

History and Development of Water Resource Projects in Indiana

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In 1840 we had, among other things, over 2,200 miles of multi-purpose canals. Ever since that time, in one way or another, the conservation and development of water resources in Indiana has been a major undertaking of different people, organizations, and government agencies.

This topic deals with the history and development of water resource projects in Indiana. I intend to bring the reader up-to-date as to what has happened in the past, what is going on now, and what we plan to do in the future; but, more important than the history and the future of water resources, is the understanding necessary to know the *why* of what we are doing. It is a relatively simple matter of interpreting statistics as to what we have and will have in the way of acres and volumes of water, etc., but, it is not nearly so easy to realize why we feel there is an urgent need for these things. To give background for the *why*, I will first present a brief and chronological sequence of events leading up to the present and into the future as far as practicable in the history of water resources.

In 1840 we had 2,200 miles of canals. Sixty years later the first ground water study was made. This consisted of research done by Frank Levett on the wells of northern and southern Indiana. After the turn of the century, things began to happen much faster.

In 1902, the United States Geological Survey started a program of regular discharge measurements. A few later years, the state legislature passed a law making it illegal to lower lakes.

In 1906, the Indiana State Board of Health, among others, started reporting extensive information on public ground water. Thirteen years later, the Conservation Department was created. With the creation of the Conservation Department and its philosophy of wise use and conservation of our natural resources, water conservation was

finally given official recognition. Two years after the Conservation Department was created the Engineering Division was added. Currently the Engineering Division has many responsibilities ranging from sanitary engineering to master plan designing; however, at that time, its chief duty was surveys relative to the drainage and reclamation of lands. Soon after this, the stream gauging program was worked on a cooperative basis between the Division of Engineering and the United States Geological Survey. The next big step in water conservation was the CCC program.

In 1933, and the succeeding years, 18 lakes from eight to 800 acres were constructed on state properties. Complimenting the CCC program was the WPA. Under this program hundreds of small dams and 50 to 60 large artificial lakes were built.

An agreement with the United States Geological Survey provided for a ground water investigation in 1935. Although, the money for this investigation was not appropriated until 1943. The same 1943 law authorized the conservation department to make a comprehensive study of water resources in the state. Two years later the Division of Water Resources was created with its prime purpose being the study and classification of the state's water resources, as well as the providing of technical assistance to agencies and groups concerned with water problems.

The year 1945 also saw the creation of the Flood Control and Water Resources Commission with its prime duty and obligation being the preparation of the master plan for flood control in addition to plans for development, protection, and preservation of water resources. During the past six or eight years there have been many reservoirs completed. Among them are Morse, Muncie, Willough Slough and Glendale, along with Lake Lemon. Smaller lakes have been constructed at Richmond, Versailles State Park, Kokomo, Jasper, Scottsburg, and Brush Creek.

Also during this time, the Cagles Mill Reservoir has been developed which provides the most beneficial use of reservoir lands, waters, fish, and wildlife resources. It includes approximately 1400 acres of permanent pool, and its flood control pool will add more than 3,000 acres to this figure. This reservoir is also more locally known as Cataract Lake. Again, this reservoir is primarily a flood control project but recreation is an integral part in its development.

Mansfield Reservoir, while constructed for the same reasons, is a larger area as far as the seasonal pool is concerned. The state recreation area at Mansfield Reservoir provides for swimming, camping,

picnicking, boat launching, hiking, and other related recreational activities. Its proximity and accessibility to Indianapolis and Terre Haute make it even more valuable.

These areas have a total of over 12,000 acres of water. When we consider all that has been done up to this time, even including our most recent additions to our water resources inventory, it is hard to imagine how much more is yet to be done. However, by comparing the total of the recent reservoir projects, which totaled 12,000 acres, to just one of our reservoirs that will be completed in the next few years, it is possible to see what is ahead. More specifically, I am speaking of Monroe Reservoir which will have a normal pool of around 11,000 acres. While we are speaking of Monroe Reservoir, it would probably be well to go a little more deeply into some, or a few of its capacities and uses.

I already mentioned the low flow regulation pool is 11,000 acres. One of the primary reasons for the construction of Monroe Reservoir is its flood control capacity. Under flooding conditions an additional 8,000 acres may be flooded. To get an idea as to how large this impoundment actually is, you simply have to multiply the size of Lake Wawasee times 4 and you will have the size of the normal pool. The maximum height of the dam at stream bed is 93 feet, or, roughly the equivalent of a nine story building. These are big projects and wise planning is needed for their proper use.

