

WinSLAMM v 10

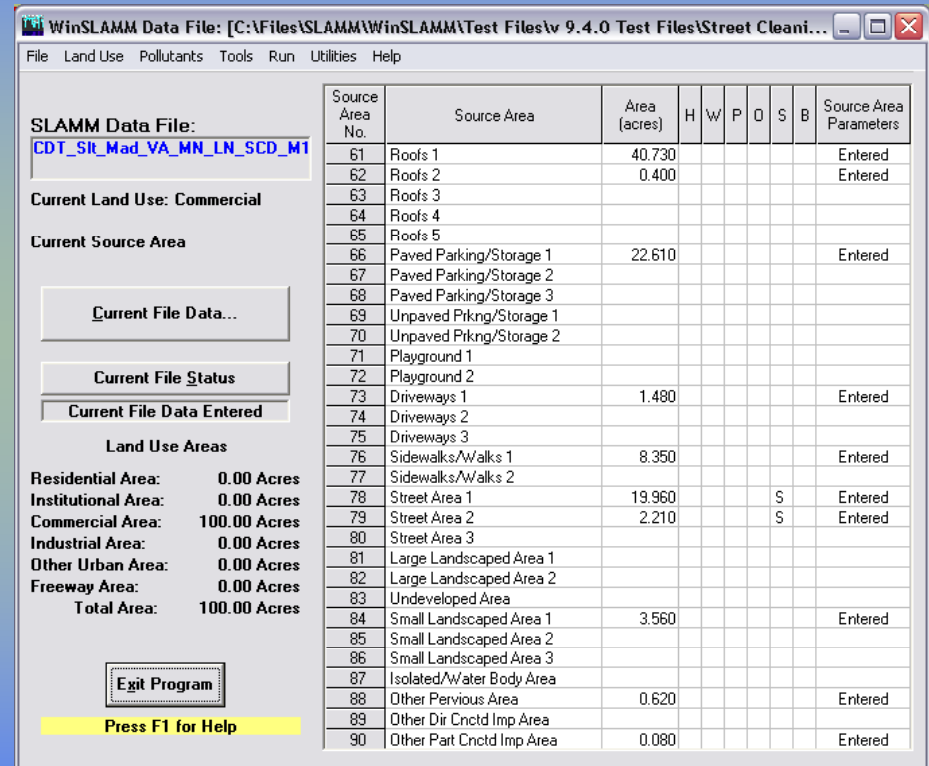
Introduction

PV & Associates LLC

January 2011

Why the significant changes?

1. We wanted the program to be more flexible
2. We wanted to add to the current capabilities
3. We wanted to make the program more “user friendly”



WinSLAMM Data File: [C:\Files\SLAMM\WinSLAMM\Test Files\9.4.0 Test Files\Street Cleani...

File Land Use Pollutants Tools Run Utilities Help

SLAMM Data File:
CDT_Sk_Mad_VA_MN_LN_SCD_M1

Current Land Use: Commercial

Current Source Area

Current File Data...

Current File Status

Current File Data Entered

Land Use Areas

Residential Area: 0.00 Acres
Institutional Area: 0.00 Acres
Commercial Area: 100.00 Acres
Industrial Area: 0.00 Acres
Other Urban Area: 0.00 Acres
Freeway Area: 0.00 Acres
Total Area: 100.00 Acres

Exit Program

Press F1 for Help

Source Area No.	Source Area	Area (acres)	H	W	P	O	S	B	Source Area Parameters
61	Roofs 1	40.730							Entered
62	Roofs 2	0.400							Entered
63	Roofs 3								
64	Roofs 4								
65	Roofs 5								
66	Paved Parking/Storage 1	22.610							Entered
67	Paved Parking/Storage 2								
68	Paved Parking/Storage 3								
69	Unpaved Pkng/Storage 1								
70	Unpaved Pkng/Storage 2								
71	Playground 1								
72	Playground 2								
73	Driveways 1	1.480							Entered
74	Driveways 2								
75	Driveways 3								
76	Sidewalks/Walks 1	8.350							Entered
77	Sidewalks/Walks 2								
78	Street Area 1	19.960					S		Entered
79	Street Area 2	2.210					S		Entered
80	Street Area 3								
81	Large Landscaped Area 1								
82	Large Landscaped Area 2								
83	Undeveloped Area								
84	Small Landscaped Area 1	3.560							Entered
85	Small Landscaped Area 2								
86	Small Landscaped Area 3								
87	Isolated/Water Body Area								
88	Other Pervious Area	0.620							Entered
89	Other Dir Cnctd Imp Area								
90	Other Part Cnctd Imp Area	0.080							Entered

