A GUIDE TO THE PREPARATION OF A CONSERVANCY DISTRICT PLAN

For more information concerning this publication, district planning, or the Indiana Conservancy Act, call the Indiana Department of Natural Resources at telephone number 317-232-4160, email at water_inquiry@dnr.in.gov or write to the following address:

Indiana Department of Natural Resources Division of Water
402 West Washington Street, Rm. W264
Indianapolis, Indiana 46204-2212

FORWARD

In preparing a District Plan, liberal use should be made of the implementing study or design report that served as a basis for the formation of the Conservancy District. Copies of maps, exhibits, and tables from the study/report should be included as appendices to the District Plan and referenced accordingly from the relevant paragraph. Text from the study/report should generally be summarized and included in the pertinent paragraph of the District Plan.

Depending on the purpose(s) for which the Conservancy District was formed, some paragraphs may not have any relevancy. In such cases enter N.A. (not applicable) in that paragraph. In addition, the purposes of water supply and sewage disposal do not require developing monetary benefits. In these cases, Section 6.00 (Estimated benefits from program) and 8.00 (Comparison of benefits and costs) should indicate whether the public health and convenience will be served.

The following will serve as an example of how the District Plan should be organized and what should be included in each section. It also includes a brief description of what should be included in each paragraph. Refer to the Indiana Conservancy Act. IC 14-33, in particular Chapter 6, for information about the requirements for a District Plan.

_____CONSERVANCY DISTRICT

DISTRICT PLAN

_____WATERSHED

_____COUNTY, INDIANA

_____(DATE)

Prepared pursuant to the Indiana Conservancy Act, IC 14-33, as amended.

Prepared by:

(list the name and title of officials and members of the Board of Directors of the Conservancy District)

ACKNOWLEDGEMENT

A brief statement expressing your indebtedness to the agencies and organizations that contributed to the development of the district plan.

TABLE OF CONTENTS

APPENDIX A

Exhibit 1: Resolution by the Board of Directors tentatively adopting the District Plan.

Exhibit 2: Copy of court order establishing the District.

Exhibit 3: Agreement(s) between the District and any other party(s).

APPENDIX B

Exhibit 1: Work Plan (if written) for Watershed Protection and Flood Prevention for Watershed.

Exhibit 2: Any Technical Report(s) relevant to the proposed work.

APPENDIX C

Exhibit 1: Preliminary Design Data on Structure #I (add additional exhibits as required to equal number of structures). For each dam include the following:

I. Copy of map of location of dam on 8/" x 11" paper;
2. Valley cross-section at the site showing top of fill, crest of emergency spillway and permanent pool elevation;
3. Area/storage - elevation curves;
4. Cross-section of the dam;
5. Tentative cost estimates for the structure.

Exhibit 2: Preliminary Design Data on Channel Improvement. For the channel improvements include the following:

1. Condensed profiles of channel improvements showing low bank elevation, hydraulic grade lines identified by frequencies, bridges and other existing or new structures.
2. Cost estimates for the channel improvements.

Exhibit 3: Preliminary design data of water supply or wastewater collection and treatment facilities including cost estimates.

Exhibit 4: Preliminary design data of other work of improvement for beneficial warer resource management including cost estimates.

APPENDIX D

Exhibit 1: Benefits analysis including property benefited by proposed works.

1.00 INTRODUCTION

1.10 Purpose of the (Name of District) Plan

State the purpose for drafting the report.

1.20 Authority

Quote the relevant chapter of the Indiana Conservancy Act that requires the Conservancy District to prepare and present the district plan- see IC 14-33-6-1 of the Indiana Conservancy Act.

1.30 Scope of the (Name of District) Plan

See IC 14-33-6-2 of the Indiana Conservancy Act.

1.40 General data on (Name of District)

1.41 Formation

Quote court order establishing the District. Include a copy of the court order as Exhibit 2 of Appendix A**.**

1.42 Area included

Give a general description of the geographical boundary of the District. Include a scale top graphic map of the District. Provide the legal description from the court order establishing the District.

1.43 Purposes of the District

List the purposes for which the District was established. See IC 14-33-1-1&2 of the Indiana Conservancy Act.

