



MAST

Maryland's Assessment and Scenario Tool

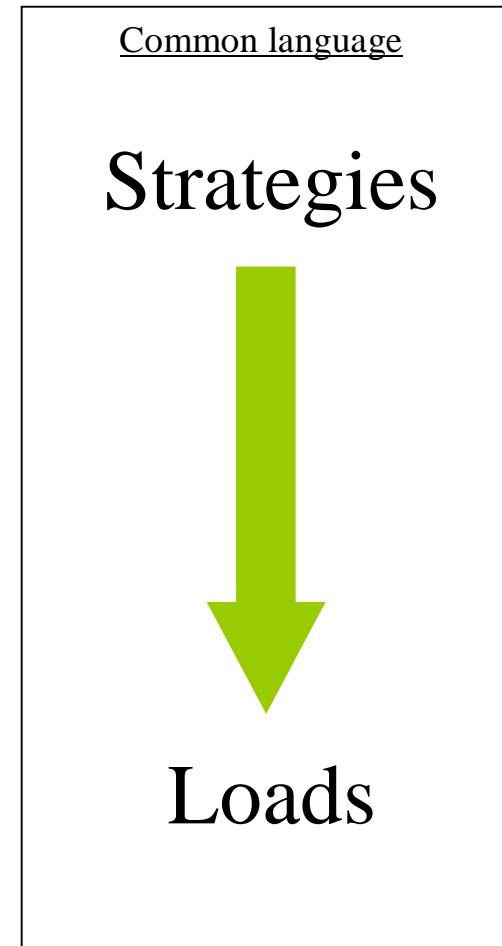
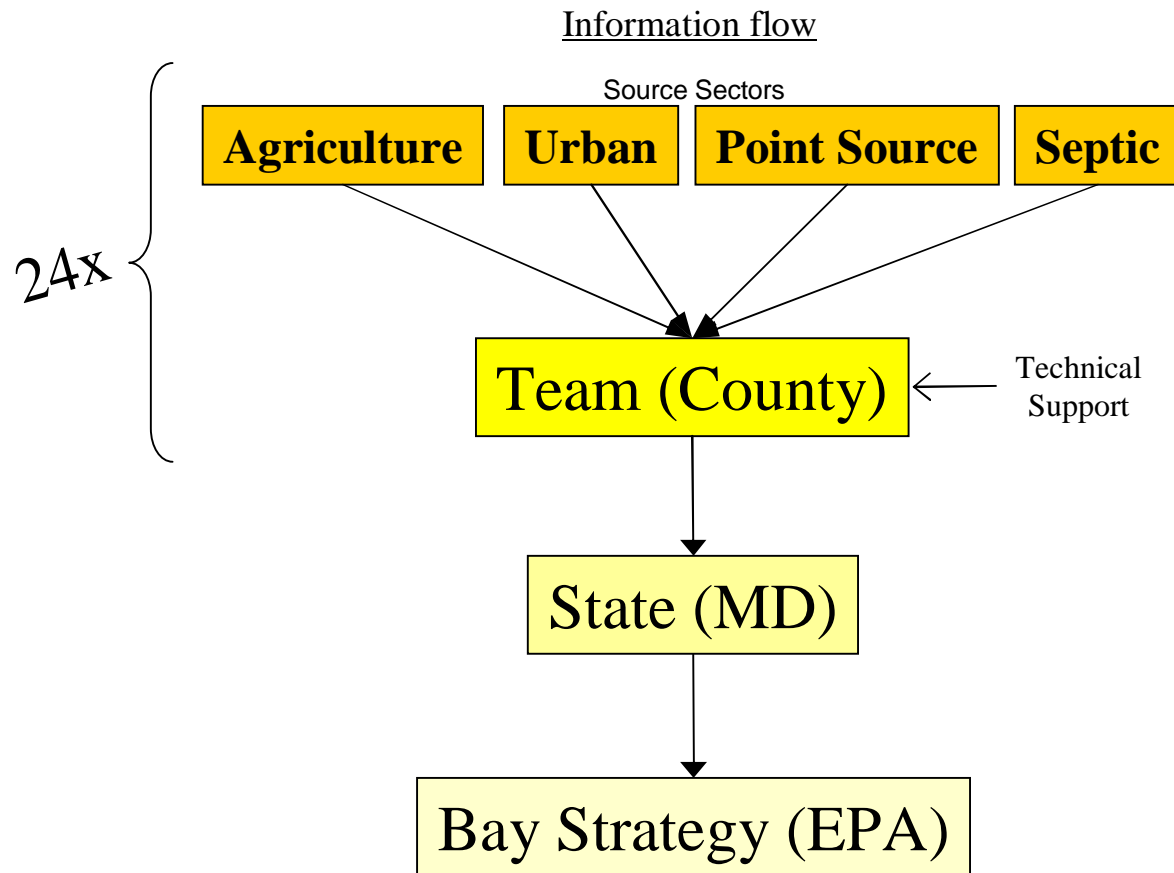
April 13, 2011