Needed Changes to the Program

- Routing
 - Particle Size – By Event
 - Hydrograph – Between Control Practices

Needed Changes to the Program

- Routing
 - Particle Size – By Event
 - Hydrograph – Between Control Practices
- More flexibility for source areas and land uses
- Control practices in series

More Flexible Source Area Options

WinSLAMM - [Land Use Model]

File Current File Data Pollutants Tools Run Utilities Help

RES INS COM IND DU FRE

Land Use: Residential 2

Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
Roofs		0.000			
1	Roofs 1				
2	Roofs 2				
3	Roofs 3				
4	Roofs 4				
5	Roofs 5				
6	Roofs 6				
7	Roofs 7				
8	Roofs 8				
9	Roofs 9				
10	Roofs 10				
11	Roofs 11				
12	Roofs 12				
Parking		0.000			
13	Paved Parking 1				
14	Paved Parking 2				
15	Paved Parking 3				
16	Paved Parking 4				
17	Paved Parking 5				
18	Paved Parking 6				
19	Unpaved Parking 1				
20	Unpaved Parking 2				
21	Unpaved Parking 3				

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Institutional	Institutional 1	6.000
2	Industrial	Industrial 1	3.000
3	Residential	Residential 1	0.000
4	Residential	Residential 2	0.000

CP #	Control Practice Type	Control Practice Name or Location
1	Filter Strip	Source Area Device, LU# 1 ,SA# 13
2	Cistern	Source Area Device, LU# 1 ,SA# 14
3	Grass Swales	Source Area Device, LU# 1 ,SA# 15
4	Wet Pond	Wet Pond 1
5	Biofilters	Biofilters 1

Number of Source Areas for a Land Use

	Number of Sas in .DAT File	Number of Sas in .MDB File
Roofs	5	12
Paved Parking	3	6
Unpaved Parking	2	6
Driveways	3	6
Sidewalks	2	6
Streets	3	8
Large Landscaped Areas	2	6
Small Landscaped Areas	3	6
Undeveloped Areas	1	6
Playgrounds	2	6
Isolated Areas		1
Water Body Areas	1	1
Other Pervious Area	1	6
Other Directly Conn Imp Area	1	1
Other Partially Conn Imp Area	1	6
Total	30	83

	Number of Sas in .DAT File	Number of Sas in .MDB File
Paved Land and Shoulder Area	5	10
High Traffic Urban		8
Large Turf Areas	1	3
Undeveloped Areas	1	3
Other Pervious Areas	1	6
Other Directly Conn Imp Area	1	1
Other Partially Conn Imp Area	1	6
Total	10	37

Check Current File Status Total Area = 9.000 acres Element Number = 4 Remaining Elements = 250 Start Date: 07/01/81 End Date: 07/15/81

New Interface – More User Friendly

The screenshot displays the WinSLAMM v10 software interface. The main window shows a diagram with a 'RES' (Residential) icon connected to a 'Junction 1' node, which is further connected to an 'OUT' (Outfall) icon. The interface includes a menu bar, a toolbar, and several data tables.

Junction 1

Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
27	Driveways 3				
28	Driveways 4				
29	Driveways 5				
30	Driveways 6				
31	Sidewalks 1				
32	Sidewalks 2				
33	Sidewalks 3				
34	Sidewalks 4				
35	Sidewalks 5				
36	Sidewalks 6				
Streets		3.000			
37	Streets 1	3.000	Entered	SC	CB
38	Streets 2			--	
39	Streets 3			SC	
40	Streets 4			HD	
41	Streets 5			OD	
42	Streets 6			BF	
43	Streets 7			FS	
44	Streets 8			GS	
44	Streets 8			CB	
Landscaped Areas		0.000			
45	Large Landscaped Areas 1				
46	Large Landscaped Areas 2				
47	Large Landscaped Areas 3				

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Residential	Residential 1	3.000

CP #	Control Practice Type	Control Practice Name or Location
1	Street Cleaning	Source Area Device, LU# 1 ,SA# 37
2	Catchbasin Cleaning	Source Area Device, LU# 1 ,SA# 37

Check Current File Status | Total Area = 3.000 acres | Element Number = 1 | Remaining Elements = 253 | Start Date: 07/01/81 | End Date: 07/15/81

Drag – and – Drop
Interface

Draft Screen Shot – Subject to Change

Source Area Control Practice Routing

The screenshot displays the WinSLAMM v 10 software interface. The title bar reads "WinSLAMM v 10 Data File: [C:\Files\SLAMM\WinSLAMM\v10\Current\sc-cb.mdb] - [Land Use Model]". The menu bar includes "File", "Current File Data", "Pollutants", "Tools", "Run", "Utilities", and "Help". The toolbar contains various icons for navigation and editing.

