LAKE MICHIGAN FERRY SERVICE

Phase 2

PRELIMINARY ANALYSIS

OF

FEASIBILITY

***

August 2004

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1. INTRODUCTION

This report is the second of a phased series of analytical studies into the feasibility of re-establishing ferry service on lower Lake Michigan. The Phase 1 report determined that the most likely route for initial implementation was between St. Joseph/Benton Harbor and Chicago.

The Phase 2 report was authorized on June 29th, 2004 with a view to proceeding promptly to Phase 3 – survey work – if the current analysis indicated potential feasibility.

2. EXECUTIVE SUMMARY

2.1 The preliminary feasibility study indicates that a single ferry operation using a 149-passenger vessel capable of 30kts should be feasible. The analysis has been based on a new ferry costing $3.5 million.

2.2 Based on the cost and traffic data incorporated in the model, the operation should show positive income from operations by year 3 and be profitable by year 4.

2.3 Traffic numbers developed from a range of travel data and incorporated in the model are 527,412 annual person trips from St. Joseph/Benton Harbour and neighbouring cities into Chicago, and 580,000 person trips originating in Chicago. These numbers are discounted from estimated total person trips.

2.4 The model assumes a three-year ramp up period with only 60% of projected traffic being achieved in year 1, and 80% in year 2.

2.5 Tour operations will be an important revenue source for the venture and are estimated to contribute over $500,000 pa to revenue. The major opportunity is seen as winery tours.

2.6 The scenario that produces the financial results indicated above is the high capture (20% of market) low fare ($25.00 one way summer weekend). Other options are not viable. Costs and ticket revenue are escalated at 3% pa.

2.7 The proposed fare structure, with a combination of weekend, midweek, seasonal, senior and children's fares produce an average yield per each way passenger There do not appear to be any boats currently on the second hand market. Therefore *Friendship IV*, described in the Phase 1 Report, has now been chartered for three years.

2.8 Pricing in the second hand versus new construction market indicates very little premium for a new boat. Two builders contacted have indicated a capability of meeting a June 2005 start up from a decision by October 2004.

2.9 While Mariport has incorporated conservative assumptions into the analysis of feasibility, survey data will be critical to determining whether the assumptions have been reasonably accurate.

2.10 Reviewing the data in the model suggests that, if survey work confirms the traffic data, then a second ferry should be introduced about year 5.

2.11 South West Michigan appears to be very poorly promoted to the travelling public. The ferry operation will become a significant force in regional marketing and will undoubtedly induce additional traffic.

2.12 We have reviewed the wording of the regulations regarding the Harbor Maintenance Fee and believe that if small package revenue constitutes a small portion - say 25% - of total revenue, then the HMF will not apply. No revenue assumptions for small packages have been made.

3. TRAFFIC ANALYSIS & MARKET POTENTIAL

3.1 TRAFFIC ANALYSIS

The traffic analysis that follows is organized so that individual components can be utilized in the operations model to construct an overall picture of potential ferry travel.

1. Separation into Unique Business Lines

The model has a number of different business lines that try to cover the principal types of traveler, as well as unique origins. Whenever possible we have referred travel back to data provided from survey work by state or regional tourism agencies to ensure that we are within the boundaries of overall travel and are conservatively stating potential travel.

The key seasonal distribution of day trip activity has been the 2002 New Buffalo Visitor Center activity record, and we have assumed that monthly activity would be the same for day-trippers heading to Chicago as out of Chicago. For certain types of activity, we have assumed specific seasonal distributions. These are discussed individually.

SMOOTHED NEW BUFFALO MONTHLY TRAFFIC

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5	5	7	8	10	10	12	12	9	9	7	6

2. Trips Originating in Michigan

There is no information that we have been able to acquire relative to day trips into the Chicago market from the ferry catchment area. However, overnight visitors to Chicago from the Grand Rapids DMA[1], which includes Kalamazoo and Battle Creek, was identified as 300-400,00 visitors in 2003 by Chicago[2] CVB. This area does not include Southwest Michigan.

A 1995 American Travel survey for Illinois indicated 5.3 million person trips in 1995 from Michigan, which was the highest of all states. While disaggregated data is not available, the travel survey showed a very high use of personal automobiles and a large number of trips per traveler. We have assumed that trips will be distributed throughout the year in accordance with the New Buffalo monthly traffic.

[1] Designated Market Area per Nielsen Media Research.
[2] Personal communication Jason Draper to Kim Gallagher on 20 July 2004.

Based on the Chicago and Illinois travel data we have estimated a travel propensity into Chicago for Michigan originating business. See Annex 10.7 for a complete list of DMA's and a discussion regarding projected ridership.

(i) Overnight &Day Trips

Travel data is organized into four separate groups, and is based on a discussion regarding travel propensity in Annex 10.7.

POTENTIAL OVERNIGHT & DAY TRIP MARKET

Region	Population 2002[3]	Overnight Propensity	Day Propensity	Total	Projected Trips
St. Joseph/Benton Hbr	290,804	.2	.4	.6	174,482
South Bend	267,120	.2	.4	.6	160.272
Grand Rapids, Holland	943,200	.2	.2	.4	377,280
Kalamazoo	361,780	.2	.2	.4	144,712

Persons making trips will then be attracted to using the ferry depending on the ferry fare, schedule and competing modes. For example, the South Bend interest is expected to be low because the area is served by the METRA South Shore Line. St. Joseph and Grand Rapids have AMTRAK service via the Pere Marquette train, but the downbound service puts the user into Chicago about 10:30am, and return service is late. It is not considered a particularly convenient schedule for Chicago users, and the cost is high. We understand that a number of people will drive to Michigan City from St. Joseph and take the METRA from there. See Annex 10.6 for train schedule and fares.

POTENTIAL INTEREST IN USE OF FERRY

	Projected Trips	Interest	Projected Market
St. Joseph/Benton Harbor	174,482	80%	139,586
South Bend	160,272	20%	32,054
Grand Rapids, Holland	377,280	40%	150, 912
Kalamazoo	144,712	40%	57,885

(ii) Business Travel

We have aggregated all business travel into a single heading. Projection for business travel is based on the number of businesses in each region and presumes a conservative average of one person/business travelling five times/year[4].

[3] Based on County population data in Annex 6.1 of the Phase 1 report.
[4] 1995 American Travel survey for Illinois indicated 5.1 trips/year by business travelers.

POTENTIAL BUSINESS MARKET

Region	Non-Farm Business	Potential Trips p.a.	Interest in Ferry	Projected Base Ridership
St. Joseph/Benton Harbor	6,314	31,570	60%	18,942
South Bend	6,456	32,280	20%	6,456
Grand Rapids[5]	23,660	118,300	30%	35,490
Kalamazoo	5,844	29,220	30%	8,766
Total				69,654

Distribution of travel is assumed to be stable throughout the year, with a slightly lower number of trips during the winter period. These travelers are also, typically, week day.

(iii) Coach Tour Market

The numbers are based on coach tours on a circle Michigan tour routing. We do not have seasonal data for these trips and distribution by month is based on anecdotal information that tours tend to avoid high season. The presumption has been that each coach operates with an average of 40 passengers. We surveyed 75 coach tour operators who attended the 2003 Heartland travel show and while the response rate was relatively low at 10%, we did get a positive response from all respondents, with an indicative average of two tours per year per operator.

In addition to the option put forward of the operator calling St. Joseph as an alternative to Chicago and using the ferry for the Chicago visit, some operators suggested there would be interest as a day out from a Chicago visit. This included potential for school tours. Total market assumed is 4,000 persons, equivalent to 100 coaches in both Chicago and St. Joseph.