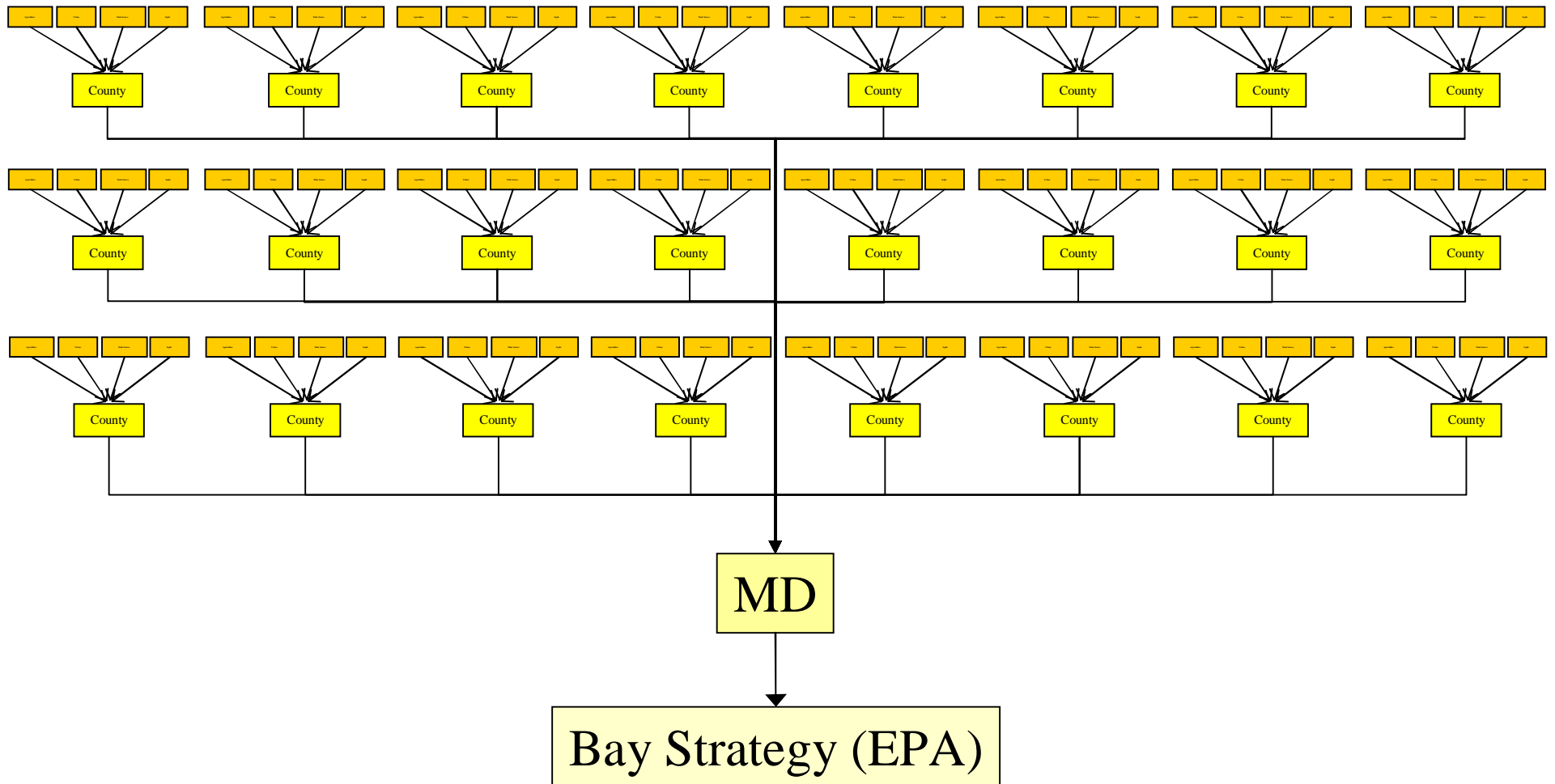
Scenario Development Process

- Modeling
 - Use reduced model to produce preliminary results
 - Consistent with EPA Bay TMDL models
 - Stakeholder involvement in scenario development
 - Iterative process
- Information Management System to
 - Facilitate consistent and transparent approach
 - Combine WIP Team scenarios for direct input into EPA Bay Model

