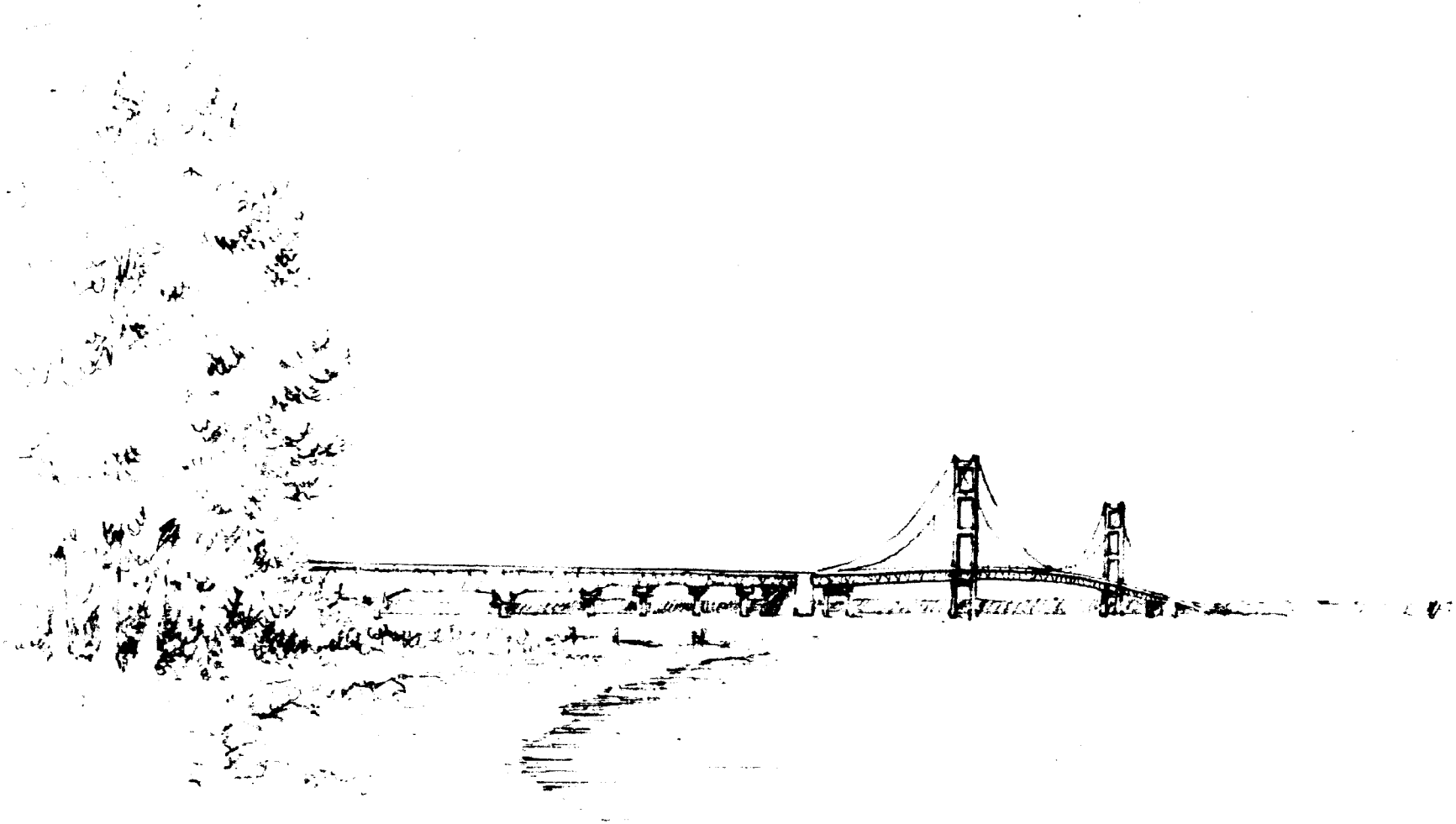

mackinaw city · design studies 1979

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

Village of Mackinaw City
Coastal Zone Design Studies, 1979
A Brief Illustrative Report

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Traffic Planning Associates Inc.
Capital Consultants Enginneers
Clark and Walter Architects

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Michigan Department of Natural Resources,
Division of Land Resource Programs.
Funded by the U.S. Department of Congress

HT393 .M5 V45 1979

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the Coastal Zone Management Act of 1972
administered by the Office of Coastal Zone Management
National Oceanic and Atmospheric Administration

MACKINAW
GREAT LAKES
CROSSROADS

INTRODUCTION

The following report summarizes several months of planning and design effort for the Village of Mackinaw City, Michigan. The report covers (1) Existing conditions in the study area (2) Design solutions for various parks along Huron Boulevard (3) Suggestions on the treatment of store fronts in the commercial section of the community. (4) Recommendations on street fixtures, a Tour Tram and public washrooms (5) An implementation program for public improvements, including a Capital Improvement Program and a five year capital budget for City improvements (6) a review of the zoning in the study area (7) the Traffic Study undertaken (8) a study of User information in the area and (9) the Master plan.

Working drawing were also prepared for the washroom facility and the demolition of a sewage digestor in Boulevard Park. Due to the technical nature of these documents they are not included with the report.

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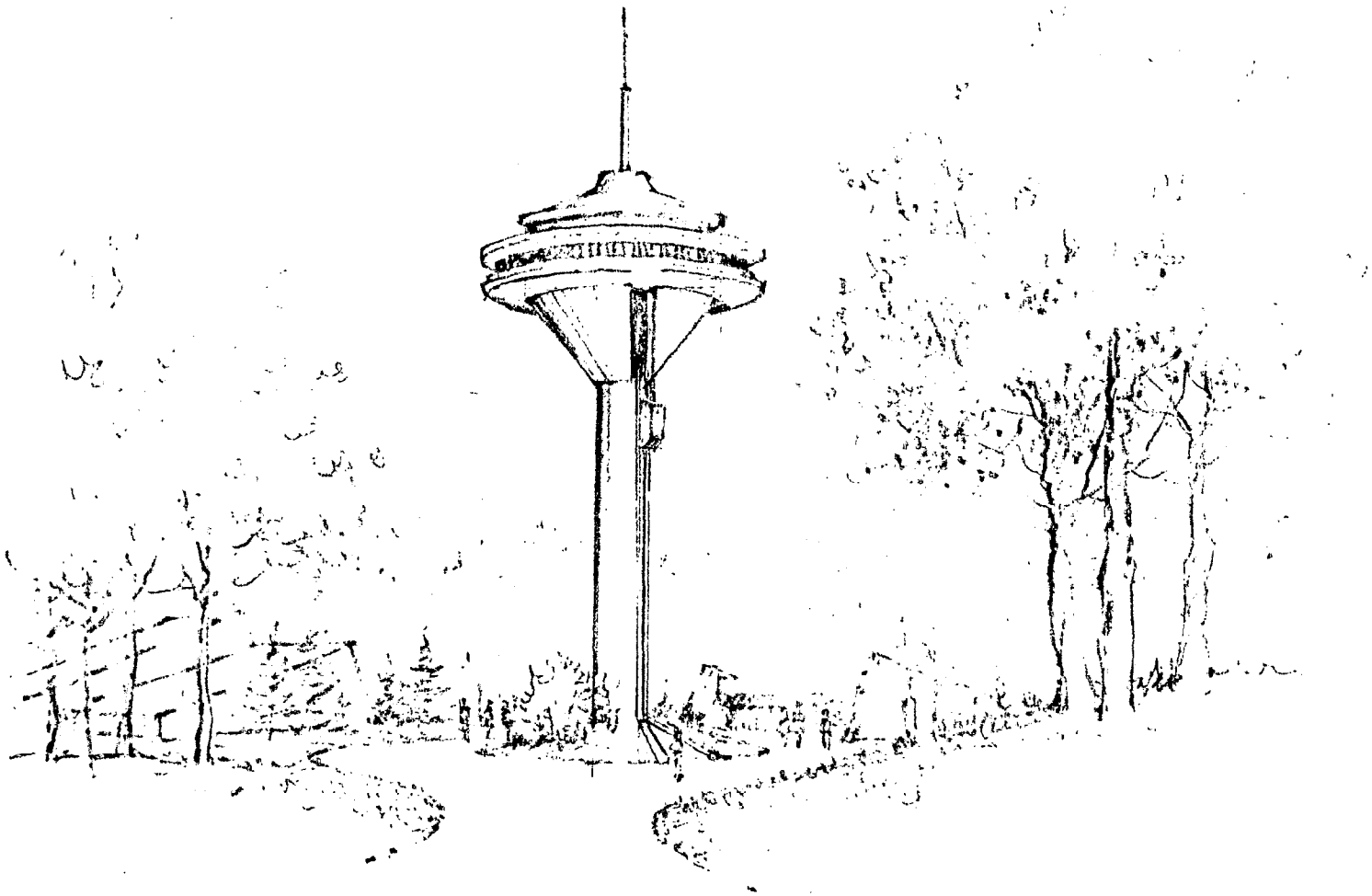

water tower - restaurant

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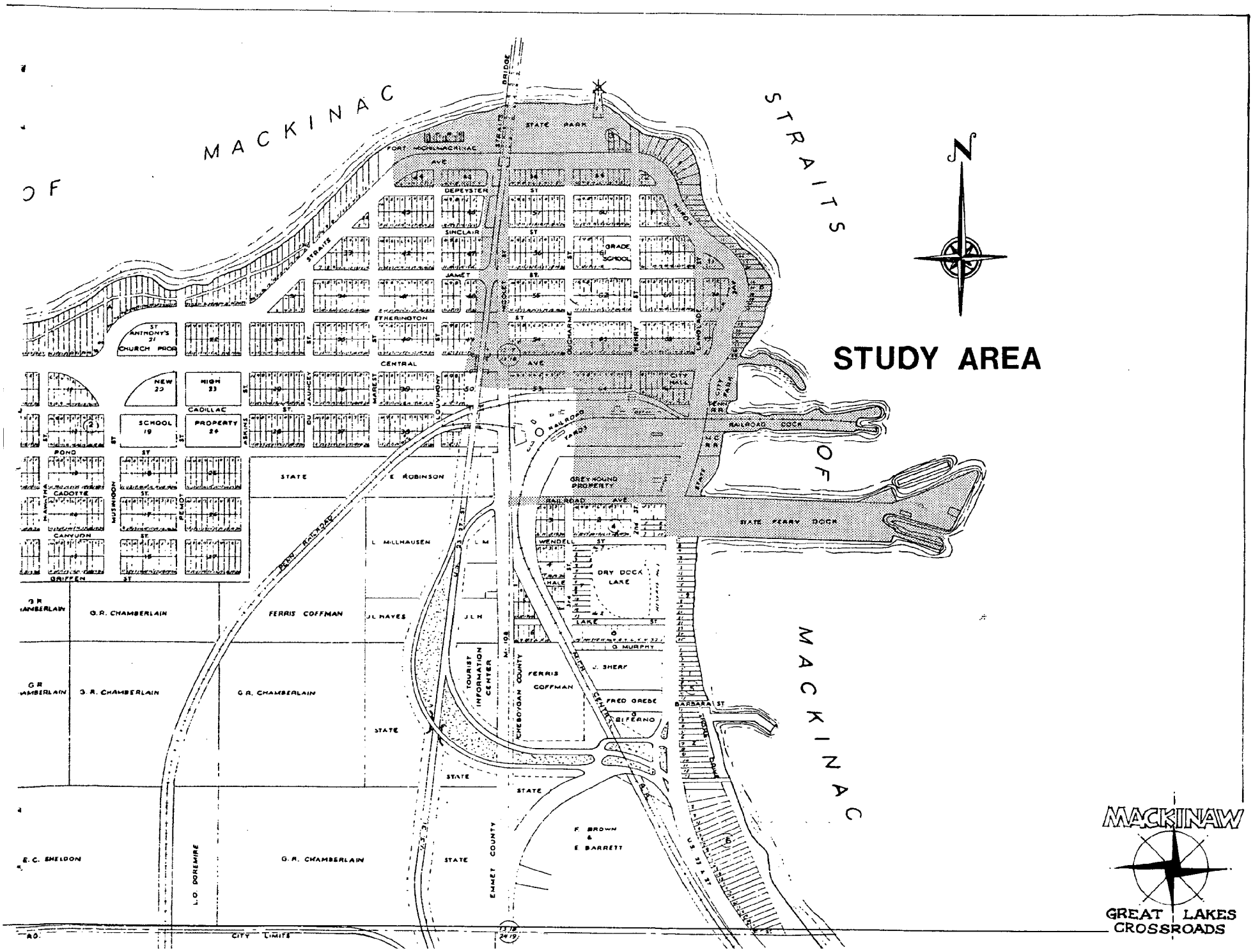
STUDY AREA
N
STRAITS OF MACKINAC
STATE PARK
FORT MICHILIMACKINAC
AVE
DEPEYSTER
SINCLAIR
JAMET
ETHERINGTON
CENTRAL
GRADE SCHOOL
ST ANTHONY'S CHURCH PROP
NEW 23
HIGH 23
SCHOOL 19
PROPERTY 24
CADILLAC
POND
CADOTTE
CANYON
GRIFFEN
STATE
E ROBINSON
L MILLHAUSEN
G.R. CHAMBERLAIN
FERRIS COFFMAN
J.L HAYES
J.L.H
TOURIST INFORMATION CENTER
CHEBOYGAN COUNTY
EMMET COUNTY
GREY HOUND PROPERTY
RAILROAD AVE
WENDELL ST
DRY DOCK LAKE
HALE
LAKE ST
G MURPHY
J. SHERF
FRED GREDE
BIFERNO
BARBARA ST
STATE FERRY DOCK
RAILROAD DOCK
CITY HALL
CITY PARK
F. BROWN & E BARRETT
E.C. SHELDON
L.O. DOREMIRE
CITY LIMITS
MACKINAW
GREAT LAKES CROSSROADS

EXISTING CONDITIONS

Mackinaw City as part of the overall straits area is one of the most picturesque and historically significant communities within the state of Michigan. Even though its history and developement pre-dates that of Mackinaw Island and development in the Upper Peninsula, it is only recently that the community has begun to generate an identity which establishes it as more than a launching point at the tip of the Lower Peninsula which one passes through to either visit Mackinaw Island or the Upper Peninsula.

Prior to the reconstruction of Fort Michilmackinac the State Park at Mackinaw City was little more than a camprground of minimum significance which had a relatively small tourism impact. The reconstructed Fort and later developed Marine Park, have however, given Mackinaw City attractions which begin to hold visitors in the community for the sake of being in the community. Tourism, as a consequence, has steadily grown over the past several decades. The number of motel rooms, gift shops and restaurants has increased significantly.

While these improvements have taken place there has been relatively little activity by the community to up-grade public facilities, making significant improvements to the public circulation system developing new areas for parking, making improvements to the park and open space system or developing innovative attractions to compliment the Fort and Marine Museum. The Coastal Zone Planning Program has given the community an opportunity to address needed improvements along the water-front and in the Central Business District and State dock areas. The following design report represents the culmination of a four month design and planning effort carried out by Land Planning & Design Associates and their consultants working with the Village President, the Village Board of Trustees, and interested Community citizens.

The study area covers the Northeast section of the community beginning in the vicinity of the Fort, generally following Huron Boulevard and Huron Avenue south to the State dock. Heavy emphasis is also placed on Central Avenue from Nicolet to the City Marina.

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Other public improvements are suggested along the water-front parallelling the study area.

Areas south to the State dock along Huron Avenue were not included in the study because of limitation of grant funds and the established grant area.

As part of the planning process solution a review of the community situation, involving all of the various consultants in the planning team, working with the city staff and trustees, indicated a variety of problems to be addressed. These are discussed below from the Fort area to the State dock.

Traffic Circulation - Fort Area

This area generally includes Huron Boulevard from Louvingny to Nicolet Street. Traffic enters this area from Louvingny off of the Mackinaw Bridge or from the western end of the Central Business District, from the south on Nicolet or the east of Huron.

Traffic entering or exiting the area on Huron at Nicolet passes under the Mackinaw Bridge in a highly confined area. West of the bridge the street right-of-way is wide enough for considerable parking on both sides as well as through traffic lanes. These lanes are divided by a boulevard of gravel which is not distinguished by a curb or other markings. As result of the openness of the area, people tend to park in an unorganized manner causing considerable confusion in times of high use. Traffic entering Huron from Louvingny as a result frequently becomes confused and on occasion east bound traffic will end up on the north side of the Boulevard in the western lanes.

Lake Front Assessibility - Marine Park Area

The Marine Park portion of the State Park development prior to reconstruction of the Fort and the Marine Park was a State Park campground. At that time both users of the park and residents of the community had free access to the water-front throughout this entire area. That free access had been granted and dedicated at the time the state obtained the land from the city in the early 1900's.

When the Marine Park was developed much of the area was fenced off to control visitors, thus limiting much of the access to the beach front. This limitation is seen by many members

of the community as unnecessary and undesirable and is therefore worthy of attention and consideration as a part of the design and planning recommendations.

Huron Boulevard Design Standards

Huron Boulevard, in the early development of the community, was layed out with an exceptionally wide right-of-way, wide enough to provide for a median and parking on both sides. Although developed from the Fort to Central Avenue with a median, the median has generally been on the same surface level of the street and the boulevard has never had curbs or gutters. This has allowed for extensive use of unorganized parking and the uncontrolled movement of cars from lanes moving in one direction to the opposite direction.

Within the last year, the first block of the boulevard, north from Central Avenue to Etherington has been improved through the efforts of the local garden club. Wooden bumper blocks have been installed and the median has been sodded. This beginning toward setting and implementing a higher design standard for the boulevard has been well excepted, however, needs considerable refinement as a long-range permanetn solution.

Treatment of Parks along Huron Boulevard

The city owns four small parcels of park land along Huron Boulevard. The largest of these is between Etherington and Jamet Streets, the site of the former community dock. At the present time this site is the location of a pumping station and abandon waste water digestor plant and the city water tower. The area is used as a lookout point and parking area for casual users of Huron Boulevard.

The second area is located at the end of Sinclair Street. It is in fact the extention of the Sinclair right-of-way from Huron Boulevard to the waters edge. Until recently this park provided one of the best views of the Mackinaw Bridge, however, in the past few years a house has been built on the immediately adjacent property to the north which blocks the view from the boulevard and significantly diminishes the view from the park itself.

The third park is at the end of Dempyster Street and again, is the right-of-way between Huron Boulevard and the lake. This small park is frequently used by swimmers and other site seers.

The fourth is an extention of the Henry Street right-of-way north from the boulevard to the lake. This park links with state owned lands adjacent to the marine park providing an opportunity for its development in connection with other public improvements made along the water-front.

Parking at Sheplers

Sheplers transit operation, at the city marina, is one of th busiest of all the transit companies. While the company has a relatively large amount of parking available between the marina and Etherington Street and arranges for additional parking between Huron Avenue and Nicolet parallelling the railroad yards, parked cars often spill onto the Huron Avenue Boulevard.

This street parking adds to the confusion of the circulation in the immediate area and further significantly deteriorates the aesthetics of the Huron Avenue Boulevard. There are some opportunities for improvement of the situation with a limited amount of infilling of submerged lands of the area. It is not believed by the authors of this report that such infilling would have an adverse effect or impact on the waters of the State. It is suggested therefore that the community endorse the infilling allowing Sheplers to have additional onsite parking, while at the same time eliminating parking along Huron Boulevard.

Further, the design solution reported on below will suggest alternatives to parking and the movement of pedestrians and community visitors which will mitigate the removal of parking along Huron Avenue Boulevard.