2.00 GENERAL DESCRIPTION OF THE (NAME OF DISTRICT)

2.10 Physical

Give the geographical location, area, any other data pertinent to the purposes of the District, e.g. physical features, rainfall and runoff patterns, availability/non-availability of ground water, general depth to bedrock, soils and seasonal water table (filter fields or lagoons), etc. Include a wetlands inventory map and a map identifying floodplains.

2.20 Economic

Give the population of both the District and the neighboring areas that would be expected to use any of the measures proposed in the District Plan. Mention the existing industries and institutions. Provide any projected population growth (use the Indiana County Population Projections prepared by the Indiana State Department of Health) and projected land use change studies. Include a description of the transportation system serving the area. Describe the organizational structure of governing bodies within the District, e.g. municipalities, schools, etc.

3.00 WATER RESOURCES PROBLEMS AND DAMAGES

The following subsections, 3.10 thru 3.90, should be filled out if pertinent to the purpose(s) of the District. Otherwise state Not Applicable (N.A.). Each subsection should state the problem and resulting damages completely and concisely. Also, describe any problems that can indirectly be attributed to inadequate water resource management in the watershed or District. Rerouting of traffic, business and payroll loss, spreading of diseases and noxious weeds, reduced outdoor recreation, etc. are some of the indirect problems that should be discussed where appropriate.

3.10 Flooding

The extent of the flooding problems and the estimated damages to agriculture, roads and bridges, homes, businesses, utilities, and other properties should be discussed. Other losses due to closure of roads and bridges or suspension/delays in providing essential services should be stated. Health and safety issues should be discussed.

3.20 Drainage

Describe the existing subsurface and surface drainage network and why it is inadequate. Give the location and extent of drainage problems in the District that exist during non-flood periods. Describe the type and extent of damage (crop losses, poor trafficability, soil compaction, poor septic field performance, weak road base, etc.) including direct and indirect losses to poor drainage.

3.30 Irrigation

Provide the location of lands where irrigation would be needed. Expected increases in production and/or land use changes should be stated, e.g. - convert from pasture or grain to truck crops. Describe the nature of the soils to be irrigated.

3.40 Water supply

Give the water supply needs of the District or area to be served. Describe the present

source and explain why it is inadequate (or perhaps unsuitable) to meet present or future needs. Attempts, if any, to obtain an adequate or suitable supply from sources other than the one currently proposed should be discussed.

3.50 Wastewater

Describe the present wastewater disposal system(s), if any, and list its (their) shortcomings. Health hazards and/or water pollution of surface and/or ground water should be stated. Provide a map of the District which includes boundaries of existing sewered areas within the District. Note whether the present systems do or do not meet the standards or regulations set by the Water Pollution Control Board, the Indiana State Department of Health, the County Health Department, and the Indiana Department of Environmental Management (IDEM).

3.60 Recreation

List the recreational facilities currently available in the area, if any. Provide evidence of overcrowding of existing facilities and unmet recreational needs (refer to any studies). Mention any large population centers around the District that would be expected to use the planned facilities. Additional information could be loss of revenue due to lack of adequate recreational facilities.

3.70 Erosion

Location, extent, and type of erosion problems within the District should be discussed. Provide a scale map of the District showing areas of high, moderate, and low erosion potential. Soil erosion caused by both water and wind should be discussed. Damages from sediment transportation into lakes and reservoirs and onto lands, roads, and bridges, including formation of sand and gravel bars in stream channels, should be discussed. Sedimentation effects on water quality as it relates to the intended water usage and to effects on fish and 'wildlife should be discussed. Any monetary evaluation of these damages should be included.

3.80 Flow Augmentation

Describe the hydrologic and hydraulic conditions of the watershed and any past or present storage facilities. To the extent possible, include historic flow data. List any development along the streams that affect or would be affected by low flows. Describe any wastewater treatment facilities or other facilities that would require flow augmentation. Quantify any damages that the lack. of sufficient flow would cause.

3.90 Operation, Maintenance, and Improvement

Describe the works of improvement and the current operation of it. Include the

current operations plan, if any, as an appendix. Describe any improvements and/or problems resulting from the operation or from the inability to operate, maintain, and improve the facility. Some problems that may be addressed are erosion, sedimentation, weeds. and deterioration of the work and appurtenant structures.

