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PROPOSED DICKINSON COUNTY TRAIL
MILFORD TO SPIRIT LAKE

Project Report and Cost Estimate

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**Proposed Dickinson County Trail
Milford to Spirit Lake
Project Report and Cost Estimate**

Prepared by

**Iowa Department of Transportation
Highway Division
Office of Project Planning
in Cooperation with
Iowa Conservation Commission
December 30, 1975**

**Refer Questions to:
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Office of Project Planning**

I. Introduction

During the last decade, participation in trail activities has increased tremendously. Bicycling, hiking, horseback riding, cross-country skiing, and snowmobiling have all become increasingly popular, both in Iowa and the nation. Demand for these activities has far outstripped the supply of public facilities. As a result many people use streets and highways for a portion of their trail activity. In places where trail use and highway traffic are high, an unsafe condition exists. In recognizing this increased demand and the conditions that have resulted, the Iowa Department of Transportation has adopted a policy "to support the development of bikeways and walkways in order to promote safety and maintain the motor vehicle carrying capacity of Iowa's highways." This policy implements Chapter 308A of the Code of Iowa, 1975, which authorizes the Iowa Conservation Commission in consultation with the State Transportation Commission "to establish recreational bikeways for the use, enjoyment, and participation of the public in non-motorized bicycling."

The Iowa Great Lakes Region in Dickinson County has long been one of the State's leading recreation areas. Thousands of people come to this region every year to enjoy a variety of outdoor recreation opportunities. As walking for pleasure and bicycling have become more popular, their increase has been reflected in the Lakes Region as well. Snowmobiling is a popular winter pastime in the area. The arrangement of the lakes and the other recreational facilities makes US 71 a major recreation corridor from Milford to Spirit Lake. This corridor is used by pedestrians and bicyclists as well as motorized traffic. In some places safety is impaired and the motor vehicle carrying capacity of the highway is reduced by the large volume of non-motorized traffic.

Several factors have come together recently that favor the construction of a cycling and walking trail in the Lakes area. In 1974 the Chicago, Milwaukee, St. Paul and Pacific Railroad abandoned its track from Milford to Spirit Lake. The City of Arnolds Park, responding to a long standing need to improve traffic circulation, purchased a portion of the abandoned right of way to build a new street. The Iowa Department of Transportation has, for some time, planned to reconstruct US 71 in this area. There exists at present, then, a unique opportunity to incorporate the planning for a trail into a major change in the area's transportation system.

This report documents the efforts to date of staff personnel of the Iowa Department of Transportation and the Iowa Conservation

II. Project Background

The area to be served by the proposed trail is probably the most popular tourist area in the State. The principle attraction is the abundance of water-related recreation. Spirit, East Okoboji and West Okoboji Lakes and a number of smaller lakes offer fishing, boating, sailing, water skiing and snowmobiling. Homes, cottages and resorts line the lakeshores and eating and entertainment establishments are common throughout the area. On weekends during the summer, traffic movement in the area becomes congested. This congestion is aggravated by the large number of pedestrians and bicyclists. Most of the trips involved are short. Shopping, entertainment and pleasure trips account for a large portion of the traffic. A unified approach to transportation planning utilizing facilities for non-motorized as well as motorized traffic is needed to improve the existing conditions.

The Chicago, Milwaukee, St. Paul and Pacific Railroad from Milford to Spirit Lake was constructed in the late nineteenth century. The railroad carried passengers from Des Moines to Spirit Lake from 1899 to 1953. With the improvement of highways and the decline in railroad traffic, freight service on the section north of Milford soon followed the passenger service into history. The depot at Spirit Lake was abandoned in 1972 and now houses the Dickinson County Historical Museum. The railroad was abandoned and the tracks removed in 1974.

The Iowa Conservation Commission, recognizing the recreational potential of the railroad corridor, acquired several portions of the right of way. From the south end of the abandonment (about one-half mile north of County Road A-34) to the south edge of the Emerald Hills Golf Course, the Conservation Commission acquired the railroad's easement interest on the right of way. The trestle across East Okoboji Lake was purchased intact together with a small amount of right of way on each end. From just north of the north corporate limits of Okoboji to the south corporate limits of Spirit Lake, the Conservation Commission acquired the right of way in fee simple. Other portions of the right of way have been acquired by the cities of Arnolds Park, Okoboji, Spirit Lake and by private individuals.

The Conservation Commission has stressed the year-round recreation potential for this corridor. A trail would provide hiking and bicycling opportunities during the warm-weather months and, if properly controlled, snowmobiling during the winter. County roads would provide links with county trails and the lakes.

A field review of the trail corridor was held in July, 1975. Representatives of DOT's Highway Division Offices of Project Planning, Urban Systems, Right of Way and Bridge Design and