The main window is divided into two panes. The left pane shows a data table for "Junction 1" with columns for Source Area #, Source Area, Area (acres), Source Area Parameters, First Control Practice, and Second Control Practice. A red circle highlights the "First Control Practice" column for rows 33 through 36. Below this table is another table for "Land Use" with columns for Land Use #, Land Use Type, Land Use Label, and Land Use Area (acres). The right pane shows a routing diagram with a "RES" icon labeled "Residential 1" connected to a "Junction 1" node, which is then connected to an "OUT" icon labeled "Outfall".

Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
27	Driveways 3				
28	Driveways 4				
29	Driveways 5				
30	Driveways 6				
31	Sidewalks 1				
32	Sidewalks 2				
33	Sidewalks 3				
34	Sidewalks 4				
35	Sidewalks 5				
36	Sidewalks 6				
Streets		3.000			
37	Streets 1	3.000	Entered	SC	CB
38	Streets 2			-	
39	Streets 3			SC	
40	Streets 4			HD	
41	Streets 5			OP	
42	Streets 6			BF	
43	Streets 7			FS	
44	Streets 8			GS	
44	Streets 8			CB	
Landscaped Areas		0.000			
45	Large Landscaped Areas 1				
46	Large Landscaped Areas 2				
47	Large Landscaped Areas 3				

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Residential	Residential 1	3.000

CP #	Control Practice Type	Control Practice Name or Location
1	Street Cleaning	Source Area Device, LU# 1 ,SA# 37
2	Catchbasin Cleaning	Source Area Device, LU# 1 ,SA# 37

Check Current File Status | Total Area = 3.000 acres | Element Number = 1 | Remaining Elements = 253 | Start Date: 07/01/81 | End Date: 07/15/81

Source Area
Control Practice
Routing

Draft Screen Shot – Subject to Change

Drainage System Control Practice Routing

The screenshot displays the WinSLAMM software interface. On the left, there are three data tables. The top table lists source areas under 'Residential 2', categorized into 'Roofs' (12 items) and 'Parking' (9 items). The middle table lists land use types: Institutional (6.000 acres), Industrial (3.000 acres), Residential 1 (0.000 acres), and Residential 2 (0.000 acres). The bottom table lists control practices: Filter Strip, Cistern, Grass Swales, Wet Pond, and Biofilters, each with a specific name or location.

On the right, a routing diagram shows the flow from various source areas (Institutional 1, Industrial 1, Residential 1, Residential 2) through a series of junctions, a wet pond, and biofilters, finally leading to an outfall. A red oval highlights the initial junction where Institutional 1, Industrial 1, and Residential 1 converge.

Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
Roofs					
1	Roofs 1	0.000			
2	Roofs 2				
3	Roofs 3				
4	Roofs 4				
5	Roofs 5				
6	Roofs 6				
7	Roofs 7				
8	Roofs 8				
9	Roofs 9				
10	Roofs 10				
11	Roofs 11				
12	Roofs 12				
Parking					
13	Paved Parking 1	0.000			
14	Paved Parking 2				
15	Paved Parking 3				
16	Paved Parking 4				
17	Paved Parking 5				
18	Paved Parking 6				
19	Unpaved Parking 1				
20	Unpaved Parking 2				
21	Unpaved Parking 3				

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Institutional	Institutional 1	6.000
2	Industrial	Industrial 1	3.000
3	Residential	Residential 1	0.000
4	Residential	Residential 2	0.000

CP #	Control Practice Type	Control Practice Name or Location
1	Filter Strip	Source Area Device, LU# 1 ,SA# 13
2	Cistern	Source Area Device, LU# 1 ,SA# 14
3	Grass Swales	Source Area Device, LU# 1 ,SA# 15
4	Wet Pond	Wet Pond 1
5	Biofilters	Biofilters 1

Drainage System
Control Practice
Routing

Data Input Changes

- Wet Detention Ponds
- **Biofilters**
- **Default Parameter File Inputs**
- Land Uses Enhanced with more Source Areas
- **Data Structure**