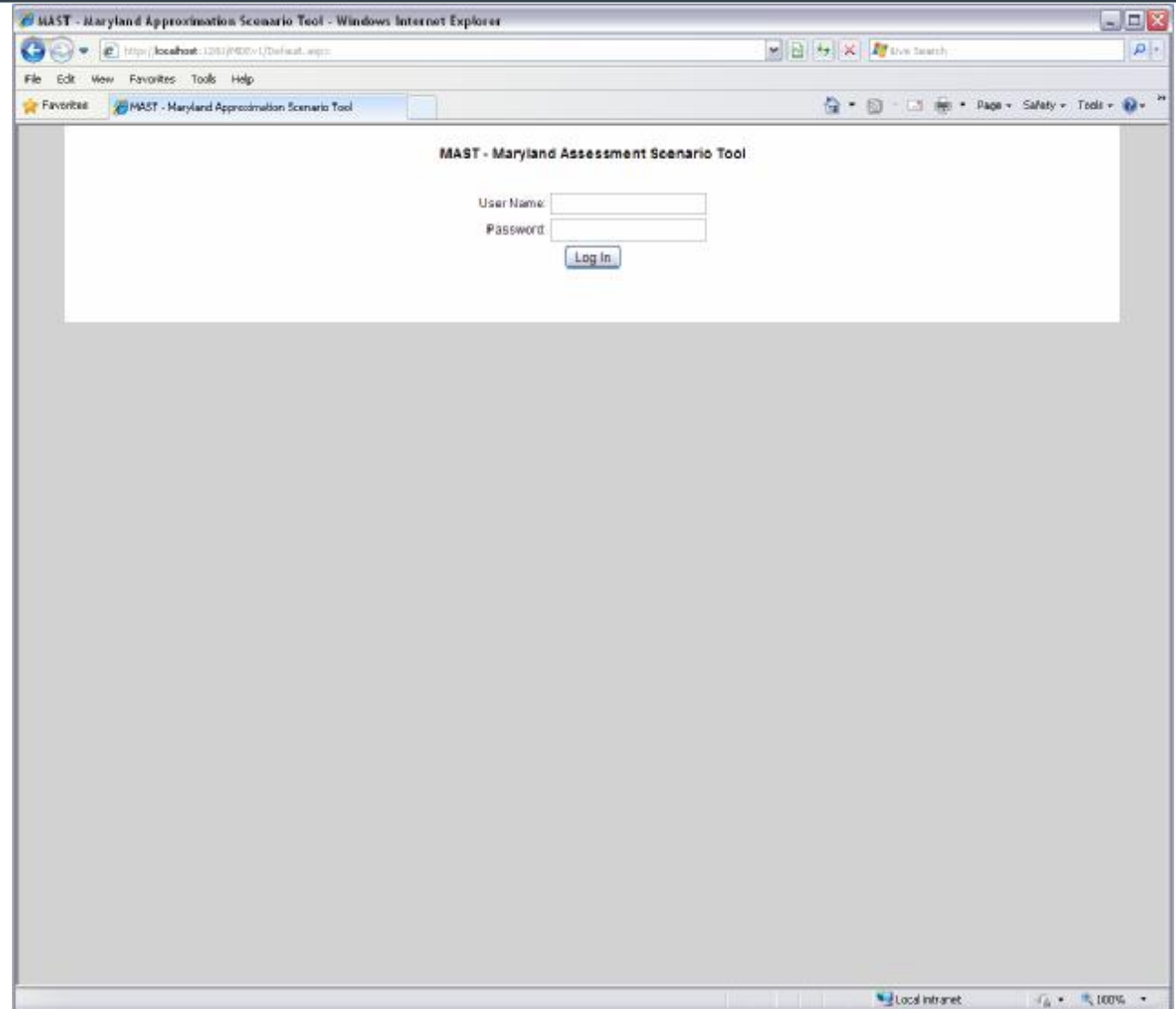
Need for Consistent Process



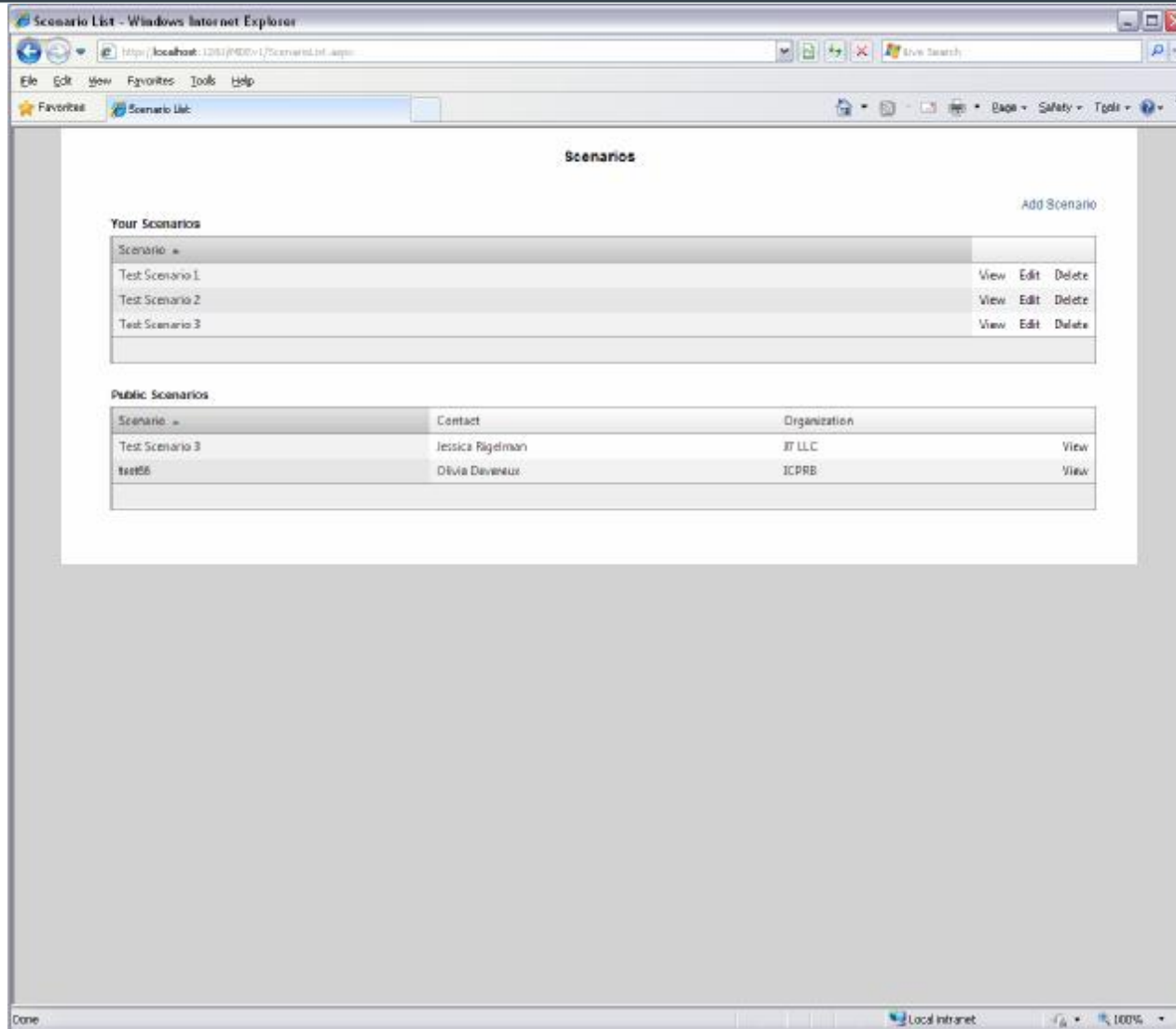
Need for Consistent Process



Screenshots - Login



Screenshots - Scenarios



Scenario List - Windows Internet Explorer

http://localhost:1283/MDPv1/ScenariosList.aspx

