FEASIBILITY STUDY

for

BIKEWAYS

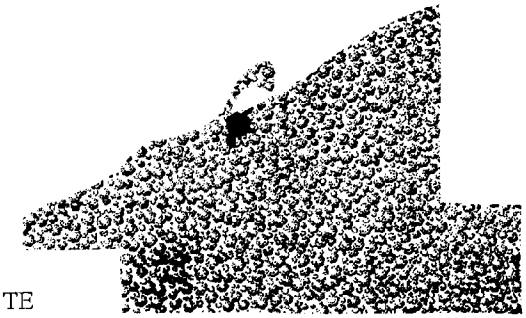
in and adjacent to

WILLIAM L. SCOTT COUNTY PARK

for the

ERIE COUNTY DEPARTMENT OF PLANNING

ALBERT L. MASSEY, LANDSCAPE ARCHITECT
1062 West 26th Street
Erie, PA 16508



September 1981

FEASIBILITY STUDY
FOR
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WILLIAM L. SCOTT COUNTY PARK

RUSSELL D. ROBISON

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This Study was financed through a planning assistance grant from the National Oceanic and Atmospheric Administration as administered through the Pennsylvania Department of Environmental Resources Office of Coastal Zone Management and the Erie County Department of Planning.

TABLE OF CONTENTS

INTRODUCTION

1. SCOPE OF STUDY

The purpose of this study is twofold. First, to study and expand the use of Scott Park by bicyclists. Second, to study means of connecting the bikeway, which is in the right-of-way of West 6th Street, with Presque Isle State Park.

The escarpment along Presque Isle Bay is approximately 90 feet high. One purpose of this study is to find the best ways to breach the escarpment. Routes studied are as follows:

A. Sommerheim Drive and across bay frontage of Scott Park
B. Scott Park escarpment
C. Millcreek Sewer Authority sanitary sewer easement
D. Peninsula Drive right-of-way
E. An outside possibility of a combination of several of the above possibilities

Both bikeways will be oriented toward general recreation users, although the bikeway to the peninsula will be utilized by bikers in a hurry to get to the beach or for a ride around Presque Isle. Both bikeways could be enhanced with amenities of rest stops, lookouts and interpretive signs along the way.

In addition to the use of public right-of-ways, this study will consider bikeways; PennDOT refers to them as bike trails, designed for the sole use of bikers.

The background design information for this study was obtained from standards and guidelines published by PennDOT, Federal Highway Administration and other governmental studies and standards. Charts, graphs and tables have been reproduced so the design criteria is readily available. None of the design criteria was developed by the author.

The purpose of this study is to find the best ways to construct bikeways in Scott Park and to Presque Isle State Park.

2. DEFINITIONS

The following definitions are included for use in developing bikeways, as published in PennDOT Guidelines.

Bicycle--A vehicle having two tandem wheels, propelled solely by human power, upon which any person may ride.

Bicycle facilities--A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, maps, all bikeways, and shared roadways not specifically designated for bicycle use other than signing.

Bicycle lane (bike lane)--A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

Bicycle path (bike path)--A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way.

Bicycle route (bike route)--A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without a specific bicycle route number.

Bike trail--A special facility for the exclusive use of bicycles, having a separate surface which is not contiguous with adjacent motor vehicle facilities.

Bikeway--Any road, path or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Commuter bikeway--A facility for bicycle travel between specific termini and for purposes such as work, school or shopping. It is usually located along desire lines and may be in conjunction with another transportation mode.

Highway--A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Recreational bikeway--A facility for bicycle travel as a leisure-time activity. It can be for relaxation, scenic and historical enjoyment, physical fitness and other personal desires.

Right of way--The right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian.

Right-of-way--A general term denoting land, property or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Roadway--The portion of the highway, including shoulders, for vehicle use.

Shared roadway--Any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.

Sidewalk--The portion of a highway designed for preferential or exclusive use by pedestrians.

Traveled way--The portion of the roadway for the movement of vehicles, excluding shoulders and auxiliary lanes.

3. BIKEWAY CLASSIFICATIONS

There are many different classifications of bikeways. In general they can be summarized as facilities shared with other uses and facilities for use by bicycles only. In addition, some classifications consider crossflow traffic. Some classifications further designate bikeways by the length of site distances available, the width of the travel lane, the posted traffic speeds and volume of traffic.

Bikeways can be part of the street/highway system by utilizing the existing right-of-ways by signage, painting placing barriers, paving shoulders (such as was done on West 6th Street in front of Scott Park) and constructing separate lanes within the right-of-way (similar to sidewalks).

Bikeways can be separate trails for exclusive use of bikers or share with pedestrians. For the basic reason of safety, one general trend is to try to segregate all modes of movement, such as vehicles, bikes and pedestrians. The reason being that all speeds of travel are different and the slower the mode of travel, the more chances one has of being overtaken and hit.

Segregating cars from bikes is much easier than separating hikers, joggers and bikers, particularly in a park setting.

SUMMARY

1. Although the existing mapping of the proposed alignments is accurate enough for preliminary alignment, a complete survey showing topographical and physical features will be required for construction of the proposed bikeway. The existing mapping is either not complete over the entire bikeway alignment or does not show recent construction.

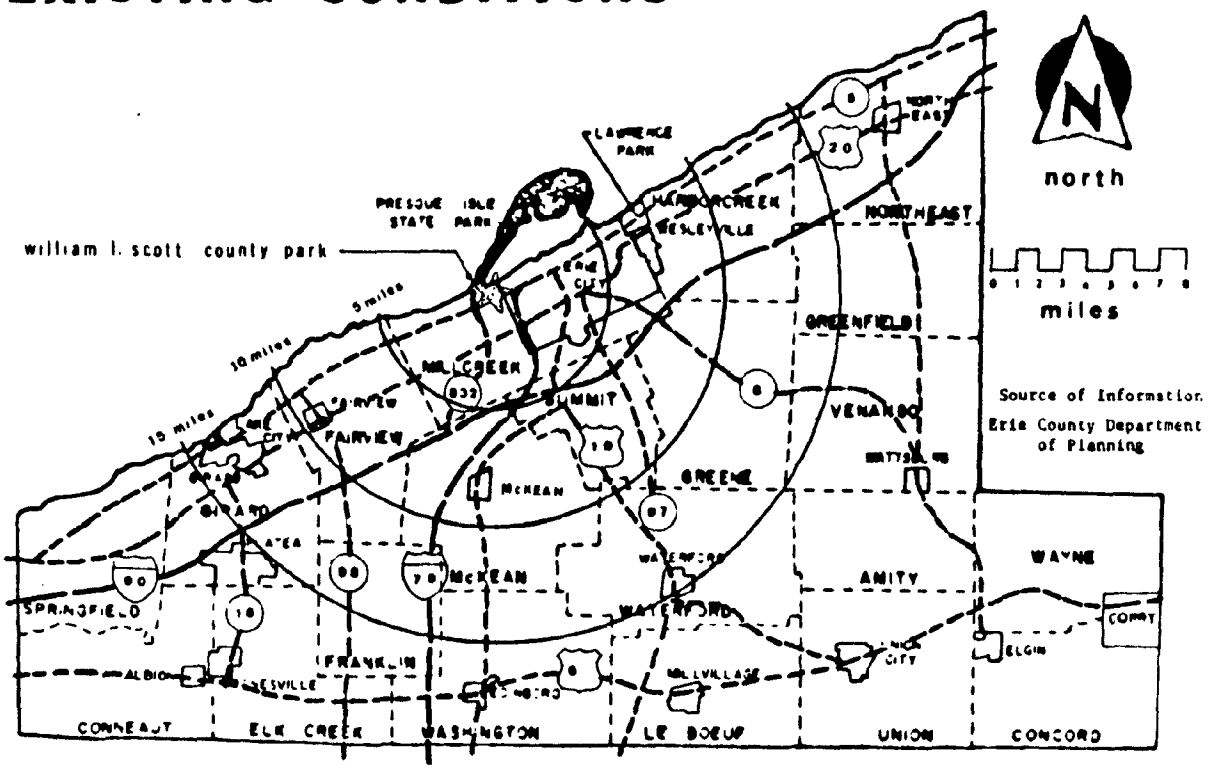
2. The construction of a bikeway over the escarpment will either be expensive or contain a very steep grade. The flatter the ascent, the more expensive the bikeway and the easier the use. The steeper the descent, the faster the bikes will travel and the more dangerous the trip.

3. Recommended Minimum Design Criteria

Width	12 feet
Design speed	20 m.p.h.
Horizontal alignment and superelevations	95 feet radius
Grade	5% desired 10% maximum
Sight distance	175 linear feet
Signing and marking	Use recommended Manual on Uniform Traffic Control Devices (MUTCD)
Pavement structure	Bituminous paving, concrete
Structures	None
Drainage	2% cross pitch
Lighting	0.5 foot candle
Restriction of motor vehicle traffic	Service and emergency vehicles
Multi-use	Expect other modes of travel
Supplemental facilities	Rest stops and overlooks

4. Due to the proximity of Scott Park with Presque Isle and the volume of bicyclists currently utilizing the existing bicycle paths on West 6th Street and those utilizing the peninsula, the most liberal design criteria should be utilized. However, due to the escarpment, this may not be possible at a reasonable cost.

EXISTING CONDITIONS



LOCATION MAP AND MAJOR HIGHWAYS LEADING TO WILLIAM L. SCOTT COUNTY PARK

1. REGIONAL INFLUENCES

William L. Scott County Park is located in Millcreek Township on the shores of Presque Isle Bay and adjacent to Presque Isle State Park.

Although the Park does not abut a major highway, the Park has frontage on West 6th Street, a busy east-west thoroughfare. The Park entrance is only 1500 feet east of the intersection of West 6th Street and Peninsula Drive (PA 832).

The Park entrance road begins opposite the beginning of Lowell Avenue, which runs north and south between West 6th Street and West 8th (PA Alternate Route 5). The Park is readily accessible to all major roads in Erie County, either by West 6th Street or Peninsula Drive.

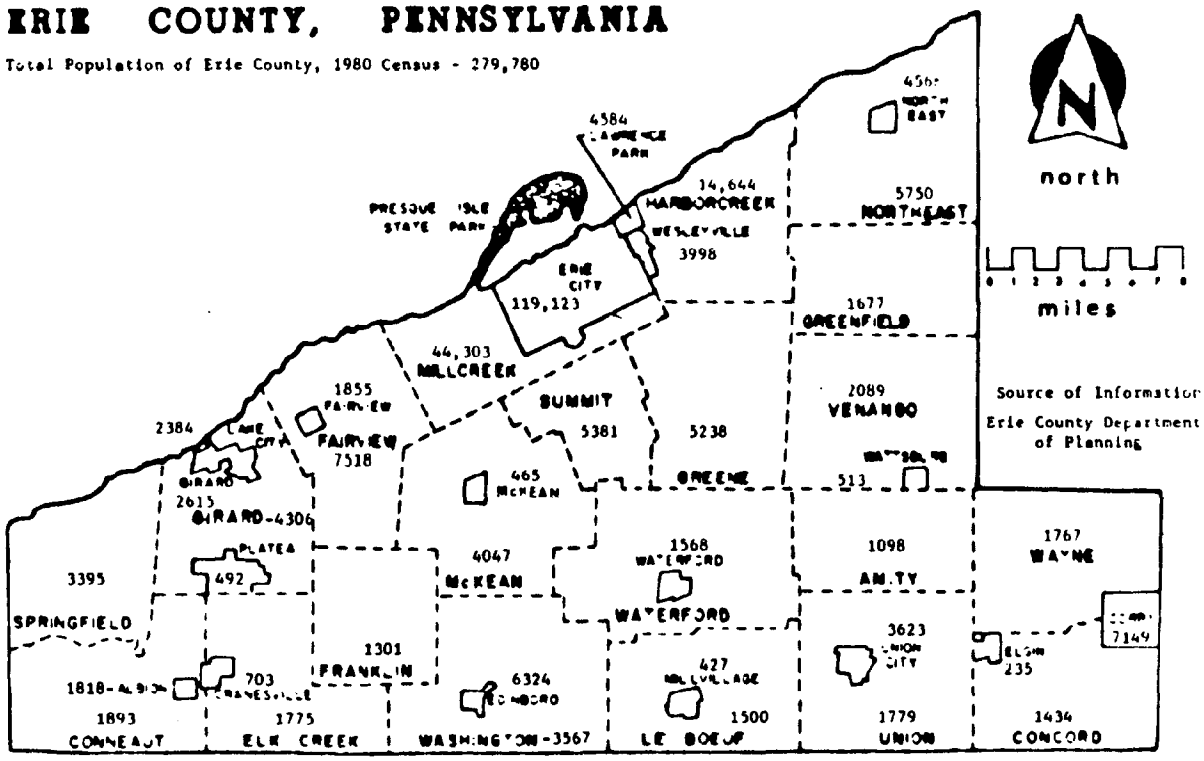
The Park is located in the heart of the most popular tourist area in Erie County. The focal point of the tourist area is Presque Isle State Park. In 1980, 4.6 million persons visited Presque Isle State Park.

Many bicyclists like to ride around Presque Isle State Park. Some ride their bicycles to the Park, while others transport their bikes on their cars to the Park. A bikeway to the Park will allow more people to ride safely to the Park on their bikes.

There is the beginning of a bikeway along West 6th Street which has been in existence for several years. Beginning at the City-Millcreek Township boundary line and running west along West 6th Street is a shared right-of-way bikeway. The shoulders of West 6th Street were paved and signed for "no parking" and "bikeway - one way." Many bicyclists utilize this bikeway.

Through their Police Department, Millcreek Township is currently studying the formation of a bikeway along PA Route 832, from West 38th Street to the intersection of West 6th Street.

The existence of bikeways in William L. Scott County Park and a connector bikeway from Scott Park to Presque Isle will give bicyclists alternative routes to ride, as well as provide a safer ride to Presque Isle State Park. Currently, the State Park is trying to separate the bikers from the vehicular traffic within the Park.



POPULATION OF ERIE COUNTY, BY MUNICIPALITY

The recent census showed that there were 279,780 residents in Erie County. Of that total, those residents closest to Scott Park include 119,123 residents in the City of Erie, 44,303 residents of Millcreek Township and 9,373 residents of Fairview Township and Borough. This is a total of 172,799 residents living in relatively close proximity to the Park, leaving 106,981 in the rest of the County.

As previously indicated, Presque Isle State Park had 4.6 million visitors in 1980. Of course, many of the visitors live in Erie County. There has been no census as to the number of bicyclists in the County. However, on most any sunny day, one only need to drive to Presque Isle State Park and see the large number of bicyclists utilizing the Park.

2. PRESQUE ISLE STATE PARK

In addition to the existing strip of concrete along portions of the bayside of the peninsula, there are planning studies for a proposed handicapped multi-use path. The Bureau of State Parks is very much interested in separating all other forms of transportation from the motorized vehicles. The State Parks personnel have been building this concrete path as construction money becomes available. This proposed path would tie into the existing system at the entrance to Presque Isle State Park. There are no expected problems of connecting bikeways from William L. Scott County Park and Presque Isle State Park.

3. WILLIAM L. SCOTT COUNTY PARK

A. Master Plan, May 1976

The general concept of the Master Plan called for the Park to be developed into four use areas:

1. Active Recreation: This area is the southern portion of the site, with proposed activities such as field and court games, fit trail and picnic facilities.

2. Passive Recreation: This area is in the northern portion of the site. The proposed activities include nature study, hiking and a nature center. Archeological remains have been discovered in this area.

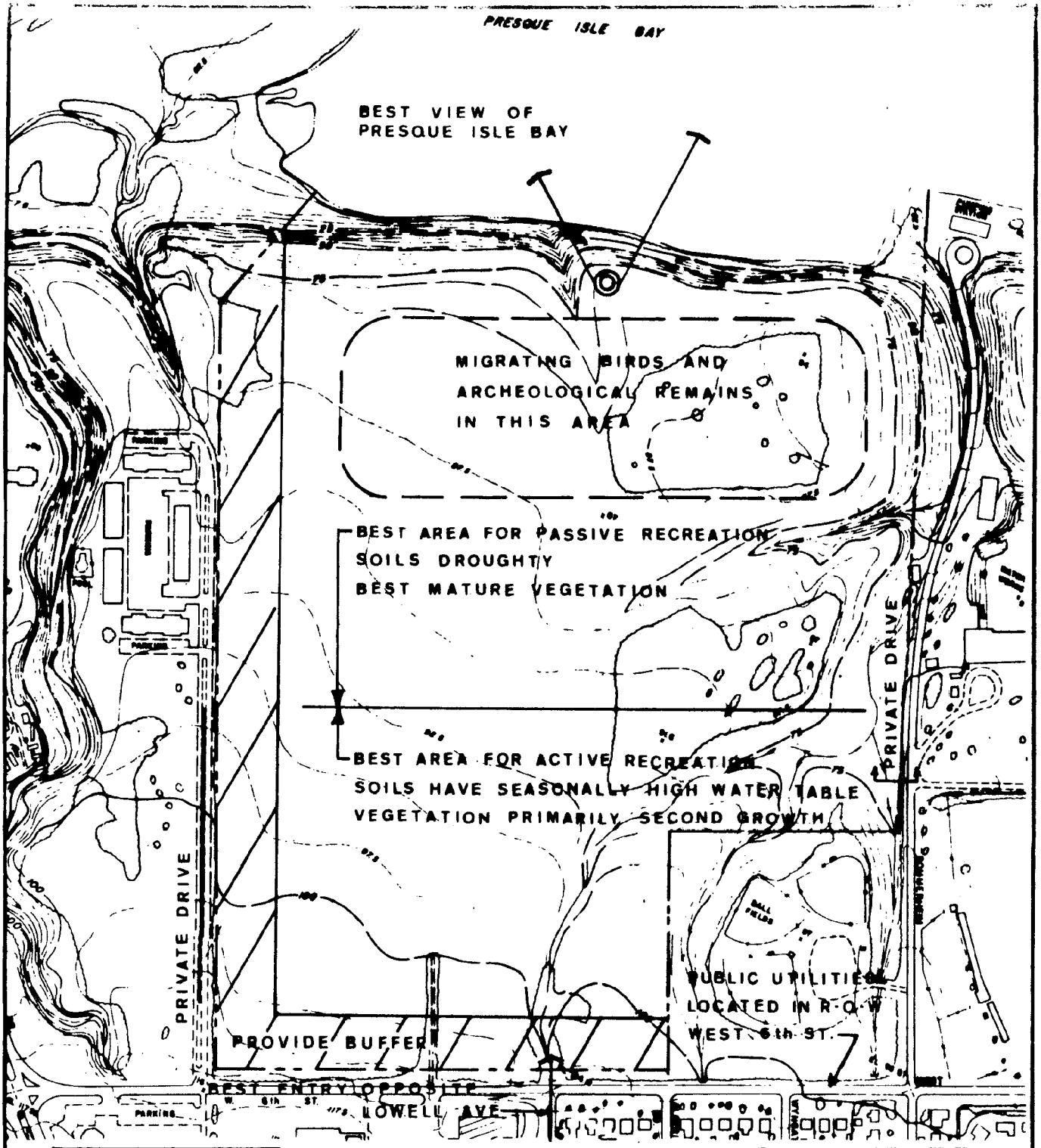
3. Buffer: This land is the perimeter of the Park and will serve to keep the interior of the Park isolated from the influences of the adjacent land. The buffer land to the east is separated by topography, drainage and vegetation, while the land to the south and west is separated by vegetation only.

4. Park Administration: The southeast corner of the site was reserved for administration facilities.

5. Vehicular Circulation: The circulation system of the Park was designed to discourage sightseers and pleasure drivers. The road dead ends in a parking lot. The parking is evenly divided with recreation activities spaced on each side of the proposed parking lots. The proposed two major lots should be able to support approximately 550 cars. A small lot in the nature center area could accommodate 50 cars.

   Pedestrian Circulation: Existing paths and trails were planned to move visitors throughout the park for experiencing nature at her best. All trails were planned as looped trails which will lead people by the varied areas within the Park, such as the woods, creeks, the reverting fields, the archeological dig, the Bay bluff and the various recreational activities. The former three-quarters of a mile oval horse training track is visible on the ground in some places and overgrown in other areas. No effort has been made to restore the track because the long straight legs are not very exciting for nature walks. A trail with bends and turns provides new visual experiences more readily for the user.

7. Sanitary Facilities: Sanitary sewer, potable water and electricity are available at the toilet building. These utilities can be extended as required and within the limitations of utility design. The entrance drive is lighted for night use.



