

SHIFTING SANDS AND SHIFTING STRATEGIES:
ADVOCACY COALITIONS, BONNER BRIDGE, AND THE FUTURE OF NC 12 ON
NORTH CAROLINA'S OUTER BANKS

by

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Coastal management decisions are complicated. They involve an array of competing concerns, including environmental, social, economic, recreational, and property interests, and are inherently political. These decisions become even more difficult when interested groups use their political and economic leverage to influence the policy debate. The Bonner Bridge replacement project on North Carolina's Outer Banks is an example of how this blend of politics, science, and competing interests can result in extraordinary complexity. This research project uses a qualitative case study of the Bonner Bridge replacement to explore how a bridge project became more about priorities and values than science and technical feasibility and how interested parties, acting through informal coalitions, strategically worked to shape the policy debate. In the process, we see how the replacement of a single aging bridge required 25 years of planning, four environmental impact statements, an environmental assessment, federal and state lawsuits, and a negotiated settlement before a single piling was put into place.

Drawing on the policy process literature, this project applies aspects of the Advocacy Coalition and Narrative Policy Frameworks to a qualitative content analysis of the bridge project over a 25

year period (1990-2015). The analysis tracks the emergence and evolution of two distinct coalitions and compares their use of general and narrative strategies to influence the bridge debate. The project addresses an under-explored area in the Advocacy Coalition Framework literature by focusing on how coalitions act strategically to exploit an internal shock within the policy subsystem and contributes to the literature by exploring the intersection of the two frameworks. The research design addresses three different questions: (1) did the bridge project function as an internal shock; (2) how did the coalitions use narratives and strategies to exploit this shock; and (3) what roles did science and politics play in these narratives and strategies?

The context for the case study, including the science of barrier island and inlet migration, the history, economy, and demographics of Hatteras Island, NC, and regulatory and legal considerations, is explored through a detailed case background and chronology. This chronology is used to designate five policy periods within the case study. The source materials are publicly available narratives and comments produced by coalition members and compiled from newspaper accounts, websites, guest newspaper commentaries, letters to the editors, and comments submitted on the various environmental impact statements. These comments were coded, both by hand and using NVivo software, to identify and track the coalitions' key issues and both general and narrative strategies. These strategies and issues are compared between coalitions and tracked over time using the policy phases and case chronology.

The analysis shows that the bridge project upset the status quo in the policy subsystem and triggered the emergence of two coalitions. These coalitions took distinctly different views on which issues were most important in the bridge decision and used different general strategies in

the debate. Both sides altered their strategies and issues in response to each other and changing circumstances. The coalitions' narrative strategies indicated that they both perceived themselves as "losing" the debate. Finally, the analysis showed that the coalitions focused more on politics than scientific issues in their narratives.

These results suggest directions for future research, including refinement of the idea of policy internal shocks (and related concepts), seconding calls for a hierarchy of coalition resources, and the need to develop a more fluid and dynamic understanding of "winning" and "losing" coalitions. While lessons from a single case study are not directly generalizable to other contexts, this project helps to refine aspects of two policy process frameworks. The case also offers insights into the interplay of science and politics and serves as a lesson in how individuals, both within and outside of government, influenced decisions in a high-stakes, high-visibility coastal infrastructure project.

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by

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TABLE OF CONTENTS

LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ACRONYMS	ix
CHAPTER ONE: INTRODUCTION	1
Difficult Problems and Difficult Choices	4
Purpose of Research	5
Chapter Summary	8
CHAPTER TWO: LITERATURE REVIEW	9
Politics and Policy Process Research	10
Advocacy Coalition Framework	14
Focusing Events and Projects	24
Narrative Policy Framework	26
Coalitions and the Strategic Use of Science	29
A Synthesis of Coalitions and Change	30
Chapter Summary	32
CHAPTER THREE: RESEARCH METHODS	33
Case Study Considerations	33
Research Design	34
Track A: Background Analysis	40
Track B: Coalition Analysis	42
Rigor and Validity Considerations	51
Chapter Summary	53
CHAPTER FOUR: CASE BACKGROUND	55
Barrier Island Processes	57
Conditions on Hatteras Island	64

Park and Refuge Management.....	72
Environmental Permitting	81
A Bonner Bridge Chronology	83
Chapter Summary	94
CHAPTER FIVE: FINDINGS AND ANALYSIS OF EARLY POLICY PHASES (1990-2003)	97
Policy Phase 1: 1990 - 2001	98
Policy Phase 2: 2002 - 2003	109
Chapter Summary	120
CHAPTER SIX: FINDINGS AND ANALYSIS OF LATER POLICY PHASES (2004-2015)	121
Policy Phase 3: 2004 - 2010	122
Policy Phase 4: 2011 - 2014	159
Policy Phase 5: 2015	179
Summary and Comparisons.....	181
CHAPTER SEVEN: DISCUSSION AND CONCLUSIONS	187
Research Question 1	187
Research Question 2	194
Research Question 3	205
Contributions and Directions for Future Research.....	206
Conclusion.....	210
REFERENCES.....	212
APPENDIX A: Code Book.....	227

LIST OF TABLES

Table 3.1: “America's News” Database Search Terms and Parameters	37
Table 3.2: Categories of Costs and Benefits Described in NPF Narratives.....	47
Table 3.3: Content Codes from Second Coding Pass	49
Table 4.1: Dare County, NC Percentage Population Change by Decade	70
Table 5.1: Lead Actors, Federal Agencies, and State Resource Agencies Active in Policy Phase 1	100
Table 5.2: Narrative Issues and Strategies by Future Coalition, Policy Phase 1	109
Table 5.3: Attendees at Meeting Between County Commissioners and Agencies– August 12, 2003, Manteo, NC.....	117
Table 5.4: Narrative Issues and Strategies by Future Coalition, Policy Phase 2	119
Table 6.1: Long Bridge Coalition Phase 3 - Prominent Members.....	130
Table 6.2: Long Bridge Coalition Phase 3 – Numbers of Public Comments Sorted by Speaker Category	137
Table 6.3: Most Frequently Mentioned Narrative Topics - Long Bridge Coalition, Phase 3.....	139
Table 6.4: Long Bridge Coalition Phase 3 - Assignment of Costs and Benefits	141
Table 6.5: Short Bridge Coalition Phase 3 – Prominent Members.....	147
Table 6.6: Short Bridge Coalition Phase 3 – Numbers of Public Comments Sorted by Speaker Category	153
Table 6.7: Most Frequently Mentioned Narrative Topics – Short Bridge Coalition, Phase 3....	154
Table 6.8: Short Bridge Coalition Phase 3 - Assignment of Costs and Benefits.....	157
Table 6.9: Summary of Narrative Issues and Strategies by Coalition, Policy Phase 3.....	158
Table 6.10: Most Frequently Mentioned Narrative Topics – Long Bridge Coalition, Phase 4	166
Table 6.11: Long Bridge Coalition Phase 4 - Assignment of Costs and Benefits.....	168

Table 6.12: Most Frequently Mentioned Narrative Topics – Short Bridge Coalition, Phase 4	172
Table 6.13: Short Bridge Coalition Phase 4 - Assignment of Costs and Benefits.....	173
Table 6.14: Summary of Narrative Issues and Strategies by Coalition, Policy Phase 4.....	179
Table 6.15: Summary Comparison of Coalitions	183
Table 6.16: Coalition Lead Actors, by Policy Phase	184
Table 6.17: Coalition Narrative Issues, by Policy Phase	185
Table 6.18: Coalition General Strategies, by Policy Phase	185
Table 7.1: Coalitions’ Use of General (ACF) Strategies	203
Table 7.2: Coalitions’ Primary Narrative Issues.....	206

LIST OF FIGURES

Figure 1.1 Aerial Image of Bonner Bridge looking North, 2008 (Photo by NCDOT).....	3
Figure 2.1 Diagram of Advocacy Coalition Framework (Sabatier and Weible 2007, 202)	20
Figure 3.1: Diagram of Research Design.....	35
Figure 4.1: Oregon Inlet and Northern Hatteras Island (NCDOT 2008).....	59
Figure 4.2: Cross Section of Simple Barrier Island (USGS n.d.)	60
Figure 4.3: Overwash Deposits on Hatteras Island (Google Maps)	61
Figure 4.4: Oregon Inlet Aerial Image, 1998 (US Army Corps of Engineers n.d).....	63
Figure 4.5: Proposed Bonner Bridge Corridors - Short Bridge in Red, Long Bridge in Purple Dotted Line (NCDOT 2008)	89
Figure 4.6: “New Inlet” opened by Hurricane Irene and Temporary Bridge, Fall 2012. (Photo by D. Swain).....	93
Figure 4.7: Newspaper Items Concerning Bridge Project, Plotted by Publication Year	96
Figure 5.1: Left – Bonner Bridge, 2012 (Photo by D Swain); Right – Structural Deterioration to Bridge, 2008 (OBTF 2008)	98

LIST OF ACRONYMS

1. ACF: Advocacy Coalition Framework
2. BTLB: Build the Long Bridge Coalition
3. CAMA: Coastal Area Management Act
4. DEIS: Draft Environmental Impact Statement
5. EA: Environmental Assessment
6. EIS: Environmental Impact Statement
7. FEIS: Final Environmental Impact Statement
8. FHWA: Federal Highway Administration
9. LEDPA: Least Environmentally Damaging Practicable Alternative
10. MSA: Multiple Streams Analysis
11. NCDOT: North Carolina Department of Transportation
12. NEPA: National Environmental Policy Act
13. NPF: Narrative Policy Framework
14. OBTF: Outer Banks Task Force
15. pFEIS: Preliminary Final Environmental Impact Statement
16. PFP: Potential Focusing Project
17. RTBN: Replace the Bridge Now Citizens' Action Committee
18. SDEIS: Supplemental Draft Environmental Impact Statement
19. SELC: Southern Environmental Law Center
20. SEPA: State Environmental Policy Act
21. SSDEIS: Supplement to the Supplemental Draft Environmental Impact Statement
22. USFWS: United States Fish and Wildlife Service

Chapter One: Introduction

October 26, 1990 -- It actually *was* a dark and stormy night when Deputy Thaddeous Pledger floored the gas pedal on his patrol car, heading southbound across the Bonner Bridge. Through sheeting rain, he could see a set of oncoming headlights approaching the far end of the bridge more than two miles away. A shape loomed from the darkness on his left as he neared the high-rise of the bridge. The dredge *Northerly Island*, nearly 200 feet long, had dragged its anchor in the strong coastal storm and was now beating against the bridge in the high waves. His headlights lit the white superstructure of the dredge, visible behind the bridge railing, as he raced past. With each wave, the hull pounded against the concrete pilings and the bridge shuddered beneath his tires. Deputy Pledger reached the far side in time to block the northbound traffic, before racing back over the bridge. Along the way, he stopped to pick up a man on foot, a *Northerly Island* crewmember who had clambered from the ship to the bridge as chunks of concrete began to fall onto the ship's deck. Within minutes of Pledger reaching the northern shore, the bridge was visibly bowing to the side. With sustained northeast winds over 60 miles per hour, the six to seven foot waves sweeping from the Atlantic Ocean through the inlet relentlessly pressed the dredge against the bridge pilings. From the shore, law enforcement personnel watched a section of the bridge bend and sway. Pieces of the bridge deck began to fall, then entire spans. A small explosion lit the night as the collapsing spans severed the high-voltage cables beneath the bridge. Fifty-three minutes after the dredge struck the bridge, 369 feet of the Bonner Bridge on North Carolina's Outer Banks collapsed into Oregon Inlet. Bonner Bridge had fallen down.

Luckily, no one died that cold, dark night at the bridge. Deputy Pledger received the North Carolina Governor's Award for Bravery and Heroism for his trip. He was the last person across Bonner Bridge before the collapse. One hundred and ten days later, he rode in the first car to cross the newly re-opened bridge. He remarked that he would have to "wait a while" before he felt comfortable on the bridge (Thiel 1991b). He was not alone in that feeling. The partial bridge collapse was considered a catastrophe by local officials and residents (Thiel 1991a).

The bridge over Oregon Inlet, shown in Figure 1.1, is the only highway transportation route between North Carolina's northern Outer Banks and the barrier islands of the Cape Hatteras National Seashore. The collapse stranded 5,000 residents of Hatteras Island and thousands more off-season visitors. Electricity and phones were cut off for a week while emergency cables were laid beneath the inlet. Visitors on Hatteras and Ocracoke Islands camped in their cars in lines that stretched for miles, waiting hours and even days for a spot on the ferries leaving for the mainland. For more than three and a half months, travel off of Hatteras Island required an hour-long ferry ride through six and a half miles of zigzagging channel dredged between the inlet's shoals. Every trip for medical care, commute for work, and delivery of groceries and retail goods required more than an hour on the emergency ferry. The limited access had a noticeable impact on Dare County's tourism-based economy.

In time, the bridge was repaired, the tourists came back, and life resumed its normal patterns on Hatteras Island. Yet the specter of the bridge collapse stayed with local officials and residents. Months before the collapse, the North Carolina Department of Transportation had begun planning for replacement of the aging bridge. When local officials and residents gathered to

cheer the reopening of the repaired bridge in early 1991, they had no idea that permitting and funding concerns would delay the replacement for more than 25 years. As the bridge neared and then exceeded its designed service life, locals watched the series of repair projects and remembered the aftermath of the collapse. They had already learned a hard lesson about the vulnerability of their lifeline, a vulnerability shared to some degree by most coastal infrastructure. This experience shaped their opinions on the risk and urgency of the bridge replacement.



Figure 1.1 Aerial Image of Bonner Bridge looking North, 2008 (Photo by NCDOT)

This dissertation uses the ensuing debate over the Bonner Bridge replacement as a case study on how interested groups use their resources strategically to influence policy decisions. During the bridge project, two different visions for the bridge design emerged: a short parallel bridge supported by elected officials and residents and a long bridge through the Pamlico Sound championed by an alliance of national environmental organizations. The Bonner Bridge replacement project, noteworthy for its length and complexity, provides insight into how coastal management and policy decisions were made in a complex, high-stakes situation in which regulations, science, economics, and politics combined to limit options, and choices came down to balancing values and priorities rather than science and technical feasibility. This case study will apply an under-explored aspect of a policy process framework to track themes, coalition coordination, and momentum shifts in the bridge debate that were obscured in the multitude of voices, forums, and changing events over a period of more than two decades.

Difficult Problems and Difficult Choices

The officials responsible for deciding how to replace the Bonner Bridge faced a difficult choice. Engineering and permitting issues reduced the debate to two options, a short bridge or a long bridge. There was no middle ground or much room for compromise. Advocates for the two sides were polarized, not only in their design preference but also in their perception of the problem to be addressed. For short bridge advocates, the issue was protecting lives and livelihoods by replacing the aging bridge quickly before it collapsed or was deemed unsafe for travel. Long bridge advocates took a long-term view, linking the bridge replacement with maintenance of the

road south of the bridge. The long bridge would bypass 13 miles of existing road through a wildlife refuge, including several high-erosion areas likely to open as new inlets in the future. Both sides claimed their preferred option saved money, either immediately or over time, a critical consideration given limited highway funding. Both bridges were technically feasible and the science of barrier island migration and erosion was largely undisputed. Ultimately, the decision came down to a choice of priorities, a valuing of some concerns as more pressing than others.

Decisions about how to design and protect coastal infrastructure like the Bonner Bridge will always be difficult. A risk analysis may suggest that infrastructure should be moved away from coastal areas threatened by storms, erosion and predicted sea level changes, but this tactic of retreat often runs into political and social resistance to the abandonment of property rights and recreational opportunities (Beatley 2012). Coastal environments touch something deep within the human psyche and inspire impassioned defense of both the natural environment and society's right to use it for livelihoods, recreation, residences and economic growth. When one group's needs clash with another group's desires, coastal decision makers face hard choices. These choices become more challenging if these groups leverage their economic and political power to apply pressure and exploit opportunities for policy change.

Purpose of Research

This dissertation explores how individuals and interest groups work to influence decision makers when a policy choice becomes more about priorities than science and technical feasibility. To

that end, it uses two frameworks from the policy process literature to examine how interested parties acted strategically through informal coalitions to influence decision makers. The research addresses an under-explored area in the Advocacy Coalition Framework literature by focusing on how coalitions strategically exploit opportunities for change caused by internal events in a policy system. Specifically, the Bonner Bridge was reaching the end of its service life and coastal conditions limited the replacement options. The bridge replacement created an opportunity for interested parties to influence the design and, potentially, the state's policy on road infrastructure on the Outer Banks. This project draws on the intersection of the Advocacy Coalition and Narrative Policy Frameworks by incorporating narrative strategies into the larger analysis of coalition strategies.

This case study also provides insight into the interplay of science, technical feasibility, and politics in complex coastal policy situations. For many coastal issues, the difficulty is not in the quality or quantity of scientific data or the technical and engineering feasibility. Instead, it is in reconciling scientists' recommendations with the needs and wants of society. Politics are inescapable in policy decisions, including coastal issues. Decisions made today may be overturned after the next election cycle if policymakers become too unresponsive to their constituents' needs and wishes. A careful examination of this single case can provide insights into how these tensions are balanced, or not, and what influences the choices of decision makers. These insights often are lost in large-n statistical analyses. Certainly, lessons learned in one case are not directly applicable in other places and contexts, but they can help coastal managers to be more aware of, and sensitive to, similar concerns and actions from their own constituents.

This research focuses on coalition exploitation of the policy change opportunity presented by the bridge replacement and whether the project was an internal shock (an event originating within the policy area which upsets the status quo and creates a possibility of policy change) (Jenkins-Smith et al. 2014). The research also addresses the role of science and politics in the coalitions' strategies.

Research Question 1: Did the bridge replacement project act as an internal shock to the policy area? Could the bridge replacement be considered a potential focusing project?

Research Question 2: How did the coalitions use narratives and strategies to exploit the opportunity for change created by the bridge replacement?

Research Question 3: What roles did scientific data and political processes play in the coalitions' strategies and narratives during the bridge debate?

