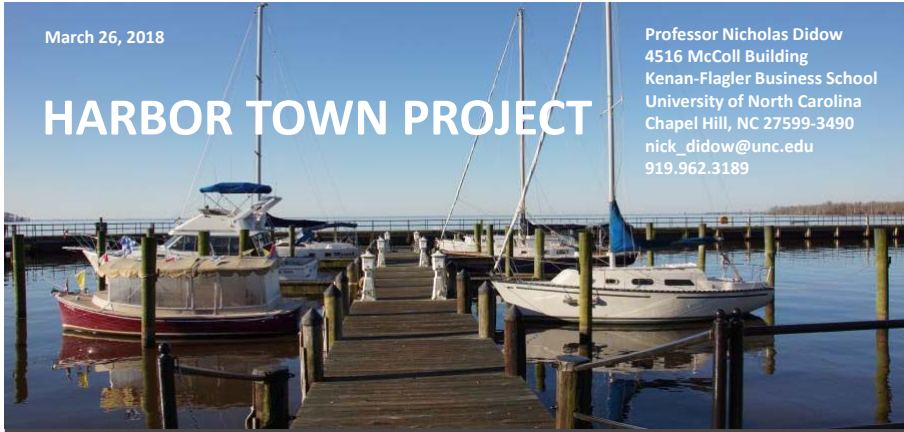


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March 26, 2018



HARBOR TOWN PROJECT

Professor Nicholas Didow
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Water Transportation in the Albemarle Sound

Katie Bradshaw, Heather Brutz, Kiara Burroughs, Elisa Elkind, Cindy Frantz, Maria Grimshaw, Taylor Mallard,
Susan Sullivan, Brandon Stephenson, Elise Wagner

2

The Harbor Town Project team is a collaborative partnership across the IBX that includes several universities and institutions.













The team also includes Bunny Sanders, Phil McMullan, and Peter Thompson, who developed an earlier version of this strategy in 1993.



The Water Ferry System is one of three Phase One initiatives to increase tourism and create sustainable jobs and careers.



A ferry system serving the Albemarle Sound is an attractive investment opportunity that can become profitable.

4

Five Boats



49 seat catamaran



149 seat catamaran

Towns

In phase 1, ferries stop in six towns:

- Elizabeth City
- Edenton
- Hertford
- Plymouth
- Columbia
- Kitty Hawk

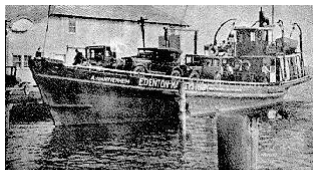
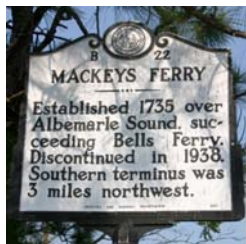
I m p a c t	The ferry has the potential to create 94 jobs . Tourism is estimated at \$14M .	C o s t	\$13.8M in capital expenditures is required to launch the ferry. Average annual operating expenses are \$1.95M .	R e t u r n	The ferry has the potential to be profitable in year 1. Year 1 annual ridership is projected to be 107,000 .
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See appendix for more detail on calculations

The Albemarle Sound region of northeastern North Carolina is a region rich in history, natural resources, and faith. 5



Ferries have long been part of the life and lore of the Albemarle Sound region. 6



The A. von NYENHEIM ferry between Edenton, Chowan Co., and Mackey's Ferry, Washington Co., ca. 1920
Photo courtesy Fort O'Plymouth Museum, Fred Davenport donation, Museum of the Albemarle

EDENTON - MACKEYS HIGHWAY FERRY
Daily and Sunday Schedule
Leave Edenton 7 and 9:30 a. m. 1 and 4 p. m.
Leave Mackeys 8 and 11 a. m. 2:30 and 5 p. m.

RATES: Small Automobiles, including driver \$1.00
Large Automobiles, including driver \$1.50
Passenger Fare 25c Ages 6 to 12 years 15c
TRUCKS ACCORDING TO SIZE

350th Anniversary Guided Cruise
May 11-13, 2018
\$1,000+ per person
First four counties in NC: Currituck, Chowan, Perquimans and Pasquotank, created in 1668 as precincts of the Albemarle area.
Proof of Concept?