In addition to its purpose of flood control, the Monroe dam will also be used for low flow regulation. This will guarantee a continuing flow of water for those down stream who are depending on a constant source of water. We consider equally important, if not more important, that use which the Department of Conservation will be most directly concerned with—recreation. While fishing and wildlife areas are integral parts of this reservoir, the most important area of development around the reservoir is that of recreation. The state alone has three different areas that it is proposing to develop along recreational lines. They are the Payne, Fairfax, and Allen's Creek peninsulas.

Among other projects that will be built in the near future, and which we are working on, are those at Salamonie, Mississinewa, and Huntington. The combined areas of these three reservoirs will add an additional 7,000 acres of water at seasonal pool levels. Their flood control pools will cover an additional 25,000 acres of land. These three upper Wabash river projects are being built under the authority of Public Law No. 85-500. The three upper Wabash flood control reservoir projects are situated in the north central portion of Indiana.

More specifically the Mississinewa reservoir is on the Mississinewa River, a tributary of the Wabash River. It lies in Wabash, Miami, and Grant Counties, and, will be accessible by Indiana Highways 513, 13, and 15.

The Salamonie Reservoir is on the Salamonie River and also is a tributary of the Wabash River. The project lies in Wabash, and Huntington counties. It will be accessible by Indiana Highways 105, 9, 37, 124, and 221.

The Huntington Reservoir is situated on the Wabash River and lies in Huntington and Wells counties. It is about 30 miles southwest of Ft. Wayne and will be accessible by Indiana Highways 5 and 3.

The Lafayette Reservoir, on Wildcat Creek, will be located in Tippecanoe, Clinton and Carroll Counties. It will have a minimum pool of 1,320 acres and the flood control pool will be 9,470 acres.

Big Pine Reservoir will be situated in Warren County. The recreational pool will have an area of 1,390 acres. This figure will increase to 4,710 acres when used to the maximum for flood control purposes.

Turkey Run Reservoir will be located in Parke and Montgomery Counties. Its minimum pool is 800 acres. When it is used for flood control it can be enlarged to 7,000 acres.

The Eagle Creek Reservoir will be located about ten miles northwest of the center of Indianapolis just a few hundred feet above where Interstate 74 crosses Eagle Creek. Its permanent pool of 1,350 acres is half the size of its flood control pool of 2,650 acres.

Brookville Reservoir, located in Union and Franklin Counties, will contain around 4,400 acres of water in its recreational pool.

With this brief description of what we have and will have, I would now like to explain why these things are needed and even more specifically, why we are so concerned and why every citizen should be concerned with water and its relationship to recreation.

First of all, it must be understood that the most popular recreation activities are usually the most simple. For example, automobile driving for sightseeing and relaxation is the nation's number one recreational activity. People, 12 years and older, had 20.7 activity days in the year June 1, 1960 to May 30, 1961, involving driving for pleasure. It is a fact that 61 per cent of the people participating in outdoor recreation prefer driving for pleasure. Because of this use, it is appropriate to discuss how the highways are related to recreation and what can be done to improve this relationship.

In considering the relationship of roads to recreation, we ordinarily

think of roads as being only a means to an end. We tend to assume that recreation benefits do not begin until the site is reached and that time in transit is lost time or an unpleasant interlude to be endured in reaching the recreation area. All too often this may be true but, for many people, the "trip" may provide as much enjoyment as the visit to the recreation site. Furthermore, much highway travel is of the "joyride" variety with no particular destination. The highways themselves thus do, or could, provide a most valuable recreation resource. This last becomes especially significant when we consider that streets and highways occupy 22 million acres of land—more than the entire area of the state of Maine. If multiple use is a valid concept for other lands, could it not also apply to road-lands?

A higher priority should be given to recreation and scenic values in the overall design of new major highways. The Palisades Parkway in New Jersey is a good example of what can be done when the effort is made. Existing highways can be made more attractive. Antibillboard efforts should be continued, and there should be more provision of rest stops, scenic lookouts, and picnic areas.