These questions are explored through the following chapters. Chapter Two reviews the literature underpinning this research project, including the public policy literature for the Advocacy Coalition and Narrative Policy Frameworks as well as potential focusing projects. Chapter Three describes the content analysis methods used for this research. Chapter Four introduces the case study and establishes the context for the bridge replacement. Chapters Five and Six present the content analysis findings, divided into five separate policy phases. The dissertation concludes with discussion of the findings in Chapter Seven.

Chapter Summary

The case study explores an under-developed area in the literature concerning the strategies that coalitions use to exploit opportunities for policy change created by internal shocks, through a specific focus on the Bonner Bridge replacement project. The bridge replacement was a high-profile project that had the potential to produce lasting change to North Carolina's coastal road infrastructure policy. Beyond the ramifications for North Carolina, the project illustrates some of the conflicts and compromises that may arise in other coastal projects, including issues of funding, recreational access, safe and reliable transportation, permitting restrictions, and conflicts between state projects and federal protected lands. As the case study demonstrates, managing complex coastal problems can become a matter of priorities and values rather than objective rational assessment of long-term costs and benefits, creating a situation where politics outweigh science and technical feasibility. This helps explain how echoes of that stormy winter night when part of the bridge fell can be heard in politicians' remarks and thousands of public comments submitted on the project two decades later.

Chapter Two: Literature Review

This project uses a case study approach (Creswell 2013; Stake 1995; Yin 2014) to explore how individuals and interest groups in the Bonner Bridge replacement debate acted strategically through informal alliances to influence the bridge replacement design. The research is grounded in the policy process research literature, using aspects of two different policy research frameworks to analyze coalition activity and policy change. This chapter reviews the relevant literature, opening with a general discussion of the policy process field, followed by a closer review of the Advocacy Coalition and Narrative Policy Frameworks used in this project. The chapter continues with a discussion of other policy process concepts that were incorporated into the research design, then concludes with a description of the framework synthesis guiding the research design.

While the research design is described in detail in the next chapter, a brief summary is helpful to show how the literature links to the research questions and design. As an initial step, a source database was compiled from publicly available bridge replacement narratives found in organization websites, news coverage, guest commentary articles, and public comments submitted for environmental impact statements on the various bridge designs. These sources, and supplemental materials, were used to assemble a detailed case chronology and background. The source database materials were also sorted into two coalitions and coded to identify patterns in coalition narratives, strategies, and use of science. Finally, the coding results were compared to the case chronology to track how the coalitions' use of narratives and strategies changed over time.

Politics and Policy Process Research

As later chapters show, the bridge replacement project involved not only questions about bridge designs, but also about what relative weights should be given to scientific data and political priorities. This raises the question of what is meant by *politics*? Lasswell's 1950 definition of politics as "who gets what, when, and how" is widely known, but this project instead uses Heywood's (2013) description of politics as a means of resolving conflict "by compromise, conciliation and negotiation, rather than through force and naked power" (2013, p 8). There are many definitions of politics; this one was selected because it was a good fit for the policy process frameworks discussed below. Specifically, the frameworks describe how groups of people with shared policy beliefs strategically work together to influence decision makers, with a goal of shaping the policy outcomes to match their beliefs. This approach focuses on persuasion rather than force, which meshes with Heywood's definition.

This project adopts a view of the policy process in which policy decisions are the result of negotiation and the balancing of various interests. Here, balancing is used in the legal sense to mean the weighing of different interests against one another; this does not imply that decision makers find, or even seek to find, an equal balance. Some, or all, of the various interests are represented by advocates or interest groups, who seek to persuade a decision maker that their interests should be weighed more heavily than others. These advocates differ in their persuasiveness, resources, power, and access. The decision makers themselves are not neutral. Instead, they operate within a political climate, which Kingdon (2013) described as being shaped by the national mood, organized political activity by interest groups and influential individuals,

and the political make-up of administrations and legislatures. This political climate shapes decisions about what policy goals should be, what the acceptable means to achieve those goals are, and what trade-offs should be made in the process. In this case study, coastal management is typical of other policy areas in that it is inherently political. Coastal management policies are the end result of the struggles of competing interest groups seeking access to, or control of, limited resources (Beatley, Brower and Schwab 2002).

The policy process often involves multiple agencies or levels of government (Theodoulou 1995). Policy process research embraces the broad and interconnected nature of policy issues. Emerging in the mid-20th century, this area expands beyond government institutions and federal/state divisions to also recognize non-government actors like grassroots organizations, organized advocacy groups, academics, and the media (Sabatier and Jenkins-Smith 1993). Policy process research incorporates elements of economics, sociology, history, law and public administration.

Policy process research has been defined as “the study of the interactions over time between public policy and its surrounding actors, events, and contexts, as well as the policy or policies outcomes” (Weible 2014, 5). Policymaking is an ongoing and iterative process, with the output of one policy cycle serving as the starting point for a new cycle. Within the policy process literature, an array of competing and complementary theories has developed to address various aspects of policy change. Each theory has its own view on the relative importance of policy actors and events in producing policy change.

This project relies on two research frameworks that address, in part, the role of coalition competition in policy change. Before addressing those frameworks in depth, it is helpful to briefly examine the other theories of policy change that underpin those frameworks.

As a usage note, *theory* is used here as a generic term that includes theories, frameworks, processes, and models. This is contrary to standard scientific nomenclature, but it is common practice within policy process research where lines between these terms are often blurred (Sabatier and Jenkins-Smith 1993; Schlager 2007). When a specific term is associated with a particular theory (e.g. Advocacy Coalition Framework), that term will be used.

Theories of Policy Change

One of the early models of the policy process was Easton's (1965) *systems model*. This model is iterative, with policy inputs (e.g. public opinion, election results) feeding into a political system black box to produce outputs (e.g. regulations, laws). The political system influences, and is influenced by, the social, economic, structural and political environments. Policy process researchers have spent the past 50 years trying to pry open this political black box.

The *stages approach*, derived from the work of Easton (1965) and Lasswell (1956), depicts a linear (and cyclical) series of stages in the policy life-cycle: (1) issue emergence; (2) agenda setting; (3) alternative selection; (4) enactment; (5) implementation; and (6) evaluation. In practice, the policy process does not follow clear steps but instead winds through feedback loops, stalled policies, and skipped or merged stages. The stages approach has been criticized as a simplistic top-down model lacking causal mechanisms, but it remains a prominent introductory

model (deLeon 1999; Sabatier and Jenkins-Smith 1993). The terminology of the stages approach is found throughout the literature (Nakamura 1987), including the Advocacy Coalition (ACF) and Narrative Policy (NPF) Frameworks used in this project.

Kingdon (2013) closely examined the agenda setting stage with his *Multiple Streams Analysis* (MSA). MSA elaborated on Cohen, March and Olsen's (1972) garbage can model of organizational choice with an extended metaphor of the policy process as a set of three streams: a problem stream, a politics stream, and a policy stream. These streams are usually independent: politicians direct their limited attention to pressing issues; problem indicators rise and fall; policy specialists refine potential solutions. The streams may be aligned by *focusing events* (e.g. sudden unexpected crises, powerful symbols, politicians' personal experiences) that open a *policy window* for an issue to reach the national agenda. MSA is widely cited, with other theories incorporating the three streams, policy windows, and focusing events concepts. The ACF, used in this research project, includes aspects of both policy windows and focusing events.

Policy process researchers also have devoted considerable attention to analyzing how policies change over time. Lindblom's (1959) *incrementalism* depicted policy change as a series of small incremental steps as policymakers respond to the success or failure of previous policies. Incrementalism incorporated Simon's (1957) *bounded rationality*, a decision making model in which an actor's ability to make purely rational decisions is limited by constraints on information, time, and ability to process data.

Punctuated equilibrium theory (Baumgartner and Jones 1993) departed from incrementalism with an empirical demonstration that many policy fields experienced long periods of stable equilibrium interrupted (or punctuated) by periods of sudden change, followed by another equilibrium. The theory attributed the long periods of stability to a dominant interest group monopolizing the attention of boundedly rational policymakers. These *policy monopolies* could be disrupted if minority interests used external events or crises to reframe the policy issues in the public arena. These minority interests may also *venue shop*, shifting the debate to another venue, such as the courts or legislature, where they might achieve a better policy outcome (Baumgartner and Jones 1993). If minority interests successfully mobilize to disrupt the policy monopoly, the policy may shift abruptly then settle into another long stable period with a new monopoly. These concepts all informed the development of the two frameworks used in this research project.

The Advocacy Coalition Framework (ACF)

The mid 1980s and early 1990s were remarkably productive for policy research, with MSA, punctuated equilibrium, and the ACF being introduced within a decade. These new theories reflected dissatisfaction with the traditional view of policy as the domain of institutions and *iron triangles* (a closed system of bureaucracy, regulated interest groups, and agency) (Sabatier and Pelkey 1987). Instead, they described a messy policy process that moves in fits and starts (Kingdon 2013) and is largely dependent on chance, external events, and mobilization of varied actors (Baumgartner and Jones 1993).

Sabatier and Jenkins-Smith, with backgrounds in policy implementation and policy analysis respectively, formulated the ACF to address perceived weaknesses in the prevailing policy process theories, especially in (1) the stages approach and (2) the role of scientific information and policy analysis in policy change (Sabatier and Jenkins-Smith 1993). The ACF suggests that policy debates occur within policy systems (or *subsystems*) comprising individuals both inside and outside the government who are interested in a particular policy. These individuals informally coalesce into groups based on shared beliefs and desired outcomes. Each informal group, or *advocacy coalition*, uses its available resources in an effort to influence decision makers and shape the policy to match the coalition's goals.

The ACF is presented as a framework, or “shared research platform that enables analysts to work together in describing, explaining, and sometimes predicting phenomena within and across contexts” (Jenkins-Smith et al. 2014, 188). Multiple theories and hypotheses can be tested within this framework. Sabatier's framework includes a scope of the questions to be considered, a list of underlying assumptions, a common vocabulary, concept categories, and expected relationships between those categories (Sabatier and Jenkins-Smith 1993). Such “frameworks are not directly testable but provide guidance toward specific areas of descriptive and explanatory inquiry” (Jenkins-Smith et al. 2014, 189).

The ACF primarily addresses three areas: (1) coalition structure and changes; (2) policy change mechanisms; and (3) conditions that favor policy-oriented learning. The ACF includes seven fundamental assumptions about the policy process theory. The following descriptions are adapted from the most recent iteration in Jenkins-Smith et al. (2014, 189-193):

1. **“The primary unit of analysis is the policy subsystem”** (2014, 189). A *policy subsystem* is the community of individuals and groups who directly or indirectly try to influence decisions on a specific policy issue within a geographic area. The subsystem includes dozens or even hundreds of players in multiple institutions and overlapping jurisdictions. Over time, subsystems may experience stability, incremental change, and sudden change;

2. **“Relevant subsystem actors are persons attempting to influence subsystem affairs”** (2014, 190). Although the ACF is concerned only with individuals or groups who are actively involved in trying to influence the subsystem, it recognizes that this group extends beyond the iron triangle of bureaucracy, interest groups, and agencies to include non-profit and citizen groups, the media, academic researchers, and officials from all levels of government. Most ACF studies focus on policy elites, rather than the public, because of their perceived ability to influence subsystem affairs, but mobilization of supporters is recognized as a coalition strategy;

3. **“Individuals are boundedly rational with limited ability to process stimuli, motivated by belief systems, and prone to experience the devil shift”** (2014, 190). The ACF views individuals, not organizations, as the main drivers of change. While the ACF analyzes coalition activity, these coalitions are not monoliths. They are informal alignments of individuals who act, learn and respond to contextual factors. Individuals are limited in attention and have *perceptual filters* that bias how they process information. They are more likely to remember losses than gains and, over time, are

subject to the *devil shift* where opponents are perceived as having more power and malicious intent than in reality. Policy conflicts are difficult to resolve because they are rooted in conflicting core beliefs and often escalate over time due to the devil shift (Sabatier and Weible 2007).

Individuals make policy choices based on personal beliefs (Sabatier and Jenkins-Smith 1993). The ACF proposes a three-tier belief system for individuals: (a) *deep core beliefs* are fundamental norms and values that are formed early in life and are very difficult to change; (b) *policy core beliefs* are centered on the specific policy field and include basic beliefs about the seriousness of the problem, which interests should take priority, causal factors, and preferred solutions; while (c) *secondary beliefs* concern specific issues or instruments of achieving policy goals. Examples of secondary beliefs are preferred language for an administrative rule or guidelines for permitting decisions.

4. **Systems may be “simplified for analysis by aggregating actors into one or more coalitions”** (2014, 191). These analytic coalitions are not necessarily formalized or acknowledged by the constituent members. ACF researchers often identify these coalitions using network analysis. Coalitions are based on shared beliefs and some degree of coordinated activity. The term coalition “is used metaphorically in reference to the individuals comprising the coalition” (2014, 190).
5. **“Policies and programs incorporate implicit theories reflecting the translated beliefs or one or more coalitions”** (2014, 192). In the ACF, policies are interpreted as “the

actions or inactions of government but also as the translation of belief systems” (2014, 192). Policy positions reflect beliefs in specific causal connections and alternatives. Coalitions become engaged in a subsystem not as abstract political jockeying but as an attempt to manifest their belief systems in real-world applications.

6. **“Scientific and technical information is important for understanding subsystem affairs”** (2014, 192). Coalitions use technical and scientific data to refine and bolster their understanding of subsystem problems, causal factors, and alternatives. Scientific and technical information may be used for persuasion as well as learning within a coalition.

7. **A long-term perspective is important to “understanding policy processes and change”** (2014, 192). The ACF suggests applying the framework in mature subsystems of at least ten years duration. While ACF researchers may focus on short-term processes, they should place them within the long-term policy trend to avoid over-emphasizing ephemeral phenomena.

These ACF assumptions shaped the basic parameters of this case study. The assumptions on subsystems, actors, coalitions, policy beliefs, and long-term perspective guided the selection of the coastal infrastructure subsystem, identification of coalitions and members, and the time span of the case study. The analyses of coalition differences in themes and use of scientific information were shaped by the assumptions regarding bounded rationality and coalition use of scientific and technical information.

Figure 2.1 illustrates the conceptual relationships in the ACF. The policy subsystem is influenced by institutional and environmental parameters of the larger context. *Relatively stable parameters* are one set of inputs into the subsystem. These are the legal structure, physical and environmental attributes of the problem area, and the basic cultural and social context, which are inherent qualities of the subsystem and quite resistant to change (Sabatier and Jenkins-Smith 1993). The relatively stable parameters, when applied specifically to the policy subsystem, determine the *long-term coalition opportunity structures*. These structures determine the extent to which coalitions can influence the system. Examples include the openness of the political system, numbers of veto points, and degree of consensus required for change. Together, the relatively stable parameters and the long-term coalition opportunity structures determine which policy alternatives are feasible. These subsystem inputs were incorporated into the research design of this project as part of a detailed case background chapter.

A second set of inputs are *external subsystem events* that are beyond subsystem actors' control; these include significant socioeconomic changes, governmental regime changes, crises, major public opinion shifts, and ripple effects from change in other subsystems. These external events may create *short-term constraints and resources* that either temporarily take policy alternatives off the table or create new short-term opportunities for coalitions to exploit. Together, the stable parameters and external events determine the opportunities and constraints of the policy subsystem (Sabatier and Jenkins-Smith 1993). At this point, we can see the basic outline of the ACF:

- (1) Coalitions form primarily around policy beliefs (Matti and Sandstrom 2011; Weible and Sabatier 2005);
- (2) A coalition exhibits some degree of coordination in its activities, using resources strategically to shape the subsystem policies; the goal is to make the policy reflect the coalition's shared beliefs;
- (3) Coalitions compete to gain access to, and attention from, governmental decision makers;
- (4) Policy outputs and impacts from policy decisions feed back into coalition strategies and may lead to coalition learning.