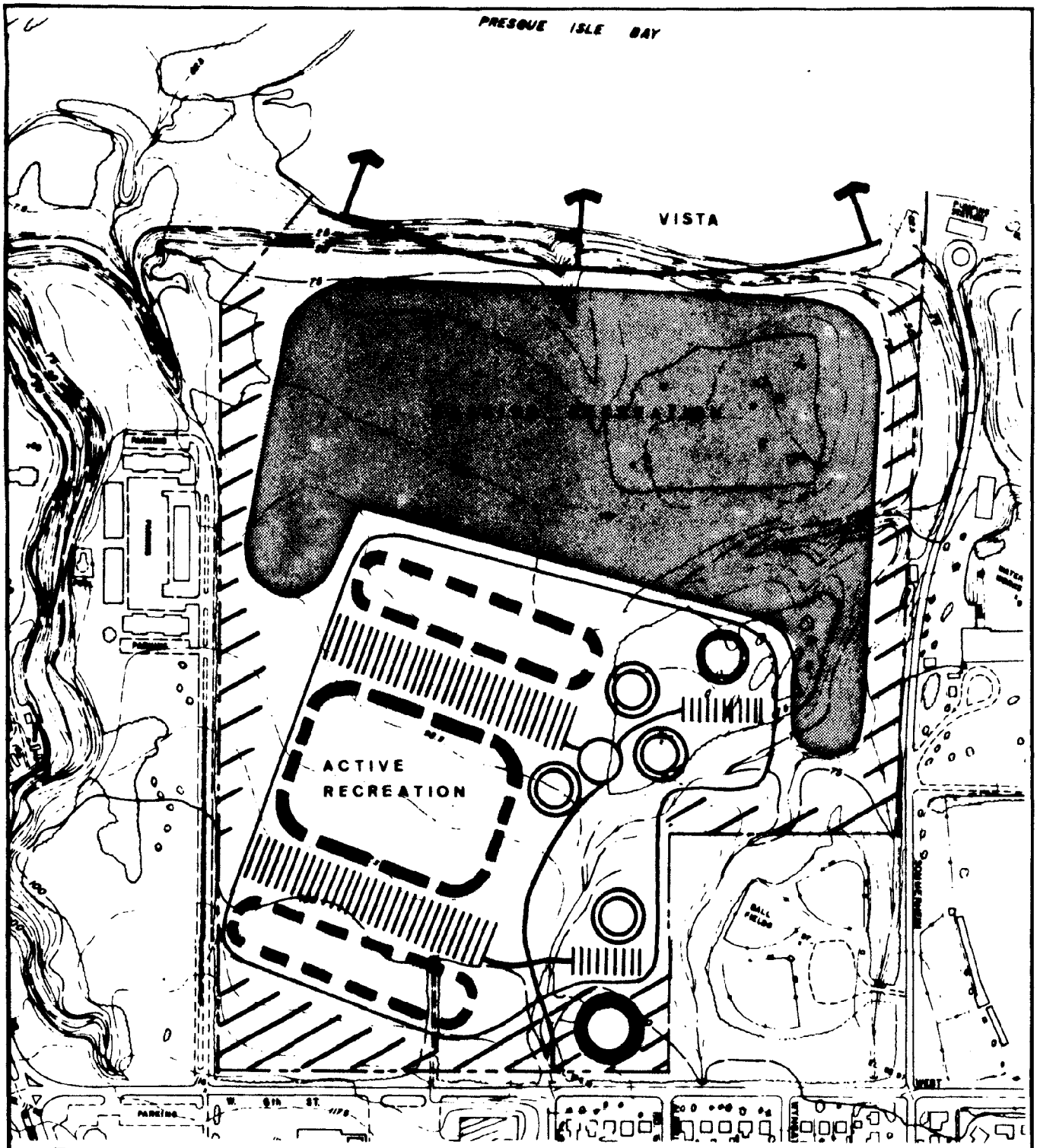
Master Plan for the William L. Scott County Park
Erie County Parks and Recreation Department
Erie Pennsylvania

SCALE noted | APPROVED BY | DRAWN BY
DATE | REVISED

Albert L. Massey Landscape Architect
1324 Baldwin Building, Erie, Pennsylvania 16501

SITE ANALYSIS

DRAWING NUMBER 75 17



THIS SQUARE EQUALS 10 ACRES

LEGEND

- PARK ADMINISTRATION
- NATURE CENTER
- PICNIC AREA
- PARKING
- BUFFER

200 0 200 400 800 feet

NORTH

Master Plan for the William L. Scott County Park
Erie County Parks and Recreation Department
Erie Pennsylvania

Albert L. Massey Landscape Architect
1324 Baldwin Building, Erie, Pennsylvania 16501

SCHEMATIC PLAN

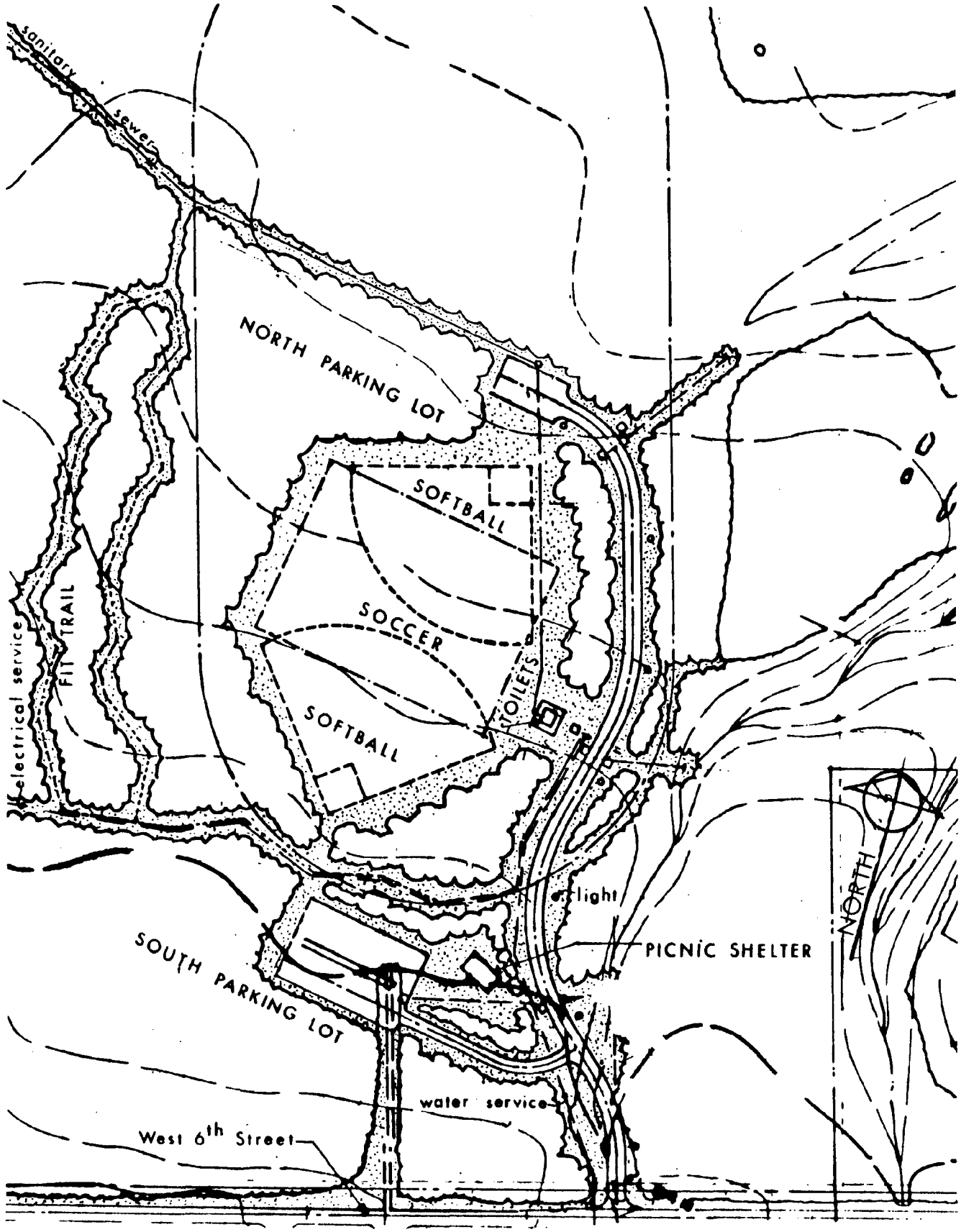
B. Development to Date

Since the 108-acre Park was acquired by Erie County as a gift from the Scott Estate in 1975, several studies for the development of the land have been made.

Based upon the most recent Master Plan of 1976, there have been two construction projects initiated. A summary of the work is as follows:

Phase A: Completed in 1979		$254,455.00
General Construction	$191,000.00	
Entrance Road		
Parking		
Soccer/Football/Softball Field		
Fit Trail		
Toilet Building		
Storm Drainage Work		
Electrical Construction	$29,000.00	
Electrical Service		
Roadway Lighting		
Plumbing Construction	$34,455.00	
Sanitary Sewer		
Water Line		
Phase B: Under Construction and Expected to be Completed in 1981		$97,616.50
General Construction		
Drive and Parking Lot		
Picnic Shelter		
Softball Field		

To date the Park has been well received by the residents of the County. The soccer field, softball field and fit trail have been well used. Gannon University has an archeological dig in the northeast corner of the Park. People have been observed practicing golf, training sled dogs on a wheeled carriage and riding bicycles. A limited number of picnic tables were placed along the edge of the athletic field and have been utilized with some success. It can be expected that the new picnic shelter will bring many more picnics to the Park.



plan · existing development

C. Future Development and Studies

The rate of development of the Park will depend basically on capital development money. To date, the source of development money has been state and federal reimbursable funds. The first phase was constructed with the local share being the land donation. In the second phase, the County matched the State grant on a 50-50 basis. To date, the County has not been overly aggressive in providing park development monies. At this time there is no talk of a third development phase.

There is another proposed feasibility study which was recently completed. This study is for the construction of an amphitheater in William L. Scott County Park. The amphitheater is not expected to have any influence over the use of the proposed bikeway.

D. Natural Features

The Master Plan of William L. Scott County Park provided the background information of the soils. There are no expected problems with soils and the construction of bikeways as long as the bikeways are kept on the level ground. The soils, as well as the topography and vegetation of the drainage ways, are not very compatible with a bikeway. The soils contain a lot of ground water which make construction more expensive.

The escarpment has drainage seeps or springs along the entire length. This ground water requires more drainage work in the construction of a bikeway. The escarpment is stable and covered with vegetation. Because of the steepness of the escarpment, it is recommended that this soil not be utilized for a bikeway.

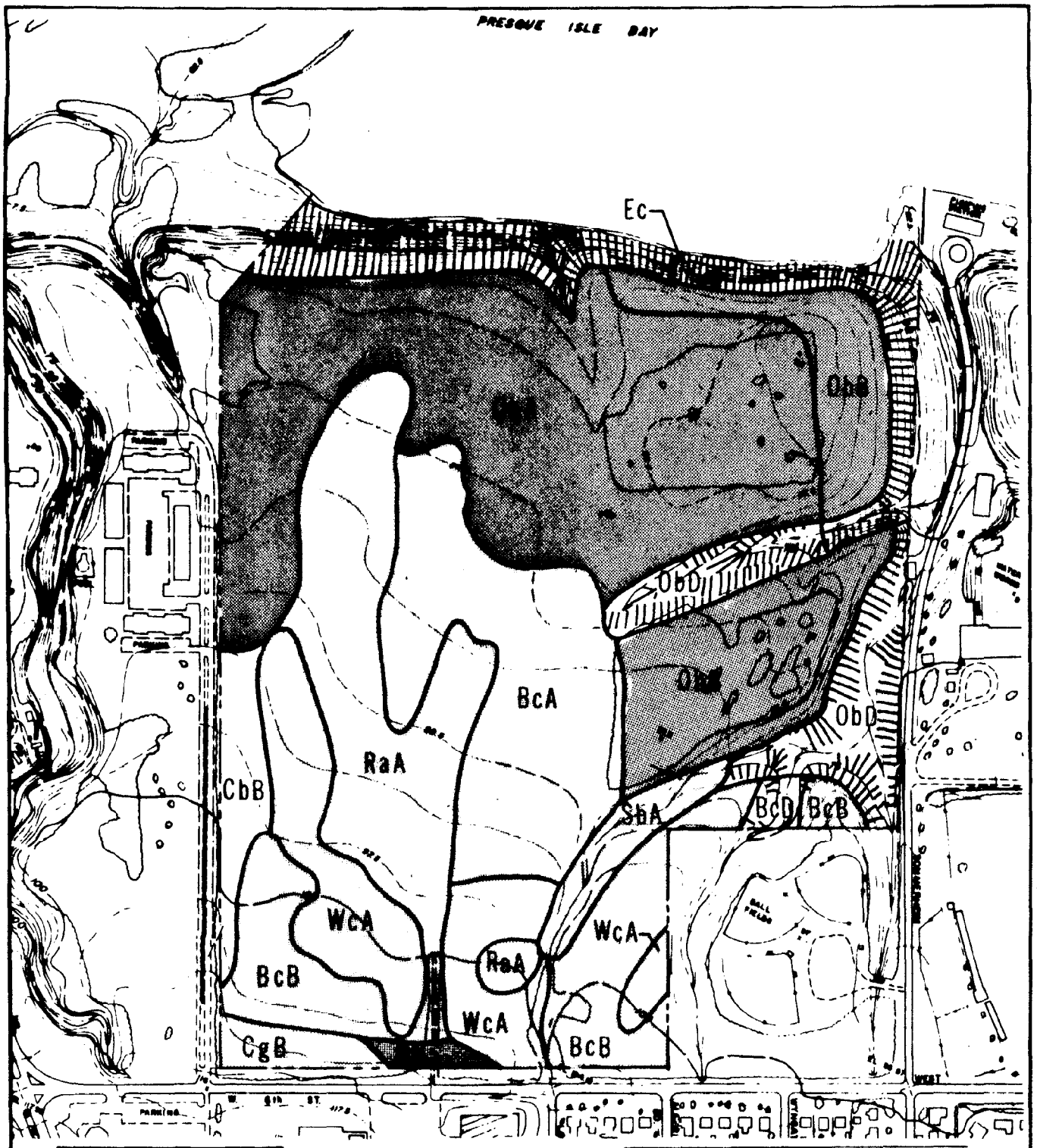
Those soils which have slopes over five percent are in drainage ways or on the escarpment. These soils and slopes are not very compatible with the construction of a bikeway. Therefore, it can be expected to keep proposed bikeways on the level ground of Scott Park.

4. MILLCREEK TOWNSHIP

A. Proposed Peninsula Drive Bikeway

Millcreek Township, through its Police Department, has applied and received a grant for the partial funding of a bikeway. The proposed bikeway will begin at West 38th Street and run north on Peninsula Drive to West 6th Street. At this point, it will meet the existing bikeway in the West 6th Street right-of-way.

The proposed bikeway is expected to be a shared right-of-way with paved shoulders and signing. The proposed budget for construction is $51,000.



THIS SQUARE EQUALS 10 ACRES

LEGEND

SOIL LIMITATIONS FOR RECREATION

- HIGH WATER TABLE AND SEASONAL HIGH WATER TABLE
- SANDY SOIL TEXTURE
- SLOPES OVER 8%

200 0 200 400 800 feet

NORTH

Master Plan for the William L Scott County Park
Erie County Parks and Recreation Department
Erie Pennsylvania

SCALE noted APPROVED BY DRAWN BY
DATE REVISED

Albert L Massey Landscape Architect
1324 Baldwin Building Erie Pennsylvania 16501

SOILS

DRAWING NUMBER

5. INVENTORY OF EXISTING CONDITIONS

The four ways to breach the escarpment are:

1. Peninsula Drive
2. The Millcreek Township Sewer Authority sanitary sewer easement and adjacent land
3. The escarpment of Scott Park (not feasible)
4. Sommerheim Drive

An overall view of the four options shows that the steepest part of Peninsula Drive has a 5.93% slope; this is a rise of 80 feet in 1.350 feet. The steepest part of the sanitary sewer easement is 11.83% or a rise of 71 feet in 600 feet. Sommerheim Drive has a 5.83% slope or a rise of 70 feet in 1200 feet. These grades and lengths of slope all exceed maximum recommended design criteria.

The escarpment within Scott Park is 90 feet above Presque Isle Bay. The Bay frontage is 1845 feet. If a bikeway were started at the top of the escarpment and near the east property line, the bikeway would have an average slope of 5%. The escarpment is fully wooded. The slope of the escarpment varies. The width of the escarpment, from the top to the water edge, is between 120 feet and 180 feet. The average width is between 130 feet and 140 feet. These slopes are extremely steep; the ratio of the horizontal distance to vertical rise varies between 1.33:1 to 2:1. Cutting the escarpment is virtually impossible. Therefore, the use of the escarpment is not going to be considered.

Route via Peninsula Drive

The Peninsula Drive alignment has a right-of-way which is 120 feet wide. The top and bottom of the right-of-way is flat and presents little or no problem adding a bike lane. Along the slope of the road there are steep banks on each side. These banks begin at the edge of the pavement and have slopes of about a one-foot rise in two feet. There are drainage structures which will have to be altered. Driveways, utility poles and signs are present along the road. Most of the steep grade portion of the highway is curbed, and the flat grade portion has an earth/gravel shoulder. In several places along the alignment there are adjacent drainage problems where either surface water collects or ground water surfaces. These areas usually collect and move debris onto the pavement. The road is posted for no parking. On summer weekends and holidays, traffic is very heavy and many times bumper to bumper. During the summer, the drive-in movie theater has a flea market each Sunday. The resulting traffic and the traffic going and coming from Presque Isle can create quite a congestion. There are several retail outlets catering to the visitors of the Park. These places sell food and fishing and beach supplies. Many cars pull into these retail businesses during daylight hours.

Route via sanitary sewer easement of Millcreek Sewer Authority

In 1973, the Authority completed a sanitary sewage line from near the northwest corner of the Park, north, down a drainage ravine and then west to Peninsula Drive. The sewer line was constructed in an easement and is all on private land. The agreement was written for the construction and maintenance of the sewer line. Therefore, if a bikeway were to be constructed, a new agreement would have to be reached with the property owner.

There are two distinct landscapes to the easement. First, the land in the drainage ravine and second, the flat land of the former lake shore.

The drainage ravine has a continuous slope of approximately 13%. In some places the ground is open and there are longer vistas, particularly to the east. In other areas, there are steep banks on each side. The bottom third of the slope has visible surface water coming from several sources from the west. Throughout the downhill run, there are erosion problems. Although none can be deemed serious, there is the potential for serious water erosion problems. The construction of a bikeway could correct these erosion problems.

The landscape at the bottom of the escarpment is flat and edged by a high bank on the south. The entire level area has scattered trees, and is used for a campground (several small buildings, campers, trailers and tents).

A bikeway could fit in adjacent to the bank and disturb approximately 15 spaces. A bikeway would enter onto Peninsula Drive near the bottom of the hill.

Since this land is private, there are several potential options for use or acquisition. These options include:

1. the sewer easement and possibly a minimum of adjacent ground
2. all land south of the bottom of the escarpment and the sewer easement
3. all the land between Scott Park and Presque Isle State Park and south of Peninsula Drive

Construction of a bikeway over the sanitary sewer would be only a problem if the sewer would have to be dug up. This is a highly unlikely situation. Either the bikeway would be kept to one side of the sewer or an agreement would have to be reached for repair of the bikeway. The sanitary sewer may have a total of up to 15 feet of fill over the sewer lines.

Between the sloping portion of the sewer easement and Scott Park, the land had a lot of soil removed. There is a bank at the Park property line which is six feet high in places. This area is covered with Crown Vetch. At the north end this land area is the beginning of a slope which falls to Presque Isle Bay. The slope is covered with vegetation and a few mature trees.

This sewer easement abuts Scott Park, and the sanitary sewage from Scott Park enters into this sanitary sewer.

This alignment could be the most scenic of the three.

Route via Sommerheim Drive

The Sommerheim Drive alignment is along the eastern boundary of the Park. A portion abuts the Millcreek Township Park and a new residential subdivision. The portion of the road between West 6th Street and West 4th Street is a private road. According to the Bureau Chief of the Bureau of Water, City of Erie, this road is closed once every year for a day to maintain its private nature. The entrance to the Millcreek Park is from this road. The alignment north of West 4th Street is on the land belonging to the Bureau of Water. Therefore, in order to make use of this way as an access to the shores of the Bay, a right-of-way would have to be secured.

The Bureau of Water secured the land from the Tracy Estate between 1929-30. The water plant was completed in 1932. At the time of purchase, certain deed restrictions were placed upon the Bureau of Water property. At this time there are some questions being raised by the Estate over some of the uses of the Bureau of Water property.

In the past several years, several water plants or reservoirs have been vandalized. If this trend continues, it is safe to expect a security fence and other precautions could be taken around the Sommerheim plant.

Access to the Bay and security for the facility could be achieved through joint planning. The access road does not parallel the Scott Park property line north of the extended West 4th Street right-of-way. Steep topography pushes the access road to the east. The access is basically level from West 6th Street to the water plant.

The road surface is paved in places with bituminous paving; in other places it is tar and chip. There are many bumps and potholes present. There is minimal money invested in taking care of storm water. There are some erosion problems along the steep portions of the road. There are many water lines under the road. Sommerheim Drive primarily services the water plant. Mercyhurst College has a pole barn on the Bayfront for the crew team. Fishermen utilize the road for access. Use by boaters is minimal.

The Bay across the frontage of Scott Park is very shallow. Depths range in the area of one to two feet. During summer the water is filled with aquatic vegetation.

The Scott Park shoreline is fully wooded to the Bay. The escarpment is covered with mature trees. The topography maps do not show a small bench; however, across much of the toe of the escarpment there is a nearly level area which varies in height above the Bay. In many areas across the escarpment, ground water seeps out of the ground and runs into the Bay.

6. ROUTE ANALYSIS

A. Along Peninsula Drive there are no physical barriers except a continuous grade of almost 6%. Bicyclists utilizing the existing road can descend at speeds equal to that of adjacent traffic. The ascending grades provide a real challenge to the bicyclists. Many are seen walking their bikes up the steepest part of the grade. Along the other two alignments there are no barriers, just the steep grades with which to contend.

B. The sewer easement and Sommerheim Drive have a land problem, since the ownership is by private individuals or under control of parties who may not be interested in a bikeway.

C. Peninsula Drive is the most direct route of all of the three choices.

D. Because of the existing highway system, Peninsula Drive is the most accessible route. In addition, there is an existing right-of-way to follow. The other two choices will require bicyclists coming from Peninsula Drive to ride either 600 feet to the sewer easement or 2600 feet to Sommerheim Drive.

E. Peninsula Drive is the least attractive route. The adjacent land is utilized for mobile homes and tourist-oriented uses such as motels, food and convenience items stores and a flea market in the drive-in movie on the weekends. Visually Peninsula Drive needs an uplift. The sewer easement would be the most natural environment. Sommerheim Drive would be very acceptable, and a ride across the Bayfront could be very pleasurable.

F. Because of the high traffic volumes and the amount of adjacent developed land, Peninsula Drive is the most secure. The other two choices are very isolated, and security problems could bother the users.

G. The only traffic control device in the study area is the intersection of West 6th Street and Peninsula Drive. There will be no problems created by traffic control devices. The only delays which will be created will be the additional time it takes to ride to the entrances of the proposed bikeways in the sewer easement or Sommerheim Drive. There could be some minor delays in crossing West 6th Street, but they should not pose a difficult problem.

H. The biggest use conflicts could occur on the Peninsula Drive alignment since heavy traffic will be present. It is safe to anticipate all alignments will have pedestrians and other modes of transportation utilizing the paths.

I. The maintenance of the three alignments could be a critical factor of the final decision. The Peninsula Drive alignment would be in a State highway; therefore, it would be under the jurisdiction of the State.

Maintenance on the alignment through Scott Park and the sewer easement would most likely fall on the County Recreation Department. The alignment down Sommerheim Drive could fall on three bodies--Millcreek

Township, Bureau of Water and the County Recreation Department. If this alignment were to become the new bikeway, the alignment should become a right-of-way belonging to Millcreek Township or PennDOT. This ownership could eliminate future conflicts.