The fact that Americans enjoy driving provides a fine opportunity to increase the quality of outdoor recreation. Education is the key. All too frequently the automobile traveler thinks little or nothing of the country en route, yet in every section there is some attraction not so far off the tract that would be of interest to him. It need not be a Carlsbad Caverns or a Mount Vernon. It can be demonstration area explaining soil conservation methods or a museum of the history of a state or community. If more were done to let people know about such attractions, they would serve the dual purpose of increasing the pleasure of driving and of bringing additional income to the area. Some of the oil companies now publish illustrated maps showing the little known as well as the more familiar features in a region. The use of secondary roads should be promoted—slower traveling than on the super-highways, but to the driver who is not in a hurry, much more pleasant.

Mobility is a key factor effecting outdoor recreation. Routing, design, extent, and capacity of highways exert profound influences on the kind and location of pressures brought to bear on recreation resources.

Through a number of programs, the federal government is concerned with the construction of every major road in the nation. These programs, which collectively involve large sums of federal money each year, strongly influence the availability of recreation opportunities.

Yet with the single exception of the billboard provisions of the Federal Aid Highway Act of 1958, there is no formal consideration of outdoor recreation values in any federal legislation concerned with financing and constructing the nation's roads.

Highway policies thus far have been directed primarily toward the accommodation of greater speeds and larger volumes of traffic. While the design and location of roads for efficient and safe transportation is clearly of high priority, other considerations merit recognition. Travel to reach outdoor recreation facilities is a major use of many of our highways. Roads and highways are multiple-use structures serving a variety of public purposes, and outdoor recreation is an important one of these purposes. Wherever feasible, provision should be made for such compatible recreation opportunities as hiking, bicycling, and picnicking. In some cases, highway fills can serve as dams to impound water for recreation purposes and should be used more extensively.

New highway design should take esthetic considerations into account. Wherever possible highways constructed along any body of water should be so designed as not to impair recreational values. Additional measures should be adopted to prohibit objectional developments from marring roadside scenery.

Highway engineers tend to plan the same kind of roads for weekend traffic as for workweek freeways. The amount of traffic, not the purpose of travel, is the important element in highway design. Consequently, scenic spots are bypassed, *turnouts are too few* in number and too small in size, and entrances and exits are likely to be spaced too far apart.

Walking for pleasure, swimming, and picnicking opportunities are most urgently needed near metropolitan areas because in the year 2000 approximately three out of every four people will live in or near these urban areas. Good public transit facilities are required to make it possible for those living in cities to reach recreation areas. Without access, even the most attractive area is of relatively little use for recreation.

Outdoor recreation is very compatible with other resource uses such as water resources development, forest management, urban renewal and highway construction. Water is the focal point. We use it to sit by, to swim and fish in, to ski across, to dive under, and to boat across. Camping, picnicking, and hiking are always more enjoyable when done along water.

Outdoor recreation is big business and there are many economic benefits connected with it. Although the chief reason for recreation

is the broad social and individual benefits it produces, it also brings about many desirable economic effects. For example, better places to live and increased land values. An example of the increased land value is the Mansfield Reservoir. In 1955, lands and improvements were assessed at \$728,905. At this time the land was being sold for \$30-\$100 an acre. Five years later the assessed valuation was lowered to \$693,720; but, two years later in 1962 the assessed valuation had jumped to \$1,025,055 which is more than 45 per cent increase in those two years. Also, in support of these figures, the land prices had increased from \$30-\$100 an acre to \$500 to \$3,500 per lot. These lots are about $\frac{1}{3}$ of an acre.

While over \$1 billion a year is spent directly on recreation, there is an additional \$20 billion a year spent in providing the supporting industries such as boats, motel accommodations, etc.

Outdoor recreation is a major leisure time activity and a growing one. About 90 per cent of all Americans participated in some form of outdoor recreation in the summer of 1960. In total, they participated in one or another activity on 4.4 billion separate occasions. It is anticipated that by 1976, the total will be 6.9 billion. By the year 2000, it will be 12.4 billion, a three-fold increase over the existing usage. This three-fold increase in recreational activities must be compared with a corresponding population increase which will double by the year 2000. The only conclusion to draw is that more people are using more recreational facilities more often, and that they are using them at a rate greater than the population is increasing.

