Cedar corporation

604 Wilson Avenue • Menomonie, Wisconsin 54751
715-235-9081
800-472-7372
Fax 715-235-2727
www.cedarcorp.com

June 27, 2008

City of Menomonie
ATTN: Randy Eide
800 Wilson Avenue
Menomonie, WI 54751

RE: City of Menomonie Non-Point Source Phosphorus Load Calculation

Mr. Eide,

We are pleased to submit the enclosed report entitled:

Non-Point Source Phosphorus Load from the City of Menomonie.

Please do not hesitate to contact me if you have any questions or comments regarding this report. As always, we appreciate the opportunity to serve the City of Menomonie.

Sincerely,
CEDAR CORPORATION

David Schofield, P.E.
Project Engineer

Enclosure

Cedar corporation

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memorandum

DATE: June 27, 2008
TO: Randy Eide, City of Menomonie
FROM: David Schofield, P.E.
SUBJECT: Non-Point Source Phosphorus Load from the City of Menomonie

We were asked to calculate the total non-point source phosphorus load from within the City of Menomonie corporate boundary for the years: 1990, 2020 (no controls) and 2020 (with controls).

Land Use:

We could not locate land use information for 1990 and 2020. Instead, we used land use information contained in the 1993 and 2007 City of Menomonie Comprehensive Planning documents. We used the current land use from the 1993 Comprehensive Plan and the future (2025) land use from the 2007 Comprehensive Plan. The 1993 Land Use Map is contained in ***Appendix A*** of this report. The 2025 Land Use Map is contained in ***Appendix B*** of this report.

Modeling:

We have used two models to complete the calculations for this project. The first model, WinSLAMM, was used to model storm water runoff from urbanized areas in 1993 and 2025. The WinSLAMM model accepts land use data and provides estimated runoff volumes and pollutant loadings. WinSLAMM inputs are contained in ***Appendix C*** of this report. WinSLAMM outputs are contained in ***Appendix D*** of this report.

The second model, Snap-Plus, was used to model storm water runoff from agricultural areas in 1993. The Snap-Plus model accepts soils (we used the three most prevalent soils in each watershed), soil tests, fertilizing and cropping records (we obtained historical records from a major landowner within the City and extrapolated their data across the City) and provides pollutant loadings. Snap-Plus outputs are contained in ***Appendix E*** of this report.

Modeling Results:

Watershed	1993 Urban (ac.)	Agriculture (ac.)	Total (ac.)
Lake Menomin	2441	2533	4974
Wilson Creek	765	185	950
Red Cedar River	2141	461	2601
Total	*5346*	*3179*	*8525*

Figure 1: Land Use, 1993.

Watershed	2025 Urban (ac.)	Agriculture (ac.)	Total (ac.)
Lake Menomin	4974	0	4974
Wilson Creek	950	0	950
Red Cedar River	2601	0	2601
Total	*8525*	*0*	*8525*

Table 2: Land Use, 2025

Watershed	Phosphorus Index (lbs./ac./yr)
Lake Menomin	1.146
Wilson Creek	1.938
Red Cedar River	2.393

Figure 3: Phosphorus Index from Snap-Plus (See Appendix E)

Watershed	1993 Urban (lbs.)	Agriculture (lbs.)	Total (lbs.)
Lake Menomin	1686	2903	4589
Wilson Creek	389	358	747
Red Cedar River	1304	1103	2407
Total	*3379*	*4364*	*7743*

Figure 4: Non-Point Source Phosphorus Load, 1993

Watershed	2025 Urban (lbs.)	Agriculture (lbs.)	Total (lbs.)
Lake Menomin	3620	0	3620
Wilson Creek	581	0	581
Red Cedar River	1702	0	1702
Total	*5903*	*0*	*5903*

Figure 5: Non-Point Source Phosphorus Load, 2025 (No Controls)

Watershed	2025 Urban (lbs.)	Agriculture (lbs.)	Total (lbs.)
Lake Menomin	3620	0	3620
BMP: Infiltration	*-1183*	*0*	*-1183*
BMP: Wet Detention	*-225*	*0*	*-225*
Wilson Creek	581	0	581
BMP: Wet Detention	*-58*	*0*	*-58*
Red Cedar River	1702	0	1702
BMP: Wet Detention	*-119*	*0*	*-119*
Total	*4318*	*0*	*4437*

Figure 6: Non-Point Source Phosphorus Load, 2025 (With Controls)

Discussion:

Before commencing the interpretation of the modeling results, we must explain the Best Management Practices that have been included in the *Figure 6*. "*BMP: Infiltration*" signifies that portion of the Lake Menomin Watershed that is and will continue to be wholly infiltrated by several regional ponds located throughout the Industrial Park. "*BMP: Wet Detention*" is an assumed phosphorus removal based upon information provided by the Environmental Protection Agency[1] which estimates the phosphorus removal efficiency of a well-designed wet detention basin to be between 30 and 90%. We have, conservatively, assumed that the actual removal efficiency of wet detention basins within the developing portions of the watershed to be 30%. We have tended on the conservative end of the EPA's estimated range because the City of Menomonie does not currently directly regulate the phosphorus removal efficiency and, thus, any phosphorus removal is a byproduct of the total suspended solids removal efficiency regulations that are currently in place.

$$\frac{Load_{1993} - Load_{2025_with_controls}}{Load_{1993}} = \frac{7743 - 4437}{7743} = 42.7\%$$

Figure 7: Non-Point Source Phosphorus Load Reduction, City of Menomonie

By comparing the modeling results shown in *Figure 4* and *Figure 6*, we estimate, as shown in *Figure 7*, that the non-point source phosphorus load in 2025 will be approximately 42.7% less than it was in 1993, based upon the entire City of Menomonie corporate boundary.

$$\frac{Load_{1993,Lake} - Load_{2025_with_controls,Lake}}{Load_{1993,Lake}} = \frac{4589 - 2212}{4589} = 51.8\%$$

Figure 8: Non-Point Source Phosphorus Load Reduction, East of the S.T.H. 25 Bridge

If one were to artificially limit the calculation to that portion of the City that drains east of the S.T.H. 25 bridge (which would not include the Wilson Creek watershed), we estimate, as shown in *Figure 8*, that the non-point source phosphorus load in 2025 will be approximately 51.8% less than it was in 1993.

[1]"Storm Water Technology Fact Sheet: Wet Detention Ponds." 1999. United States Environmental Protection Agency. 23 June 2008 <http://www.epa.gov/owmitnet/mtb/wetdtnpn.pdf>.

Appendix C – WinSLAMM Inputs

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\1993_Lake Menomin.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GEO01.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 18:32:50
Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0
   Curb and Gutters, `valleys', or sealed swales in:
   3. Poor condition (or very flat) 0
   4. Fair condition 0
   5. Good condition (or very steep) 1

Site information: M55-585_Lake Menomin Phosphorus Load from City of Menomonie_1993

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	11.58	130.99	82.23	79.16	0.00
Roofs 2	27.67	0.00	0.00	0.00	0.00
Roofs 3	0.00	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	11.58	130.99	82.23	79.16	0.00
Paved Parking/Storage 2	27.67	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	0.00	0.00	24.11	56.12	0.00
Street Area 2	135.61	0.00	0.00	0.00	0.00
Street Area 3	0.00	0.00	0.00	0.00	0.00
Large Landscaped Area 1	37.80	101.88	33.28	83.39	0.00
Large Landscaped Area 2	445.54	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	712.62
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	6.27
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	697.45	363.86	221.85	297.83	718.89

Freeway Source Area	Area (acres)
Roofs 1	37.60
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	51.70
Paved Parking/Storage 2	51.70
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	141.00

Total of All Source Areas	2440.88
Total of All Source Areas less All Isolated Areas	2434.61

Source Area Control Practice Information

Land Use: Residential
- Roofs 1 Source area number: 1
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Roofs 2 Source area number: 2
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 6
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 2 Source area number: 7
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 2 Source area number: 19
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 62.15
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Large Landscaped Area 1 Source area number: 21
  - The SCS Hydrologic Soil Type is Silty
- Large Landscaped Area 2 Source area number: 22
  - The SCS Hydrologic Soil Type is Silty

Land Use: Institutional
- Roofs 1 Source area number: 31
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 36
  - The Source Area is directly connected or draining to a directly connected area
- Large Landscaped Area 1 Source area number: 51
  - The SCS Hydrologic Soil Type is Silty

Land Use: Commercial
- Roofs 1 Source area number: 61
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 66
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 1 Source area number: 78
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 11.05
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Large Landscaped Area 1 Source area number: 81
  - The SCS Hydrologic Soil Type is Silty

Land Use: Industrial
- Roofs 1 Source area number: 91
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 96
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 1 Source area number: 108
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 25.72

3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 111
The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban
Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty
Isolated/Water Body Area Source area number: 147
The source area is a water body where all rainfall is considered to be runoff, with no particulate solids loading

Land Use: Freeways
Pavd Lane & Shldr Area 1 Source area number: 151
1. Drainage system type:
Curb and Gutters, Valleys, or Sealed Swales in good condition or very steep
2. Average daily traffic (# vehicles/day): 32400
3. Highway length (miles): 7.76
4. Initial street dirt loading (lbs/curb-mi): default value: 3930.46 lbs.