While this market would look for discount travel, it could be useful mid-week revenue. Added to which, additional revenue could be achieved through mark-ups on the different tours.

(iv) Theater & Events

This traffic is hypothetical, but is a potential revenue source from mark-ups on discounted event tickets as well as group hotel rates. The activity would be entirely package oriented and would include:

Round trip fare
Transportation to hotel
Theater or event ticket.

Discount coupons could be offered for select restaurants as a part of the overall package. Where events are during the day, e.g. Cubs games, and could be scheduled within the ferry timetable, then a hotel would not be offered but transportation might, depending on timing. We have projected a seasonal ridership of 10,000 passengers.

[5] Includes Holland and Grand Haven.

(v) Commuters

There is a small number of commuters between the St. Joseph area and Chicago. Worker flow reports for 2000 show 593 commuters from Berrien County, 70 from Van Buren and 67 from Cass traveled to Cook County, IL. We have presumed that most of the Berrien County commuters will be in the New Buffalo area. This is a discount market, with round trip fares significantly below normal day trip levels. As commuters typically have a Monday to Friday travel pattern they can be valuable travelers on weekdays when day trip traffic will be lighter. They will not impact capacity on weekends. We have assumed a market of 250 commuters could reasonably be targeted by the ferry. Traffic is presumed to decline slightly in July and August due to vacation. Total trips during a 50-week working year would be 62,500.

3. Trips Originating in Chicago

Travel data collected by St. Joseph and South West Michigan indicates a market, mainly for overnight visitors of about 760,000. The ferry would introduce a potential for day trip activities which only exists at present if the traveler is prepared to spend 4-5 hours driving time out of the day.

Numbers are derived from several sources:

- 1996 travel data indicated 4.3m trip nights in SW Michigan with an average length of stay of 1.35 nights[6]. At this length of stay, number of visitors would have been about 3.2m. Destination was reportedly 60% in Berrien County, and 40% from the Chicago area, or 768,000 persons.
- Using New Buffalo Welcome Center count of 2.0m visitors in 2003m with 40% into Southwest Michigan and 54% from Illinois would indicate a current market of at about 432,000. Note, however, people that are using Visitor Information Center are those who may be newer travelers seeking destination information. Regular visitors would bypass the VIC (except perhaps to use the facilities) because they knew their destination.
- There are 1,915 lodging rooms in the St. Joseph area with a current stay length of 1.9 nights, plus 1,000 in the South Haven area with an average stay of three nights. Assuming an average room occupancy of 60% gives a potential visitor traffic number of 1.2m from all origins. Applying the perceived percentage of visitors from Chicago to this number yields 600,000. This number would exclude day trippers and people heading to second homes.
- Although not a comprehensive survey, information provided by the Holiday Inn Express (149 rooms), and the Boulevard Inn (82 rooms), showed average occupancies in the 80-90% range during the year, with 35-45% of visitors from the Chicago area. This number increased to 75% from Chicago for the Venetian Festival. Local B&B's showed Chicago visitors represented 45-50% of all visitors. Although these lodging rooms represent only a small portion of total rooms

[6] Note that stay length is currently 1.9 nights.

available in the area, the percentage occupancy with visitors from Chicago is consistent with other data. Using the figure of 2.4 per average vehicle/occupancy, the two hotels would have accommodated over 70,000 visitors from Chicago.

(i) Day Trip/Shopping

This activity, as a component of overall visitation to the St. Joseph area, appears to be mainly overnight at present, thus the ferry may introduce a new perspective to regional travel. We have assumed a potential market of 250,000 distributed throughout the year in line with the New Buffalo visitor distribution.

(ii) Winery Tours

This is an entirely new market opportunity for a package tour. Currently there is considerable activity, with a strong bias to the Chicago market. See the previous table, which also shows a willingness of the winery operators to work with the ferry in bringing in visitors. We have conservatively assumed a gross market of 150,000, distributed over the May through October period.

(iii) College Football

The Notre Dame campus in South Bend has a well known team, and it would seem possible to put together a package tour including the ferry. The numbers attracted to the ferry would be relatively low as METRA offers Notre Dame game specials. We have therefore excluded this as a potential business line.

NOTRE DAME UNIVERSITY FOOTBALL

Stadium holds 80,000

Number of home games 7-8, September through November

Ticket Breakdown:

	OLD	**NEW**
Students	11,000	11,000
Faculty/staff	4,000	7,000
Opponents	5,000	5,000
Season tickets	16,000	16,000
University Allotments	*7,000	9,000
Contributing Alumni	16,000	32,000
Total	**59,000**	**80,000**

Chicago Alumni Club – 13,000 members in Chicago

iv) Coach Tours

See the comments under St. Joseph origin coach tours. We have assumed the same number of potential tours, with a similar distribution.

SUMMARY OF LOCAL WINERIES & TRAFFIC

Winery	Estimated number of visitors annually	% from Chicago area	Geographic target markets	Seasonality	Would you incorporate ferry into promos?	Who would you consider partnering with ?	Would you work with ferry operator for landside transportation?
Contessa	50,000	90%	Chicago, Northern IN	Memorial Day-October	Have a hard time with large groups	No	No
Domaine Cellars							
Karma Vista	45,000	85%	Chicago, IN	June-October	Yes	Hotels, Wine Trail	Yes
Lemon Creek	32,000	90%	Chicago	June-November	Yes Adding tasting room to Benton Harbor Arts District	Hotels, Wine Trail, wine making	Yes
Tabor Hill	200,000	75%	Chicago Northern IN	July-November	Yes	Other wineries	Yes
Heart of Vineyard	30,000	65%	Chicago Northern IN	July-November Some special late Winter events	Yes	Wine trail	Yes
Wine Trail Group							

(v) Special Events

As noted in the Phase 1 report, St. Joseph holds events in July with the Krasl Art Show and the Venetian Festival that are well attended by very different groups. The Krasl tends to attract a higher propensity of age thirty and above females and couples, while Venetian attracts younger families. The Krasl Art Show and Venetian represent the core events, while there are many other small venues running May through October. A random survey of 119 visitors to the 2004 Venetian festival indicated 35% from the Chicago area. Total visitor numbers for these two events were 350,000, both in July. We have assumed 122,500 Chicago visitors spread over the May to October period.

VENETIAN INFORMATION

Estimated Attendance 150,000
Surveyed 119 people

Chicago area	41
Northern Indiana	28
St. Joseph area	15
Michigan	23
Other	2

Interested in using the ferry 98%

(vi) Small Boat Owners

Residents of Chicago that sail are regular patrons of marinas around southern Lake Michigan from Racine to Holland. St. Joseph has 2,600 boat slips of which some 35% are seasonally rented by small boat owners from Illinois. We have assumed that half of the Illinois ships are Chicago owners they would make at least monthly visits during the period, with a typical party of 2.4 persons, for a total trip activity of 6,500.

There is a separate market for winter boat storage, and Chicago owners will sail their boats to St. Joseph at the end of the season, and then re-commission them in May the following year. The numbers are small, but they would be ideal customers for the ferry.

(vii) Business Travel

It would seem logical that if there is business travel from companies in the Michigan market to Chicago, then there will be reciprocal travel. We have no basis for numbers and have conservatively assumed a level of 10% of Michigan travel to Chicago.