Data Input Changes – Biofilters

Biofiltration Control Device

Drainage System Control Practice

Device Properties

Property	Value
Top Area (sf)	400
Bottom Area (sf)	350
Total Depth (ft)	4.00
Typical Width (ft) (Cost est. only)	10.00
Native Soil Infiltration Rate (in/hr)	1.560
Native Soil Infiltration Rate COV	N/A
Infil. Rate Fraction-Bottom (0-1)	1.00
Infil. Rate Fraction-Sides (0-1)	1.00
Rock Filled Depth (ft)	1.00
Rock Fill Porosity (0-1)	0.00
Engineered Soil Type	Soil Data
Engineered Soil Infiltration Rate (in/hr)	1.56
Engineered Soil Infiltration Rate COV	N/A
Engineered Soil Depth (ft)	2
Engineered Soil Porosity (0-1)	0.00
Percent solids reduction due to Engineered Soil (0-100)	N/A
Inflow Hydrograph Peak to Average Flow Ratio	3.80
Number of Devices in Source Area or Land Use	1

Bioreactor Number 1

Activate Pipe or Box Storage Pipe Box

Diameter (ft) _____
 Length (ft) _____
 Within Biofilter (check if Yes)
 Perforated (check if Yes)
 Bottom Elevation (ft above datum) _____
 Discharge Orifice Diameter (ft) _____

Select Native Soil Infiltration Rate

<input type="radio"/> Sand - 8 in/hr	<input type="radio"/> Clay loam - 0.1 in/hr
<input type="radio"/> Loamy sand - 2.5 in/hr	<input type="radio"/> Silty clay loam - 0.05 in/hr
<input type="radio"/> Sandy loam - 1.0 in/hr	<input type="radio"/> Sandy clay - 0.05 in/hr
<input type="radio"/> Loam - 0.5 in/hr	<input type="radio"/> Silty clay - 0.04 in/hr
<input type="radio"/> Silt loam - 0.3 in/hr	<input type="radio"/> Clay - 0.02 in/hr
<input type="radio"/> Sandy silt loam - 0.2 in/hr	<input type="radio"/> Rain Barrel/Cistern - 0.00 in/hr

Select Particle Size File: C:\Program Files\WinSLAMM\NURP.CPZ

Control Practice #: 1 CP Element #: 1

Sharp Crested Weir

Weir Length (ft) _____
 Height from datum to bottom of weir opening (ft) _____

Broad Crested Weir

Weir crest length (ft) 5.0000
 Weir crest width (ft) 3
 Height from datum to bottom of weir opening (ft) 3.7500

Vertical Stand Pipe

Pipe diameter (ft) 1.0000
 Height above datum (ft) 3.5000

Surface Discharge Pipe

Orifice Diameter (ft) _____
 Invert elevation above datum (ft) _____
 Number of orifices in set _____

Drain Tile/Underdrain

Orifice Diameter (ft) 0.3000
 Invert elevation above datum (ft) 0.6000
 Number of orifices in set _____

Other Outlet

Stage Number	Stage (ft)	Other Outflow Rate (cfs)
1		
2		
3		
4		
5		

Evapotranspiration

Soil porosity (saturation moisture content, 0-1) _____
 Soil field moisture capacity (0-1) _____
 Permanent wilting point (0-1) _____
 Supplemental irrigation used?
 Fraction of available capacity when irrigation starts (0-1) _____
 Fraction of available capacity when irrigation stops (0-1) _____
 Fraction of biofilter that is vegetated _____
 Plant type _____
 Root depth (ft) _____
 ET Crop Adjustment Factor _____

Evaporation

Month	Evapotranspiration (in/day)	Evaporation (in/day)
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		