Take a History filled tour and cruise on the Belle of Washington



The historic communities of the region have considerable potential tourism appeal because of their unique histories and identities.



**Columbia—
Art and Nature**



**Edenton—
“the South’s prettiest
town” -Forbes**



**Hertford—
Antiques and S-bridge**



**Plymouth—
Civil War and
The Battle of
Plymouth**



**Elizabeth City—
Harbor of Hospitality
USCG and
EC Shipyard Stories**

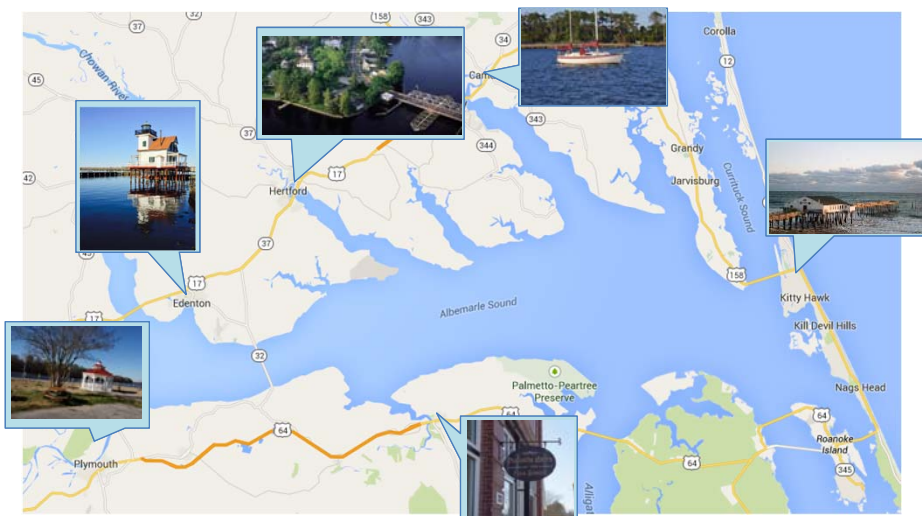


**Kitty Hawk—
First in Flight**

Source: Forbes, Team Analysis

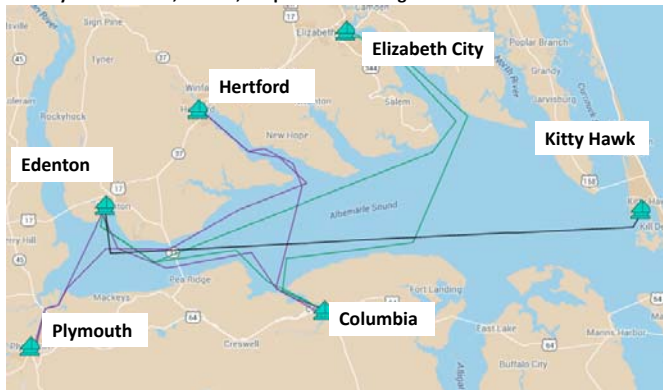


Tourists and visitors would enjoy visiting historic towns and sites, seeing nature, and exploring the IBX region by ferry. 8



Routes would include Elizabeth City-Columbia-Plymouth-Edenton- Hertford circuits, and Kitty Hawk-Edenton direct express.

Average trip: 66 min @ 32 mph (28 knots) Plymouth-Edenton: 24 mins
 2 Ferries on Kitty Hawk-Edenton Direct Express: 1 hr 45 mins
 1 Ferry on Clockwise and 1 Ferry on Counterclockwise 5 town circuits
 1 Ferry maintenance, charter, or special scheduling



Source: NCDOT GIS Unit

Total operating hours/day per vessel: 10.5 hours

Why These Cities:

- Location (accessibility and inter-distance)
- Infrastructure and amenities
- Vitality, attraction, and potential
- Bring more tourists to BOTH the OBX AND the IBX
- Generate tourism in the IBX
- Complement existing NCDOT ferry service

Quick ramp up time & flexible hop on hop off trips

- Introduction
- Operations
- Finances
- Risks
- Recommendation



We can apply best practices from other successful public and public-private water transportation systems.