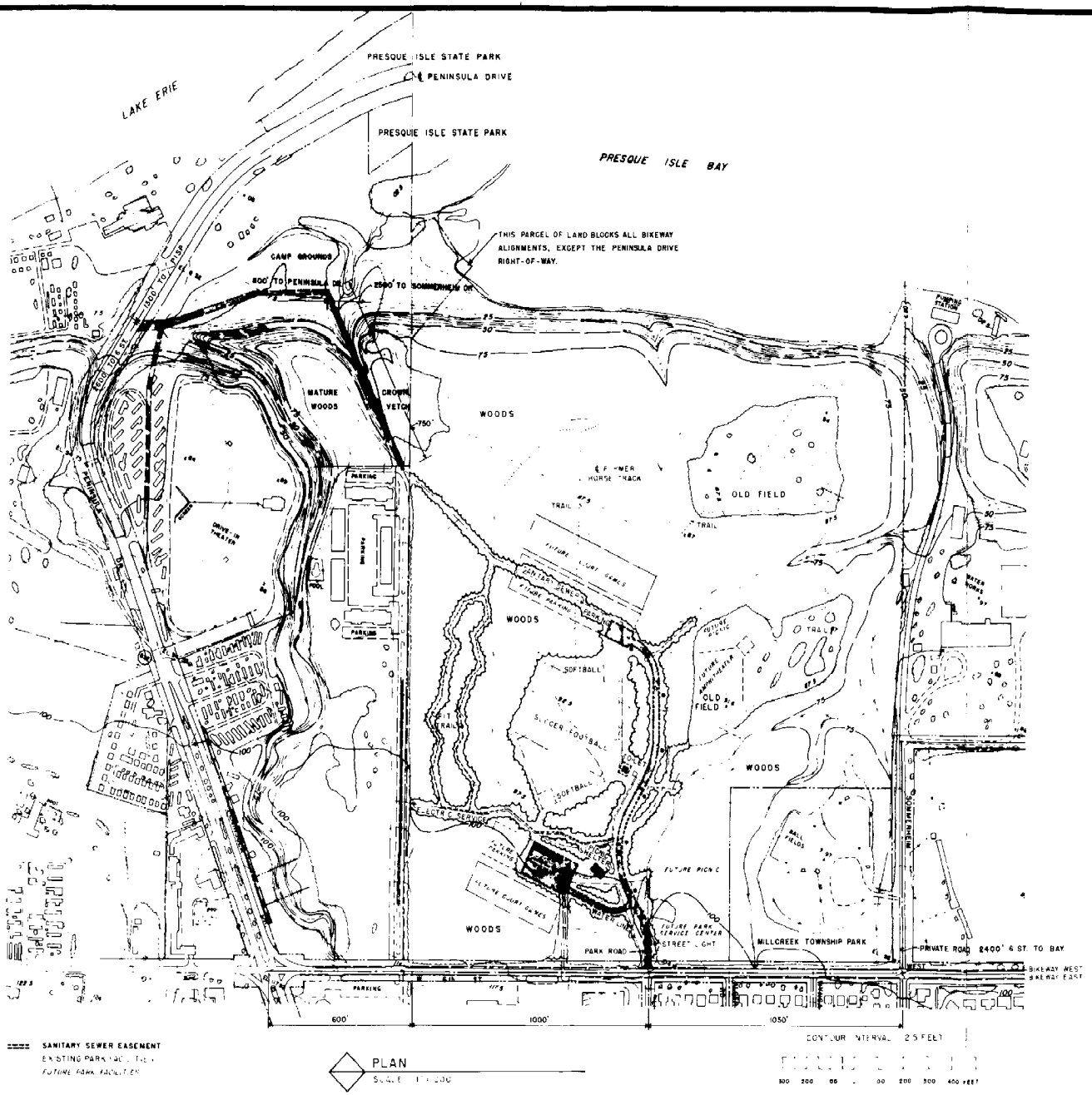
J. It is safe to assume that no matter what alignment is chosen, the surface will be new and paved.

K. Bus and semi-truck traffic should not be an influence on any of the three alignments.

L. Unless parking regulations change, on-street parking will not effect the alignments.

M. The posted speed of traffic on West 6th Street is 35 m.p.h. and Peninsula Drive is 35 m.p.h. The traffic volumes are heaviest on Peninsula Drive. This will never change.

N. Costs and funding are compared in the discussion of each alignment.



SOURCE: MILLCREEK TOWNSHIP STORM DRAINAGE STUDY MAPS

ALBERT L. MASSEY
LANDSCAPE ARCHITECT
1062 WEST 26th STREET
ERIE, PENNSYLVANIA 16508

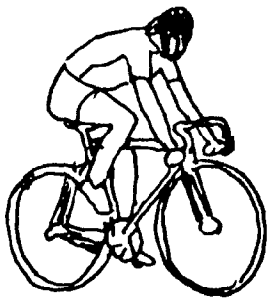
No.	Date	Description

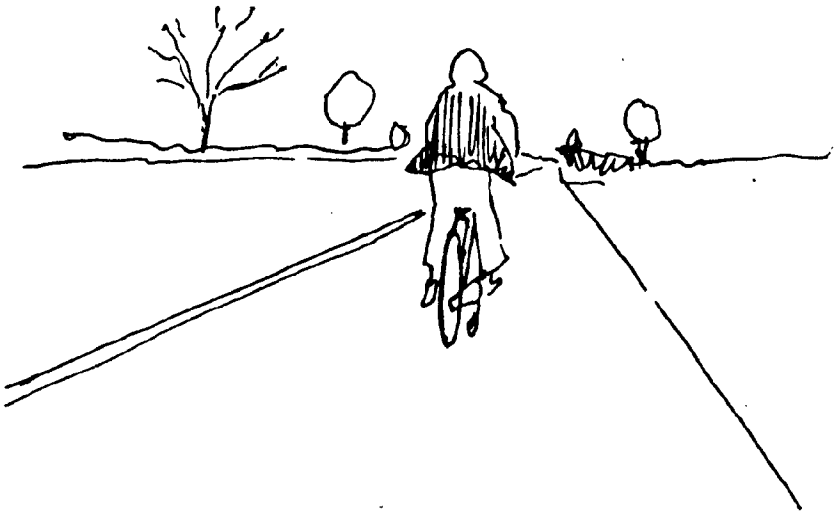
north

FEASIBILITY STUDY
BIKEWAYS
IN AND ADJACENT TO
WILLIAM L. SCOTT COUNTY PARK
ERIE COUNTY, PENNSYLVANIA

Drawing: EXISTING CONDITIONS

Scale: NOTED
Date: SEPTEMBER 30, 1981
Job No.: 81-12





GOVERNMENTAL REGULATIONS

PennDOT Bikeway Policy as Published in "Guidelines for the Development of Bikeways"

The following is PennDOT's general philosophy on policy relative to the establishment of bikeways within the Department's jurisdiction:

1. Bikeways must be planned as part of a transportation system or network, whenever possible.

2. Bikeways must provide a reasonable benefit to the public in relation to their cost for construction.

3. Bikeways must be located so as not to interfere with motor vehicle or pedestrian traffic or endanger either the bicyclists, the motorists or the pedestrian.

4. Bikeways proposed for installation within the right-of-way of Federal-aid highways must comply with U.S. Department of Transportation, Federal Highway Administration, Federal-Aid Highway Program Manual, Volume 6, Chapter 1, Section 1, Subsection 1 (Attached as Appendix A).

5. PennDOT's financial participation with the Motor License Fund is nonexistent. However, PennDOT is utilizing Federal funds as matching monies for the development of bikeways. These bikeways must be for commuting purposes, but exclude support facilities. The other half of the matching share must be borne by the local municipality.

6. PennDOT is prohibited from using Motor License Funds for right-of-way and construction specifically for a bikeway which would not be contiguous to the right-of-way of an existing highway or which would not be incorporated within the right-of-way of a proposed highway.

7. Bikeways intended for recreational purposes may be eligible for Federal Highway Trust Fund assistance; however, the matching portion must be from funds other than the Motor License Fund. Federal funds are reimbursement type funds, that is, the participating local agency makes the full expenditure with its own funds and is then reimbursed by the Federal funds for the appropriate amount. A public agency other than PennDOT must accept the maintenance responsibility prior to the construction of the facility.

8. Bikeways must be approved by PennDOT prior to installation on any state highway.

9. Bikeways may be incorporated and constructed concurrently with a PennDOT highway construction project, whenever feasible.

10. Bicyclists may not operate on the roadway of limited access highways.

11. Bikeways are for non-motorized vehicles only with the exception that snowmobiles may use Bike Trails which are bikeways separate from a roadway when the Bike Trails are snow covered and the specific use of them has been authorized by state and/or local ordinance, as appropriate.

12. Local governments may designate highways or portions thereof, under their jurisdiction for the exclusive use of bicycles.

13. PennDOT maintenance responsibility for bikeways is limited to bikeways which share the roadway and does not include signing and pavement marking nor snow removal.

Via a phone conversation with a PennDOT official, the following updated revisions to the revised general philosophy were received.

Paragraph #4: There are some discrepancies in the design features of published Guidelines of PennDOT and the Federal Government's Department of Transportation. Both agencies are trying to work out the differences.

Paragraph #5: The definition for commuter has been broadened to the word "destinational." This means projects such as being proposed in this study can become eligible for funding.

Currently PennDOT allocates $2 million of their highway allocation from the Federal Government for the building of bikeways. There is an approval system,and the funding is based upon a 75% grant from PennDOT and a 25% matching cash outlay by the local governing body. The local governing body designs and awards construction contracts for the bikeway construction. The local governing body finances the project, then receives their 75% from PennDOT. PennDOT retains review steps throughout the life of the construction project. Currently these monies are available in fiscal years 1982 and 1983. The Federal fiscal year begins October 1.

Paragraph #9: These bikeways are known as "incidental bikeways."

The Federal Highway Administration manual allows for the building of destination bikeways, the movement of bicyclists from one place to a known destination. These destination bikeways can be within a Federal-Aid Highway right-of-way or a completely new corridor, provided the new corridor will relieve the bike traffic from the highway. PA 832 is a Federal-Aid Highway.

Commonwealth of Pennsylvania--PennDOT

Occupancy permits of public right-of-ways are required for the placement of utilities, driveways and other improvements within the state right-of-ways. Peninsula Drive and West 6th Street are controlled by PennDOT.

Millcreek Township Zoning Ordinance

There are six zoning districts in the proposed bikeway study area. They include the following:

1. A - Residence
2. C - Residence
3. A - Business
4. B - Business
5. Mixed Occupancy
6. Light Industry

Scott Park, the land south of West 6th Street and the land on the northeast corner of West 6th Street and Sommerheim Drive, are zoned A - Residence. The land of the Bureau of Water is zoned Light Industry. The majority of the land abutting Peninsula Drive is B - Business, and the rest is composed of Mixed Occupancy, C - Residence and both A and B - Business.

The zoning districts abutting Peninsula Drive have the requirements of a front yard with a minimum depth of 15 feet.

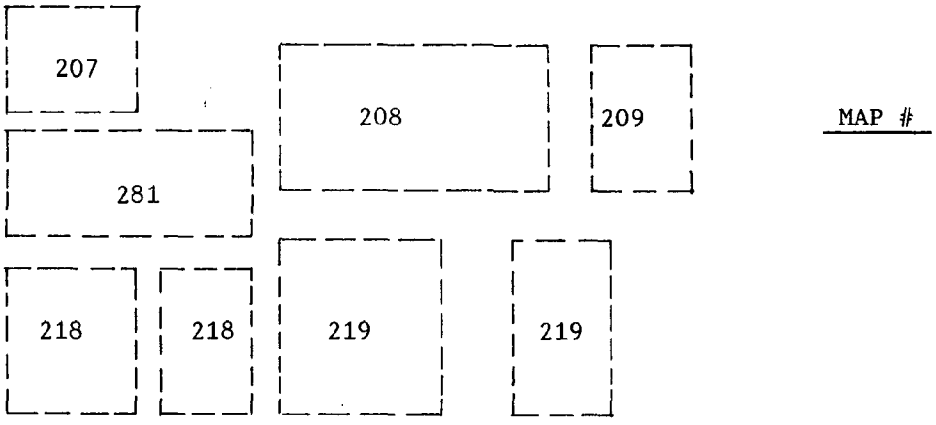
All driveway entrances can be up to 35 feet wide, and the driveways may be flared in the right-of-way with radii not exceeding 20 feet. The property owner may not place shrubs, hedges, fencing or wall enclosures in right-of-way. Street trees are permitted.

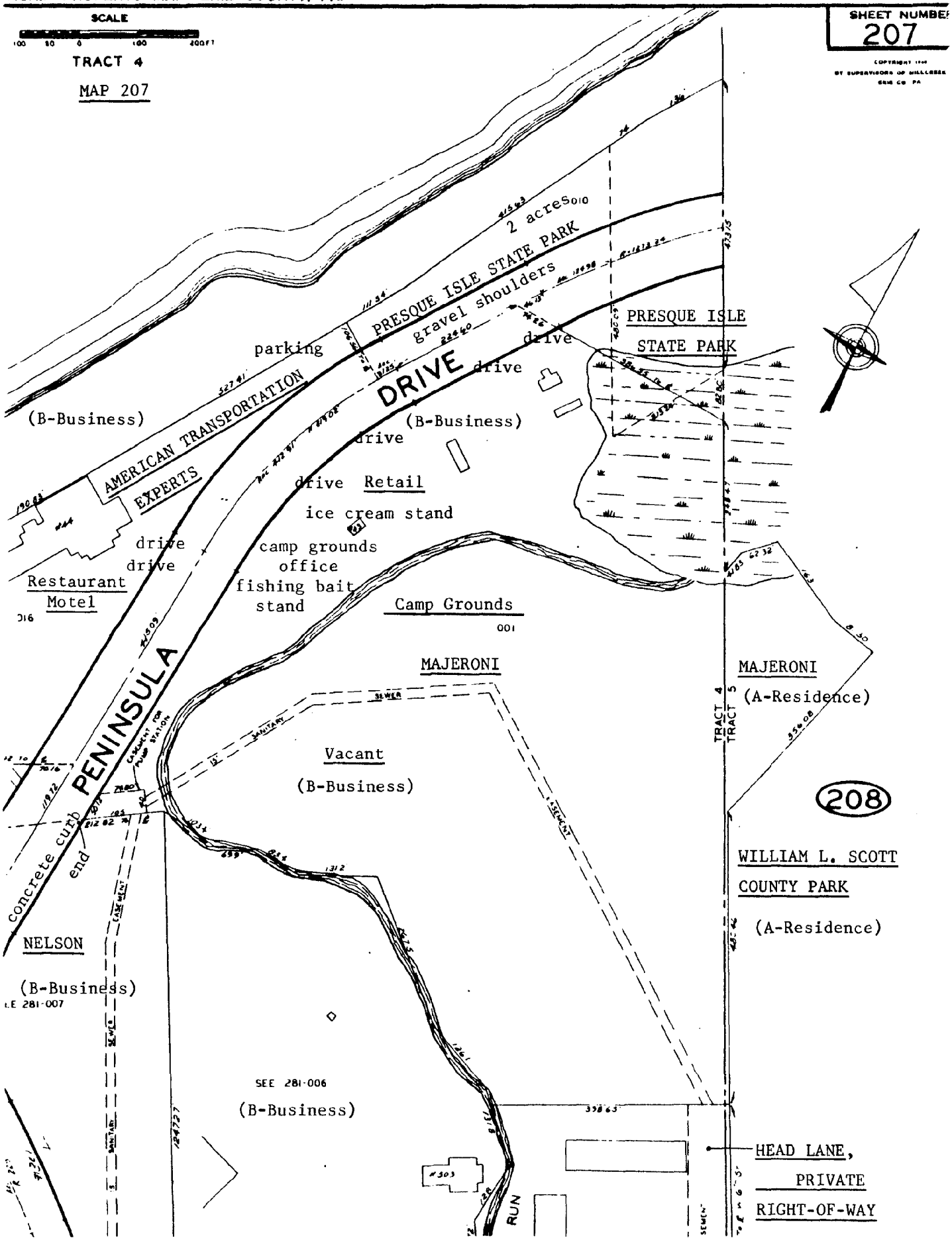
Minimum width of sidewalks within the right-of-way is five feet.

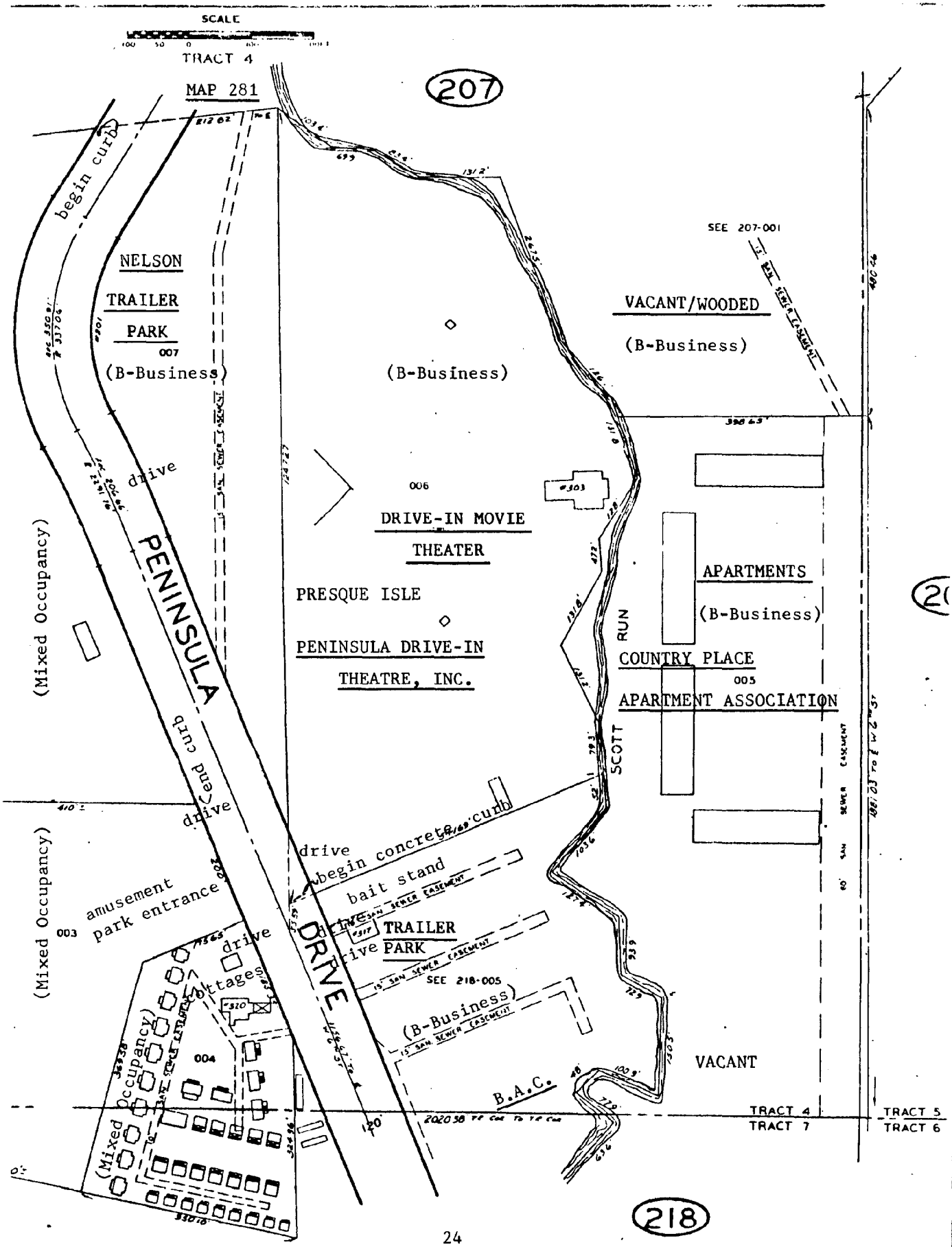
In business districts signs over 60 square feet shall observe the front yard requirements, which is 15 feet. Permits are required for all signs. Signs less than 60 square feet may be placed in the front yard.