Intersection Design - Huron Langlaid and Central Avenue

This intersection is by far the busiest and perhaps the most confusing intersection in the entire community. Traffic leaves or enters the intersection in five different directions. These traffic movements are compounded from a safety point of view by a variety of potential pedestrian movements, particularly those in an east-west direction along Central Avenue to Sheplers and the city marina. A detailed study of this intersection by the traffic experts indicated that there were no simple solutions. However, it is possible to redesign and reconstruct the intersection in such a manner that vehicular as well as pedestrian traffic could operate in a safe and organized fashion. The design solution is presented below.

the parks

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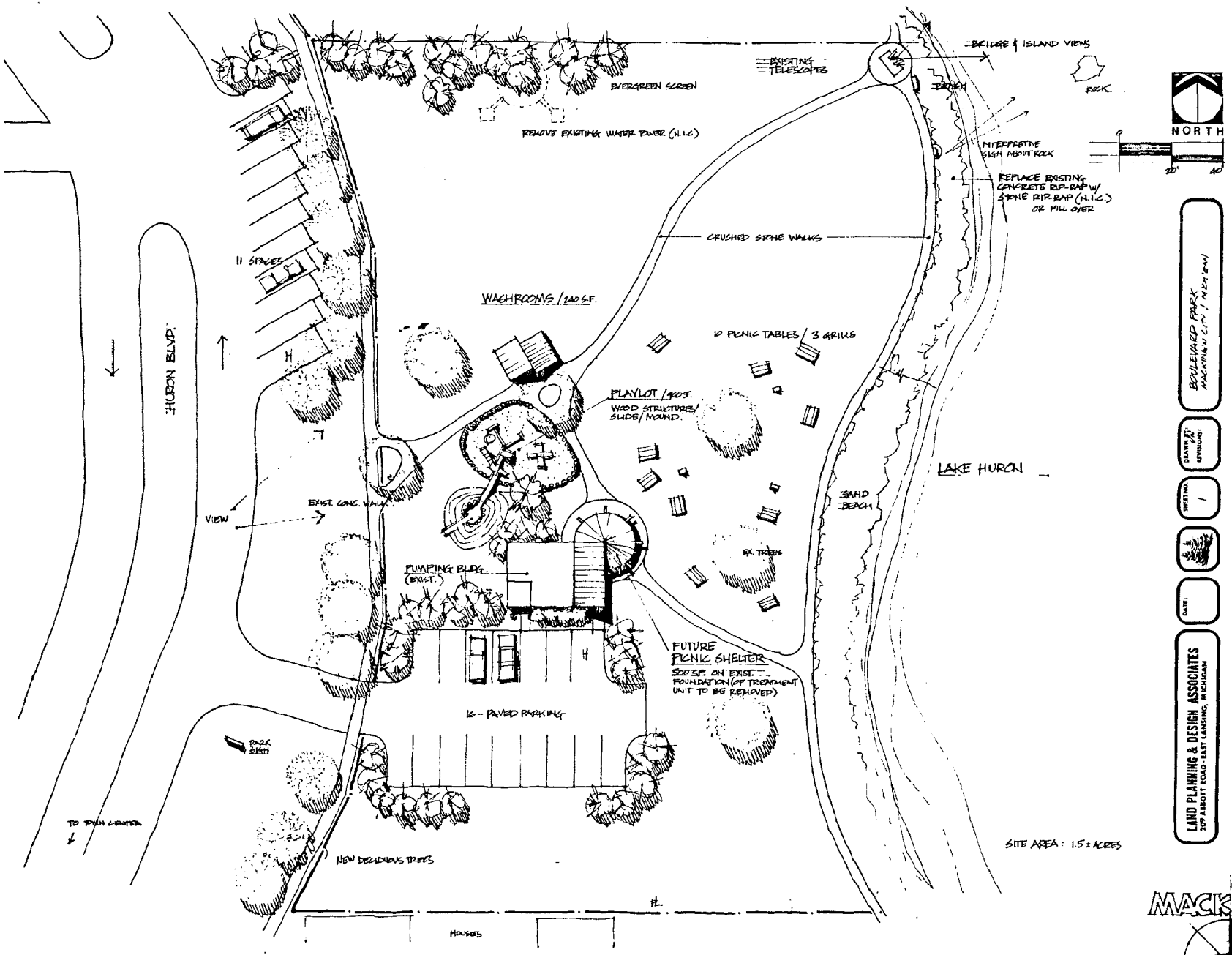
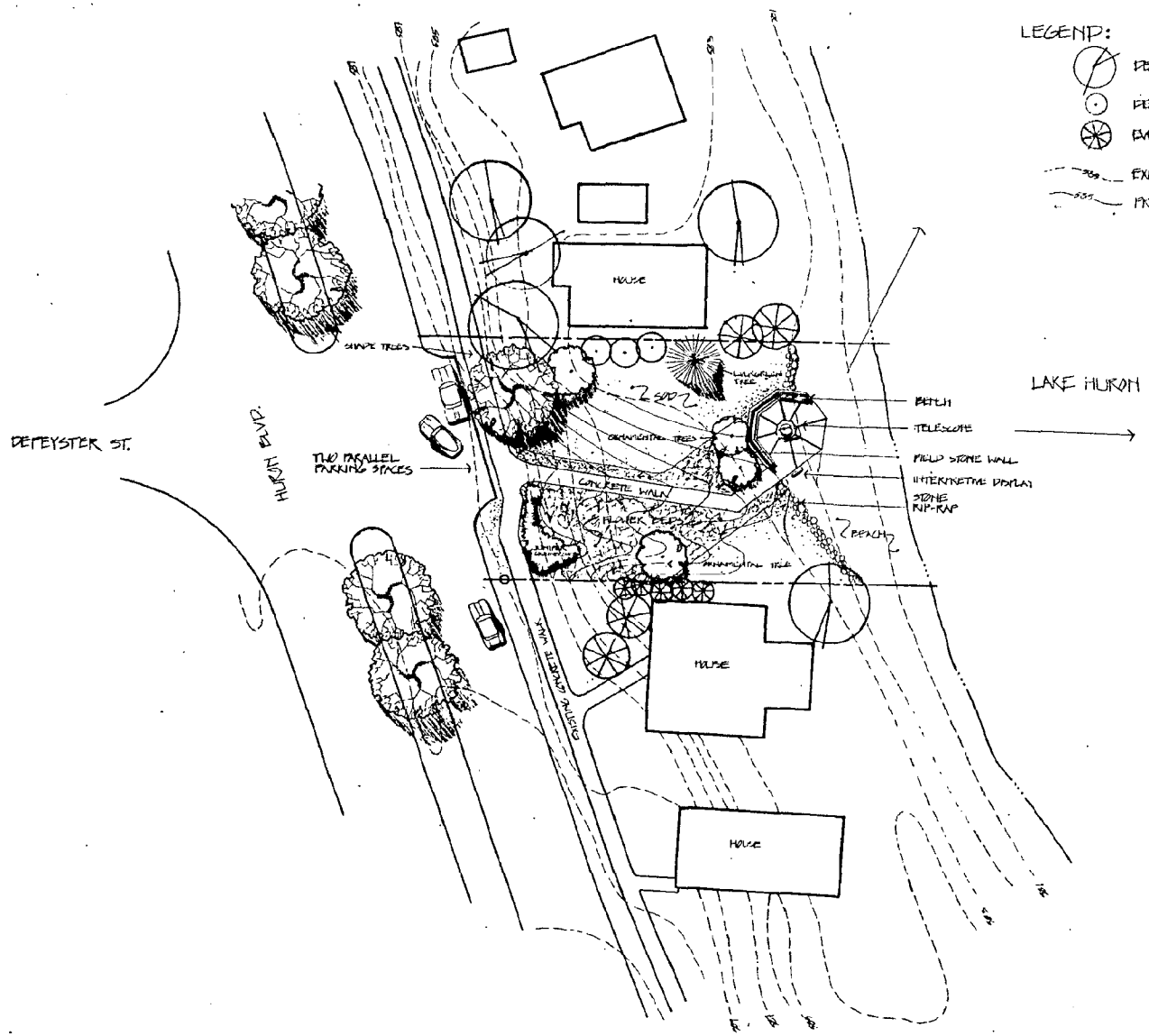
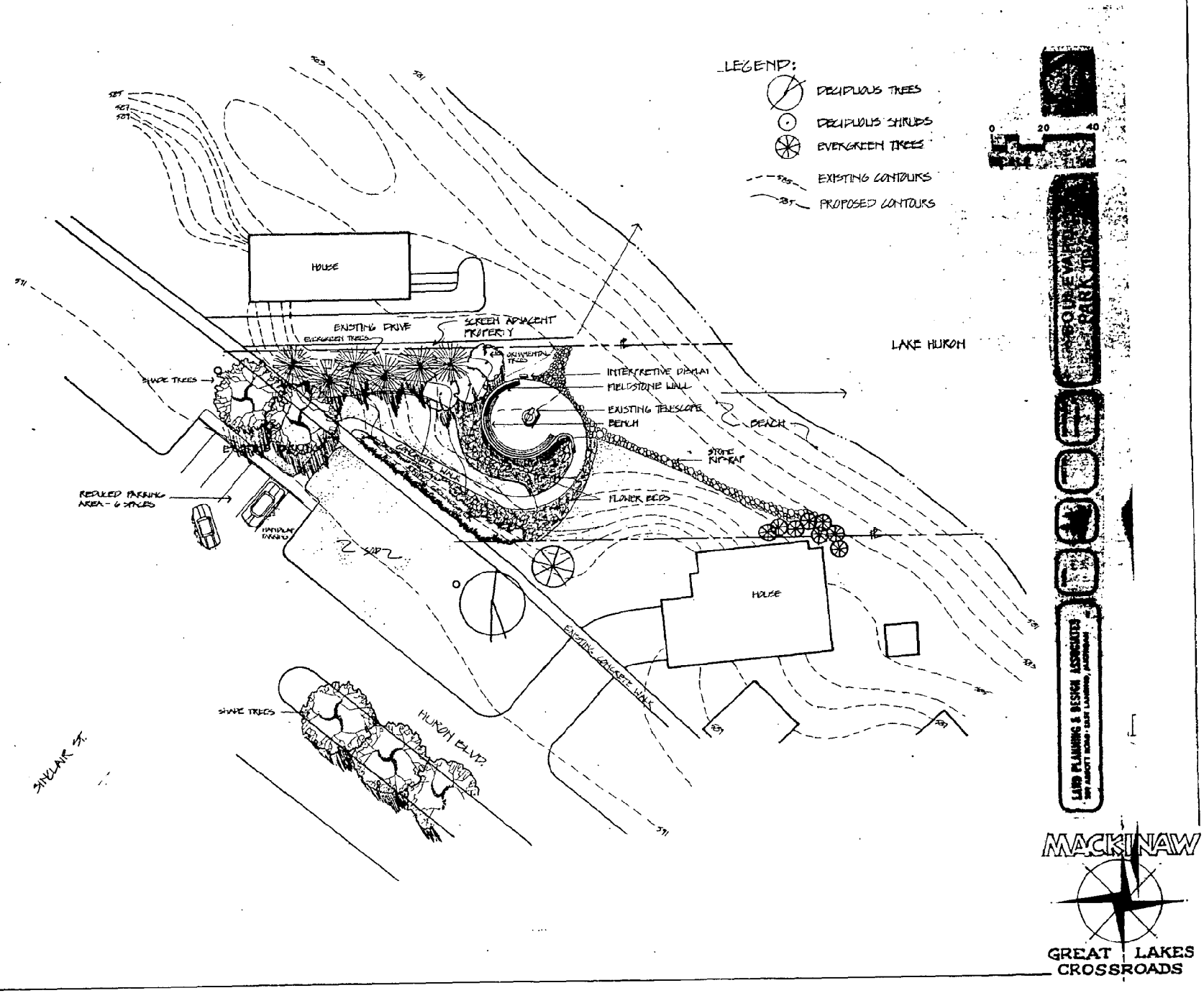

BRIDGE & ISLAND VIEWS
ROCK
NORTH
20'
40'
EVERGREEN SCREEN
EXISTING TELESCOPES
BENCH
REMOVE EXISTING WATER TOWER (N.I.C.)
INTERPRETIVE SIGN ABOUT ROCK
REPLACE EXISTING CONCRETE RIP-RAP W/ STONE RIP-RAP (N.I.C.) OR FILL OVER
CRUSHED STONE WALKS
11 SPACES
WASHROOMS / 240 S.F.
10 PICNIC TABLES / 3 GRILLS
PLAYLOT / 900 S.F.
WOOD STRUCTURES/ SLIDE/ MOUND.
HURON BLVD.
LAKE HURON
SAND BEACH
EXIST. CONC. WALK
VIEW
EX. TREES
PUMPING BLDG. (EXIST.)
FUTURE PICNIC SHELTER
500 S.F. ON EXIST. FOUNDATION (OF TREATMENT UNIT TO BE REMOVED)
16 - PAVED PARKING
PARK SIGN
TO PALM CENTER
NEW DECIDUOUS TREES
HOUSES
SITE AREA: 1.5 ± ACRES
BOULEVARD PARK
MACKINAW CITY, MICHIGAN
DRAWN BY
REVISED
SHEET NO. 1
DATE:
LAND PLANNING & DESIGN ASSOCIATES
2109 ABBOTT ROAD - EAST LANSING, MICHIGAN
MACKINAW
GREAT LAKES CROSSROADS


LEGEND:
DECIDUOUS TREES
DECIDUOUS SHRUBS
EVERGREEN TREES
EXISTING CONTOURS
PROPOSED CONTOURS
NORTH
0 20 40
SCALE 1"=20'
BOULEVARD PARK no.3
MACKINAW
GREAT LAKES CROSSROADS
LAKE HURON
DEPEYSTER ST.
HURON BLVD.
TWO PARALLEL PARKING SPACES
SHADE TREES
HOUSE
HOUSE
HOUSE
ORNAMENTAL TREES
CONCRETE WALL
FLOWER BED
ORNAMENTAL TREE
BENCH
BENCH
TELESCOPE
FIELD STONE WALL
INTERPRETIVE DISPLAY
STONE RIP-RAP
CONCRETE WALK


LEGEND:
DECIDUOUS TREES
DECIDUOUS SHRUBS
EVERGREEN TREES
EXISTING CONTOURS
PROPOSED CONTOURS
0 20 40
HOUSE
EXISTING DRIVE
EVERGREEN TREES
SCREEN ADJACENT PROPERTY
ORNAMENTAL TREES
SHADE TREES
INTERPRETIVE DISPLAY
FIELDSTONE WALL
EXISTING TELESCOPE
BENCH
BEACH
STONE RIP-RAP
FLOWER BEDS
LAKE HURON
REDUCED PARKING AREA - 6 SPACES
HANDICAP PARKING
SOD
HOUSE
EXISTING CONCRETE WALK
SHADE TREES
HURON BLVD.
SINCLAIR ST.
LAND PLANNING & DESIGN ASSOCIATES
MACKINAW
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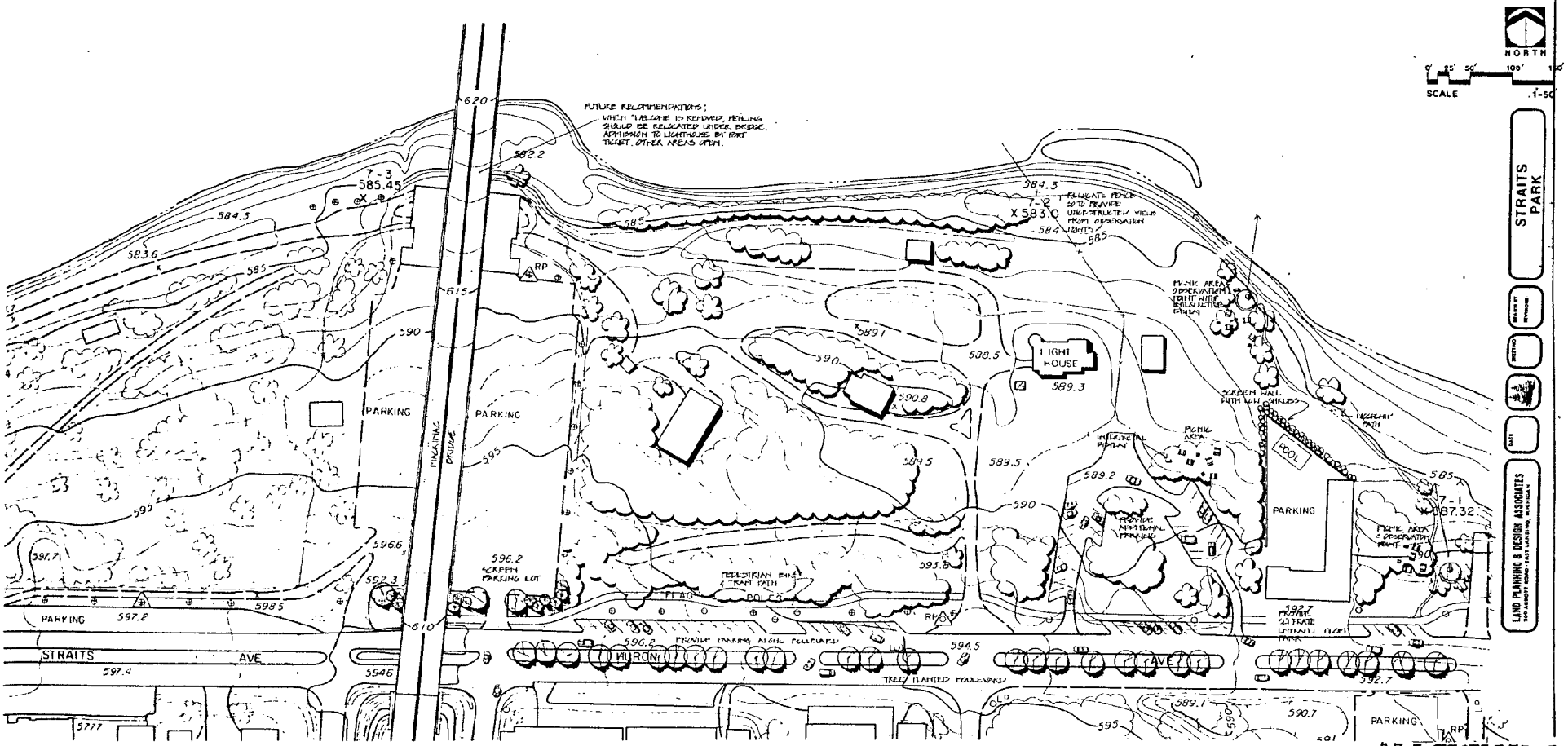
NORTH
SCALE
STRAITS PARK
LAND PLANNING & DESIGN ASSOCIATES
FUTURE RECOMMENDATIONS;
WHEN "WELCOME" IS REMOVED, RAILING SHOULD BE RELOCATED UNDER BRIDGE, ADJACENT TO LIGHTHOUSE BY FORT TICKET. OTHER AREAS OPEN.
LIGHT HOUSE
PARKING
PICNICKING BRIDGE
SCREEN PARKING LOT
PEDESTRIAN PATH & TRAIL PATH
FLAG POLES
PICNIC AREA & OBSERVATION POINT WITH NATIVE PLANTS
SCREEN WALL WITH LOW SHRUBS
POOL
TREE PLANTED BOULEVARD
STRAITS AVE
HURON AVE
MACKINAW
GREAT LAKES CROSSROADS

IMAGE

There is and will be a need to establish a firm image for Mackinaw City -- something that is appropriate for the existing resources and easily identified by tourists. The image should be the umbrella for any future improvements.

Part of the image will be in the "style" or "theme" of future buildings, renovations and public improvements. Another part will be the development of a motto and logo, to be used on promotional literature and on orientation and information signs. It is suggested that an initial step would be a public effort to involve all residents in determining the direction that the "image" campaign should take.

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STREETSCAPE and STOREFRONTS

Review of existing stores along Central Ave. indicates that there is no "Mackinaw" building style or prevelant or dominant building style. The single exception may be the bank building, which has a similar form to several buildings inside Fort Michilimackinac.

Many storefronts have been renovated in recent years. Renovations have had a scattering of various styles and architectural embellishments. One common element to many of the renovations has been a cedar-shingled, mansard roof.

Suggested Guidelines for Improved Street Appearance:

New Buildings: Style could be patterend after older local structures - much as the bank. Native materials, such as the stone in the city hall can be employed. The setbacks of buildings form the street could be varied to produce more interesting facades and pedestrian areas. Parking lots should be at the side of or behind buildings, rather than infront.

Future Renovations: Several existing, utilitarian buildings could be renovated attractively with a very simple facade treatment. the use of stone, shingles, awnings, lights and plantings, flowerboxes is suggested.

Signs: Rooftop signs should be replaced by facade mounted signs. Size of signs should be kept to reasonable size.

Street Furniture: Planters, benches, lights, signs and receptacles will add to the appearance of the downtown area if they are attractive and consistant with each other. It is recommended that

they could be based on a theme for example the "nautical" look.

Street Trees: Trees planted along the sidewalks and in the parking areas along the streets will greatly improve the street appearance. Deciduous trees with a fine foliage texture to allow sunlight to filter through are recommended.

Vacant Lots: Existing vacant lots could be planted with a cluster of evergreens and deciduous trees near the front to screen views to storage areas.