Plant Types

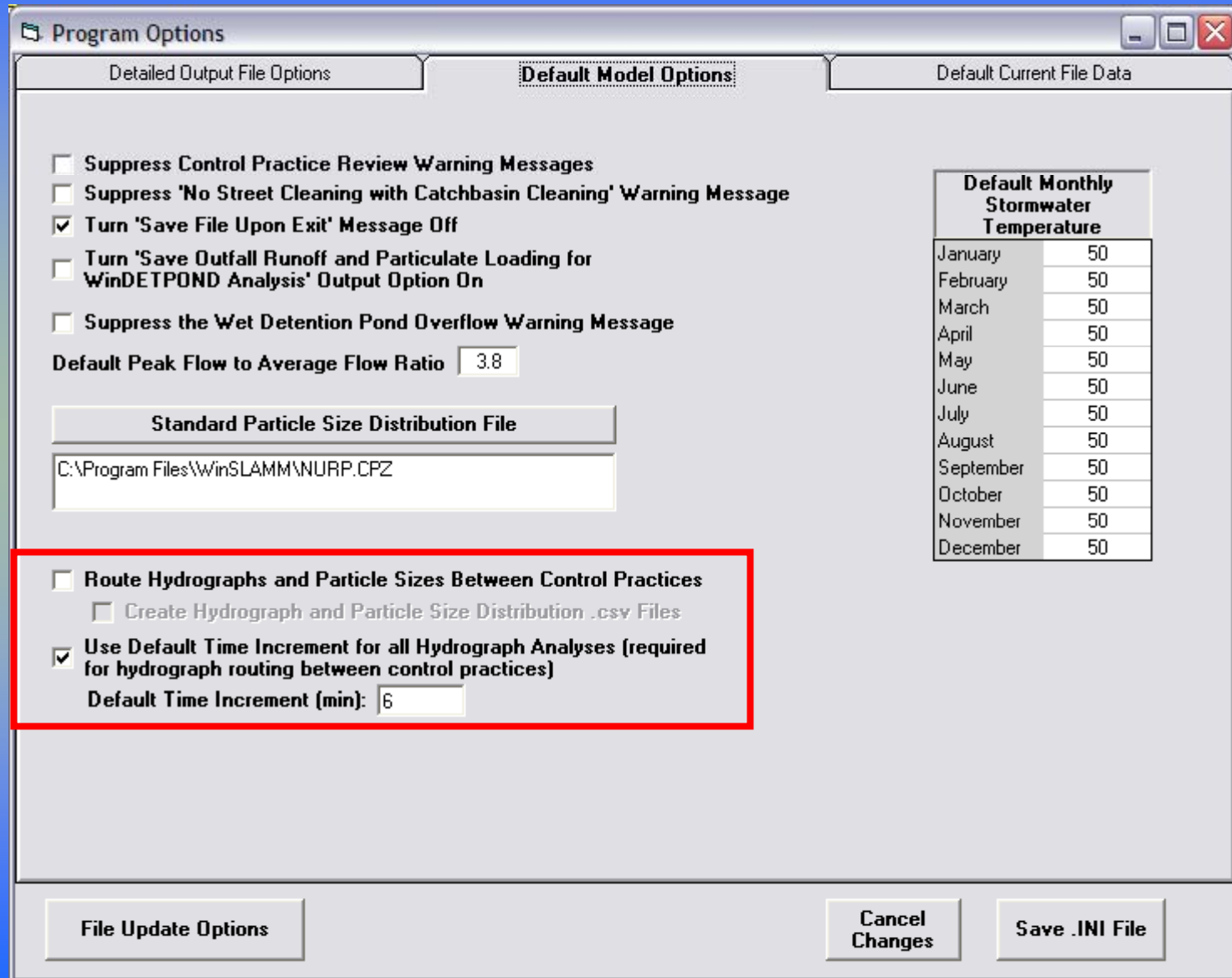
1	2	3	4
▼	▼	▼	▼

Biofilter Geometry Schematic

Refresh Schematic Delete Cancel Continue

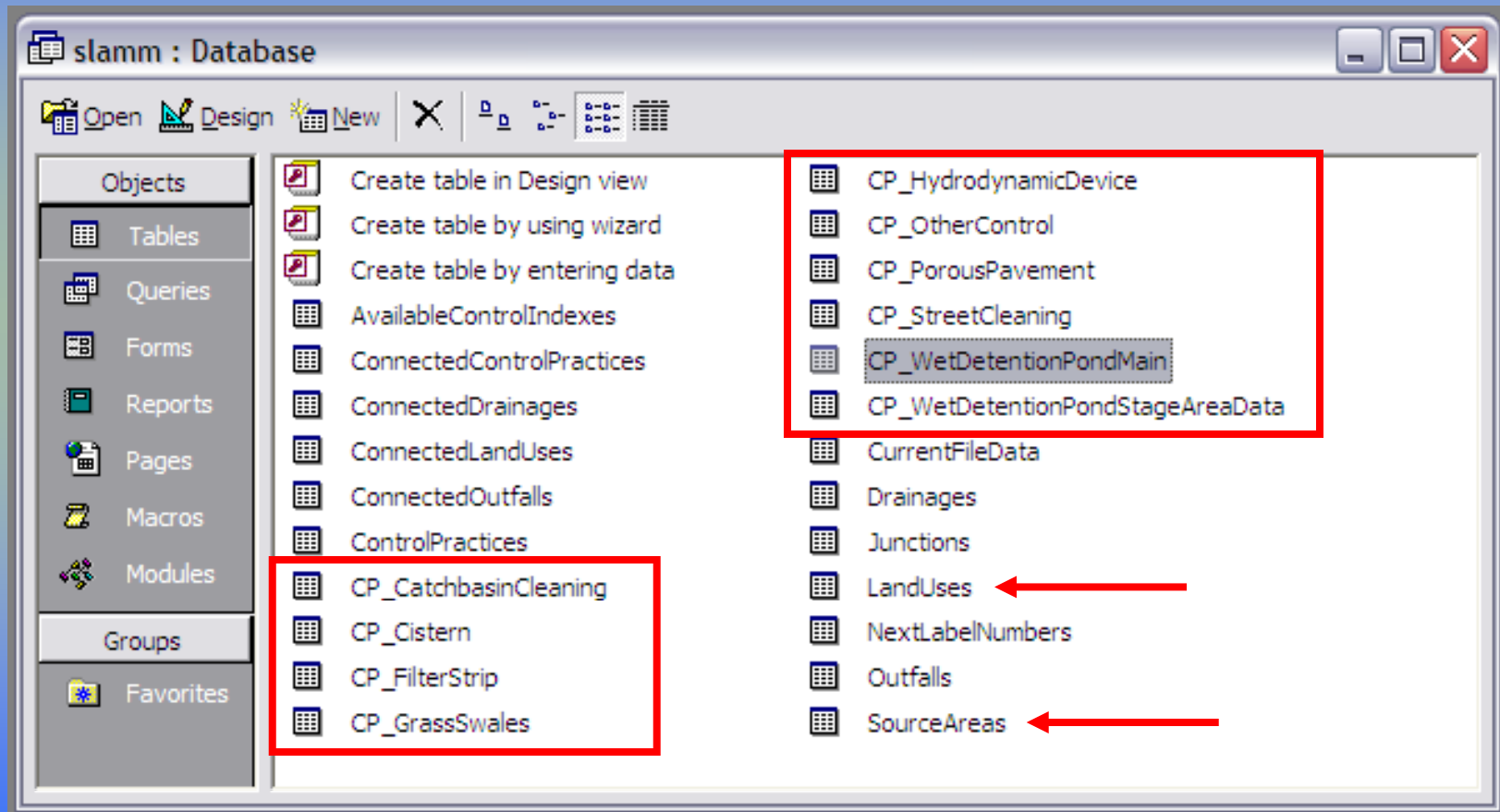
Draft Screen Shot – Subject to Change

Data Input Changes – Default Input



Draft Screen Shot – Subject to Change

Data Input Changes – Data Structure



Draft Screen Shot – Subject to Change

New/Modified Control Practices

- Media Filters
- Grass Filters
- Cisterns
- Green Roofs
- Evapotranspiration
- Ultra Urban Highway option with Street Cleaning

Control Practices – Media Filters

- Contech Stormfilter – data being reviewed
- Hydro International Upflow Filter – data being reviewed
- BaySaver Technologies BayFilter – under discussion

Control Practices – Grass Filter Strips

Filter Strip Control Device

Land Use: Institutional 1 **Total Area: 2.000 acres**
Source Area: Paved Parking 1 **Filter Strip No. 1**

First Source Area Control Practice

Device Properties