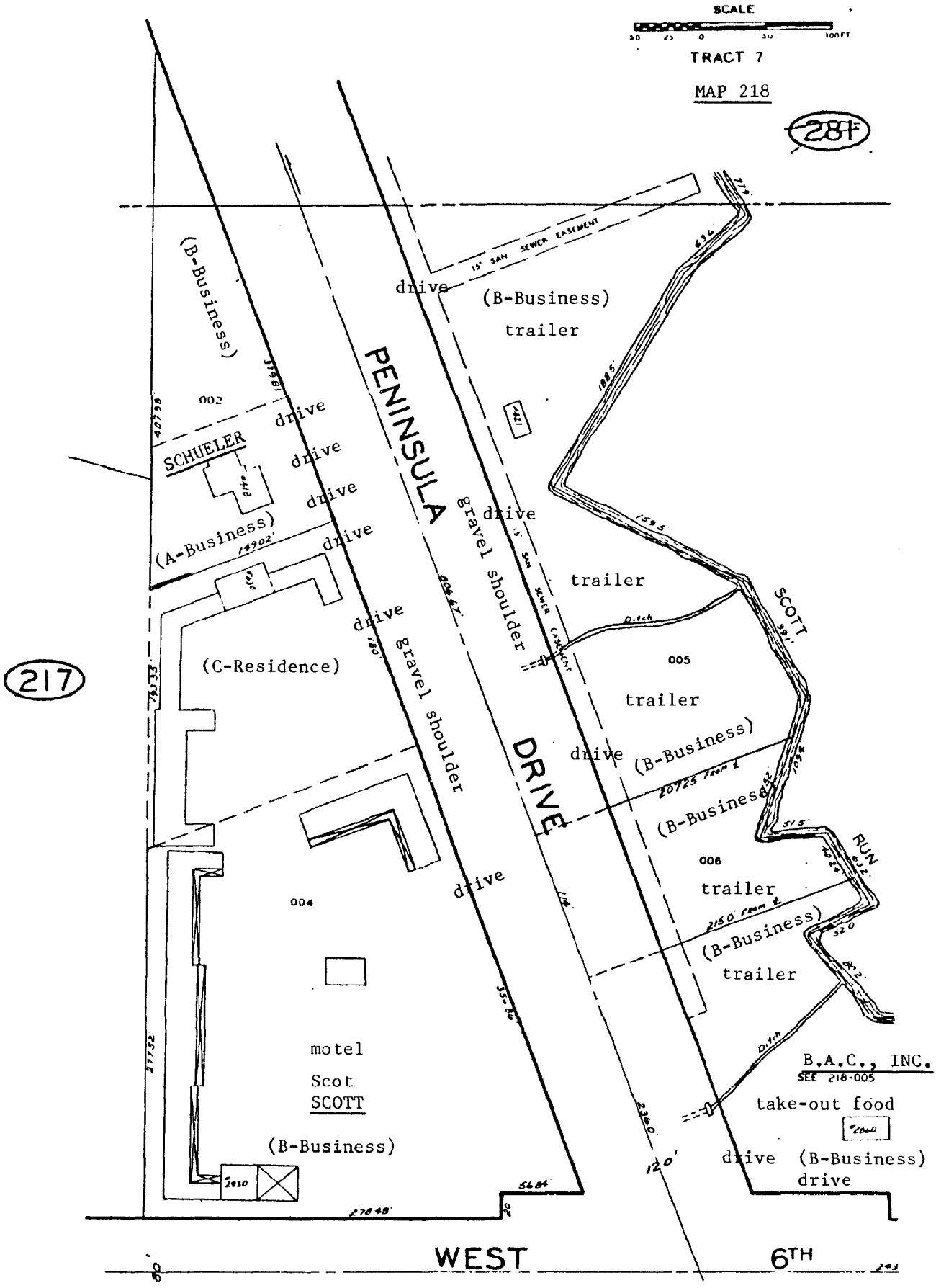
Township Assessment Maps

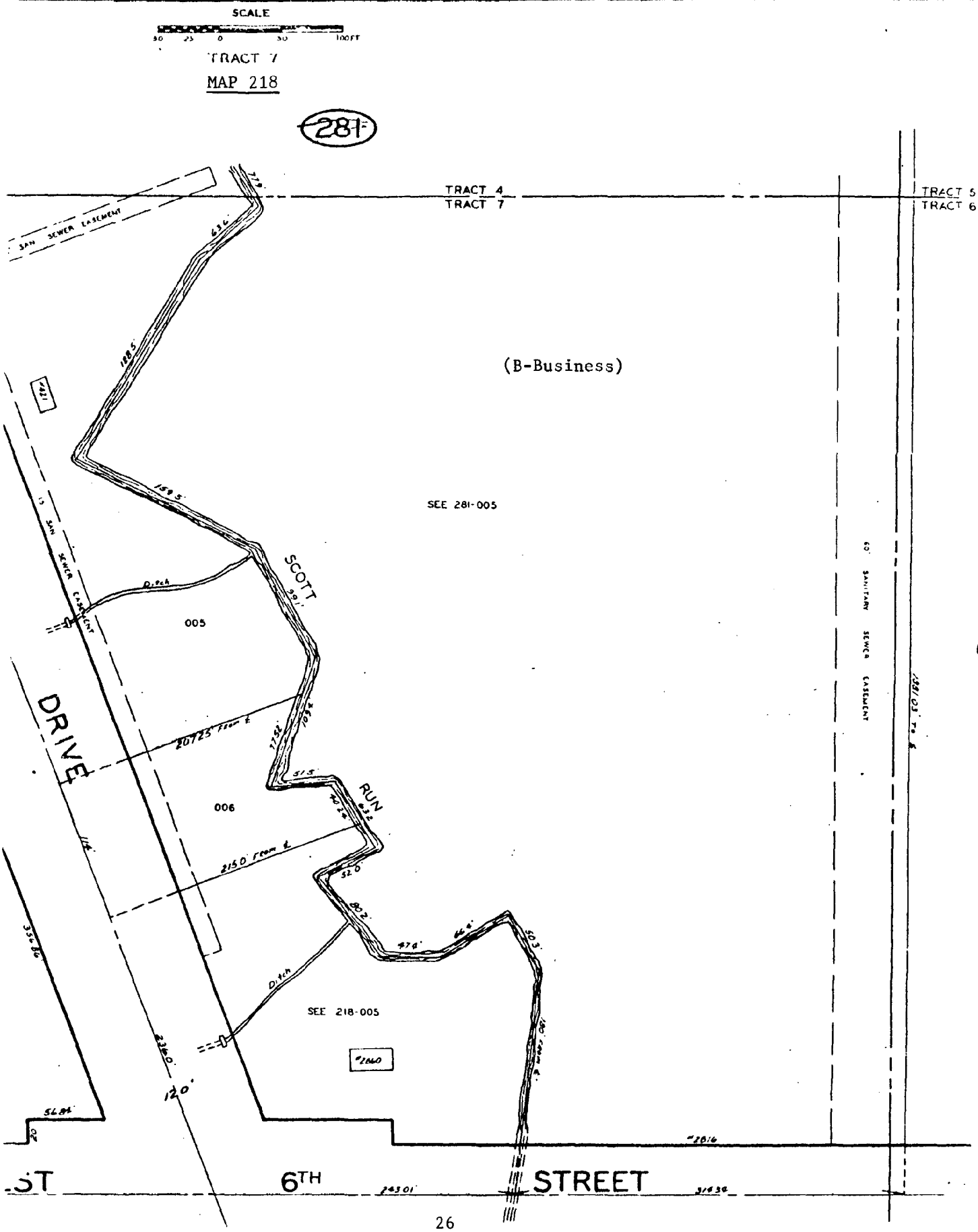
The following key shows how the eight maps relate to each other. The Assessment Maps provide an overall view of the property distribution in the study area. Also noted on the Assessment Maps are the zoning districts (in parentheses), land use (underlined) and the owners' names (capitalized and underlined).

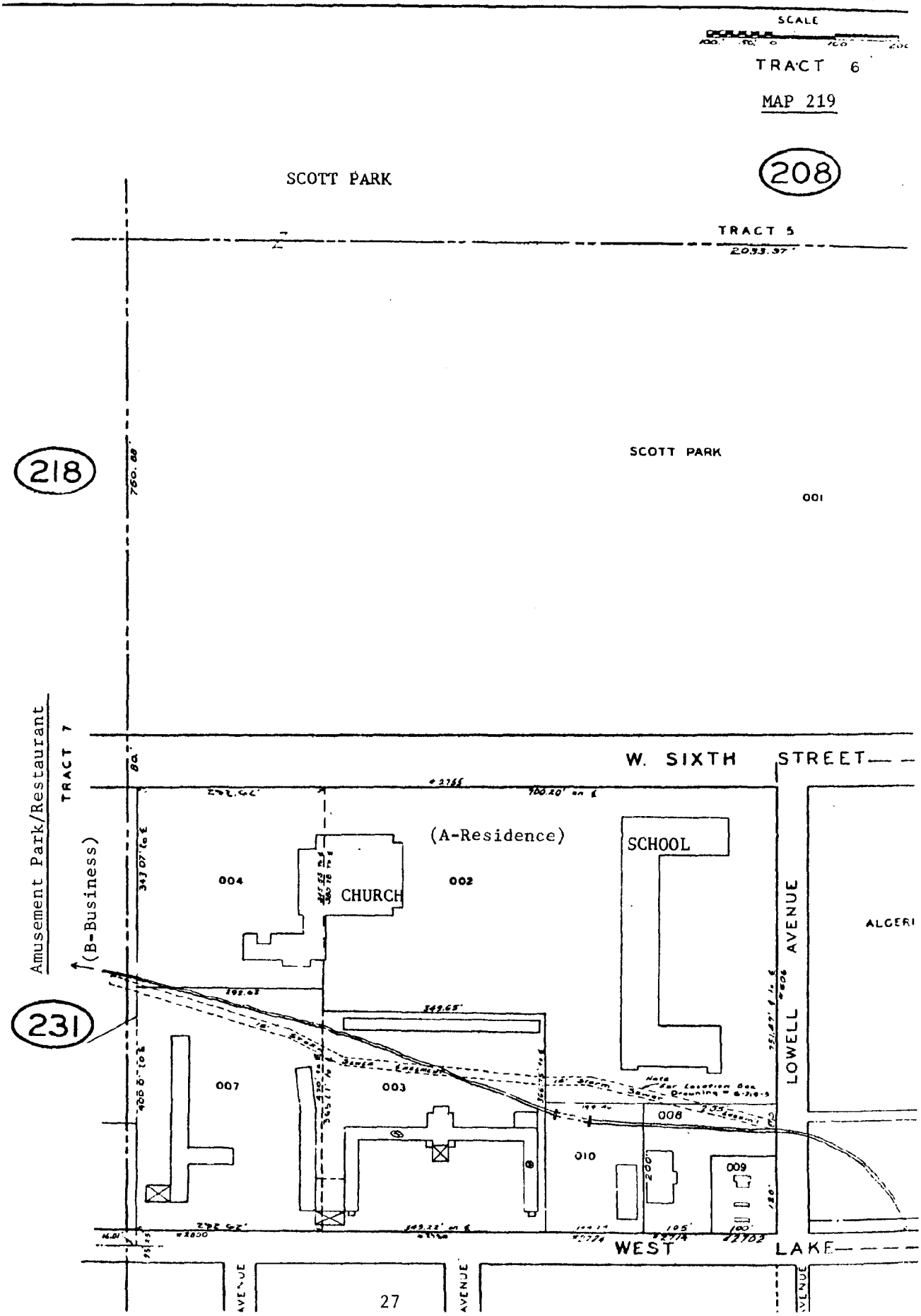


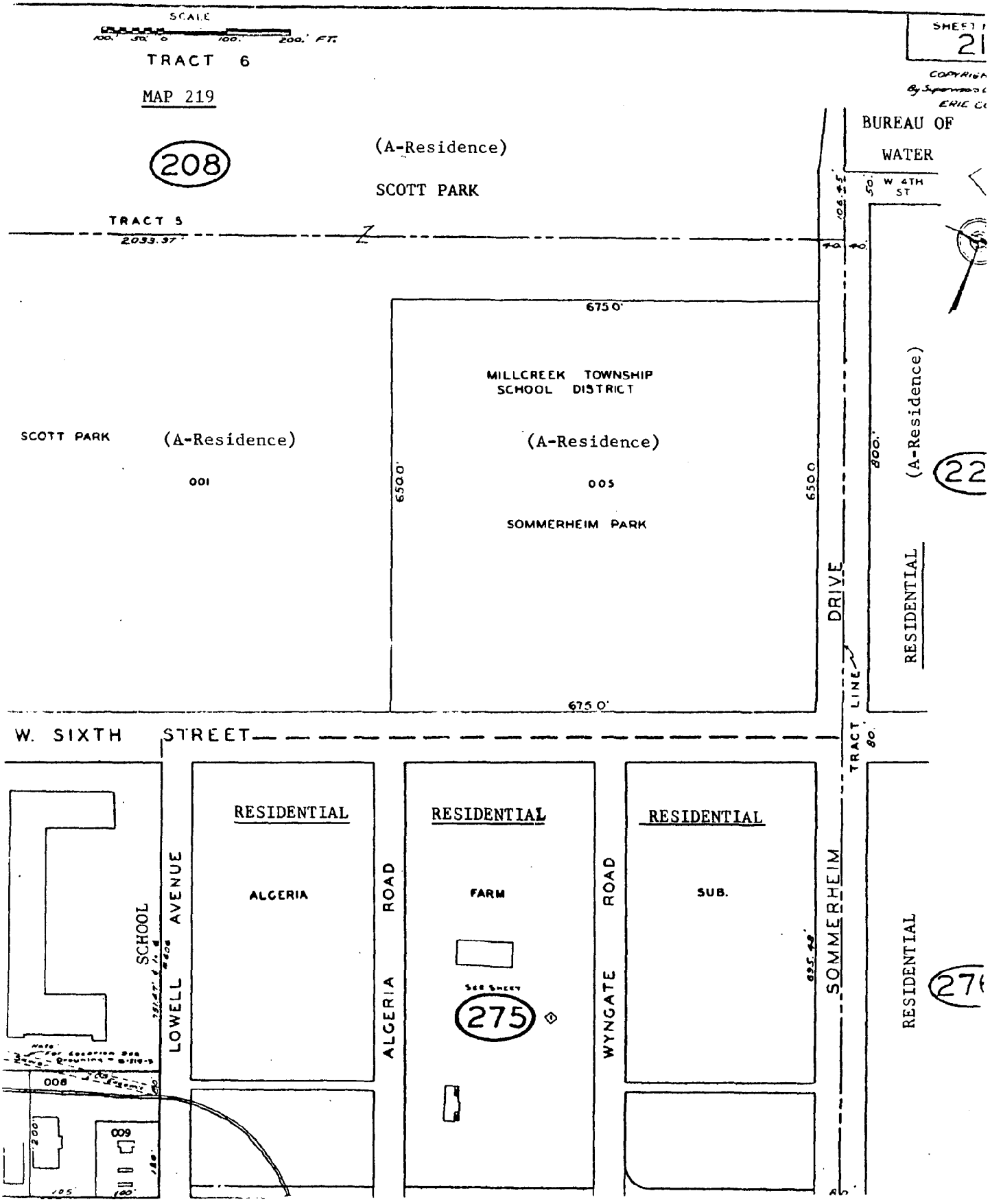

SCALE
100 50 0 100 200FT
TRACT 4
MAP 207
SHEET NUMBER
207
PRESQUE ISLE STATE PARK
2 acres
gravel shoulders
parking
drive
PRESQUE ISLE
STATE PARK
DRIVE
(B-Business)
AMERICAN TRANSPORTATION EXPERTS
drive
drive Retail
ice cream stand
camp grounds
office
fishing bait stand
Restaurant
Motel
Camp Grounds
PENINSULA
MAJERONI
MAJERONI
(A-Residence)
Vacant
(B-Business)
TRACT 4
TRACT 5
208
WILLIAM L. SCOTT
COUNTY PARK
(A-Residence)
concrete curb
end
NELSON
(B-Business)
SEE 281-006
(B-Business)
HEAD LANE,
PRIVATE
RIGHT-OF-WAY
RUN


SCALE
TRACT 4
MAP 281
207
begin curb
NELSON
TRAILER
PARK
007
(B-Business)
(B-Business)
SEE 207-001
VACANT/WOODED
(B-Business)
006
DRIVE-IN MOVIE
THEATER
PRESQUE ISLE
PENINSULA DRIVE-IN
THEATRE, INC.
#503
APARTMENTS
(B-Business)
COUNTRY PLACE
005
APARTMENT ASSOCIATION
RUN
SCOTT
(Mixed Occupancy)
PENINSULA
DRIVE
drive
end curb
drive
begin concrete curb
bait stand
amusement
park entrance
003
TRAILER
PARK
SEE 218-005
(B-Business)
VACANT
cottages
#310
004
(Mixed Occupancy)
B.A.C.
TRACT 4
TRACT 7
TRACT 5
TRACT 6
218

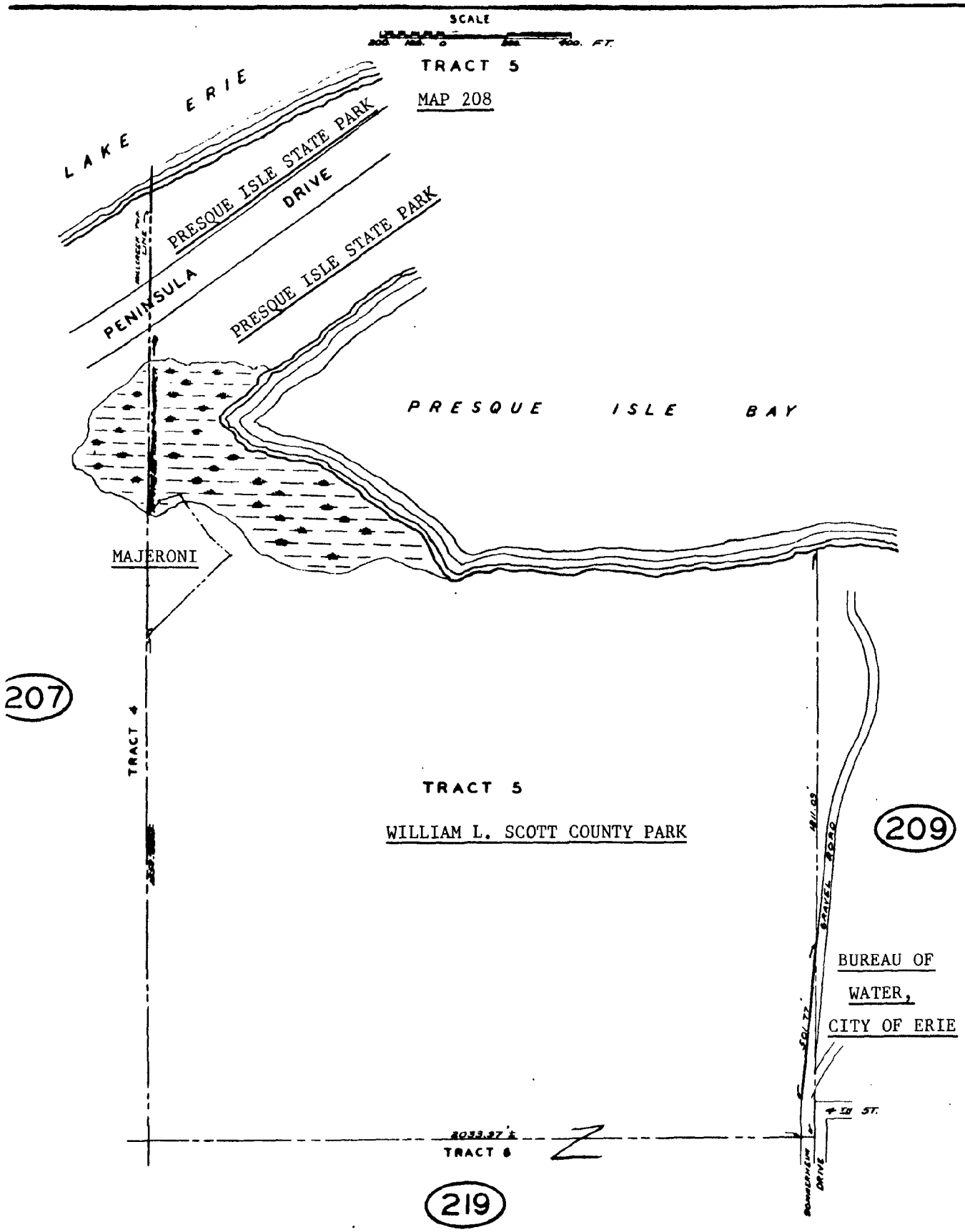

SCALE
50 25 0 50 100FT
TRACT 7
MAP 218
281
217
PENINSULA DRIVE
WEST 6TH
SCHUELER
SCOTT
RUN
(B-Business)
(A-Business)
(C-Residence)
drive
gravel shoulder
trailer
motel
Scot
SCOTT
take-out food
B.A.C., INC.
SEE 218-005
002
004
005
006
7010
7040


SCALE
50 25 0 50 100FT
TRACT 7
MAP 218
281
TRACT 4
TRACT 7
TRACT 5
TRACT 6
SAN SEWER EASEMENT
636'
188.5'
(B-Business)
SEE 281-005
SCOTT
90'
Ditch
005
15' SAN SEWER EASEMENT
DRIVE
207.25' from ℄
175'
109.4'
51.5'
RUN
006
215.0' from ℄
52.0'
80.3'
47.6'
66.4'
50.3'
Ditch
SEE 218-005
2340'
120'
54.84'
60' SANITARY SEWER EASEMENT
6TH
STREET


SCALE
TRACT 6
MAP 219
208
SCOTT PARK
TRACT 5
2093.97'
218
760.00'
SCOTT PARK
001
Amusement Park/Restaurant
TRACT 7
(B-Business)
231
W. SIXTH STREET
(A-Residence)
SCHOOL
004
CHURCH
002
LOWELL AVENUE
ALGERI
007
003
008
010
009
WEST LAKE
AVENUE
AVENUE
AVENUE


TOWNSHIP PROPERTY MAP -- ERIE COUNTY, PA.
SCALE
100' 50' 0 100' 200' FT.
TRACT 6
MAP 219
208
(A-Residence)
SCOTT PARK
BUREAU OF
WATER
W 4TH ST
TRACT 5
2033.97'
675.0'
MILLCREEK TOWNSHIP
SCHOOL DISTRICT
SCOTT PARK
(A-Residence)
001
(A-Residence)
005
SOMMERHEIM PARK
650.0'
650.0'
675.0'
800'
(A-Residence)
22
DRIVE
RESIDENTIAL
W. SIXTH STREET
TRACT LINE
80'
RESIDENTIAL
ALGERIA
RESIDENTIAL
FARM
RESIDENTIAL
SUB.
SCHOOL
LOWELL AVENUE
ALGERIA ROAD
WYNGATE ROAD
SOMMERHEIM
RESIDENTIAL
275
008
009
27

MILLCREEK TOWNSHIP PROPERTY MAP -- ERIE COUNTY, PA.

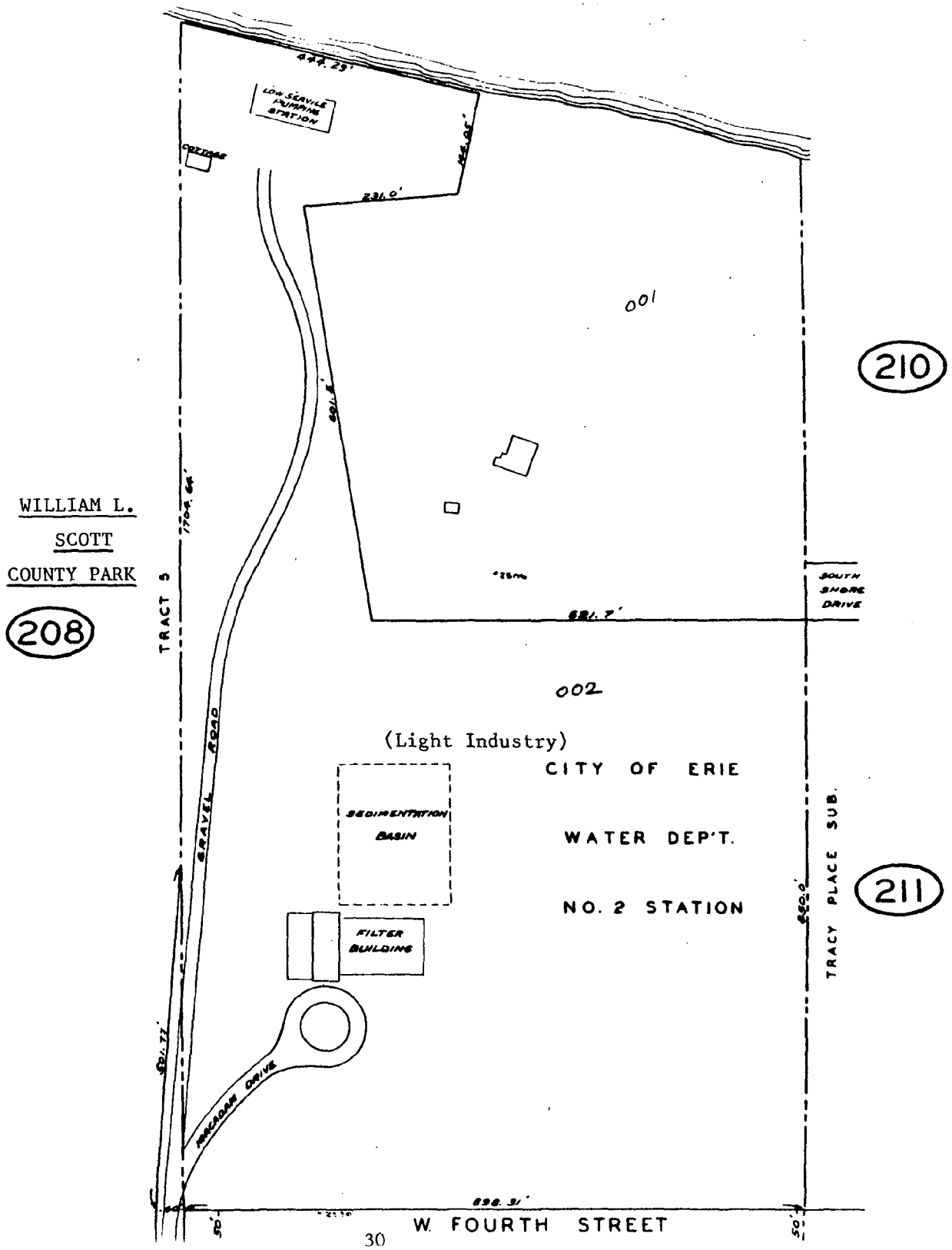


WILLIAM L. SCOTT COUNTY PARK

SCALE

MAP 209

PRESQUE ISLE BAY



DETAILED DESIGN

Detailed design of a bikeway falls into two categories, one is roadway improvements and the second is a bike path. The roadway improvements are for those bikeways which share a right-of-way with a highway, such as Peninsula Drive. The second category, bicycle paths, is for those bikeways which are designed for use by bicycles. The design criteria for both types of bikeways has been published by PennDOT, the Federal Government and Departments of Transportation of other states.