File Edit View Favorites Tools Help

Scenario List

Scenarios

Add Scenario

Your Scenarios

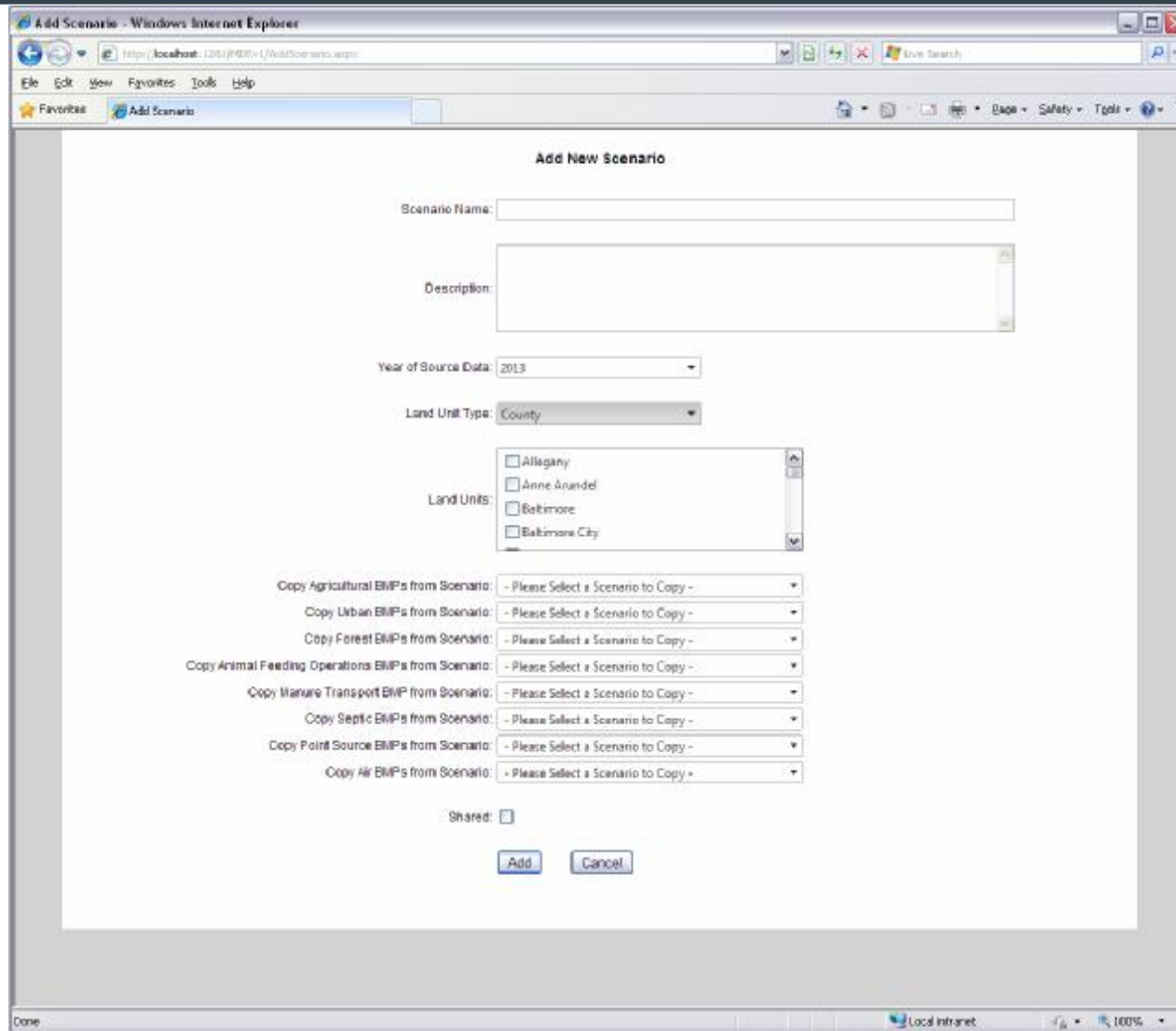
Scenario	
Test Scenario 1	View Edit Delete
Test Scenario 2	View Edit Delete
Test Scenario 3	View Edit Delete