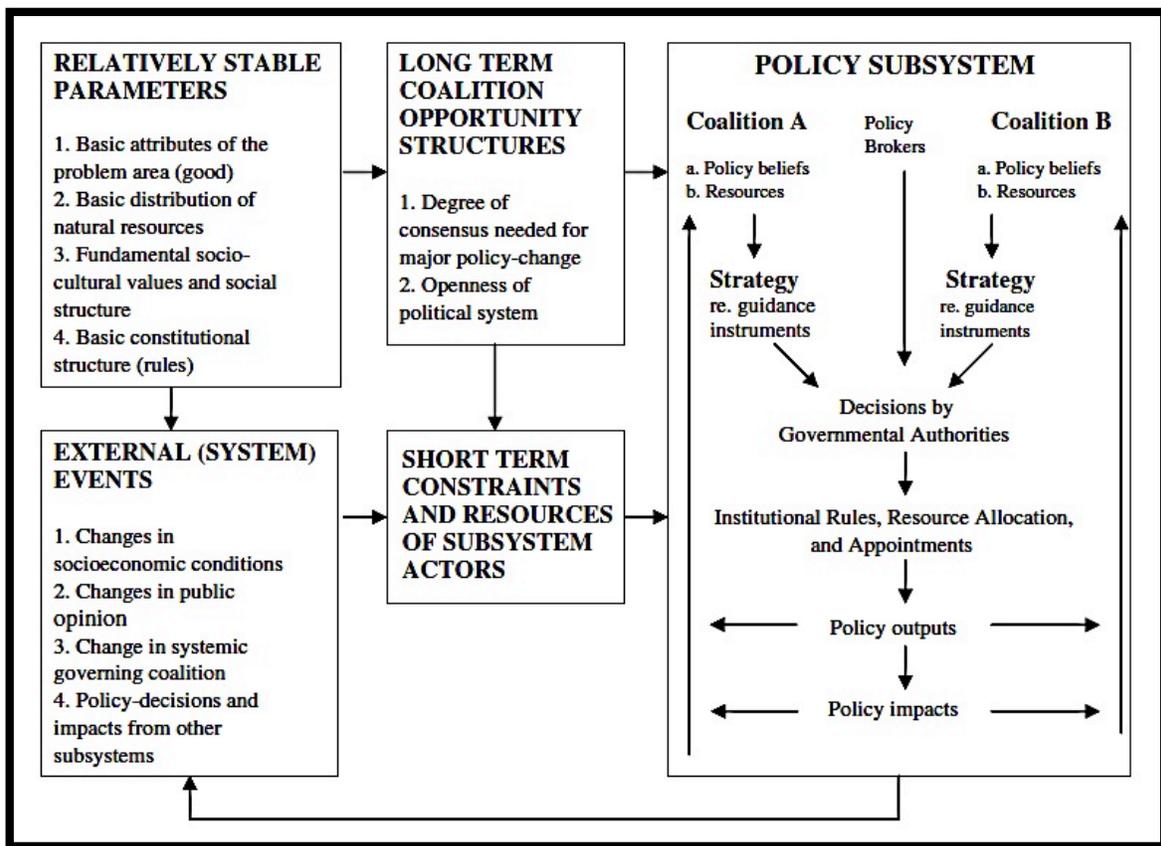


Figure 2.1 Diagram of Advocacy Coalition Framework (Sabatier and Weible 2007, 202)

Policy Change in the ACF

Coalitions seek allies and pool resources in an effort to influence policy change. Coalition influence is tied to the ability to effectively use resources and strategies. Key ACF coalition resources include “formal legal authority to make policy decisions, public opinion, information, mobilizable troops, financial resources, and skillful leadership” (Sabatier and Weible 2007, 203 [list headings]). If a dominant coalition has allies with formal legal authority or has greater coalition resources, it will be difficult for a minority coalition to disrupt the status quo and induce change. In the ACF, coalitions cannot induce change without an intervening mechanism. Over the course of several framework revisions, four pathways to policy change have emerged (Jenkins-Smith et al. 2014, 202-203):

1. *External shocks* are disturbances outside subsystem actors’ control. External shocks are more likely to cause change if they coincide with an enabling factor (minority coalition exploitation of opportunity, coalition resource changes, increased political/public attention, and venue shopping) (2014, 202);
2. *Internal shocks* occur within the subsystem and may be affected by subsystem actors. Examples are internal scandals, policy failures, and policy crises. Coalitions may *spin* these internal events in an attempt to shift the policy balance. Internal events are more likely to cause change if they coincide with an enabling factor listed above;

3. Policy-oriented learning has an *enlightenment function* (the gradual accumulation of information that modifies coalition positions over time) that may result in minor policy change over time. Policy-oriented learning may also be an enabling factor for internal and external shocks. Policy-oriented learning is more likely to change beliefs about secondary beliefs than core beliefs;
4. Negotiated agreement between coalitions may cause significant policy change. Coalitions are likely to negotiate in a *hurting stalemate* where there is high conflict and both coalitions are dissatisfied with the policy situation but do not have sufficient resources to induce change.

This research focuses on the second pathway, using a case study to explore how coalitions exploit an internal shock to potentially cause policy change. While case studies have been a primary means of applying the ACF since its inception (Sabatier and Jenkins-Smith 1993), internal shocks are a relatively recent addition to the ACF, appearing in the most recent framework revision (Sabatier and Weible 2007). There has been little direct research on internal shocks to date. Sabatier and Weible (2007) note that internal shocks could redistribute political resources, including public opinion and financial support. They suggest that internal shocks indicate policy failure and will strengthen the core beliefs of minority coalitions while casting doubt on the dominant coalition's positions. Jenkins-Smith et al. (2014) note that internal shocks must be coupled with an enabling factor, such as minority coalition mobilization, successful venue shopping, or heightened public awareness, to result in major policy change. They also suggest that minority coalitions may use "public narratives to attract attention to favored courses

of action” (2014, 202) and to recruit new actors who have not been actively involved in the policy subsystem.

The ACF includes a number of hypotheses, one of which touches directly on the role of internal shocks in potential policy change (emphasis added):

ACF Policy Change Hypothesis 1: Significant disturbances external to the subsystem, a **significant disturbance internal to the subsystem**, policy-oriented learning, negotiated agreement, or some combination thereof **are necessary, but not sufficient, sources of change in the policy core attributes of a government program** (Jenkins-Smith et al. 2014, 203).

The ACF is clear that an internal shock alone will not lead to policy change: a minority coalition must be able to exploit the internal shock to redistribute resources and shift the power balance away from the majority coalition. This project addresses this point, tracking coalition activity over a 25 year span and comparing it to a case chronology to examine whether, and how, the coalitions tried to exploit an internal shock. Although the most recent ACF revision incorporated these internal shocks, the concept remains vaguely defined and little explored. Since the ACF literature is limited on this question, it is helpful to look beyond the boundaries of the ACF to understand what may constitute internal shocks and how they may be exploited.

Focusing Events and Projects

Lowry (2006) proposed *potential focusing projects* (PFPs) as an extension of the non-ACF literature on external shocks. Perhaps PFPs could be included as a type of internal shock in the ACF. It is helpful to explore the origins of PFPs before considering their usefulness in this project.

Many prominent policy process theories, including MSA, Punctuated Equilibrium, and ACF, consider external shocks to be a factor in policy change. In general terms, external shocks may disrupt a dominant coalition's policy monopoly (Baumgartner, Jones and Mortensen 2014; Jenkins-Smith et al. 2014) and open the policy issue to venue shopping. The MSA (Kingdon 2013) considered external shocks as a type of *focusing event* that could influence political agenda setting. Focusing events are crises and disasters, powerful symbols that gain public attention, or policy actors' personal experiences (Kingdon 2013). These focusing events alone cannot trigger policy change but can reinforce preexisting knowledge of problems, serve as early warnings of policy failure, or provide a platform for a minority coalition to promote its policy message (Birkland 1998).

Birkland (1997) analyzed focusing events as sudden unexpected crises that can shift policy issues onto the wider agenda. He moved beyond the MSA's post hoc characterizations into a proactive identification of potential events that could, but may not, become focusing events in the right circumstances. He described this *potential focusing event* as an "event that is sudden, relatively rare, can be reasonably defined as harmful or revealing the possibility of potentially

greater future harms” (Birkland 1997, 22). Birkland focused on agenda shifting after disasters, but did note that focusing events may indicate policy failures that advocacy coalitions could use to mobilize public attention. Noting that lessons learned from focusing events could contribute to policy-oriented learning and change, Birkland proposed an additional type of focusing event: a common event with an unusual aspect that captures attention (Birkland 1997, 147; Birkland 2006).

Lowry (2006) adapted this last category of focusing event to internal, rather than external, events within a policy system. Unlike Birkland’s sudden rare events, Lowry noted that some internal routine or planned projects within a policy subsystem “continue traditional policy system priorities but do so to what can be perceived as excess” (Lowry 2006, 313). He cited the example of a pair of planned dams in the Grand Canyon area in the 1960s. The dam proposals were consistent with previous government dam-building policy, but the cost and magnitude of potential harm to the Grand Canyon area mobilized a coordinated opposition campaign that not only blocked the dam projects but ultimately contributed to a major change in US dam policy.

Lowry argued that PFPs provided opportunities for both mobilization of pro-change forces and policy learning within the groups favoring the status quo. The strength of this mobilization and policy learning influenced the degree to which lasting change was likely. In ACF terms, these *potential focusing projects* may act as internal shocks that present coalitions with an opportunity to mobilize for change. Focusing projects may also contribute to policy learning and change within the ACF.

The Narrative Policy Framework

A central ACF premise about internal shocks and focusing projects is that they cannot cause change on their own. To borrow the terminology of the MSA, the *policy window* may be opened by an internal shock or project, but someone must be ready to seize the opportunity to shake up the status quo. Coalitions choose *strategies* to best exploit these opportunities. Strategies may include venue shopping, reframing the issue with narratives, and applying political pressure either directly or through public opinion.

As noted earlier, Jenkins-Smith et al. (2014, 202) suggest that minority coalitions may use “public narratives to attract attention to favored courses of action” and recruit new members. The Narrative Policy Framework (NPF) empirically analyzes (at the “meso-level”) how coalitions strategically use and alter narratives to influence policy outcomes. Recognizing that policy decisions are often based on factors that are subjective, context-dependent, and inherently difficult to study with traditional social science methodologies, the NPF seeks to bridge the gulf between empirical positivist and interpretive post-positivist policy research (Jones and Radaelli 2015). As such, it occupies a middle ground between statistics and testable hypotheses on one side and subjective, context-specific research on the other. McBeth, Jones, and Shanahan (2014, 225) assert that “the power of policy narratives is something worth understanding” and this understanding can be reached using structural and empirical methods. This project links the meso-level NPF narrative strategies with an ACF analysis to analyze policy narratives as a coalition strategy to exploit an internal shock.

Some aspects of the NPF are designed to dovetail with the ACF. The NPF emerged in the mid-2000s as a deliberate response to Sabatier's criticism of post-positivist policy research as being disconnected from testable propositions (Dudley et al. 2000). Early NPF research focused on how to quantify structural elements of policy narratives to empirically measure policy beliefs within advocacy coalitions (McBeth, Shanahan, and Jones 2005). After determining that policy narrative structures could be studied empirically, the NPF founders turned to demonstrating that coalitions use narratives strategically (McBeth et al. 2007). From this foundation, the NPF's central premise is that policy narratives are context-specific in content but include "generalizable narrative elements that can be applied across policy contexts" (McBeth, Jones, and Shanahan 2014, 228). The meso-level of NPF analysis focuses on how advocacy coalitions use narratives within a policy subsystem.

The NPF founders presented the complete framework with assumptions, levels of analysis, and hypotheses in 2010. The NPF is built around policy narratives. Adapting Stone (2002), a NPF policy narrative includes four core structural elements that are generalizable and can be applied across policy contexts (McBeth, Jones, and Shanahan 2014, 228-229):

1. **Setting:** Policy narratives are grounded in a specific policy context and focused on an issue. The setting includes physical location, legal and constitutional systems, sociocultural conditions, and economic conditions. The NPF setting is similar to the ACF Relatively Stable Parameters;
2. **Characters:** A policy narrative includes at least one character. Characters may be presented as heroes (fix the problem), villains (cause or worsen the problem), or victims (suffer due to the problem);

3. Plot: The plot is the story arc of the policy issue that connects the characters with causes and events within the setting;
4. Moral: Policy narratives include a preferred policy solution.

The NPF asserts that policy narrative content can be systematically analyzed to reveal the underlying policy beliefs and strategic choices. These belief systems can be coded using established deductive theories that aid in generalizability (Shanahan, Jones, and McBeth 2011). Beliefs and strategies can be extracted from their case-specific context and compared to other policy contexts.

The NPF relies on several core assumptions: (1) NPF assumes an objective reality but acknowledges that individuals assign meaning to policy issues. This meaning is socially constructed and varies between individuals according to their values, norms, and belief systems; (2) narratives are central to how individuals process and communicate information; (3) narratives have generalizable structural forms independent of the policy context; and (4) policy narratives operate simultaneously at micro (individual), meso (small group), or macro (large group/society) levels (McBeth, Jones, and Shanahan 2014).

Coalitions and Narratives

The NPF addresses the “strategic construction and communication of policy narratives by coalitions to achieve a desired policy goal” (McBeth, Jones, and Shanahan 2014, 237).

Coalitions use policy narratives that can be broken down into elements (setting, character, plot, moral), strategies, and policy beliefs. In this project, several of these building blocks were used

to compare narratives within and between coalitions and track how coalition narratives change over time.

Coalitions strategically tailor their narratives to broaden the appeal of their message. The NPF draws heavily from Schattschneider's (1960) work on groups and conflict in agenda setting.

Following Schattschneider, the NPF asserts that coalitions see themselves as either winning or losing in a policy conflict and vary their strategies accordingly (McBeth et al. 2007). Coalitions that perceive themselves as winners try to contain the debate to the existing parties and maintain the status quo. Losing coalitions try to expand the debate to recruit new allies and shift the power balance. The NPF operationalizes these strategies by tracking narrative (1) depiction of costs and benefits, (2) use of symbols and surrogates, and (3) identification of winners/losers, (McBeth et al. 2007). In this case study, the coalition narratives were coded for the depiction of costs and benefits and the use of symbols and surrogates.

Coalitions and the Strategic Use of Science

The Bonner Bridge replacement project was inseparable from its physical setting, with barrier island and inlet migration processes shaping the range of replacement alternatives. Despite the relationship between island movement, storm processes, coastal engineering, and viable bridge replacement designs, it does not necessarily follow that scientific information similarly shaped the public debate. The ACF provides expectations about how coalitions use science in policy debates. The NPF notes that coalitions use science in narratives, but it does not discuss the use of

science as a specific narrative strategy. Accordingly, the research design for this project is informed by the ACF expectations discussed below.

The ACF considers scientific information through the lens of policy-oriented learning. Science and technical information are part of the enlightenment function, where information gradually accumulates and alters a coalition's understanding of the issue. Usually, policy-oriented learning alone will not change a coalition's core beliefs. Core beliefs about a policy issue are deeply held and not readily susceptible to persuasion. Policy-oriented learning is more likely to change a coalition's secondary beliefs (Jenkins-Smith et al. 2014). The ACF also notes that coalitions use scientific and technical information to recruit new allies and buttress established positions.

“[T]he crucial role of technical information is to alert people to the extent to which a given situation affects their interests and values . . . once political actors have developed a position on a policy issue, analysis is used primarily in an ‘advocacy’ fashion, that is, to justify and elaborate that position” (Sabatier and Jenkins-Smith 1993, 45).

A Synthesis of Coalitions and Change

This case study synthesizes elements of the ACF, NPF and potential focusing projects to explore how coalitions strategically use narratives and strategies to exploit the bridge replacement, which may have served as an internal shock and potential focusing project. The ACF provides the basic framework for the case study. Coalitions compete with each other to influence decision makers and shape subsystem policy to match coalition beliefs. Coalitions are informal alliances of individuals united by shared norms, values, and beliefs about the policy area. Most policy

subsystems have a dominant coalition and at least one minority coalition. The degree of engagement and competition between the coalitions varies with the level of controversy (Sabatier and Jenkins-Smith 1993). Coalition competition and policy-oriented learning typically cannot break the dominant coalition's control to cause major policy change. Major change requires the coalitions to exploit external or internal shocks or negotiate an agreement to end a stalemate.

This case study is a good opportunity to explore how Lowry's (2006) potential focusing projects may function as internal shocks in the ACF. Internal shocks can heighten attention and offer coalitions a chance to re-frame the debate. "Critical in testing . . . policy change is understanding how a coalition can capitalize or exploit the opportunity, which ultimately involves attempts to either preserve the status quo or seek policy change" (Jenkins-Smith et al. 2014, 203). Coalitions can exploit an internal shock through strategic use of resources, narrative strategies, and venue shifting. The NPF provides an empirical framework for analyzing the coalitions' use of narrative strategies.

This synthesis of frameworks and focusing events addresses the research questions better than other policy process theories. Punctuated Equilibrium overlaps this framework synthesis in a number of ways, including interest group mobilization, issue expansion/containment, venue shopping, and policy images (how a policy is portrayed, positive or negative). Punctuated Equilibrium is highly regarded but lends itself to quantitative research on broader patterns of policy change rather than small qualitative case studies. Likewise, the Bonner Bridge project could be analyzed as a MSA policy window. MSA was designed to explore national agenda-setting processes. The Bonner Bridge replacement is not an agenda-setting issue; the question is

not whether to replace it, but how. Given this difference, and the relatively small-scale of the project, a MSA approach would be possible, but would not be a good fit for the research questions. The MSA focuses on how the different streams intersect to get an issue on the policy agenda. In this case, the bridge was on the policy agenda because of obsolescence and transportation planning cycles. Certain concepts borrowed from MSA may be useful to the analysis, but the overall approach does not address the research focus on coalition strategies and narratives. Overall, the research questions seem to be best served by a synthesis of ACF and NPF analyses.

Chapter Summary

Policy process research takes a broad approach to the policy process, recognizing that a policy field may involve multiple levels of government and players from both within and outside of bureaucracies, agencies, and interest groups. The ACF focuses on policy change as the result of coalitions of individuals, loosely aligned based on shared beliefs and goals, competing to influence decision makers and shape public policy to match the coalitions' values. Under the ACF, one pathway to possible major policy change is an internal shock that is skillfully exploited by a minority coalition, resulting in a shift of power or resources that leads to policy change. While internal shocks have not been widely explored in the literature, some insights can be drawn from the literature on policy windows, focusing events, and potential focusing projects. Aspects of the NPF provide a means to examine how coalitions strategically use narratives to exploit an internal shock in the ACF. A research design incorporating these concepts is explored in the next chapter.

Chapter Three: Research Methods

This research used a qualitative case study to examine ACF coalitions' use of strategies and narratives to influence the Bonner Bridge replacement decision. These strategic choices were traced through (1) a detailed case chronology and (2) a content analysis of media coverage, advocacy materials, government agency materials, and public comments on Environmental Impact Statements. The source materials, gathered from publicly available sources, were inductively (emerging from the text) and deductively (derived from the literature) coded and analyzed to reveal patterns of coalition activity.

Case Study Considerations

Both the ACF and NPF frequently use case studies to explore how groups try to influence the outcome of actual policy decisions (McBeth, Jones and Shanahan 2014; Sabatier and Brasher 1993; Weible and Sabatier 2005). This is not surprising, given that case study methods are useful for exploring the “how” and “why” of contemporary events that cannot be manipulated or controlled by the researcher (Yin 2014). Case studies allow a rich exploration of context, which both frameworks emphasize as playing a central role in shaping subsystem parameters, coalition membership, and narrative setting. The ACF literature has included qualitative case studies nearly since its inception. The NPF was designed with quantitative methods in mind, but one of the framework's creators recently co-authored a qualitative variation on the framework (Gray and Jones 2016).

There are several major approaches to case study methods, with Yin (2014), Stake (1995), and Creswell (2013) some of the best known. This research relied primarily on Yin's (2014) approach to the method. Yin describes a case study as an empirical inquiry that (a) investigates a contemporary phenomenon (the 'case') in depth and within the real-world context, especially when (b) the boundaries between phenomenon and context may not be clearly evident. He suggests that a case study is appropriate when there are (a) more variables of interest than data points, (b) multiple sources of evidence, and (c) existing theoretical propositions that may guide data collection and analysis (Yin 2014).