Street Corners: Street corners and walkways across streets need to be defined with curbing and paving pattern.

store fronts

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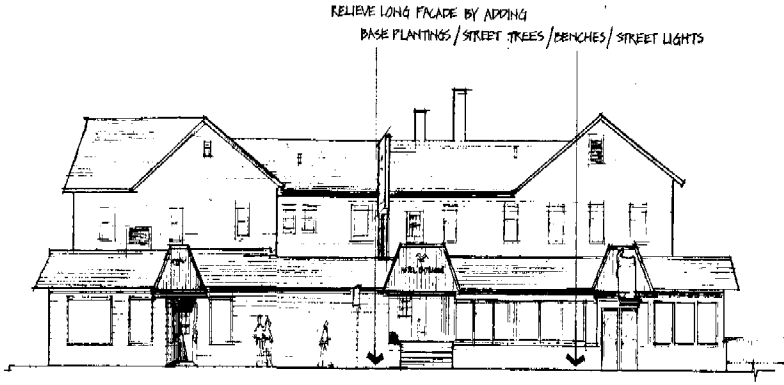
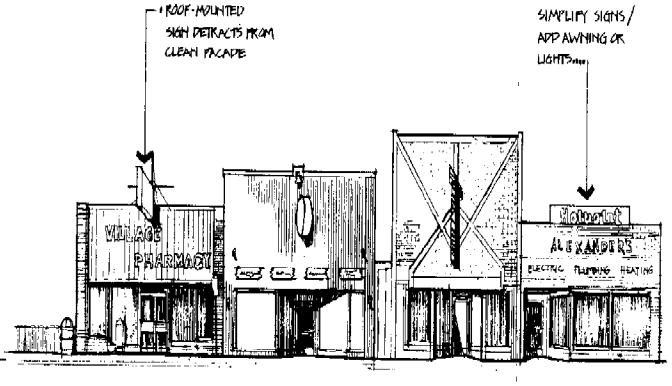
■ central ave. - north side

b

■ central ave. - north side

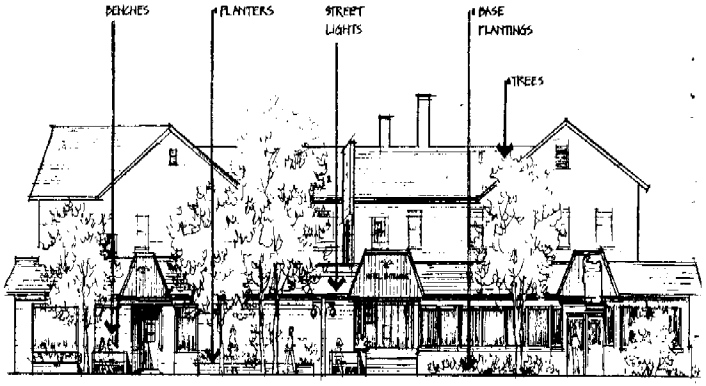
a

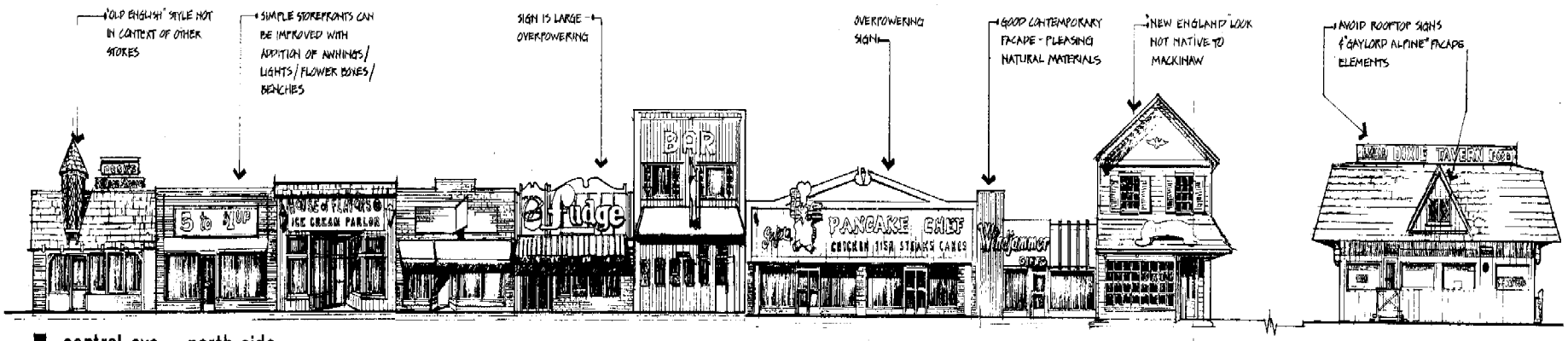




central ave. - north side

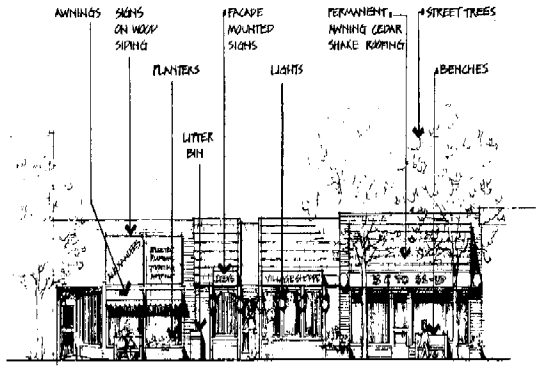
C

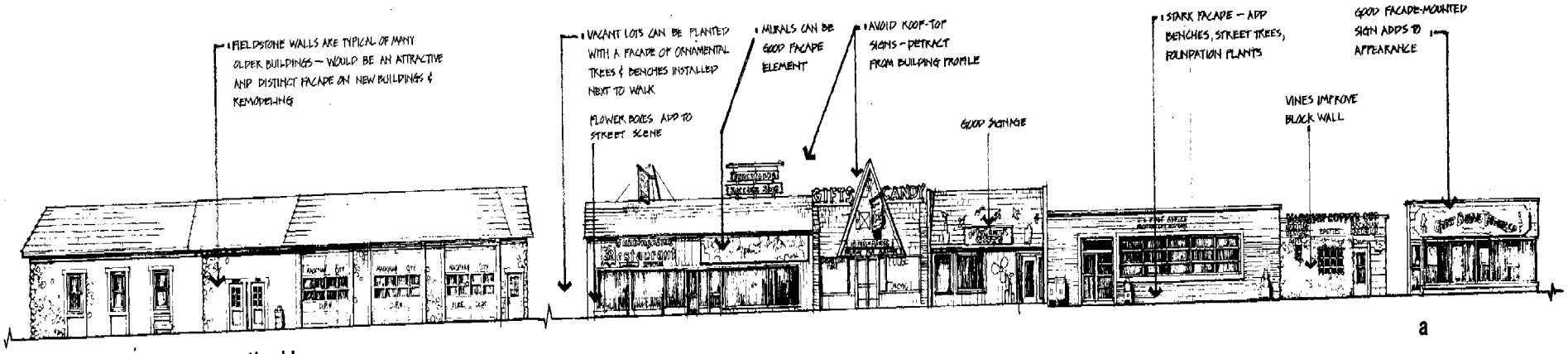




■ central ave. - north side

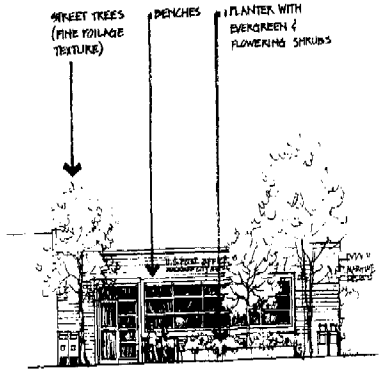
d

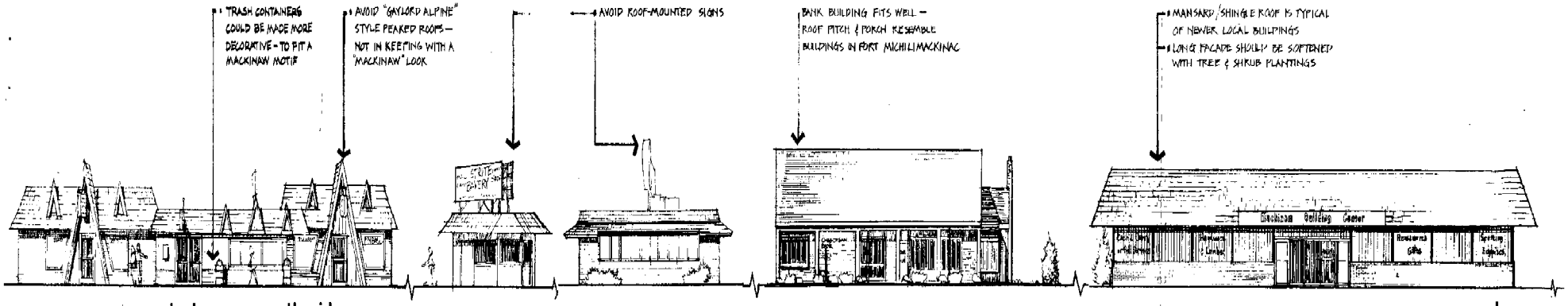




a

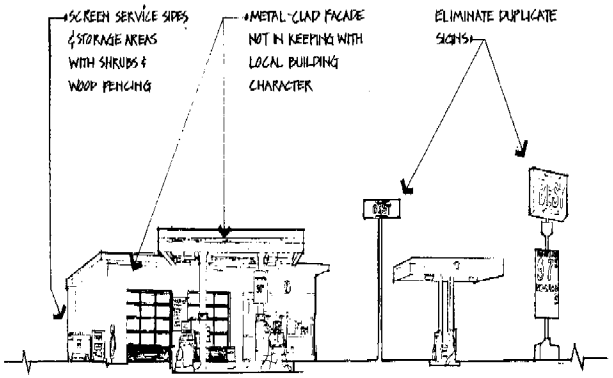
■ central ave. - south side





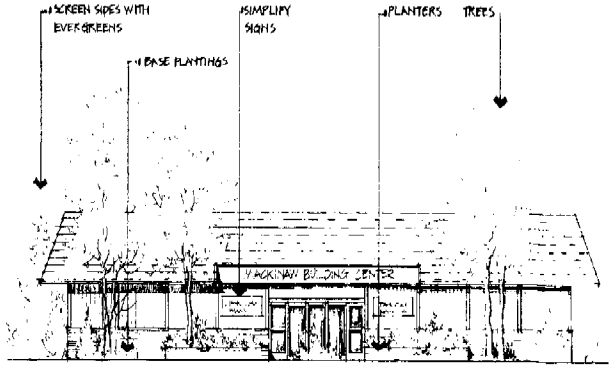
central ave. - south side

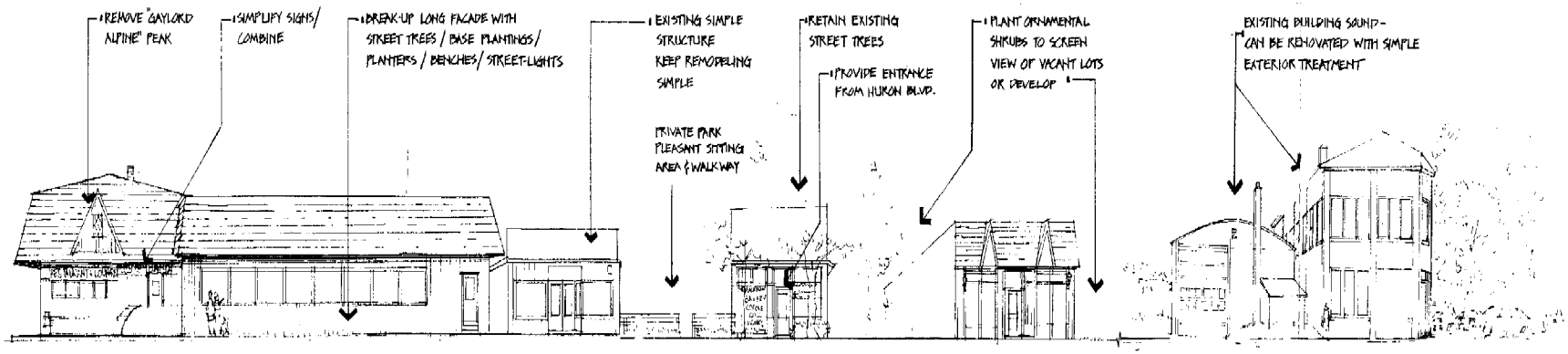
b



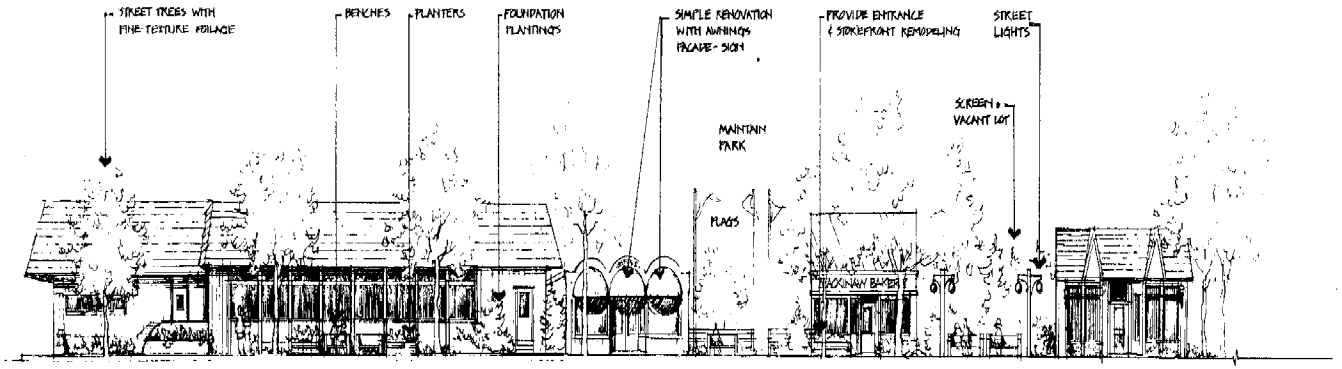
central ave. - south side

c

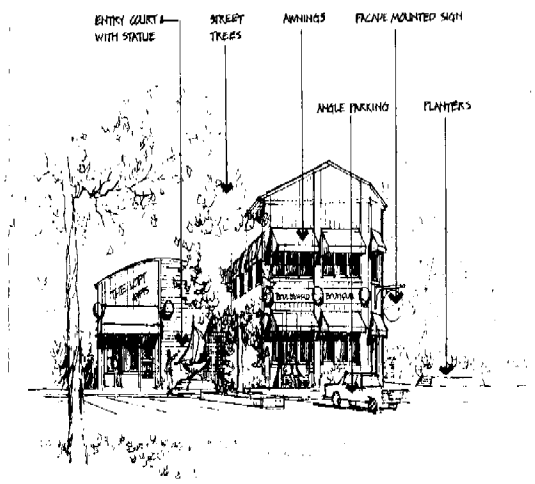




■ huron blvd.- west side



■ huron blvd. - recommendations



huron blvd. - renovation

signs & fixtures
tour tram & washrooms

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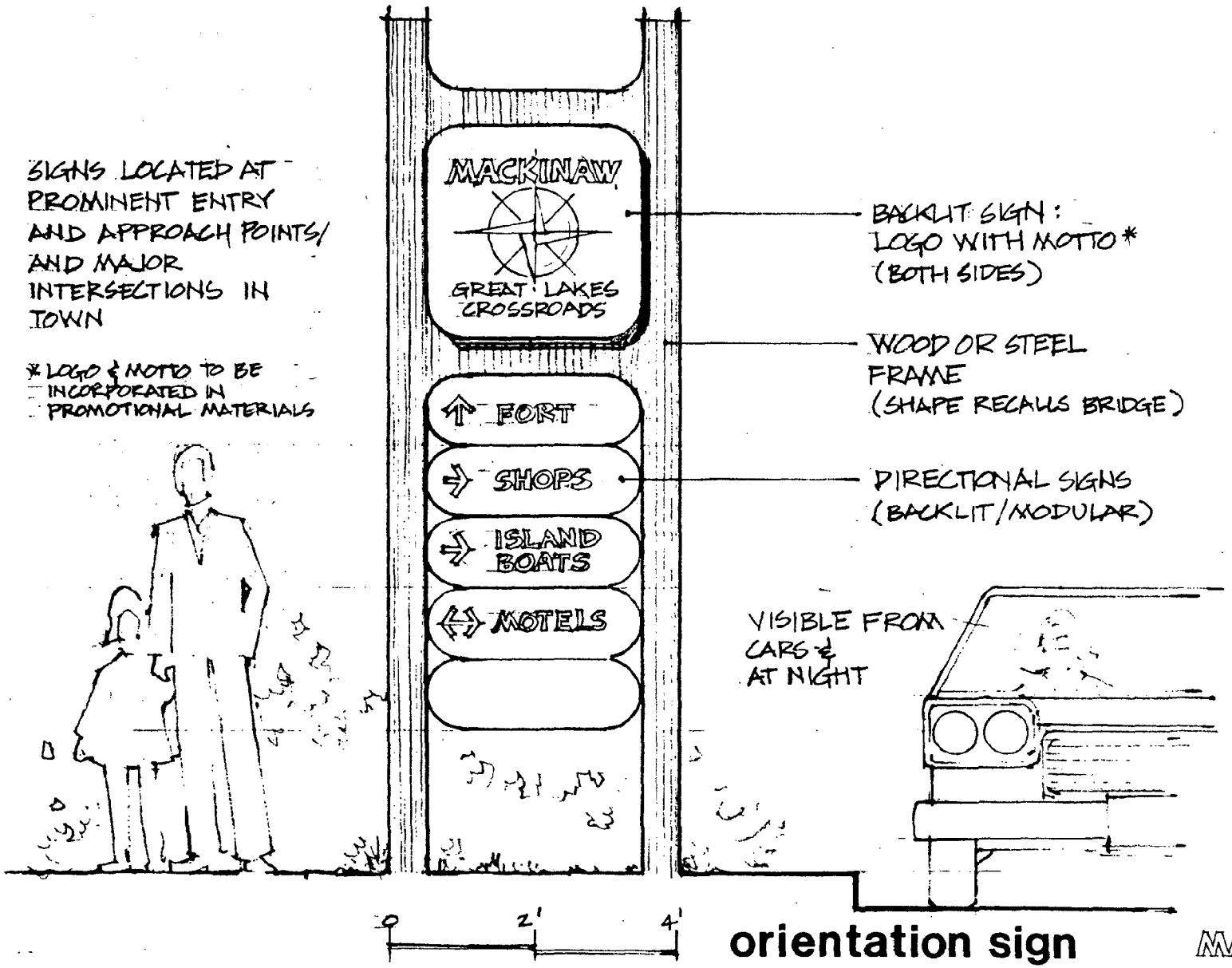

orientation sign

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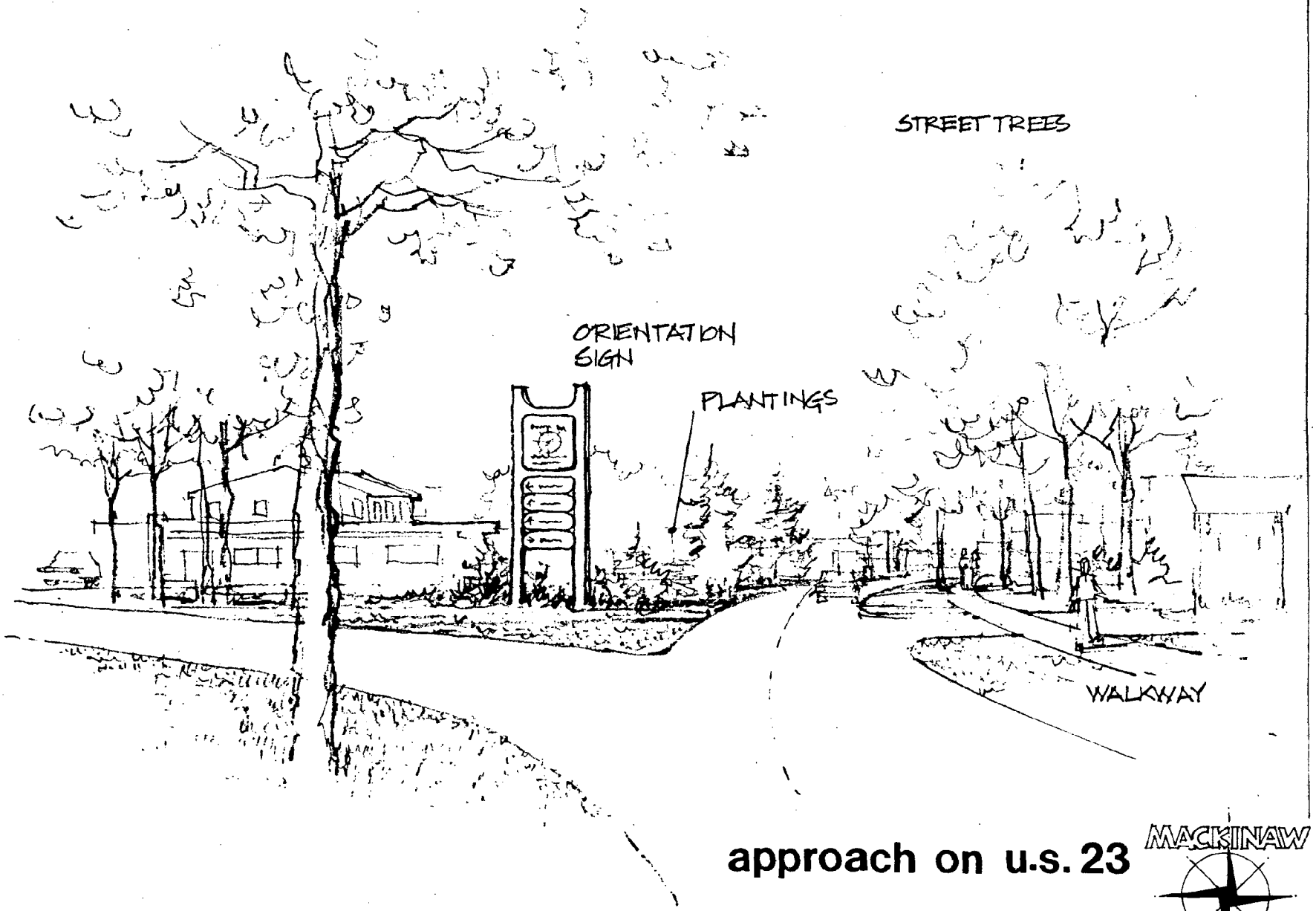