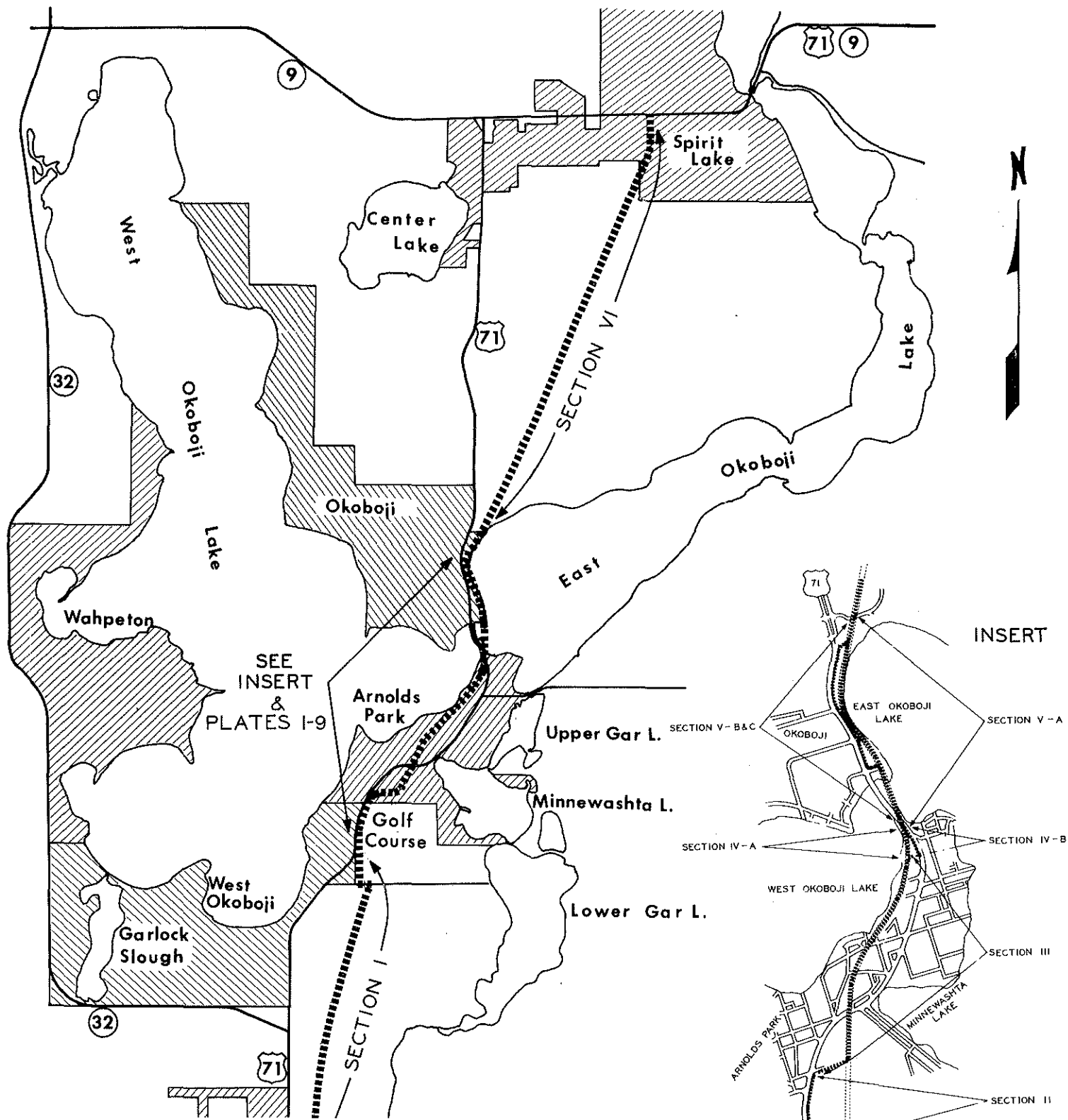
III. Project Description

The location of the proposed multi-use trail is generally along the abandoned right of way of the Chicago, Milwaukee, St. Paul and Pacific Railroad from Milford north to Spirit Lake. In several places the location of the right of way in relation to surrounding land uses makes it desirable to consider alternative trail alignments. The trail is shown in Figure 1 and the urban portions are shown in greater detail in Plates 1 through 9. Typical cross sections are shown in Figures 2 through 6.

The project begins at County Road A-34 at the east edge of Milford. Costs have been estimated for a terminal building and a parking lot on approximately one acre of land. The building would house rest rooms and an air compressor for tire inflation. From this point north approximately one-half mile, additional right of way will be required adjacent to that portion of the railroad that remains in service. Drainage problems in this area may require the acquisition of ponding rights for a small area.

About one-half mile north of County Road A-34 the trail will join the abandoned railroad grade. Construction of this portion of the trail should be relatively simple, requiring little or no earthwork. A typical view of the existing roadbed is seen in Photo 1. The abandoned railbed is used up to the county road at the south edge of the Emerald Hills Golf Course. The railroad grade across the golf course has been obliterated. The decision to relocate around the golf course was based on the probable high cost to acquire the necessary right of way, the detrimental effects to the golf course and the problem of safety to bicyclists.





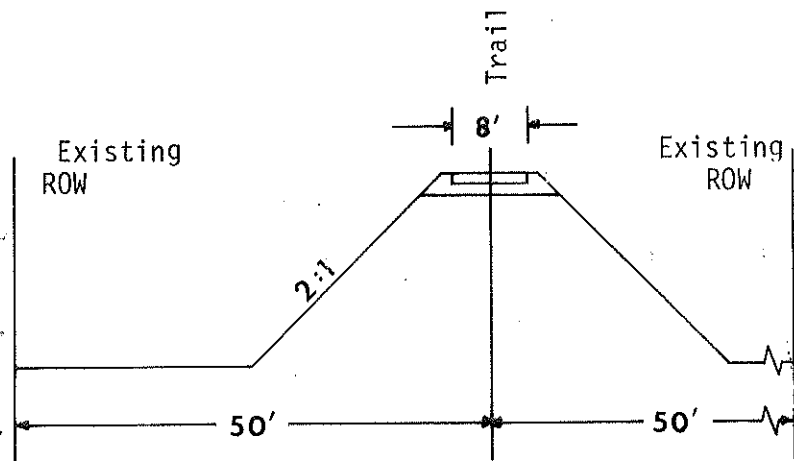


Figure 2 Trail on Abandoned ROW (Rural)

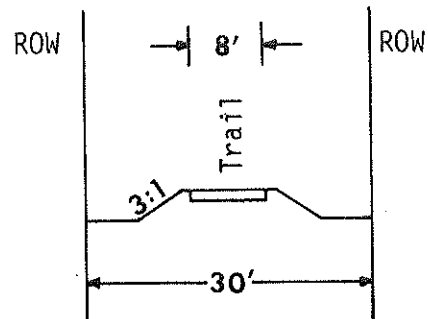


Figure 3 Trail on Abandoned ROW (Urban)