(viii) Second Homes

Total homes in the St. Joseph/South Haven area are 9,116 – suggesting at least 18,000 "private" lodging rooms. Based on homes only, and the same average family size of 2.4 as used in calculating hotel use, results in 1m[7] visits per year. There is, however, a strong commuter possibility based on anecdotal information that typical use is for a Chicago family to move during the summer with at least one adult commuting at weekends. No data appears

[7] Based on 2 months full occupancy and 10 months 2 days/week only.

to exist as to the primary residence of the second homeowner, and there is limited township information as to physical location. This shows that New Buffalo is a popular location for second homes and that accessible homes to the ferry would not likely exceed 500, of which we have assumed half will be owned in Chicago. This suggests a number of person trips of about 25,000 for second home ownership that could be targeted by the ferry. Actual trips would, based on the advice as to how these are used, decline during the summer period.

(ix) Beach

Silver and Tiscornia Beaches have a seasonal use of about 500,000 persons. Use is by locals, second homeowners as well as visitors, but no data exists as to actual origin of users. A study in 2002 that surveyed 241,000 persons found that 17% came from Illinois, but did not identify the community of origin. We have therefore conservatively assumed that 5% will be original visitors from Chicago, and not counted in other visitor numbers. Again, the beach represents an opportunity for day trips as the summer schedule could readily drop passengers off at Silver Beach, picking them up on the way back to Chicago.

On this basis we have assumed 25,000 visitors.

SUMMARY

The estimated potential Chicago based market utilized in the Ferry Model is 580,000 annually. This number is well within gross estimates from top-level sources and is believed to be conservative relative to visitor potential. The ferry, and particularly the tour packages, will induce additional travel through St. Joseph.

The estimated potential South West Michigan based market is 716,500 person trips, which includes business travelers. Chicago des not estimate its day trip market, but did identify 300-400,000 overnight visitors from the Grand Rapids DMA, which excludes the St. Joseph/Benton Harbor area.

3.2 MARKET POTENTIAL

An inspection of literature available for SW Michigan at the New Buffalo Visitor Center shows an almost total lack of quality promotional material for the region and attractions. This paucity of promotional material, coupled with literature organization only as East and West Michigan – not by the five tourism regions – suggests that there is under-utilized travel potential for the area, and therefore the ferry. See Annex 10.1 for a summary of available materials. There are two bill boards on I-94 eastbound, promoting St. Joseph, one regarding Carousel Horses and one for Silver Beach. This lack of material, together with a seeming lack of both individual and collective marketing, strongly suggests that the ferry's promotion and marketing will take a lead in the development of inbound tourism. Cooperative advertising of the region and attractions will be essential.

4. SEA CONDITIONS

Introduction

This Wave Climate Report is a statistical report on wave conditions in southern Lake Michigan, specifically in the shipping lane between Chicago on the west side of the lake and St. Joseph / Benton Harbor on the east. The information of the report is intended to provide guidance for ferry operators considering the procurement of a suitable vessel for the service.

The analysis to provide the requested information involves data collection, processing the information and filtering and summarizing the results. This report is a summary of the analysis and provides the wave height climate of the subject area in the form of maximum wave heights, occurrence probabilities and wave direction.

We have not included the raw data, statistics, charts or other information not specifically needed as the additional information may be incorrectly interpreted. All of the data not included in the report is available for review if desired.

Analysis & Interpretation of wave data and statistics

The analysis of the wave climate includes wave height calculations based on wind data, comparison of wind and wave data and analysis by others for Lake Michigan and a statistical analysis of the wave data from local sources. The analysis and calculations of wave height statistics from all the sources referenced have all produced comparable results.

The wave statistics presented in this report represent a compilation of data and analysis from the National Data Buoy Center database as collected from wave buoy station 45007 located in the southern end of Lake Michigan at 43.68□N 87.03□W (43□40'30"N 87□01'30"W). This buoy is located 43 nautical miles (NM) East Southeast of Milwaukee, WI and approximately 40 NM (74km) north of the subject shipping corridor between Chicago and St. Joseph / Benton Harbor. The station data has been adjusted in this analysis to account for the location difference between the station and the shipping corridor. Specifically, waves from the south will be limited in height due to the decreased fetch length. Changes in wave heights from the north are insignificant due to fetch area restrictions at the subject shipping corridor.

The wave (and weather) data from Station 45007 covers the period from July 1981 to December 2001. This period represents a good data set (57,936 samples) from which reliable statistics can be obtained.

The wave analysis Data Summary tables below show wave heights, probabilities of occurrence and wave direction. It is important to note that the wave heights indicated are the Significant Wave Height (H_S or $H_{1/3}$) and represent the most common wave height measurement used for the design of marine structures. By definition H_S is the mean height (measured from wave crest to trough) of the highest one-third of all waves. The maximum wave height (H_{max}) is statistically calculated by multiplying H_S by 1.87. Other important wave heights are $H_{1/10} = H \times 1.27$ and $H_{1/100} = H \times 1.67$.

To convert nautical miles (NM) to miles, multiply by 1.153. Miles to nautical miles multiply by 0.867.
To convert nautical miles to kilometres (km), multiply by 1.8563. km to NM multiply by 0.5387.
To convert metres (m) to feet, multiply by 3.28. Feet to metres, multiply by 0.3048 exact.

Table 1

Station 45007 Buoy at 43.68EN 87.03EW (40 NM north of Chicago - St. Joseph / Benton Harbor Shipping Corridor)

Period: Annual

Percent Frequency of Significant Wave Height (metres) vs Mean Wave Direction (compass degrees North = 0)

Mean Wave Direction +/- 15E

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %	Total #
Wave Hs														
5.5-6.5								*	*				0.0	4
4.5-5.5	*	*						*	*			*	0.1	33
3.5-4.5	0.2	*		*	*		*	*	*	*	*	*	0.3	171
2.5-3.5	0.8	0.1	*	*	*	*	0.1	0.1	*	*	*	0.1	1.3	762
1.5-2.5	3.6	0.4	0.2	0.2	0.1	0.2	1.5	0.6	0.4	0.4	0.4	0.7	8.7	5031
0.5-1.5	13.0	2.4	1.4	1.5	1.4	2.3	9.7	3.5	1.5	1.5	1.4	2.4	42.0	24346
<0.5	20.2	2.8	1.0	1.0	1.2	2.4	8.2	4.8	1.5	1.2	1.1	2.3	47.7	27589
Total %	37.7	5.6	2.7	2.8	2.8	5.0	19.4	8.9	3.4	3.1	2.9	5.6	100.0	
Total #	21826	3271	1551	1609	1603	2886	11256	5180	1995	1794	1705	3260	57936	57936

* = <0.05%

Table 2

Chicago - St. Joseph / Benton Harbor Shipping Corridor

Adjusted Station 45007 data for southeast to southwest fetch < 20 NM and north fetch + 40 NM

Period: Annual

Percent Frequency of Significant Wave Height (metres) vs Mean Wave Direction (compass degrees North = 0)

Mean Wave Direction +/- 15E

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5	*												0.0
4.5-5.5	*	*										*	0.1
3.5-4.5	0.2	*		*					*	*	*	*	0.3
2.5-3.5	0.8	0.1	*	*	*	*	0.1	0.1	*	*	*	0.1	1.3
1.5-2.5	3.6	0.4	0.2	0.2	0.1	0.2	1.5	0.6	0.4	0.4	0.4	0.7	8.7
0.5-1.5	13.0	2.4	1.4	1.5	1.4	2.3	9.7	3.5	1.5	1.5	1.4	2.4	42.0
<0.5	20.2	2.8	1.0	1.0	1.2	2.4	8.2	4.8	1.5	1.2	1.1	2.3	47.7
Total %	37.7	5.6	2.7	2.8	2.8	5.0	19.4	8.9	3.4	3.1	2.9	5.6	100.0