approach on u.s. 23

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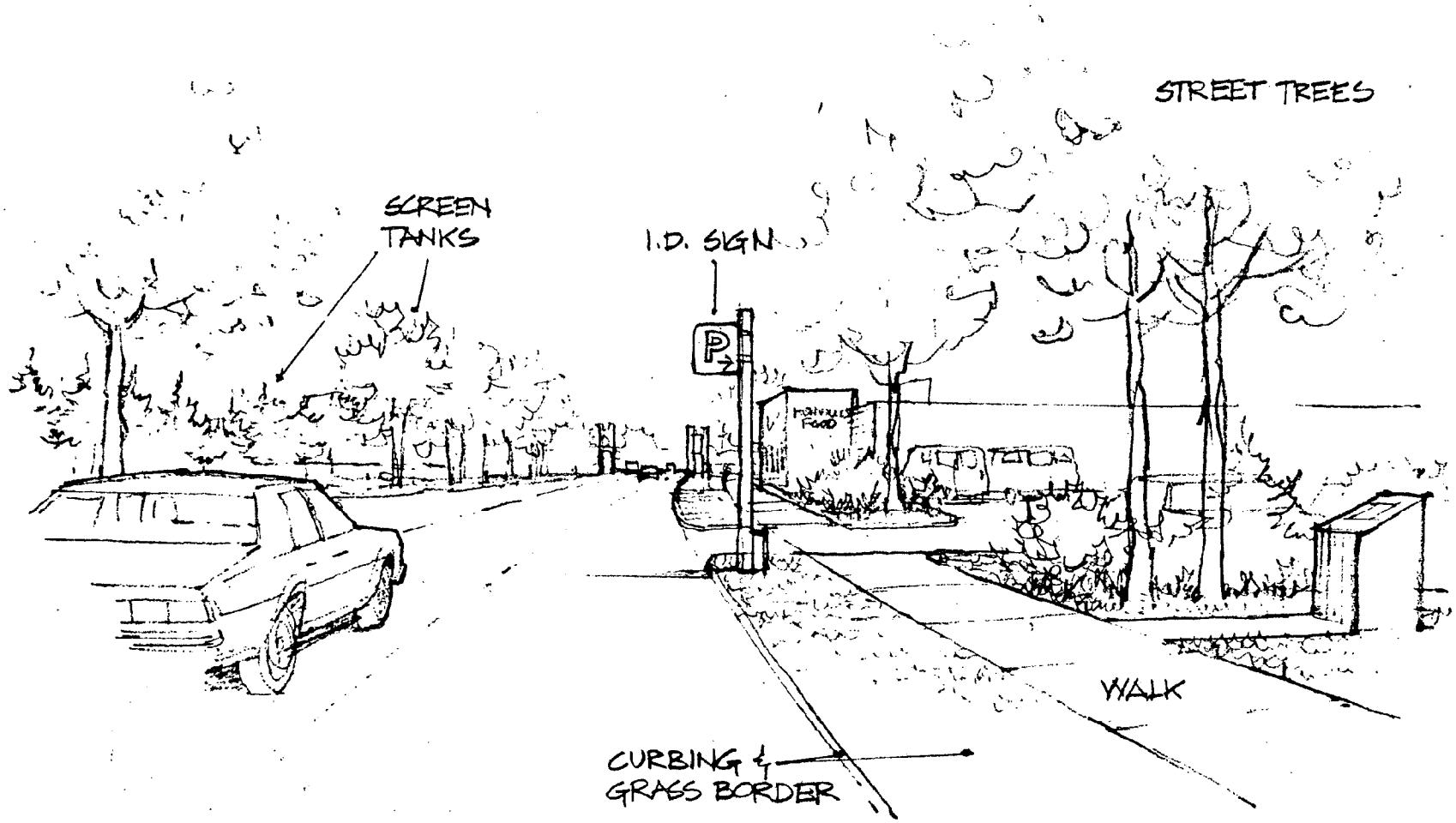

street improvements·s.huron

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PROPOSED INTERPRETIVE DISPLAYS

1. Cecil Bay & the Lumbering Era
2. Street Names of Mackinaw
3. Light Houses of the Straits
4. The Ferrys
5. Ship Wrecks at the Straits
6. Churches of Mackinaw
7. Mackinaw City Origins
8. Settlement at Mackinaw
9. Fishing at Mackinaw
10. Iron Horses
11. Families of Mackinaw
12. Mackinaw City Terminus
13. Wawatum
14. Winter at Mackinaw
15. Mackinaw - A Name
16. Chris Schneider's Place
17. Marine Reporter
18. Docks at Mackinaw
19. Stimpson Marine Station
20. Authors of Mackinaw
21. Fires at Mackinaw
22. Mackinaw Bridge
23. Mackinaw City Woman's Club
24. Art & Artists of Mackinaw
25. Indians at Mackinaw
26. Tourists at Mackinaw
27. Products form Mackinaw

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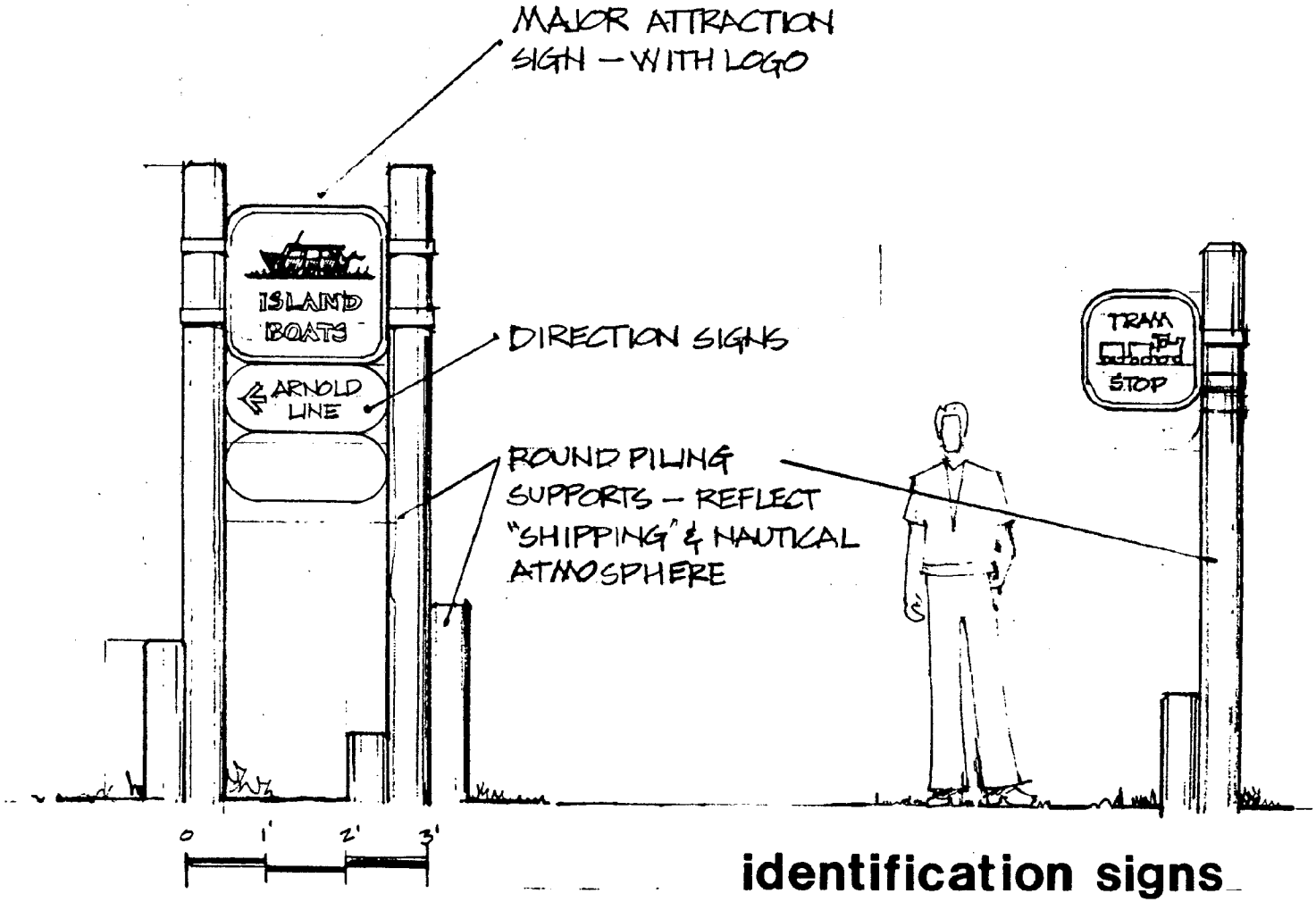
GREAT LAKES CROSSROADS



identification signs

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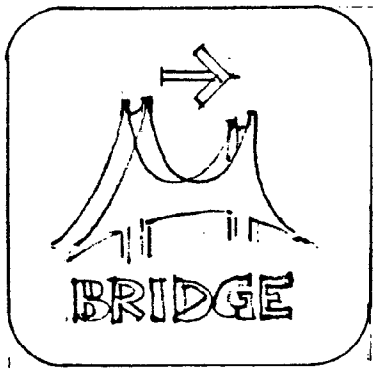
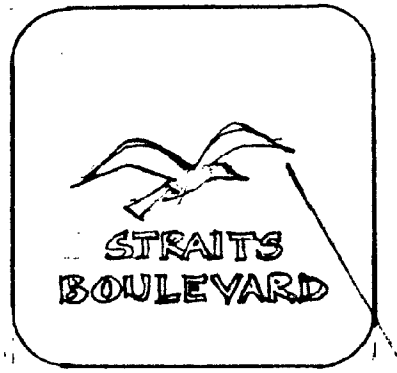
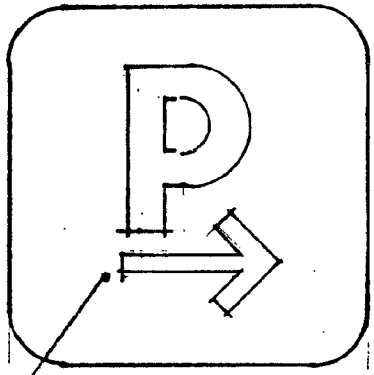
GREAT LAKES CROSSROADS



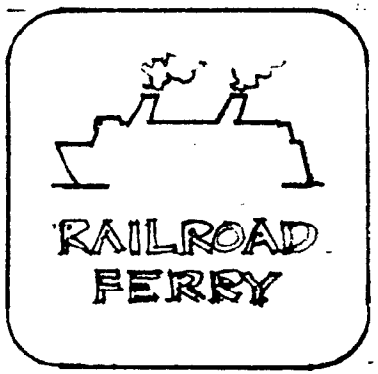


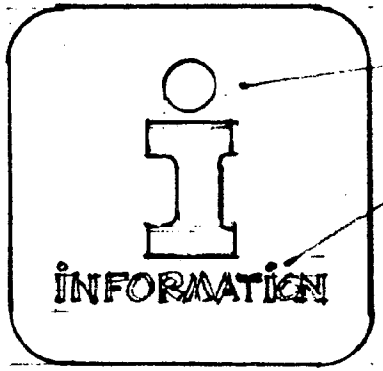


DIRECTIONAL ARROW, AS REQUIRED.

SIMPLE LOGOS

IDENTIFICATION





sign graphics

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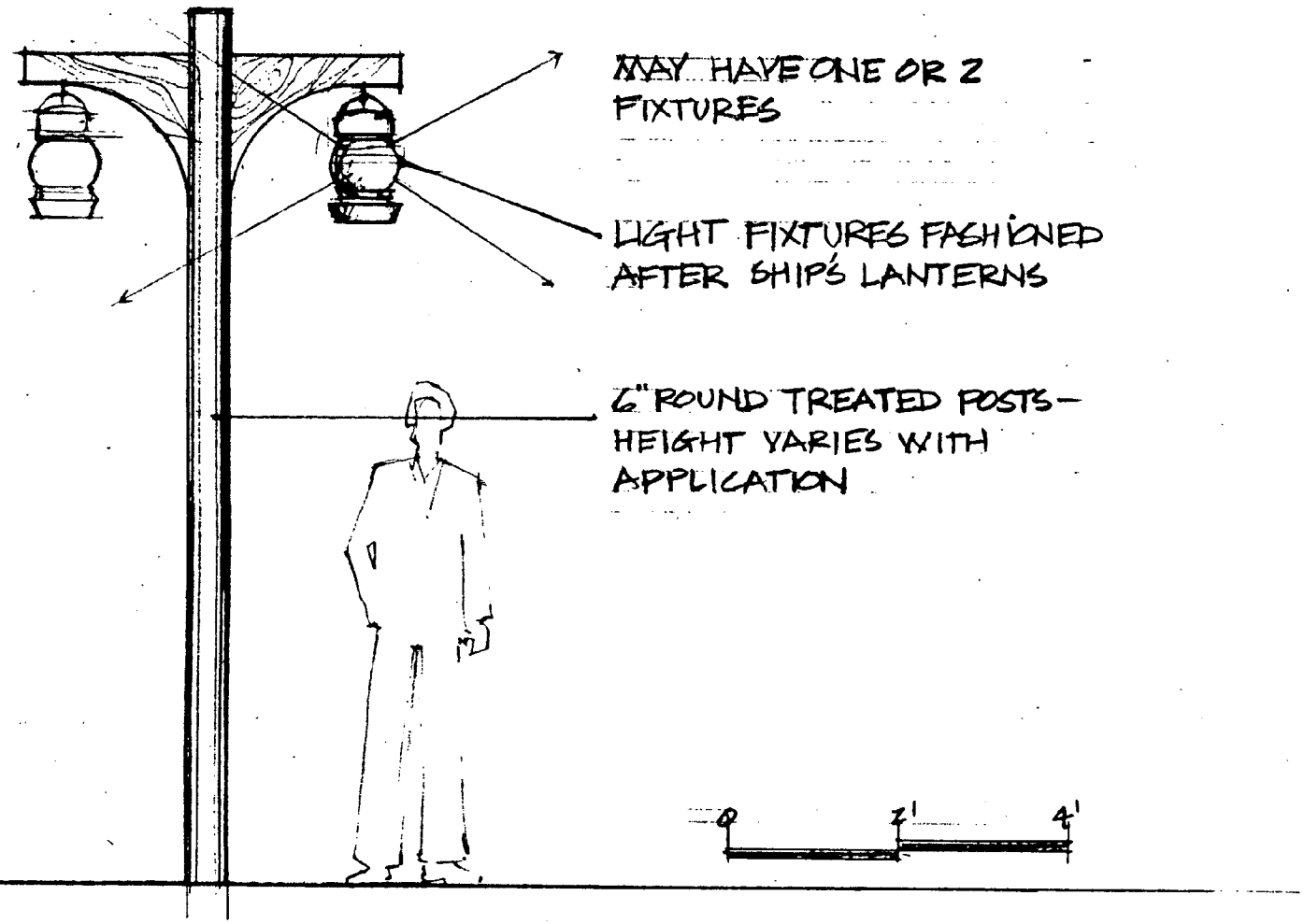
GREAT LAKES
CROSSROADS



lights

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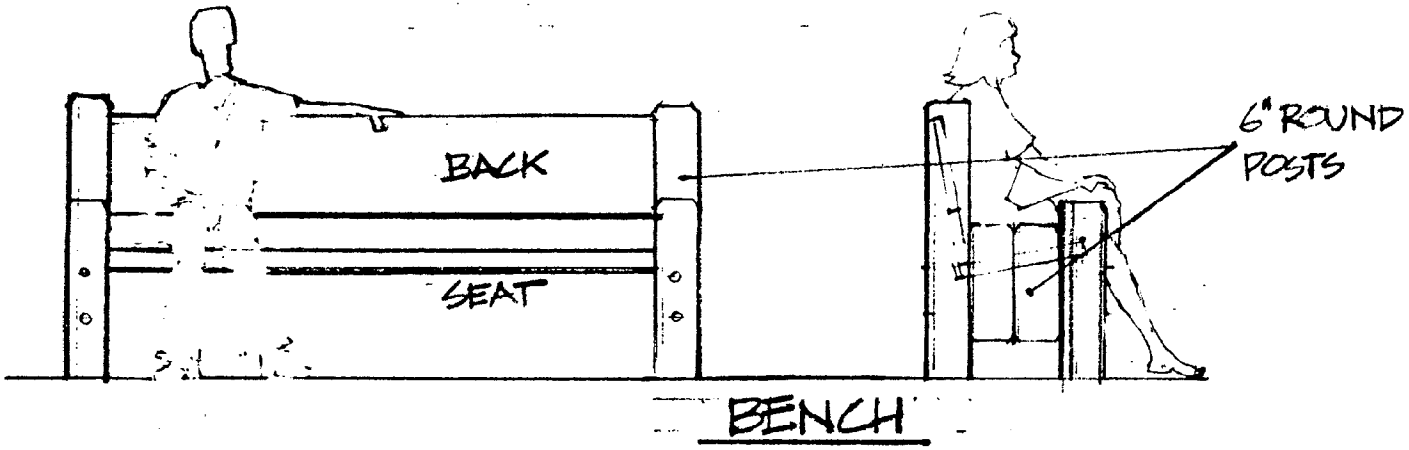
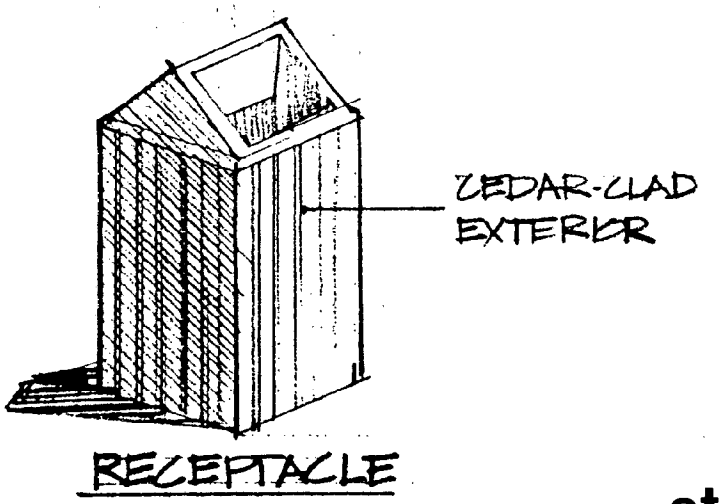
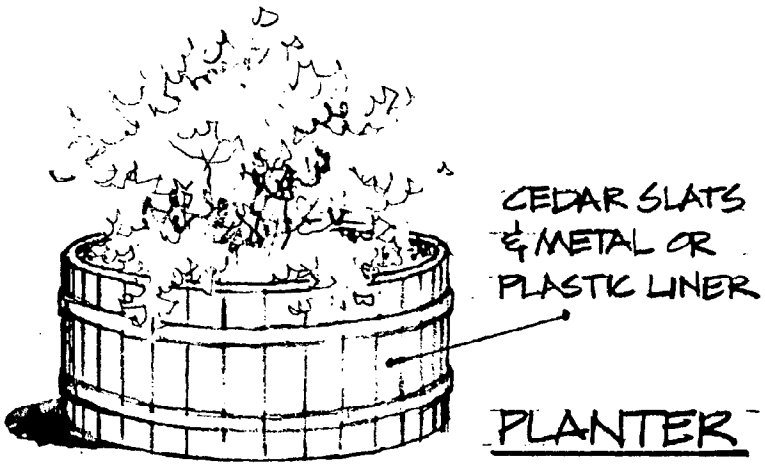
GREAT LAKES CROSSROADS







street furniture

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WALK WIDTH IS 8'- TO ALLOW BOTH TRAM AND PEDESTRIANS

tour tram

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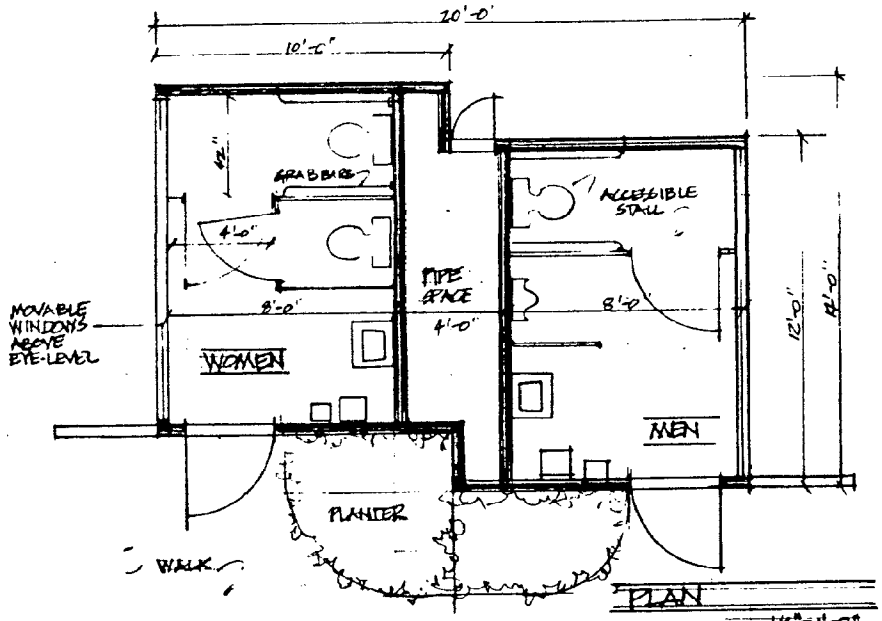
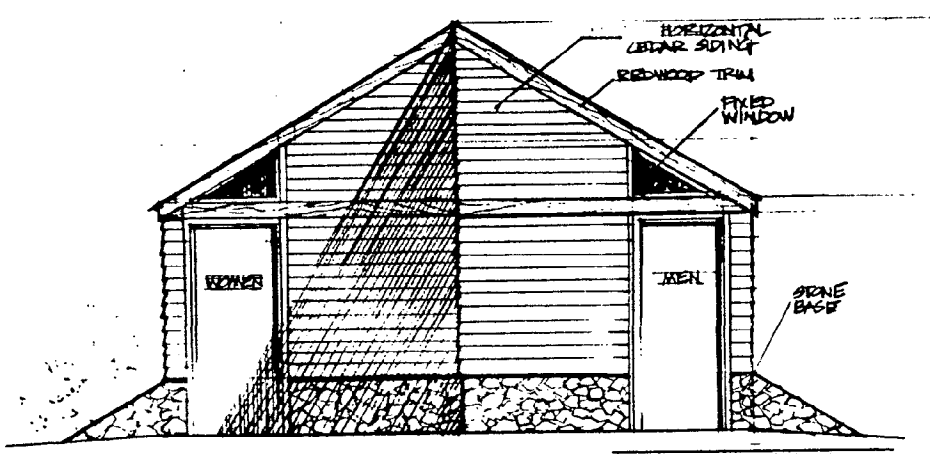
GREAT LAKES CROSSROADS