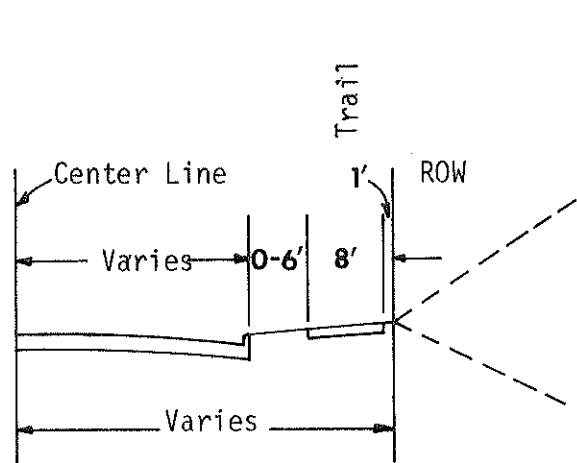


Figure 4 Trail Along Highway or City Street

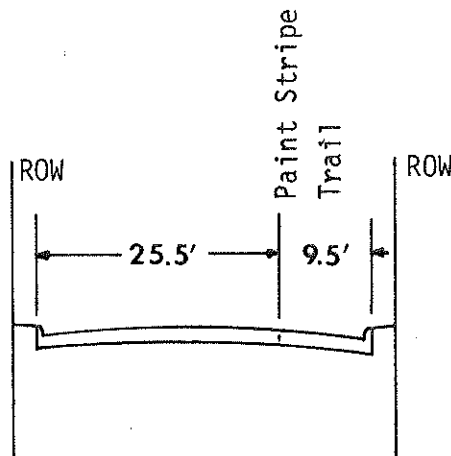
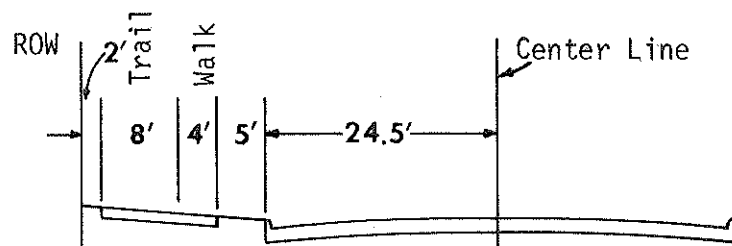


Figure 5 Trail on City Street



At this point, then, the trail will turn to the west for about 400 feet along the county road. The county has preliminary plans to pave this road in the near future. If this is done, the trail can be located on the shoulder along one side of the pavement and separated from the motorized traffic by a painted line. The short distance and relatively low traffic volume along this road make this approach acceptable. The alternative to routing the trail along the road would be to acquire additional right of way at the top of the backslope and construct the trail there. This would require the acquisition of either a golf course maintenance building on the north or a rented farmstead on the south. Also on the north, several lots have been subdivided along the edge of the golf course for residential building sites.

The trail will turn to the north along a county road that is to be closed as part of the proposed improvement of US 71. The trail will be located on this roadway for about 1100 feet. At the north end of this road the trail joins US 71 (see Photo 2). The trail will be located on the highway shoulder and separated from the highway by a curb and a six-foot buffer strip (see Figure 4). The trail will be located along the highway for about 2000 feet.



About 350 feet north of the south corporate limits of Arnolds Park, the trail turns to the east along a city street. This street will be extended to the east to the former railroad right of way and will be paved. The City has indicated a desire to begin this street project in the near future. The trail is proposed as a part of the street paving. Bike lanes would be separated from the motorized traffic by a painted line (see Figure 5).

When the trail rejoins the abandoned railroad right of way it is again proposed as a part of a city street project. The trail is proposed to be built on the shoulder but not separated by any buffer. Where the railroad crosses US 71 the railroad trestle has been removed. The city street will cross US 71 at grade. Bicyclists and pedestrians would be served by a push-button crossing signal. Although it would be preferable to separate this crossing, it does not appear to be feasible to incorporate a structure for the trail into the city's street proposal.

The details of the trail design will be coordinated with the city's street design. For the purpose of this report, it was assumed that the trail will be located on the east side of the street project. The City intends to sell excess right of way to adjacent property owners. Until the street-trail design is complete, however, the exact location and extent of any such right of way will not be known.

Just south of the causeway is one parcel of railroad right of way that was acquired by the adjacent property owner. The property involved is a resort-motel that has units on both sides of the old railroad. The roadbed has been obliterated and is presently used for parking. A fence crosses the former railroad at the south property line (see Photo 3). The property owner has also indicated his intention to build additional motel units on the former right of way. Because of the potentially high cost of this parcel of land, alternate alignments have been studied for this area. One line goes through the motel. The other requires the acquisition of a cottage just south of the motel and carries the trail eastward to US 71. Here the trail turns to the north on a wide sidewalk section (see Figure 6). Cost estimates have been made for both alternates.

Near the former railroad grade crossing the trail is proposed to pass under the highway. An eight-foot high, twelve-foot wide box culvert will be built. This subway will have year-round use and should substantially improve traffic safety at this point. In addition to carrying the trail, the subway will provide safe access between Claire Wilson State Park and a city-owned



Photo 3 - North end of proposed city street
in Arnolds Park, looking north toward motel

North of this point, the trail passes through Claire Wilson State Park and crosses a portion of East Okoboji Lake on the abandoned railroad trestle. The Conservation Commission proposes to develop the park and the trestle into a major recreation facility.

North of the trestle the Conservation Commission has acquired the west half of the railroad right of way between the Lake and Union Street.

From Union Street north to Depot Street the abandoned railroad right of way was acquired by the City of Okoboji. The City proposes to build a street on a portion of this right of way. It is hoped that the trail design could be incorporated into this project. The City of Okoboji has, however, expressed strong objections to the proposed trail.

In many places the railroad grade has been obliterated. Small trestles that once carried the rails over drainageways have been removed (see Photo 4). The railroad right of way in this area has become either lawns for adjacent homes or potential lakefront building sites. The cost of acquiring this land for a trail is expected to be very great. The compatibility of a trail with the adjacent land uses is questionable. For these reasons two estimates have been made through Okoboji, one along the former railroad and the other along Depot Street to US 71 and north along US 71 to the county road just north of the Okoboji Corporate Limits.



Photo 4 - Typical privately-owned abandoned railroad grade in Okoboji

An alignment along US 71 in this area also presents problems. A trail with a six-foot offset from the curb would require the acquisition of two buildings. It is possible to build the trail at less expense with a one-foot offset from the curb. The area where the buildings are close to the highway is seen in Photo 5.