Public Scenarios

Scenario	Contact	Organization	
Test Scenario 3	Jessica Fagelman	JT LLC	View
test55	Olivia Davineux	ICPRB	View

Done Local intranet 100%

Screenshots – New Scenario



The screenshot shows a web browser window titled "Add Scenario - Windows Internet Explorer". The address bar shows a local URL: "http://localhost:1284/MDPv1/AddScenario.aspx". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The address bar also contains "Live Search". The main content area is titled "Add New Scenario" and contains the following fields and controls:

- Scenario Name:** A text input field.
- Description:** A large text area with a vertical scrollbar.
- Year of Source Data:** A dropdown menu currently set to "2013".
- Land Unit Type:** A dropdown menu currently set to "County".
- Land Units:** A list box with checkboxes for "Allegheny", "Anne Arundel", "Baltimore", and "Baltimore City".
- Copy Agricultural BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Urban BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Forest BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Animal Feeding Operations BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Manure Transport BMP from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Septic BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Point Source BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Copy Air BMPs from Scenario:** A dropdown menu with the text "- Please Select a Scenario to Copy -".
- Shared:** A checkbox that is currently unchecked.
- Buttons:** "Add" and "Cancel" buttons.

The status bar at the bottom of the browser window shows "Local intranet" and "100%" zoom level.

Screenshots – Agriculture

Agricultural BMPs - Windows Internet Explorer

http://localhost:1281/MDOT/1/Agriculture/bmp.asp

File Edit View Favorites Tools Help

Favorites Agricultural BMPs

Agricultural BMPs

Pre-BMP Landuse	Acres
alfalfa	204
animal feeding operations	133
degraded riparian pasture	1275
hay with nutrients	612
hay without nutrients	561
hightail with manure	510
hightail without manure	408
lowtail with manure	765
nursery	1326
nutrient management alfalfa	816
nutrient management hay	960
nutrient management htail with manure	897
nutrient management htail without manure	818
nutrient management lolli	1020
nutrient management pasture	1071
pasture	1122

Select the BMP you would like to add:
- Please Select a BMP -

Select the landuse you would like to apply the BMP to:
-

Select the land unit type you would like to use to determine the area for the BMP:
- Please Select a Land Unit Type -

Specify which land units you would like the BMP applied to:
-

Enter the percent of acres to apply the BMP to:
percent

Add

Pre Bmp Landuse Raw Data

BMP	Landuse	Land Unit	Notes	Amount	Unit	
Commodity Cover Crop Standard-Planting Other Barley	hwm	Maryland		55	percent	Delete
Commodity Cover Crop Standard Other Rye	hom	PU1_3850_4190		9	percent	Delete
Conservation Tillage	HIGHMAN	PU1_3850_4190		9	percent	Delete
Cover Crop Early Drilled Wheat	LOW	MDP		9	percent	Delete
Forest Buffers	ALFALFA	A24001PU0_3871_3890		55	percent	Delete
Non Urban Streams Restoration	AG	MD, West Shore, Lower		0.66	feet	Delete
Non Urban Streams Restoration	FOREST	A24001PU0_3871_3890		55	feet	Delete
Non Urban Streams Restoration	HIGHMAN	APSN		1	feet	Delete

Done

Local intranet 100%

Comment field to put consistent information that explains rationale behind numbers. Helps manage the large amount of information.

Screenshots – Agriculture

Animal Feeding Operation BMPs - Windows Internet Explorer

http://localhost:1283/MSDEV1/WedBmpa.aspx

File Edit View Favorites Tools Help

Animal Feeding Operation BMPs

Animal Feeding Operation BMPs

Animal	# of Animals in AFGs	# of Animals in CAFOs
angora goats	10	10
beef heifers	10	10
broilers	10	10
dairy heifers	10	10
hogs and pigs for breeding	10	10
hogs for slaughter	10	10
horses	10	10
layers	10	10
milk goats	10	10
other cattle	10	10
pullets	10	10
sheep and lambs	10	10
turkeys	10	10

Animal Numbers Raw Data

Select the BMP you would like to add:
- Please Select a BMP -

Select the animal type you would like to apply the BMP to:
-

Select the landuse you would like to apply the BMP to:
- Please Select a Landuse Group -

Select the county you would like the BMP applied to:
 Allegany
 Anne Arundel

Enter the percent of animals to apply the BMP to:

Add

BMP	Animal Group	Landuse	County	% Animals	N Reduction	P Reduction	
Animal Waste Management System	beef heifers	CAFO	Allegany	50			Delete
Biofilters	layers	CAFO	Anne Arundel	55	60		Delete
Lagoon Covers	dairy heifers	AFO	Allegany	45	55		Delete
Poultry Phytase	layers	CAFO	Allegany	45	0	20	Delete