PLAN

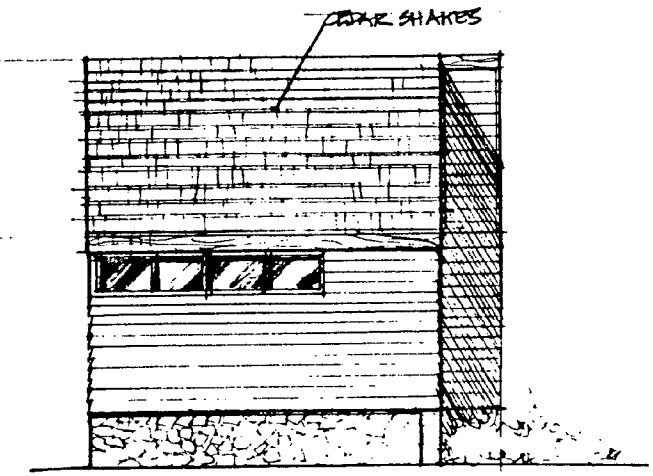
1/4"=1'-0"

- TOTAL AREA ——— 240 S.F.
- CONSTRUCTION:
  CONCRETE SLAB ON GRADE w/ WOOD FRAMING ABOVE STONE BASE.
- FULLY ACCESSIBLE



FRONT ELEVATION

1/4"=1'-0"



SIDE ELEVATION

LAND PLANNERS & DESIGN ASSOCIATES
399 ABBOTT ROAD · EAST LANSING, MICHIGAN

BOULEVARD PARK
MACKINAW CITY / MICHIGAN

WASHROOMS

2

implementation

MACKINAW
GREAT LAKES
CROSSROADS

RECREATION FUNDING SOURCES

FEDERAL FUNDING

LWCF (Land and Water Conservation Fund)

This important program is for acquiring or developing outdoor recreation facilities. Projects are funded on a 50% local and 50% federal match basis. The fund is administered at the state level by the Michigan Department of Natural Resources (DNR). Federal approval on projects is by the Department of Interior's Heritage Conservation and Recreation Service (HCRS). The annual application deadline is March 15th.

Federal Revenue Sharing

Federal Revenue Sharing monies are provided to local units of government and may be used for recreation projects at the local unit's discretion. Funds are distributed quarterly to the local units of government.

Corps of Engineers

The Corps provides labor and materials for construction of boating harbors of refuge, launching sites, and mooring facilities. Dredging, filling, and construction of breakwaters are included. Grants are not available to local units of government.

Upper Great Lakes Regional Commission (Supplemental Grant Program) (UGLRS)

Grant-in-aid supplements provide a portion of the local share of Federal grant-in-aid programs for construction and equipping of facilities, or acquisition of land, when the project directly improves economic conditions in the community. Applications made when other funds have been committed.

C.Z.M. (Coastal Zone Management Program)

Grants are available for a variety of planning, management and low cost construction projects. Projects are funded

on a 20% local - 80% federal match basis. The fund is administered at the state level by the Michigan Department of Natural Resources. Request for proposals are issued approximately January 1, pre-applications February 15th, final applications will be due approximately April.

CETA (Comprehensive Employment Trailing Act)

This program provides training and employment opportunities to the unemployed, underemployed, and disadvantages. Applicable projects include the maintenance and development of recreation areas.

STATE FUNDING

DNR Waterways Division

The Waterways Division of the DNR administered a program which provides grants-in-aid to local units of government for the construction of recreational boating facilities.

Grants are equal to 50% of total cost of such facilities, including engineering and contingencies. Applications are taken on an open basis. Funding may be matched by Land and Water Conservation Fund. A local match of 10% is required.

Michigan Land Trust Fund

This program provides funds for public acquisition of recreation land and is administered by the DNR. Annual application deadline approximately April 4th.

State Revenue Sharing

State Revenue Sharing monies provided at local units of government may be used for recreation projects at local unit's discretion. Funds are available on a quarterly basis.

Motor Vehicle Highway Fund for Nonmotorized Transportation (Trails), 1978 Amendment to Section 10k, Act 51, 1951, as amended.

Not less than 1% of the funds allocated from the Michigan Transportation Fund to the state trunkline fund and to counties, cities, and villages shall be expended for nonmotorized transportation services and facilities. Projects should be directed

to the Michigan Department of State Highways and Transportation or the County Road Commission.

Recreation and Snowmobile Trails Program (Act 74, P.A. 1968 as amended)

Provides funds to local governments for (1) acquisition, (2) development, (3) maintenance, (4) route signing, (5) snowmobile trail signing program. Application deadline - variable.

LOCAL FUNDING

Fees and Charges

Reasonable user fees and charges may be collected to insure monies for properly maintaining facilities.

General Fund

Monies may be appropriated from general fund for recreation facilities, maintenance and development.

Tax Levies

Millage may be levied specifically for park and recreation purposes if approved by the public vote.

Bonds

General obligation bonds and revenue bonds may be issued by local units of government for development of recreation areas and facilities.

OTHER FUNDING SOURCES

Private Groups

Businesses and service clubs may provide monies for specific recreation projects.

Gifts

Gifts of land, money, materials, or labor may be obtained from individuals or groups.

Concessions

Concessions such as boat rentals, horses, food and beverages can provide monies for maintenance and development of recreation facilities.

PUBLICATIONS LISTING FUND SOURCES

The Catalog of Federal Domestic Assistance Programs - lists federal grant sources.

Local Assistance Manual

Office of Intergovernmental Relations, Michigan Department of Management and Budget, $6.75, May 1979 - lists state grant sources.

SUMMARY & IMPLEMENTATION

The Mackinaw City planning effort resulted in a number of outputs for the study area including (1) traffic study (2) a detailed Coastal Development Plan (3) recommendations for the improvement of the community image including suggestions for store front improvements, street furnishings, and signing (4) detailed plans for parks along Huron Boulevard (5) a suggested capital improvement program and a five year Village Capital improvement budget. (6) Working drawings for washroom facilities and demolition of the sewage plant digestor.

The site improvements through out the study area are summarized in the Mackinaw Coastal Development Plan. Suggested are improvements in both the private and public sector. Those in the public sector would be implemented by local as well as state level agencies. State agencies include the Mackinaw Island State Park Commission and the Water Ways Division of the Michigan Dept. of Natural Resources. Private improvement would include store front improvements and the establishment of new Chamber of Commerce facilities.

The Store front designs will require a co-operative effort between the property owners and the city. Improvement to the buildings and on private property will have to be accomplished by the property owner. The City may adopt by ordinance a design review process which will attempt to direct the designs of new or remodeled store fronts. Such a design ordinance is in effect on Mackinaw Island and perhaps could be used as a model.

As much of the recommended improvement relates to landscaping and the installations of street furnishings in the street right-of-way a cooperative effort will be required between the property owners and the city. There are several options available: (1) a community wide program could be implemented through special assessments (2) improvements could be made on a street by street basis through special assessments (3) Individual owners could make improvements in accord with the master plan under the cities permit (4) a shared cost program could be developed between the city and the property owners whereby the property owners would pay for materials which would be city crews. A combination of these options might

also be the answer.

The Capital Bedget suggests using the first option where improvements in the right-of-way would be implemented through special assessments. Final implementation will however depend on the method most acceptable to the property owners and the city collectively.

SOURCES OF FUNDING

CZM	COASTAL ZONE MANAGEMENT
L&W	LAND & WATER CONSERVATION FUND
VGF	VILLAGE GENERAL FUND
MLTF	MICHIGAN LAND TRUST FUND
MWD	MICHIGAN WATERWAYS DIVISION
MDSHT	MICHIGAN DEPARTMENT STATE HIGHWAYS & TRANSPORTATION
FS & OC	FOUNDATION SUPPORT & OTHER CONTRIBUTIONS
MISPC	MACKINAW ISLAND STATE PARK COMMISSION
VSF	VILLAGE STREET FUND BONDS
FAS	FEDERAL AID SECONDARY FUNDS
P.O.	PROPERTY OWNERS
S.A.	SPECIAL ASSESSMENT
UGL	UPPER GREAT LAKES COMMISSION

PROPOSED FIVE YEAR CAPITAL BUDGET

	AREA	TOTAL	1980	1981	1982	1983	1984
1.	STRAITS PARK	$31,515					
	Rough Grading	$1,680	$1,680				
	Surfacing	$13,780			$13,700	$13,730	
	Fence Relocation	$830	$830				
	Site Improvements	$6,880		$6,880			
	Planting	$8,400		$8,400			
2.	PARK #2	$16,415					
	Earthwork	$845	$845				
	Site Improvement	$1,400		$1,400			
	Surfacing	$2,350			$2,350		
	Vegetation	$3,000			$3,000		
	Landscaping	$6,630	$1,380		$2,000		
	Wall	$1,360		$1,360			
3.	PARK #3	$11,700					
	Earthwork	$1,295	$1,295				
	Surfacing	$1,000		$1,000			
	Site Improvements	$1,800		$1,800			
	Vegetation	$3,000		$3,000			
	Landscaping	$2,400	$600	$2,000			
	Wall	$2,200		$2,200			
4.	BOULEVARD PARK	$56,445					
	Buildings	$12,000	$12,000				
	Utilities	$1,100	$1,100				
	Play Area	$10,000	$10,000				
	Paths	$700	$700				
	Planting	$2,075	$2,075				
	Shore Protection	$8,000	$8,000				
	Demolition	$4,000		$4,000			
	Surfacing	$5,270		$5,270			
	Site Improvements	$2,700	$2,700				
	Fencing	$4,000	$4,000				
	Landscaping	$3,600		$3,600			
	Picnic Shelter	$3,000				$3,000	

MACKINAW
GREAT LAKES CROSSROADS

	AREA	TOTAL	1980	1981	1982	1983	1984
5.	BOULEVARD	$240,510					
	Roads and Parking	$94,210	$9,421				
	Site Improvements	$11,600	$1,160				
	Walks and Paths	$72,240	$7,224	$4,000		$20,000	$20,000
	Plantings	$12,600	$1,260	$1,500	$1,500	$1,500	$1,500
	Landscaping	$43,000	$4,300	$2,000	$2,000	$2,000	$2,000
	Interpretive Display	$10,000	$4,000	$6,000	$1,200	$1,200	$1,200
6.	FORT AREA	$28,625					
	Roads and Parking	$24,085	$24,085				
	Plantings	$3,360	$3,360				
	Landscaping	$1,180	$1,180				
7.	CENTRAL AVENUE	$99,650					
	Roads and Parking	$41,370	$41,370				
	Site Improvements	$4,300	$4,300				
	Planting	$7,000	$7,000				
	Walk	$13,200	$13,200				
	Sod	$3,780	$3,780				
	Storm Drain	$30,000	$40,000				
8.	CENTRAL & HURON INTERSECTION	$51,540					
	Rough Grading	$5,640	$5,640				
	Roads & Parking	$20,845	$20,845				
	Utilities	$16,500	$16,500				
	Site Improvements	$3,980	$3,980				
	Walks and Paths	$900	$900				
	Plantings	$1,890	$1,890				
	Landscaping	$1,785	$1,785				
9.	ADDITIONAL PARKING	$114,200					
	Rough Grading	$11,560	The projected budget for 1980-1984 will be considered				
	Roads and Parking	$68,685	after a five year period with demonstrated need depending				
	Walks and Paths	$2,700	on the State dock situation and use of auto.				
	Planting	$14,755					
	Landscaping	$16,500					
10.	NICOLET STREET	$23,970	$98,970				
	Roads & Parking	$10,290	$10,290				
	Site Improvements	$1,500	$1,500				

MACKINAW
GREAT LAKES CROSSROADS

	AREA	TOTAL	1980	1981	1982	1983	1984
	Plantings	$7,140	$7,140				
	Landscaping	$5,040	$5,040				
	Storm Sewer	$75,000	$75,000				
11.	RAILROAD AVENUE	$70,650					
	Trees	$6,300	After five year period.				
	Surfacing	$33,300					
	Directional signs	$3,000					
	Landscaping	$28,050					
12.	HURON AVENUE, (Central to South City Limit)						
	Landscaping & Walks	$45,000			$15,000	$10,000	$10,000
13.	TOUR TRAM	$40,000	Subject to further detailed feasibility study by the community.				

SUMMARY

AREA	TOTAL	1980	1981	1982	1983	1984
P.O.			$2,000		$10,000	$10,000
SA		$145,055				
CZM		$20,000	$14,400	$16,000		
L&W		$15,000	$14,455			
VGF		$20,000	$20,055	$20,055	$23,000	$20,000
MLTF						
MWD						
MDSHT		$49,485				
FS & OC			$3,500	$4,700	$4,700	$4,700
MISPC		$12,870				
VSF		$88,140				
FAS		$12,885				

MACKINAW
GREAT LAKES CROSSROADS

CAPITAL IMPROVEMENT PROGRAM
MACKINAW CITY
NOVEMBER, 1979

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
STRAITS PARK			
A. ROUGH GRADING			
Grading balanced	3000 C.Y.	$.56/C.Y.	$1680.00
B. SURFACING			
Gravel	2000 S.Y.	$2.05/S.Y.	$4100.00
Paving (bit.)	2000 S.Y.	$4.50/S.Y.	$9000.00
Parking blocks	35	$18.00 each	$630.00
C. FENCE RELOCATION	225'	$3.70/L.F.	$830.00
D. SITE IMPROVEMENTS			
Benches	8	$140 each	$1120.00
Tables	40	$110 each	$4400.00
Grills	10	$80 each	$800.00
Trash Containers	4	$140 each	$560.00
E. PLANTING			
Shrubs	30	$65 each	$1950.00
Crushed Stone	2000 S.F.	$.50/S.Y.	$1000.00
Topsoil	3300 S.Y.	$120/S.Y.	$3960.00
Seed	3300 S.Y.	$.45/S.Y.	$1485.00
			$31,515.00
PARK PLAN #2			
A. EARTHWORK			
Fill Material	120 C.Y.	$4.00/C.Y.	$480.00
Rough Grading	150 C.Y.	$2.45/C.Y.	$365.00
B. SITE IMPROVEMENTS			
Benches	6	$140 each	$840.00
Trash Containers	1	$140 each	$140.00
Interpretive Sign	1	$400 each	$400.00
C. SURFACING			
Deck (6" broomed finish)	78 S.Y.	$16/S.Y.	$1250.00
Concrete Walks 4'	720 S.F.	$1.50/S.F	$1080.00
D. VEGETATION			
Trees	11	$70 each	$770.00
Shrubs	20	$65 each	$1300.00
Ground Cover	300	$4/S.Y.	$1200.00
E. LANDSCAPING			
Hydro seed, Mulch, Fertilizer	3000 S.Y.	$.45/S.Y.	$1350.00
Topsoil	3000 S.Y.	$1.20/S.Y.	$3600.00
Rip rap	140 L.F.	$12/L.F.	$1680.00
F. WALL	40 L.F.	$34.00/L.F.	$1360.00
			$16,415.00
PARK #3			
A. EARTHWORK			
Fill	250 C.Y.	$4.00/C.Y.	$1000.00
Rough Grading	120 C.Y.	$2.45/C.Y.	$295.00
B. SURFACING			
Deck (6' rem. conc.)	55 S.Y.	$16/S.Y.	$880.00
Concrete Walk (4' wide)	90 L.F.	$1.50/S.F.	$135.00

MACKINAW
GREAT LAKES CROSSROADS

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
C. SITE IMPROVEMENTS			
Telescope	1	$1100 each	$1100.00
Benches	4	$140 each	$560.00
Trash Containers	1	$140 each	$140.00
D. VEGETATION			
Trees	7	$70 each	$490.00
Shrubs	20	$65 each	$1300.00
Ground Cover	300 S.F.	$4/S.F.	$1200.00
E. LANDSCAPING			
Hydro seeding			
Mulch, fertilizer	1050 S.Y.	$.45/S.Y.	$470.00
Topsoil	1050 S.Y.	$1.20/S.Y.	$1260.00
Rip rap	55 L.F.	$12/L.F.	$660.00
F. WALL	65 L.F.	$34/L.F.	$2210.00
			$11,700.00

BOULEVARD PARK

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
A. BUILDINGS			
Picnic Shelter	400 S.F.	$20/S.F.	$8000.00
Washroom Bldg.	240 S.F.	$50/S.F.	$12,000.00
B. UTILITIES			
Sewer	50'	$10/L.F.	$500.00
Water	50'	$10/L.F.	$500.00
Electric	50	$2/L.F.	$100.00
C. PLAY AREA	unit price		$10,000.00
D. WALK (4' concrete)	1000 S.F.	$1.50 S.F.	$1500.00
E. PLANTING			
Tree Planting	36	$70 each	$2520.00
Shrubs	10	$65 each	$650.00
F. SHORE PROTECTION	400 S.F.	$20/S.F.	$8000.00

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
G. DEMOLITION		Unit price	$4000.00
H. SURFACING			
Paving (bit.)	805	$4.50/S.Y.	$3620.00
Gravel	805	$2.05/S.Y.	$2650.25
I. SITE IMPROVEMENT			
Benches	4	$140 each	$560.00
Tables	20	$110 each	$220.00
Grills	5	$80 each	$400.00
Trash Containers	4	$140 each	$560.00
J. LANDSCAPING			
Seeding	4500 S.Y.	$.45/S.Y.	$2000.00
Topsoil	500 S.Y.	$1.20/S.Y.	$600.00
Crushed Stone	2000 S.Y.	$.50 S.F.	$1000.00
			$50,380.00

BOULEVARD

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
A. ROADS AND PARKING AREAS			
Paving (bit.)	4000 S.Y.	$4.50/S.Y.	$18,000.00
Resurfacing	14,700 S.Y.	$3.00/S.Y.	$44,100.00
Paint Stripping			
Roads	6400 L.F.	$.12/L.F.	$770.00
Parking	1600 L.F.	$.06/L.F.	$100.00
Curb and Gutter	1920 L.F.	$12/L.F.	$23,040.00
Gravel	4000 S.Y.	$2.05/S.Y.	$8200.00
B. SITE IMPROVEMENTS			
Signs			
Directional	2	1500 each	$3000.00
Interpretive	20	400 each	$8000.00
Tram Stop	5	120 each	$600.00
C. WALKS AND PATHS			
Concrete walk (8')	48160 S.F.	$1.50/S.F.	$72,240.00
D. PLANTINGS			
Trees	180	$70 each	$12,600.00