The following pertinent design criteria were extracted from these publications for establishing guidelines for the design of this proposed bikeway.

1. ROADWAY IMPROVEMENTS

There are eight items which are important for upgrading existing rights-of-way for bicycle travel. They are as follows:

A. Drainage grates
B. Railroad crossings
C. Pavements
D. Traffic control devices
E. Shoulders
F. Wide curb lanes
G. Bicycle routes
H. Bicycle lanes

A summary of those items important to this study are as follows:

A. Drainage grates are slotted. Many of the grates can catch bicycle wheels. Therefore, any drainage grate should have the grate openings perpendicular to the direction of travel. Sometimes grates are recessed in the pavement or are raised above the pavement. These grates or manhole covers should be made flush with the pavement.

B. There are no railroad crossings within the study area.

C. Pavements which are old, containing bumps, potholes and cracked or broken edges are hazards to bicyclists.

D. The only signals in this study area are at West 6th Street and Peninsula Drive. This signal changes as the demand changes. There is no possibility for resignalization. The Manual on Uniform Traffic Control Devices (MUTCD) should be consulted for all signs and markings for a bikeway.

E. Shoulders are very acceptable for use as a bike lane. If shoulders are to be utilized they should:

1. Be smooth, paved and delineated from a motor vehicle lane.

2. Be the minimum width of four feet. If a shoulder is less than four feet, it should not be signed as a bikeway. If the traffic speed is greater than 35 m.p.h. or if there are a lot of trucks, buses and recreational vehicles or if there are static obstructions existing on the right side, additional width is desirable.

F. Wide curb lanes are the best way to accommodate bicycles and traffic. The lane must exceed 12 feet. Motorists should not need to change lanes to pass bicyclists. It is recommended that a lane 14 feet wide is best. The extra width provides more maneuvering room for drivers exiting from driveways. The width can be wider for drainage grates, longitudinal ridges between paving and gutter sections or for parking. When wider than 14 feet, striping should be utilized to discourage the operation of two motor vehicles in one lane.

G. Bicycle routes may or may not be signed and identified. Because of the amount of traffic in this study area, it should be advantageous to sign any bikeway utilizing the MUTCD system.

It is generally felt that bicycle traffic cannot be diverted to a less direct alternate route unless the favorable factors outweigh the inconvenience factors. Improvements such as safe grates, smooth pavements and railroad crossings are very important. Design factors such as volume, speed and type of traffic, parking considerations, grade and sight distance.

H. Bicycle lanes are a satisfactory solution for the movement of bicyclists. Where road space permits, a delineated lane places bikes and cars in their own lanes and eliminates many potential conflicts between the two modes of travel. Bicycle lanes should be four feet wide for noncurbed roads and five feet wide when curbs are present. All bike lanes are one way and follow adjacent motor vehicular traffic. Bike lanes can complicate intersections such as West 6th and Peninsula Drive, where right-hand turns cross in front of through traffic.

2. BICYCLE PATHS

Bicycle paths are facilities on exclusive rights-of-way for bicyclists. Specially designed travel ways for bicyclists are similar to designing highways; however, there are certain features which are different and must be included in the design. Those design features which are necessary for consideration of the design of a bicycle path are as follows:

A. Width and clearance
B. Design speed
C. Horizontal alignment and superelevation
D. Grade
E. Sight distance
F. Intersections
G. Signing and marking
H. Pavement structure
I. Structures
J. Drainage
K. Lighting
L. Restriction of motor vehicle traffic
M. Multi-use

Notes on the design requirements are from publications of PennDOT and augmented from other similar design sources.

A. The minimum width of a bike path (two-way) varies with the volume and composition of traffic.

1. Eight feet: There is a low volume of bicycle traffic and only occasional pedestrian traffic. The geometric design is good and provides good passing opportunities and the soil conditions are adequate to support heavy maintenance vehicles.

2. Ten feet: for most occasions.

3. Twelve feet: When there is expected shared use with pedestrians and joggers or expected heavy bicycle traffic; when the soils of the path will not support heavy service trucks; when grades are steep and when bicyclists might be inclined to ride two abreast.

The closest vertical obstruction from the edge of the paving should be no closer than three feet. There should be two feet of lawn adjacent to the path. A wider lawn area on either side of the path might attract the joggers. Where a two-way bike path abuts a highway, a vertical barrier should separate the two uses. The minimum height should be 4.5 feet.

The actual space dimensions required by a bicyclist in order for him to feel comfortable include lateral clearance between bicyclists, obstructions and road hazards. The average adult bicycle is two feet in width at the handle bars and 5.75 feet in length. The vertical height of the average mounted bicyclist is 7.4 feet. Pedal clearance above the trail surface is about six inches at the bottom of the pedal downstroke. One governmental publication suggests a vertical clearance of 8.2 feet, a maneuvering clearance of 1.5 feet to 2 feet on each side of the handlebars and a horizontal clearance of 2 feet from the edge of the pavement to any obstruction. The passing distance between bicyclists is given at 1.3 feet. However, the University of California, Los Angeles Branch, allows two feet between bike riders in its study.

B. The speed at which a bicyclist travels safely and comfortably depends upon the geometric features of the trail, the sharpness of the curves, the depth of the hills, as well as the width of the trail. The speed also depends on the cyclist's physical condition, the type of bicycle, its gearing arrangement and the wind.

Studies show nearly all bicyclists travel between 7 and 15 m.p.h. with the average traveling at about 10 m.p.h. Normal speeds of 30 m.p.h. are appropriate road design speeds on long down-hill slopes, where grades exceed 4%.

C. For most bike paths, the standard cross-pitch of 2% is an adequate superelevation. This cross-pitch also encourages good surface drainage. The maximum superelevation is 5% and is utilized in special instances where curves are located on steep grades.

The following chart shows the recommended design radii for paved bicycle paths.

Design Speed (m.p.h.)	Design Radius (feet)
20	95
25	155
30	250
35	390
40	565

When curves have a radius smaller than those indicated above, signs should be present to indicate substandard curves. Smaller radii might be the result of topography, the right-of-way or other considerations. Widening the pavement on curves can help make the ride easier.

The minimum horizontal curvature of the trail must be consistent with the road design of the trail. In other words, the faster the bicyclist goes, the more room he needs on the curves. Curves on level land do not pose much of a problem other than requiring more room for the bicyclist, who may ride toward the inside of a curve, although that may be the wrong side of the road for the direction traveled. This situation may be exaggerated when the curve occurs on a hill. Then the bicyclist going up the hill will ride the outside of the curve because this is the longest route to the top of the hill. The bicyclist coming down will ride the inside of the curve and probably at a fast clip. Both bicyclists, while at the widest arc of the curve, will be riding on the wrong side of the road and neither one is likely to return to the right side of the road until the curve maneuver has been completed. The amount of room needed should be increased in proportion to the length and the steepness of the hill. These radius design values apply to the highest speed of the bicyclist:

1. Speed

    a. in excess of 30 m.p.h. have been observed
    b. most speeds are 10 to 15 m.p.h.
    c. for design proposed, 20 m.p.h. recommended
    d. adjust design speed to grade

2. Grades

    a. Ascending
        1. one directional facility, 10 m.p.h.
        2. maximum desirable grade 5%
        3. special conditions, maximum 7% for 150 feet, provide rest areas
        4. walking lanes

    b. Descending
        1. 3% to 7%--30 m.p.h.
        2. 7% and higher--40 m.p.h.

Bicycle paths with long, steep grades can be switched back to facilitate uphill movement and require downhill breaking. The requirement of downhill breaking can reduce the danger of runaway speeds. Proper signing can warn the bicyclists of short radii and low design speeds.

It is generally felt that the design speed of 20 m.p.h. should be utilized for level bikeways. On descending grades of 3% to 7%, 30 m.p.h. should be utilized and grades over 7%, 40 m.p.h. utilized. However, as previously pointed out, excessive speeds can be reduced through the use of curves.

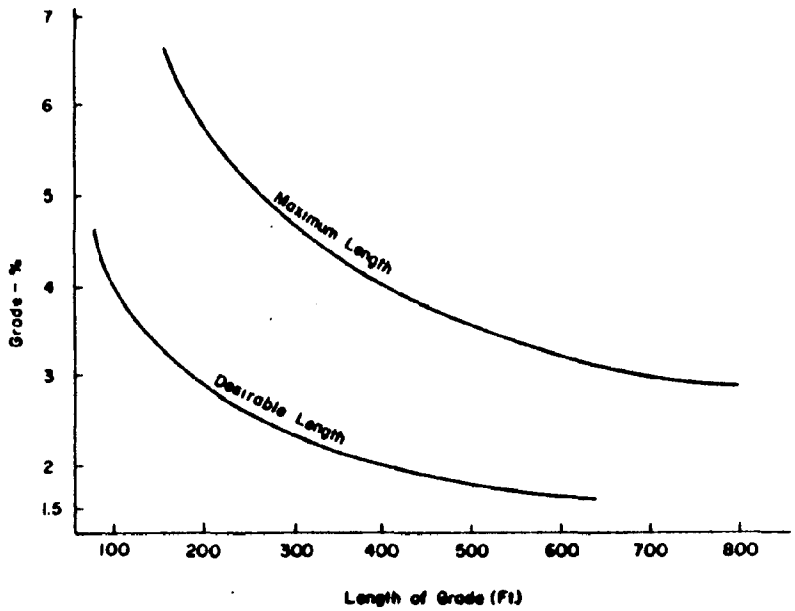
For example, if a single lane bikeway is ascending, design speed may be reduced to 10 m.p.h. on the steeper grades. These design speeds should be comfortable to emergency vehicles, bikers and pedestrians.

Design Speed (m.p.h.)	Design Radius (feet)
10	15
15	35
20	70
25	90
30	125

Small deflections less than ten degrees in alignment should not require a curve because an angle point should suffice.

The above material presented on design speed is based upon making the ride comfortable and for planning a bicycle path over normal terrain. The purpose of this study is to develop the feasibility of breaching the escarpment of Presque Isle Bay.

D. The surface grade greatly affects the speed and comfort of the cyclist. The chart below shows the relationship between the rate of grade and the length of grade. The curves indicate what distance a bicyclist can make at a particular grade. As might be expected, the steeper the grade, the shorter the distance. A desirable maximum grade is 5% for special conditions. A maximum of 7% for a distance of 150 feet is permissible. When the grades are longer or greater than what is recommended by the chart, a level or nearly level length of 200 feet should be inserted at the end of the recommended length before continuing the grade. Where conditions do not allow the adjustment of grade or alignment the use of rest areas or walking lanes adjacent to the bikeway should be considered to aid the cyclist in recuperating. Cuts and fills should be kept to a minimum and be only where necessary to maintain the cross slope and pavement template. Bicyclists will avoid bikeways that are too strenuous.



Relationship of Rate to Length of Grade

E. The sight distance required by a bicyclist is principally a matter of speed. If traveling fast and in the open on a wide trail, the cyclist will need a long sight distance. If the trail is narrow or dimly lit, as in tunnels or wooded sections, speeds will diminish and so will the required sight distance.

The eye level of the bicyclist from the road surface is about the same as the motorist, about 3.75 feet. Other sources feel the eye height is 4.5 feet. Here the similarity ends. The line of sight for the motorist is level and sight distance is long. Obstructions of less than six inches are of small consequence. But the line of sight of the bicyclist is down and, therefore, sight distances are much shorter. Very small road obstructions, furthermore, pose a real threat to bicycle stability.

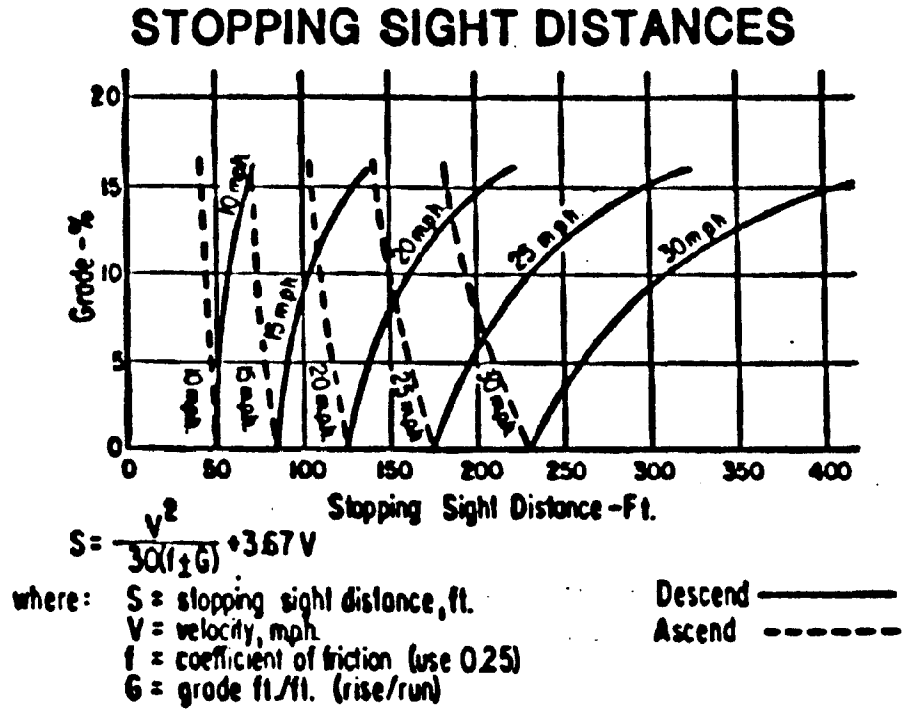
When there is a change in grade, vertical curves must be added in the design of the alignment to increase the sight distance.

Sight distances are dependent on the design speed of the bicycle path and the profile of the grades. Criteria for sight and stopping distances for downhill gradients are given on the following page.

Two charts from the Federal Register follow, also showing detailed sight criteria.

The distance required to stop a bicycle is directly related to the surface gradient and the speed of a bicycle. Stopping distances are based on a perception reaction time of 2.5 seconds. The resistance factor is suitable for bicycles equipped with good brakes on a single wheel operating on a clean, dry surface.

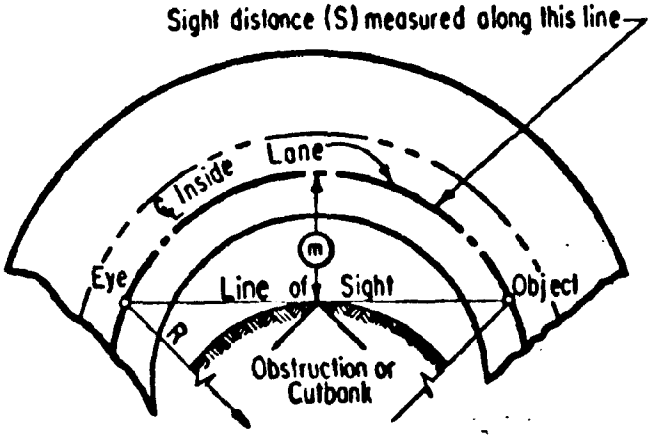
Figure 4



(Metric conversion: 1 ft. = 0.3m, 1 mph = 1.6 km/h).

Figure 5

LATERAL CLEARANCES ON HORIZONTAL CURVES



Line of sight is 2.0' above ℄ inside lane at point of obstruction.

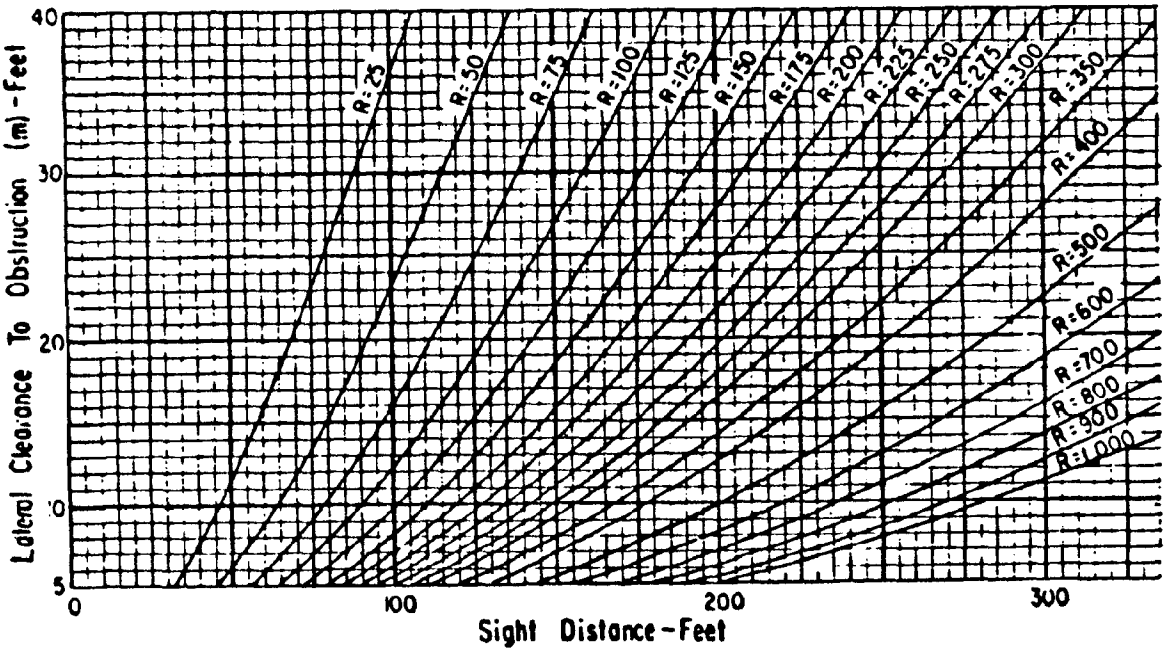
S = Sight distance in feet.
R = Radius of ℄ inside lane in feet.
m = Distance from ℄ inside lane in feet.
V = Design speed for S in mph.

Angle is expressed in degrees

$$m = R\left[\text{vers}\left(\frac{28.65S}{R}\right)\right]$$

$$S = \frac{R}{28.65}\left[\cos^{-1}\left(\frac{R-m}{R}\right)\right]$$

Formula applies only when S is equal to or less than length of curve.



(Metric conversion: 1ft. = 0.3m.)

BILLING CODE 4910-22-C

Minimum Sight Distances for Various Grades

Design Speed	Downhill Gradient 0%	5%	10%	15%
	Stopping Sight Distance in Feet			
10 mph	50	50	60	70
15	85	90	100	130
20	130	140	160	200
25	175	200	230	300
30	230	260	300	400
40	360	415	500	680

F. Where highways and bicycle paths meet, particular attention must be given to the intersection. In this study area, there should be few problems, since an intersection will most likely be implemented as a roadway improvement. All signing should conform with MUTCD.

G. Signing and marking should be according to MUTCD. On two-way bicycle paths a center line is important to separate the opposite directions of travel.

H. The construction of a bikeway is very similar to the construction of a highway, except the width of a bikeway is usually narrower than a road. In a natural environment this narrow width can create problems with construction methods and costs. In order to preserve the natural environment, construction should be limited to the width of a right-of-way--10, 15 or 20 feet. This means unless turn-arounds for construction are made, vehicles will have to run excessive lengths to get back to the beginning. Where poor soils are encountered, rutting will be a problem, and design/construction procedures may require additional drainage or subgrade and base work.

It is safe to assume heavy trucks and equipment will be utilized in the construction of a bikeway. Rainfall in Erie County is fairly regular and consistent throughout the year. Much of the soil in Erie County and some of the soils of Scott Park are clay and sometimes slow in drying out. Therefore, again one can expect there could be problems in rutting and slow construction. The previous soils map and the soil survey of Erie County will provide good soils information.

In order to construct a bikeway, it should be assumed that a good base will be required for two reasons. First, to support construction

equipment, and second, to support maintenance and emergency vehicles after the bikeway is in operation.

The surfaces of a bikeway fall into two categories:

1. Stabilized surface
    a. Portland cement concrete paving
    b. Bituminous/asphaltic concrete
        1. Full depth
        2. Base and surface treatment
    c. Wooden walks

2. Unstabilized surface
    a. Crushed stone
    b. Soil, cement and seal coat
    c. Soil, asphalt and seal coat
    d. Stabilized earth
    e. Fly ash, soil, hydrated lime and seal coat

Each surfacing has a place in bikeways. Determination of material selection should consider:

1. Natural features
    a. Soils
    b. Geology
    c. Hydrology--surface and subsurface water

2. Design features of bikeway
    a. Gradient of bikeway (surface erosion)
    b. Surface (smooth, compact, surface temperatures)

3. Other features
    a. Safety
    b. Construction costs
    c. Annual maintenance required
    d. Aesthetics of material in environment
    e. Local construction experience

Stabilized surfaces are the most expensive and should have the need for the lowest maintenance. Wooden walks are best utilized over unstable ground areas that are extremely wet or in areas where the natural vegetation cannot be disturbed.

Concrete and bituminous paving are very common materials and are best utilized in most other situations. Possibly the width of a bikeway will determine the material, since most bituminous paving machines pave a swath between eight and twelve feet wide. Price may also be a deciding factor of the material utilized.

Unstabilized surfaces have several drawbacks. One, there is not a lot of construction experience in utilizing some of the construction methods, and second, there may not be the annual maintenance money in local governmental budget for upkeep of the bikeway. Also, more loose rocks and gravel could be on the surface and make the surface

slippery. One alternative to the lack of experience might be the construction of a demonstration or test bikeway utilizing the unstabilized surface materials.

A bikeway built of the unstabilized surface materials should be less expensive to build than a bikeway constructed with stabilized materials.

The existing fit trail in Scott Park was constructed by the placement of bank gravel, six inches deep, over the existing ground and then placing bark or wooden chips on top. In areas of dry soils, the surface is firm; however, in areas of wetter soils, the edges of the trail will develop ruts. Bikers have utilized this fit trail for riding.

A comparative cost of the different materials is as follows. Because of the lack of construction experience in the Erie area with the soil, cement, asphalt, stabilized earth and fly ash methods, they are more of a guess rather than facts based upon past construction history.

Comparative Costs

Material	Cost Per Square Foot
1. Stabilized surface	
A. Portland cement concrete paving 4" concrete and 4" bank gravel	$2.50
B. Bituminous/asphaltic concrete	
1. Full depth, 6" deep	$1.50
2. Base and surface treatment 2½" asphalt and 6" PA 350	$1.05
3. Wooden walks	$10.00
2. Unstabilized surface	
A. Crushed stone, 6" deep	$.45
B. Soil, cement and seal coat	(1)
C. Soil, asphalt and seal coat	(1)
D. Stabilized earth, bank gravel 6" deep	$.15
E. Fly ash, soil, hydrated lime and seal coat	(1)

(1) These three construction methods have not been utilized in the Erie area to any great extent, and the contractors do not have the construction experience in these methods; therefore, accurate prices are not readily available for construction comparison. The best way to determine if one of these methods is economically feasible is to take alternative bids on the surfacing design at the time of bidding.