* = <0.05%

Monthly Wave Data Summary for Southern Lake Michigan 1981- 2001 (March-December)

Chicago - St. Joseph / Benton Harbor Shipping Corridor

Percent Frequency of Significant Wave Height (metres) vs Mean Wave Direction (compass degrees North = 0)

March

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5	*												*
4.5-5.5	0.3												0.3
3.5-4.5	0.2											0.1	0.3
2.5-3.5	0.9											0.1	1.0
1.5-2.5	6.4	0.2			0.4	1.1	0.3	0.1	0.1	0.4	0.2	1.8	9.8
0.5-1.5	16.9	2.7	2.1	1.4	1.1	2.0	10.9	4.2	1.6	1.9	2.1	1.9	48.9
<0.5	21.0	2.1	0.5	1.3	0.9	1.1	4.8	4.2	1.1	0.8	0.7	1.4	39.8
Total %	45.7	5.0	2.6	2.6	2.3	3.2	15.9	8.4	2.9	3.1	3.0	5.3	100.0

April

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5	0.1											*	0.1
3.5-4.5	0.4								0.1			*	0.6
2.5-3.5	0.9	0.1		*					*	0.1		*	1.1
1.5-2.5	5.1	0.5	0.8	0.4	*		0.1	0.4	0.3	0.4	0.3	0.5	8.9
0.5-1.5	17.2	2.5	3.0	2.7	1.5	1.9	7.1	3.3	0.7	0.6	0.6	2.1	43.2
<0.5	26.3	2.2	1.1	1.0	1.2	1.9	5.5	3.1	0.8	0.4	0.6	1.8	46.1
Total %	50.0	5.3	4.9	4.2	2.8	3.8	12.7	6.8	2.0	1.6	1.4	4.5	100.0

May

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5													
3.5-4.5	0.1	*										*	0.2
2.5-3.5	0.5	0.2										0.1	0.8
1.5-2.5	1.6	*		*	*	*	0.1				*	0.1	1.9
0.5-1.5	12.2	1.9	0.9	1.3	1.0	1.1	4.8	2.1	0.8	0.7	0.5	1.5	29.0
<0.5	30.0	5.0	1.7	1.6	2.3	3.3	9.1	6.7	1.9	1.9	1.3	3.6	68.2
Total %	44.5	7.1	2.5	3.0	3.6	4.4	14.0	8.8	2.7	2.6	1.8	5.2	100.0

June

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5													
3.5-4.5													
2.5-3.5	0.1	*											0.1
1.5-2.5	1.0	0.2	*		0.1		*					*	1.3
0.5-1.5	7.0	1.4	0.6	0.5	0.7	1.1	5.1	1.4	0.3	0.3	0.2	0.8	19.3
<0.5	37.4	5.3	1.5	1.3	1.8	3.4	10.8	7.8	2.4	1.6	2.0	4.2	79.3
Total %	45.5	6.8	2.1	1.8	2.6	4.4	15.9	9.2	2.7	1.8	2.2	5.0	100.0

July

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5													
3.5-4.5													
2.5-3.5	*												*
1.5-2.5	0.9	0.3	0.1	0.1	*	*	0.1	*	*		0.1		1.6
0.5-1.5	10.3	3.2	1.1	1.0	1.1	1.7	7.2	2.5	1.1	1.1	1.3	2.2	33.8
<0.5	24.7	3.9	1.4	1.2	1.5	2.9	12.4	7.0	2.5	2.1	1.7	3.3	64.7
Total %	35.9	7.5	2.5	2.3	2.5	4.7	19.6	9.5	3.6	3.2	3.0	5.6	100.0

August

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5													
3.5-4.5	*	*											0.1
2.5-3.5	0.1	0.1											0.2
1.5-2.5	2.6	0.3	*	0.1	0.1	*	0.3	*	*	*	*	0.1	3.8
0.5-1.5	13.0	3.6	1.4	1.8	1.7	2.6	9.9	2.8	0.9	0.7	1.1	2.3	41.7
<0.5	20.1	3.4	0.9	1.2	1.0	3.2	11.1	6.1	1.7	1.4	1.6	2.4	54.1
Total %	35.9	7.4	2.3	3.2	2.8	5.8	21.3	8.9	2.6	2.2	2.7	4.8	100.0

September

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5	0.1	*											0.1
3.5-4.5	0.4	*										*	0.4
2.5-3.5	1.0	0.1				0.1	0.1	*			*	0.1	1.3
1.5-2.5	6.0	0.4	*	0.2	0.3	0.3	1.4	0.6	0.3	0.3	0.9	1.3	12.1
0.5-1.5	14.5	2.5	1.4	1.4	1.9	4.1	11.5	4.7	2.3	1.8	1.9	2.7	50.7
<0.5	14.1	1.5	0.6	0.6	1.6	2.6	6.5	3.3	1.2	0.8	0.8	1.8	35.4
Total %	36.0	4.5	2.0	2.3	3.7	7.1	19.5	8.6	3.8	2.9	3.7	5.7	100.0

October

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5	*	*							*				0.1
3.5-4.5	0.3								0.2	0.1	0.1	*	0.7
2.5-3.5	1.7	0.2	0.1				0.3	0.3	0.1	0.2	0.1	0.4	3.2
1.5-2.5	4.3	0.4	0.5	0.5	0.2	0.7	4.0	1.5	1.1	0.8	1.0	1.7	16.6
0.5-1.5	12.4	1.9	1.4	2.1	2.4	3.2	15.4	5.5	2.3	3.1	2.5	4.1	56.5
<0.5	6.7	0.8	0.8	0.9	0.4	1.3	6.1	2.6	0.7	0.5	0.7	1.4	22.9
Total %	25.4	3.4	2.8	3.5	3.1	5.2	25.8	9.9	4.4	4.7	4.3	7.5	100.0

November

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5									*				0.1
4.5-5.5	0.1	*							0.1				0.2
3.5-4.5	0.2	*		0.1					0.1				0.5
2.5-3.5	1.8	0.3		0.2	*	0.4	0.4	0.1	0.3	0.1	0.1	0.4	4.2
1.5-2.5	6.6	0.8	0.4	0.5	0.1	1.0	6.0	2.6	1.5	1.7	1.1	1.6	23.9
0.5-1.5	17.9	2.0	1.7	1.2	0.6	2.6	14.9	4.9	2.9	3.3	2.7	4.3	59.0
<0.5	3.6	0.2	0.2	0.2	0.3	0.6	3.6	1.3	0.7	0.8	0.3	0.5	12.1
Total %	30.1	3.4	2.3	2.3	1.0	4.6	24.9	9.1	5.6	5.8	4.1	6.8	100.0

December

Direction	0	30	60	90	120	150	180	210	240	270	300	330	Total %
Wave Hs													
5.5-6.5													
4.5-5.5													
3.5-4.5											0.1	0.3	0.4
2.5-3.5	2.1						0.4	0.1		0.1	0.1	1.4	4.3
1.5-2.5	4.2	0.3	1.3	0.1		0.7	7.9	4.5	2.1	1.5	1.0	1.7	25.4
0.5-1.5	12.7	0.9	1.2	0.7	0.5	0.7	17.0	6.3	4.5	4.9	2.3	2.2	54.0
<0.5	5.6	0.2				0.5	5.5	1.8	1.1	0.3	0.2	0.6	15.9
Total %	24.6	1.4	2.5	0.8	0.5	1.9	30.8	12.7	7.7	6.8	3.8	6.3	100.0

This report is a compilation and analysis of existing wave and climate data sourced from the following references:

References:

1. National Data Buoy Center, Station 45007 Historical Data, U.S Dept of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.