MACKINAW
GREAT LAKES CROSSROADS

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
E. LANDSCAPING			
Grading Fill	1000 C.Y.	$4.00/C.Y.	$4000.00
Sod	13,000 S.Y.	$1.80/S.Y.	$23400.00
Topsoil	15,000 S.Y.	$1.20/S.Y.	$15600.00
			$251,650.00

FORT AREA

A. ROADS AND PARKING AREAS			
Paving (bit.)	1200 S.Y.	$4.50/S.Y.	$5400.00
Paint Stripping			
Roads	600 L.F.	$.12/L.F.	$70.00
Parking	1240 L.F.	$.06/L.F.	$75.00
Curb and Gutter	1340 L.F.	$12/L.F.	$16080.00
Gravel (6')	1200 S.Y.	$2.05/S.Y.	$2460.00
B. PLANTINGS			
Trees	48	$70 each	$3360.00
C. LANDSCAPING			
Seeding	600 S.Y.	$.45/S.Y.	$270.00
Sod	90 S.Y.	$2.10/S.Y.	$190.00
Topsoil	600 S.Y.	$1.20/S.Y.	$720.00
			$28,625.00

CENTRAL AVENUE

A. ROADS AND PARKING AREAS			
Curbs and Gutter	3040 L.F.	$12/L.F.	$36480.00
Parking Blocks	100	$18 each	$1800.00
Paint Stripping			
Parking	7880 L.F.	$.06/L.F.	$470.00
Paving (bit.)	400 S.Y.	$4.50/S.Y.	$1800.00
Gravel	400 S.Y.	$2.05/S.Y.	$820.00
B. SITE IMPROVEMENTS			
Orientation sign			
Directional	1	$1500 each	$1500.00
Trash Containers	20	$140 each	$2800.00
C. PLANTING			
Trees	100	$70 each	$7000.00
D. CONCRETE WALK (8')	8800 S.F.	$1.50/S.F.	$13200.00
E. SOD	1800 S.Y.	$2.10/S.Y.	$3780.00
			$69,650.00

CENTRAL AND HURON INTERSECTION

A. ROUGH GRADING			
Grading	2300 C.Y.	$2.45/C.Y.	$5640.00
B. ROADS AND PARKING AREAS			
Paving (bit.)	1556 S.Y.	$4.50/S.Y.	$7000.00
Paint Stripping			
Roads	540 L.F.	$.12/L.F.	$65.00
Parking	460 L.F.	$.06/L.F.	$30.00
Curb and Gutter	880 L.F.	$12/L.F.	$10560.00
Gravel	1556 S.Y.	$2.05/S.Y.	$3190.00
C. UTILITIES			
Traffic Signal	unit price	$16,500	$16500.00
D. SITE IMPROVEMENTS			
Fountain/pool	unit price	$2200	$2200.00
Trash Containers	2	$140 each	$280.00
Directional sign	1	$1500 each	$1500.00
E. WALKS AND PATHS			
Concrete walk (4' width)	600 S.F.	$1.50/S.F.	$900.00
F. PLANTINGS			
Trees	27	$70 each	$1890.00

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ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
G. LANDSCAPING			
Sod	850 S.Y.	$2.10/S.Y.	$1785.00
			$51,540.00

ADDITIONAL PARKING

A. ROUGH GRADING			
Grading	4720 C.Y.	$2.45/C.Y.	$11560.00
B. ROADS AND PARKING			
Paving (bit.)	8640 S.Y.	$4.50/S.Y.	$38880.00
Stripping (Parking)	3600 L.F.	$.06/L.F.	$215.00
Parking Blocks	167	$1800 each	$3000.00
Curb and Gutter	740 L.F.	$12/L.F.	$8880.00
Compacted Gravel	8640 S.Y.	$2.05/S.Y.	$17710.00
C. WALKS AND PATHS			
Concrete Walk (4')	1800 S.F.	$1.50/S.F.	$2700.00
D. PLANTINGS			
Trees	65	$70 each	$4550.00
Shrubs	57	$65 each	$3705.00
E. LANDSCAPING			
Seeding	10,000 S.Y.	$.45/S.Y.	$4500.00
Topsoil	10,000 S.Y.	$1.20/S.Y.	$12000.00
			$107,700.00

NICOLET STREET

A. ROADS AND PARKING AREAS			
Paving (bit.)	725 S.Y.	$4.50/S.Y.	$3260.00
Paint Stripping (Parking)	400 L.F.	$.06/L.F.	$25.00
Curb and Gutter	460 L.F.	$12/L.F.	$5520.00
Gravel	725 S.Y.	$2.05/S.Y.	$1485.00
B. SITE IMPROVEMENTS			
Signs (Directional)	1	$1500 each	$1500.00
C. PLANTINGS			
Trees	102	$70 each	$7140.00
D. LANDSCAPING			
Seed	3055 S.Y.	$.45/S.Y.	$1375.00
Topsoil	3055 S.Y.	$1.20/S.Y.	$3665.00
			$23,970.00

"WELCOME"

A. DECK	1600 S.F.	$12.80/S.F.	$20480.00
B. PUBLIC RESTROOM	600 S.F.	$50/S.F.	$30000.00
C. CONCRETE WALK 8' width	4000 S.F.	$1.50/S.F.	$6000.00
D. LANDSCAPING			
Trees	25	$70 each	$1750.00
Seed	4200 S.Y.	$.45/S.Y.	$1890.00
Topsoil	4200 S.Y.	$1.20/S.Y.	$5040.00
			$65,160.00

STATE DOCK

A. ROUGH GRADING			
Grading	3200 C.Y.	$2.45/C.Y.	$7840.00
Fill Material	2600 C.Y.	$4.00/C.Y.	$10400.00
B. ROADS AND PARKING			
Resurfacing/1.25" of asphalt	21,572 S.Y.	$3.00/S.Y.	$64715.00
Paint Stripping/parking	11,800 L.F.	$.06/L.F.	$710.00
Curbs and Gutter	2900 L.F.	$12/L.F.	$34800.00

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ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
Gates	6	$2500 each	$15000.00
Gravel (6' compacted)	4600 S.Y.	$2.05/S.Y.	$9430.00
Paving (bit.)	4600 S.Y.	$4.50/S.Y.	$20700.00
Parking Blocks	280	$18 each	$5040.00
C. BUILDINGS			
Lookout Tower Renovation		unit price	$45000.00
Tourist Information	900 S.F.	$35/S.F.	$31500.00
Restroom Ticket Office	240 S.F.	$50/S.F.	$12000.00
Wait room	1250	$32/S.F.	$40000.00
D. UTILITIES			
Sanitary Sewer	70 L.F.	$10/L.F.	$700.00
Water	70 L.F.	$12/L.F.	$840.00
Electrical	50 L.F.	$2.00/L.F.	$100.00
E. SITE IMPROVEMENTS			
Signs	1	$1500 each	$1500.00
Picnic Tables	7	$110 each	$770.00
Grills	4	$80 each	$320.00
Trash Containers	3	$140 each	$420.00
Benches	2	$350 each	$700.00
Tram Stop Signs	1	$120 each	$120.00
F. WALKS AND PATHS			
Concrete Walk 4' width	4500 S.F.	$1.50/S.F.	$6750.00
8' width	2240 S.F	$1.50/S.F.	$3360.00
G. LANDSCAPING			
Trees	95	$70 each	$6650.00
Shrubs	13	$65 each	$850.00
Topsoil	9200 S.Y.	$1.20/S.Y.	$11040.00
Sod	6700 S.Y.	$2.10/S.Y.	$14000.00
Ground Cover	500 S.F.	$4.00/S.F.	$2000.00
			$347,255.00

ITEM	QUANITY	UNIT PRICE	TOTAL PRICE
MARINA			
A. BOARDWALK	13,000 S.F.	$12.80/S.F.	$166400.00
B. BREAKWATER	21,000 tons	$25/ton	$525000.00
C. DOCKS AND BOAT MOORING	108	$2200/slip	$237600.00
D. BUILDINGS			
Marina Bldg.	2000 S.F.	$48/S.F.	$96000.00
E. SITE IMPROVEMENTS			
Fence Relocation	250 L.F.	$3.70/L.F.	$925.00
Benches	4	$140 each	$560.00
F. LANDSCAPING			
Trees	100	$70 each	$7000.00
G. UTILITIES			
Sanitary	120 L.F.	$10/L.F.	$1200.00
Water	120 L.F.	$12/L.F.	$1440.00
Electrical	120 L.F.	$2.00/L.F.	$240.00
			$1,036,365.00

RAILROAD AVENUE EXTENSION			
A. TREES	90	$70 each	$6300.00
B. SURFACING			
Graving (6' compacted)	5084 S.Y.	$2.05/S.Y.	$10420.00
Paving (bit.)	5084 S.Y.	$4.50/S.Y.	$22880.00
C. DIRECTIONAL SIGNS	2	$1500 each	$3000.00
D. LANDSCAPING			
Hydro seed/mulch/fert.	17,000 S.Y.	$.45/S.Y.	$7650.00
Topsoil	17,000 S.Y.	$1.20/S.Y.	$20400.00
			$70,650.00

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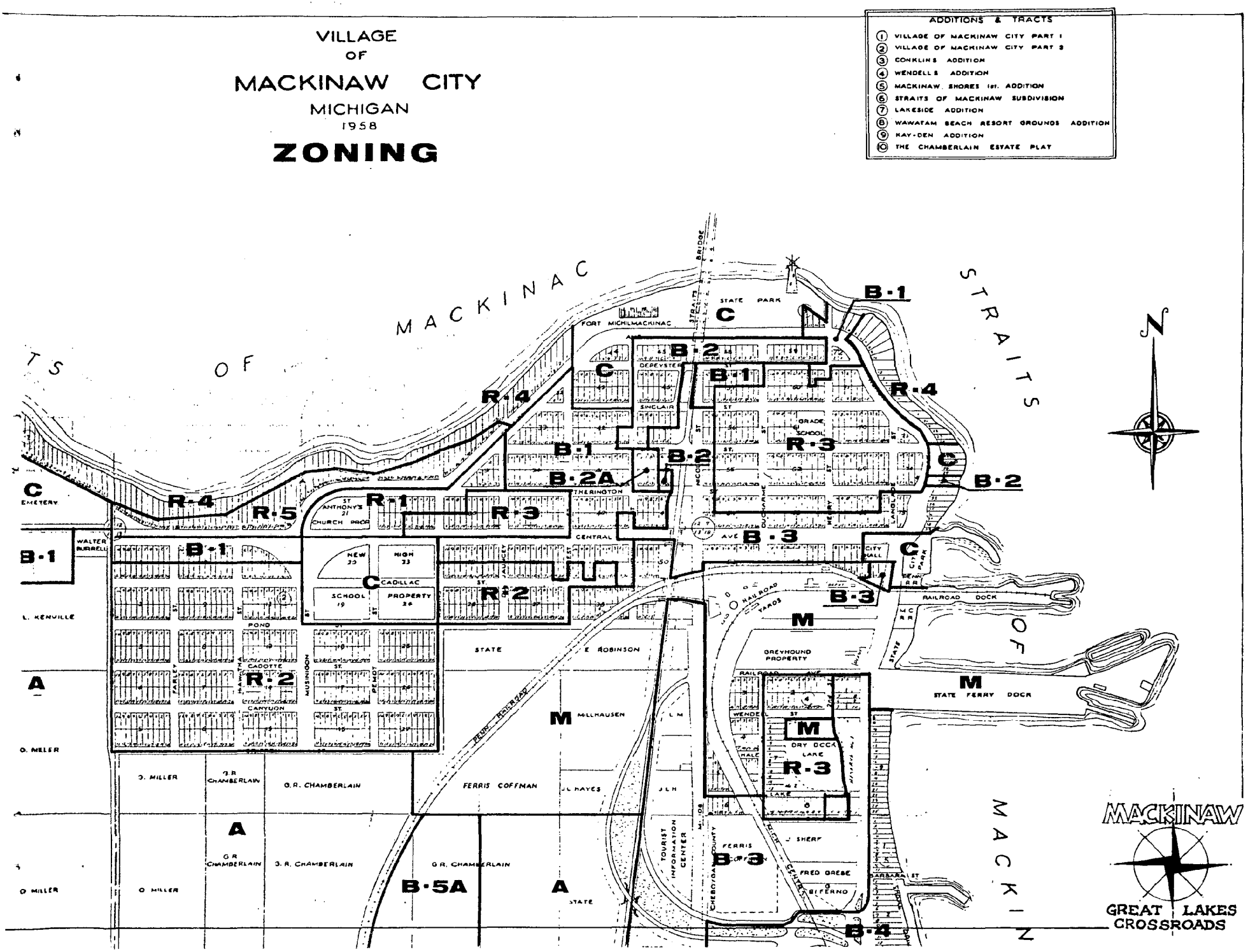
VILLAGE OF MACKINAW CITY MICHIGAN 1958

ZONING



Article 5 "R-3" Residential District

Sec.5.1 USES PERMITTED. In the "R-3" Residential District, no building shall be hereafter erected or altered unless otherwise specifically provided for in this Ordinance, except for the following uses:

A. Prinicipal Uses and Buildings
   1. Any use permitted in the "R-1" Residential District.
   2. Two family dwelling.
   3. Lodging and boarding house.

B. Accessory Uses and Buildings
   1. Home Occupation
   2. Garages, provided that for uses permitted in the "R-1" Residential District the capacity of a private garage shall not exceed one automobile for each 16 feet of lot frontage with a maximum capacity of 3 automobiles.
   3. One sign not exceeding 6 square feet in area may be erected; Provided, that the sign is erected flat against the main building, advertising only a Home Occupation or Lodging and boarding house, conducted or operated on the premises.
   4. Other accessory uses and buildings when located on the same lot as a permissible use are permitted.

Sec. 5.2 BUILDING HEIGHT, AREA, AND YARD REQUIREMENTS.

A. Prinicipal Uses and Buildings
   1. Minimum lot area - One and two family dwellings, 6500 square feet of lot. Lodging and boarding house, 300 square feet per person based upon the maximum number of persons for whom living facilities are provided; Provided, a lot on which there is erected a lodging or boarding house shalll contain an area of not less than 7500 square feet.
   2. Minimum lot width shall be 50 feet.
   3. Minimum front yard depth shall be 20 feet.
   4. Minimum rear yard depth shall be 20 feet.
   5. Minimum side yard width shall be equal to 10 percent of the total lot width; Provided, that no side yard shall be less than 7 feet. The minimum side yard width on a corner lot shall be 10 feet measured from the side street lot line.
   6. Minimum front, side, and rear yard requirements of any building in excess of 2½ stories or 35 feet in height shall be increased by a distance equal to 20 percent of such excess height.
   7. Maximum building height for one and two family dwellings shall exceed 35 feet, and for all other buildings the maximum height shall be 3 stories but shall not exceed 40 feet.
   8. Total ground floor area for all buildings on a lot shall not exceed 50 percent of the total lot area; except when only one building is erected on a lot, the total ground floor area shall not exceed 40 percent of the total area.
   9. Every dwelling in this district shall have a first floor area of not less than 500 square feet.
   10. Each two-family dwelling shall have a minimum floor area of 400 square feet in each family unit or apartment.

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B. Accessory Buildings

1. Private Garages - Maximum height shalll be 15 feet. No unattached garage shall be located in a front yard and if located in a rear yard it shall not be less than 3 feet from the rear lot line, and if located in side yared it shall not be less than 5 feet from the side lot line.
2. Other Accessory Buildings - Maximum height shall be one story or 15 feet. Accessory buildings shall be located in a rear yard only and shall not be less than 3 feet from the side or rear lot line, nor nearer than 6 feet to the main building.

Article 8 "C" Community District

Sec. 8.1 USES PERMITTED. In the "C" Community District, not building or premises shall be used and no building shall be hereafter erected or altered unless otherwise specifically provided for in this Ordinance, except for the following uses:

1. Public park.
2. Public or parechial school.
3. Publicly owned and occupied building.
4. Building owned and occupied by a Municipal utility.
5. Public golf course.
6. Public hospital.
7. Municipal cemetery.
8. Municipal parking lot.

Sec. 8.2 BUILDING HEIGHT, AREA, AND YARD REQUIREMENTS.

1. Minimum front yard depth shall be 20 feet.
2. Minimum rear yard depth shall be 20 feet.
3. Minimum side yard width shall be 5 feet. Minimum side yard width on a corner lot shall be 20 feet measured from the side lot line.
4. Minimum front, side, and rear yard requirements of any building in excess of 2½ stories or 35 feet in height shall be increased by distance equal to 20 percent of such excess height.
5. Maximum building height shall be 3 stories and shall not exceed 40 feet.

Article 9 "B-1" Business District

Sec. 9.1 USES PERMITTED. In the "B-1" Business District, no building or premises shall be used and no building shall be hereafter erected or altered unless otherwise specifically provided for in this Ordinance except for the following uses:

1. Hote, motel, apartment house and apartment hotel.
2. Publicly owned and occupied building.
3. Building owned and occupied by a public utility.
4. 1 and 2 family dwellings.
5. The opeation of a coffee shop in a motel for serving food to motel guests only shall not be considered the operation of a restaurant and is permitted in this district.

Sec. 9.2 BUILDING HEIGHT, AREA, AND YARD.

1. Minimum front yard depth shall be 20 feet.
2. Minimum rear yard depth shall be 20 feet.

3. Minimum side yard width shall be 5 feet except that the minimum width on a corner lot shall be 10 feet measured from the side street lot line.
4. Minimum front, side, and rear yard requirements of any building in excess of 2½ stories or 35 feet in height shall be increased by a distance equal to 20 percent of such excess height.
5. Maximum building height shall be 2½ stories and shall not exceed 40 feet.
6. Every 1 family dwelling in this district shall have a first floor area of not less than 400 square feet.
7. Every 2 family dwelling in this district shall have a floor area of not less than 400 square feet for each family dwellin unit or apartment.

Sec. 9.3 SIGNS

1. No sign in this district shall be larger than 72 square feet in area.
2. No roof signs shall be permitted in this district.

Article 10 "B-2" Business District

Sec. 10.1 USES PERMITTED. In the "B-2" Business District, no building or premises shall be used and no building shall be hereafter erected or structurally altered except for one or more of the following uses:

1. Any use permitted in the "B-1" Business District.
2. Restaurant and drive-in restaurant.
   (a) No permit shall be issued to build, occupy or construct a drive-in restaurant on any site where 80 percent of the buildings within a radius of 200 feet of any part of the proposed site are used exclusively for one and two family dwelling purposes, until there is on file in the office of the Building Inspector the written consent of 60 percent of the property owners according to total frontage on any public street within a radius of 200 feet of any part of the premises where said drive-in restaurant is to be occupied or constructed, and not separated therefrom by more than 1 street or 1 alley, and not until the location and plans shall have neen submitted to and approved inwriting by the Building Inspector of the Village of Mackinaw City.
   (b) All customer parking areas shall be provided with artificial lighting. The minimum lighting at any point in the parking areas shall be one foot candle. Such lighting shall be so arranged as to reflect the light away from any adjoining residential property and in all cases the lighting installation shall be approved in writing by the Building Inspector.
3. Store or shop for the conducting of a retail business.

Sec. 10.2 BUILDING HEIGHT, AREA, AND YARD.

1. Minimum front yard depth shall be 20 feet.
2. Minimum rear yard depth shall be 20 feet.
3. Minimum side yard width shall be 5 feet except that the minimum width on a corner lot shall be 10 feet measured from the side street lot line.
4. Minimum front, side, and rear yard requirements of any building in excess of 2½ stories or 35 feet in height shall be increased by a distance equal to 20 percent of such excess height.
5. Maximum building height shall be 2½ stories and shall not exceed 40 feet.
6. Every 1 family dwelling in this district shall have a first floor area of not less than 400 square feet.

7. Every 2 family dwelling in this district shall have a floor area of not less than 400 square feet for each family dwelling unit or apartment.