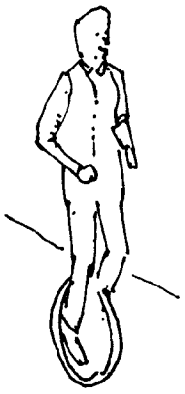
I. There are no anticipated bridges or tunnels required for this bike path.

J. The cross sloping of a bike path at the rate of 2% removes the water. Sloping the paving in one direction is preferred since it will simplfy construction and drainage. It can be safe to assume a subdrainage system and storm drains will be required in the escarpment area. A subdrainage system will be required in areas of clay soil. Upon completing the paving, all earth will have to be seeded.

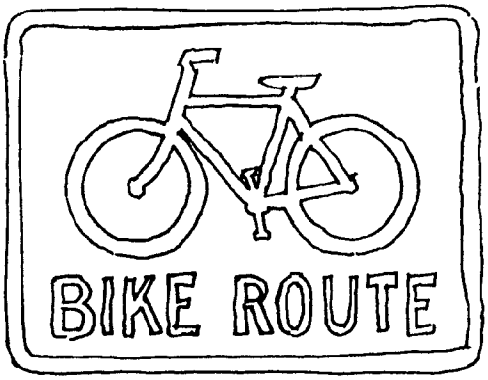
K. Lights should be omitted for several reasons. First, Scott Park closes at dark or earlier. Second, the roadway or bikeway on Presque Isle State Park is not illuminated.

L. Entrances to the bikeways should have gates to keep out vehicles, but still provide for the entering of service vehicles.

M. Short of having police patrols, the proposed bikeway in Scott Park as well as to Presque Isle State Park, will be utilized by all other modes of transportation. The bicycle paths should be designed accordingly.




XING


BIKE ROUTE

INTERIOR BIKEWAYS

The design goals of the interior bikeway within Scott Park are to:

1. Be unique. The park contains only 108 acres of land. There is limited space within the park boundaries in which trails can be constructed.

2. Be multi-use. There will be no way to control the various modes of circulation. It can be expected that the following types of park users may utilize the proposed bikeway: pedestrians, hikers, joggers, bird watchers, cross country skiers, wheeled sleds pulled by dogs (these have been observed in the Park), roller skaters and mopeds. Potentially, there is a problem of controlling off-the-road vehicles such as snow-mobiles, motorcycles and mini-bikes. Every effort should be made to eliminate this type of motorized transportation.

3. Limit vehicular circulation to emergency and maintenance vehicles.

4. Provide interpretive information along the bikeways.

5. Eliminate night lighting since the Park is generally closed at dark.

6. Make the proposed bikeway to Presque Isle State Park part of the interior bikeway if the sanitary sewer easement is utilized.

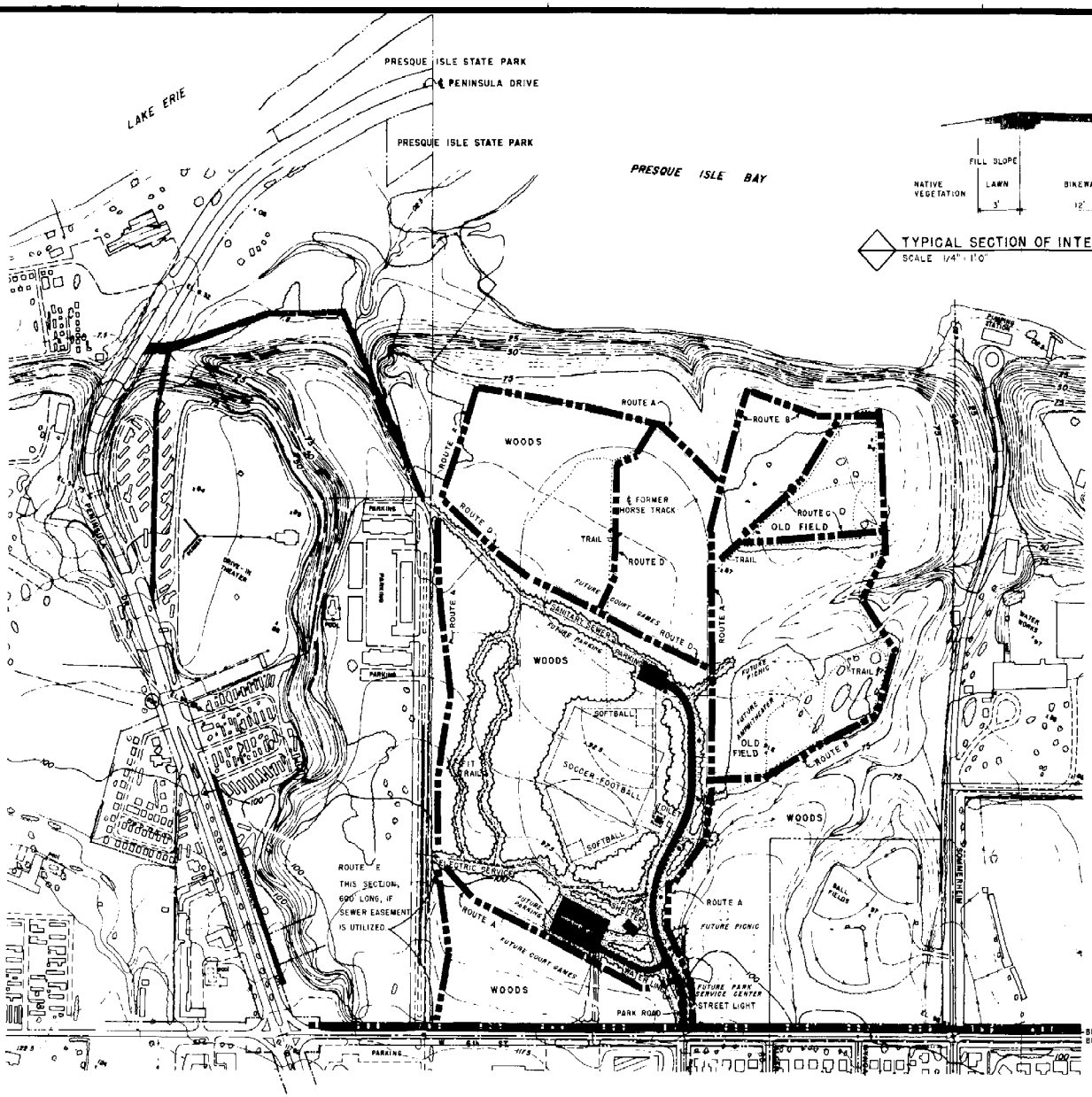
7. Make the bikeways circular in nature.

8. Where possible, utilize the existing paths as a basis for the alignment of the proposed bikeway.

9. Provide bicycle storage racks as the demand requires.

10. Design the route to discourage speedy rides or racing. This may be accomplished by utilizing minimum radii at turns. If bicyclists require long or fast rides, the flat highway through Presque Isle State Park may be utilized. A trip around the Peninsula is about 15 miles. To further discourage fast bicycle traffic, the interior bikeways could be constructed with an unstabilized surface such as crushed stone or bank gravel.

11. Make the bikeway fit into the natural environment of Scott Park.



℄ DRAINAGE SWALE

FILL SLOPE | CUT SLOPE

NATIVE VEGETATION | LAWN 3' | BIKEWAY 12' | LAWN 3' | NATIVE VEGETATION

TYPICAL SECTION OF INTERIOR BIKEWAYS
SCALE 1/4" = 1'0"

SUMMARY OF BIKEWAYS

	LENGTH
ROUTE A	6000 FEET
ROUTE B	2700 FEET
ROUTE C	1200 FEET
ROUTE D	1900 FEET
ROUTE E	600 FEET

SANITARY SEWER EASEMENT
EXISTING PARK FACILITIES
FUTURE PARK FACILITIES
PROPOSED INTERIOR BIKEWAYS

PLAN
SCALE 1" = 200'

CONTOUR INTERVAL - 2.5 FEET

300 200 100 0 100 200 300 400 FEET

SOURCE MILLCREEK TOWNSHIP STORM DRAINAGE STUDY MAPS

ALBERT L. MASSEY
LANDSCAPE ARCHITECT
1062 WEST 26th STREET
ERIE, PENNSYLVANIA 16508

No	Date	Description
		Revised

north

FEASIBILITY STUDY
BIKEWAYS
IN AND ADJACENT TO
WILLIAM L. SCOTT COUNTY PARK
ERIE COUNTY, PENNSYLVANIA

Drawing: INTERIOR BIKEWAYS

Drawn | Checked
Scale: NOTED
Date: SEPTEMBER 30, 1981
Number: 81-12

COST ESTIMATE
INTERIOR BIKEWAYS

Item	Quantity	Unit Cost	Subtotal
Clearing & Grubbing	1-lf	$2.05	$2.05
Site Grading	2.7 sy	.50	1.35
Subgrade, 6"-PA 350	1.33 sy	3.90	5.20
Seeding	24 sf	.10	2.40
Storm Drainage	1-lf	1.00	1.00
Total			$12.00
Bituminous Paving, 2½"	1.33 sy	6.00	8.00
Topsoil, 4"	.15 cy	15.00	2.25
Total, if paved bikeway			$22.25

Route A	6000' long	@ $12.00 per lf =	$72,000.00
Route B	2700' long		32,400.00
Route C	1200' long		14,400.00
Route D	1900' long		22,800.00
Route E	600' long		7,200.00
Total Cost, Interior Bikeways			$148,800.00
Design Fee @ 8%			11,904.00
Total			$160,704.00

BIKEWAY TO PRESQUE ISLE STATE PARK

This study provides a basis for making the decision for choosing the best way to breach the escarpment of the Bay.

The decision to choose an alignment will depend upon those people in the position to choose what is felt to be the simplest route to Presque Isle. Some of those items which might be important in the decision making process include the following:

A. Safety
   1. From motorized vehicles
   2. Of the users, if the bikeway is isolated
   3. Of unintended design uses of the bikeway, such as pedestrians, skate boards, wheelchairs, off-the-road motorized vehicles, cross country skiers, etc.

B. Costs

C. Land acquisition, condemnation

D. Disturbances to the land (loss of mature vegetation and potential soil erosion problems)

E. Aesthetic qualities of the route
   1. Views
   2. Natural environment
   3. Recreational experience provided
   4. Uniqueness of the bikeway

F. Physical design of the bikeway--The length and steepness of the slope through the escarpment

G. Compatibility with adjacent land uses

Once a decision is made on the best alignment, a detailed survey at a scale of 1" = 50' and an alignment profile should be made. Based upon the up-to-date survey information, detailed working drawings and specifications can be made and competitive bids obtained for the construction of the bikeway.

At this time, it would appear as if PennDOT will provide 75% and the residents of Erie County 25% of the funding.

Conceptual Design

The County may want to develop some general philosophy on the use of proposed bikeways in this study, particularly before the bikeways are constructed. Some of the considerations which should be addressed in the development of the policy include the following:

1. Use--singular or multi-use trail facility. Other potential users include pedestrians, joggers, horses, motorized vehicles and additional winter activities such as cross country skiing and snowmobiling. Conflicts can be created because of the different speeds of these linear recreational activities.

2. Access to Presque Isle State Park--The only good access to the Peninsula is by motor vehicle. Other forms of transportation may well use a bikeway.

Hikers, Joggers, Bicyclists

It can be safe to assume that any bikeway constructed in Scott Park or connecting Scott Park and Presque Isle will be utilized by persons other than bikers. Unless there is some means to enforce a path for bikes only, it should be safe to assume that pedestrians, joggers and hikers will utilize the bikeway.

Bicyclists can be novices or casual riders, having minimum skills and endurance, or they can be expert riders with the ability to maintain average speeds over ten miles per hour. Speeds of a cyclist will vary with the type of bike and gears, gradient and surface of bikeway, direction and magnitude of the wind and the physical condition of the cyclist.

Studies have found that bike speeds can vary between 7 and 15 m.p.h. and average speeds being 10 to 11 m.p.h. Some bikers can obtain speeds up to 25 m.p.h., but this is usually not a sustained rate of speed.

Pedestrians and hikers will travel at the rate of three to four miles an hour, while experienced joggers can obtain rates upwards of ten miles per hour. The difference in speed can create potential accidents for the users. Therefore, the best way to accommodate a potential problem is to oversize the bikeway or provide an adjacent walkway.

Within the study area, the options of breaching the escarpment are in three areas:

1. Peninsula Drive, a State highway, with a right-of-way which is 120 feet wide.

2. The Millcreek Township sanitary sewer easement is on private land belonging to Majeroni. A viable route can be made connecting the bikeway of West 6th Street with a bikeway through Scott Park, then through the property containing the sanitary sewer easement, then along the base of the escarpment to Peninsula Drive and along the right-of-way of Peninsula Drive. This solution will require the purchase of land from one land owner.

3. The Sommerheim Drive alignment would connect the bikeway of West 6th Street to the Bayfront. A bikeway could be constructed across the north boundary of Scott Park and connect with that portion of the Millcreek sewer easement and on to Peninsula Drive and Presque Isle State Park. This solution will require the negotiations with the Bureau of Water and the possible acquisition of a right-of-way along the present alignment of Sommerheim Drive. Because of the

water mains in Sommerheim Drive, utilization of a portion of the Millcreek Township Park may be advisable. Land acquisition can be a problem. Therefore this could rule out the sanitary sewer easement and Sommerheim Drive. However, before a final decision is made, some exploratory talks should take place. Property owners along these two routes may not want the additional traffic and the problems which will arise, particularly littering and possible vandalism. If this is the case, condemnation will be necessary.

Immediate overall advantages of a bikeway in one of the alignments are:

A. Peninsula Drive--make a complete refurnishing of the perimeter of right-of-way and correct some adjacent drainage problems.

B. Sanitary sewer easement--construct a portion of a bikeway in Scott Park, expand the boundaries of Scott Park and correct the erosion problems in the sewer easement.

C. Sommerheim Drive--reconstruct the existing roadway, possibly expand the Park's boundaries, correct the storm drainage problems along the existing road and open the Bay frontage for recreation.

Land Acquisition

If the alignment to Presque Isle is other than Peninsula Drive, land or a right-of-way will have to be acquired. The maximum option would be to acquire all the land between Scott Park and Presque Isle State Park. This parcel is designated on the assessment maps as parcel 207-001. The acreage is not listed, but it would appear that there are between 15 and 20 acres in this parcel.

The minimum option for land acquisition is to acquire between three and five acres along the sewer easement. This land would allow for the placement of the bikeway between Scott Park and Peninsula Drive and the following of Peninsula Drive to the State Park boundary. This option would disturb the existing commercial venture the least and allow for camping and tourist/vacation oriented business adjacent to the State Park.

Because there does not appear to be money for the acquisition of Park lands, the minimum land purchase option is being addressed. In lieu of purchasing the land there is also the option of acquiring a right-of-way easement or an outside possibility of a land gift.


SCOTT
BIKE
WAY
PARK

Design Option of the Proposed Bikeway to Presque Isle State Park via Peninsula Drive

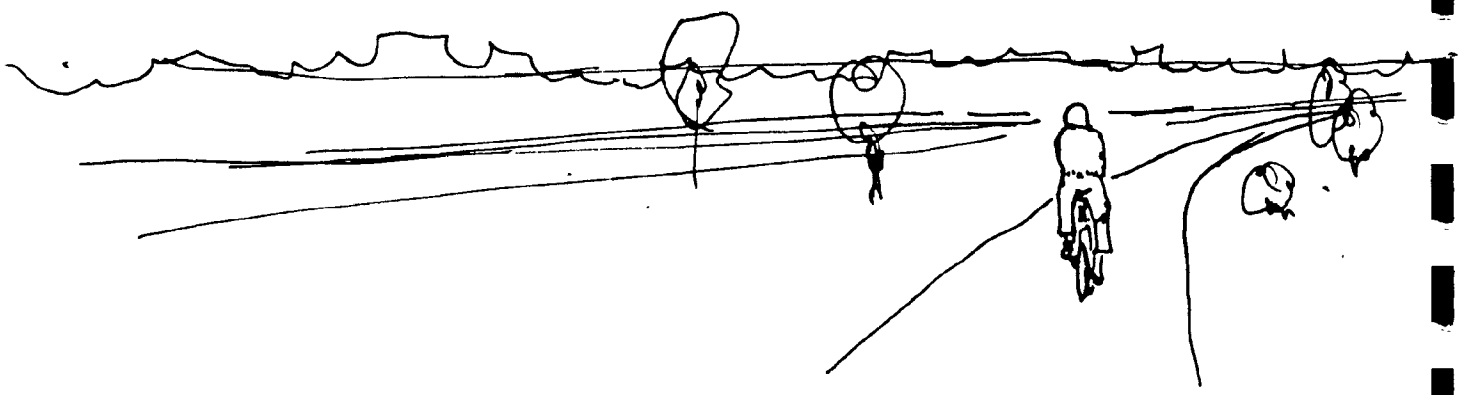
Utilizing the existing right-of-way of Peninsula Drive, a bikeway can be constructed. The existing roadway can be expanded to include a bike lane on each side of the existing paving.

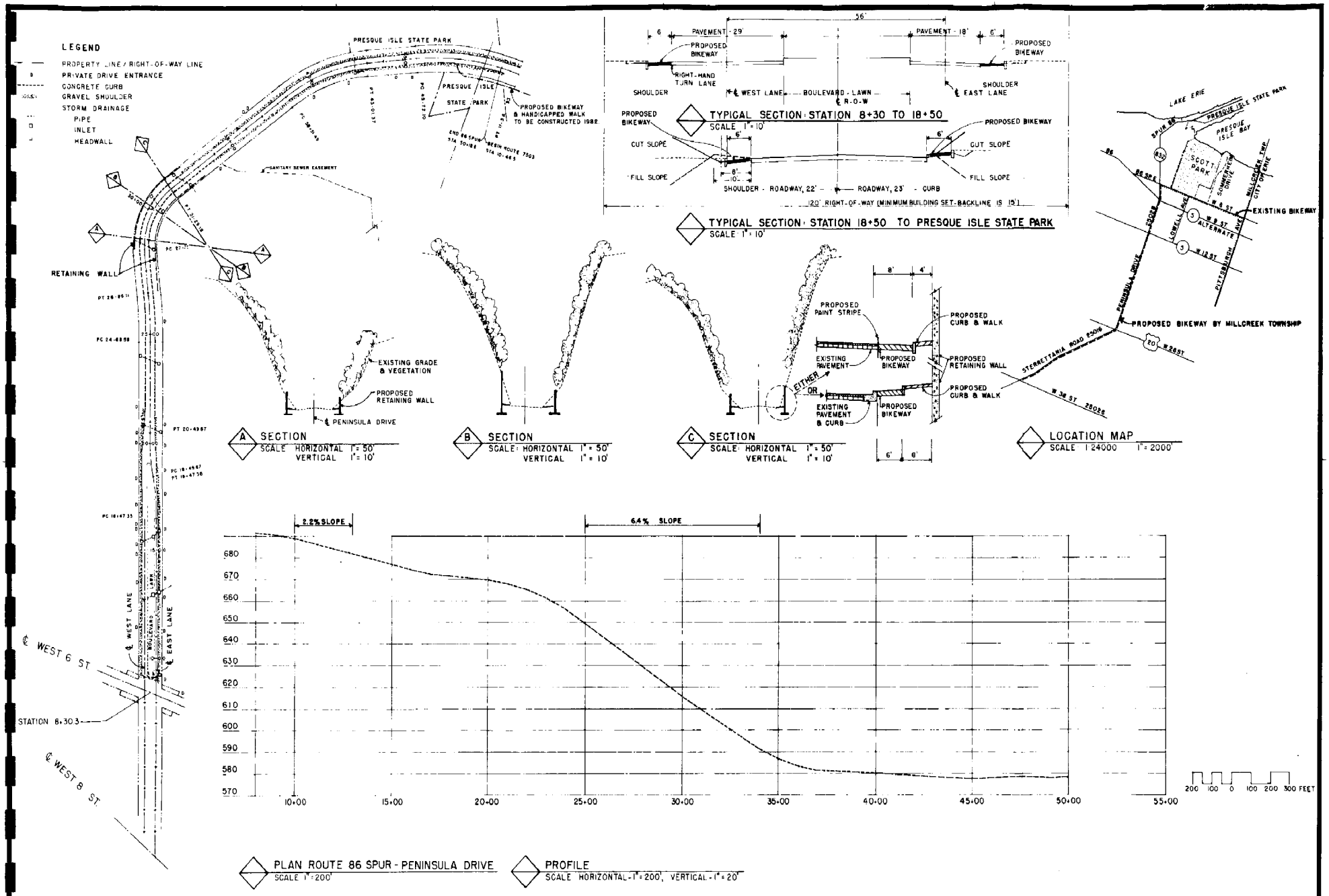
Widening the bikeway will create some minor problems near the bottom of the slope where the steep banks abut the highway. Since there is development at the top of each of these steep banks, retaining walls may be the simplest solution to widening the road. The existing steep slopes appear to have at least a rise of one foot vertically for every two feet horizontally. Earth with that steep of a slope should not be altered.

The retaining walls have to be stepped back from the edge of the bikeway to provide adequate clearance for the bicyclists. This flat portion set aside for clearance is the beginning of a sidewalk. Therefore a sidewalk could be constructed along the edge of the right-of-way.

Because this drive is the entrance to Presque Isle State Park, street trees should be planted along the right-of-way.

Since this work is within the jurisdiction of PennDOT, all design decisions will be made in Harrisburg. The use of materials and quantity of materials is a guess based upon the existing roadway.