Total Area in Source Area (ac)	2.000
Area Fraction Served by Filter Strips (0-1)	1.00
Total Filter Strip Length (ft)	0
Effective Width (ft)	0
Infiltration Rate (in/hr)	0.000
Typical Longitudinal Slope (0-1)	0.000
Typical Grass Height (in)	0.0
Grass Retardance Factor	▼
Use Stochastic Analysis to account for Infiltration Rate Uncertainty	<input type="checkbox"/>
Native Soil Infiltration Rate COV	

Select Particle Size File

C:\Program Files\WinSLAMM\NURP.CPZ

Select Native Soil Infiltration Rate

Sand - 8 in/hr Clay loam - 0.1 in/hr
 Loamy sand - 2.5 in/hr Silty clay loam - 0.05 in/hr
 Sandy loam - 1.0 in/hr Sandy clay - 0.05 in/hr
 Loam - 0.5 in/hr Silty clay - 0.04 in/hr
 Silt loam - 0.3 in/hr Clay - 0.02 in/hr
 Sandy silt loam - 0.2 in/hr Rain Barrel/Cistern - 0.00 in/hr

Copy Filter Strip Data Paste Filter Strip Data

Delete Cancel Continue

Draft Screen Shot – Subject to Change

Control Practices – Grass Filter Strips

Assumptions:

- Flow over surface modeled as sheet flow
- All particle sizes are treated
- Effective treatment length reduced based upon slope
 - <0.02 ft/ft – 3 ft reduction
 - >0.05 ft/ft – 10 ft reduction
 - else – 6 ft reduction

Filter Strip Control Device

Land Use: **Institutional 1** Total Area: **2.000 acres**
Source Area: **Paved Parking 1** Filter Strip No. **1**

First Source Area Control Practice

Device Properties

Total Area in Source Area (ac)	2.000
Area Fraction Served by Filter Strips (0-1)	1.00
Total Filter Strip Length (ft)	0
Effective Width (ft)	0
Infiltration Rate (in/hr)	0.000
Typical Longitudinal Slope (0-1)	0.000
Typical Grass Height (in)	0.0
Grass Retardance Factor	<input type="button" value="v"/>
Use Stochastic Analysis to account for Infiltration Rate Uncertainty	<input type="checkbox"/>
Native Soil Infiltration Rate COV	

C:\Program Files\WinSLAMM\NURP.CPZ

Select Native Soil Infiltration Rate

<input type="radio"/> Sand - 8 in/hr	<input type="radio"/> Clay loam - 0.1 in/hr
<input type="radio"/> Loamy sand - 2.5 in/hr	<input type="radio"/> Silty clay loam - 0.05 in/hr
<input type="radio"/> Sandy loam - 1.0 in/hr	<input type="radio"/> Sandy clay - 0.05 in/hr
<input type="radio"/> Loam - 0.5 in/hr	<input type="radio"/> Silty clay - 0.04 in/hr
<input type="radio"/> Silt loam - 0.3 in/hr	<input type="radio"/> Clay - 0.02 in/hr
<input type="radio"/> Sandy silt loam - 0.2 in/hr	<input type="radio"/> Rain Barrel/Cistern - 0.00 in/hr

Control Practices – Evapotranspiration

Biofiltration Control Device

First Source Area Control Practice
Biofilter Number 1 Total Area: 3.000
Land Use: Industrial 1
Source Area: Paved Parking 1

Device Properties

Top Area (sf)	400
Bottom Area (sf)	300
Total Depth (ft)	4.00
Typical Width (ft) (Cost est. only)	10.00
Native Soil Infiltration Rate (in/hr)	0.5
Native Soil Infiltration Rate COV	N/A
Infil. Rate Fraction-Bottom (0-1)	1.00
Infil. Rate Fraction-Sides (0-1)	1.00
Rock Filled Depth (ft)	1.00
Rock Fill Porosity (0-1)	0.40
Engineered Soil Type	Loam Soil
Engineered Soil Infiltration Rate (in/hr)	0.15
Engineered Soil Depth (ft)	2
Engineered Soil Porosity (0-1)	.4
Percent solids reduction due to Engineered Soil (0 -100)	N/A
Inflow Hydrograph Peak to Average Flow Ratio	3.80
Number of Devices in Source Area or Land Use	1

Use Random Number Generation to Account for Infiltration Rate Uncertainty

Copy Biofilter Data Paste Biofilter Data

Select Native Soil Infiltration Rate

<input type="radio"/> Sand - 8 in/hr	<input type="radio"/> Clay loam - 0.1 in/hr
<input type="radio"/> Loamy sand - 2.5 in/hr	<input type="radio"/> Silty clay loam - 0.05 in/hr
<input type="radio"/> Sandy loam - 1.0 in/hr	<input type="radio"/> Sandy clay - 0.05 in/hr
<input checked="" type="radio"/> Loam - 0.5 in/hr	<input type="radio"/> Silty clay - 0.04 in/hr
<input type="radio"/> Silt loam - 0.3 in/hr	<input type="radio"/> Clay - 0.02 in/hr
<input type="radio"/> Sandy silt loam - 0.2 in/hr	<input type="radio"/> Rain Barrel/Cistern - 0.00 in/hr

Select Particle Size File C:\Program Files\WinSLAMM\NURP.CPZ

Add Sharp Crested Weir

Weir Length (ft) _____
 Height from datum to bottom of weir opening (ft) _____

Remove Broad Crested Weir

Weir crest length (ft) 10.00
 Weir crest width (ft) 2.00
 Height from datum to bottom of weir opening (ft) 3.50

Add Vertical Stand Pipe

Pipe diameter (ft) _____
 Height above datum (ft) _____

Add Surface Discharge Pipe

Orifice Diameter (ft) _____
 Invert elevation above datum (ft) _____
 Number of orifices in set _____