This Bonner Bridge research project serves as both an *instrumental* and an *exploratory* case study (Hancock and Algozzine 2006; Stake 1995;). Instrumental case studies are used to explore a theory or research idea. Here, the Bonner Bridge project is useful to explore ACF and NPF theories about coalition strategies, policy change, and internal shocks. Exploratory cases are used to explore categories and concepts where little is known. The Bonner Bridge case allows exploration of the interplay of policy conflicts, hazards, and scientific and technical information usage in a complex and contentious coastal policy issue.

Research Design

A case study was used to analyze how coalitions used and altered strategies and narratives in response to an internal shock. The research design followed two tracks. In the first track, labeled Background Analysis in Figure 3.1, the detailed case chronology was assembled and used to track the evolution of the bridge project over time. In the second track, labeled as Coalition

Analysis, content analysis was used to identify and compare the coalitions' narratives and strategies. The two tracks were consolidated in a final research stage where coalition activity was compared over time. The discussion below describes the research steps in the following order:

- Gathering source documents into source database (Step 1)
- Track A: Background Analysis (Steps 2 & 3)
- Track B: Coalition Analysis (Steps 4, 5 & 6)
- Tracking change over time (Step 7)

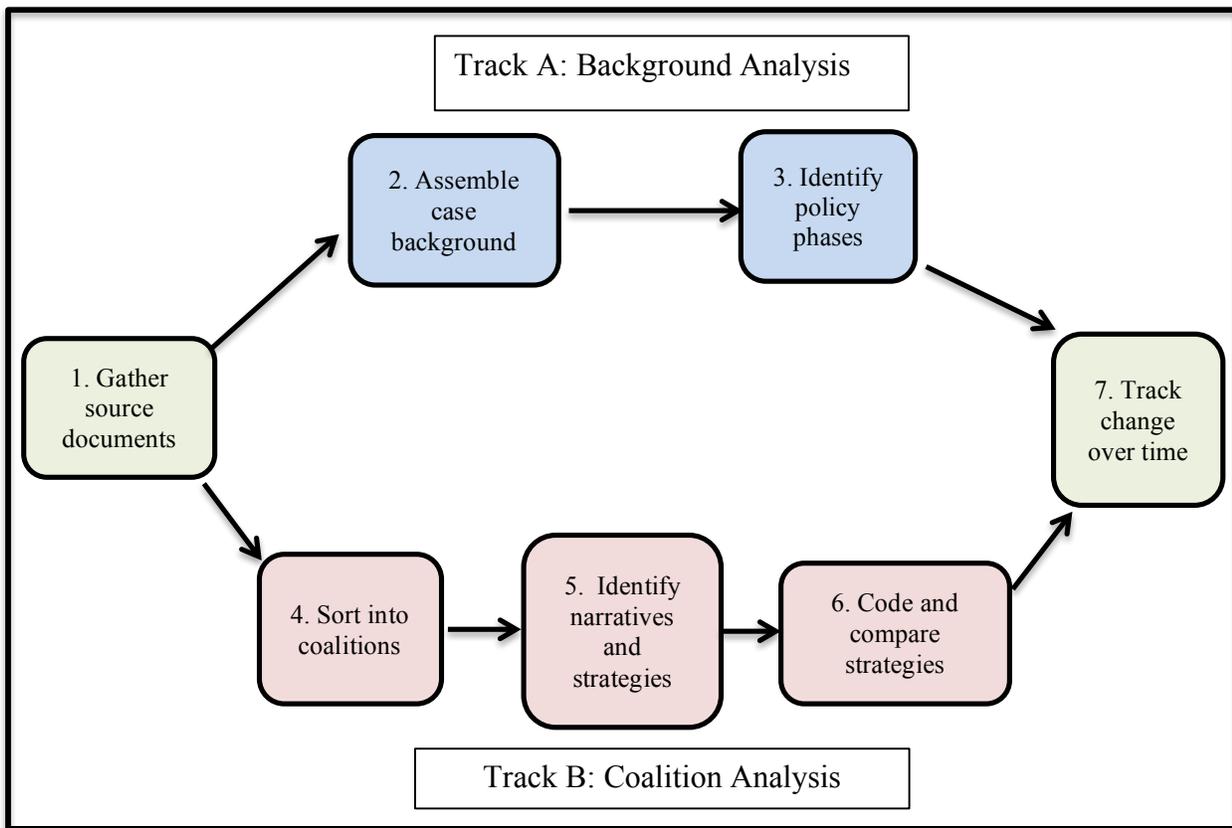


Figure 3.1: Diagram of Research Design

Research Step 1: Gather Source Documents into Source Database

An ACF coalition tries to shape the outcome of policy decisions within a subsystem by persuading decision makers and potential allies to view the policy issue the same way the coalition does. Many of these efforts play out in public forums or leave some visible trace in policy decisions. In this case study, the two coalitions used news media, advocacy materials, websites and public comments to communicate to their intended audience. These materials are publicly available and served as the source documents for the content analysis.

Step 1A: Identify and Sort Newspaper Items

Newspaper materials covering Bonner Bridge and NC 12 were identified using the “America’s News” database (maintained by NewsBank Inc.). This searchable database archives over 1400 national and regional news sources, with coverage from 1978 to present. Table 3.1 lists the search terms and search parameters used to query this database. These search terms and parameters were refined during the newspaper database search. The initial searches were for basic geographic descriptors likely to be mentioned in any articles about the bridge. The results were reviewed for content, with additional searches performed for organizations and concepts as they were identified. This process continued until the searches returned no new results.

Google searches identified three additional local news sources covering the bridge project to varying degrees: The *Outer Banks Voice* (online news outlet), *Island Free Press* (online news outlet), and *Outer Banks Sentinel* (online news outlet and weekly subscription print newspaper). The online archives for these three news outlets were examined, using search terms similar to those in Table 3.1, to locate news and opinion coverage of the bridge debate. Once retrieved,

both the local news and “America’s News” database articles were reviewed for content relevance. If an article contained at least one statement of opinion on the bridge project attributed to a named individual, it was placed into a source database for later analysis. If an article contained only factual recitations (no opinion or commentary) or was a duplicate article from a wire service (i.e. Associated Press, Reuters), it was excluded from the source database. Some excluded articles deemed useful for assembling the case background were retained in a separate data file for later use.

Table 3.1: “America's News” Database Search Terms and Parameters

Search Terms (used individually and in combination)	Search Parameters
“Bonner Bridge” “NC12” “Route 12” “Pea Island” “North Carolina” “Oregon Inlet” “National Wildlife Refuge Association” “Defenders of Wildlife” “Outer Banks” “Erosion” “Southern Environmental Law Center” “Pamlico Sound” “Dare County Commissioners”	North Carolina newspapers national newspapers search dates: 1990 to present

After sorting, the “America’s News” database yielded 325 newspaper items that (1) were published during the case study time frame, (2) fit the sorting criteria, and (3) were relevant to the case study. They included news articles, editorials, guest commentaries, and letters to the editor, primarily in major regional newspapers like the *News & Observer* (Raleigh, North

Carolina) and the *Virginian-Pilot* (Virginia Beach, Virginia). The local news sources yielded 25 articles from the *Island Free Press* and eight from *The Island Voice*. The *Outer Banks Sentinel*'s online archives contained no relevant results.

One focus of this research is whether the bridge debate acted as an ACF internal shock or a potential focusing project. Using the news articles and editorial coverage as a proxy for public attention, the items were sorted by year of publication and compared to the case background and timeline. The results, depicted in the next chapter in Figure 4.7, showed whether the activity patterns corresponded with those described by the potential focusing project or ACF internal shock formulations.

Step 1B: Identify and Sort Advocacy Materials and Websites

The newspaper items identified in Step 1A were reviewed to compile a list of individuals, agencies, and organizations participating in the bridge debate. Google searches were performed on those organizations and agencies to locate their websites and social media pages. Additional Google searches were run for all individuals who appeared at least twice in the newspaper coverage to determine any agency or organization affiliations. Once located, the organizations' and agencies' websites and social media were searched to identify any advocacy materials related to the case study. Typical search terms were "Bonner Bridge," "North Carolina," "Pea Island," "Oregon Inlet," and "NC 12." Once located and reviewed for relevance, these materials were added to the source database. Some materials were on now-defunct websites, with broken links available on other websites. When possible, archived versions of these defunct web pages were accessed through the Internet Archive (www.archive.org) using the broken page links. The

social media review did not produce any information that was not already in the database in other forms.

Multiple Google searches were conducted at various times throughout the data gathering to identify any other advocacy materials, online petitions, blog posts or other data relevant to the bridge debate. These searches identified two online petitions and several posts on public policy blogs, which were added to the source database.

Step 1C: Identify and Gather Public Comments

The bridge replacement project produced six versions of Environmental Impact Statements and Environmental Assessments (EIS, EA), which are required for such projects under the National Environmental Policy Act. Once an EIS or EA is prepared, relevant state and federal agencies and members of the public are given an opportunity to submit comments during a public comment period. The public (including the organizations identified in Step 1B) could submit written comments or make oral comments during public hearings. The agency preparing the EIS usually transcribes the public hearings and publishes those transcripts and the written comments in the appendices of the final version of the EIS. All six versions of the EIS and EA for this case were located online or obtained from North Carolina Department of Transportation.

Six public hearings on the bridge project were held (two each 2005, 2007, and 2010). Written comments were submitted in 2005, 2007, 2008, and 2010. The transcribed oral comments and written comments were extracted from the EIS or EA Appendices and reviewed for content. One coalition organized a letter-writing campaign in 2010 that generated a large number of form

letters, nearly one-third of which had unique comments appended. These unique comments were transcribed into a separate document. A total of 1,572 unique written and oral comments were added to the source database. These comments were manually tallied by source, coalition, and date for later analysis. The 3,147 form letters were counted and set aside, but not included in later analyses of coalition narratives, to avoid skewing the results.

Track A: Background Analysis

Once the source documents were compiled, the research split into two tracks. In Track A, the materials gathered in Step 1 were supplemented with historical, economic, governmental, and scientific information to assemble a case background. This case background was used to establish the context for the case study, including the ACF subsystem parameters. These background materials were also used to identify a series of policy phases for later analysis.

Research Step 2: Assemble Case Background

Using the news articles compiled in Step 1A, an annotated case timeline was created for the 1990 to 2015 study period. The basic information from the news coverage was supplemented with a number of sources. For historical and legal background, information was gathered from federal statutes, executive orders, and historical secondary sources relating to the Outer Banks, Cape Hatteras National Seashore, and Pea Island Wildlife Refuge. Tourism and economic data was obtained from the State of North Carolina and Dare County, North Carolina. Scientific and technical literature regarding barrier island processes and migration was reviewed. Meeting minutes of the Dare County Board of Commissioners supplied local government information.

These materials were used to produce a narrative account of the bridge replacement, along with a detailed chronology. The narrative account and chronology are presented in Chapter Four.

Research Step 3: Identify Policy Phases

The case background and timeline created in Step 2 were analyzed to identify key events in the bridge project. Based on this review, five policy phases were identified:

- Policy Phase One: 1990 – 2001: Initial planning phase. Draft and final environmental impact statements on a proposed parallel bridge replacement are presented. The planning process stalls during agency permitting negotiations and the final planning documents are not signed.
- Policy Phase Two: 2002 – 2003: Changing coastal conditions require a new round of bridge planning. The parallel bridge plan is dropped and a 17-mile bridge design through the Pamlico Sound is designated for further study. This proposed bridge would bypass Oregon Inlet and likely eliminate road access on NC 12 through the Pea Island National Wildlife Refuge.
- Policy Phase Three: 2004 – 2010: Political pressure leads the North Carolina Department of Transportation (NCDOT) to add a short parallel bridge design to the environmental studies. Four additional environmental studies are prepared (3 EIS, 1 EA), each analyzing various versions of NC 12 maintenance designs. The short parallel bridge (including a provision to defer future NC 12 planning) is selected for construction.
- Policy Phase Four: 2011 – 2014: Environmental advocacy organizations challenge the environmental analysis in federal court. NCDOT wins at the US District Court. On

appeal, the Appellate Court issues a split decision and remands back to the US District Court for further analysis. The parties enter closed negotiations.

- Policy Phase Five: 2015 – 2016: A settlement is reached that dismisses the federal lawsuit in exchange for concessions from NCDOT regarding a future NC 12 bridge north of Rodanthe, North Carolina. Construction on the Bonner Bridge replacement begins.

Track B: Coalition Analysis

In the second research track, the source documents gathered in Step 1 were sorted by coalition affiliation and inductively (codes arising from the text) and deductively (codes derived from the literature) coded to identify coalition strategies and narratives. The coding strategy is described below. These coding results were compared to explore differences in coalition activity.

Research Step 4: Sort into Coalitions

An ACF coalition includes “actors from a variety of public and private institutions at all levels of government who share a basic set of beliefs . . . [and] who seek to manipulate the rules, budgets, and personnel of governmental institutions in order to achieve these goals over time” (Sabatier and Jenkins-Smith 1993, 5). This project does not directly address coalition formation and beliefs, which has been the focus of a considerable segment of the ACF literature. This research design instead examined coalitions’ strategic activities and policy goals, which are an outward public policy expression of underlying beliefs (Sabatier 1993).

For several reasons, including the legal framework, bridge replacement options were limited to a binary choice: a short bridge or a long bridge. Unsurprisingly, there were two coalitions active in the bridge debate. One coalition favored a short replacement bridge built parallel to Bonner Bridge (the Short Bridge Coalition), while a second coalition preferred a long bridge that detoured through the Pamlico Sound to avoid the Pea Island National Wildlife Refuge (the Long Bridge Coalition). Each coalition represented a distinct view of policy priorities and acceptable trade-offs. Following Albright (2011), Hysing and Olsson (2008), and Shanahan et al. (2013), coalition membership can be assigned based on stated policy positions. Here, coalition narrative statements (and their authors) were sorted into either the Long Bridge or Short Bridge Coalition based on the stated bridge preference.

Research Step 5: Identify Narratives and Strategies

Narratives

The ACF and NPF present different views of narratives. In the ACF, narratives are regarded as a strategic resource through which coalitions attract public attention, but there is no formal definition (Jenkins-Smith et al. 2014). The NPF views policy narratives as “words, images, and symbols” used strategically to influence the public, stakeholders, and decision makers (Shanahan, Jones and McBeth 2011, 536). NPF policy narratives must include characters and either a policy stance or judgment of policy-related behavior (Shanahan et al. 2013, 457).

The collected narratives from Step 1 were grouped into three types, depending on their characteristics:

- *Complete advocacy narratives* – narratives produced by coalition members and presented in their entirety without editing or filtering through a third party. These were primarily found in (1) organization websites, (2) guest opinion columns in newspapers, (3) editorials, (4) letters to the editors, (5) letters to political figures, and (6) comment letters.
- *Statements to media* -- narrative fragments in quotations or attributed statements in newspaper articles. These quotes have been edited or selectively chosen by news staff, but still express aspects of larger narratives.
- *Written and oral comments* -- submitted by coalition members and members of the public in response to environmental impact statements prepared by the government. These comments are presented in their entirety and have not been filtered through a third party. Depending on the source, they may range from multipage analyses to curt statements of concerns. They are found in public hearing transcripts and environmental impact statements appendices.

Appendix A includes the coding manual for the narrative classification. The entire set of source narratives was classified as general (ACF) narratives, and then was reviewed to identify those also qualifying as NPF narratives. *Statements to media* and *oral comments* were excluded from the NPF narrative set on the grounds that they were either edited or extemporaneous and may not have accurately presented the coalition position. The remaining set of *complete advocacy narratives* and *written comments* were examined using the NPF narrative criteria. If the required elements were present, the narrative was designated as an NPF narrative. The narrative

classification resulted in 1,837 general narratives, with 146 sources also classified as NPF narratives.

Strategies

General (ACF) Strategies

Coalition strategies are somewhat of an enigma in the ACF. Coalitions are presumed to act strategically, but the literature is inconsistent on defining those strategies. Following Pierce (2016) and Sabatier and Jenkins-Smith (1993), a list of likely coalition strategies, tailored to the case study, was created:

- Submission of formal written or oral comments on environmental impact studies
- Lobbying and recruiting local, state, and federal political figures
- Lobbying of agency staff to act upon regulatory “veto points”
- Public outreach through regional media - newspaper editorials, guest commentaries, and letters to the editor
- Public outreach through local media
- Public outreach with narrative statements posted to organization websites
- Public mobilization through letter writing campaigns
- Appealing through administrative or regulatory channels
- Litigation

The case background, chronology, and source database materials were used to identify the strategies for each coalition. Some strategies were readily apparent, such as local media outreach,

while other strategies were inferred from the circumstances. For example, when multiple politicians began expressing support for a coalition around the same time, it was inferred that the coalition had been lobbying and recruiting political figures. The results for each coalition were compared against each other as well as over time, to track how the coalitions adjusted their strategies in response to each other and changing circumstances.

As the source narratives were read for content and strategies, they were also coded for the use of science. If the narrative explained scientific processes or issues, such as barrier island migration, in some degree of detail, it was coded as “detailed science.” If the narrative mentioned science, but only used cursory explanations, such as saying that “the long bridge is better because it avoids high-erosion areas and allows for natural barrier island movement,” it was coded as “brief science.” A narrative that did not mention scientific issues was coded as “no science.”

NPF Narrative Strategies

The NPF views narrative strategies as the deliberate construction of narratives to achieve a goal (Shanahan et al. 2013). Following Schattschneider (1960), the NPF suggests that coalitions will attempt to expand or contain the policy debate by depicting a policy as creating either (1) diffuse costs and concentrated benefits, or (2) concentrated costs and diffuse benefits. To measure this strategy, the NPF narratives were hand coded for their identification of issues and depiction of costs and benefits. First, each NPF narrative was coded by date and issues discussed. Second, the narrative’s depictions of costs or benefits were coded, using inductively derived codes drawn from the text itself. Using a generic example, a narrative stating “a proposed policy would cause damage to seagrass beds and the opposing coalition supports the policy because it would raise

land values for local real estate developers” would be classified as “benefitting property developers” (benefit) and “harming habitat and the environment” (cost). Frequently, these depictions described the groups or individuals who would suffer the cost or reap the benefit, rather than explicitly stating what the cost or benefit was. In those instances, the losers (suffer the cost) were coded as a “cost” and the winners (reap the benefit) were coded as “benefit.” The frequency of use for each code was calculated and sorted by both coalition and date for later analysis.