PRICING

- Local resident discounts
- Commuter/education bulk pass
- Hop on/hop off pricing
- Family/seasonal passes
- Ticket prices vary greatly



PARTNERSHIP

- Public transportation at docks (bikes rentals, etc.)
- Onshore nature walks
- Discounts at local businesses



POSITIONING

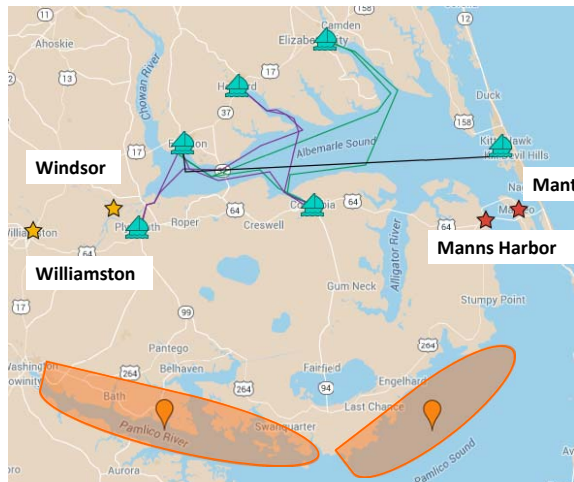
- Onboard entertainment
- Seasonal schedule
- Onboard concessions
- Special event charters – nature talk, star gazing, weddings, wine and cheese, sunset dinner and drinks, holiday cruises

See Appendix for more information on benchmark studies in price/schedules

- Introduction
- Operations
- Finances
- Risks
- Recommendation



More routes and ferries can be added over time to include other locations on the Albemarle Sound, IBX, OBX, and Pamlico Sound. 11



- Connect to other IBX and OBX cities
- Add one-off trips to more cities near the Albemarle Sound and up rivers
- Reach towns along the Pamlico Sound and Pamlico River
- Complement ferry service provided by NCDOT Ferry Division

Introduction Operations Finances Risks Recommendation UNC KENAN-FLAGLER BUSINESS SCHOOL

Exploring the IBX is a perfect way for visitors to experience North Carolina. 12



Introduction Operations Finances Risks Recommendation UNC KENAN-FLAGLER BUSINESS SCHOOL

The IBX friendly small-town culture and Southern Hospitality make for an authentic tourist experience. 13



Local Arts



Welcoming Hosts



Colonial History

Introduction Operations Finances Risks Recommendation 

The estimated market in Year 1 is 107,000 visitors from three different consumer groups. 14



Projected Visitors:

	Weekenders	Coastal Tourists	Inner Banks Residents				
To Area:	5,000,000	+	8,000,000	+	200,000	=	13,200,000
To Ferry:	20,000	+	57,000	+	30,000	=	107,000

A projected **107,000** visitors will use the Albemarle Sound Ferry System in Year 1

See appendix slides for more detail on calculations

Introduction Operations Finances Risks Recommendation 

A ferry service provides an essential part of the infrastructure required for successful economic development of the Albemarle Sound region.

107,000 estimated visitors
in first year
170,000 per year when fully established
With the initial ferry capacity



\$14,000,000 estimated initial direct tourism spending year one
at \$131 per person per day

94+ estimated direct employment
by ferry system, town docks, and other managerial and
operational personnel,
**plus additional employment from econ and historic sites, new
business start ups in the harbor towns, etc.**