Large Turf Areas Source area number: 156
The SCS Hydrologic Soil Type is Silty
Undeveloped Areas Source area number: 157
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\1993_Wilson Creek.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GEO01.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 18:40:15
Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0

Curb and Gutters, `valleys', or sealed swales in:

3. Poor condition (or very flat) 0
4. Fair condition 0
5. Good condition (or very steep) 1

Site information: M55-585_Wilson Creek Phosphorus Load from City of Menomonie_1993

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	10.07	2.01	49.62	5.80	0.00
Roofs 2	9.26	0.00	0.00	0.00	0.00
Roofs 3	0.00	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	10.07	2.01	49.62	5.80	0.00
Paved Parking/Storage 2	9.26	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	0.00	0.00	13.84	0.00	0.00
Street Area 2	28.21	0.00	0.00	0.00	0.00
Street Area 3	0.00	0.00	0.00	0.00	0.00
Large Landscaped Area 1	32.85	1.56	19.95	4.51	0.00
Large Landscaped Area 2	109.06	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	388.27
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	0.00
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	208.78	5.58	133.03	16.11	388.27

Freeway Source Area	Area (acres)
Roofs 1	3.44
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	4.72
Paved Parking/Storage 2	4.73
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	12.89

Total of All Source Areas	764.66
Total of All Source Areas less All Isolated Areas	764.66

Source Area Control Practice Information

Land Use: Residential
- Roofs 1 Source area number: 1
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Roofs 2 Source area number: 2
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 6
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 2 Source area number: 7
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 2 Source area number: 19
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 12.93
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Large Landscaped Area 1 Source area number: 21
  - The SCS Hydrologic Soil Type is Silty
- Large Landscaped Area 2 Source area number: 22
  - The SCS Hydrologic Soil Type is Silty

Land Use: Institutional
- Roofs 1 Source area number: 31
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 36
  - The Source Area is directly connected or draining to a directly connected area
- Large Landscaped Area 1 Source area number: 51
  - The SCS Hydrologic Soil Type is Silty

Land Use: Commercial
- Roofs 1 Source area number: 61
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 66
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 1 Source area number: 78
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 6.34
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Large Landscaped Area 1 Source area number: 81
  - The SCS Hydrologic Soil Type is Silty

Land Use: Industrial
- Roofs 1 Source area number: 91
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 96
  - The Source Area is directly connected or draining to a directly connected area
- Large Landscaped Area 1 Source area number: 111
  - The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban
Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty

Land Use: Freeways
Pavd Lane & Shldr Area 1 Source area number: 151
1. Drainage system type:
Curb and Gutters, Valleys, or Sealed Swales in good condition or very steep
2. Average daily traffic (# vehicles/day): 30300
3. Highway length (miles): 0.71
4. Initial street dirt loading (lbs/curb-mi): default value: 338.8 lbs.
Large Turf Areas Source area number: 156
The SCS Hydrologic Soil Type is Silty
Undeveloped Areas Source area number: 157
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\1993_Red Cedar River.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GEO01.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 18:42:49
Fraction of each type of Drainage System serving study area:
1. Grass Swales 0
2. Undeveloped roadside 0
Curb and Gutters, `valleys', or sealed swales in:
3. Poor condition (or very flat) 0
4. Fair condition 0
5. Good condition (or very steep) 1
Site information: M55-585_Red Cedar River Phosphorus Load from City of Menomonie_1993

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	42.88	109.30	38.04	25.21	0.00
Roofs 2	34.49	0.00	0.00	0.00	0.00
Roofs 3	0.00	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	42.88	109.30	38.04	25.21	0.00
Paved Parking/Storage 2	34.49	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	0.00	0.00	36.04	0.00	0.00
Street Area 2	140.22	0.00	0.00	0.00	0.00
Street Area 3	0.00	0.00	0.00	0.00	0.00
Large Landscaped Area 1	139.92	85.01	19.79	19.61	0.00
Large Landscaped Area 2	488.14	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	711.94
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	0.00
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	923.02	303.61	131.91	70.03	711.94

Freeway Source Area	Area (acres)
Roofs 1	0.00
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	0.00
Paved Parking/Storage 2	0.00
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	0.00

Total of All Source Areas	2140.51
Total of All Source Areas less All Isolated Areas	2140.51

Source Area Control Practice Information

Land Use: Residential
Roofs 1 Source area number: 1
The roof is pitched
The Source Area is directly connected or draining to a directly connected area
Roofs 2 Source area number: 2
The roof is pitched
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 6
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 2 Source area number: 7
The Source Area is directly connected or draining to a directly connected area
Street Area 2 Source area number: 19
1. Street Texture: smooth
2. Total study area street length (curb-miles): 64.26
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 21
The SCS Hydrologic Soil Type is Silty
Large Landscaped Area 2 Source area number: 22
The SCS Hydrologic Soil Type is Silty

Land Use: Institutional
Roofs 1 Source area number: 31
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 36
The Source Area is directly connected or draining to a directly connected area
Large Landscaped Area 1 Source area number: 51
The SCS Hydrologic Soil Type is Silty

Land Use: Commercial
Roofs 1 Source area number: 61
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 66
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 78
1. Street Texture: smooth
2. Total study area street length (curb-miles): 16.52
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Silty

Land Use: Industrial
Roofs 1 Source area number: 91
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 96
The Source Area is directly connected or draining to a directly connected area
Large Landscaped Area 1 Source area number: 111
The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban
Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\2025_Lake Menomin_Lake_REVISED.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GEO01.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 18:48:07
Fraction of each type of Drainage System serving study area:
1. Grass Swales 0
2. Undeveloped roadside 0
Curb and Gutters, `valleys', or sealed swales in:
3. Poor condition (or very flat) 0
4. Fair condition 0
5. Good condition (or very steep) 1
Site information: M55-585_Lake Menomin Phosphorus Load from City of Menomonie_2025_To Lake

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	24.96	77.53	109.02	227.83	0.00
Roofs 2	94.62	0.00	0.00	0.00	0.00
Roofs 3	6.23	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	24.96	77.53	109.02	227.83	0.00
Paved Parking/Storage 2	94.62	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	9.23	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	4.51	2.46	32.10	69.86	0.00
Street Area 2	173.78	0.00	0.00	0.00	0.00
Street Area 3	10.49	0.00	0.00	0.00	0.00
Large Landscaped Area 1	88.80	61.26	43.00	198.74	0.00
Large Landscaped Area 2	978.75	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	597.65
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	6.27
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	1510.95	218.78	293.14	724.26	603.92

Freeway Source Area	Area (acres)
Roofs 1	25.57
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	35.10
Paved Parking/Storage 2	35.10
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	95.77

Total of All Source Areas	3446.82
Total of All Source Areas less All Isolated Areas	3440.55

Source Area Control Practice Information

Land Use: Residential

Roofs 1 Source area number: 1
The roof is pitched
The Source Area is directly connected or draining to a directly connected area

Roofs 2 Source area number: 2
The roof is pitched
The Source Area is directly connected or draining to a directly connected area

Roofs 3 Source area number: 3
The roof is pitched
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 1 Source area number: 6
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 2 Source area number: 7
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 3 Source area number: 8
The Source Area is directly connected or draining to a directly connected area

Street Area 1 Source area number: 18
1. Street Texture: smooth
2. Total study area street length (curb-miles): 2.06
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Street Area 2 Source area number: 19
1. Street Texture: smooth
2. Total study area street length (curb-miles): 79.36
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Street Area 3 Source area number: 20
1. Street Texture: smooth
2. Total study area street length (curb-miles): 4.84
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 21
The SCS Hydrologic Soil Type is Silty

Large Landscaped Area 2 Source area number: 22
The SCS Hydrologic Soil Type is Silty

Land Use: Institutional

Roofs 1 Source area number: 31
The roof is flat
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 1 Source area number: 36
The Source Area is directly connected or draining to a directly connected area