Next

Local intranet 100%

Screenshots – Agriculture

Manure Transport - Windows Internet Explorer

http://localhost:1283/MS07v1/ManureTransport.aspx

File Edit View Favorites Tools Help

Manure Transport

Manure Transport

Animal	Tons of Manure in AFOs	Tons of Manure in CAFOs
angora goats	1.3	1.3
beef heifers	7.3	7.3
broilers	0.3	0.3
dairy heifers	86.3	86.3
hogs and pigs for breeding	19.4	19.4
hogs for slaughter	14.3	14.3
horses	21.4	21.4
layers	0.4	0.4
milk goats	1.1	1.1
other cattle	8.7	8.7
pullets	0.2	0.2
sheep and lambs	1.5	1.5
turkeys	1.1	1.1

Selected the county you would like to transfer data from:
- Please Select a County -

Selected the county you would like to transfer data to:
- Please Select a County -

Selected the animal type of the manure being transported:
- Please Select an Animal Type -

Selected the landuse manure is being transported from:
- Please Select a Landuse Group -

Enter the tons of manure transported:

Add

Manure Production Raw Data

County Transported From	County Transported To	Animal Group	Landuse	Tons
No records to display.				

Next

Local intranet 100%

Screenshots – Urban Runoff

Urban BMPs – Windows Internet Explorer

http://localhost:12851/MCEv1/UrbanBMPs.aspx

Urban BMPs

Pre-BMP Landuse	Acres
CSS Construction	0
CSS Extractive	0
CSS Impervious	0
CSS Pervious	0
Non-regulated Pervious	467
Non-regulated Impervious	212
Non-regulated Extractive	14
Phase I Industrial Impervious	379
Phase I Industrial Pervious	431
Phase I Municipal MS4 Impervious	2665
Phase I Municipal MS4 Pervious	4871
Phase I SHA MS4 Impervious	56
Phase I SHA MS4 Pervious	22
Phase II Federal MS4 Impervious	146
Phase II Federal MS4 Pervious	532
Phase II Municipal MS4 Impervious	0
Phase II Municipal MS4 Pervious	0
Phase II State MS4 Impervious	0
Phase II State MS4 Pervious	0
Regulated Construction	213
Regulated Extractive	0

Select the BMP you would like to add:
- Please Select a BMP -

Select the landuse you would like to apply the BMP to:
-

Select the land unit type you would like to use to determine the area for the BMP:
- Please Select a Land Unit Type -

Specify which land units you would like the BMP applied to:

Enter the percent of acres to apply the BMP to:

Pre Bmp Landuse Raw Data

BMP	Landuse	Land Unit	Amount	Unit	Notes	
Retrofit	Phase I Municipal MS4 Impervious	Anne Arundel County	30	percent	AA County	Delete
Retrofit	Phase I Municipal MS4 Pervious	Anne Arundel County	30	percent	AA County	Delete
Retrofit	Phase II Municipal MS4 Impervious	Anne Arundel County	5	percent	City of Annapolis	Delete
Retrofit	Phase II Municipal MS4 Pervious	Anne Arundel County	5	percent	City of Annapolis	Delete

Screenshots – Septic

Septic BMPs - Windows Internet Explorer

http://localhost:1284/MDOT/1/SepticBmp.asp

File Edit View Favorites Tools Help

Septic BMPs

Septic Zone	Systems
Outside	30992
Within 1000 ft	36672
Critical Area	15452

Select the BMP you would like to add:

Select the septic zone you would like to apply the BMP to:

Select the land unit type you would like to use to determine the area for the BMP:

Specify which land units you would like the BMP applied to:

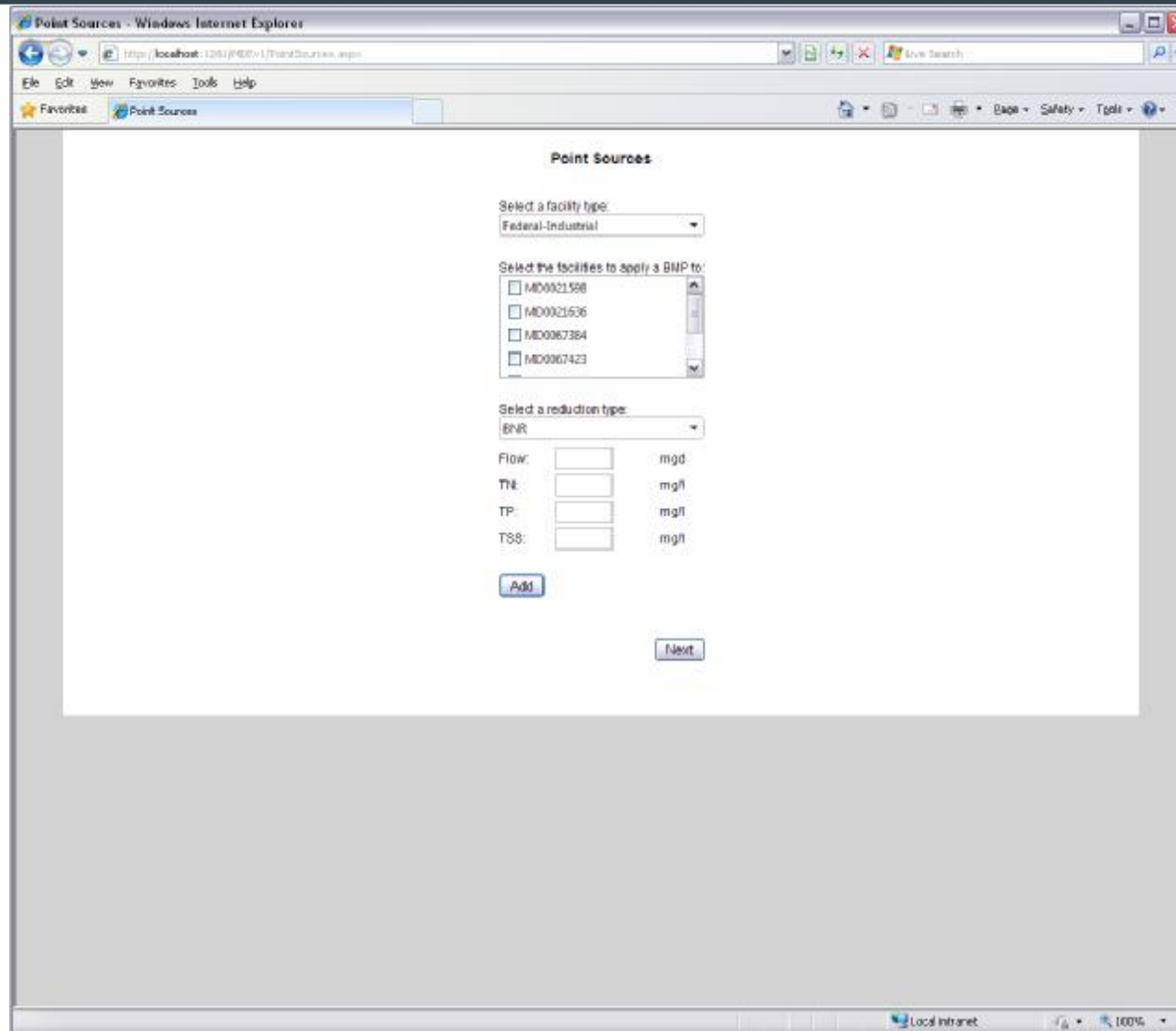
Enter the percent of septic systems to apply the BMP to:

Septic Systems Raw Data

BMP	Septic Zone	Land Unit	Percent	Notes
Septic Connection	Within 1000 ft	W10_4390_0000	100	Delete
Septic Connection	Within 1000 ft	W10_4391_0000	100	Delete
Septic Denitrification	Outside	MDE	55	Delete
Septic Denitrification	Within 1000 ft	A24011EM2_4101_0000	45	Delete
Septic Pumping	Critical Area	A24011EM0_4322_0000	100	Delete
Septic Pumping	Outside	A24005	55	Delete

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Screenshots – WWTP



Point Sources - Windows Internet Explorer

http://localhost:1284/MD001/PointSources.aspx

File Edit View Favorites Tools Help

Point Sources

Back Safety Tools

Point Sources

Select a facility type:
Federal-Industrial

Select the facilities to apply a BMP to:

- MD00021598
- MD00021636
- MD0067384
- MD0067423

Select a reduction type:
BNR

Flow: mgd

TSS: mg/l

TP: mg/l

TSS: mg/l

Add

Next

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Screenshots – Summary

Scenario Summary Results - Windows Internet Explorer

http://localhost:1283/MSDEV1/ScenarioSummary.aspx

File Edit View Favorites Tools Help

Scenario Summary Results

Scenario Summary Results

Name: Test Scenario 2
Description: kshyftuj
Source Year: 2010
Date Created: 1/31/2011 10:34:32 AM
Date Last Modified: 3/30/2011 10:09:25 PM

Landuse

Landuse	Pre-BMP Acres	Post-BMP Acres
alfalfa	9	9
animal feeding operations	6	6
CSS construction	90	90
CSS extractive	87	87
CSS impervious developed	84	84
CSS pervious developed	81	81
degraded riparian pasture	72	72
forest	18	18
harvested forest	24	24
hay with nutrients	33	33
hay without nutrients	30	30
highhill with manure	27	27
highhill without manure	21	21
lowhill with manure	42	42
nonregulated extractive	93	93
nonregulated impervious developed	39	39
nonregulated pervious developed	69	69
nursery	75	75
nutrient management alfalfa	45	45
nutrient management hay	54	54
nutrient management hbl with manure	48	48
nutrient management hbl without manure	51	51
nutrient management loill	57	57
nutrient management pasture	90	90
pasture	63	63
regulated construction	12	12