Add Drain Tile/Underdrain

Orifice Diameter (ft) _____
 Invert elevation above datum (ft) _____
 Number of orifices in set _____

Remove Other Outlet

Stage Number	Stage (ft)	Other Outflow Rate (cfs)
1	2.00	0.100
2	4.00	1.000
3		
4		
5		

Remove Evapotranspiration

Soil porosity (saturation moisture content, 0-1) 0.50
 Soil field moisture capacity (0-1) 0.35
 Permanent wilting point (0-1) 0.05
 Supplemental irrigation used?
 Fraction of available capacity when irrigation starts (0-1) _____
 Fraction of available capacity when irrigation stops (0-1) _____

Fraction of biofilter that is vegetated .5

Plant type Prairie P Turfgras _____ _____

Root depth (ft) 6.0 1.0 _____ _____

ET Crop Adjustment Factor 0.50 0.80 _____ _____

Evaporation

Month	Evapotranspiration (in/day)	Evaporation (in/day)
Jan		
Feb		
Mar		
Apr	0.10	
May	0.20	
Jun	0.50	
Jul	0.60	
Aug	0.50	
Sep	0.30	
Oct	0.10	
Nov		
Dec		

Plant Types

	1	2	3	4
Plant type	Prairie P	Turfgras		
Root depth (ft)	6.0	1.0		
ET Crop Adjustment Factor	0.50	0.80		

Detailed Soil Characteristics

Change Geometry

Biofilter Geometry Schematic

Refresh Schematic Delete Cancel Continue

Draft Screen Shot – Subject to Change

Control Practices – Evapotranspiration

Biofiltration Control Device

First Source Area: ...
 Biofilter Number: ...
 Land Use: Indu...
 Source Area: P...
 Device Propert...

Top Area (sf)
 Bottom Area (sf)
 Total Depth (ft)
 Typical Width (ft) (C...
 Native Soil Infiltrati...
 Native Soil Infiltrati...
 Infil. Rate Fraction-...
 Infil. Rate Fraction-...
 Rock Filled Depth (f...
 Rock Fill Porosity (C...
 Engineered Soil Ty...
 Engineered Soil Inf...
 (in/hr)
 Engineered Soil De...
 Engineered Soil Po...
 Percent solids redu...
 Engineered Soil (0...
 Inflow Hydrograph...
 Average Flow Rati...
 Number of Devices...
 Area or Land Use

Use Random Account for Infiltration

Copy Biofilter

Select Native Soil Type

Sand - 8 in/hr
 Loamy sand - ...
 Sandy loam - ...
 Loam - 0.5 in/hr
 Silt loam - 0.3 in/hr
 Clay - 0.02 in/hr
 Sandy silt loam - 0.2 in/hr
 Rain Barrel/Cistern - 0.00 in/hr

Select Particle Size File: C:\Program Files\WinSLAMM\NURP.CPZ

Refresh Schematic

Delete Cancel Continue

Detailed Soil Characteristics

Soil Type Texture	Saturation Water Content % (Porosity)	Field Capacity (Percent)	Permanent Wilting Point (Percent)	Infiltration Rate (in/hr)	Fraction of Soil Type Texture in Engineered Soil (0-1)
<input type="checkbox"/> User-Defined Soil Type	0.0	0.0	0.0	0.000	0.000
Coarse Sand & Gravel	32	4	0	40	0.000
Sands	38	8	2.5	13	0.000
Loamy Sands	39	13.5	4.5	2.5	0.600
Sandy Loams	40	19.5	6.5	1	0.000
Fine Sandy Loams	42	26.5	10.5	0.5	0.000
Loams & Silt Loams	43	34	14	0.15	0.400
Clay Loams/Silty Clay Loams	50	34.5	17	0.1	0.000
Silty Clays & Clays	55	33.5	18	0.015	0.000
Peat as Amendment	78	59	5	3	0.000
Compost as Amendment	61	55	5	3	0.000
Composite Soil Mixture Properties	40.6	21.7	8.3	1.560	1.000

Apply All Values Apply Porosity Apply Field Capacity Apply Wilting Point Apply Infiltration Rate

Cancel Continue

Draft Screen Shot – Subject to Change

Control Practices – Ultra Urban Highways

- Add the ‘Ultra-Urban’ Highway option to the Freeway Land Use
- Used to account for high volume traffic corridors in Urban Areas
- Will have the ability to apply street cleaning to these types of corridors
- Data for the analysis developed from USGS/DNR studies of highways

Questions?