Table 3.2 lists the cost/benefit codes derived from the NPF narratives in this case study. Each of these cost/benefit codes was labeled as “concentrated” or “diffuse” depending on whether it described (1) a small group or people or an issue of very limited interest or effect (concentrated) or (2) a large group of people or an issue of general widespread interest or effect (diffuse). Interestingly, all costs were diffuse and all benefits were concentrated.

Table 3.2: Categories of Costs and Benefits Described in NPF Narratives.

Cost Categories	Benefits Categories
recreation residents’ welfare reliable transportation access Refuge access taxpayers economy safety visitors habitat and wildlife tourism island processes & integrity	environmental groups Refuge management limited Refuge access property owners or developers businesses NCDOT political goals off-road vehicle access USFWS

Research Step 6: Coding and Comparison

Coding

The narratives were coded both by hand (first coding pass) and using NVivo qualitative analysis software (second coding pass). The two coding passes are described below.

The first coding pass was preliminary, using the 119 news articles in the source database to compile a list of issues and concerns. This coding used descriptive codes derived from the text itself. This preliminary pass yielded a list of 169 topics, which were then grouped by theme and consolidated into eight anticipated codes for the next round of coding. These anticipated codes were: (1) safety; (2) feasibility; (3) potential benefits/harms; (4) politics; (5) natural processes; (6) cost; (7) time; and (8) permitting issues.

The second coding pass used NVivo data analysis software to inductively code the entire source database for these eight anticipated codes and any other emergent descriptive codes. This emergent coding produced 21 content codes (Table 3.3). In addition to coding for content, every source was coded for demographics as follows:

- Coalition Membership: Long Bridge, Short Bridge, Unclear
- Document Type: newspaper (by name), editorial, guest commentary, letter to editor, blog
- Speaker: resident, visitor, organization, agency, local officials, higher elected officials, NCDOT, scientist
- Date: year of publication, policy phase

Table 3.3: Content Codes from Second Coding Pass

agency influence	other
barrier island processes	Pea Island access
common sense	outsiders
cost	permitting issues
design features	place attachment and heritage
economy	reliability
engineering solutions	safety
environmental concerns	time
environmentalists and lawyers	transportation
long-term versus short-term planning	uncertainty
navigation and inlet issues	

Comparison

After the narratives were coded for demographics and content, they were grouped by coalition to compare how the narratives differed in their assessment and depiction of the issues at stake in the bridge decision. Using NVivo, the 21 content codes from the second coding pass were ranked by how frequently they were used in the source narratives. One code, labeled “Other” was a catch-all code for topics like bicycle lanes or ferries that appeared sporadically but were tangential to the larger debate. Many of the speakers in this code were not members of a bridge coalition. Given the variety of topics and diverse speakers, this code was set aside from further coalition analysis, leaving 20 codes. Ten of these codes were used frequently (range of frequencies: 92 to 446), with the remaining ten used less frequently (range: 11 to 57). The ten most frequent codes were used for the comparative analysis: (1) safety; (2) time; (3) transportation; (4) reliability; (5) Pea Island access; (6) opponents (environmentalists and lawyers); (7) economy; (8) cost; (9) barrier island processes; and (10) agency influence.

The NVivo Query function, which allows a user to search for source content where coding categories coincide, was used to compare how the two coalitions differed in their use of the ten most common codes. For instance, a query was used to return all text that was coded for both the “Short Bridge Coalition” and “safety.” The results were compared against a similar query for the “Long Bridge Coalition” and “safety.” The comparison not only showed the differences in frequency of use, but allowed the query returns to be reviewed to reveal whether the coalitions described “safety” differently. Each of the ten codes was queried for both the Long Bridge Coalition and Short Bridge Coalition.

A second set of queries was run to compare each coalition with source and format types. These queries contributed to the strategy analysis by showing whether one coalition relied more heavily on one category of speaker or forum than another in its narratives. For example, the results of querying each coalition with “guest commentary,” compared against the base coding data for each coalition, showed that the Long Bridge Coalition relied more heavily on newspaper guest commentaries than did the Short Bridge Coalition.

Research Step 7: Track Change over Time

In the final research step, the data from the coalition comparison was combined with the chronology and policy phases (Step 3) to track how the coalition narratives changed over time. A final set of NVivo queries was run to search the coded narratives with the five Policy Phases. For example, “Long Bridge Coalition” was queried with “Policy Phase 4” to identify the narratives produced by the Long Bridge Coalition between 2011 and 2014. Queries using three codes (e.g.

“Short Bridge Coalition” x “Policy Phase 3” x “safety”) were run to track and compare how each coalition’s narrative focus changed over time.

The coding and query results were compared with the chronology to track how the topics and tone of the coalition narratives changed in response to changing events and opponents’ efforts.

The NPF strategy coding results from Step 5 were compared between coalitions and over time to demonstrate how the coalitions strategically tried to expand or contain the issue in response to their perceptions that they were winning or losing the debate. The general ACF narratives were also compared over time, both between and within the coalitions.

Rigor and Validity Considerations

A necessary consideration with case studies, as with qualitative research in general, is the rigor and validity of the research. Yin suggests that research validity is relative to the researcher’s stance on the nature of reality and knowledge, noting that the question is “whether another study, *given the same lens or orientation*, would have collected the same evidence and have drawn the same conclusions” (2014, 79). Yin (2014) suggests four data collection principles to ensure transparency and consistency. First, triangulation by drawing on different sources or methods can produce converging lines of inquiry. Here, the research method uses both inductive and deductive coding techniques and a wide range of document sources and perspectives, including newspapers, press releases, editorials, public hearings, organization website pages, and written public comments.

Second, Yin suggests maintaining an evidentiary database that can be used to reconstruct the research. Here, all source material is publicly available on the Internet. The author maintains a database of downloaded digital copies of all source materials. Using the search parameters described above, the database could be reconstructed by another researcher. Third, Yin advised keeping a chain of evidence to support specific findings. This research relies on content analysis based on coding of source material. The codebook was informed by the literature and adapted for the case context. The codebook, along with the literature sources it relied upon, is available in Appendix A. Finally, Yin advised taking care to establish the trustworthiness of electronic sources. All data sources are coalition comments or narratives by groups or individuals presented in a public forum with the intent of persuading either decision makers or the public. As such, they are reliable representations of coalition narratives. All source material was obtained from archived newspaper stories, organization websites, or government documents.

This research aims for *analytic generalization* rather than direct generalization. Qualitative case study research is context-dependent and cannot be directly generalized to other cases. Analytic generalization seeks to generalize particular case results to a broader theory, rather than to other cases or situations. Analytic generalization requires clear specification of research conditions and theoretical relevance (Firestone 1993). The goal is to “provide evidence that supports (but does not definitively prove) [the] theory” (Firestone 1993, 17). Case study research may provide *transferability*, where rich case description allows a reader to use results of one case to inform research in similar cases (Onwuegbuzie and Leech 2009).

Chapter Summary

The research method used a source database of newspaper and coalition advocacy materials (Step 1) as the foundation for two tracks of research. The media news and opinion items in the source database were also plotted over time to identify activity patterns. In Track A (Figure 3.1), the background material was compiled (Step 2) to establish the case study context and inform the analysis of coalition strategies and use of science. This material was used to identify policy phases (Step 3) that would be used in the later comparative analyses. In the second track (Track B), the source database materials were sorted into coalitions (Step 4), then coded for narrative themes and strategies (Step 5), and compared against each other (Step 6). The two tracks converged in the final research stage (Step 7), where the coalition narratives and strategies were tracked against the case timeline and policy phases to show how they changed over time.

These research steps combined into a research method that addressed the research questions. The first research question concerned whether the bridge project acted as an internal shock or potential focusing project. In Step 1, news coverage was plotted over time and compared to the case background to determine whether the case study aligned with the ACF internal shock or PFP formulations. The second research question focused on how the coalitions used narratives and strategies to exploit the opportunity presented by the bridge project. This question was addressed by identifying strategies in Track A and inductively and deductively coding narratives in Track B, then comparing and tracking those strategies and narratives both within and between coalitions in Step 6. Finally, the last research question addressed the role of science and politics

in the bridge debate. The coalitions' use of science was coded in Step 5, and then compared with the use of political strategies throughout the case study.

Chapter Four: Case Background

Before delving into coalition activity in the Bonner Bridge debate, it is essential to establish the context for the debate. The policy context determines why coalitions take particular positions, what options they have in pursuing those positions, and what compromises they are willing to make. The ACF literature clearly emphasizes the importance of thoroughly establishing the background of a policy debate (Sabatier 1993).

In confronting a policy issue, coalition strategies are limited by the *Relatively Stable Parameters*, including the basic features of the problem, social values and structure, legal limitations, economic system, and resource distribution (Sabatier and Jenkins-Smith 1993). These elements determine the limits of potential coalition actions (*Long-Term Coalition Opportunity Structures*). Coalitions may desire policy goals that are constitutionally prohibited, contrary to statutory or regulatory requirements, unreasonably expensive, or inconsistent with prevailing social values. Promoting these goals would waste limited coalition resources. Instead, coalitions tailor their goals and strategies to reflect what is both legally permissible and politically and economically feasible.

The Bonner Bridge replacement is part of ongoing debate on the long-term maintenance of North Carolina Highway 12 (NC 12) along the Outer Banks. This debate occurs within a larger coastal infrastructure and development policy subsystem. Although NC 12 permitting and project concurrence involves federal agencies, this case study is focused at the state level where the construction, maintenance, and funding decisions are made.

The Bonner Bridge and NC 12 debate touches on nearly every issue of US coastal management, including development, infrastructure, hazard response, shoreline and inlet processes, tourism, habitat, navigation, recreational access, and economics. The road lies within multiple jurisdictions that require an array of approvals and permits from both state and federal agencies. The combination of these competing interests with a dynamic barrier island that changes with every storm creates a policy environment where the replacement of a bridge universally agreed to have exceeded its design life required twenty-five years, five environmental impact statements, an environmental assessment, both federal and state lawsuits, a federal appellate ruling, mediation, and settlement negotiations before a single piling was driven into place.

How did a single bridge project become so complicated? With the range of environmental, social, economic, legal, and political concerns involved, it is difficult to identify a thread that will unravel the issues. A trip over Bonner Bridge and down Hatteras Island yields one inescapable truth: setting is everything. The experience of being on that narrow strip of sand between ocean and sound draws millions of tourists to the Outer Banks every year. Without the remarkable setting, there would be little need for a transportation corridor adequate to handle summer traffic. There would be no need for the National Seashore and Wildlife Refuge that protects the setting but complicates jurisdictional issues. In an ironic note, the physical setting that draws the visitors and residents is fundamentally unsuitable for the development and infrastructure needed to accommodate them. The road and bridge are stationary objects on islands that shift in response to natural conditions. The struggle to hold a fixed line of development on naturally moving islands threatens both engineered structures and the islands themselves.

The tension between residential/commercial development and natural barrier island migration processes is at the heart of the Bonner Bridge debate. Without access to the physical setting, the tourists would not come. Without the tourist influx each year, one of the state's strongest tourism economies would be destroyed. The infrastructure to support the residents and tourists threatens the physical setting. The decision on how to replace Bonner Bridge and the long-term future of NC 12 rests on balancing these issues. This chapter explores each of these issues in turn, beginning with a discussion of barrier island processes on Hatteras Island, followed by a review of the development of NC 12 and the economic and social aspects of the modern Outer Banks. The chapter then turns to the legal restrictions on the bridge project, starting with the National Seashore and Refuge, their relationship with NCDOT on NC 12 maintenance, and larger environmental permitting issues. The chapter concludes with a chronology of the Bonner Bridge since its construction in the 1960s. Together, these elements establish the context that shaped the coalition strategies explored in the following chapters.

Barrier Island Processes

The Outer Banks

The Outer Banks of North Carolina are a well-known example of barrier islands in the United States. Barrier islands, like other coastal barrier features, protect estuaries or lagoons from the wave action of the open ocean. They are long narrow islands with inlets at either end to allow water flow into and out of the estuary. The barrier islands found along the US eastern seaboard make up the longest and most well-developed barrier island system in the world (Leatherman 1988). North America's east coast is a "trailing edge coast" with broad coastal plains and wide

continental shelves (Numedal 1983). The Outer Banks likely formed over a period of several thousand years as rising sea level flooded behind ridges along ancient shorelines following the last glacial period. They have existed in something resembling their current form for approximately 2,500 years, although some areas have collapsed, reformed and changed in intervening centuries (Riggs et al. 2008).

An aerial view of the Outer Banks is striking, with a thin ribbon of sandy islands sheltering the Pamlico and Albemarle Sounds. Together, these sounds cover approximately 2,550 square miles. The broad and shallow Pamlico Sound, which borders most of the central Outer Banks, is roughly 25 miles wide and 50 miles long, with an average depth of ten feet (Dolan and Glassen 1973). While many inlets have opened and closed over time, the current stretch of barrier islands from southern Virginia to Cape Hatteras features a single inlet, Oregon Inlet (Figure 4.1). This case study focuses on NC 12 on Hatteras Island in the central section of the Outer Banks. The northern end of Hatteras Island is also known as Pea Island, reflecting an earlier period when a now-closed inlet divided Hatteras Island.

In morphological terms, the central Outer Banks are microtidal, transgressive, simple barrier islands. In layman's terms, they are long, low and narrow islands that experience frequent storm overwash. The Outer Banks experience a small tidal range (two to four feet), allowing wave energy to dominate island shape and movement. As transgressive islands, they have low supplies of available sand and experience rapid shoreline retreat (Leatherman 1988).

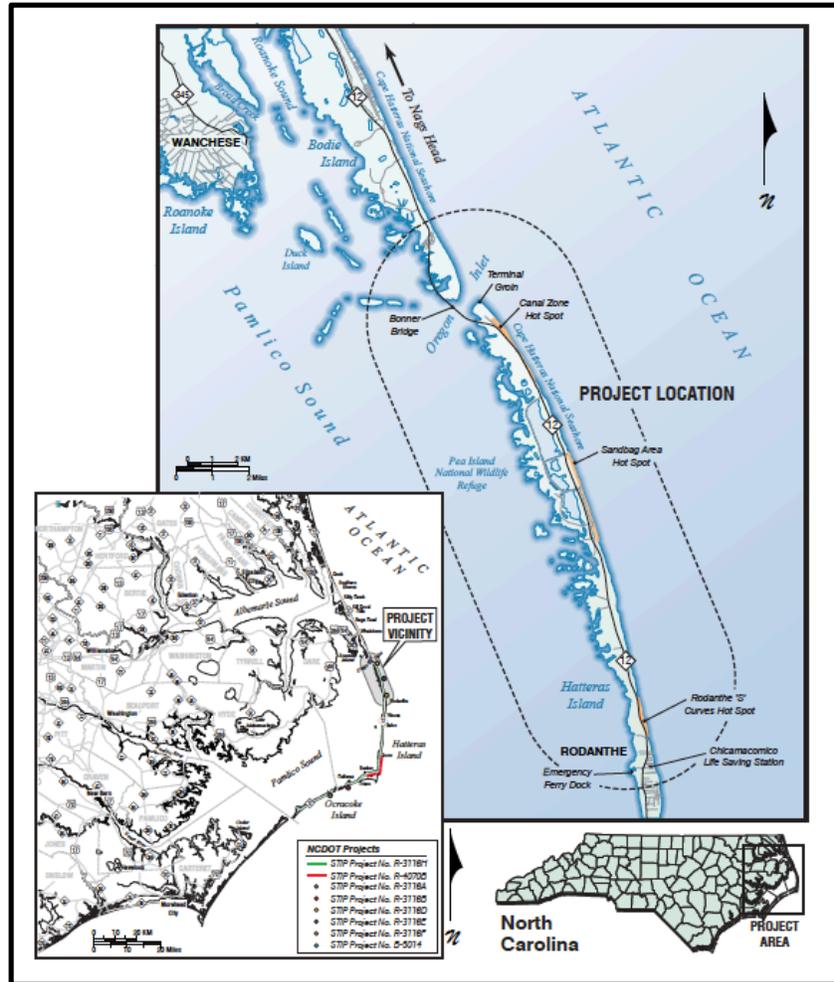


Figure 4.1: Oregon Inlet and Northern Hatteras Island (NCDOT 2008)

Hatteras Island is a classic example of this type of barrier island. Roughly 50 miles in length, Hatteras Island averages around a mile in width but dwindles to around 600 feet at its narrowest spots. The island is low and sandy with a vegetated and engineered dune line. Hatteras Island is bordered by Oregon Inlet to the north and Hatteras Inlet to the south. When viewed as a generalized cross-section, Hatteras Island has an ocean beach subject to wave action, an engineered dune line, a barrier flat, and a tidal marsh along the sound side. Figure 4.2 shows a generalized simple barrier island cross-section. This low flat topography is subject to ocean

overwash when storms breach the dune line. This overwash, along with inlet processes, is an essential part of natural barrier island migration.

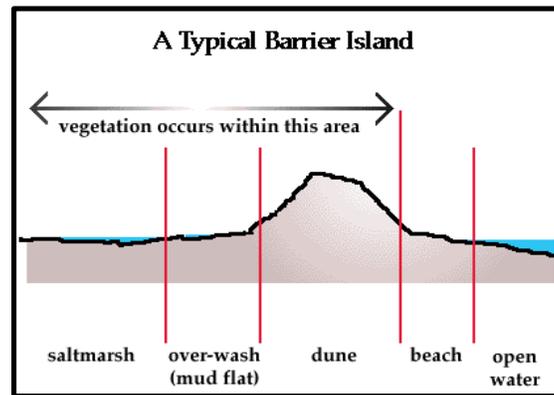


Figure 4.2: Cross Section of Simple Barrier Island (USGS n.d.)