Street Area 1 Source area number: 48
1. Street Texture: smooth
2. Total study area street length (curb-miles): 1.13
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 51
The SCS Hydrologic Soil Type is Silty

Land Use: Commercial

Roofs 1 Source area number: 61
The roof is flat

The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 66
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 78
1. Street Texture: smooth
2. Total study area street length (curb-miles): 14.7
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Silty

Land Use: Industrial
Roofs 1 Source area number: 91
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 96
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 108
1. Street Texture: smooth
2. Total study area street length (curb-miles): 32
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 111
The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban
Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty
Isolated/Water Body Area Source area number: 147
The source area is a water body where all rainfall is considered to be runoff, with no particulate solids loading

Land Use: Freeways
Pavd Lane & Shldr Area 1 Source area number: 151
1. Drainage system type:
Curb and Gutters, Valleys, or Sealed Swales in good condition or very steep
2. Average daily traffic (# vehicles/day): 32400
3. Highway length (miles): 5.27
4. Initial street dirt loading (lbs/curb-mi): default value: 2669.27 lbs.
Large Turf Areas Source area number: 156
The SCS Hydrologic Soil Type is Silty
Undeveloped Areas Source area number: 157
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\2025_Lake Menomin_INF_REVISED.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GE001.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 18:50:35
Fraction of each type of Drainage System serving study area:
1. Grass Swales 0
2. Undeveloped roadside 0
Curb and Gutters, `valleys', or sealed swales in:
3. Poor condition (or very flat) 0
4. Fair condition 0
5. Good condition (or very steep) 1
Site information: M55-585_Lake Menomin Phosphorus Load from City of Menomonie_2025_Infiltration

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	0.00	84.65	34.44	358.80	0.00
Roofs 2	0.00	0.00	0.00	0.00	0.00
Roofs 3	0.04	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	0.00	84.65	34.44	358.80	0.00
Paved Parking/Storage 2	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.04	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	0.00	2.69	1.64	72.75	0.00
Street Area 2	0.00	0.00	0.00	0.00	0.00
Street Area 3	0.07	0.00	0.00	0.00	0.00
Large Landscaped Area 1	1.15	66.89	13.58	296.38	0.00
Large Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	73.98
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	0.00
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	1.30	238.88	84.10	1086.73	73.98

Freeway Source Area	Area (acres)
Roofs 1	12.03
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	16.60
Paved Parking/Storage 2	16.60
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	45.23

Total of All Source Areas	1530.22
Total of All Source Areas less All Isolated Areas	1530.22

Source Area Control Practice Information

Land Use: Residential
Roofs 3 Source area number: 3
The roof is pitched
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 3 Source area number: 8
The Source Area is directly connected or draining to a directly connected area
Street Area 3 Source area number: 20
1. Street Texture: smooth
2. Total study area street length (curb-miles): 0.03
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 21
The SCS Hydrologic Soil Type is Silty

Land Use: Institutional
Roofs 1 Source area number: 31
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 36
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 48
1. Street Texture: smooth
2. Total study area street length (curb-miles): 1.23
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 51
The SCS Hydrologic Soil Type is Silty

Land Use: Commercial
Roofs 1 Source area number: 61
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 66
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 78
1. Street Texture: smooth
2. Total study area street length (curb-miles): 0.75
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Silty

Land Use: Industrial
Roofs 1 Source area number: 91
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 96
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 108
1. Street Texture: smooth
2. Total study area street length (curb-miles): 33.3
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 111
The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban
Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty

Land Use: Freeways
Pavd Lane & Shldr Area 1 Source area number: 151
1. Drainage system type:
Curb and Gutters, Valleys, or Sealed Swales in good condition or very steep
2. Average daily traffic (# vehicles/day): 32400
3. Highway length (miles): 2.48
4. Initial street dirt loading (lbs/curb-mi): default value: 1256.125 lbs.
Large Turf Areas Source area number: 156
The SCS Hydrologic Soil Type is Silty
Undeveloped Areas Source area number: 157
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\2025_Wilson Creek.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GEO01.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 18:59:37
Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0

Curb and Gutters, `valleys', or sealed swales in:

3. Poor condition (or very flat) 0
4. Fair condition 0
5. Good condition (or very steep) 1

Site information: M55-585_Wilson Creek Phosphorus Load from City of Menomonie_2025

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	15.07	2.01	105.59	1.77	0.00
Roofs 2	15.09	0.00	0.00	0.00	0.00
Roofs 3	0.35	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	15.07	2.01	105.59	1.77	0.00
Paved Parking/Storage 2	15.09	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.35	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	2.75	0.00	26.83	0.00	0.00
Street Area 2	35.25	0.00	0.00	0.00	0.00
Street Area 3	1.49	0.00	0.00	0.00	0.00
Large Landscaped Area 1	48.94	1.56	42.00	1.37	0.00
Large Landscaped Area 2	168.67	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	328.03
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	0.00
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	318.12	5.58	280.01	4.91	328.03

Freeway Source Area	Area (acres)
Roofs 1	3.44
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	4.72
Paved Parking/Storage 2	4.73
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	12.89

Total of All Source Areas	949.54
Total of All Source Areas less All Isolated Areas	949.54

Source Area Control Practice Information

Land Use: Residential
- Roofs 1 Source area number: 1
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Roofs 2 Source area number: 2
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Roofs 3 Source area number: 3
  - The roof is pitched
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 6
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 2 Source area number: 7
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 3 Source area number: 8
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 1 Source area number: 18
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 1.26
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Street Area 2 Source area number: 19
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 16.15
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Street Area 3 Source area number: 20
  1. Street Texture: smooth
  2. Total study area street length (curb-miles): 0.68
  3. Initial Street Dirt Loading (lbs/curb-mi): default value
  4. Street Dirt Accumulation Coefficients: Default value used
- Large Landscaped Area 1 Source area number: 21
  - The SCS Hydrologic Soil Type is Silty
- Large Landscaped Area 2 Source area number: 22
  - The SCS Hydrologic Soil Type is Silty

Land Use: Institutional
- Roofs 1 Source area number: 31
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 36
  - The Source Area is directly connected or draining to a directly connected area
- Large Landscaped Area 1 Source area number: 51
  - The SCS Hydrologic Soil Type is Silty

Land Use: Commercial
- Roofs 1 Source area number: 61
  - The roof is flat
  - The Source Area is directly connected or draining to a directly connected area
- Paved Parking/Storage 1 Source area number: 66
  - The Source Area is directly connected or draining to a directly connected area
- Street Area 1 Source area number: 78
  1. Street Texture: smooth

2. Total study area street length (curb-miles): 12.29
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Silty

Land Use: Industrial

Roofs 1 Source area number: 91
The roof is flat
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 1 Source area number: 96
The Source Area is directly connected or draining to a directly connected area

Large Landscaped Area 1 Source area number: 111
The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban

Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty

Land Use: Freeways

Pavd Lane & Shldr Area 1 Source area number: 151

1. Drainage system type:
   Curb and Gutters, Valleys, or Sealed Swales in good condition or very steep
2. Average daily traffic (# vehicles/day): 30300
3. Highway length (miles): 0.71
4. Initial street dirt loading (lbs/curb-mi): default value: 338.8 lbs.

Large Turf Areas Source area number: 156
The SCS Hydrologic Soil Type is Silty

Undeveloped Areas Source area number: 157
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Data file name: I:\Clients\M0055 City of Menomonie\585 Menomin TMDL\1 Design Calcs\2025_Red Cedar River.dat
SLAMM Version V9.2
Rain file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\RAIN FILES\MN MINNEAPOLIS 59.RAN
Particulate Solids Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_AVG01.PSC
Runoff Coefficient file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_SL06 DEC06.RSV
Particulate Residue Delivery file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_DLV01.PRR
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust May05.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Res and Other Urban May05.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\Freeway.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: S:\MISCPROG\WINSLAMM\WINSLAMM 9.2\WI_GEO01.PPD
Seed for random number generator: -42
Study period starting date: 03/13/59 Study period ending date: 11/04/59
Date: 06-22-2008 Time: 19:01:32
Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0

Curb and Gutters, `valleys', or sealed swales in:

3. Poor condition (or very flat) 0
4. Fair condition 0
5. Good condition (or very steep) 1

Site information: M55-585_Red Cedar River Phosphorus Load from City of Menomonie_2025

	|<===== Areas for each Source (acres) =====>|				
Source Area	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	49.22	132.63	34.50	11.64	0.00
Roofs 2	60.79	0.00	0.00	0.00	0.00
Roofs 3	0.01	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	49.22	132.63	34.50	11.64	0.00
Paved Parking/Storage 2	60.79	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.01	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	5.83	9.29	39.06	0.00	0.00
Street Area 2	198.32	0.00	0.00	0.00	0.00
Street Area 3	3.89	0.00	0.00	0.00	0.00
Large Landscaped Area 1	170.13	106.77	19.07	9.05	0.00
Large Landscaped Area 2	775.00	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	687.43
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	0.00
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	1373.21	381.32	127.13	32.33	687.43

Freeway Source Area	Area (acres)
Roofs 1	0.00
Roofs 2	0.00

Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	0.00
Paved Parking/Storage 2	0.00
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	0.00

Total of All Source Areas	2601.42
Total of All Source Areas less All Isolated Areas	2601.42

Source Area Control Practice Information

Land Use: Residential

Roofs 1 Source area number: 1
The roof is pitched
The Source Area is directly connected or draining to a directly connected area

Roofs 2 Source area number: 2
The roof is pitched
The Source Area is directly connected or draining to a directly connected area

Roofs 3 Source area number: 3
The roof is pitched
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 1 Source area number: 6
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 2 Source area number: 7
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 3 Source area number: 8
The Source Area is directly connected or draining to a directly connected area

Street Area 1 Source area number: 18
1. Street Texture: smooth
2. Total study area street length (curb-miles): 2.67
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Street Area 2 Source area number: 19
1. Street Texture: smooth
2. Total study area street length (curb-miles): 90.89
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Street Area 3 Source area number: 20
1. Street Texture: smooth
2. Total study area street length (curb-miles): 1.78
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 21
The SCS Hydrologic Soil Type is Silty

Large Landscaped Area 2 Source area number: 22
The SCS Hydrologic Soil Type is Silty

Land Use: Institutional

Roofs 1 Source area number: 31
The roof is flat
The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 1 Source area number: 36
The Source Area is directly connected or draining to a directly connected area

Street Area 1 Source area number: 48
1. Street Texture: smooth
2. Total study area street length (curb-miles): 4.25
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used

Large Landscaped Area 1 Source area number: 51
The SCS Hydrologic Soil Type is Silty

Land Use: Commercial

Roofs 1 Source area number: 61
The roof is flat

The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 66
The Source Area is directly connected or draining to a directly connected area
Street Area 1 Source area number: 78
1. Street Texture: smooth
2. Total study area street length (curb-miles): 17.9
3. Initial Street Dirt Loading (lbs/curb-mi): default value
4. Street Dirt Accumulation Coefficients: Default value used
Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Silty

Land Use: Industrial
Roofs 1 Source area number: 91
The roof is flat
The Source Area is directly connected or draining to a directly connected area
Paved Parking/Storage 1 Source area number: 96
The Source Area is directly connected or draining to a directly connected area
Large Landscaped Area 1 Source area number: 111
The SCS Hydrologic Soil Type is Silty

Land Use: Other Urban
Undeveloped Area Source area number: 143
The SCS Hydrologic Soil Type is Silty

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
Solids	Particulate
Solids	Total
Phosphorus/Phosphate	Total

Appendix D – WinSLAMM Outputs

Lake Menomin 1993:

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | Pollutants | Output Summary

Concentration | Yield (lbs) | Percent SA Contribution

Data File: 1993_Lake Menomin.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-09 Time: 8:33:36 PM
Site Description: M55-585_Lake Menomin Phosphorus Load from City of Menomonie_1993

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	9.967	9.967	9.967
Maximum:	2.40	125956	125956	125956
Fl Wt Ave:		48189	48189	48189
Total:	24.13	884181	884181	884181

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.009936	0.009936	0.009936
Maximum:	2.40	303.8	303.8	303.8
Fl Wt Ave:		104.9	104.9	104.9
Total:	24.13	1686	1686	1686

Wilson Creek 1993:

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | **Pollutants** | Output Summary

Concentration | **Yield (lbs)** | Percent SA Contribution

Data File: 1993_Wilson Creek.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-08 Time: 6:40:52 PM
Site Description: M55-585_Wilson Creek Phosphorus Load from City of Menomonie_1993

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	1.698	1.698	1.698
Maximum:	2.40	30664	30664	30664
Fl Wt Ave:		11694	11694	11694
Total:	24.13	187256	187256	187256

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.001760	0.001760	0.001760
Maximum:	2.40	80.27	80.27	80.27
Fl Wt Ave:		28.08	28.08	28.08
Total:	24.13	399.0	399.0	399.0

Red Cedar River 1993:

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | **Pollutants** | Output Summary

Concentration | **Yield (lbs)** | Percent SA Contribution

Data File: 1993_Red Cedar River.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-08 Time: 6:43:27 PM
Site Description: M55-585_Red Cedar River Phosphorus Load from City of Menomonie_1993

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	5.162	5.162	5.162
Maximum:	2.40	97116	97116	97116
Fl Wt Ave:		36528	36528	36528
Total:	24.13	618892	618892	618892

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.004693	0.004693	0.004693
Maximum:	2.40	261.7	261.7	261.7
Fl Wt Ave:		89.11	89.11	89.11
Total:	24.13	1304	1304	1304

Lake Menomin 2025 (to Lake):

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | **Pollutants** | Output Summary

Concentration | **Yield (lbs)** | Percent SA Contribution

Data File: 2025_Lake Menomin_Lake_REVISED.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-08 Time: 6:48:26 PM
Site Description: M55-585_Lake Menomin Phosphorus Load from City of Menomonie_2025_To Lake

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	17.37	17.37	17.37
Maximum:	2.40	196611	196611	196611
Fl Wt Ave:		74389	74389	74389
Total:	24.13	1.364E+06	1.364E+06	1.364E+06

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.01312	0.01312	0.01312
Maximum:	2.40	459.4	459.4	459.4
Fl Wt Ave:		154.3	154.3	154.3
Total:	24.13	2437	2437	2437

Lake Menomin 2025 (to BMP: Infiltration):

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | **Pollutants** | Output Summary

Concentration | **Yield (lbs)** | Percent SA Contribution

Data File: 2025_Lake Menomin_INF_REVISED.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-09 Time: 6:53:13 PM
Site Description: M55-585_Lake Menomin Phosphorus Load from City of Menomonie_2025_Infil

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	18.37	18.37	18.37
Maximum:	2.40	130018	130018	130018
Fl Wt Ave:		50229	50229	50229
Total:	24.13	1.001E+06	1.001E+06	1.001E+06

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.009649	0.009649	0.009649
Maximum:	2.40	187.0	187.0	187.0
Fl Wt Ave:		65.15	65.15	65.15
Total:	24.13	1183	1183	1183

Wilson Creek 2025:

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | **Pollutants** | Output Summary

Concentration | **Yield (lbs)** | Percent SA Contribution

Data File: 2025_Wilson Creek.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-09 Time: 6:59:55 PM
Site Description: M55-585_Wilson Creek Phosphorus Load from City of Menomonie_2025

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	2.647	2.647	2.647
Maximum:	2.40	43452	43452	43452
Fl Wt Ave:		16384	16384	16384
Total:	24.13	290147	290147	290147

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.002830	0.002830	0.002830
Maximum:	2.40	109.7	109.7	109.7
Fl Wt Ave:		37.49	37.49	37.49
Total:	24.13	581.1	581.1	581.1

Red Cedar 2025:

WinSLAMM Model Output

File View

Runoff Volume | Particulate Solids | **Pollutants** | Output Summary

Concentration | **Yield (lbs)** | Percent SA Contribution

Data File: 2025_Red Cedar River.DAT
Rain File: MN MINNEAPOLIS 59.RAN
Date: 06-22-08 Time: 7:01:37 PM
Site Description: M55-565_Red Cedar River Phosphorus Load from City of Menomonie_2025

Total Area, with Drainage and Outfall Controls - Yield of Total Solids (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	5.614	5.614	5.614
Maximum:	2.40	120144	120144	120144
Fl Wt Ave:		44999	44999	44999
Total:	24.13	771885	771885	771885

Total Area, with Drainage and Outfall Controls - Yield of Total Phosphorus (lbs)
Summary of Runoff Producing Events

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls
Minimum:	0.01	0.005588	0.005588	0.005588
Maximum:	2.40	340.1	340.1	340.1
Fl Wt Ave:		115.1	115.1	115.1
Total:	24.13	1702	1702	1702

Appendix E – Snap-Plus Outputs

Lake Menomin Soil 1:

Snap-Plus 1.125.5

File Edit Tools Reports Options Help

Farm Name: Quiling — Farm data directory: I:\Clients\M0055 City of Menomonie\565 Menomin TMDL\1 Design Calcs\Lake Menomin