4.00 CAUSES OF PROBLEMS

Factors causing the problems of the District should be summarized in this paragraph. Some items that could be contributing to the problem(s) that may need to be discussed are inadequate watershed management lack of land use regulations (zoning), and surface and/or ground water pollution. If the District has more than one purpose, provide an additional paragraph per additional purpose.

5.00 WORKS OF IMPROVEMENT

5.10 Existing works of improvement

List the water related works of improvement that have been installed in the District. Any proposed works of improvement other than that to be undertaken by the District should be mentioned. If there are legal drains within the District and the purposes of the district include drainage or operation, maintenance, and improvement, a statement from the County Drainage Board is needed stating that the Board would be willing to turn over jurisdiction to the Conservancy District.

5.20 Improvements desired by the people

State the scope of water management program that the landowners wish to implement, e.g. flooding level of protection, acres drained or irrigated, households serviced by wastewater treatment or water supply, etc. If other parties or organizations are involved in the project formulation, state their interests or wishes and the type of participation desired. List any public meetings held concerning the development of the proposed program and the District Plan.

5.30 Proposed program of the District

State the alternative solutions that were studied or considered. Explain the method used to compare and evaluate the alternatives. State why each alternative was rejected. Describe the proposed program and why it was selected.

5.31 Nature of the works

Describe the nature of structural and/or non-structural measures to be installed. Clearly distinguish those measures for which the District is wholly

or partially the financial sponsor from those to be installed by other parties. A description of the program to be installed by other parties might be included in the District Plan if it adds to the overall understanding of the entire program to be implemented. However, it must be clearly stated who would be financially responsible for the operation. maintenance, and replacement of those programs. Describe the permits required for installation.

5.32 **Location of the works of improvement**

Describe the location of the proposed works of improvement. Make appropriate references to the location maps included in the appendix. The location of non-structural measures should also be identified and, where possible, outlined on the map of the District. Also, show the improvements on the wetlands inventory map and the map identifying floodplains.

5.33 **Scope of the proposed program**

Describe the objectives and limitations of the program so that it is clearly understood what this program is expected to achieve. Support your description with references to the preliminary design data that is in the appendix. Indicate how the program compares 1with the improvements desired by the people.

5.34 **Purpose(s) satisfied**

List the purpose(s) which the proposed works of improvement would satisfy and explain in separate paragraphs how each individual purpose would be satisfied.

5.35 **Purposes not satisfied**

Describe if any purposes of the District would not be satisfied by the present program or if the program, would only partially satisfy the need. Describe how the District might satisfy the need(s) in the future.

5.40 Property to be benefited

With the aid of the project map, indicate the area that would benefit either directly or indirectly from the proposed works of improvement. Quantitative and/or qualitative improvement from the existing condition should be discussed - refer to the implementation study(s).

5.50 Property to be taken or damaged requiring a construction easement

Explain the procedure the District Plan uses in order to secure the necessary land

rights. With the aid of a map(s) showing the works of improvements to be installed, show the nature of the land rights needed.

5.60 Environmental Benefits

Discuss the short-term and long-term environmental benefits resulting from the District Plan. Describe benefits received such as improvements in water quality and air quality, land pollution, flood control, wildlife habitat, or wetlands enhancement.

6.00 ESTIMATED BENEFITS FROM PROGRAM

A benefits analysis must be performed for all purposes of the District except for water supply or wastewater collection and treatment. The computations and supporting material should be included as Appendix D.

6.10 Benefits to urban properties

Describe the location and types of properties (residential and commercial, infrastructure, etc.) benefited. Give the level of protection or other benefits (monetary and non-monetary) the properties would receive. If monetary, state the value of the average annual benefits.

6.20 Benefits to agricultural properties

Describe the location of the benefited areas and the nature of the benefits to be derived. If the purpose is flood protection, mention the level of flood protection and average percentage of damage reduction. Give the monetary evaluation of the annual benefits to agricultural production or properties stemming from the overall works of improvement.

6.30 Benefits to roads and bridges

State the average annual benefits to roads and bridges, if any, from the proposed works of improvement.