Over the last century, Hatteras Island has experienced significant engineered alterations, which have disrupted island migration. To understand the situation on Hatteras Island, we need to first examine unaltered barrier island processes. If left in a natural state, a microtidal, transgressive barrier island migrates both landward and in the direction of the longshore current (Numedal 1983). This retreat preserves island width and elevation in response to storm action and rising sea level. While every barrier island reflects its unique geographic conditions, a generalized model of barrier island migration can be described.

General Barrier Island Migration

Ocean overwash is a key feature of landward movement. During storm events, high waves move between and over the dunes, eroding both the beach and dunes and carrying sand landward into the barrier flats. In higher-energy storms, this overwash may continue over to the tidal marshes on the sound side of the island. As the water retreats, the sand deposited by this overwash

produces distinctive features called *overwash fans* (Figure 4.3). This movement of sand from the beach to the island interior builds elevation. Native vegetation holds this deposited sand and contributes to new dune growth. Overwash sand that is transported into and beyond the soundside marsh builds elevation and allows marsh vegetation to begin colonizing shallow water. As the ocean beach erodes, the island builds elevation and expands on the soundside. In this manner, the island can maintain its width by very gradually moving landward while also building island elevation against rising sea level (Godfrey 1976).

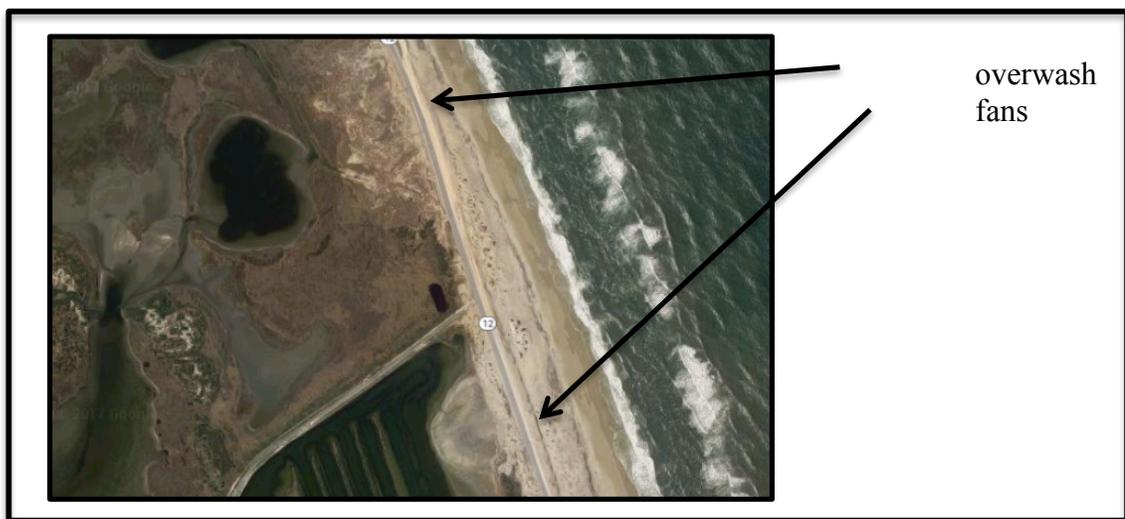


Figure 4.3: Overwash Deposits on Hatteras Island (Google Maps)

Overwash contributes significantly to island migration, but inlets provide the majority of sediment transport necessary for migration (Dolan and Glassen 1973). Inlets are highly dynamic components of barrier island systems. They are very unpredictable, opening during storm events and closing as they become choked with sand. Inlets typically form when storms drive water into the estuary behind a barrier island. The wind-driven water backs up within the estuary as the storm approaches and then is driven back out as the storm exits. If the existing inlets are

insufficient to handle the volume and force of the water, weak or narrow places in the barrier island may be forcefully breached to form a new inlet. This new inlet may be temporary, lasting only a few weeks or decades, or it may become a semi-permanent feature of the island.

Tidal exchange and longshore currents around these inlets transport considerable volumes of sediment into the sound. This sediment transport near and through inlets is a primary mechanism of both inlet and island migration. Inlets migrate in the direction of the longshore current, which forms as ocean waves strike the beach at an angle and create a current moving parallel to the shoreline. This current carries sediment that is suspended in the water by wave action against the beachface. Inlets disrupt this current, resulting in sediment deposition. The remainder of this discussion assumes a north to south longshore current, as is found on the Outer Banks.

The major features of an inlet are: (1) the inlet throat – the actual opening in the island; (2) the flood tide delta – a large shallow delta feature created when tides transport sediment from the longshore drift into the calmer waters of the estuary where it is deposited; and (3) the ebb tide delta – a smaller offshore bar created at the mouth of the inlet and formed by sediment deposited by either the ebb tide or the longshore current. Some sediment is deposited on the updrift (north) side of the inlet, causing shoaling as the island builds up (accretes). This shoaling and accretion force the tidal flow to the downdrift (south) side of the inlet, causing erosion. In this manner, the inlet gradually moves in the direction of the longshore current (Inman and Dolan 1989). An aerial image of Oregon Inlet (Figure 4.4) shows the well-developed flood tide delta in the estuary (left side of image) and breaking waves on the smaller ebb tide delta at the mouth of the inlet (right side of image). Shoaling on the updrift shoulder of the inlet and relic deltas being

colonized by marsh vegetation are evident in the top of the photo, while the downdrift shoulder shows the sand built up behind the terminal groin constructed to protect the bridge landing.

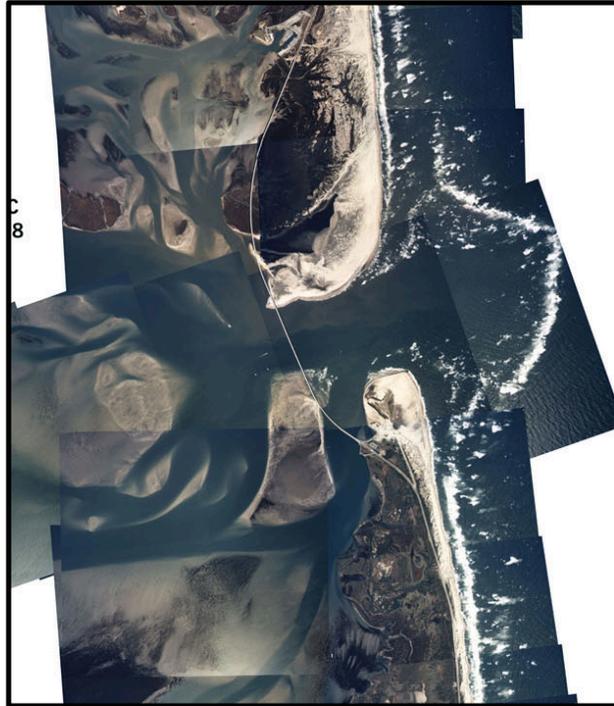


Figure 4.4: Oregon Inlet Aerial Image, 1998 (US Army Corps of Engineers n.d)

As the inlet migrates southward, older areas of the ebb tide delta are blocked behind the accreting northern island. Over time, shoaling builds sufficient elevation to support marsh grass colonization and these new marshes are incorporated into the soundside of the island. Most inlets opened by storm events will shoal up and become choked with sand over time. Once an inlet closes, the old inlet area and ebb tide delta are incorporated into the island. This pattern of inlet migration and closure, coupled with overwash deposition in the interior and soundside of the island, results in a net landward movement of the island. This movement counters beachface erosion and maintains island width.

Conditions on Hatteras Island

Barrier Island Processes

The generalized pattern described above occurs on barrier islands in a natural state. When an island, such as Hatteras Island, has been significantly altered by engineering and infrastructure, island migration may be disrupted. In the 1930s, erosion concerns led the government to build a continuous engineered dune line on the Outer Banks from the state line to Hatteras Inlet (Binkley 2007). The state and/or federal government have worked nearly non-stop to maintain this dune line and hold Hatteras Island against natural erosion and landward retreat. The dunes created an illusion of safety that increased both residential and tourism development in the island communities. Development further increased once NC 12 was completed as a paved road behind the dunes in the early 1950s. Bonner Bridge was opened over Oregon Inlet in 1963 to accommodate growing traffic demand (NCDOT 2008).

These infrastructure projects, though intended to reduce erosion and ease transportation, reflect the era's inadequate understanding of barrier island processes. The bridge and paved road along the length of Hatteras Island led to development of the island communities for both residents and vacationers. Storm damage and erosion threatened the road and bridge almost immediately, but the economic boon of tourism seemed to justify the cost of road maintenance. With time, road access to the Refuge and the National Seashore became central to a multi-million dollar tourism industry. The road became too important to lose; yet the measures necessary to protect the road from erosion threaten the island itself.

The artificial dune line along NC 12 was constructed to slow erosion. In practice, the high engineered dunes block the normal overwash critical to island migration. Under natural conditions, the low natural dunes and broad beach (or run-up) allow storm waves to dissipate energy. In some storms, a natural dune line may be destroyed and the sand distributed as part of the overwash fan. The height of the engineered foredune on Hatteras Island has changed the interaction of wave energy with the beach, resulting in a steeper shoreface and narrower beach. This narrow beach and high dune cannot dissipate the wave energy. Storm waves erode the dunes but do not overwash them, resulting in erosion without deposition. The eroded sand is transported offshore instead of being deposited on the island. NCDOT then rebuilds the damaged dunes slightly inland of the previous ones. Over time, the island narrows as the ocean shore erodes but the soundside does not build. As the island narrows, areas with weaker substrate are at heightened risk of island breach and inlet creation during storms (Riggs et al. 2008).

Hatteras Island experiences high wave energy and frequent storm activity. The North Carolina Division of Coastal Management has mapped annual erosion rates along the Outer Banks. While Hatteras Island is accreting in a few locations, most of the island is eroding. The highest average erosion rate is north of Rodanthe (11 feet/year average), with the Pea Island Wildlife Refuge averaging between five and seven feet of erosion per year (NCDOT 2008). The pattern of erosion and island narrowing is especially critical in structurally weak areas. Most of these are former inlets that are at particular risk for reopening during storms. The most high-risk breach areas along NC 12 have been identified as “hot spots.” There are five “hot spots” on Hatteras Island (from north to south): (1) Canal Zone; (2) Sandbag Area; (3) Rodanthe 'S' Curves; (4) Canadian Hole; and (5) Hatteras Village. Figure 4.1 shows the Canal Zone, Sandbag Area, and

Rodanthe ‘S’ Curves relevant to the case study. Erosion in some of these areas has required the highway to be moved westward. In numerous areas on Hatteras Island, NC 12 now abuts the soundside marsh and can be moved no further. Beach nourishment and dune maintenance are necessary to offset erosion in these areas, at yet more cost.

Oregon Inlet

Oregon Inlet’s southward migration also threatens NC 12 and Bonner Bridge. Oregon Inlet, opened by a hurricane in 1846, is currently the only inlet between Cape Hatteras and Virginia. The inlet is migrating southward, with spit accretion on its north shoulder and erosion on the south shoulder of the inlet. In the 170 years since it opened, the midpoint of Oregon Inlet has shifted roughly 2.2 miles southward and over 2,000 feet westward (NCDOT 2008). The inlet’s width, depth and orientation have varied over the years, with a significant orientation shift and narrowing trend evident since the 1962 Ash Wednesday storm (Dolan and Glassen 1973).

The width and location of Oregon Inlet fluctuates significantly between stormy and calm periods. Between 1945 and 1989, the south shoulder of Oregon Inlet (Hatteras Island) averaged erosion of 103 feet/year while the north shoulder (Bodie Island) accreted southward an average of 88 feet/year. The overall movement is south, with the pattern and rates fluctuating with storm frequency. Generally speaking, Oregon Inlet widens with erosion on both shoulders during stormy periods (maximum inlet width of 6,670 feet in 1962) and narrows during calm periods (average minimum width of 2,100 feet) (NCDOT 2008).

In the 1980s, erosion of Oregon Inlet's southern shoulder increased to an average of 308 feet/year; during a single storm in 1989, the southern shore eroded more than 350 feet. This rapid erosion threatened to undermine Bonner Bridge's south terminus (NCDOT 2008). In 1991, NCDOT completed construction on a terminal groin to stabilize the south side of the inlet. Accretion is ongoing on the northern shoulder while the southern shoulder is no longer retreating, resulting in narrowing of the inlet.

Navigation through Oregon Inlet and under Bonner Bridge is threatened by this movement and shoaling. As the inlet gorge (deepest channel) moves southward, it no longer aligns with the 130 foot wide bridge navigation span. Dredging to maintain navigability has been nearly constant since the 1970s. These dredging operations alter normal sediment transport and may starve downdrift beaches of sand (Riggs and Ames 2011).

Inlet and island migration processes are natural and would not be a "problem" on Hatteras Island but for the demand for a transportation corridor along the island. Removal of the engineered dune may restore natural overwash and island building, but it would quickly render NC 12 impassable. To grasp the importance of maintaining NC 12 along Hatteras Island, we must take a brief look at the history of island development.

Development of NC 12

The English effort to establish a settlement on Roanoke Island failed in 1584, but historical records reveal that colonists encountered established Native American settlements that fished and hunted in the sheltered waters behind the barrier islands. These native populations relocated

as English colonists spread southward out of the Virginia colony in the 1700s. By the 1830s, Nags Head in the northern Outer Banks had become a summer retreat for wealthy planters (Stick 1958). The remainder of the Outer Banks, including Hatteras Island, was only sparsely settled by locals eking out a subsistence living. The islands were accessible only by shallow-draft boats and travel was via tracks in the sand. By the turn of the century, out-of-state hunting clubs had purchased large tracts of the Outer Banks, with islanders supplementing meager incomes working as hunting and fishing guides. A period of high erosion and dune migration in the early 1900s resulted in abandonment of several sizable Outer Banks communities, including Portsmouth and Little Kinnakeet. The period leading up to the Depression was one of considerable hardship on the Outer Banks as natural resources were depleted or were regulated.

Desperate for some source of income, the Dare County, NC Board of Commissioners embarked on an ambitious plan to build roads and bridges to open the virtually inaccessible beaches to tourism from other states (Stick 1958). Dare County built the first bridge across the Roanoke Sound in 1928 with county revenue bonds. A private toll bridge across the Currituck Sound to Kitty Hawk was completed in 1930. The state highway department stepped in and connected the two bridges with the first paved road on the northern Outer Banks soon afterwards (Carr 2016).

Road access to the northern Outer Banks coincided with the start of private ferry operations, including a car ferry across Oregon Inlet. Together, these ferries, road, and bridges opened the area to development. While large tracts were being subdivided for residential development in the Nags Head area, Bodie Island and Hatteras Island remained isolated, with locals traveling via small boats or undeveloped roads through the sand. Accelerated dune loss and erosion were

threatening parts of the islands, including the Cape Hatteras Lighthouse. Influential locals, including landowners, officials, and journalists, heartened by the successful projects in the northern Outer Banks, proposed a new project to re-establish vegetation, install sand fencing, rebuild lost dunes, and develop a national park along the central Outer Banks. Government officials embraced the suggestion; the Works Progress Administration (WPA) and Civilian Conservation Corps (CCC) began working to “restore” the Outer Banks in 1934 (Binkley 2007).

By 1940, the CCC had built a massive dune line 115 miles long down the northern Outer Banks to Hatteras Inlet and partially along Ocracoke Island. At some points, the dune was up to 25 feet in height with a base width of 300 feet. CCC workers installed over 600 miles of sand fencing and planted millions of seedlings and grasses (Stick 1958). Work stalled during World War II, but by the early 1950s NC 12 was paved along the length of Bodie and Hatteras Islands. The era of tourism on the Outer Banks had arrived. The Oregon Inlet ferry, which had been bought by the state, had a capacity of 2,000 vehicles per day. By the late 1950s, it was unable to keep up with traffic demand, resulting in long lines in peak summer season. In 1963, the 2.44-mile long Bonner Bridge over Oregon Inlet was opened to traffic (NCDOT 2008).

The Modern Outer Banks

A paved highway route along the length of islands boosted residential and tourism development in the island communities. This growth was restricted, though, by the designation of large portions of the Outer Banks as either Wildlife Refuge or National Seashore. The Cape Hatteras National Seashore, including the Pea Island National Wildlife Refuge, stretches south for 70 miles from Nags Head to Ocracoke Island. The Refuge and the established communities along

the Banks are geographically within, but are not part of, the National Seashore. Residential and commercial development is restricted to those areas outside the boundaries of the Refuge and National Seashore.

Once transportation improvements opened the way for tourism and residential development, Dare County saw a significant population growth, peaking in the decade between 1970 and 1980 when the population grew from 6,995 to 13,377, or a 91% increase (Dare County 2010) (see Table 4.1).

Table 4.1: Dare County, NC Percentage Population Change by Decade

Decade	Percentage Population Change
1950 – 1960	+ 9.8%
1960 – 1970	+ 17.8%
1970 – 1980	+ 91.2%
1980 – 1990	+ 70.0%
1990 – 2000	+ 31.7%
2000 – 2010	+ 13.2%

In 2010, Dare County had 33,920 permanent residents. Of those permanent residents, not quite 13 percent (4,322 people), live in the communities south of Oregon Inlet (Lane 2013). Dare County’s population increases significantly during both peak and off-peak “shoulder” tourist seasons, with an estimated peak seasonal population (both seasonal and residents) of over 226,000 (Dare County 2010). Many of these tourists rent residential homes for short-term stays. Non-resident owners account for 56 percent of Dare County’s residential structures. Many of

these absentee owners rely on rental income to cover expenses of these second homes (Dare County 2010).

Many Hatteras Island visitors are drawn to the remoteness and ambience of the communities south of Bonner Bridge. Vacationers and day-trippers alike visit the Cape Hatteras National Seashore, Cape Hatteras Lighthouse and Pea Island Wildlife Refuge in large numbers. In 2015, the National Park Service reported 2,274,635 visitors to the Cape Hatteras National Seashore (National Park Service 2017). The National Seashore is only accessible via NC 12 or state vehicle ferries between the mainland and Ocracoke Island. Given the ferries' limited capacities, the majority of these visitors pass over the Bonner Bridge.