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Screenshots – Results

Scenario Summary Results - Windows Internet Explorer

http://localhost:1284/MDPv1/ScenarioSummary.aspx

File Edit View Favorites Tools Help

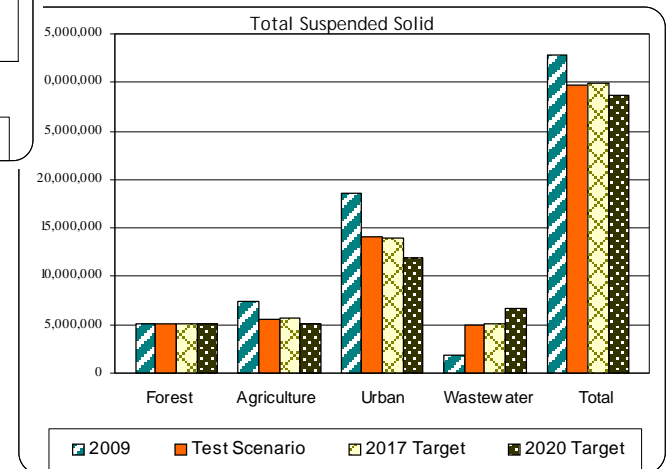
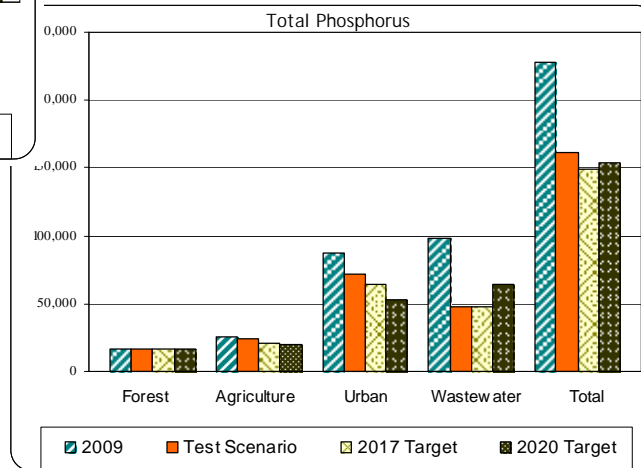
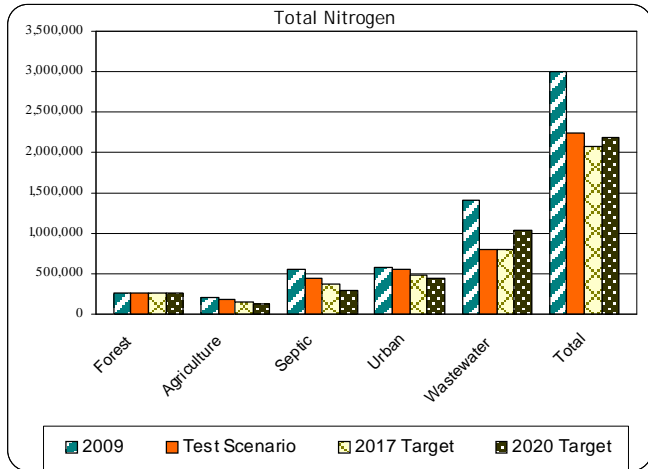
Scenario Summary Results

Loads

Landuse	Lbs Nitrogen Edge of Stream	Lbs Phosphorus Edge of Stream	Tons Sediment Edge of Stream	Lbs Nitrogen Delivered	Lbs Phosphorus Delivered	Tons Sediment Delivered
alfalfa	742	745	748	645.5	648.1	650.8
animal feeding operations	739	742	745	642.9	645.5	648.1
CSS construction	823	826	829	716	718.6	721.2
CSS extractive	820	823	826	713.4	716	718.6
CSS impervious developed	817	820	823	710.8	713.4	716
CSS pervious developed	814	817	820	708.2	710.8	713.4
degraded riparian pasture	805	808	811	700.4	703	705.6
forest	751	754	757	653.4	656	658.6
harvested forest	757	760	763	658.6	661.2	663.8
hay with nutrients	766	769	772	666.4	669	671.6
hay without nutrients	763	766	769	663.8	666.4	669
highhill with manure	760	763	766	661.2	663.8	666.4
highhill without manure	754	757	760	656	658.6	661.2
lowhill with manure	775	778	781	674.3	676.9	679.5
nonregulated extractive	826	829	832	718.6	721.2	723.8
nonregulated impervious developed	772	775	778	671.6	674.3	676.9
nonregulated pervious developed	802	805	808	697.7	700.4	703
nursery	808	811	814	703	705.6	708.2
nutrient management alfalfa	778	781	784	676.9	679.5	682.1
nutrient management hay	787	790	793	684.7	687.3	689.9
nutrient management hill with manure	781	784	787	679.5	682.1	684.7
nutrient management hill without manure	784	787	790	682.1	684.7	687.3
nutrient management lot	790	793	796	687.3	689.9	692.5

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Screenshots – Results



MAST Training Sessions

- Four sessions to be held at MDE computer room in July
- Six counties per session
 - Need to assign technical liaisons to county (one WIP team member and one state)
 - State technical liaison will work with multiple counties
- Technical support to be provided after July through completion of WIP

Schedule

Description	Date
MD provides Phase I Loads to teams	April 7, 2011
MD provides Phase 5.3.2 input to teams	May 15, 2011
EPA Release 5.3.2 w/ scenarios	June 30, 2011
MAST Release	June 30, 2011
MAST training sessions	July 2011
Revised State allocation from EPA	July 15, 2011
Revised County targets from MDE	August 15, 2011
Draft WIP from County	November 1, 2011
Preliminary Milestones	November 1, 2011
Draft WIP to EPA	December 1, 2011
Final Milestones	January 3, 2012
Public comment begins (30 days) - Tentative	January 15, 2012
EPA provides comments	January 31, 2012
Public comment ends	February 15, 2012
Final WIP to EPA	March 30, 2012