Farm | Field | Soil Tests | Nutrient Sources | Cropping

Field Name: Lake Menomin Soil 1 — Subfarm: — Rotation Wizard — Calculate all years

County	Acres	Slope	Soil Name	Symbol	N Restriction	Subsoil Fertility	Soil Texture
WI-Dunn	100	2	RASSET	413A	2	B	SANDY_LOAM

Soil Test Date: 1/1/1990 — pH 6.8, OM % 1.6, P (ppm) 64, K (ppm) 140

First Year | Prev Year | Next Year | Last Year

	1990			1991					
Crop:	Soybeans 15-20 inch			Corn grain					
Yield Goal:	46-55			171-190					
Tillage:	Spring Chisel, disked			Spring Chisel, disked					
Soil Test Date:	1/1/1990			1/1/1991					
Irrigation / MRTN info:	☐ Irrigated			☐ Irrigated					
Season notes:									
(lbs/acre)	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
Recommendation:	0	0	20	150	0	25			
Prior year carryover:		0	0		0	0			
Prior years legume credit:	0			40					
Prior years manure credit:	0	0	0	0	0	0			
Plan manure applications:	0	0	0	0	0	0			
Plan fertilizer applications:	0	0	0	0	0	0			
Total plant-available:	0	0	0	40	0	0			
Over(+)/Under(-) UW Rec:	0	0	-20	-110	0	-25			
Annual Total Pl ☑ Details	0.7			1.3					
Particulate Pl:	0.2			0.6					
Soluble Pl:	0.5			0.7					
Acute loss (frozen) Pl:	0.0			0.0					

Field notes:

Rotation Settings: 2 year crop rotation starting in 1990 — ☑ Contoured

Rotation Summary Results 1990 - 1991

Avg soil loss 0.9 t/acre/yr

Field "T" 4 t/acre/yr

Avg P Index 1.0

P2O5 balance -110 lb/acre

K2O balance -120 lb/acre

Soil test P is greater than 50 ppm so your P2O5 balance should be less than 0 lb/acre.

Lake Menomin Soil 2:

Snap-Plus 1.125.5

File Edit Tools Reports Options Help

Farm Name: Quiling — Farm data directory: I:\Clients\M0055 City of Menomonie\565 Menomin TMDL\1 Design Calcs\Lake Menomin

Farm | Field | Soil Tests | Nutrient Sources | Cropping

Field Name: Lake Menomin Soil 2 — Subfarm: — Rotation Wizard — Calculate all years

County	Acres	Slope	Soil Name	Symbol	N Restriction	Subsoil Fertility	Soil Texture
WI-Dunn	100	2	KEVILAR	432B	2	A	SANDY_LOAM

Soil Test Date: 1/1/1990 — pH 6.8, OM % 1.6, P (ppm) 64, K (ppm) 140

First Year | Prev Year | Next Year | Last Year

	1990			1991					
Crop:	Soybeans 15-20 inch			Corn grain					
Yield Goal:	46-55			171-190					
Tillage:	Fall Chisel, no disk			Fall Chisel, no disk					
Soil Test Date:	1/1/1990			1/1/1990					
Irrigation / MRTN info:	☑ Irrigated			☐ Irrigated					
Season notes:									
(lbs/acre)	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
Recommendation:	0	0	20	150	0	25			
Prior year carryover:		0	0		0	0			
Prior years legume credit:	0			40					
Prior years manure credit:	0	0	0	0	0	0			
Plan manure applications:	0	0	0	0	0	0			
Plan fertilizer applications:	0	0	0	0	0	0			
Total plant-available:	0	0	0	40	0	0			
Over(+)/Under(-) UW Rec:	0	0	-20	-110	0	-25			
Annual Total Pl ☑ Details	0.9			1.5					
Particulate Pl:	0.4			0.9					
Soluble Pl:	0.5			0.7					
Acute loss (frozen) Pl:	0.0			0.0					

Field notes:

Rotation Settings: 2 year crop rotation starting in 1990 — ☐ Contoured

Rotation Summary Results 1990 - 1991

Avg soil loss 1.1 t/acre/yr

Field "T" 4 t/acre/yr

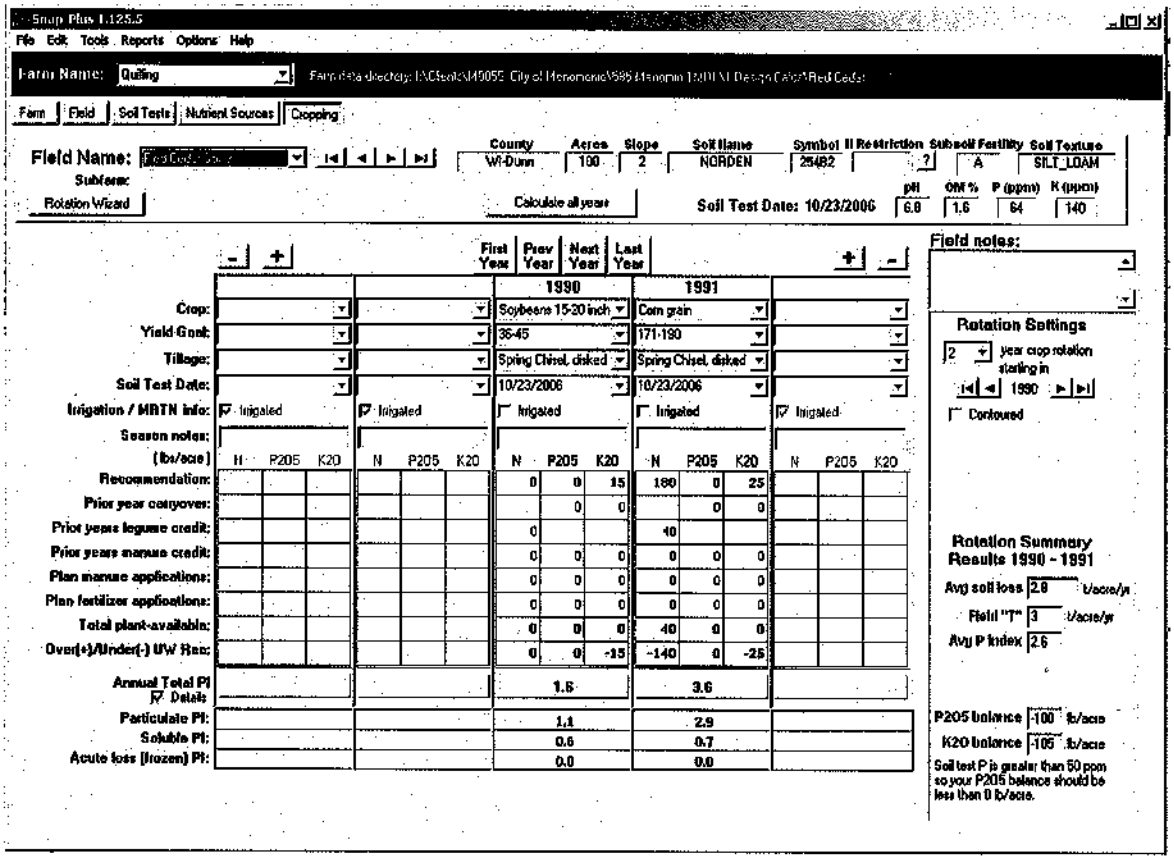
Avg P Index 1.2

P2O5 balance -110 lb/acre

K2O balance -120 lb/acre

Soil test P is greater than 50 ppm so your P2O5 balance should be less than 0 lb/acre.

Red Cedar River Soil 3:



Red Cedar Weighted Average:

Soil 1: 51.24 ac.
Soil 2: 41.53 ac.
Soil 3: 29.83 ac.