Photo 5 - US 71 in Okoboji

North of this county road the trail is to be located along the railroad alignment north to Iowa 9 in Spirit Lake. A view of this portion of the trail is seen in Photo 6.



Photo 6 - Rural abandoned railroad
grade north of Okoboji

The rural portion of the right of way has been acquired by the Conservation Commission and the urban portion by the City of Spirit Lake. Spirit Lake officials have indicated to the Conservation Commission their intention to use the right of way

large portion of the summer population and resort patrons will be potential trail users. They have predicted that as many as 450 people would use the trail at one time during the peak summer weekend periods. A trail of the length proposed is sufficient to meet this level of demand.

IV. Project Specifications and Cost Estimates

The preliminary design of the proposed trail is based on specifications set forth in "Guide for Bicycle Routes", published by the American Association of State Highway and Transportation Officials, and "Bikeway Design", published by the Oregon State Highway Division. Basically, the trail is to be eight feet wide, allowing two-way bicycle traffic. Specific details of the trail design vary depending on the location of the trail.

The estimate in Table 2 is for an asphaltic concrete surface throughout the length of the trail. The alternative of using a compacted granular surface in rural areas and an asphaltic concrete surface in urban areas was also considered. The cost estimate in Table 2 reflects the lower price per ton when using greater quantities of asphaltic concrete. Another factor that tends to equalize the costs for these two surfaces is the high cost of the crushed limestone required for the compacted granular surface. The material would have to be brought from at least 85 miles away because there is not suitable limestone in the project area. For these reasons the granular surface was rejected.

Several variations are possible. Two locations are shown from the north end of the proposed city street in Arnolds Park north to the public beach (see Plate 6). This will allow the reader to evaluate the options of either severing a motel and removing a building, scheduled for fall 1975 construction (Section IV-A in Table 2) or bypassing the motel and building the trail along US 71 (Section IV-B in Table 2).

In Okoboji the alternative of constructing the trail along US 71 is also considered. Section V-A in Tables 2 and 3 presents the costs for a line along the former railroad grade through an area where the right of way has been purchased by private owners (see Plates 8 and 9). Section V-B is a line along US 71 with a six-foot offset from the back of curb to the trail. This line would require the purchase of at least two buildings and it was assumed that the right of way and construction costs would at least equal those for Section V-A. Section V-C is also along US 71 but with only a one-foot offset from the curb to the

TABLE 1

Terminal Facilities
Estimated Costs

	<u>Parking</u>	<u>Buildings</u>	<u>ROW</u>	<u>Total</u>
South End	2,300	27,600	6,000	35,900
North End	2,300	27,600	7,200	37,100
Total				\$73,000

TABLE 2

Estimated Trail Costs

<u>Section</u>	<u>Length (Miles)</u>	<u>Grading</u>	<u>Surface</u>	<u>Structures</u>	<u>ROW</u>	<u>Total</u>
I	2.08	\$59,511	\$48,736	---	\$ 20,300	\$128,547
II	0.35	3,631	10,088	---	1,500	15,219
III	1.10	25,418	28,859	---	64,747	119,024
IV-A	0.11	2,629	2,961	---	309,800	315,390
IV-B	0.16	5,104	4,437	---	24,000	33,541
V-A or B	0.96	18,679	21,914	63,250	424,660	528,503
V-C	0.96	18,679	21,914	63,250	24,660	128,503
VI	2.64	7,590	54,006	---	20,740	82,336

The following cost summary is for the entire trail from County Road A-34 at Milford to Iowa 9 at Spirit Lake.

1. Using IV-A and V-A or B	\$1,189,019
2. Using IV-A and V-C	789,019
3. Using IV-B and V-A or B	907,170
4. Using IV-B and V-C	507,170

IV-A Through motel
 IV-B Around motel
 V-A On former railroad grade in Okoboji
 V-B Along US 71 in Okoboji with six-foot curb offset
 V-C Along US 71 in Okoboji with one-foot curb offset

IV. Project Status and Recommendation

The development of this project is still in the early stages. The material presented in this report has been reviewed by staff personnel of the Conservation Commission and the Department of Transportation. This coordination has resulted in a joint recommendation regarding alignment and the division of responsibilities and funding.

It is recommended that the trail be built in the following manner. The trail would be built using alternate number 4 from Table 2. Thus the trail would follow the alignment of the abandoned railroad except that it would bypass the motel in Arnolds Park and would be built along US 71 in Okoboji with a one-foot offset from the curb. No terminal facilities would be built.

The Conservation Commission would assume the responsibility for the construction of the trail along those portions of the railroad right-of-way that they have acquired. They would also assume responsibility for the acquisition of necessary right-of-way for the first one-half mile of the trail. Thus the Conservation Commission would construct the trail from its beginning at County Road A-34 east of Milford north to the County Road at the south edge of the golf course. They would also be responsible for the modification of the trestle across Lake East Okoboji and for the trail on Conservation Commission land at both ends of the trestle. The Conservation Commission would also build the trail along the former railroad right-of-way from the county road north of Okoboji north to Spirit Lake. The Department of Transportation would assume responsibility for the remainder of the trail. The proposed cost breakdown is shown in Table 3.