2. Great Lakes Climatological Atlas, Saulesleja 1986, Environment Canada.

3. Wind and Wave Climate Atlas, 1991, Transportation Development Centre, Transport Canada

5. VESSEL TYPE

5.1 Overview

We have concentrated the analysis on high speed craft built to sub chapter T of CFR 46, which are under 100GRT and under 150 passenger capacity. There are some limits relative to area of operation, particularly not more than 20 nm off shore. The route between St. Joseph/Benton Harbor and Chicago meets these criteria. See Annex 10.3 for selected craft.

These craft have a number of benefits for the route in that they require fewer numbers of certificated crewmembers compared with larger craft, and also are permitted to operate with limited security procedures. These features are built into the operations model.

Because the route length will require an operating time each way of just under two hours, the selected vessel will need to have a good level of onboard comfort and services as well as being fully stabilized. Stabilization ensures that the ride is as comfortable as possible and enables higher speeds to be achieved in limiting sea conditions. Typically, passenger acceptance of ride characteristics of any ferry is well below the physical capability of the vessel itself. Thus a builder may claim that a boat is capable of handling 10ft (3m) seas. Without real time stabilization, the passenger comfort level would probably be exceeded at 6ft (3m) seas.

Passenger comfort is a combination of vibration (heave and pitch) of the boat, and time. Ancillary factors, such as odours, will have an influence on comfort and likelihood of motion sickness. Also, watching the horizon move relative to the boat will have an effect. Least expectation of motion sickness is for trips under one hour. Direction of the sea in relation to the direction of the vessel also has a significant impact. Seas on the bow quarter are the worst, creating a corkscrew motion, while head seas are the best and most readily handled by motion damping systems.

See Annex 10.2 for a presentation on motion sickness and the influence of ride control systems.

5.2 Specific Craft

See Annex 10.3 for representative vessels. At the moment there do not appear to be any suitable craft on the resale market. *Friendship IV*, which was included with the Phase 1 report, has now been chartered for three years.

While a charter option would be advantageous in that it limits the financial commitment from the operator, vessel purchase costs for new craft with the characteristics and speed needed are little different from indicative resale prices[8]. This suggests that there is an active market for T boats of the specification needed for the St. Joseph to Chicago route and therefore there is relatively low commercial risk involved if new construction is the only option.

Two new construction craft are detailed in Annex 10.3, as well as some comparative craft.

[8] Indicated resale prices were in the range $3.2-3.5m. New construction prices are in the range of $3.5-3.8m depending on specification for an aluminum hull, less for a GRP/Kevlar hull.

- ***Kvichak Marine*** Recently delivered a high speed, 95' T Boat to New England fast Ferry for Martha's Vineyard service. This is a Crowther design and has an interesting baggage/cargo arrangement that is accessed from the foredeck using carts similar to a hotel baggage trolley. Indicative prices are $3.75m with ride control. Delivery could be achieved by June 2005 if a commitment could be made by October. However, the Martha's Vineyard boat was delivered within seven months as a joint venture between Kvichak and Derektor. Kvichak built the hulls and Derektor built the superstructure as a parallel operation. The craft was then assembled at Derektor. Such an arrangement could materially reduce delivery time and cost into the lakesfrom a West Coast yard.

- ***Kitsap Catamarans*** These are a glass reinforced plastic(GRP)/Kevlar catamaran that offers high speeds at very attractive fuel burn rates. This is due to the much lighter hull with GRP as compared with aluminum.

  Kitsap have indicated that speeds up to 41kts are feasible with a fuel consumption of under 75gph. If such a speed/fuel consumption was positively demonstrated for the route, then up to four round trips could be achieved in an 18-hour day. This could enable the craft to meet summer weekend peaks, while still operating a more economical three round trip pattern on weekdays.

  Two variants have been suggested, a 65' model at $2.5m, while the 85' model would be $3.5m. The larger craft might be better on the route, given the sea conditions, and pricing is competitive with an aluminum craft. The big advantage is an indicated six month delivery time.

6. OPERATION & FINANCE MODEL

The model is built in Excel and consists of a series of linked tabs covering 30 Tables. Those cells that are highlighted in yellow are fully accessible and variations in any cell will be reflected in the overall results. The user should ensure that where percentages are used, revisions also total 100%. All other cells are protected, and should not be amended, as they may not be linked with other tabs. Data in these cells may need to be input in several locations throughout the model.

The analysis has been based on the acquisition of a new vessel at $3.5m

Vessel Characteristics – Table 1

Input name and type for each case run; passenger capacities; cruising speed; fuel consumption and seakeeping. The vessel type and seakeeping will title each page of the model. This latter number is the maximum wave, with ride control active, that can be accepted and still offer customers a comfortable ride. We have assumed that slow speed fuel consumption is 50% of maximum, and that idle consumption is 10% of maximum.

Three options are available relative to acquisition. These are Purchase, which activates the Capital Tab, or Time Charter or Bareboat Charter. Time charter includes all crewing and vessel operations cost, thus part of the operation and crew tables are disabled. A pre-service expense tab substitutes for the capital tab if this option is selected.

Under the bareboat charter arrangement, where only the boat is provided and the operator is fully responsible for crew and upkeep, only the capital tab is suppressed, and the pre-service tab is activated.

Voyage Characteristics and Disbursements – Table 2
Main engine consumption is calculated from the voyage characteristics on this page. Fuel is assumed to be marine diesel oil at domestic prices net of sales tax.

Disbursements include an allowance for engine residues, black water pump out and garbage disposal. It may be feasible, as this is a domestic operation, that sewer hook ups could be provided and garbage collected at nominal cost.

The idle at dock assumption is included to cover possible costs from auxiliary or shore power hook ups.

Capital Account – Table 3
Costs are input for hull, outfit and other costs for the vessel. An insured value is needed as is a value for cabin repair and replacement and engine/propulsion system for spares, parts, R&M. The assumption for each of these is approximately 30% of total costs.

The pre-service costs cover a range of start up investment needed, of which the largest is marketing and promotion. It will be essential to prime the market in terms of the opportunities and start the establishment of market linkages and opportunities so as to be able to commence operation with a high level of service acceptance. Note that if a charter option is assumed, a tab covering pre-service expenses is displayed instead of capital and finance.

Bank loan and equity information is also input in this area, to produce a fully built up finance cost. Note that equity lines have two options. One is amortized annual repayments which are assumed to pay on the full value of the contribution until repaid, not on a declining balance. The other option is a single re-payment of the contribution in the final year, together with R.O.E. Note the caution at the foot of the page regarding loan and equity periods.

Operating Costs and Ship Crew, Management and Shoresides
These two tabs should be read together.

Ship crew etc provides for numbers for people, salary levels and payroll positions. Note that payroll position is primarily relative to crew, but some shift position will be needed in the ticket offices, given the length of day – 15 hours and a full 7-day week. Also, the HQ staff is assumed to include both Marketing and Tours Managers, given the importance of regional recognition and tours revenue. The shore maintenance person is assumed to be a licensed mechanic trained for the complete propulsion package installed on the boats, and to work on a shift basis. It may be possible to arrange a contract with a local dealer who has experience with the type of engines installed. Other support for electronics etc is presumed to be contract and is covered in operating costs with a combination of unit and value based budget levels. The operating costs table also allows for a full range of benefits to be input.