Source: Team Analysis



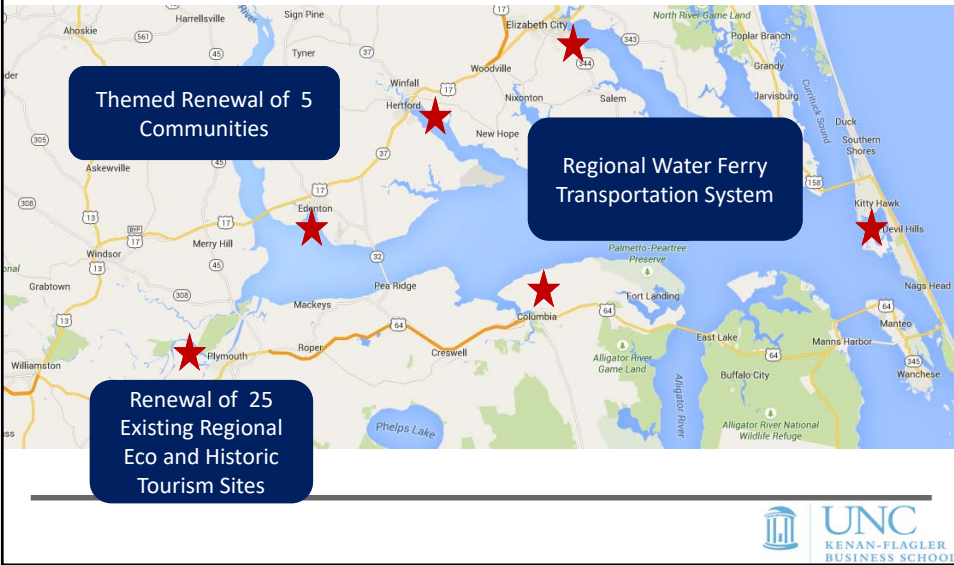
The initial investment for all three initiatives will be about \$22 million and will take about five years to be fully operational.

16

	Y1	Y2	Y3	Y4	Y5	TOTAL
THEMED RENEWAL OF 5 COMMUNITIES						
avg \$400,000 per community	\$680,000	\$720,000	\$440,000	\$160,000		\$2,000,000
3% contingency	\$20,400	\$21,600	\$13,200	\$4,800		\$60,000
SUBTOTAL	\$700,400	\$741,600	\$453,200	\$164,800		\$2,060,000
REGIONAL WATER FERRY TRANSPORTATION SYSTEM						
start up costs – planning, design, permitting	\$127,500	\$76,500	\$25,500	\$12,750	\$12,750	\$255,000
dry dock facility		\$1,305,000	\$3,045,000			\$4,350,000
terminals/ docking facilities at 6 sound communities		\$270,000	\$360,000	\$270,000		\$900,000
5 49 passenger ferries @ \$1.7M each				\$5,100,000	\$3,400,000	\$8,500,000
3% contingency	\$3,825	\$49,545	\$102,915	\$161,483	\$102,383	\$403,790
SUBTOTAL	\$131,325	\$1,701,045	\$3,533,415	\$5,544,233	\$3,515,133	\$13,863,475
RENEWAL OF 25 EXISTING REGIONAL ECO AND HISTORIC TOURISM SITES						
5 per yr @ avg \$200,000 per site	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$5,000,000
3% contingency	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
SUBTOTAL	\$1,030,000	\$1,030,000	\$1,030,000	\$1,030,000	\$1,030,000	\$5,150,000
TOTAL	\$1,861,725	\$3,472,645	\$5,016,615	\$6,739,033	\$4,545,133	\$21,073,475
PROJECT PLANNING, MANAGEMENT AND COORDINATION						
10% of budget less direct cost of ferries	\$186,173	\$347,265	\$501,662	\$163,903	\$114,513	\$1,313,515
GRAND TOTAL	\$2,047,898	\$3,819,910	\$5,518,277	\$6,902,936	\$4,659,646	\$22,386,990



Success of the Water Ferry System is enhanced by the coordinated development of all three Phase One tourism-based initiatives.



Appendix

19

Why is now the time for the Harbor Town Project?

The Harbor Town Project celebrates the beauty, assets, resources, and history of the Albemarle Sound region and its people.

Towns and counties across the IBX understand the shared benefits of regionalism.


State and local political and community leaders support a major planned, coordinated tourism-based economic development intervention for the region.

Other traditional economic development initiatives will benefit from the Harbor Town Project.