TABLE 3

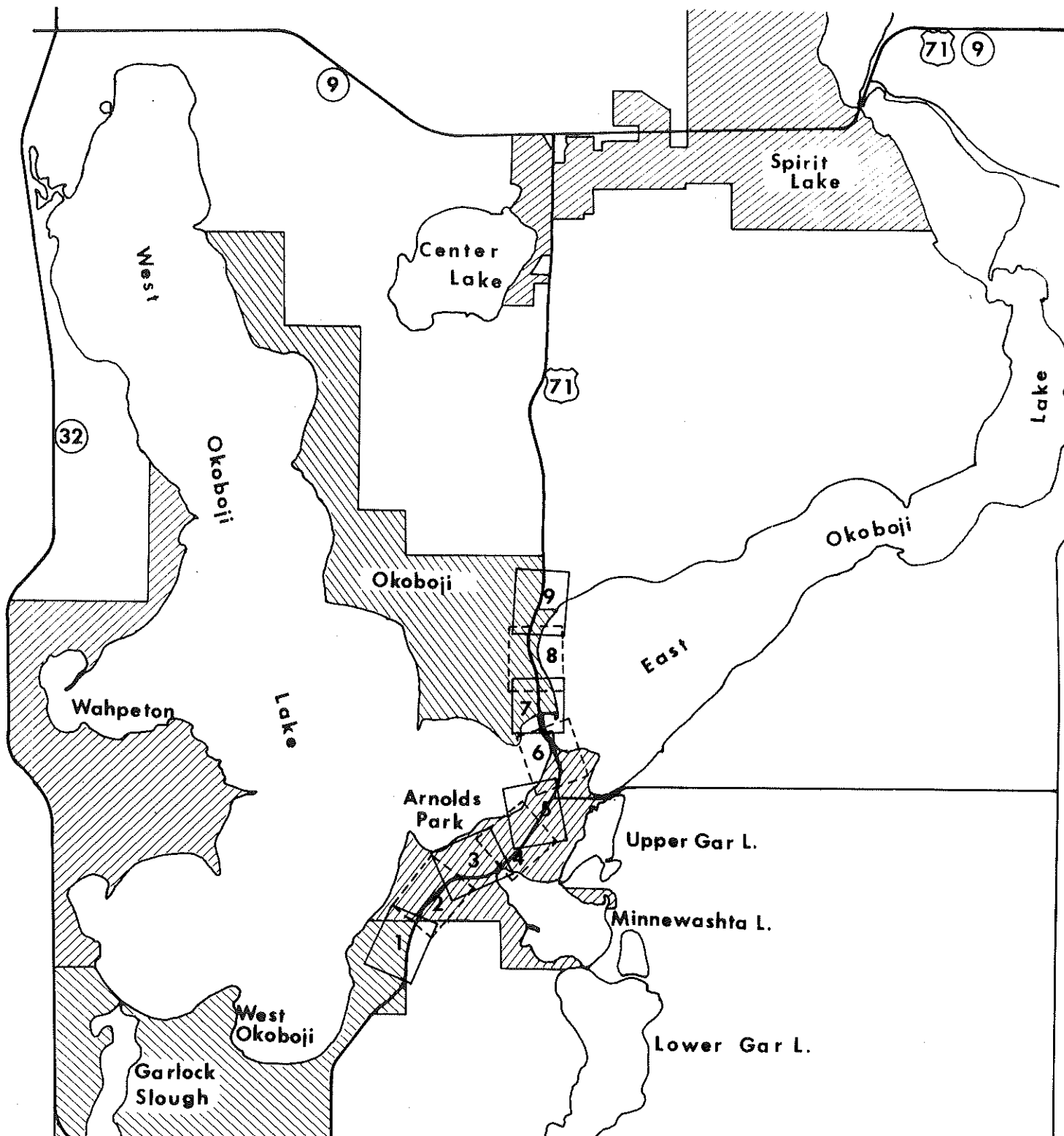
Proposed Trail Funding

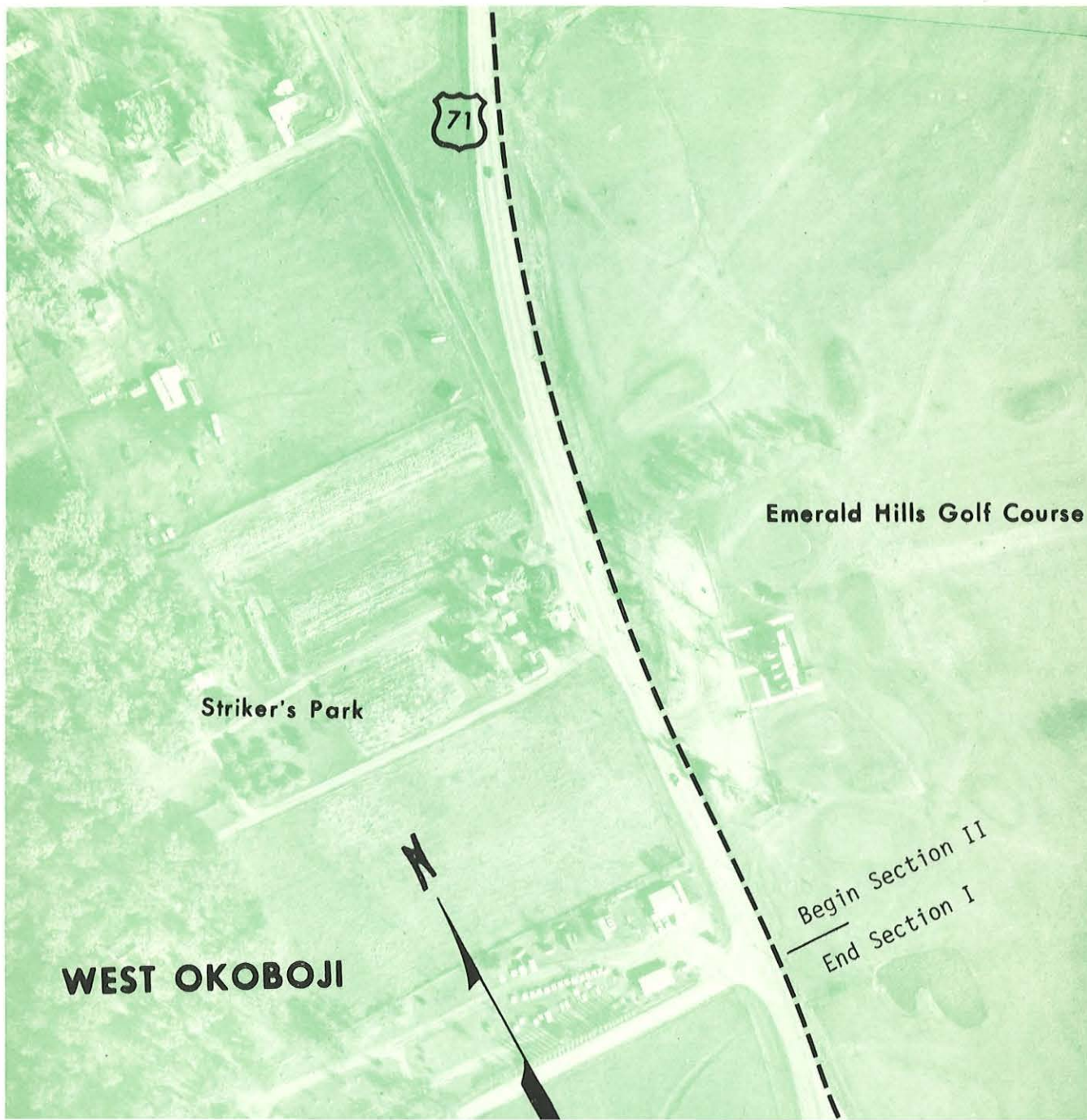
<u>Section</u>	<u>Iowa DOT</u>	<u>Iowa Cons. Comm.</u>	<u>Total</u>
I	\$ 26,451	\$102,096	\$128,547
II	15,219	---	15,219
III	119,024	---	119,024
IV-B	33,541	---	33,541
V-C	101,658	26,845	128,503
VI	---	82,336	82,336