Ferry Schedules & Trips – Table 4
This data is fundamental to the working of the model and specifies a daily schedule for the boat or boats during the operating year. A second boat can be added by increasing the number of sailings. The schedule is advisory only and assumes that the boat(s) is/are based in St. Joseph/Benton Harbor.

Seakeeping – Tables 5,6,7 & 8
These tables provide an assessment as to lost trips due to different craft seakeeping capability. Numbers of passengers lost are also estimated based on different capture rates assumed in the model. We have input a small average cost for moving passengers that were not able to sail. This presumes that people arriving for a specific sailing from their home base would be advised that the ferry was not sailing due to rough weather. However, those passengers on tours would have to be returned to their starting point.

It is also assumed, within the model, that the ferry will make the trip, albeit by a circuitous route, in order to be on station for the next sailing, thus the cost of the run is included. Completing the schedule may also be important from a crew turnover perspective[9].

Ferry Traffic & Penetration – Table 9
These tables provide essential input data relative to market size and penetration at different fare levels. Also included is a growth rate for ferry traffic as well as underlying growth rate for the market. The underlying rate is used to position market size at the year the ferry commences. Provision is made for additional business lines..

Market numbers are discussed in detail in Section 3, Traffic Analysis.

Passenger Traffic by Attractions – Table 10
This table expands the data and assumptions in Table 9 to create monthly travel numbers for each of the three scenarios analysed. The actual distribution of traffic by month can be modified. Note that the traffic numbers discussed in Section 3 are annual, thus an annual distribution must be input. The ferry can only capture traffic in those months it is operating.

Total Passenger Traffic by Scenario – Table 11
Sums data from Table 11 by scenario and by origin.

Summary of Passengers Lost – Table 12
This table summarizes travel numbers and, in a hidden set of calculations, utilizes the peaking index in Table 19 to compare travel numbers with possible loss of fares for the ferry due to too many travellers showing up. Note that the losses occur May through September, but only on the high ridership scenario. This table also calculates passenger losses due to seakeeping. Note the need for a boat and ride system capable of handling Hs max 2 metre seas.

[9] Actually operating the ferry could also be an important confidence builder relative to the service. Passengers could be given the option of a free, but rough, ride or take the coach service at the ferry fare.

Traffic Growth
Tables 13-15 increase traffic according to the assumed weighted average growth rate. This is compared with system capacity and an actual growth rate is indicated. Traffic carried does not expand beyond system capacity. These tables can help indicate, together with Table 12, when additional capacity may be needed.

Fare Level and Market Capture
This table sets out all revenue information for the model.

Onboard revenue is the average gross revenue expected per each-way passenger, and a cost is recorded in operating costs at 50% of this value[10].

All data is variable and essentially relates to the adult one-way and round trip fares.

Day of the Week Indexed Traffic – Tables 17-21
Uses the index at Table 19 to calculate passenger loads by day of the week throughout the year. The calculated numbers are then compared with fleet capacity, and Table 13 shows where projected travel exceeds capacity.

Yield – Tables 22-27
While fares are set out in "Fare level and market capture", this does not represent the actual revenue received per passenger carried. Actual revenue is the yield per passenger, which combines all fare types and passengers over the operating year. Weighted average yield per passenger is calculated here by passenger type and mix specified. The mix is Mariport's guesstimate as to the fares sold on a seasonal basis. These may be varied.

Coach Operation
This table summarizes coach costs and operations, presuming a commercial loan secured against the equipment. A nominal equity % is assumed, but just as with the fleet capital, all the assumptions can be varied. Staffing and numbers of coach drivers are also specified. See notes under coach operations with regard to the estimated number of miles driven per coach per operating year. It may be more economic to charter in coaches from a local operator, and information is provided in Annex 10.5. This annex also includes an offer from Chicago Trolley for service. However, there are several free trolleys available in Chicago.

Profit & Loss Summary
All costs and revenues are summarised to show the financial capability of the system. The ramp up period must be selected, which postulates a reduced traffic/revenue base for years 1 & 2 with full projected traffic by year 3. Costs can be increased at a selected rate, as can fares.

Note that in the Purchase option, pre-service costs are suppressed as these are rolled in with finance/charter costs.

Because of the complexity of the model, it is necessary to select the scenario for P/L analysis. This shows that high travel numbers are critical to success and that a lower fare – provided it attracts the projected ridership, is essential.

[10] The "Badger" achieved an average of $5.00 per person onboard revenue in 1999 on a 4-hour crossing.

Package Tours – Table 30

A module is provided that enables revenue estimates to be incorporated from tour packages offered in both Chicago and St. Joseph/Benton Harbor. Revenue is calculated on the margin achieved per person taking the tour and the percentage of the travel group that will take the tour. These have been conservatively stated as to both margins and percentage of passengers carried, taking an organized tour. Note that 100% of group activity eg. Winery Tours is presumed to take a tour.

Limitations

While the model is comprehensive and permits very many service and traffic variations to be tested, there are some limits due to the way in which passenger distribution and types are handled. The main area that will impact the P/L analysis is with regard to induced travellers and when they travel. A proportion of all projected travel is by induced ferry passengers, rather than passenger lines interpreted from statistical data.

From a market perspective, the intent would be to offer tour packages for mid-week sailings rather than the weekends when full fare travel would be expected. This activity would tend to modify the peaking index given in Table 18. At present all travellers are treated according to the index, which distributes them 41% Saturday and Sunday; 59% Monday-Friday. If the induced market travelled more during the weekday period, then the overall yield per passenger would be depressed. However, the theoretical income loss not only depends on the mid-week/weekend fare ratio, but also on the summer to shoulder and winter fare ratios, the passenger distribution during the year and the type of passenger (i.e. full fare adult, senior etc).

Summary Comments on the Model Analysis of the Route

1. The model strongly suggests that the most effective scenario, assuming it is supported by survey work, is the high capture/low fare option. Neither the base fare/capture nor the low capture/high fare options are viable.

2. Income from package tours is an important part of overall revenue, and building an effective operation will be critical to the success of the ferry service. It is interesting to note that Clipper out of Seattle, who provide fast ferry service to Victoria BC, have stated that their tours business generates more revenue than the actual fare. Cruise companies also make a substantial contribution to operating revenue from their shore tour operations.

3. Depending on traffic, and growth, introduction of a second ferry on a peak (say May through September) season could well improve overall profitability of the system. The model does not have the capability to introduce a second ferry at a later date, so this option cannot be tested.

7. TERMINAL LOCATION & FEATURES

7.1 St. Joseph/Benton Harbor

We reviewed five potential locations that were determined primarily on the ability to provide at least 100 vehicle spaces. Because of the shallow draft and relatively short length of the ferry, all are practical from a marine perspective. A table is provided that summarizes features, particularly likely sailing and manoeuvring time in the harbour. Train movements could potentially delay all locations, other than the channel wall at Silver Beach, over the swing bridge. However, closure for rail traffic is fairly predictable and fine-tuning the ferry schedule should avoid problems. See location on the map page following; available title information is in Annex 10.4.

(i) Benton Harbor Canal[11]

Location A was one agreed upon by LEF, and an old car dealership building was to be converted to a terminal building by the Kinney Family Trust. There would appear to be adequate parking and coach assembly areas, but a possible drawback is that the land parcel between the canal and the old dealership is owned by Whirlpool and a separate access and use agreement would be needed. A dock face would also be needed and it is likely that the ferry would have to back out into the river. An advantage of this site is that as a Benton Harbor site, development grants may be available. Vehicle access of Business 94 would be excellent. The major drawback to the location is the length of time needed from breakwater inward or outward.