Tourism drives Dare County's economy. Dare County visitors spent over one billion dollars in 2014, the fourth-highest county total in the state. Tourism related industries like retail, real estate, and hotel/restaurant provided 12,300 jobs in Dare County in 2014 (U.S. Travel Association 2014). Hatteras Island is home to roughly 13 percent of the county population but contributes roughly 40 percent of county occupancy tax revenues. In 2011, visitors to Hatteras Island spent some \$204 million dollars. Around 25 percent of all Hatteras Island businesses are related to tourism, providing roughly 60 percent of employment (2,600 jobs) on the island (Lane 2013).

Bonner Bridge as a Lifeline

From the dead of winter when only residents and a few diehard visitors are on Hatteras Island to the peak summer season when the population may swell to 50,000, Bonner Bridge is the island's

lifeline. Virtually all of the food, consumer goods, building supplies, mail, gasoline, heating fuel, and trash service to the island come by truck over Bonner Bridge. Cable television, internet, telephone, and electricity cables cross the inlet attached beneath the bridge. Serious medical care requires a trip off-island. Students cross the bridge in activity buses for sports events and school activities. In 2002, the most recent year with available data, an average of 5,400 vehicles crossed Bonner Bridge each day, with peak summer traffic nearing 11,000 vehicles per day (NCDOT 2008).

Both Hatteras Island and Ocracoke Island to the south rely primarily on NC 12 and the Bonner Bridge for transportation. Ocracoke Island is served by a ferry route to Hatteras Island (less than one-hour transit) and two ferry routes to remote mainland ferry terminals (more than two-hours transit). Combined, the two mainland ferry routes carried 92,477 vehicles in 2014. In comparison, more than two million vehicles travel the Bonner Bridge each year (NCDOT 2015a). NC 12, including the Bonner Bridge, serves as the designated hurricane evacuation route for the Outer Banks.

Park and Refuge Management

A major draw to the Outer Banks is the Cape Hatteras National Seashore. Authorized as the nation's first National Seashore by Congressional legislation in 1937, the land was assembled from landowner donations and purchases by the state. Once the last parcels were transferred to the federal government, the Seashore was officially established in 1953. While the Seashore is

designated as a recreational area open to hunting and fishing in season with beach driving in designated areas, the authorizing language for the Seashore in 16 U.S.C. § 459(a-2) states that:

. . . the said area shall be permanently reserved as a primitive wilderness and no development of the project or plan for the convenience of visitors shall be undertaken which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing in this area.

In effect, this language prevents any residential or commercial development within the boundaries of the Seashore, which stretches from just south of Nags Head to the southern end of Ocracoke Island. Communities already present when the Seashore was created are excluded from its boundaries. Access to nearly 70 miles of undeveloped barrier islands is a major draw for tourists. The Seashore includes one of the most famous lighthouses in the world, Cape Hatteras Lighthouse, as well as Bodie Island Lighthouse near the north shore of Oregon Inlet. The developed facilities within the Seashore include parking areas and visitor centers, a Coast Guard facility at Oregon Inlet, a marina and store operated as a concession adjacent to the Coast Guard facility, and the right of way for NC 12 and utilities.

Thirteen linear miles on the northern end of Hatteras Island were designated as the Pea Island National Wildlife Refuge in 1938. The primary purpose of the Refuge is to provide habitat and breeding grounds for migratory waterfowl and other wildlife. The Refuge includes 4,655 terrestrial acres and 25,700 water acres. More than 365 species of birds, including migratory snow geese and the threatened piping plover, are found there (USFWS n.d.). The Refuge lies within the boundaries of the National Seashore and features a visitor's center, freshwater habitat impoundments, viewing stations, and wildlife trails. The National Park Service and US Fish and Wildlife Service (USFWS) jointly operate the Refuge with USFWS making all decisions concerning habitat management and Refuge uses.

Management of NC 12

The first paved portion of NC 12 in the northern Outer Banks was completed in 1931. The 18-mile road was almost immediately damaged by two successive hurricanes and required major repair within two years of its completion (Stick 1958). This was a harbinger for the future. The apparent stability of the engineered dunes encouraged further construction of NC 12 behind the dunes following World War II. The road was paved between the Hatteras Island communities in the late 1940s and early 1950s, with the final 12-mile segment built through the Refuge in 1953. By 1963, visitors could travel via paved roads and bridges from the mainland to Hatteras Village at the southern end of the island.

NC 12 within the Refuge has been a source of conflict since its construction. Initially, Refuge management refused permission to construct the road, citing the Refuge's mandate to maintain and protect habitat for migratory waterfowl. Refuge management was concerned that vehicle traffic would pose a danger to wildlife. They also worried that the ease of transportation within the Refuge would increase foot traffic in areas beyond the road (Carr 2016). The situation was at an impasse until political pressure prevailed; on October 29, 1951, Congress passed Public Law 229 (65 Stat. 662), instructing the Secretary of the Interior to convey a right of way to the state for road construction through the Refuge.

The highway and the engineered dunes have been interrelated from the beginning. The erosion control project was a joint project between the state and National Park Service; the Park Service recognized that the islands were migrating westward, but intended the erosion control project to slow the rate of movement and stabilize the islands as much as possible without resorting to

hardened structures like jetties or groins. The dunes were not built to facilitate the road, but transportation was cited as a factor encouraging stabilization. Without the dune project, NC 12 would not have been built in the 1950s (Binkley 2007).

Completion of NC 12 along the length of Hatteras Island brought considerable tourism and commercial growth to the communities outside the National Seashore. The economy rapidly shifted from traditional fishing livelihoods to tourism. Without reliable access, this new economy would flounder and isolate island communities from the conveniences that are near-necessities in the modern world. The highway became the lifeline for those communities and the lifeblood of the economy. The dune building of the 1930s made the road possible; protection of the road made the dunes a necessity. To use a modern phrase, the highway became “too big to fail.”

Conflicts and Highway Maintenance

NC 12 along Hatteras Island may be the lifeline of the local communities, but it is plagued with troubles that seem almost insurmountable. Every hurricane, tropical storm, and winter storm threatens to sweep portions of the road away and bury the rest under feet of sand. Maintenance work and dune reconstruction are almost continuous. The Refuge management would prefer it to go somewhere other than the Refuge. Four parties play a major role in determining the future of the highway: NCDOT, the Federal Highway Administration, the Pea Island National Wildlife Refuge management, and the National Park Service. Each group has a distinct purpose that shapes its view of the highway.

North Carolina Department of Transportation (NCDOT)

NCDOT is responsible for the construction and ongoing maintenance of NC 12. As part of its general obligation to provide adequate transportation routes to the citizens and communities of the state, either through state highways and secondary roads or by ferry routes, NCDOT is obligated to maintain NC 12 as the primary transportation connection along the Outer Banks. As years of engineering projects have altered the normal barrier island migration, the state has spent increasing amounts of time and money removing sand from the highway and rebuilding breached dunes. NCDOT has moved several sections of road westward in recent decades, while island breaches from storms have either been closed or received a temporary bridge.

The NCDOT Division of Highways is administered through 14 regional divisions. Funding for NC 12 maintenance and the Bonner Bridge repair and replacement comes out of the funding allocation for District One and is subject to the statutory funding cycles of the state budget process. NCDOT planning and project selection are determined by transportation needs, environmental regulations, and funding limitations. All NC 12 projects require the state to conduct some form of environmental impact assessment under either the State Environmental Policy Act or the National Environmental Policy Act (NEPA).

Much of the length of NC 12 on the Outer Banks lies within the boundaries of the National Seashore or the Refuge. When the National Seashore was established in 1953, a right-of-way was reserved for the state road. Within the Refuge, NCDOT has a permanent easement to construct and maintain a public road. NCDOT must confine its maintenance activities to the right-of-way or easement within both the National Seashore and the Refuge. Any NCDOT

activity outside of these boundaries requires a permit from the National Seashore or Refuge administrators. Those permits are discussed below.

Federal Highway Administration (FHWA)

North Carolina, like other states, receives a considerable amount of federal highway funding. This federal funding supplies roughly 45 percent of the budget for highway and bridge construction in the state (NCDOT 2010a). A major project like the Bonner Bridge replacement cannot be completed without federal funds. The FHWA, a division of the United States Department of Transportation, oversees the use of federal funds in state highway maintenance projects to ensure compliance with federal regulations.

The use of federal funds triggers an environmental review under NEPA. For the Bonner Bridge replacement, NEPA requires the FHWA to complete an Environmental Impact Statement (EIS) to assess the environmental impacts of the proposed project as well as possible alternatives. The FHWA officially oversees the Environmental Impact Statement, but in practice, the FHWA delegates preparation of the environmental analysis to the NCDOT while retaining final “signing” authority.

In addition to the EIS process, the FHWA must also complete a Department of Transportation Act Section 4(f) analysis. Section 4(f) restricts federal funding for transportation projects on federal protected lands, including wildlife refuges. Specifically, under 49 U.S.C. 303(c), FHWA cannot approve federal funding for such projects unless it finds that there is no “feasible and prudent alternative” and the project has taken all steps to minimize harm to the protected lands.

If FHWA can identify an alternative to avoid using protected land, that alternative must become the preferred alternative unless it is “infeasible or imprudent,” under 23 CFR 774.17. Again, the FHWA delegates preparation of the analysis to the NCDOT but retains final approval.

Pea Island National Wildlife Refuge

The Pea Island National Wildlife Refuge (henceforth “Refuge”) was established by Executive Order in 1938 to manage wetlands and habitat as “a refuge and breeding ground for migratory waterfowl and other wildlife” (U.S. President 1938). While the Refuge mission identifies the maintenance of public use as a goal, recreation is not one of its main purposes (USFWS 2006). The NCDOT has a 100-foot wide easement for maintaining a road through the Refuge. Any activity beyond this easement requires the Refuge Manager to issue a Special Use permit. Refuge management has repeatedly issued permits for emergency repair for storm damage, but has expressed reluctance to continue to do so (Bryant 2003). In the late 1980s, the Refuge management permitted the state to construct a terminal groin along the south shoulder of Oregon Inlet to protect the southern terminus of Bonner Bridge from erosion. This permit requires the groin to be removed if the existing bridge is removed from service. If the State of North Carolina wishes to keep the groin in place, it must receive a new permit (NCDOT 2008).

In 1997, Congress passed the National Wildlife Refuge System Improvement Act of 1997, which, in part, refined the permitting standards for any new uses or modifications of existing uses in Wildlife Refuges. Under this new law, Refuge Managers must make a determination that a proposed use is compatible and “will not materially interfere with or detract from the fulfillment of the mission of the [Refuge] System or the purposes of the Refuge” (16 U.S.C.

668ee(1)). The Bonner Bridge replacement is the first major project within the Pea Island Wildlife Refuge to require analysis under this new standard. The Department of the Interior, which includes the US Fish and Wildlife Service (USFWS), has indicated that many of the alternatives offered for long-term maintenance of NC 12 through the Refuge are “unlikely” to be viewed as compatible with the core purposes of the Refuge (NCDOT 2005, 2.15).

National Park Service

According to the National Park Service:

The purpose of Cape Hatteras National Seashore is to permanently preserve the wild and primitive character of the ever-changing barrier islands, protect the diverse plant and animal communities sustained by the coastal island processes, and provide for recreational use and enjoyment that is compatible with preserving the distinctive natural and cultural resources of the nation’s first national seashore. (National Park Service 2011, 9)

Like the Refuge, the National Seashore Superintendent issues Special Use permits to NCDOT for road projects or maintenance beyond the boundaries of the right-of-way. The Bonner Bridge replacement will likely require a permit for construction and staging activities for the new northern terminus of the bridge. Otherwise, the Park Service does not currently have as active a role in discussions of NC 12 as the Refuge, largely because the most critical “hot spots” with frequent overwash are generally within the Refuge boundaries. Beyond the northern terminus of the Bonner Bridge, all bridge replacement alternatives avoid Park Service boundaries.

Other Tensions

The social structure of the Outer Banks reflects changing demographics brought by tourism. For centuries, the Outer Banks were very sparsely settled and isolated from the mainland. The only

access was via boat. The economy was based on fishing supplemented by hunting, livestock, and scavenging from ships washed ashore on the Graveyard of the Atlantic. By the early 20th century, wealthy out-of-state landowners had purchased large tracts of land for private hunting preserves. Although a few locals were hired as managers, these preserves were closed to residents for fishing and hunting.

Although there was considerable resistance in the post-war years to the creation of the National Seashore, the influx of tourists forever changed the culture of the Outer Banks. Isolated and self-sufficient communities became beach towns, lined with oceanfront vacation rentals and small gift shops. Increasing land values enticed many small landowners to sell while escalating property taxes forced others away. While locals still live amongst the retirees, transplants, and absentee owners, virtually all of them are dependent on the steady flow of visitors to the Outer Banks.

Many of these tourists are drawn to the Outer Banks for surf fishing and beachgoing in areas that allow beach driving. The tension between the Park Service/Refuge and residents and visitors came to a head in 2007 when the Southern Environmental Law Center filed a lawsuit on behalf of Audubon and the Defenders of Wildlife seeking to restrict beach driving in many areas of the National Seashore. The ensuing debate was extremely contentious and resulted in the closure of some beach areas within the Seashore and Refuge to beach driving and pedestrian access for months out of the year. The dispute is still ongoing and has left many Outer Banks residents and visitors with strong resentment toward both the Southern Environmental Law Center and

environmental advocacy groups. Although the issue was different, these resentments resurfaced during the debate over Bonner Bridge.

Environmental Permitting

The Bonner Bridge replacement involves constructing a bridge over federal jurisdictional waters with potential harm to wetlands, submerged and terrestrial habitats, and state-designated “areas of environmental concern.” The northern and southern approaches for the bridge lie within the National Seashore and the Refuge, respectively. State highway engineers would use a mix of state and federal funding to construct the bridge. Given these facts, it is no surprise that there are considerable permitting requirements for the bridge project. Required federal permits include: (1) a Coast Guard Bridge permit for the Oregon Inlet; (2) US Army Corps of Engineers Clean Water Act Section 404 and Section 10 permits for dredge and fill operations within waters of the United States and (potentially) a Section 13 permit for ocean deposit of dredge materials; (3) a USFWS Special Use permit to re-authorize the terminal groin; (4) a National Park Service Special Use permit for use of land within the National Seashore; and (5) a USFWS Special Use permit for any roadwork outside the existing easement through the Refuge. A North Carolina Coastal Area Management Act (CAMA) Major permit would be issued with the Corps of Engineers Section 404, Section 10, and Section 401 (water quality) permits under a joint permitting program.

While significant, these permits are separate from the major environmental analysis for this project. Under NEPA, any federal agency (here, the FHWA) proposing a major action must assess any potential environmental effects. The Bonner Bridge project’s likelihood of significant

environmental effects triggered a full *Environmental Impact Statement* (EIS) review (40 CFR Part 1500-1508). North Carolina has a similar State Environmental Policy Act (SEPA) EIS procedure; the SEPA review is not required if a full NEPA review is conducted. Since 1997, the NCDOT, FHWA, and US Army Corps of Engineers have operated under either an Interagency Agreement (1997) or a Memorandum of Understanding (2003, with multiple later revisions) to consolidate the NEPA and Section 404 (Clean Water Act) reviews for highway projects affecting wetlands. For discussion purposes, the term “Memorandum” will refer to both the Interagency Agreement and the Memorandum of Understanding.

The Memorandum established the EIS process for all but the earliest rounds of Bonner Bridge project planning. This process relies on a Merger Team made up of 13 federal and state agencies. Key members include the FHWA, NCDOT, NC Department of Environment and Natural Resources (two divisions), US Army Corps of Engineers, US Environmental Protection Agency, USFWS, and the Refuge Manager. The EIS process mandates the following steps:

(1) the Merger Team defines the project’s Purpose and Need (Concurrence Point 1) and develops project alternatives; (2) the Team selects the alternatives to be studied in the EIS (Concurrence Point 2); (3) the NCDOT incorporates these selections into a Draft EIS and solicits written and oral comments from the public and consulting agencies; (4) based on feedback, the Merger Team selects one project alternative as the *Least Environmentally Damaging Practicable Alternative* (LEDPA); (5) the Final EIS refines the presentation of alternatives, designates the Preferred Alternative, and addresses the received comments; this Final EIS is published for public and agency comment and the Merger Term determines any necessary mitigation for the LEDPA (Concurrence Point 4); and (6) as a last step, the Record of Decision is prepared and signed by

both NCDOT and FHWA; the US Army Corps of Engineers approves or denies the 404 permit. The Bonner Bridge EIS also includes the Section 4(f) analysis for a road project within a Refuge. Additional steps for EIS supplements and assessments as well as a Merger Team conflict resolution process are discussed in the next section.

A Bonner Bridge Chronology

By the late 1950s, traffic demands on the Outer Banks exceeded the capacity of the free ferry across Oregon Inlet. Construction of the 2.44 mile Herbert C. Bonner Bridge began in 1962, with the bridge opening to traffic in November 1963. The bridge was built in a curving arc 4,000 feet inland of the ocean, a design that was expected to protect the bridge from storms. The designers were aware of the inlet's southward migration and planned to stabilize the inlet with two jetties within five to ten years after bridge completion (NCDOT 1993). Within two years of completion, engineers repaired severe scour (erosion around structures) around pilings near the navigation span. In 1978, erosion left several pilings on the south end with only seven feet of bottom penetration. Support pilings were added to counter erosion in 1978, 1979, and 1981.