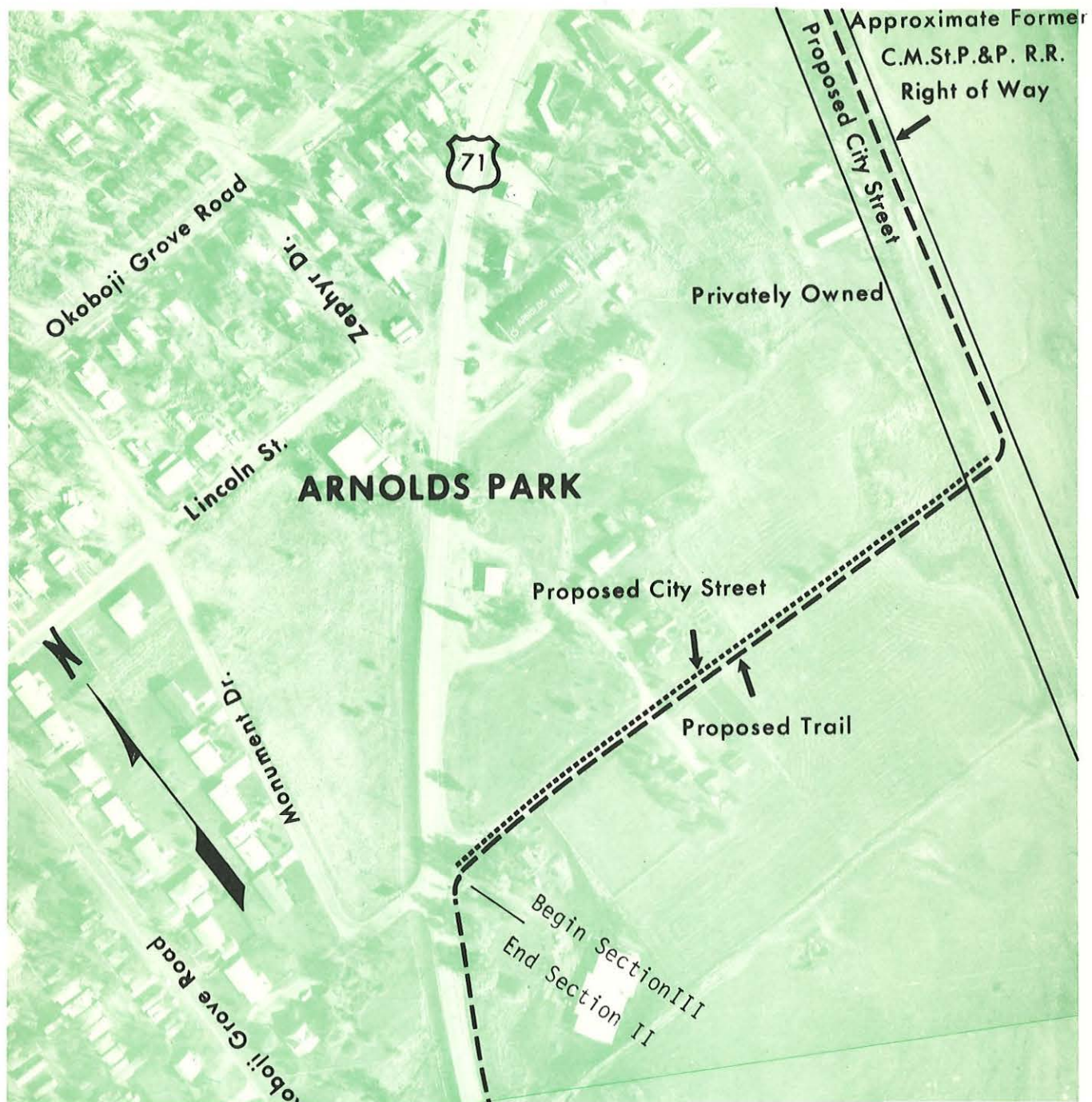
Responsibility for operation and maintenance of the trail would also be shared. The DOT would assume responsibility for maintenance of that portion of the trail that falls within the right of way of US 71. The Conservation Commission has completed an agreement with the Dickinson County Conservation Board whereby the County will assume routine maintenance responsibility for the remainder of the trail. The Conservation Commission would remain responsible for such items as major structural repairs.