Funds from Golden LEAF Foundation’s forthcoming Community Based Grant Initiative could be leveraged by private investment, additional foundation grants, and other state and federal funding for capital and start up expenses.

People understand the benefits of the Harbor Town Project and get excited about it! It will renew and upgrade the historic downtowns of IBX waterfront communities, and existing eco and historic tourism sites across the region.

The Harbor Town Project will foster other creative, thoughtful regional initiatives.



Upgrades in historic downtown waterfronts can leverage existing infrastructure to serve both ferries and other water traffic.

Port City	Power	Water	Pump Out	Fuel	Wifi	Restaurant	Restroom/ Shower	Groceries/ Shopping
Columbia	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Edenton	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Elizabeth City	No	Yes	No	No	Yes	Yes	Yes	Yes
Hertford	Yes	Yes	Yes	No	No	Yes	No	Yes
Plymouth	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Kitty Hawk	No	Yes	No	Yes	No	No	Yes	Yes

Note: Fuel dock to be added at Edenton and Dry Dock/Maintenance Facility to be built at location TBD

“The Albemarle Loop Marinas” brochure, 2015


Introduction

Operations

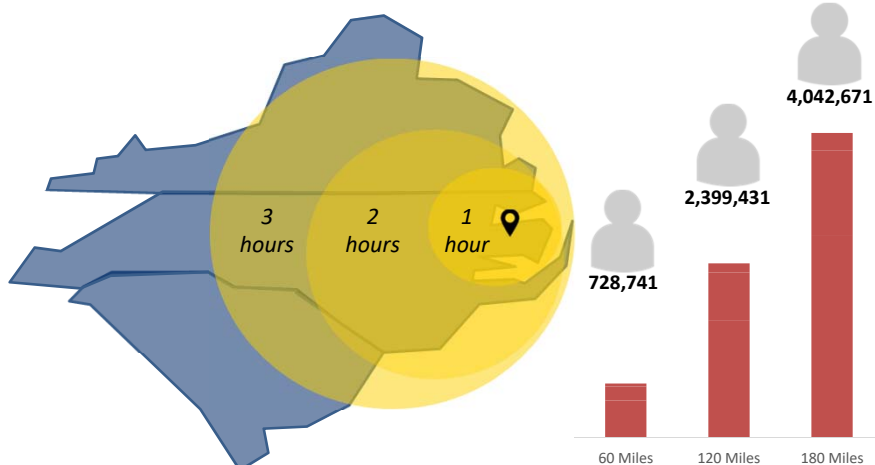
Finances

Risks

Recommendation



Weekenders or Day Trippers can be attracted from population centers within driving distance of the Albemarle Sound. 21



Source: US Census, Social Explorer, Team Analysis



The Outer Banks is an established tourist brand and attractive destination now drawing over 8 million visitors annually. 22



Cape Hatteras National Seashore



Jennette's Pier



Cape Hatteras Lighthouse



Wright Bros. Memorial



Some coastal tourists in the OBX want to do more than just enjoy the beach. 23

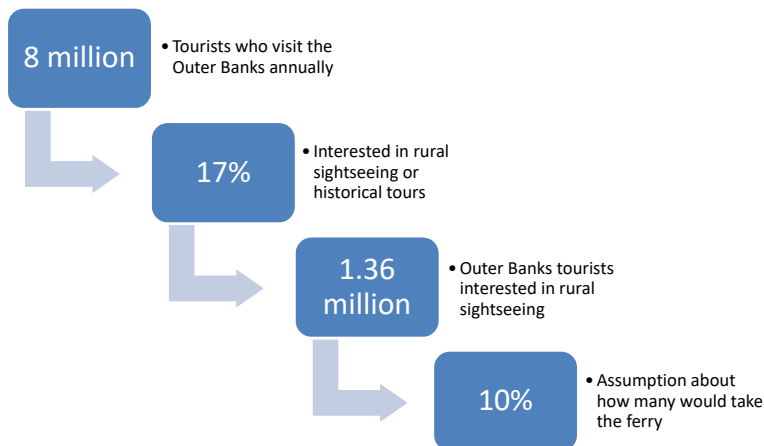
Popular activities for overnight visitors in the coastal region of North Carolina:



Source: 2013 North Carolina Regional Travel Summary, North Carolina Department of Commerce

Introduction Operations Finances Risks Recommendation

Between 100,000 and 140,000 tourists from the OBX might enjoy riding the ferry and visiting the IBX each year. 24



Sources: 2013 North Carolina Regional Travel Summary, NC Department of Commerce
 2013 Economic Impact of Travel on Counties, NC Department of Commerce
 North Carolina's Northeast Alliance

IBX residents are interested in a wide variety of outdoor activities, adventures, and good times. 25

- Over 40% of the total Inner Banks population makes over \$50,000 annually
- Average age: ~ 40 years



• **Outdoor Activities:**

- Fishing
- Hunting
- Horseback Riding
- Baseball
- Basketball
- Volleyball
- Golf
- Tennis
- Swimming
- Skiing
- Boating
- Biking
- Camping
- Gardening



Source: <http://accessnc.commerce.state.nc.us/docs/>

Introduction | Operations | Finances | Risks | Recommendation | UNC KENAN-FLAGLER BUSINESS SCHOOL

The ferry system would operate for 174 days a year. 26

April

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Total Operational Days: 174

August

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

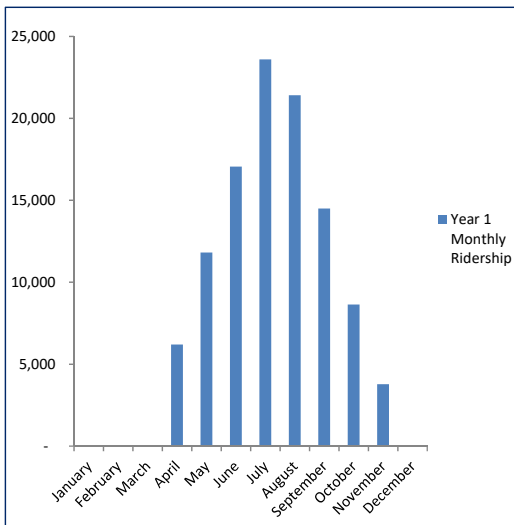
November

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Introduction | **Operations** | Finances | Risks | Recommendation | UNC KENAN-FLAGLER BUSINESS SCHOOL

Based on benchmark cities and NCDOT Ferry System data, the IBX ferry system will experience seasonality in ridership demand. 27

	Monthly Total	Operating Days	Average Daily Ridership
January	-	-	-
February	-	-	-
March	-	-	-
April	6,198	12	516
May	11,812	19	622
June	17,052	30	568
July	23,591	31	761
August	21,409	31	691
September	14,499	30	483
October	8,639	14	617
November	3,777	7	540
December	-	-	-
Total	106,977	174	615



Our models show that the water transport system is a strong opportunity for operational sustainability. 28

Investment Opportunity:

- Five 49-passenger catamaran ferries traveling Route 1, Route 2, and Route 3
- Sells food and drinks, but not alcohol

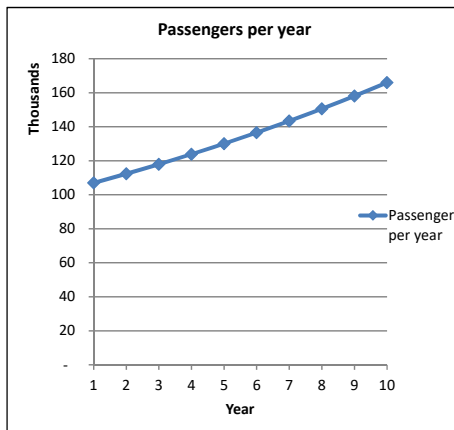
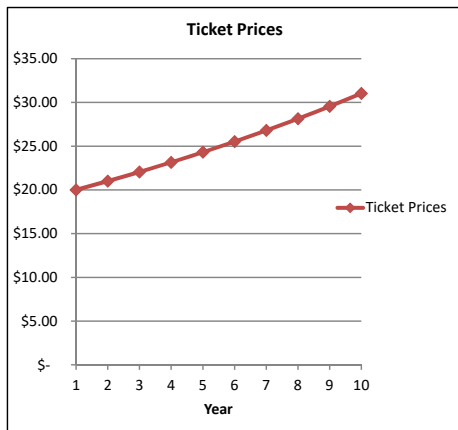
Start-Up Costs	Year 0
Administration and Due diligence	\$ 255,000.00
Boats	\$ 8,500,000.00
Terminal Expenses	\$ 354,684.50
Dry Dock Facility	\$ 4,350,000.00
Contingency (3%)	\$ 403,790.54
Total Start-Up	\$ 13,863,475.04