= 2.393 lbs./ac./yr

Red Cedar River Soil 1:

Snap Plus 1.125.5

File Edit Tools Reports Options Help

Farm Name: Quiling

Farm data directory: I:\Clients\H0055 City of Menomonie\585 Menomonie TMDL\1 Design Calcs\Red Cedar

Farm | Field | Soil Tests | Nutrient Sources | Cropping

Field Name: Red Cedar soil 1

Subfarm:

Rotation Wizard

County	Acres	Slope	Soil Name	Symbol	N Restriction	Subsoil Fertility	Soil Texture
WI-Dunn	100	2	ELLA	31692	?	A	SILT_LOAM

Calculate all years

Soil Test Date: 1/1/1990 — pH 6.8, OM % 1.6, P (ppm) 64, K (ppm) 140

Field notes:

	1990			1991					
Crop:	Soybeans 15-20 inch			Corn grain					
Yield Goal:	46-55			171-190					
Tillage:	Spring Chisel, disked			Spring Chisel, disked					
Soil Test Date:	1/1/1990			1/1/1991					
Irrigation / MRTN Info:	Irrigated			Irrigated			Irrigated		
Season notes:									
(lb/acre)	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
Recommendation:	0	0	20	160	0	25			
Prior year carryover:		0	0		0	0			
Prior years legume credit:	0			40					
Prior years manure credit:	0	0	0	0	0	0			
Plan manure applications:	0	0	0	0	0	0			
Plan fertilizer applications:	0	0	0	0	0	0			
Total plant-available:	0	0	0	40	0	0			
Over(+)/Under(-) UW Rec:	0	0	-20	-140	0	-25			
Annual Total PI (Details)	1.0			2.3					
Particulate PI:	0.6			1.8					
Soluble PI:	0.5			0.5					
Acute loss (frozen) PI:	0.0			0.0					

Rotation Settings: 2 year crop rotation starting in 1990; Contoured

Rotation Summary Results 1990 - 1991

Avg soil loss 1.6 t/acre/yr

Field "T" 5 t/acre/yr

Avg P Index 1.7

P2O5 balance -110 lb/acre

K2O balance -120 lb/acre

Soil test P is greater than 50 ppm so your P2O5 balance should be less than 0 lb/acre.

Red Cedar River Soil 2:

Snap Plus 1.125.5

File Edit Tools Reports Options Help

Farm Name: Quiling

Farm data directory: I:\Clients\H0055 City of Menomonie\585 Menomonie TMDL\1 Design Calcs\Red Cedar

Farm | Field | Soil Tests | Nutrient Sources | Cropping

Field Name: Red Cedar soil 2

Subfarm:

Rotation Wizard

County	Acres	Slope	Soil Name	Symbol	N Restriction	Subsoil Fertility	Soil Texture
WI-Dunn	100	2	SEATON	11502	?	A	SILT_LOAM

Calculate all years

Soil Test Date: 1/1/1990 — pH 6.8, OM % 1.6, P (ppm) 64, K (ppm) 140

Field notes:

	1990			1991					
Crop:	Soybeans 15-20 inch			Corn grain					
Yield Goal:	46-55			171-190					
Tillage:	Spring Chisel, disked			Spring Chisel, disked					
Soil Test Date:	1/1/1990			1/1/1990					
Irrigation / MRTN Info:	Irrigated			Irrigated			Irrigated		
Season notes:									
(lb/acre)	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
Recommendation:	0	0	20	160	0	25			
Prior year carryover:		0	0		0	0			
Prior years legume credit:	0			40					
Prior years manure credit:	0	0	0	0	0	0			
Plan manure applications:	0	0	0	0	0	0			
Plan fertilizer applications:	0	0	0	0	0	0			
Total plant-available:	0	0	0	40	0	0			
Over(+)/Under(-) UW Rec:	0	0	-20	-140	0	-25			
Annual Total PI (Details)	1.9			4.3					
Particulate PI:	1.3			3.6					
Soluble PI:	0.5			0.7					
Acute loss (frozen) PI:	0.0			0.0					

Rotation Settings: 2 year crop rotation starting in 1990; Contoured

Rotation Summary Results 1990 - 1991

Avg soil loss 3.3 t/acre/yr

Field "T" 5 t/acre/yr

Avg P Index 3.1

P2O5 balance -110 lb/acre

K2O balance -120 lb/acre

Soil test P is greater than 50 ppm so your P2O5 balance should be less than 0 lb/acre.

Wilson Creek Weighted Average:

Soil 1: 48.48 ac.
Soil 2: 35.01 ac.
Soil 3: 24.86 ac.

= 1.938 lbs./ac./yr

Snap-Plus 1.12b3

File Edit Tools Reports Options Help

Farm Name: Quiling

Farm data directory: I:\Clients\W0085 City of Hennepin\585 Hennepin THDLM Design Cases\Wilson

Farm | Field | Soil Tests | Nutrient Sources | Cropping

Field Name: [redacted]

Subfarm:

Rotation Wizard

County	Acres	Slope	Soil Name	Symbol	II Restriction	Subsoil Fertility	Soil Texture
WI-Dunn	100	2	KEVILAR	432A	?	A	SANDY_LOAM

Calculate all years

Soil Test Date: 1/1/1990

pH	OM %	P (ppm)	K (ppm)
6.8	1.6	64	140

First Year | Prev Year | Next Year | Last Year

			1990			1991					
Crop:			Soybeans 15-20 inch			Corn grain					
Yield Goal:			46-55			171-190					
Tillage:			Spring Chisel, disked			Spring Chisel, disked					
Soil Test Date:			1/1/1990			1/1/1990					
Irrigation / NRTN info:	☑ Irrigated		☑ Irrigated		☐ Irrigated		☐ Irrigated		☑ Irrigated		
Season notes:											
(lb/acre)	N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20
Recommendation:							0	0	20	150	0	25
Prior year carryover:								0	0		0	0
Prior years legume credit:							0			40		
Prior years manure credit:							0	0	0	0	0	0
Plan manure applications:							0	0	0	0	0	0
Plan fertilizer applications:							0	0	0	0	0	0
Total plant-available:							0	0	0	40	0	0
Over(+)/Under(-) UW Rec:							0	0	-20	-110	0	-25
Annual Total Pl ☑ Details							0.9			1.7		
Particulate Pl:							0.4			1.0		
Soluble Pl:							0.5			0.7		
Acute loss (frozen) Pl:							0.0			0.0		

Field notes:

Rotation Settings

2 year crop rotation starting in 1990

☐ Contoured

Rotation Summary Results 1990 - 1991

Avg soil loss 1.2 t/acre/yr

Field "T" 4 t/acre/yr

Avg P Index 1.3

P205 balance -110 lb/acre

K20 balance -120 lb/acre

Soil test P is greater than 50 ppm so your P205 balance should be less than 0 lb/acre.

Wilson Creek Soil 3:

Snap-Plus 1.12b3

File Edit Tools Reports Options Help

Farm Name: Quiling

Farm data directory: I:\Clients\W0085 City of Hennepin\585 Hennepin THDLM Design Cases\Wilson

Farm | Field | Soil Tests | Nutrient Sources | Cropping

Field Name: [redacted]

Subfarm:

Rotation Wizard

County	Acres	Slope	Soil Name	Symbol	II Restriction	Subsoil Fertility	Soil Texture
WI-Dunn	100	2	SEATON	115D2	?	A	SILT_LOAM

Calculate all years

Soil Test Date: 10/23/2006

pH	OM %	P (ppm)	K (ppm)
6.8	1.5	64	140

First Year | Prev Year | Next Year | Last Year

			1990			1991					
Crop:			Soybeans 15-20 inch			Corn grain					
Yield Goal:			36-45			171-190					
Tillage:			Spring Chisel, disked			Spring Chisel, disked					
Soil Test Date:			10/23/2006			10/23/2006					
Irrigation / NRTN info:	☑ Irrigated		☑ Irrigated		☐ Irrigated		☐ Irrigated		☑ Irrigated		
Season notes:											
(lb/acre)	N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20
Recommendation:							0	0	15	160	0	25
Prior year carryover:								0	0		0	0
Prior years legume credit:							0			40		
Prior years manure credit:							0	0	0	0	0	0
Plan manure applications:							0	0	0	0	0	0
Plan fertilizer applications:							0	0	0	0	0	0
Total plant-available:							0	0	0	40	0	0
Over(+)/Under(-) UW Rec:							0	0	-15	-140	0	-25
Annual Total Pl ☑ Details							2.0			4.7		
Particulate Pl:							1.4			4.0		
Soluble Pl:							0.6			0.7		
Acute loss (frozen) Pl:							0.0			0.0		

Field notes:

Rotation Settings

2 year crop rotation starting in 1990

☐ Contoured

Rotation Summary Results 1990 - 1991

Avg soil loss 3.5 t/acre/yr

Field "T" 5 t/acre/yr

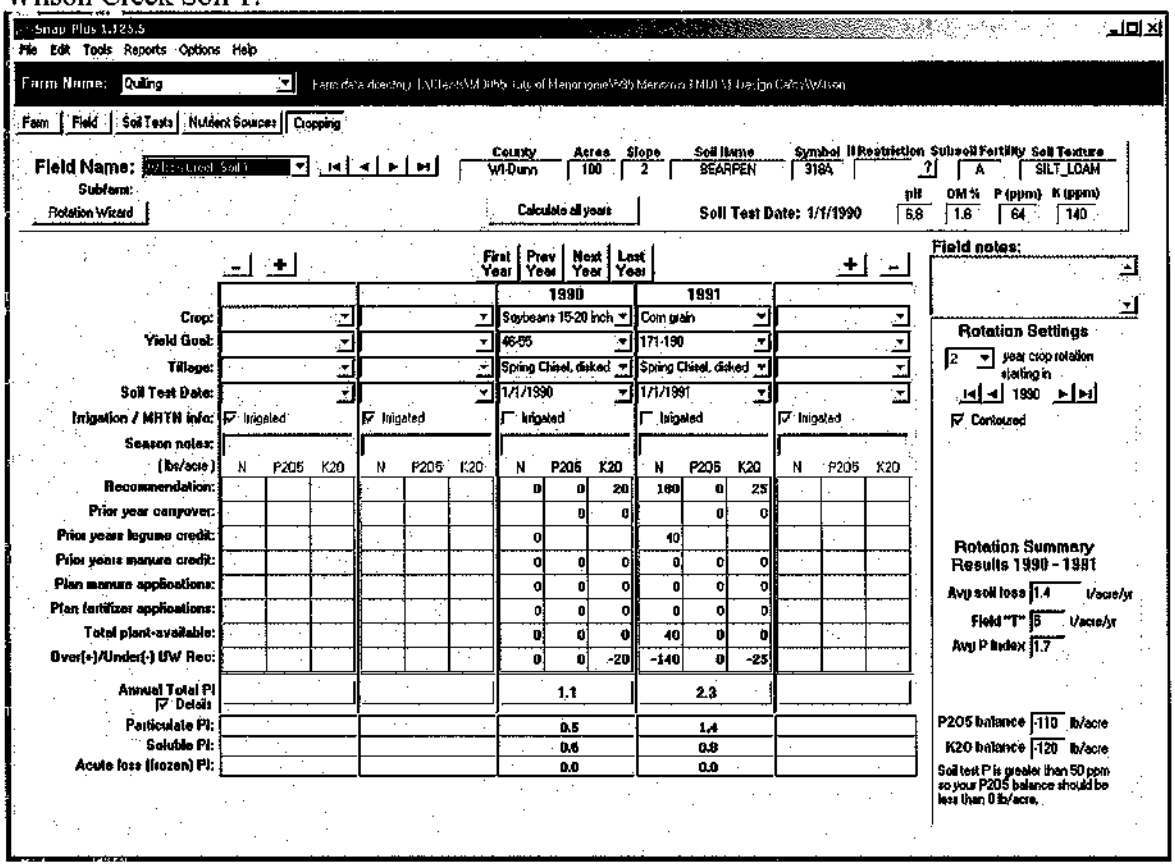
Avg P Index 3.3

P205 balance -100 lb/acre

K20 balance -105 lb/acre

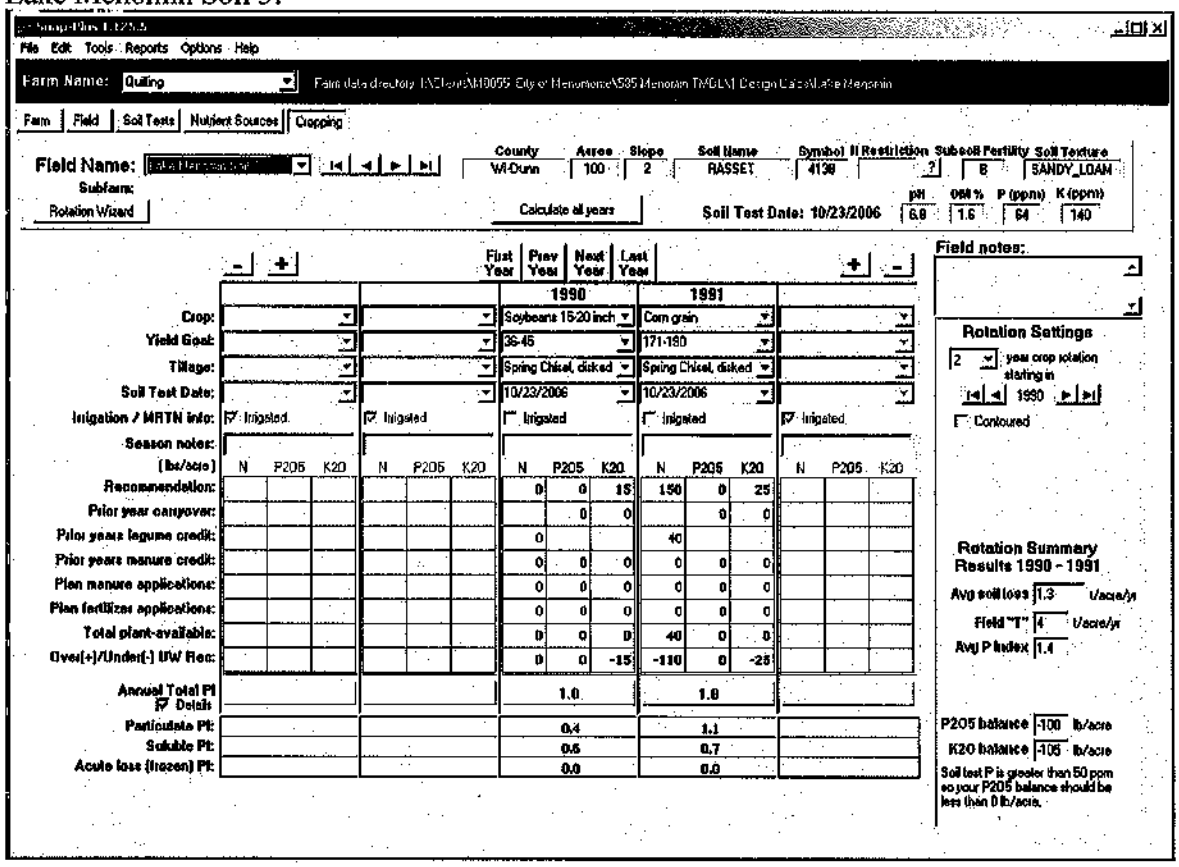
Soil test P is greater than 50 ppm so your P205 balance should be less than 0 lb/acre.

Wilson Creek Soil 1:



Wilson Creek Soil 2:

Lake Menomin Soil 3:

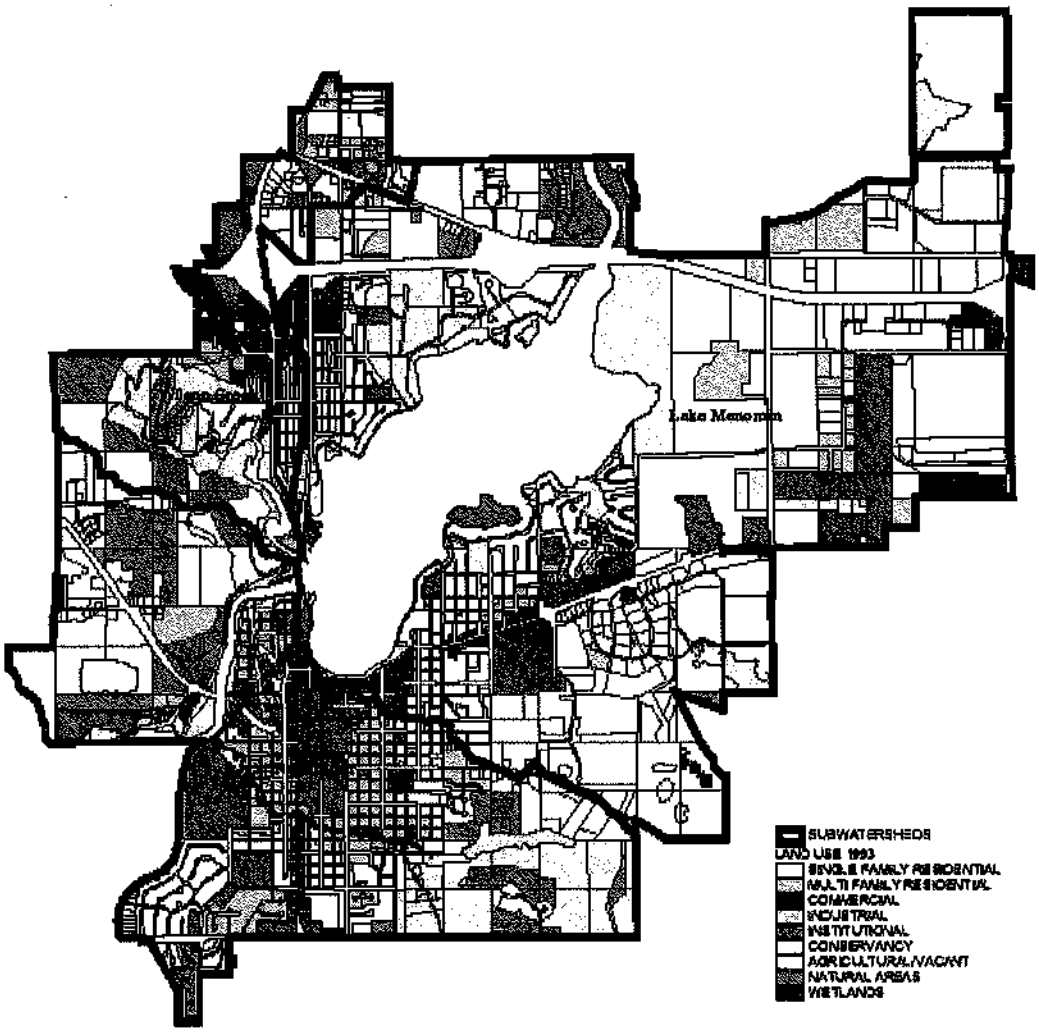


Lake Menomin Weighted Average:

Soil 1: 610.88 ac.
Soil 2: 323.78 ac.
Soil 3: 281.26 ac.

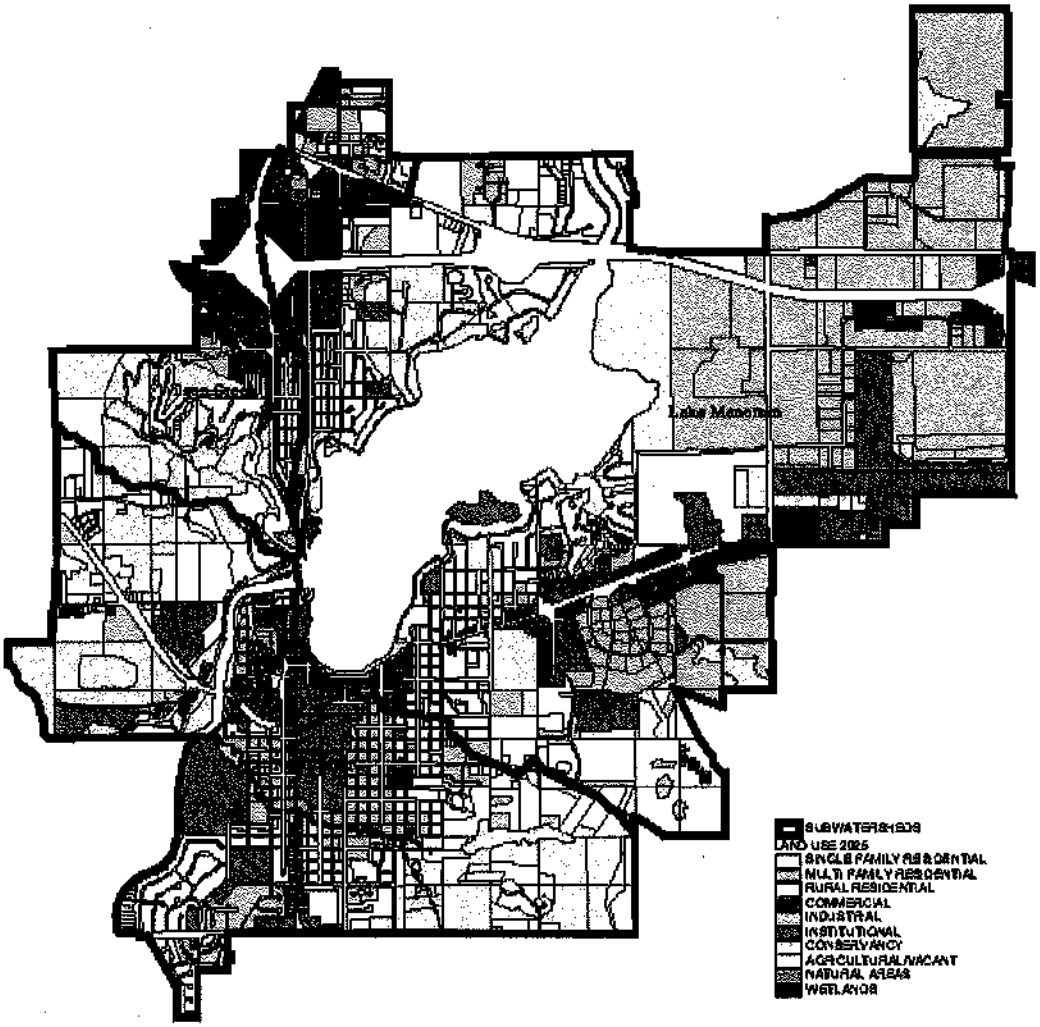
= 1.146 lbs./ac./yr

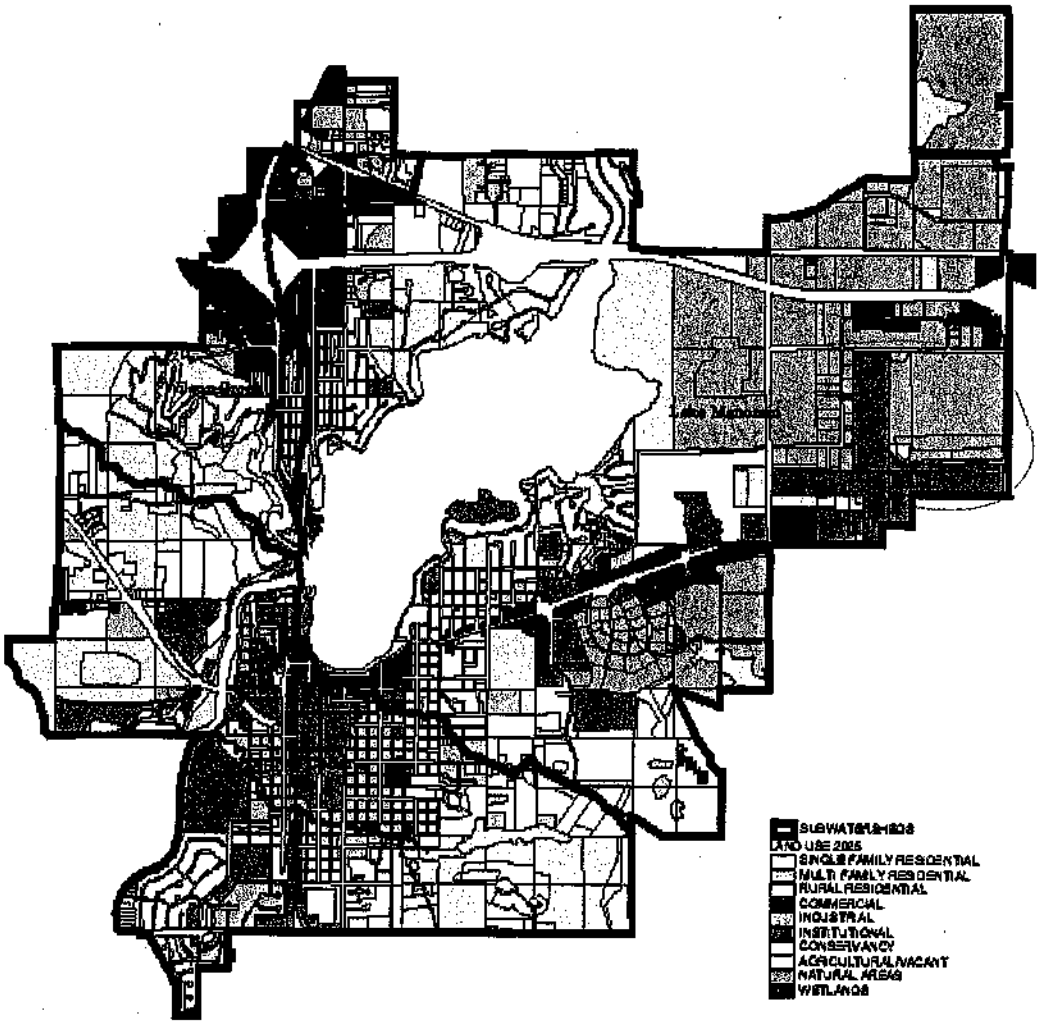
LAND USE 1993



Appendix A – 1993 Land Use Map

LAND USE 2025



Appendix B – 2025 Land Use Map

LAND USE 2025