6.40 Other benefits

If there are any other benefits. discuss them and provide the monetary evaluation if possible. Such indirect benefits might be - increase in property values due to a higher land use, opportunity for residential expansion, safe drinking water, reduction in fire insurance premiums, etc.

7.00 ESTIMATED COSTS OF PROGRAM

7.10 Estimated cost of improvement

Give the estimated cost of the project. Provide the cost breakdown by showing the costs that the District will assume and the costs that others will assume. Provide the itemized cost of establishing the District and other preliminary expenses before approval of the District Plan. Provide an itemized estimate of the costs to the District between the approval of the District Plan and the completion of construction,
i.e. - salaries, fees and other expenses to the District. Financial agreements between the District and other parties should be summarized with references to the pertinent agreements to be exhibited in the appendix. Discuss expected user fees to install and operate water supply or wastewater treatment systems. Discuss the viability of the fees regarding economic conditions of the area and compare to other Districts, with similar systems and economic conditions.

7.20 Estimated cost of operation, and maintenance, and replacement

Give the estimated annual cost of operation, maintenance and replacement of the structural measures. If the District's purpose(s) involve channel improvements, levees, and water retarding or impoundment structures, the District may consider a cumulative maintenance fund (see Chapter 21 of the Indiana Conservancy Act.)

7.30 Estimated cost of mitigation measures

Give the estimated cost of measures to mitigate adverse environmental impacts to the area. Discuss measures undertaken to mitigate impacts to water quality, air quality, wetlands, and waterways, etc. such as sedimentation, noise, odor, and erosion. Discuss methods of implementing these measures, e.g. minimizing amount of equipment, planting cover crops, stabilizing drainage systems.

8.00 COMPARISON OF BENEFITS AND COSTS

8.10 Average annual benefits

State total average annual benefits.

8.20 Average annual costs

Amortize the total cost of works of improvements over the appropriate number of years for the service life of the project and at the prevailing percentage rate recommended for water resources activity or other appropriate percentage rate. The costs incurred or estimated prior to the installation - related costs (see paragraph 6.10) should also be included. Add these costs to the estimated annual cost of

operation, maintenance and replacement (see paragraph 6.20) to obtain the average annual cost of the project.

8.30 Benefit-cost ratio

Where the purpose(s) of the program is (are) other than water supply or wastewater treatment, divide the total average annual benefits by the average annual costs to obtain the benefit-cost ratio.

9.00 PROPOSED SCHEDULE OF INSTALLATION

Describe the order in which the proposed measures will be installed. Provide the rationale, if any, why the order should be adhered to.

10.00 OPERATION, MAINTENANCE, REPLACEMENT AND INSPECTION

10.10 Operation, maintenance and replacement

Describe the program for operation, maintenance and replacement of all the structural measures. Discuss any agreements with other parties on operation, maintenance and replacement. Any such agreements should be included in the appendix. Discuss Emergency Action Plans that are prepared for high hazard impoundments.

10.20 Inspection

Describe the program for inspection of all the structural measures. Critical elements requiring more than periodic inspection should be identified. Discuss any agreements with other parties concerning inspections. Any such agreements should be included in the appendix.

APPENDIX A

APPENDIX A

EXHIBIT 1

A copy of the resolution by the Board of Directors adopting the District Plan.

APPENDIX A

EXHIBIT 2

A copy of the court order establishing the District.

APPENDIX A

EXHIBIT 3

A copy of any agreement between the District and another party.

APPENDIX B

APPENDIX B

EXHIBIT 1

A copy of the watershed work plan prepared by the Conservancy District with the technical assistance from the Soil Conservation Service, U.S. Department of Agriculture.

APPENDIX B

EXHIBIT 2

A copy of any technical report relevant to the proposed work.