(ii) Foot of Water Tower[10]

A possible location (B) would be on the north side of the channel, well outside laker tracks and east of the water tower. This site would use a portion of the land that used to carry the access road from M 63, which appear to be owned by Michigan Department of Transportation The water lot is owned by Whirlpool.

This area would require considerable investment in shoreside facilities and is in St. Joseph. Vehicle access would be relatively good, although circuitous.

(iii) Lafarge Dock[10]

A possible location (C) would be at the end of the Lafarge Dock, adjacent to the Railway Bridge, with pedestrian access to a parking area opposite the new road access from M63.

Although Lafarge do not use all their dock, this option would require approvals for use from Lafarge and access from three private entities. The parking would be relatively remote from the dock itself.

[11] Title Deed information available in Annex 10.4.

(iv) Dock Wall at Silver Beach

This location (D) has a number of potential advantages in that no construction would be needed and adequate parking exists close to the docking area. LEF had apparently looked at this site, but had reportedly been turned down by USCG. This may have been due to security issues associated with the size of the boat they were proposing to use. Contact with US Army Corps of Engineers, who own the dock wall and apron, has not indicated any serious reservations regarding use. A formal response is still to come.

Against the potential advantages, there is occasional storm surge problem in the channel that could prevent docking, and passenger access to the ferry could be delayed because of train movements across the approach road.

A possible use for this site, if not deemed feasible for permanent operations, is on a touch and go basis for visitors to Silver Beach. The area is operated by Berrien County Parks Dept. who would be amenable to discussions on use. The location could not be used for overnight docking.

(v) Foot of M63

This piece of land (E) is in the city of St. Joseph, but is owned by Berrien County. Although currently undeveloped, access via Water Street is feasible and the land area is more than adequate to cover parking needs. The dock wall is in good condition, but some mooring bollards would be needed.

The county is currently considering options for the site and would be interested in discussing development opportunities regarding a ferry terminal. This site could readily provide overnight docking for the ferry.

7.2 Chicago

There are two appropriate locations in Chicago, both at the foot of Navy Pier.

(i) West Wall

This is the location preferred by Navy Pier, which has good visibility and is adjacent to the South Side main pedestrian area. The South Side also houses all the tour and dinner boats. There are water taxis at the south end. This location is likely to be the more costly one for the ferry.

(ii) East Wall

This is the wall that runs between Navy Pier and the water filtration plant. It is immediately adjacent to the CTA bus terminal and the Navy Pier free trolley waiting area. The North Side of the pier is the main road access to the parking garages and the exhibition areas. There are some potential security issues because of the proximity to the water plant, but no outright restrictions by either Navy Pier or USCG. The North Side dock face is used by American Canadian Caribbean Line as the turnaround dock for their cruises around Lake Michigan. This location has a number of advantages for foot passengers and is also likely to be less costly than the West Wall.

(ii) Navy Pier Berthing Costs

Navy Pier effectively requests bids from companies for space at the dock aces they control. Typically they will seek a base rent plus a combination of head tax and/or percentage of gross revenues. LEF are understood to have offered a very rich arrangement that would have contributed significantly to operating costs. We believe, from discussions with Navy Pier, that a reasonable offer would be accepted, bearing in mind the very short time that the ferry would actually be docked.

The arrangement is that following initial discussions, Navy Pier will issue a Request for Quotation, i.e. a bid from the operator for the space and/or service requested. If the bid is accepted, a letter of credit to secure the space is required. Navy Pier has indicated that they will not accept operators who are involved in carrying people to gambling operations (e.g. Hammond, Michigan City). Navy Pier also was concerned that no commitment should be made to using Navy Pier until such time as an agreement was in place.

SUMMARY OF FERRY TERMINAL SITES IN ST. JOSEPH/BENTON HARBOR AND CHICAGO

	ST. JOSEPH/BENTON HARBOR					CHICAGO	
LOCATION	**BENTON HBR CANAL**	**WATER TOWER**	**LAFARGE DOCK**	**SILVER BEACH**	**FOOT OF M31**	**WEST WALL**	**EAST WALL**
Access time for ferry	15 min	9 min	7 min	6 min	9 min	4 min	5 min
Turning ferry	Back to basin	Off dock	Off dock	Off dock	Off dock	Off dock	Off dock
Road access from Bus. 94	.1 mile	.7 mile	.7 mile	.75 mile	.3 mile	- na -	- na -
Ownership	Private/ Whirlpool	State/ Whirlpool	Private	County/ USACE	County	MPEA	MPEA
Location	Benton Hbr	St. Joseph	St. Joseph	St. Joseph	St. Joseph	Chicago	Chicago
Marine issues	None	None	None	Storm surge	None	None	None
Bridge limits	Yes	Yes	Yes	No	Yes	No	No
Traffic limits	No	No	No	Possible	No	No	No
Transit at site	No	No	No	No	No	.2 mile	Yes
Overnight dockage	Yes	Yes	Possible	No	Yes	- na -	- na -

MPEA = Metropolitan Pier & Exposition Authority
- na - = not applicable

8. LOCAL LINKS & LANDSIDE TRANSPORTATION

8.1 St. Joseph/Benton Harbor

Any ferry carrying foot passengers must offer a means for people using the ferry to get to their destination, or be able to return to the ferry as part of an overall package.

Local, or regional, ferry users will drive, or will have family pick them up. Free parking will be necessary to attract users and compete with METRA South Shore at Michigan City, which offers free parking.

Some people may opt for rental cars, in which case they will need to be provided with trip maps showing the different tours they could take, or places to go. Both Enterprise and Avis, the two local car rental agencies, have indicated strong interest and Enterprise would add 20 vehicles to their existing fleet to cover needs.

We have also outlined a broad package tour program that will be needed as a part of the overall marketing effort. This program would take a substantial number of people directly from the ferry. Those people who are taking a day trip will need to get into St. Joseph downtown core or to silver or Tiocornia Beaches or to specific events. We have priced into the operation a two-coach service, but it may be possible to utilize a local company on a fee for service basis. See Annex 10.5 for details. Based on Berrien Bus costing of $25/hour, two 30-seat coaches operating a full 15- hour day, 270 days per year, would cost just over $200,000 for the season. The operating cost for two 40-seat coaches in the model is estimated at $187,000pa, thus costs are comparable. An annual contract could well attract a discount on the hourly rate, making the option very workable as bus sizes and numbers could be varied to meet the needs of tour activity as well as local trolley runs.

Having ferry trolleys or coaches operating on a set route is also valuable promotion for the service, provided the livery is eye catching.

8.2 CHICAGO

There are two free trolley services operating from Navy Pier, but these do not start until 10:00hrs. The first ferry arrival is scheduled before 09:00hrs, so some arrangement with Navy Pier as part of a rental agreement is appropriate. There are other free trolley services in Chicago, but the shopping routes tend to be very heavily used in season.

We have included, in Annex 10.5, a proposal from Chicago Coach[12] for provision for a couple of trolley operations that could meet passenger needs. As with a dedicated service in St. Joseph/Benton Harbor, the promotional benefits of appropriate signage on the trolley relative to the ferry would be valuable.

Car rental options may be of less value in Chicago than in St. Joseph/Benton Harbor, although taxi use could well be higher. Also, for Chicago residents, there will likely be a high use of transit to get to Navy Pier and from the ferry.