Sec. 10-3 SIGNS. As in the "B-1" District

Article 11 "B-3" Business District

Sec. 11-1 USES PERMITTED. In the "B-3" Business District, no building or premises shall be used and no building shall be hereafter erected or structurally altered except for one or more of the following uses:

1. Store or shop for the conducting of a retail business.
2. Personal service shop, such as barber shop, beauty shop, etc.
3. Bank, theater, office.
4. Restaurant and drive-in restaurant.
   (a) No permit shall be issued to build, occupy or construct a drive-in restaurant on any site where 80 percent of the buildings within a radius of 200 feet of any part of the proposed site are used exclusively for one and two family dwelling purposes, until there is on file in the office of the Building Inspector the written consent of 60 percent of the property owners according to total frontage on any public street within a radius of 200 feet of any part of the premises where said drive-in restaurant is to be occupied or constructed, and not separated therefrom by more than 1 street or 1 alley, and not until the location and plans shall have been submitted to and approved in writing by the Building Inspector of the Village of Mackinaw City.
   (b) All customer parking areas shall be provided with artificial lighting. The minimum lighting at any point in the parking areas shall be one foot candle. Such lighting shall be so arranged as to reflect the light away from any adjoining residential property and in all cases the lighting installation shall be approved in writing by the Building Inspector.
5. General office or professional office building.
6. Public assembly building, similar to a theater or an auditorium.
7. Structure occupied and used by a public utility.
8. Publicly owned building.
9. Museum or art gallery.
10. Hotel or motel.
11. Any recreational use, including but not limited to a bowling alley, billiard or pool parlor, miniature golf course, etc.
12. Shop for custom work, i.e., shop for making articles or products to be sold at retail on the premises; provided that the conduct of such business is not objectionable as being odorous, unsightly or noisy.
13. Motor vehicle sales room.
14. Used car lot.
15. Bakery employing not more than 5 persons, exclusive of retail sales personnel.
16. Dyeing and cleaning works employing not more than 5 persons in the cleaning room, and subject to such provisions as are prescribed by this Ordinance.
17. Laundry employing not more than 5 persons in the laundry room.
18. Gasoline filling stations or any public station where oil or fuel of any kind is sold and dispensed for propelling motor vehicles if:
    (a) Before a permit is issued to build, occupy or construct a public gasoline, oil or motor

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fuel filling station, or either of them to supply motor vehicles on any site where 80 percent of the buildings within a radius of 200 feet of any part of the proposed site are used exclusively for one and two family dwelling purposes there shall be on file in the office of the Building Inspector the written consent of 60 percent of the property owners according to total frontage of any public street within a radius of 200 feet of any part of the premises whereon this gasoline filling station is to be occupied or constructed and not separated therefrom by more than 1 street or 1 alley, and the location and plans shall have been submitted to and approved by the Building Inspector of the Village of Mackinaw City; and

(b) All pumps and lubrication devices situated outside of a building are located at least 10 feet from any street line or lot line; and

(c) All wrecked or dismantled vehicles are kept within a building.

19. Combined retail-wholesale business when conducted entirely within a building, i. e., sale and storage in bulk of clothing, drugs, dry goods, food, furniture, hardware, machinery, metals, paints, paint supplies,pipe, rubber, and shop supplies.
20. Car wasking establishment.
21. Dental, medical or clinical laboratory.
22. Bar, tavern.
23. Living quarters, when attached to a retail store, other than a gasoline filling station. The living quarters may be above or behind the portion of the building used for business.

Sec. 11.2 BUILDING HEIGHT, AREA, AND YARD.

1. Minimum front yard depth shall be one (1) foot.
2. Minimum rear yard depth shall be one (1) foot.
3. Minimum side yard width shall be none, except on corner lots it shall be one (1) foot.
4. Building area requirements - none.
5. Maximum building height shall be 3 stories and shall not exceed 45 feet.
6. Any living quarters attavhed to a building used for business purposes in this district shall have a floor area not less than 400 square feet.

Sec. 11.3 SIGNS.

1. No sign in this disrict shall be more than 100 square feet in area. A roof sign may be erected plus one other sign for one commercial occupancy of a building but the total combined area of both signs shall not exceed 150 square feet.
2. If two or more distinct commercial uses, such as a restaurant and a gift shop, occupy one premises but are under one ownership, there may be a separate sign for each business. Not over a total of two signs may be erected on one premises facing on any one street and advertising any such businesses.
3. If two or more distinct commercial uses, such as a restaurant and a gift shop, occupy adjoining premises in separate buildings with interior passageways between them, and are under one ownership each commercial use shall be considered a separate commercial use of a separate building for purposes of this section.

Article 14 "M" Manufacturing - Industrial District

Sec. 14.1 USES PERMITTED. In the "M" Manufacturing-Industrial District, no building or premises shall hereafter be erected, converted, or structurally altered, except for one or more of the following uses:

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1. Any use permitted in the "B-3" Business District, without restriction as to number of employees.
2. Wholesale business, i.e., storage in bulk or warehouse ofr such material as building material, contractors' equipment, clothing, cotton, drugs, dry goods, feed , food, furniture, hardward, ice, machinery, metals, paints, paint supplies, pipe, rubber, shop supplies, tobacco, petroleum products, wood and similar products.
3. Painting, varnishing or vulcanizing shop.
4. Cold storage plant.
5. Bottling works, including milk bottling or distribution station.
6. Manufacture of food products.
7. Public garage, motor vehicle repair shop, automobile paint and bump shop, or car washing establishment.
8. Tin shop or plumbing supply shop.
9. Light manufacturing and wholesale business, provided that the conduct of such business is not objectionable as being unsightly, odorous, or noisy.
10. Coal or building materials storage yard.
11. Kennel.
12. Veterinary hospital or clinic.
13. Contractors' storage yard.
14. Research laboratory.
15. Radio and television towers, except that no commercial radio or television towers shall be erected within 500 feet of the shoreline of the Straits of Mackinac.
16. Port and dock facilities, boat repair and storage, ferry operation, except that ferry tickets shall be sold only on the premises actually used for docking ferries, embarking and disembarking passengers.
17. Automobile storage and parking.
18. Uses or structures accessory to any of the above permitted uses.

Sec. 14.2 SIGNS.

1. No sign in this district shall be more than 100 square feet in area. A roof sign may be erected plus one other sign for one commercial occupancy of a building but the total combined area of both signs shall not exceed 150 square feet.
2. If two or more distinct commercial uses, such as a restaurant and a gift shop, occupy one premises but are under one ownership, there may be a separate sign for each business. Not over a total of two signs msy be erected on one premises facing on any one street and advertising any such businesses.
3. If two or more distinct commercial uses, such as a restaurant and a gift shop, occupy adjoining premises in separate buildings with interior passageways between them, and are under one ownership each commercial use shall be considered a separate commercial use of a separate building for purposes of this section.

Sec. 14.3 BUILDING HEIGHT, AREA, AND YARD.

1. The minimum front, rear and side yard depths for those uses permitted in the B-3 Business District is the same in this district as in the B-3 district, as specified in Section 11.2.
2. For all other uses permitted in this district znd not permitted in the B-3 district.
   a. The minimum front yard depth shall be 30 feet.
   b. The minimum rear yard depth shall be 30 feet.

c. The minimum side yard width shall be 15 feet.

3. Building area requirements - none.
4. Maximum building height shall be four stories and shall not exceed 60 feet. For every foot in heitht over 25 feet the building shall be set back from the front lot line at least two feet, from the side lot lines at least six inches and from the rear lot line at least one foot.
5. Any living quarters attached to a building used for business purposes in this district shall have a floor area not less than 400 square feet.

traffic study

MACKINAW
GREAT LAKES
CROSSROADS

TRAFFIC STUDY

SUMMARY OF EXISTING TRAFFIC PROBLEMS

The analysis of existing traffic problems is divided into three parts:

(1) circulation so the parking operations on Central Avenue;

(2) specific intersection areas which are problems; and,

(3) the parking problems related to the ferry operations to Mackinaw Island.

Central Avenue Traffic Operations

Central Avenue is the major commercial street in Mackinaw City, and, therefore, has a considerable amount of parking and traffic movement on it. The street is very wide; 150 foot of right-of-way and about 95 feet of paved width. The paved street is sufficiently wide to handle the traffic movement. Some delineation of desired traffic operations are needed.

Parking Occupancy

One of the problems with the street relate to the parking of recreational vehicles in the center of the street which either blocks one of the lanes or makes parking in the adjacent spaces very difficult. Recreational vehicles should be prohibited from parking east of Henry Street on Central Avenue. The angle parking on either side of the street is adequate for the amount of demand although the block between Henry Street and Landglade Street is generally full. West of Henry Street to Nicolett Street, there are spaces available. In the median area adjacent to Nicolett Street the spaces were practically empty during the entire survey period.

Another problem with Central Avenue is the lack of adequate signing and pavement markings. The marking needs to be "freshened-up" and additional signing needs to be provided to clearly indicate to the motorist what he should be doing. Additional parking along the curb between Ducharme Street and Nicolett Street is available if the demand is sufficient. Many of the spaces are unmarked and are, therefore, not used very efficiently.

The lack of raised curbs along Central Avenue at the street intersections does not provide visibility for pedestrians. Motorists can park right up to the corner leaving no area for a crosswalk. It is recommended that crosswalks be marked and that permanent curbs be placed at the street intersections. It is desirable for the curbing to extend on the outer edges of Central Avenue, the entire length from Landglade Street to Nicolett Street.

It would also be desirable to construct a curb in the median between Landglade Street and Henry Street. This would preclude recreational vehicles from parking in this area.

While there does not seem to be immediate danger of angle parking being restricted from Central Avenue by the state, one must remember that such an action could be taken at any time. From a long range standpoint, the City ought to be thinking in terms of a solution for parking loss if this does occur. It is suggested that several approaches could be made which might involve some rather extensive improvement cost.

Specific Intersection Problem Areas

There are no serious traffic operational problems at the intersections in Mackinaw City, but there are several intersections where operations and safety could be improved. Some of these areas fall beyond the study area limits and therefore, are discussed only in general detail. See Plate 2.

Central Avenue - Landglade Street - Huron Avenue

This intersection is probably the most heavily traveled intersection in the City. The primary access to Sheplers Terminal and the City Marina is down Central Avenue. This traffic must mix with motorists who are downtown shopping and with people driving along Huron Avenue. Considerable confusion and delay exists at this intersection as a result. This delay is especially serious when the traffic movement on Central Avenue increases to the point that cars in several lanes are trying to cneter the intersection from the west. This movement coupled with the pedestrian movement at this intersection creates a serious and hazardous situation. The intersection is controlled on three sides by stop signs. The evaluation of turning movements and pedestrian flow indicates that the problem could be materially reduced by redesign of the intersection area and by the installation of signalization at this intersection. Signalization requires approval, however, from the Michigah State Highway Commission since Central Avenue is a part of the state route system.

Straits Avenue - Louvingny Street Intersection

Straits Avenue at one time extended through Fort Michilimackinac. A fence has been erected along the western curb line of Louvingny Street, thus, Straits Avenue makes a 80 degree turn at its intersection with Louvingny Street. This turn creates problems for motorists traveling northbound on Louvingny Street and several accidents have occurred when the motorists missed the turn and went into the wrong lane on Straits Avenue. The street width is sufficient to adequately provide for channelization in this intersection area.

Michigan 108 - U.S. 23 Intersection

While this intersection is outside of the study area, it is of sufficient importance to warrant a note here. The intersection between the ramps from U.S. 23 going onto the bridge with Michigan 108 is a rpoblem intersection. The problem relates to the fact that the north and southbound lanes to the bridge are widely spaced with a median of approximately 50 feet between the two lanes. Because of the alignment of the southbound lane there is a slight distance problem on M-108. While the intersection is controlled by four-way stop signs the sight distance problem is sufficiently serious to create an accident situation at this location. It is recommended that a more definitive study be made of the intersection area to determine whether it would be possible to change the location of stop signs to obtain better compliance.

U.S. 23 - Bridge Connection

At the point where U.S. 23 and the ramps to the Bridge separate, there is considerable confusion, particularly in the southboudn movement, along Huron Avenue in the vicinity of the ramp intersection. The problem is that the northbound movement has the right-of-way. One would expect however, that the southbound movement might have the right-of-way over the left turn movement. This creates unique operational situation which the motorist does not expect. Consideration should be given to readjusting the traffic control in this area to require the northbound movement to stop or to yield to southbound movement along M-108.

Nicolett Street - Huron Avenue Intersection

This intersection occurs immediately adjacent to the bridge structure. The bridge is over Huron Avenue at this location. A problem is one of restrictive site distance due to the abutments of the bridge. The narrow lateral and vertical clearance adds to the problem. At the point where Huron Avenue goes under the bridge, the vertical clearance is only about 10 feet 8 inches which creates some problems with the recreational vehicles that operate in the area. Additional signing in the area would help solve this problem.

POLICY ISSUES RELATES TO TRAFFIC AND PARKING SOLUTIONS

The solution to many of the problems for Mackinaw City are not difficult. Many of the solutions were suggested in the meetings that were held in Mackinaw City during the early days of July 1979. Some of the solutions have been mentioned by city officials and business leaders with whom we met during the course of the field surveys. Many of the solutions however, require some compromise on the part of downtown merchants and the City in order to

accomplish. The solutions, in many cases, involve economic issues as well as engineering approaches. The solutions may impact many people beyond the motorists who happen to be using the roadways and the parking areas. This part of the report summarizes, in brief detail, some of the Policy Issues that are involved with the solutions that are recommended in Part III.

Parking and Access Problem with Sheplers Ferry

Sheplers is a very viable operation and is the most active ferry operation to Mackinaw Island. It is probably one of the most successful commercial operations in the area since the ferry provides a focus for tourists coming into the City. Many of these people may not really come to Mackinaw City but rather to the point of imbarcation to Mackinaw Island. The location of Sheplers terminal in the City Marina area has beneficial aspects on the retail trade downtown since much of their exposure is related to persons using the ferry service. Thus, it has a "wide reaching" economic impact on retail trade for Central Avenue. It also stimulates to a much lesser degree-some of the motel trade which is primarily centered along the strip of U.S. 23 south of Cetnral Avenue.

On the other hand, the operation creates serious problems downtown - particularly in the immediate area of the terminal. Sheplers has provided a parking area for approximately 500 cars. Frequently this parking area is overfilled and the overflow parking is put on the public right-of-way with the acquiescence of the City. In the three day field survey period, one out of the three days had substantial overflow of parking beyond the Shepler Lot. A more obvious problem with the terminal area is the lack of positive access control, the driveway exceeds 100 feet in width. It is very difficult to control and creates somewhat of a hazard in the area. It is obvious that something does need to be done from a traffic control standpoint to better direct access to Shepler Terminal area.

State Ferry Dock

Two ferry operations - Arnold Lines and Straits Traffic - which have combined, operate out of the State Ferry Dock area as well as their own private docking area. These private operators provide private parking on leased land as well as their own land. The State Ferry Dock is a uper facility and is entirely adequate for all ferry operations. The area has a potential for over 1500 parking spaces. There would be adequate room and very nice facilities for all of the persons who might want to go to the Mackinac Island at this one location. Bulkheads are reinforced concrete and are adequate for the ships operating out of the area. This facility is an ideal facility as a terminal for the ferry

boats going to Mackinac Island. The problem is the location of the facility in relation to existing downtown retail trade area. Should Sheplers move their operation to the State Ferry Dock, some loss of exposure to retail trade on Central Avenue would result.

Another issue relates to the provisions of parking in remote locations. In the past both Sheplers and Arnold Lines - Straits Traffic have used remote parking. Currently, Sheplers uses a remote area in the railroad yard for overnight parking. The other ferry operations also use remote parking on a periodic basis. Use of remote parking area does not pose any problems but does require security.

The Impact of the Gasoline Shortage

During the period when field observations were being made, there were no major problems with the storage of vehicles. Several persons familiar with past operations gave reasons for the low number of cars - one being that raffic was down due to the gasoline shortage. There was some evidence that the gasoline situation has reduced the number of people who are coming to Mackinaw City and who are traveling to recreational areas nationwide. Whether this will be a permanent reduction or not, is very difficult to predict. Should it be a permanent condition, then additional parking may not be needed even if the number of people increase. It is unlikely that automobile travel will ever be as unrestrained as it was in the past. Vehicle occupancies are likely to be higher, as a result, it is not anticipated that additional parking areas will have to be provided, particulary if the State Dock Facility is used as a terminal for all three ferry operations.

RECOMMENDATIONS FOR TRAFFIC AND PARKING PROBLEMS

The recommendation for traffic and parking problems are illustrated in the attached maps. These recommendations are based upon the available information and on field observation of the current traffic problems. No effort has been made to project future traffic and parking levels since there is an insufficient data base on which to base such projections.

Recommendation for Central Avenue

Central Avenue is a very wide street it has 150 foot right-of-way and about 130 of paved width. Between Langlade Avenue and Henry Street the angle parking should be retained and two traffic lanes should be operated in each direction. A raised island 2 feet wide should

be installed in the center of the street. Curbing should be placed around all islands. Recreational vehicle parking should be restricted in this block. Plate 3 illustrates the recommended improvements.

Recommendations for Central-Huron Intersection

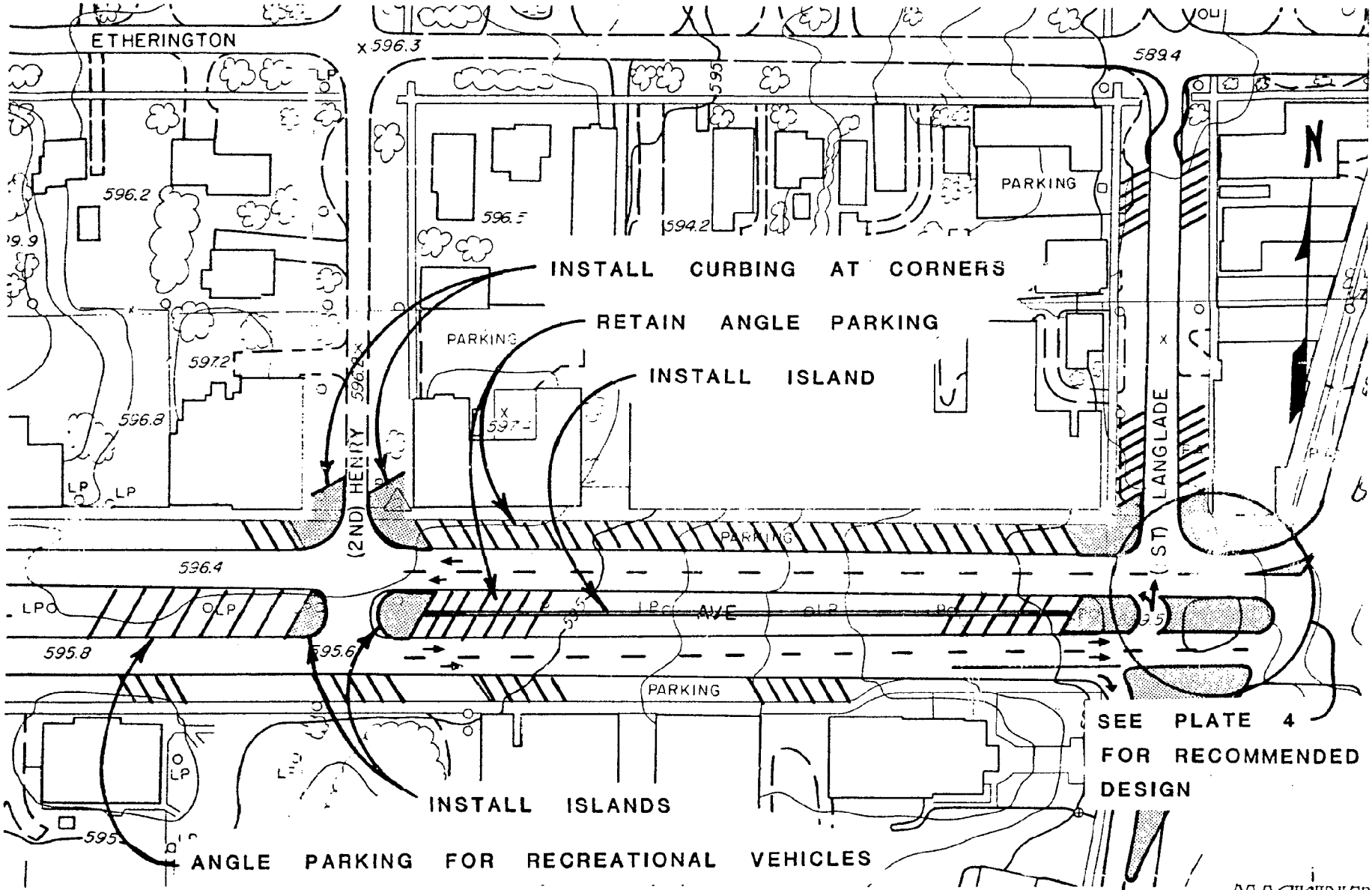
This intersection should be redesigned as shown in Plate 4. The driveway to Sheplers should be narrowed and should operate one way inbound only. Islands for pedestrians protection and vehicular channelization should be considered. Traffic signalization should be considered for the intersection. A wide greenway should be established on the eastern side of Huron Avenue.

Intersection Improvement-Straits Avenue and Louvinguy Street

This intersection involves a 80 degree turn and has results in numerous accidents and near misses. Plate 5 illustrates the recommended design.

Huron Avenue Treatment

Huron Avenue connects the Marina area with Fort Michilimackinac. There is light traffic but the roadway has considerable historical significance. It is recommended that curbing be installed along the median and that it be landscaped. It is further recommended that curbing be installed along the outer edges and that a wide greenway with a bikeway and a walkway be installed along the northern border of the roadway.