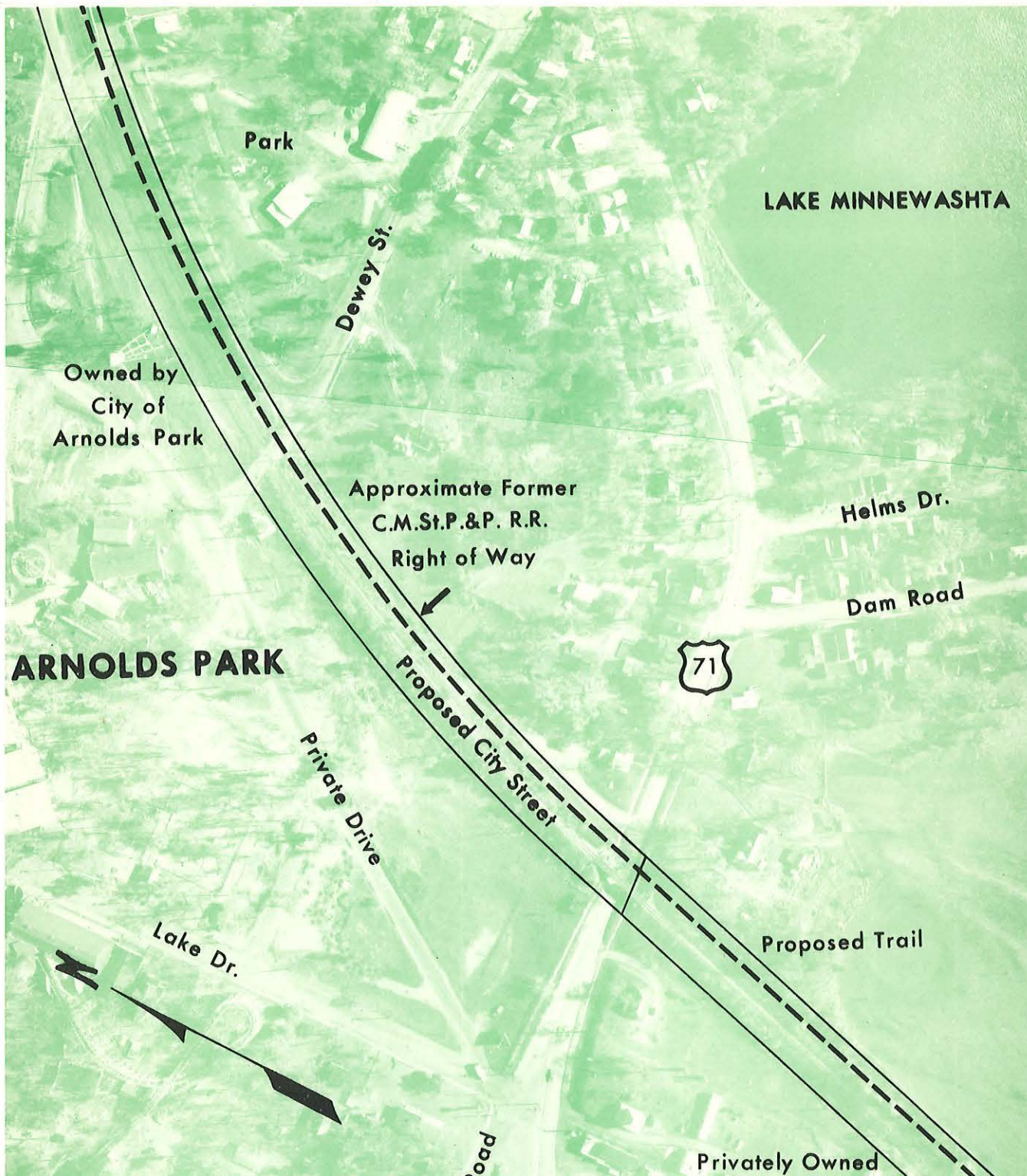
Necessary arrangements for law enforcement on the facility will be made by the Conservation Commission. It is expected that law enforcement will become a shared function between the Conservation Commission and local law enforcement agencies.

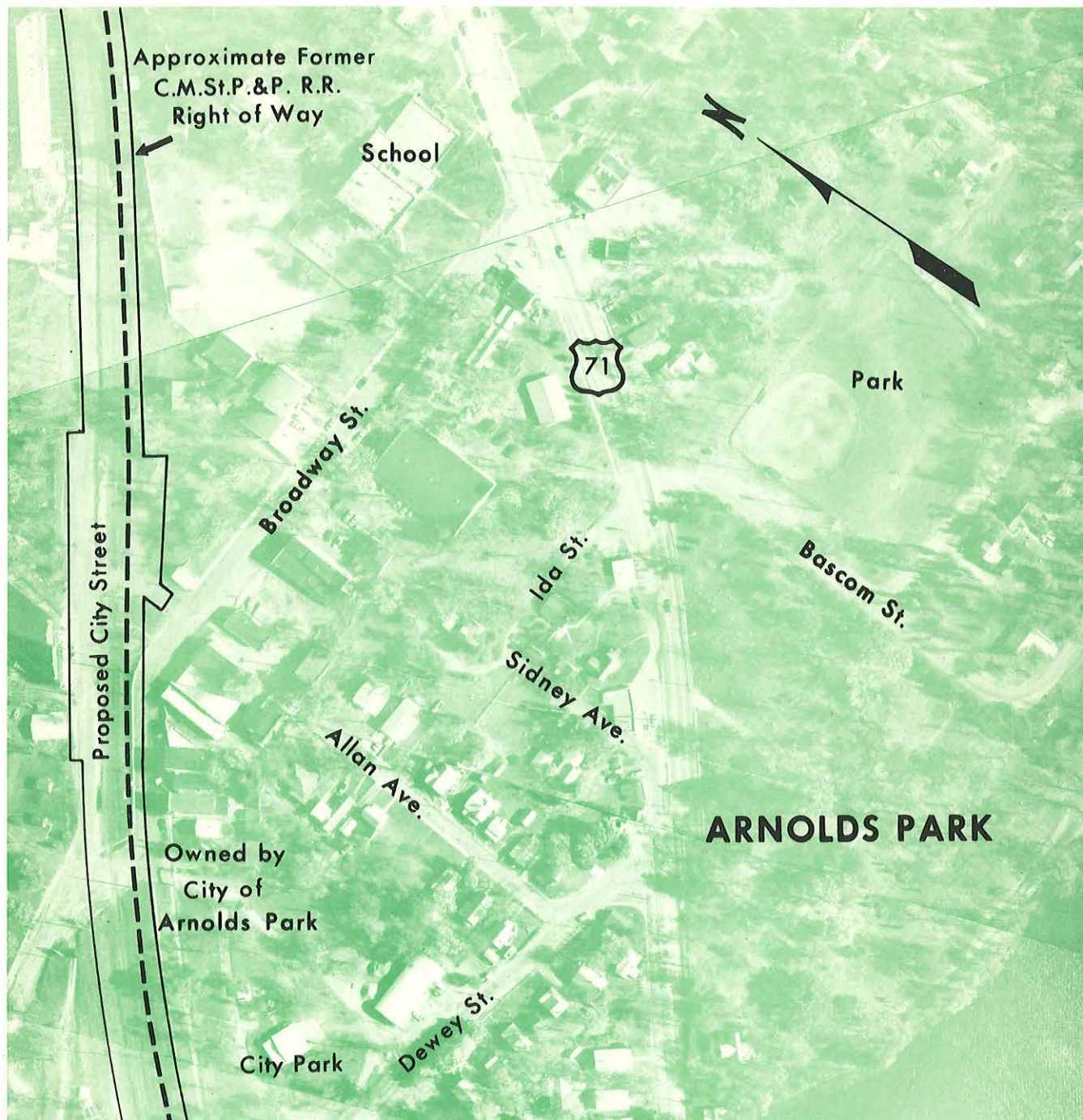
Although the preliminary planning for this facility was accomplished to meet the demand for pedestrian and bicycle traffic in the area, some parts of the trail may be compatible with snowmobile use in the winter. Details of this allied use can be worked out with local officials as the project progresses. Any such use must be in harmony with adjacent land use.