SOURCE: PENN DOT CONSTRUCTION DRAWINGS

ALBERT L. MASSEY
LANDSCAPE ARCHITECT
1062 WEST 26th STREET
ERIE, PENNSYLVANIA 16508

No	Date	Description
		Revised

north

FEASIBILITY STUDY
BIKEWAYS
IN AND ADJACENT TO
WILLIAM L SCOTT COUNTY PARK
ERIE COUNTY, PENNSYLVANIA

Drawing: ALIGNMENT FOR THE PENINSULA DRIVE RIGHT-OF-WAY

Drawn | Checked
Scale: NOTED
Date: SEPTEMBER 30, 1981
Number: 81-12

COST ESTIMATE
PENINSULA DRIVE RIGHT-OF-WAY

Item	Quantity	Unit Cost	Subtotal	
West 6th Street to Station 18+50; 1020 lf @ $140.40/lf =				$143,208
Earthwork				
Strip Topsoil	0.5 cy	$4.00	$2.00	
Grading	4 sy	.50	2.00	
Storm Drainage, modification	2 lf	10.00	20.00	
Subsurface Drainage	2 lf	15.00	30.00	
Subgrade, 6"-PA 350	1.3 sy	3.90	5.00	
Paving, 2½"-Bituminous	1.3 sy	6.00	7.80	
Concrete Curb	2 lf	15.00	30.00	
Concrete sidewalk	10 sf	3.00	30.00	
Topsoil	0.4 cy	15.00	6.00	
Seeding	16 sf	.10	1.60	
Trees	per foot	6.00	6.00	
Total			$140.40	
Station 18+50 to Station 34+00; 1550 lf @ $140.40 =			$217,620.00	$371,620
Retaining Wall, 1100 lf required; @ $140/lf =			154,000.00	
Excavation	2.5 cy	$4.00	$10.00	
Backfill	2.5 cy	4.00	10.00	
Subdrainage System	1 lf	7.00	7.00	
Concrete	0.7 cy	60.00	42.00	
Steel	per foot	30.00	30.00	
Forming	20 sf	2.00	40.00	
Seeding	10 sf	.10	1.00	
Subtotal			$140.00	
Station 34+00 to 47+00 (Presque Isle State Park) 1300 lf @ $118.05/lf =				$153,465
Earthwork				
Cut and Fill	1 cy	$10.00	$10.00	
Grading	4.5 sy	.50	2.25	
Storm Drainage, modifications	2 lf	10.00	20.00	
Subgrade, 6"-PA 350	1.3 sy	3.90	5.00	
Paving, 2½"-Bituminous	1.3 sy	6.00	7.80	
Concrete Curb	2 lf	15.00	30.00	
Concrete Walk	10 sf	3.00	30.00	
Topsoil	0.4 cy	15.00	6.00	
Seeding	10 sf	.10	1.00	
Trees	per foot	6.00	6.00	
Total			$118.05	
Total				$668,293
Survey, topographical				12,000
Design Fee @ 7%				45,780
Total				$727,073

Design Option of the Proposed Bikeway Utilizing the Alignment Following the Sanitary Sewer Easement

In order to utilize this right-of-way, additional land along each side of the corridor will have to be acquired.

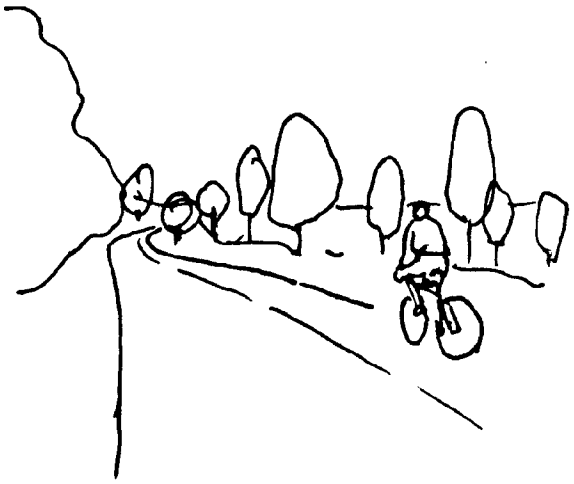
There are two potential problems with utilizing this solution. First, the grade or slope of the easement will be in the range of 13% with a length of slope in excess of 600 feet. This far exceeds any recommended standards. Most persons will have problems peddling uphill. Those persons coming downhill will have problems keeping their bicycles under control.

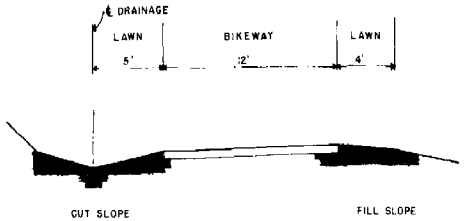
The second problem is at the bottom where the sewer makes a sharp left turn. At the present rate of grade and length of slope, speeds in excess of 30 m.p.h. could be reached by bicyclists. Additional right-of-way could be acquired to facilitate a person going downhill and trying to make this left-hand turn.

A bikeway in this alignment should be 12 feet wide. Because this easement follows a natural creek or ravine, substantial storm drainage work and sub-surface drainage work will have to take place. There should be no problem with replacement of existing vegetation along the steep slope portion of the bikeway.

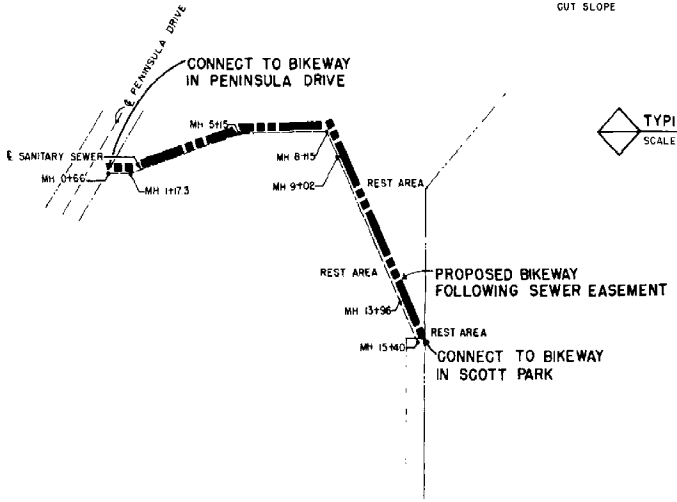
New trees should be planted along the alignment. Along the flat portion of the sewer easement, where the existing campground is located, a screening hedge should be planted. This hedge will separate the bicyclists from the campgrounds. Because of the steep grade, rest stops should be constructed.

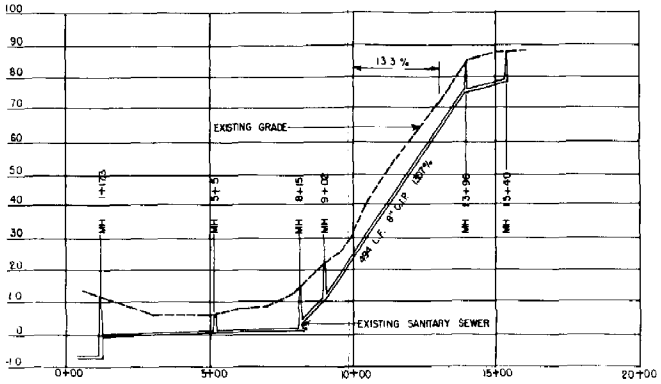
A similar slope is located in the City of Erie. West 24th Street, between State and Peach Streets has a slope of 12.3%. This slope was determined from records in the City, Bureau of Engineering Office. Bicyclists have been seen going uphill on this street.



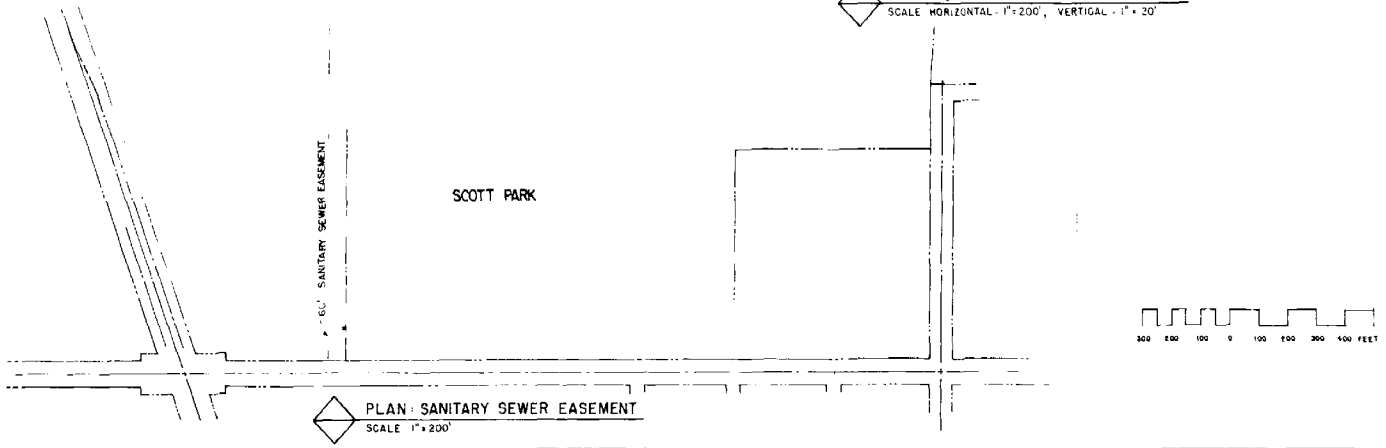


TYPICAL SECTION OF BIKEWAY
SCALE 1/4" = 1'-0"





PROFILE: SANITARY SEWER
SCALE HORIZONTAL - 1"=200', VERTICAL - 1" = 20'



PLAN: SANITARY SEWER EASEMENT
SCALE 1"=200'

SOURCE: MILLCREEK TOWNSHIP SEWER AUTHORITY, DRAWING-DIVISION A, SHEET 6 OF 9

ALBERT L. MASSEY
LANDSCAPE ARCHITECT
1062 WEST 26th STREET
ERIE, PENNSYLVANIA 16508

No.	Date	Description
		Revisions

north

FEASIBILITY STUDY
BIKEWAYS
IN AND ADJACENT TO
WILLIAM L. SCOTT COUNTY PARK
ERIE COUNTY, PENNSYLVANIA

Drawing: ALIGNMENT FOR THE SANITARY SEWER EASEMENT

Drawn | Checked
Scale: NOTED
Date: SEPTEMBER 30, 1981
Number: 81-12

COST ESTIMATE
SANITARY SEWER EASEMENT (Cost of Land not Included).

Item	Quantity	Unit Cost	Subtotal	
From West 6th Street to Sewer Easement;		1900 lf @ $22.25/lf =		$42,275
From Scott Park to MH #8+15		750 lf @ $59.40/lf =		$44,550
Clearing and Grubbing	1-lf	$2.00	$2.00	
Earthwork				
Cut & Fill	1.8 cy	4.00	7.20	
Grading	3.3 sy	.50	1.65	
Storm Drainage	1-lf	25.00	25.00	
Subsurface Drainage	1-lf	10.00	10.00	
Subgrade, 8"-Bank Gravel	1.1 sy	1.77	1.95	
Paving, 2½"-Bituminous	1.1 sy	6.00	6.60	
Topsoil	0.2 cy	15.00	3.00	
Seeding	20 sf	.10	2.00	
Total			$59.40/lf	
From MH #8+15 to Peninsula Drive;		800 lf @ $35.20/lf =		$28,160
Clearing and Grubbing	1-lf	$1.00	$1.00	
Earthwork				
Cut & Fill	1.5 cy	10.00	15.00	
Grading	3.3 sy	.50	1.65	
Storm Drainage	1-lf	4.00	4.00	
Subgrade, 8"-Bank Gravel	1.1 sy	1.77	1.95	
Paving, 2½"-Bituminous	1.1 sy	6.00	6.60	
Topsoil	0.2 cy	15.00	3.00	
Seeding	20 sf	.10	2.00	
Total			$35.20/lf	
From Peninsula Drive, Station 34+00 to Presque Isle State Park		1300 lf @ $65.25/lf =		$84,825
Total				$162,825
Design Fee @ 8%				13,026
Topographical Survey				10,000
Total				$185,851

Design Option of the Proposed Bikeway Utilizing the Sanitary Sewer Easement with an Expanded Alignment

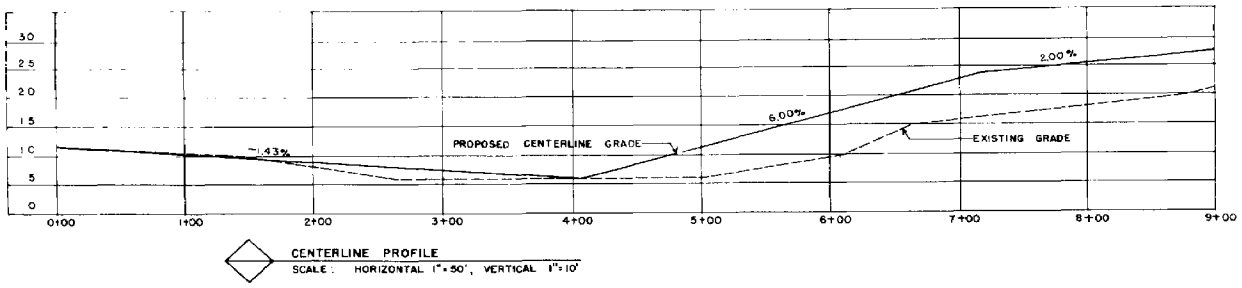
This alignment was designed to provide a more suitable grade by lengthening the bikeway through the use of switchbacks. The designed alignment has two grades of ten percent, each with a slope length of 200 feet. These two slopes would be difficult for bicyclists. Rest areas should be provided at the end of each slope.

The switchbacks utilize the land east of the sewer easement. If the ten percent grades were to be eliminated, many more switchbacks would have to be added. The additional switchbacks would have a shorter turning radius, which would slow down the speed of the bicyclists, as well as require many more cubic yards of earth to be removed. The bikeway would be longer and the costs higher than the present solution. The width should be 12 feet.

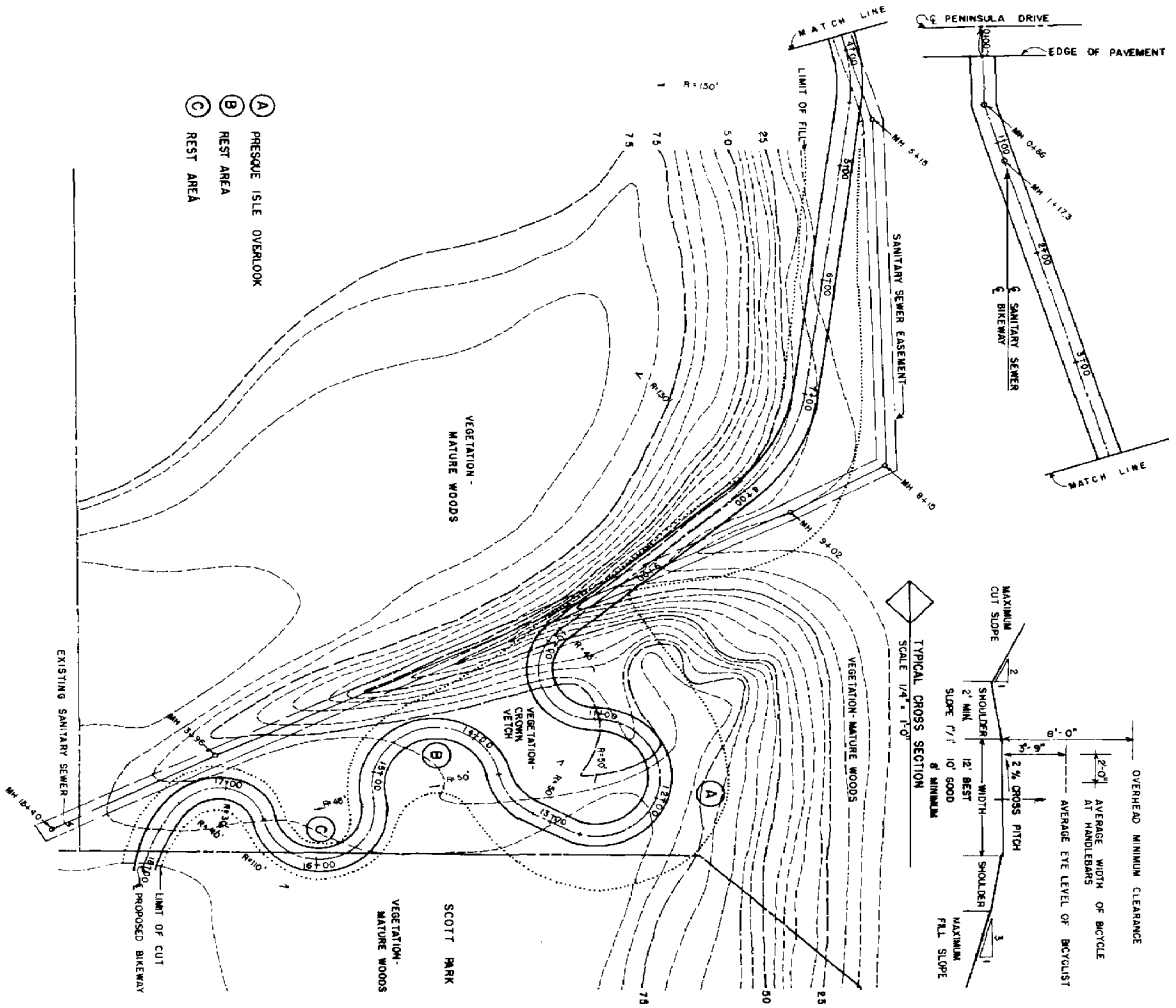
Extensive storm drainage and subdrainage work will be required.

Trees and shrubs could be planted along the alignment making for a very attractive bikeway.

That portion of the bikeway which is adjacent to the campgrounds should have additional plantings added for screening purposes.



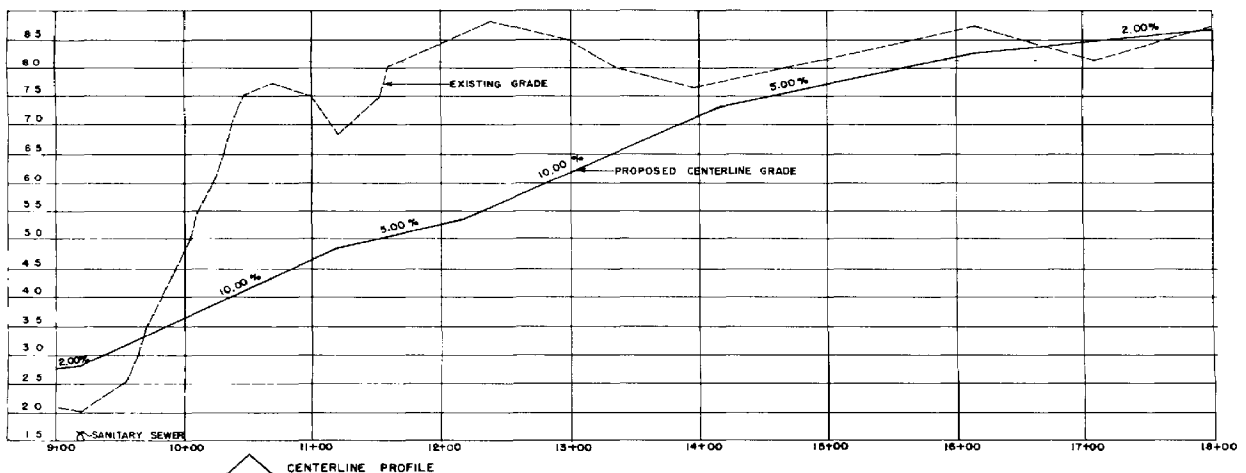
CENTERLINE PROFILE
SCALE: HORIZONTAL 1"=50', VERTICAL 1"=10'



PLAN
SCALE 1"=50'

TYPICAL CROSS SECTION
SCALE 1/4"=1'-0"

SOURCES: MILLCREEK TOWNSHIP STORM DRAINAGE STUDY MAPS
MILLCREEK TOWNSHIP SEWER AUTHORITY



CENTERLINE PROFILE
SCALE: HORIZONTAL 1"=50', VERTICAL 1"=10'

ALBERT L. MASSEY
LANDSCAPE ARCHITECT
1062 WEST 26th STREET
ERIE, PENNSYLVANIA 16508

No.	Date	Revisions	Description

north

Drawing: ALIGNMENT FOR THE SANITARY SEWER EASEMENT - EXPANDED

FEASIBILITY STUDY
BIKEWAYS
IN AND ADJACENT TO
WILLIAM L. SCOTT PARK
ERIE COUNTY, PENNSYLVANIA

Drawn: D.Z
Checked:
Scale: NOTED
Date: SEPTEMBER 30, 1981
Number: 81-12

COST ESTIMATE
SANITARY SEWER EASEMENT, EXPANDED ALIGNMENT (Cost of land not included)

Item	Quantity	Unit Cost	Subtotal	
From West 6th Street to Scott Park Boundary; 1850 lf @ $12/lf =				$22,200
From Scott Park to Peninsula Drive;				$408,450
Clearing and Grubbing	5 acres	$2000	$10,000	
Earthwork				
Cut	40,000 cy	4.50	180,000	
Fill	8,000 cy	3.50	28,000	
Subsurface Drainage	1,800 lf	7.50	13,500	
Storm Drainage	1,800 lf	30.00	54,000	
Raise Manholes	4 each	500.00	2,000	
Paving, 6"-Concrete	21,600 sf	4.50	97,200	
Topsoil	250 cy	15.00	3,750	
Seeding				
Lawn	½ acre	4000.00	2,000	
Crown Vetch	4½ acres	2000.00	9,000	
Guard Rail, 4'-clf	600 lf	15.00	9,000	
Total			$408,450	
Peninsula Drive, from Station 34+00 to Presque Isle State Park		1300 lf @ $65.25/lf =		$84,825
Total				$515,475
Survey, topographical				12,000
Design Fee @ 7%				36,085
Total				$563,560

Design Option of the Proposed Bikeway Utilizing Sommerheim Drive and the Scott Park Bay Frontage

This will be the longest and the most expensive alignment. Extensive coordination should be made with the Bureau of Water and Millcreek Township.

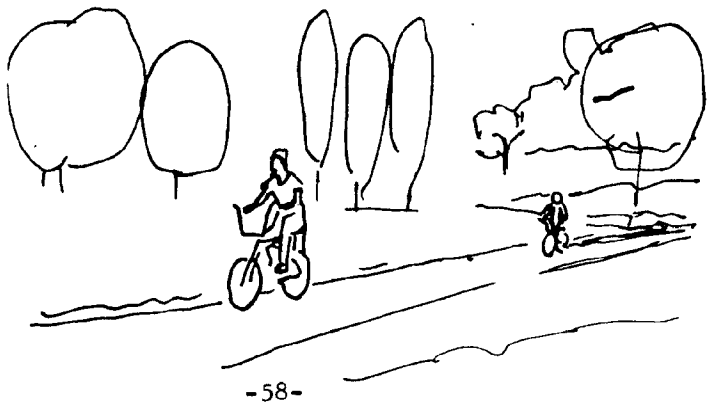
If a bikeway were to be constructed along Sommerheim Drive, most of the road should be rebuilt. If the road were not to be rebuilt, the bikeway could be constructed in one of two ways. First, the bikeway could be kept to the west edge of the right-of-way in the Millcreek Park and in Scott Park. When the bikeway reached the Bureau of Water property, the existing road could be resurfaced. The second method would be to resurface the existing road. Because of very low traffic volumes, there is no reason why the Bureau of Water vehicles and bicycles could not mix. Expected motor vehicular traffic is expected to be low. The only other motor vehicles which would have a reason to use the roadway are those vehicles going to the Mercyhurst College building which houses their varsity crew shells. Motor vehicle traffic could be controlled with gates.