CENTRAL AVENUE IMPROVEMENTS
& LANGLADE PARKING AREA

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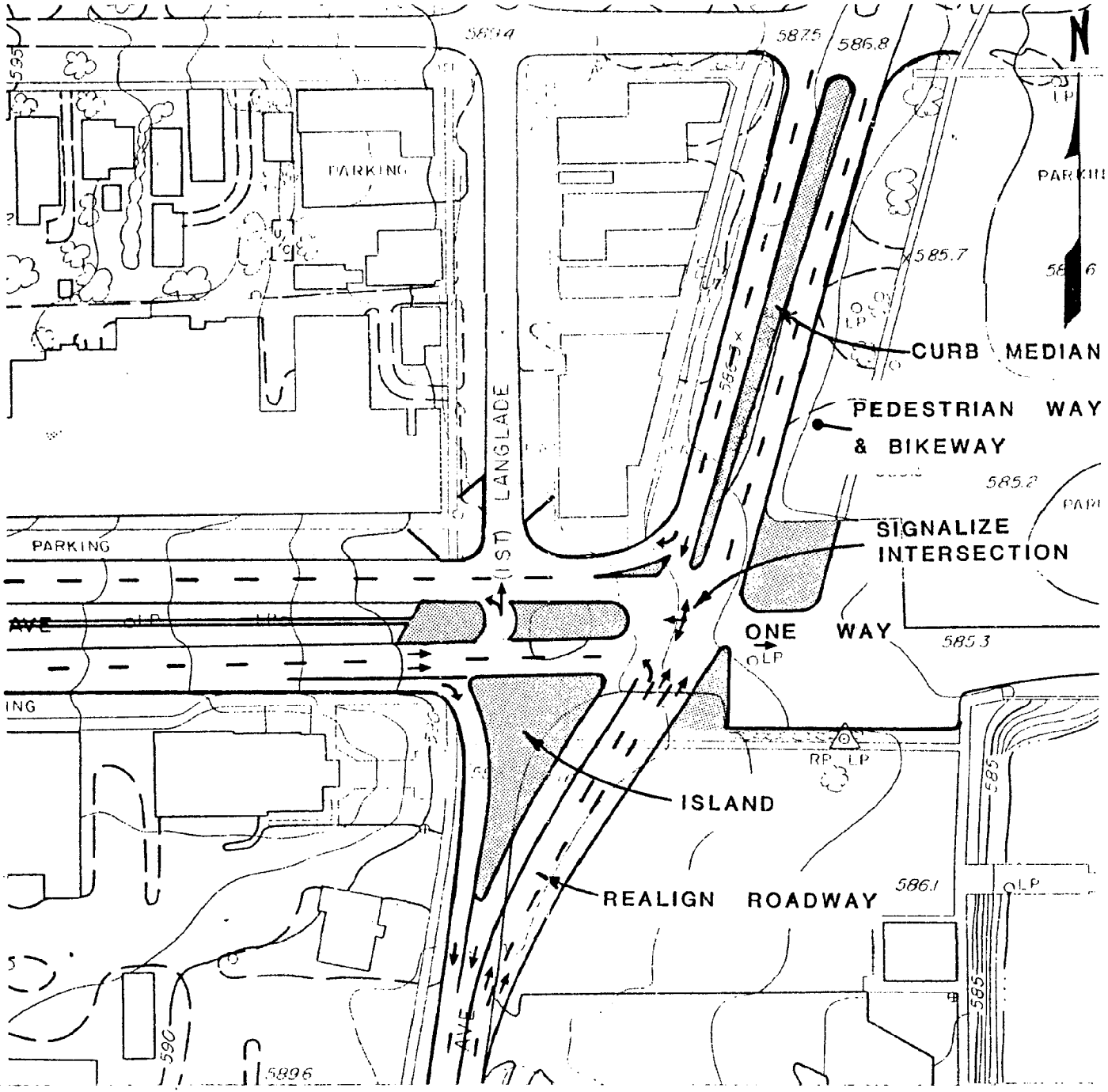

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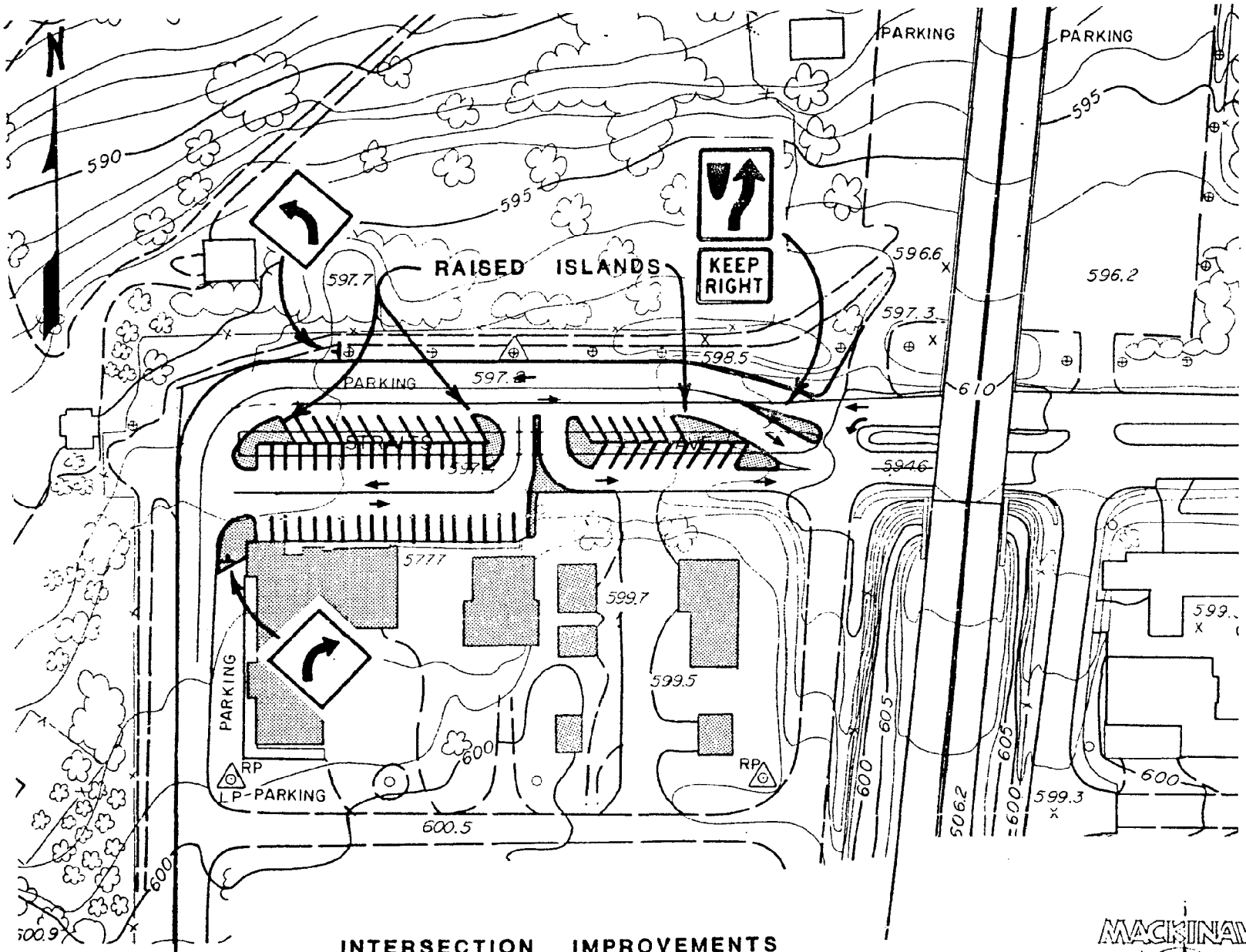

INTERSECTION IMPROVEMENTS

STRAITS AVE. & LOUVINGNY ST.

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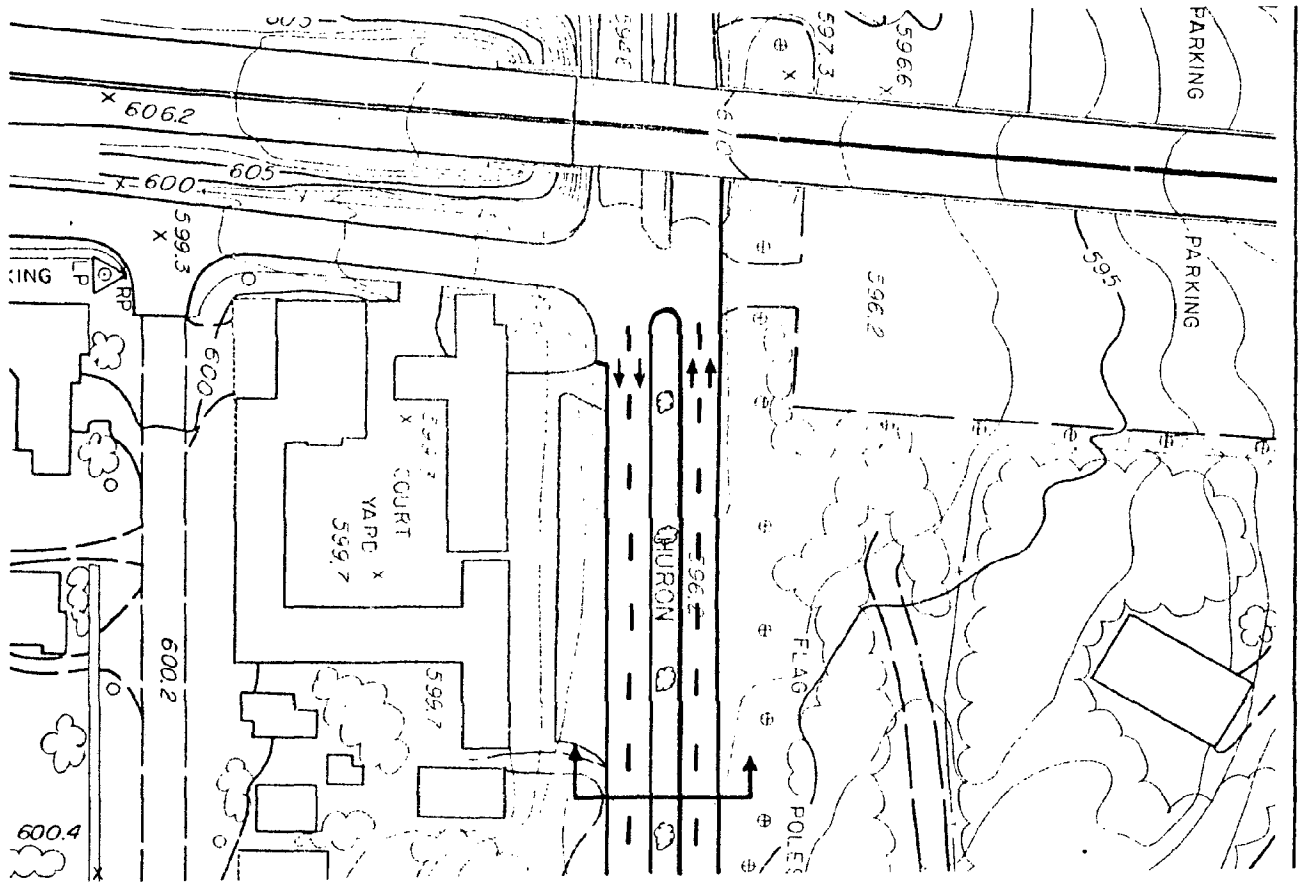

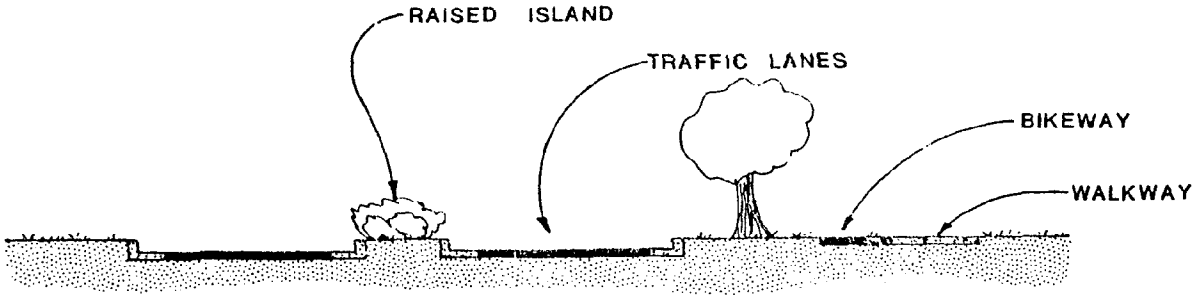

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user projections

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USER PROJECTIONS

The following material is included below to give an indication of the potential tourist market response to the development of attraction within the Mackinaw area. The material presented below was developed by the consultant for the Mackinaw Island State Park Commission for planning related to its Mill Creek site. The development of such information for this study was not undertaken due to limits of contract funding, therefore it is hoped Mill Creek information will give an indication of what can be expected in the area.

The "tourist season" in northern Michigan, except for a growing winter usage in several locations, extends through the months of May to October. The success of a tourist attraction, be it a gift shop, restaurant, or sawmill, depends upon how attractive it is to people passing near it in autos, campers and buses. Any evaluation of the feasibility of developing a new attraction must consider the potential tourist market which exists at that specific location. In that projected attendance can be expressed as a percentage of the total local market, it is possible to subjectively compare its level of attractiveness with other facilities in other areas if a method of computing the potential tourist market follows a logical pattern.

Unfortunately, most efforts in tourism studies have been directed to state-wide or regional studies concerned with destinations, visit duration and expenditures. These data are not very meaningful if you don't know the numbers of potential users who are in your market area.

While other techniques are useful (sales tax receipts, destination studies, etc.) the most direct and localized results can be extracted by traffic volumes within clearly defined areas.

For the purposes of this study Potential Tourist Markets (PTM) were computed for Sault Ste. Marie, St. Ignace, Mackinaw City , the Mackinac Straits area, and the Mill Creek site. The metholology in making the computations is as follows:

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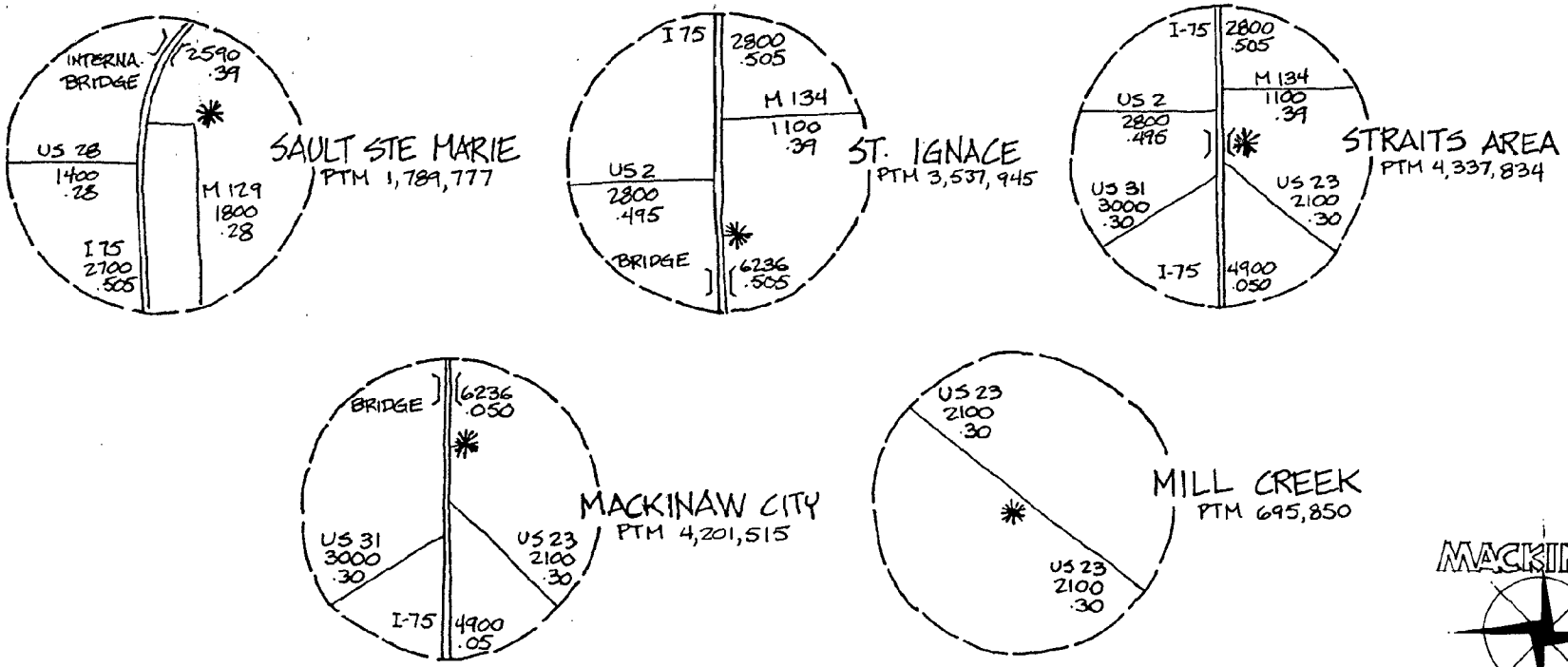
Using State Highway data, the Average Daily Traffic (ADT) for each access point is multiplied by 365 to determine total traffic activity at that point. The product is divided by 2 to reflect the number of vehicles entering the area. This number is then reduced by applying a Recreational Ratio (RR) which excludes local traffic which is not oriented to recreational use. This product is multiplied by 3 (a conservative average of the number of people carried by each vehicle) to translate autos into people. The result is the Potential Tourist Market for that area. It should be realized that the PTN is not intended to represent the actual number of tourists, but, rather to provide a statistically derived figure for different areas so that comparisons can be made.

COMPUTED MARKET AREAS



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The Recreational Ratio (RR) is derived by plotting monthly Average Daily Average (MADA) data from State Highway sources, and by eliminating all traffic which falls below the mean March-April level, which is assumed to represent locally-oriented traffic volumes. The remainder, considered to represent recreationally-oriented traffic, is expressed as a percentage of total traffic volume.

At various locations, the State Highway Department maintains Permanent Traffic Recorders (PTR). Those which have been used are:

		RR	
PTR 206	US 28 Newberry	28.0%	1976
PTR 2029	US 2 Brevort	49.5%	1975-76
PTR 2109	International Bridge	39.0%	1975-76
PTR 2049	St. Ignace	44.5%	1975-76
PTR 2089	Mackinac Bridge	50.5%	1975-76
PTR 306	Kalkaska	21.0%	1976
PTR 206	Alpena	12.0%	1976

Traffic Volume
(See graphs on following page)

Only two PTR's are located in the northern Lower Peninsula, and these reflect higher winter usage than is the probable situation at Mill Creek. The average RR of these plus those of two state roads in the Upper Peninsula equals 27.63%. For purposes of this study, it is assumed that the RR for US 23 at the Mill Creek site is 30%.

The term Attraction Index is applied to describe the known or projected attendance at a site, expressed as a percentage of the PTM of a specific area. Given such penetration percentages of attractions which can be subjectively viewed, it is possible to assume penetration percentages for projected developments which may be more or less attractive than the known developments.

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The Attraction Index of various attractions in the area have been computed as follows using 1977 attendance figures:

	PTM	1977 Attendance	Attraction Index
Soo Locks	1,789,777	779,671	44%
S.S. Valley Camp	1,789,777	52,434	3%
Tower of History	1,789,777	32,500	2%
Soo Boat Tours	1,789,777	150,000	8%
Fort Mackinac	4,337,834	232,502	5%
Fort Michilimackinac	4,201,515	197,022	5%
Mackinac Island (low)	4,337,334	500,000	12%
Mackinac Island (high)	4,337,834	750,000	17%
Wilderness State Park	4,201,515	173,216	4%
Straits State Park	3,537,945	317,053	9%
Mackinac Bridge	4,337,834	6,879,885	159%

Many factors influence the penetration rate of various attractions: visibility, accessibility, admission fees, advertising, visitor involvement, etc. We can assume that the Mill Creek Site, if developed as a visible, accessible facility which involves the visitor in an interesting experience at a reasonable fee, should attract from three to six percent of the local PTM of 695,850.

Attraction Index	Projected Attendance
3%	20,695
4%	27,594
5%	34,492
6%	41,390

It is obvious that these attendance rates would support only limited development of the site. However, Mill Creek is only a few miles from a major campground and from a major center of tourist activity at Mackinaw City with a PTM of over 4,000,000.

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An unknown factor exists near Mill Creek Park which could increase the anticipated use. A 600 unit private campground is located very near the Park entrance. Using camper activity data from a number of sources, it is possible to project the number of different people who would occupy that park and become potential users of the park's facilities.

600 units x .46 occupancy rate = 276 fully occupied site equivalents x 4 people per unit = 1104 campers per day x .185 to correct for multiple day campers = 204 new campers per day x 100 day prime season = 20,400 local campers a season + 20% for remaining 50 days of park opening = 24,509 total campers x .80 campers who visit historic site = 19,607 highly potential visitors to the site.

Through direct or word-of-mouth advertising, or through joint ticket sales and/or railroad access, it should be possible to invade the larger Mackinaw City market area, and draw additional visitors to the site. If we assume various Attraction Indexes for the larger PTM's, the following attendance may be attained:

Attraction Index	Projected Attendance
1%	42,015
2%	84,030
3%	126,000
4%	168,015

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master plan

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