APPENDIX C

APPENDIX C

EXHIBIT 1

PRELIMINARY DESIGN DATA

TENTATIVE COST ESTIMATE
Structure No. 1

	Quantity	Amount
Clearing	10 acres	6,000
Excavation	6,000 cu. yds.	60,000
Earth Fill	85,350 cu. yds.	853,500
Concrete	80.1 cu. yds.	18,423
Steel	4,680 lbs.	5,000
Conduit, 36" Diam.	180 feet	5,400
Structure Drainage		2,555
Seeding and Fertilizer	5 acres	12,150
	SUB-TOTAL	$963,028
Contingencies (10%)		96,302
Installation Services		21,250
Administration of Contracts		10,000
Easements and R/\V	57.8 acres	40,460
	SUB-TOTAL	$168,012
	TOTAL ESTIMATED COST	$1,131,040

ESTIMATED ANNUAL OPERATION AND MAINTENANCE COSTS

	Quantity	Amount
Mowing (two times per year)	10 acres	1,000
Brush spraying	1 acre	1,000
Structural inspection		2,500
TOTAL ESTIMATED ANNUAL O&M COST		$4,500

APPENDIX C

EXHIBIT2

PRELIMINARY DESIGN DATA

TENTATIVE COST ESTIMATE
Channel Improvement

TRIBUTARY - REACH B-1

	Quantity	Amount
Brushing and Shagging	6.9 acres	6,000
Shoal Removal	3,435 cu. yds.	34,350
	SUB-TOTAL	**$40,350**
Contingencies		4,035
Installation Services		1,970
Administration of Contract		**3,500**
Land Easement and R/W	11.6 acres	8,120
	TOTAL ESTIMATED COST	$57,975

MAIN CHANNEL - REACH A-I

Clearing	17.3 acres	15,000
Contingencies		1,500
Installation Services		1,840
Administration of Contract		2,000
Land Easement and R/W	3.6 acres	2,520
	TOTAL ESTIMATED COST	$22,860

MAIN CHANNEL - REACH A-2

Excavation	20,000 cu. yds.	200,000
Clearing	28.4 acres	24,700
	SUB-TOTAL	$224,700

APPENDIX C

EXHIBIT 2, CONT.

Contingencies		22,470
Installation Services Administration		6,230
of Contract		10,000
Land Easement and R/W	5.9 acres	4,130
	TOTAL ESTIMATED COST	$267,530
TOTAL PROJECT CHANNEL IMPROVEMENT COST		$348,365

APPENDIX C

EXHIBIT 3

Preliminary design data of water supply or wastewater collection and treatment facilities, including cost estimates.

APPENDIX C

EXHIBIT 4

Preliminary design data for other work of improvement for beneficial water resource management, including cost estimates.

APPENDIX D

APPENDIX D

EXHIBIT 1

PROPERTY BENEFITED BY PROPOSED WORKS

	Damages Before Project				Damages After Project				Benefits	
Freq.	Q	Stage	Acres	$	Q	Stage	Acres	$	Acres	$
					-					
					Tributary - Reach B-1					
50	5,460	417.4	234	70,200	4,274	415.5	220	66,000	14	4,200
25	4,550	416.9	232	69,600	3,574	415.1	213	63,900	19	5,700
10	3,820	416.5	220	60,400	2,996	414.6	197	59,100	31	9,300
5	2,970	415.9	225	67,500	2,313	413.9	167	50,100	58	17,400
2	1,915	415.1	213	63,900	1,278	412.0	0	0	213	63,900
1	553	412.6	60	10,000	375	B.F.	0	0	60	10,000
					Main Channel - Reach A-1					
50	5,480	404.6	245	73,500	4,336	404.1	204	61,200	41	12,300
25	4,570	404.3	240	72,000	3,598	403.8	195	58,500	45	13,500
10	3,850	404.0	232	69,600	3,040	403.4	175	52,500	57	17,100
5	2,980	403.6	217	65,100	2,347	403.0	142	42,600	75	22,500
2	1,925	403.0	175	52,500	1,296	401.7	10	3,000	165	49,500
1	556	400.1	19	5,700	380	B.F.	0	0	19	5,700
					Main Channel - Reach A-2					
50	5,150	396.5	350	105,000	4,065	395.5	320	96,000	30	9,000
25	4,290	396.1	348	104,400	4,037	395.2	205	85,500	63	10,900
10	3,600	395.0	337	101,100	3,410	394.0	260	70,000	77	23,100
5	2,790	395.3	315	94,500	2,633	394.2	225	67,000	90	27,000
2	1,805	394.6	250	75,000	1,454	391.9	35	10,500	215	64,500
1	522	392.8	72	21,600	426	B.F.	0	0	72	21,600