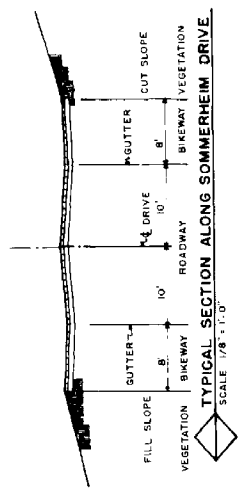
There are three ways to run a bikeway across the frontage. First, a raised bikeway could be constructed along the Bay frontage of Scott Park. The raised bikeway could be constructed of either driven steel piles or dug wooden piles. A raised boardwalk would be the least damaging to the natural environment. The wood could be easily vandalized.

The second way would be to place a low earthen berm above the high water mark of the Bay. Riprap could be placed along the Bay shore to protect the bikeway. Surface water from the escarpment would have to be drained under the bikeway.

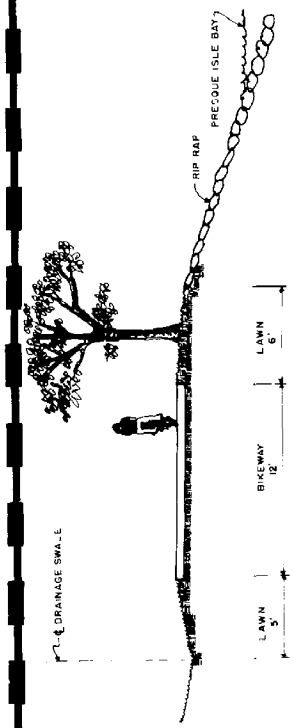
The opening of the Bay frontage with a bikeway would provide a good opportunity for many additional forms of recreation. One could expect to see hikers, joggers, sightseers and people fishing. Management problems could arise because of the lack of parking. Because the Bay is so shallow in this area, the fishing might not materialize or be only a problem at certain times of the year.

When the bikeway reaches the west boundary of Scott Park, the alignment would connect up to the sanitary sewer easement and follow this same easement to Peninsula Drive, then follow the alignment to Peninsula Drive to Presque Isle State Park.

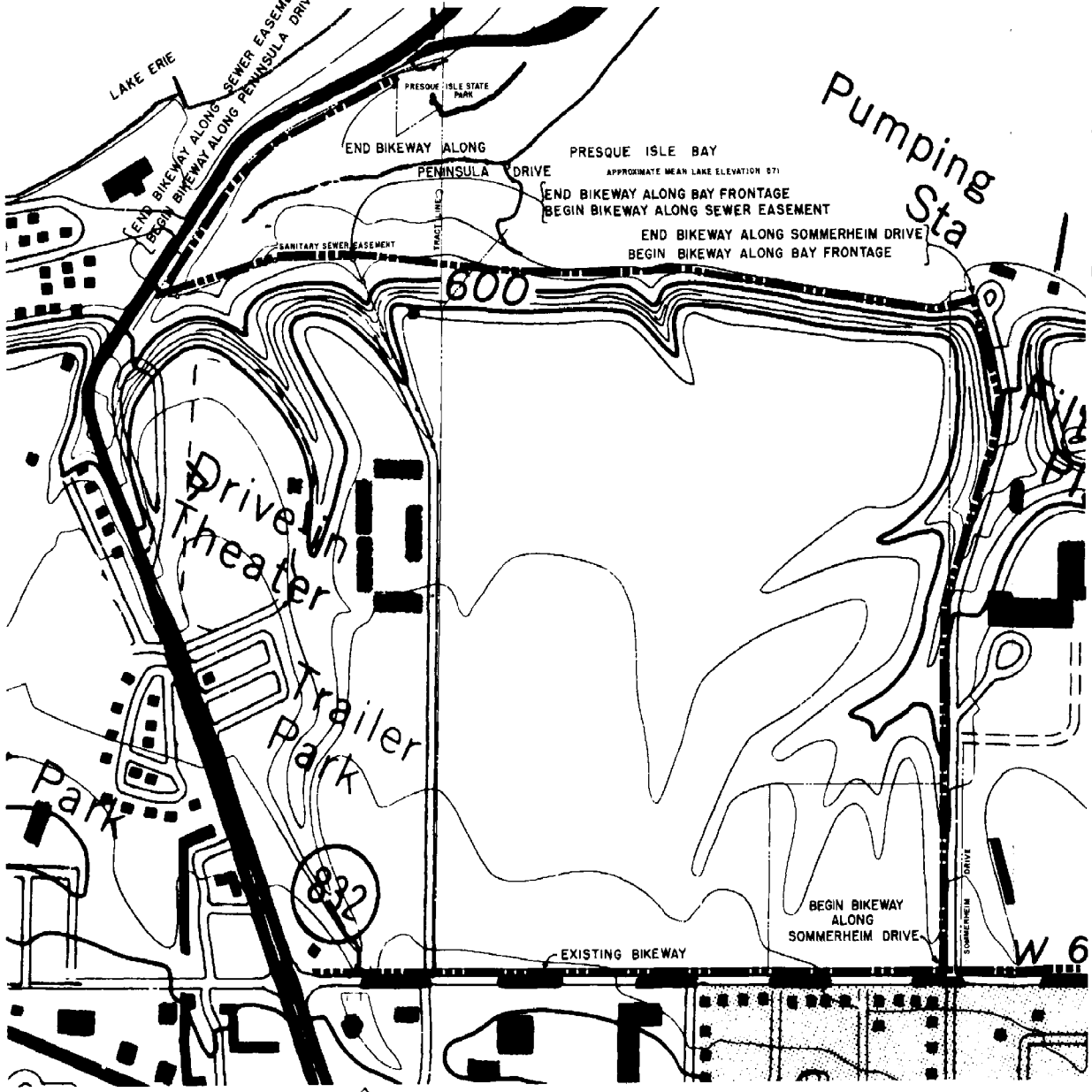




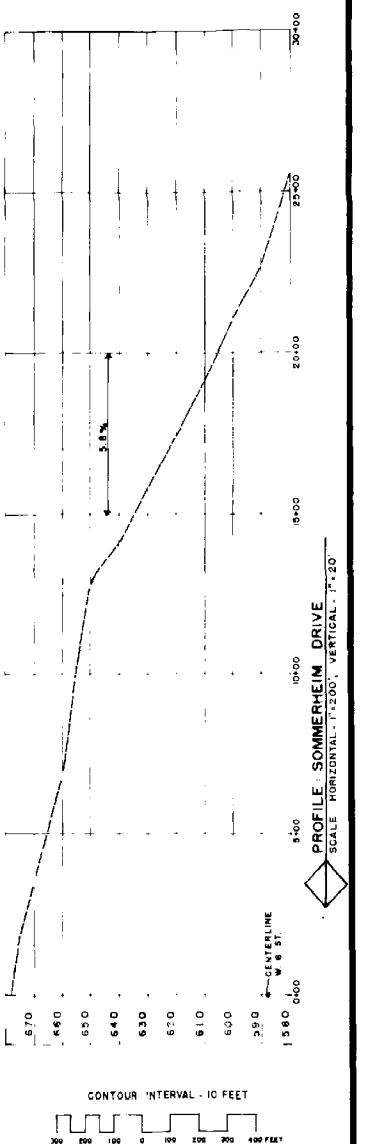
TYPICAL SECTION ALONG SOMMERHEIM DRIVE
SCALE 1/8" = 1'-0"



TYPICAL SECTION ALONG BAY FRONTAGE
SCALE 1/4" = 1'-0"



PLAN
SCALE 1" = 200'



PROFILE - SOMMERHEIM DRIVE
SCALE HORIZONTAL - 1"=200', VERTICAL - 1"=20'

SOURCE: U S G S SWANVILLE QUADRANGLE

ALBERT L. MASSEY
LANDSCAPE ARCHITECT
1062 WEST 26th STREET
ERIE, PENNSYLVANIA 16508

No.	Date	Description
		Revised

north

FEASIBILITY STUDY
BIKEWAYS
IN AND ADJACENT TO
WILLIAM L. SCOTT COUNTY PARK
ERIE COUNTY, PENNSYLVANIA

Drawing: ALIGNMENT FOR THE SOMMERHEIM DRIVE RIGHT-OF-WAY

Drawn: Checked:
Scale: NOTED
Date: SEPTEMBER 30, 19
Number: 81-12

COST ESTIMATE
SOMMERHEIM DRIVE (Cost of Land not Included)

Item	Quantity	Unit Cost	Subtotal	
West 6th Street to Presque Isle Bay; 2400 lf @ $113.20/lf =				$271,680
Subgrade Preparation	6 sy	$1.00	$6.00	
Subsurface Drainage	2 lf	15.00	30.00	
Storm Drainage	1 lf	30.00	30.00	
Subgrade, 6"- PA 350	4 sy	3.90	15.60	
Paving, 2½"-Bituminous	4 sy	6.00	24.00	
Topsoil	0.4 cy	15.00	6.00	
Seeding	16 sf	.10	1.60	
Total			$113.20	
Bay Frontage; 2000 lf @ $121.90/lf =				243,800
Clearing and Grubbing	1 lf	$2.00	$2.00	
Earthwork				
Fill	3.3 cy	10.00	33.00	
Grading	4 sy	.50	2.00	
Rip Rap	2 sy	20.00	40.00	
Storm Drainage	1 lf	25.00	25.00	
Subgrade, 6"-Bank Gravel	1.33 sy	1.80	2.40	
Paving, 2½"-Bituminous	1.33 sy	6.00	8.00	
Topsoil	0.3 cy	15.00	4.50	
Seeding	20 sf	.10	2.00	
Trees	per foot	3.00	3.00	
Total			$121.90	
From Bay Frontage to Peninsula Drive, along Sewer Easement; 1100 lf @ $35.20				38,720
From Peninsula Drive, Station 34+00 to Presque Isle State Park	1300 lf @ $65.25/lf =			84,825
Total				$639,025
Survey, topographical				12,000
Design Fee @ 7%				44,732
Total				$695,757

IMPACT

Interior Bikeways in Scott Park

The proposed interior bikeway in Scott Park would have little or no economic impact past the initial construction costs.

Environmentally, the bikeways would be an asset to Scott Park. First, they would serve as fire breaks or trails. If a fire were to be started within the Park boundaries, these trails could stop the fire. Second, these trails will provide openings or edges for the wildlife. The sun will reach portions of the ground and encourage plant growth along the bikeways. This additional vegetation will provide food, cover and shelter for the wildlife.

Maintenance costs will be minimal. The adjacent lawn will have to be cut. If the trail is paved, money should be set aside for minor repairs. Because of the lack of use by motor vehicles, the paving should require very little attention. If it is decided to not pave the interior bikeways, but utilize an organic surface such as bark, a resurfacing program will be necessary about every three years. This surfacing program might be augmented by allowing tree trimming companies to dump their wooden chips in an area in the Park for use as surfacing.

Bikeways from Scott Park to Presque Isle State Park

If the proposed bikeway to Presque Isle State Park were to be constructed, there would be some resulting benefits and some liabilities.

Economically, there would be no long-term direct benefits. Initially, a bikeway would provide jobs for those who construct the project. There would also be some employment for those who maintain the bikeway. It cannot be expected that the bikeway would result in the development of any commercial ventures or be responsible for the sale of additional bicycles in the Erie area.

The long-term economical benefit resulting from the construction of a bikeway would be the elimination of possible conflicts of motor vehicles with bicyclists and the possible loss of life of bicyclists. It is impossible to place economic value on life.

There well could be a very positive visual impact if the bikeway were constructed along Peninsula Drive. This reconstruction work could encourage adjacent property owners to upgrade the existing land use of the Peninsula Drive frontage. Most of the existing land use is temporary in nature and could be developed into land uses requiring capital development work. The reconstruction of Peninsula Drive would make a nice visual impact for the four million annual visitors to Presque Isle State Park.

Environmentally, a bikeway should be an asset. The construction of a bikeway could temporarily upset the adjacent natural environment, and there could be some minor soil erosion problems during construction. As it was previously pointed out, there are some existing soil erosion problems along all alignments. The construction of a bikeway could correct these existing soil erosion problems.

The existence of a safe bikeway could encourage more people to visit Presque Isle State Park under pedal power rather than by a motor vehicle. This would save on the consumption of gasoline.

The right-of-way of the bikeway could be planted with trees and shrubs, improving the environment visually, as well as replacing those plants which were lost during construction.

The lasting impact to the Erie area is the annual maintenance costs of the proposed bikeway. The longer the alignment the more costly the annual maintenance cost. The ownership of the bikeway will also effect the cost. The Peninsula Drive alignment maintenance cost would be absorbed in the cost of the maintenance of Peninsula Drive. It would be very difficult to place an annual dollar amount on this cost. It could be expected that a bikeway will have to be swept regularly for the removal of grit, gravel and litter.

The alignments along the sewer easement and Sommerheim Drive will have several additional maintenance chores, including grass cutting, removal of adjacent vegetation (overhanging branches) and possible daily checking of the entire alignment. Also, some maintenance monies should be set aside for periodic repair to the pavement. This should be minimal during the first ten years of the project.

APPENDIX

REFERENCES

Bikeway Design, Oregon State Highway Division (January 1974).

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Cleckner, Robert M. and Richard Buck, Anatomy of a Bike Trail, Parks and Recreation (December 1979).

"Design and Construction Criteria for Bikeway Construction Projects" in Federal Register, Part II, Department of Transportation, Federal Highway Administration (August 4, 1980).

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From Rails to Trails, Citizens' Advisory Committee on Environmental Quality, Washington, D. C. (1975).

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Pennsylvania Recreation Survey, Office of State Planning and Development, Commonwealth of Pennsylvania, Harrisburg, Pennsylvania (April 1975).

A Policy on Geometric Design of Rural Highways, American Association of State Highway Officials, Washington, D. C.

Recreational Trails, Metropolitan Washington Council of Governments.

Trails in New York State, State Council of Parks and Outdoor Recreation, Albany, New York (1969).

Recent Editorial appearing in one of the local newspapers.

Bike paths

And speaking of Peninsula problems, again we raise the question of the urgent need for bicycle paths around the park.

More and more bicyclists are competing with cars for limited space on the mostly two-lane park highway. Most drivers are considerate of bicyclists -- but not all.

The real trouble is that there is no berm at the side of the Peninsula roadway. The bicylist can't get off the road because if he does he goes into soft sand and bike and rider go down.

If berms were constructed, they could be used as bike ways, similar to what was done by the county several years ago along West 6th Street, from Pittsburgh ave. to Peninsula Drive.

ACCIDENTS ALONG PENINSULA DRIVE

The Millcreek Police Department was queried about car-bicycle and car-pedestrian accidents along Peninsula Drive and north of West 6th Street. Since August, 1977, there have been five accidents. A summary is as follows:

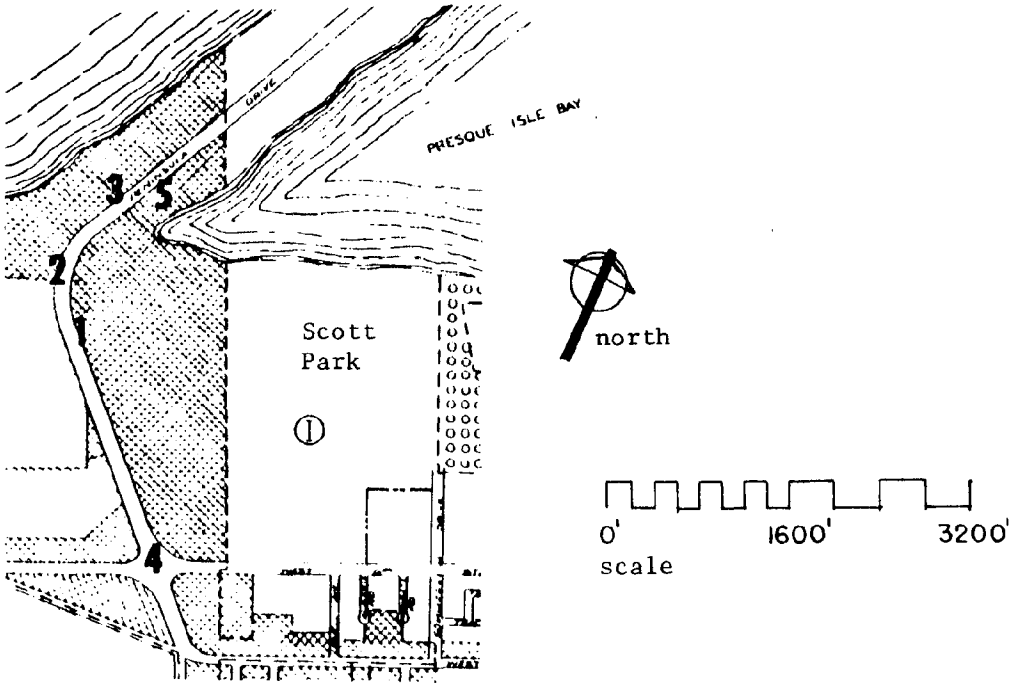
1. 14 August 1977, 4:50 PM, Approximately 0.4 of a mile north of West 6th Street. Three pedestrians were walking north along the berm of the road. The pedestrians were abreast. The pedestrian closest to the travelway was struck by a protruding rear view mirror.

2. 24 July 1979, 1:57 PM--A bicyclist was walking his bicycle south in the outside southbound lane. A car traveling south fishtailed, striking the pedestrian and bicycle.

3. 20 July 1980, 6:01 PM--A bicyclist struck a car making a left-hand turn into a business establishment. The bicyclist was on the berm of road traveling south and ran into the car.

4. 16 August 1980, 7:13 PM--Two pedestrians were struck by a car at the intersection of West 6th Street and Peninsula Drive.

5. 11 June 1981, 12:10 PM--A bicyclist traveling north on the right-hand edge of Peninsula Drive, ran off the roadway causing the operator to lose control and have an accident. No other vehicles were involved.



LOCATION MAP OF ACCIDENTS ALONG PENINSULA DRIVE

SOURCES OF MAPPING FOR THIS STUDY

The datum is different for most of the mapping and no attempt has been made to correlate the datums.

The mapping for this study comes from the following sources.

1. U. S. Army Lake Survey
   Erie Harbor and Presque Isle
   Date: 1968
   Scale 1:15,000

2. U.S.G.S., Swanville Quadrangle, 7.5 minute series
   Date: Photo revised 1975
   Scale 1:24,000

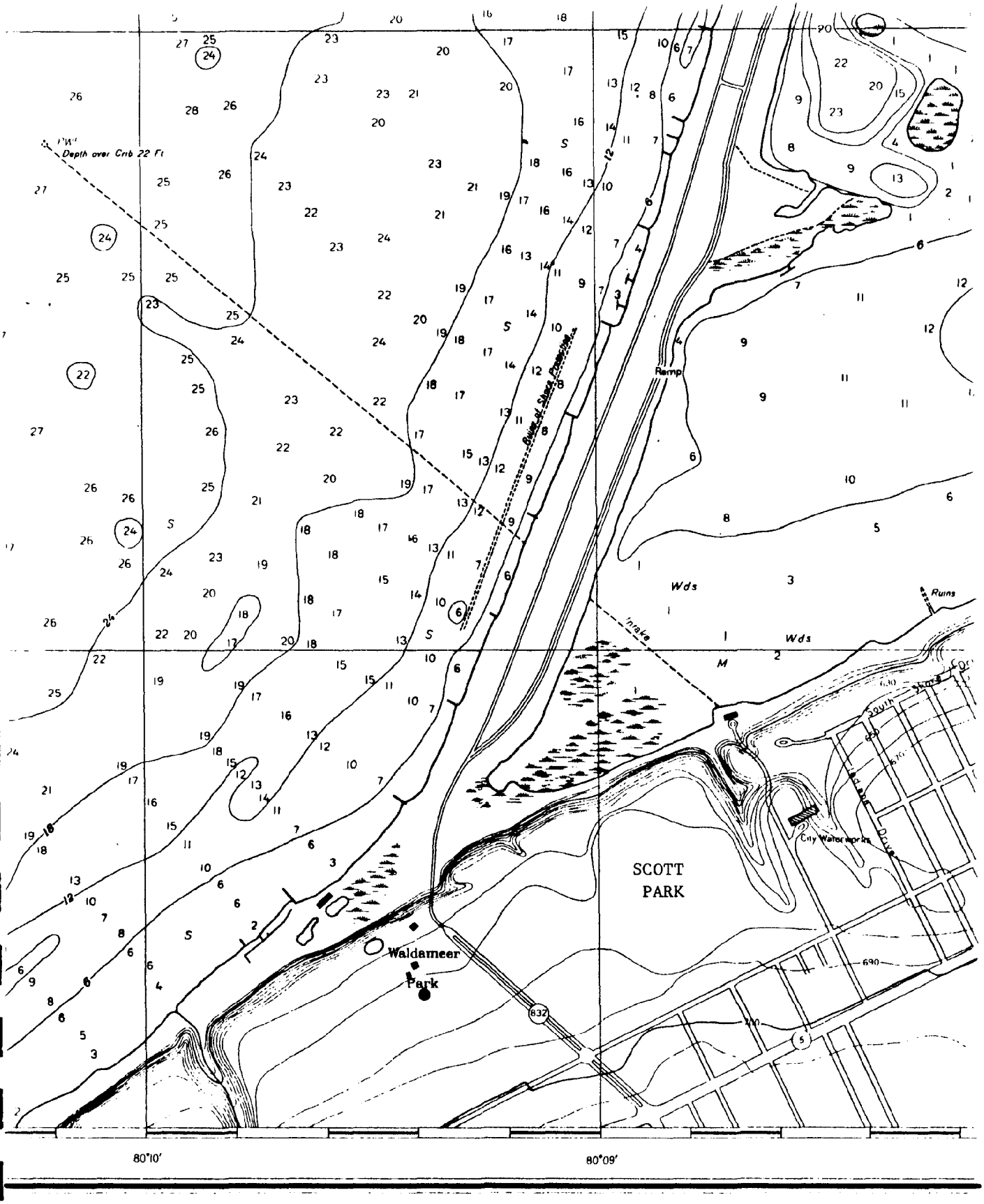
3. Millcreek Township Storm Drainage Study
   Date: March 1978
   Scale 1"=200'

4. Topography of William L. Scott County Park
   Date: June 22, 1976
   Scale 1"=50'

5. Township Assessment Maps
   Date: The most recent maps in the Township Assessment Books.
   Scale varies

6. PennDOT Construction Drawings for Route 832
   Date: May 1958
   Scale 1"=100' and 1"=50'

7. Millcreek Sewer Authority, Construction Drawings for the Sanitary Sewers
   Date: Sanitary sewer constructed 1973
   Scale 1"=50'



1968

Army U S Lake Survey, Detroit Litho 1968-2200

PORTION OF ERIE HARBOR AND PRESQUE ISLE
Scale 1:15,000
Soundings in Feet
Date: February 6, 1969

SWANVILLE QUADRANGLE
PENNSYLVANIA—ERIE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
Photorevised in 1975

Contour Interval: 10 feet
Scale: 1:24,000