Approximate Former
C.M.St.P.&P. R.R.
Right of Way

School

71

Park

Broadway St.

Ida St.

Bascom St.

Sidney Ave.

Allan Ave.

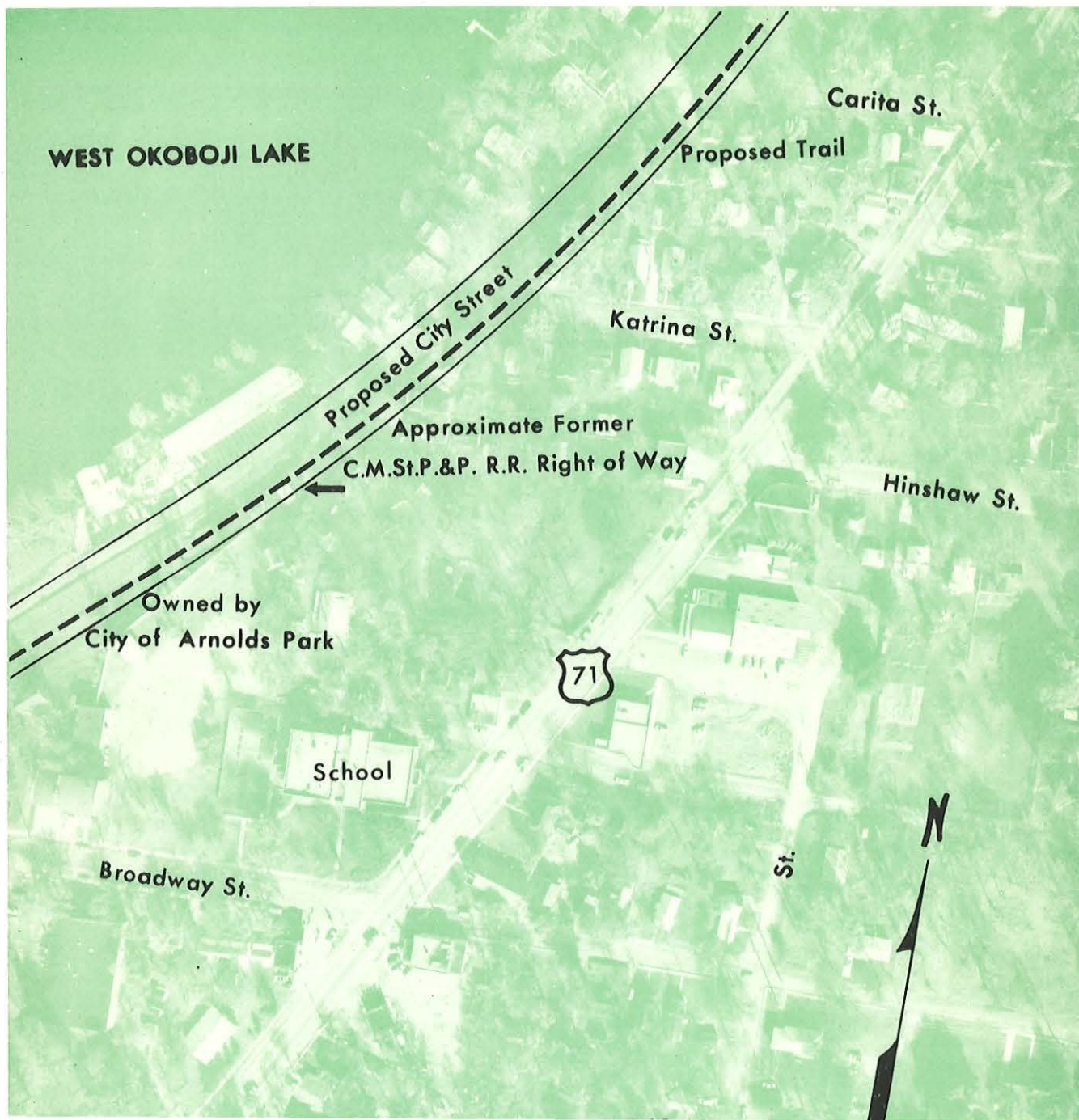
ARNOLDS PARK

Owned by
City of
Arnolds Park

City Park

Dewey St.

Proposed City Street



WEST OKOBOJI LAKE

Carita St.

Proposed Trail

Proposed City Street

Katrina St.

Approximate Former
C.M.St.P.&P. R.R. Right of Way

Hinshaw St.

Owned by
City of Arnolds Park

71

School

Broadway St.

St.

N