This past information has pertained to the nation as a whole. While we are speaking of the entire country, it is well to mention what the role of the federal government should be concerning recreation. It must first preserve a scenic and primitive area, natural wonders, and historical sites of national significance. [It might be injected here that all of the things being mentioned that the federal government should do on a national scale, so likewise the state should do on a statewide basis.] The management of federal lands should be such that the broadest possible recreation benefit may be derived consistent with other essential uses. The states should be coordinated through the federal government particularly in those projects that involve interstate projects. The states, on the other hand, should play a key role in making outdoor recreation opportunities available by the acquisition of land, the development of sites, the provision and maintenance of facilities of state or regional significance.

Just as the federal government should help the state, so likewise

should the state give assistance to local governments providing leadership and planning in the field. At the bottom of the ladder, local governments should secure open space and develop recreation areas in and around metropolitan and other urban areas. While the government's role is heavily emphasized because of the necessity of continuity, individual initiative and private enterprise should continue to be the most important force in outdoor recreation providing many and varied opportunities for a vast number of people as well as the goods and services used by people in their recreation activity. Nonprofit groups should be encouraged to work at their maximum capacity. At the same time that we are encouraging the nonprofit groups, we should also stimulate commercial development in those instances where the demand is sufficient to return a profit.

Recreational areas can be divided into several classes. If we assume that Class 1 would be a high density recreational area (is intensively developed and managed for mass use) we would have five to six classes ranging all the way through primitive areas, historical and cultural sites. Indiana should continue to expand, modify, and intensify its present programs, by planning acquisition, protection, and access for recreational areas. We should develop long range plans for outdoor recreation to provide an equal opportunity for the public, to acquire additional areas where necessary, and to preserve the outstanding national sites. We must develop more fully the use of our reservoirs inasmuch as we need additional development on water, beach, and shoreline areas. Again, this must be done as close to cities of population as possible.

We are currently looking into the possibility of obtaining surplus federal lands. These lands would revert to the federal government under certain circumstances. Such things as the federal government's proposals to build a wildlife refuge in Clay and Vigo counties are needed. Our wilderness areas seemed to be neglected to the point where a person might think we are trying to get rid of them. It used to be that our rivers were once a thing of beauty. Stranger still, they used to be clear. Although we are doing some work, we must continue to preserve or restore them. Zoning for recreation is a relatively new thing; however, its great success in Wisconsin and other places, has led us to believe it is the thing to do when we must squeeze the maximum benefits from the land and waters available, and yet preserve the quality, safety, and potential of the areas.

The power to zone rests in local governmental units, as delegated to them from the state government. The problem is to get the local

governmental units to utilize this already existing tool. Cooperation between local and state units is essential to land use planning, and land use planning is a necessary requirement for logical and defensible zoning.

It is a common occurrence for public land to be taken for various uses, whether they be private or government uses such as a highway. This land must be replaced with land of similar or better qualities. Other methods of using lands short of actual purchase should be investigated and used wherever possible. I am referring specifically to access sites on large bodies of water, easement and leases to lands and waters that are not normally accessible to the public. Of course, for the same reason that I am explaining the why of recreation, it is necessary to continue our educational programs. We have no claim on recreation as being an entity in itself. Recreation should be promoted in other related fields just as vigorously. For example, we have already mentioned our federally constructed and licensed multi-purpose water developments in our reservoirs. Other related fields where recreation can and should be considered are pollution control, flood plane zoning near rivers and streams, highway construction programs, watershed, and other agricultural conservation programs.

Money for financing recreation is always in demand. The fact that we are getting more in returns and investments for our recreation dollar spent give us hope that this problem will never become such a burden that we will not be able to progress. All levels of government must continue to provide adequate funds and further still, these funds must be increased. All other financing devices, such as dedicated funds, user fees, gas tax refunds from boat owners, etc., must be used to their greatest and wisest capacity. We must continue to stimulate gifts of land and monies from private individuals and groups. Interested organizations should be encouraged to help us in our search for wise financing. Private enterprises, concession leasing, etc., must all be encouraged to provide as much as possible for a quality program.

So, in conclusion, it is obvious that water is an important element of our recreational system. Among the other elements are highways, demands and preferences of individuals and groups, available resources, and many other items. All of these elements of the system—plus the location of recreational places and the way they are used—produce a pattern.

The pattern can be anticipated and it can be planned.

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