could vary substantially depending on the availability, location, and value of land for stormwater management along the project corridor.

7.0 Soil and Structural Stability

While not directly subject to the District’s draft rules, potential concerns related to soil and structure stability were reviewed for each alignment. Table 7 summarizes impacts and mitigation requirements.

Table 7 Summary of Soil and Structural Stability Impacts

	North Alignment	South Alignment	Middle Alignment
Impacts / Concerns	<ul style="list-style-type: none"> - Compressible soils could cause long term settlement - Track segments near the highway may enjoy greater soil stability 	<ul style="list-style-type: none"> - Widen bridge over Purgatory Creek - Compressible soils could cause long term settlement - Temporary shoring - Vibration damage from pile driving 	<ul style="list-style-type: none"> - Compressible soils could cause long term settlement - Temporary shoring - Track segments near the highway may enjoy greater soil stability
Mitigation	<ul style="list-style-type: none"> - Driven pile foundations - Vibration monitoring - Excavate poor soils and replace w/ structural fill 	<ul style="list-style-type: none"> - Driven pile foundations - Vibration monitoring - Excavate poor soils and replace w/ structural fill - 1000 foot Bridge 	<ul style="list-style-type: none"> - Driven pile foundations - Vibration monitoring - Excavate poor soils and replace w/ structural fill - 300 foot Bridge
Cost	not estimated	\$6M to \$10M bridging \$2M to \$3M replace soils	\$2M to \$4M bridging \$1M to \$2M replace soils
Summary	This alignment is likely least susceptible to soil compression issues due to the proximity to highway 212 and other transportation corridors.	This alignment is likely most susceptible to soil compression issues based on known soil characteristics along Technology Drive.	The challenges associated with soil compression issues for this alignment are likely somewhere in between the North and South alignments.

Compressible soils could lead to long term settlement of project features. Pile-driven foundations may be necessary to minimize the potential for settlement. Vibrations from pile driving and eventually light rail track may cause vibrations that adversely impact structures along the alignment. The project should develop a vibration monitoring plan for testing for and mitigating adverse impacts due to vibrations.

General cost considerations were only developed for areas along Technology drive to illustrate the potential impacts of poor foundation materials. While the construction costs for bridging are considerably higher than for replacing the foundation soils, there are other cost factors associated with mitigating impacts to the waterbodies that may make bridging an economic alternative.

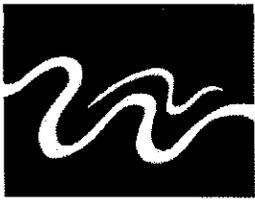
8.0 Summary

The evaluation of potential impacts, mitigation measures and associated cost estimates were based on limited design information. The anticipated project footprint was based on typical sections from the environmental impact statement and potential track alignments that have been the focus of project meetings during the past several months. Despite the limited available details, it was still possible to develop a general sense for the level of impact on water resources within the District that would be expected for the different alignment scenarios.

Impacts to water resources is one of many factors that go into selecting the final alignment for the SWLRT. As summarized below, from a water resources impact standpoint the North Alignment has the least impact, while the South Alignment has the most impact.

- The North Alignment would have the least impact on water resources because it limits impacts to floodplains, stream crossings, and shorelines. It has the least impacts on wetlands and the soil stability along this alignment is anticipated to be better than the other two alignment options.
- The South Alignment would have the greatest impact on water resources because it has a larger overall footprint than the North Alignment and it infringes on the Purgatory Creek Recreational Area. Concerns for this alignment include impacts to floodplain storage, wetland buffers, shorelines, Purgatory Creek stream crossing, and the challenges associated with construction on unstable soils along Technology Drive.

The full extent of environmental impacts and associated cost will depend on the final alignment and design developed by the SWLRT.



**Riley
Purgatory
Bluff Creek
Watershed District**

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MEMORANDUM

TO: Board of Managers

FROM: Claire Bleser, Scott Sobiech, Michael Welch

RE: Rule comments review

DATE: April 11, 2014

The first step in the process of finalizing and adopting the District's amended rules will be the managers' review of comments received on the proposed rules at the April 16 workshop. In addition, the managers will direct the administrator, engineer and counsel on responses to the comments. Responses to the comments will take the form of direct responses to comments and, possibly, changes to rules provisions. To facilitate the managers' review of the comments received, the engineer has prepared a comprehensive matrix of all comments received, as well as separate sheets showing 1) comments from organizations and 2) comments from individuals (mostly single-family homeowners). The matrix accompanies this memo.

We thought it would be useful to draw the managers' attention to a few consistently referenced themes in the comments. This memo does that, but does not offer proposed responses to comments or general responses to these highlighted areas, leaving that step for development in accordance with direction provided by the managers at the workshop:

1. General: Many commenters observe that the proposed rules are not consistent with other watershed districts' rules and contend that such consistency, on its own, is beneficial.
2. Rule B - subsection 3.4: Several commenters state that the 100-foot space adjacent to a creek in which no impervious surface may be constructed or reconstructed is too wide.
3. Rule D - section 2: Many commenters ask the District not to require buffers on lakes.

Board of Managers

Mary Bisek
Minnetonka

Jill Crafton
Bloomington

Perry Forster
Eden Prairie

Kenneth Wencil
Chanhassen

Leslie Yetka
Minnetonka



4. Rule D – subsection 3.1: Several commenters who (tacitly or explicitly) recognize the validity of the District’s interest in buffering water resources nonetheless feel that the buffer widths proposed are excessive – particularly for wetlands.
5. Rule D subsection 3.1d: Some commenters do not appear to understand that Rule D proposes reduced buffer widths for existing single-family homes.
6. Rule J: A number of commenters state generally that the stormwater management requirements are overly burdensome or onerous.
7. Rule J – subsections 2.4 and 3.1: Municipal commenters and Hennepin County state that the stormwater management requirements applicable to road projects will unreasonably burden road reconstruction projects or render such projects infeasible. The 1.1-inch abstraction standard is viewed as too broadly applied.

For the April 16 meeting, we have also prepared a matrix comparing some of the provisions that are the focus of the comments mentioned here to the surrounding watershed organizations’ parallel provisions. That matrix also is attached.

At the workshop, we will discuss the District responses to all comments, but will focus in particular on the themes and structures for the comments highlighted here. The timeline and process for responding, modifying the rules for the managers’ re-review and adoption will be set; a target date for the rules to become effective also will be discussed.

Finally, one particular representation warrants a correction of sorts: It is stated that no other watershed district in the metro area requires buffers on lakes or creeks. The Brown’s Creek Watershed District requires buffers on lakes and streams of certain size when, like the proposed Riley rules, certain land-disturbing activities take place.

The relevant Brown’s Creek Watershed District rule provision states:

4.2 Applicability.

4.2.1 Rule 4.0 [requiring buffers] applies to land:

- (a) adjacent to Brown’s Creek; a tributary of Brown’s Creek designated as a public water pursuant to Minn. Stat. §103G.005, subd. 15, as amended; a recreational development or natural environment lake designated as a public

water under Minn. Stat. §103G.005, subd. 15, as amended; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been (i) subdivided; or (ii) subject to a new primary use for which a necessary rezoning, special use permit or variance has been approved; on or after [the date of rule adoption] (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

BCWD requires buffer of minimum 75 feet on a lake classified by the DNR as a natural environment lake and 50 feet on a recreational development lake. The BCWD buffer requirement does not apply to single-family residential properties established prior to 2000 as long as a proposed reuse retains the single-family residential zoning.

The BCWD rules are available at: http://www.bcwd.org/BCWD_rules_07.pdf

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