- Assumptions**
- Capital expenditures and start up costs are fully funded
 - Ticket prices escalate 5% annually
 - Yearly ridership escalates 5% annually
 - Marketing and advertising expense is 10% of ticket sales

Conservative assumptions were made for ticket prices and number of passengers.

29

The model is most sensitive to ticket prices and ridership. Ticket prices and Passengers escalate at a conservative 5% annually











Different investment scenarios yield different financial outcomes.

30


Financial Metrics (10 year model)	1	2	3	4
Investment	\$ 0	\$ 4,350,000	\$ 8,854,685	\$ 13,204,685
Start Up Costs	\$ 13,863,475	\$ 9,513,475	\$ 5,008,791	\$ 658,791
Year 1 Net Income	(\$ 302,910)	(\$ 87,447)	\$ 88,191	\$ 228,242
Year 10 Net Income	\$ 1,707,323	\$ 1,814,327	1,925,136	\$ 2,032,139
Internal Rate of Return (IRR)	-9%	-3%	8%	67%
Return on Investment (ROI)	(0.55)	(0.20)	0.78	14.42
Net Present Value (NPV)	(\$ 10,585,333)	(\$ 5,288,242)	\$ 126,654	\$ 5,328,243
Payback Period	Over 10 Years	Over 10 Years	7.75 Years	2.14 Years

- Scenario 1: No outside funding
- Scenario 2: Dry Dock Facility Financed
- Scenario 3: Boats and Terminal Expenses Financed
- Scenario 4: All Capital Expenditures Financed




Risks and challenges should be addressed with next steps or mitigation measures. 31

Key Risks & Challenges		Mitigation
 <p>Local political leader support</p> <ul style="list-style-type: none"> • Are local leaders excited about this opportunity? • Are local leaders willing to work across county lines to ensure success of this ferry system? 		<p>Host leadership meetings to build support; establish monetary expectations early; establish centralized planning and coordination within IBX 501/c/3</p>
 <p>Additional Infrastructure Needs</p> <ul style="list-style-type: none"> • Do the docks need to be updated? • Do water, fuel or sewage facilities need to be installed? • Are additional parking lots needed? 		<p>Determine exact needs in robust feasibility study</p>
 <p>Impact on Wildlife & Vegetation</p> <ul style="list-style-type: none"> • Will wakes from ferries damage low lying marsh areas around regional harbors? • Will the ferries produce noise that will disturb waterfowl? 		<p>Select low wake vessels and plan navigation routes in existing channels</p>
 <p>Ridership Estimate</p> <ul style="list-style-type: none"> • Will enough interest be generated to attract sufficient passengers? 		<p>Conduct additional market research into potential Weekenders and Day Trippers, existing OBX tourists, and IBX residents</p>

Note: Full list of risks and potential mitigation tactics can be found in the appendix

Introduction
Operations
Finances
Risks
Recommendation


The Albemarle Sound represents a significant opportunity for tourism-based economic development in northeastern North Carolina.

Resources	Passengers	Plans
 <p>Existing assets, including area attractions and dock facilities, provide a foundation for success</p>	 <p>Current interest from existing tourists and residents provide a readily available market</p>	 <p>Operational assumptions provide a foundation for projected profitability</p>
<p>A ferry service in the Albemarle Sound region can draw 170,000 visitors annually and generate an NPV of \$5 million over the next 10 years</p>		