[12] Please note, Karen Geocaris has our communication details relative to Cruising the Great Lakes, Mariport's sister company that acts as a destination marketing organization for overnight cruises on the Great Lakes.

While parking is available at Navy Pier, the parking garages are usually full by lunch time on a weekend, and identification of an alternate parking garage with trolley service to the ferry may be desirable – particularly if parking at better rates than Navy Pier can be offered. One of the reservations regarding use of the ferry expressed by people interviewed at Venetian night in St. Joseph was the high cost of parking at Navy Pier.

9. TOUR PACKAGES AND PARCEL TRAFFIC

9.1 Tour Packages

As noted elsewhere, a comprehensive tour program' both in SW Michigan and Chicago, will be critical to success of the ferry. The following concepts are not intended as a comprehensive outline of all feasible options, but are designed to be representative of the type of tour that could be offered and the potential sell out prices.

Our experience with tour is that the inclusion of an opportunity for a stop for a beverage and snack as part of the tour is a major selling point.

Given the proposed ferry schedule, all day trip tours out of Chicago would need to be arranged within a 4-hour period. This could be materially relaxed with two ferries operating. Tours into Chicago could be longer, depending on the ferry taken.

Some SW Michigan attractions are detailed in Annex 10.8.

Student Tours

There are good opportunities with local SW Michigan schools, the Chicago School District and visiting student tour groups to offer first-rate educational trips. In SW Michigan, Warren Dunes and Sarrett have excellent student programs from grade 4 up. In addition tours could be designed, working with the Fort Miami Heritage Society, around the maritime history of the region from the fur trade days through the 1950's.

Examples in SW Michigan:

- Nature trail at Warren Dunes could be offered at $35.00 per person with 30 persons, including coach, ferry, snack, guide and mark up.
- Voyageur canoe experience at Sarrett could be offered at $40.00 per person inclusive. This could well interest adults as well.

Examples in Chicago:

- Museums, Shedd Aquarium etc, all have student group rates, which could be coupled with the ferry ride.

Adult/Seniors Tours

There are very many tour packages that could be offered, both as day trips and overnight into SW Michigan and Chicago.

Examples in SW Michigan:

- Winery tour, with three wineries in a 4-hour trip including a wine and cheese break at one of them. This could be readily offered at $40 per person including ferry, coach, wine tasting, wine and cheese break and mark up.

- Birding is very popular and mid-week bird watching trips to Sarrett could be offered at about $40.00 pp for seniors and children, $55 for others including a snack.
- Fernwood is another tour option that could be offered at a similar price to Sarrett.
- Golf Packages could be arranged, probably including an overnight stay with multiple courses, accommodation, breakfast and a lunch.
- Event visits could also be organized around the Krasl Art Show, Venetian Festival and other events.

Examples in Chicago:

- The most probable tour activity would be with a show and overnight accommodation, including taxi to hotel from the ferry. Depending on the hotel and show, such packages could be sold for about $225 pp, including mark up. The package might include a special discount book for restaurants and stores, but would not include transport back to the ferry.
- Other tours including museums, art galleries, conventions and special events can also be organized and become an integral component of the marketing of the ferry.

9.2 Carriage of Small Parcels

Goods carried between ports in the USA are subject to the Harbor Maintenance Fee, which is set at .125% of value. This applies both to domestic and international cargoes although there are some exceptions.

The full regulations can be found under Title 25 Subtitle D Chapter 25 Subchapter A section 4461of what?? and include St. Joseph/Benton Harbor. However, for the purposes of this review there is an exclusion for ferries and the operative clause would seem to be:

> "The term commercial vessel does not include any ferry engaged primarily in the ferrying of passengers (including their vehicles) between points within the United States, or between the United States and contiguous countries."

Thus it could be argued that as long as the small packet aspect of the business was only a minor component of total revenue, then the above definition of commercial vessel would apply. The actual level of activity would depend on the definition of "primarily"; for example would this apply at a ratio of 51/49% of passenger/package revenue, or at a lesser level? Precedent may come from another area of US maritime law. This is relative to US flag vessel ownership where up to 25% of the equity can be held by non-US- citizens and the operation is still considered to be US owned and operated.

A legal opinion on this aspect would be needed, but it would seem that carriage of small packages could be considered, although their contribution to revenue might need to be limited and monitored.

ANNEX 10.1

MATERIAL AVAILABLE ABOUT SOUTHWEST MICHIGAN AT THE NEW BUFFALO VISITOR CENTER

- *South West Michigan Tour Guide* Published by Herald Palladium
  Gloss cover, non-coated contents pages, which compares unfavourably with other material.
- *Lakeshore Chamber of Commerce*
  Coated stock, three-fold covering Stevensville and Baroda only. No mention of St. Joseph/Benton Harbor.
- *Southwest Michigan Wine Trail*
  Coated stock, folded brochure, available on request only.

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- *Michigan Travel Ideas* has limited coverage of SW Michigan
- *West Michigan – Carefree Travel* has a gazetteer but limited information. For example, many events are listed for South Haven, Holland etc, but none in St. Joseph.
- *West Michigan Shoreline Guide* has information about shoreline communities, but only from Douglas to Ludington.

ANNEX 10.7

DESIGNATED MARKET AREAS

There are 210 Designated Market Areas (DMA) in the USA, which is a Nielsen Market Research count of households with television sets. There are three DMA's of interest to the ferry: the Grand Rapids, Kalamazoo, Battle Creak area ranks 38 at 724,290 households; South Bend and Elkhart area ranks 87 at 330,200 households; St. Joseph ranks 201 with 50,400 households

Travel propensity from each region into the Chicago market will be a function of competing attractions, proximity and ease of access. For example, residents in New Buffalo (MI) can be expected to have a relatively high propensity for travel to Chicago, given lack of competing attraction and proximity, while those in Detroit would be expected to have a low propensity given competing attractions and distance.

We have used a combination of the reference data available to us to estimate inbound trips, which is: 300-400,000 overnight visits from Grand Rapids DMA in 2003 and 5.3m person trips from Michigan in 1995.

	Nielsen Households	**Census Households**[13]	**Persons/Household**
Grand Rapids DMA	724,290	386,480	
Kent, Ottawa, Allegan		332,717	2.76
Cass, Berrien, Van Buren	50,400	111,227[14]	2.61

Based on the DMA households and the number of overnight person trips indicated by the Chicago CVB, the propensity per household is between .41 and .55 trips/household. After dividing by persons/household, this number equates to about .2 overnight person trips/year which, when compared with the Michigan-wide data for 1995 (see below) suggests at least .15 person day trips/year. This number could well be higher given the proximity of the region that represents the catchment area for the ferry to Chicago.

Population Based Estimate

Travel data from an ATA survey in 1995 indicated 5.3m person trips to Illinois from Michigan. The 1995 population of Michigan is estimated at 9.6m based on the mid point between the 1990 & 2000 census data. Therefore on a broad population basis, the travel propensity for Michigan residents into the Illinois market was .55- person trips/year. There is no definition as to location in Illinois, and while Chicago was likely to be the major draw, only a proportion of total travel can be assumed. Assuming that Chicago accounted for 60% of the Michigan market results in a propensity of .33 person trips/year.

[13] Census household, estimate for Grand Rapids DMA: Kent, Ottawa, Kalamazoo, and Calhoun.
[14] The St. Joseph DMA at 50,400 households is less than Berrien County census data.

Trip Projection

Based on the above data we have utilized a value of .2 overnight person trips/year plus a day trip propensity of .2 person trips/year for the more distant markets of Kalamazoo and Grand Rapids, and a .4 person trips/year for the nearby markets.