Additional pilings were added on the north end in 1989 and 1991, followed by riprap and gabions (caged riprap) in 1992. Between 1978 and 1992, scour repair costs exceeded \$9.3 million. In 1989 and 1990, a \$14 million terminal groin was constructed to hold the southern terminus against severe erosion. In 1990, a hopper dredge performing routine navigation dredging struck the bridge during a storm, causing several spans to collapse. The bridge was closed between October 1990 and February 1991 for repairs, forcing all traffic onto emergency

ferries. By 1990, the bridge was reaching the end of its design life. Ongoing scour problems, corrosion of steel members, and concrete spalling (fragments falling from the concrete face) left the bridge with a sufficiency rating of 32.5 out of 100. In 1991, the bridge was estimated to have a remaining service life of six years without “massive maintenance and repair expenditures” (NCDOT 1993).

NCDOT initiated planning for replacement of the deteriorating Bonner Bridge with a feasibility study in 1990-1991. The process continued for 25 years, requiring a feasibility study, five environmental impact statements, an environmental assessment, and federal and state lawsuits. The following chronology is based on news articles gathered for the source database and summarizes the key points of the project history.

1990-1991: NCDOT conducts a feasibility study and scoping process to select bridge alternatives for the EIS process. They solicit state and federal agency comments and hold public informational workshops. Multiple alternatives are considered, including no action; maintenance of the existing bridge; ferries; a tunnel; and new bridge corridors with parallel, east, or west alignments. The preferred alternative for the EIS is selected based on results of the feasibility study.

1993: A Draft Environmental Impact Statement (DEIS) is published for review. The DEIS is compiled before the EIS Merger Team process is established, but the National Park Service, USFWS, US Army Corps of Engineers, and US Coast Guard are closely consulted. The DEIS analyzes a Parallel Bridge as the Preferred Alternative for analysis.

The DEIS explicitly separates the bridge replacement from long-term planning for NC 12, noting that NC 12 needs a different planning process. Within the same month as the DEIS publication, the Outer Banks Task Force (OBTF) is formed by a partnership agreement between the FHWA; NC Department of the Environment, Health, and Natural Resources; National Park Service; NCDOT; US Army Corps of Engineers; and USFWS. The OBTF is tasked with developing a long-term plan for NC 12 that will balance barrier island preservation and safe transportation access.

1994: The Parallel Bridge Corridor is designated as the Preferred Alternative for further analysis.

1996: A 3.3 mile stretch of NC 12 south of the bridge (Sandbag Area “hot spot”) is threatened by erosion and relocated westward at a cost of \$3.5 million. A preliminary version of the Final Environmental Impact Statement (pFEIS) is circulated to key agencies. The pFEIS includes agency comments on the DEIS. In their comments, the USFWS and the Department of the Interior object to the separation of the bridge and NC 12 planning and note concerns about ongoing roadwork within the Refuge.

1997: Congress passes the National Wildlife Refuge System Improvement Act of 1997 (henceforth, 1997 Refuge Act). This law, in part, amended the grounds upon which the Refuge Manager of Pea Island Wildlife Refuge can issue Special Use permits for roadwork within the Refuge. The Federal Highway Administration requests that USFWS initiate an Endangered Species Act Section 7 formal consultation for the project. This consultation is never completed and the pFEIS is left unsigned.

1998-2000: Planning for the Bonner Bridge replacement remains at a standstill. Anecdotally, this is due to conflict between USFWS and NCDOT over permitting concerns. Since the early 1990s, USFWS has repeatedly expressed concerns about long-term road plans within the Refuge. USFWS seems to imply that any bridge replacement that deviates from the existing easement will be found “incompatible” under the 1997 Refuge Act and cannot be permitted. It is likely that an ongoing controversy about the planned jetty project for Oregon Inlet also plays a part in stalling replacement efforts.

2001: NCDOT renews planning for the bridge replacement. Given the time lapse since completion of the DEIS, the pFEIS must be re-evaluated. NCDOT determines that changed conditions warrant preparation of a *Supplemental Draft Environmental Impact Statement* (SDEIS) to consider new alternatives.

2002: SDEIS scoping begins under the new Merger Team process. Erosion data shows that areas near the 1993 Parallel Bridge Corridor’s southern terminus have eroded significantly. Considering the OBTF’s long-term NC 12 planning process, the Merger Team agrees that the bridge replacement must include planning for long-range NC 12 maintenance between the bridge and Rodanthe.

The Merger Team notes that the 1993 DEIS bridge corridor terminates outside of the highway easement through the Refuge and will require a Special Use permit. This permit can only be issued if the Refuge Manager finds the project compatible with the Refuge’s Management Plan

and mission. Refuge staff indicates that this is unlikely. NCDOT conducts a new Bridge Corridor Study to analyze corridors that avoid the Refuge and known erosion “hot spots”

2003: The Merger Team considers four corridors with multiple sub-corridors and selects two for detailed study in the SDEIS. Corridor One (Wide) would terminate in the center of the Refuge while Corridor Four would extend far into the Pamlico Sound and terminate in Rodanthe, avoiding the Refuge entirely. USFWS advises the Merger Team that it likely will not issue a permit for a bridge in Corridor One. The Merger Team responds by removing Corridor One from consideration and chooses Corridor Four and its sub-corridors as the only study alternative. Corridor Four is designated as the *Pamlico Sound Bridge Corridor* (henceforth, Long Bridge).

Hurricane Isabel opens an inlet roughly 1,700 feet wide on the southern end of Hatteras Island. The US Army Corps of Engineers fills the new inlet with sand and replaces the road. Significant overwash occurs along the length of NC 12.

2004: Dare County, NC County Commissioners adopt a Resolution protesting the Merger Team’s selection of the Long Bridge. They note that this corridor eliminates all highway access to the Refuge. They also express concern about loss of recreational fishing access at the inlet, possible removal of the terminal groin, and funding issues. In response, NCDOT considers, and ultimately rejects, five additional bridge designs suggested by the County Commissioners. Political pressure prompts the Merger Team to add a *Parallel Bridge Corridor with NC 12 Maintenance* (henceforth, Short Bridge) to the SDEIS study.

2005: The North Carolina General Assembly passes a bill (N.C.G.S. 136-89.183b) expressly recommending a parallel bridge and includes provisions to accelerate construction once all permits are approved. The SDEIS is published, analyzing both the Long Bridge and Short Bridge options. The SDEIS (and all future iterations of the Bonner Bridge EIS) includes the 4(f) analysis of roadwork within the Refuge. Two public hearings are held and written comments are accepted. The Long Bridge analysis includes two alignment alternatives. The Short Bridge analysis includes a parallel bridge over the inlet and three alternatives that would maintain NC 12 on Hatteras Island to Rodanthe through 2060.

The Long Bridge would be roughly 17.5 miles long, the third longest continuous bridge over water in the world. The bridge would pass through Pamlico Sound approximately five miles east of Hatteras Island. The Short Bridge would be approximately 2.7 miles long and generally parallel the existing bridge (Figure 4.5). Three alternatives are suggested for NC 12 with the parallel bridge: (1) Nourishment – maintain the road within the existing easement with beach nourishment; (2) Road North/Bridge South – move the road westward in the northern half of the Refuge and place the southern half on a bridge; (3) All Bridge – elevate the road on a bridge along the island to Rodanthe. The SDEIS also proposes mixing elements of these maintenance alternatives.

2006: Tensions persist between NCDOT and USFWS regarding long-term road maintenance options through the Refuge. US Department of the Interior Secretary Dirk Kempthorne acknowledges the urgent need to replace the existing bridge and the difficult question of

maintaining the road within the Refuge. Secretary Kempthorne recommends separating the bridge and road projects so the bridge can be permitted quickly.

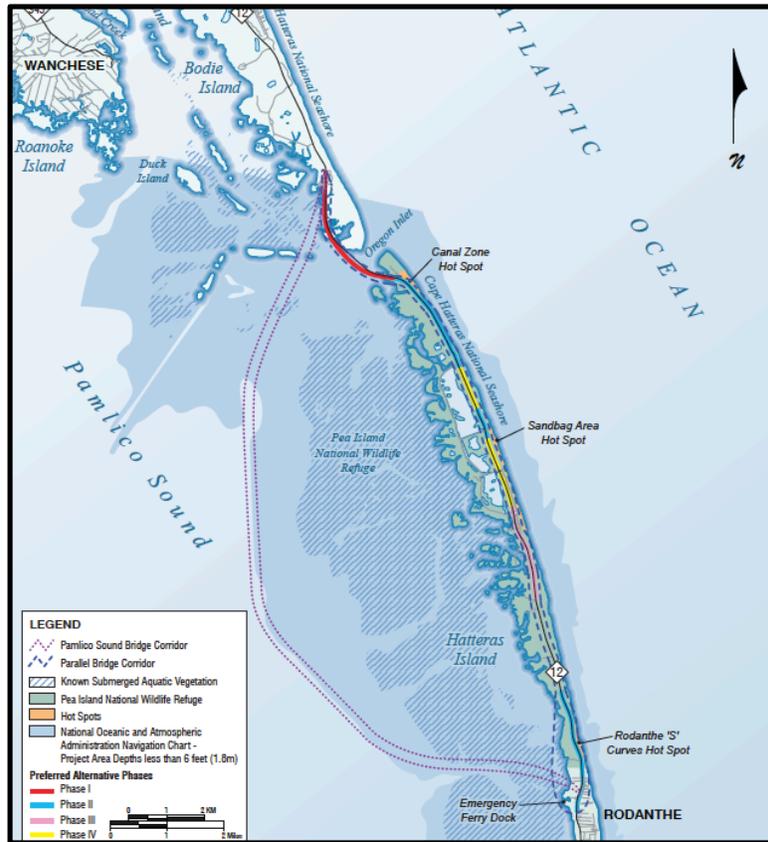


Figure 4.5: Proposed Bonner Bridge Corridors - Short Bridge in Red, Long Bridge in Purple Dotted Line (NCDOT 2008)

In response to this, as well as a proposal from NC Senator Marc Basnight during the SDEIS comment period, NCDOT develops a new alternative to build a parallel bridge then elevate portions of NC 12 onto bridges within the easement in four phases as erosion threatens. This new alternative is the *Parallel Bridge Corridor with Phased Approach* (henceforth, *Phased Approach*). The Merger Team recommends a *Supplement to the Supplemental Draft*

Environmental Impact Statement (SSDEIS) to study the Phased Approach as a variation of the Parallel Bridge alternative.

The Bonner Bridge is rated “Poor” in a NCDOT bridge inspection, earning a sufficiency rating of 2 out of 100. The remaining service life is estimated at five years without major repair and maintenance projects.

2007: The SSDEIS analysis of the Phased Approach is published. Two public hearings are held and written comments are accepted. Multiple state and federal agencies, along with environmental organizations, express strong disagreement with the Phased Approach. NCDOT deems the Long Bridge impracticable due to the high up-front construction costs.

Construction and maintenance costs through 2060 are roughly similar for both designs. The difference is between the up-front costs for construction. Short Bridge up-front construction costs are estimated at \$260 million. The Long Bridge up-front construction costs are estimated at \$930 million.

The Merger Team meets to designate the LEDPA (Least Environmentally Damaging Practicable Alternative) and cannot reach a consensus. After multiple attempts, the issue is elevated to a Merger Review Board where senior agency officials with NCDOT, FHWA, US Army Corps of Engineers, and NC Department of Environment and Natural Resources approve the Parallel Bridge with Phased Approach as the LEDPA.

2008: The FEIS is published with detailed studies of two bridge corridors, each with multiple alternatives. The Long Bridge Corridor includes two alternative methods of joining NC 12 in Rodanthe: (1) Curved Rodanthe Terminus, and (2) Intersection Rodanthe Terminus. The Parallel Bridge Corridor with NC 12 Maintenance Plan includes five alternatives: (1) Nourishment; (2) Road North/Bridge South; (3) All Bridge; (4) Phased Approach/Rodanthe Bridge; and (5) Phased Approach/Rodanthe Nourishment. The FEIS designates the Parallel Bridge with Phased Approach/Rodanthe Bridge as the Preferred Alternative.

2009: NCDOT publishes a Revised Final 4(f) Analysis that determines the Long Bridge is not a feasible and prudent alternative to maintaining a road through the Refuge. Merger Team members object to the Phased Approach, noting that it calls for pre-planning of future road projects despite the inherent uncertainty in modeling future coastal change. The Environmental Protection Agency recommends building the parallel bridge as Phase One, with planning for future projects deferred for consideration under a collaborative adaptive management plan. This becomes the *Parallel Bridge Corridor with NC 12 Transportation Management Plan* (henceforth, Parallel Bridge with TMP).

2010: The Merger Review Board amends the 2007 LEDPA agreement to designate the Parallel Bridge with TMP as the new LEDPA. The National Park Service and USFWS refuse to enter into a long-term agreement to participate in the TMP strategy meetings but remain part of the Merger Team for future projects.

An *Environmental Assessment* (EA) is published to assess the impacts of the Parallel Bridge with TMP. A NEPA Environmental Assessment is a less in-depth review than an EIS and assesses the potential for significant impacts for a project. Given the previous assessment of all components of the TMP in the SDEIS, SSDEIS, and FEIS, the Environmental Assessment was deemed to be an adequate review. The EA selects the Parallel Bridge with TMP as the new Preferred Alternative. Public hearings are held on the EA and written comments are accepted. Over 4,000 written comments are received.

The Record of Decision is published, identifying the Parallel Bridge with TMP as the Selected Alternative. This ends the NEPA process.

2011: The Southern Environmental Law Center (SELC) files suit in U.S. District Court for the Eastern District of North Carolina on behalf of two non-profit organizations, Defenders of Wildlife and the National Wildlife Refuge Association. The suit asks the Court to set aside the Record of Decision and issue an injunction to stop construction of the Short Bridge on the grounds that the NEPA and Section 4(f) analyses were inadequate.

Hurricane Irene opens a large breach within the Refuge. The new inlet opens on the site of a previously closed inlet. A temporary bridge is constructed and will remain in place until long-term plans are completed (Figure 4.6).

2012: SELC petitions for a state administrative hearing to challenge the Coastal Resources Commission's approval of a CAMA Major Permit for the Bonner Bridge replacement.

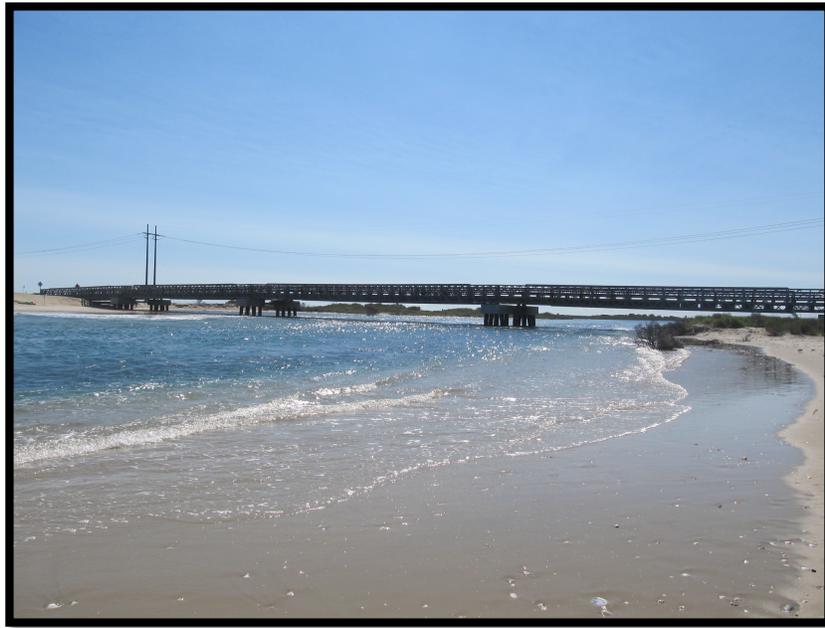


Figure 4.6: “New Inlet” opened by Hurricane Irene and Temporary Bridge, Fall 2012. (Photo by D. Swain)

2013: The U.S. District Court enters summary judgment in favor of NCDOT and FHWA. The SELC appeals the decision to the Fourth Circuit U.S. Court of Appeals. Cape Hatteras Electric Cooperative intervenes as a defendant with NCDOT and FHWA due to its interest in the cost differential between attaching electric transmission cables to the Short Bridge versus the Long Bridge.

2014: A three-judge panel for the Court of Appeals issues a split decision, finding that NCDOT and FHWA complied with the requirements of NEPA, but questioning the sufficiency of the Section 4(f) analysis; the case was remanded back to the U.S. District Court for additional analysis of the 4(f) question. The SELC and NCDOT jointly announce they are entering closed negotiations to resolve the dispute.

2015: The parties announce a settlement of the Bonner Bridge lawsuit. The settlement terms are that the SELC will drop all lawsuits regarding the Parallel Bridge in exchange for NCDOT: (1) rescinding the awarded contract for a planned bridge over the inlet created by Hurricane Irene and requesting new contract bids for an interim bridge parallel to the existing temporary bridge; (2) designating a “jug handle” bridge around the ‘S’ Curves “hot spot” north of Rodanthe as the Preferred Alternative for Phase IIB; and (3) agreeing that the Short Bridge and future bridges will not preclude a longer bridge in the Pamlico Sound in the future. Additional provisions concern Section 4(f) analyses and Merger Team agreements.

Chapter Summary

This case study background has only briefly examined the many physical, social, economic, and legal concerns that influenced the bridge debate, yet one thing is clear: the issue is very complicated. Despite the array of acronyms and agencies, a central thread of background information should be kept in mind through the following chapters. The Outer Banks are barrier islands that, in their natural state, migrate westward due to ocean overwash and inlet processes.

The engineered dune line constructed in the 1930s along Hatteras Island interrupted this natural migration, resulting in narrowing of the island width and increased risk of breaches during storms. This dune line gave the illusion of safety, leading NCDOT to construct NC 12 as a paved road along the length of Hatteras Island around 1950. The road opened the island to tourism, fundamentally changing its character and economy. Bonner Bridge over Oregon Inlet was built

in the early 1960s to accommodate increasing traffic demands. The bridge became a lifeline for residents and millions of tourists visiting Hatteras Island each year.

The harsh conditions and dynamic inlet beneath the bridge have led to numerous repairs since its construction. In the early 1990s, the bridge exceeded its design life and planning began for a replacement. Following environmental laws, NCDOT included federal and state agencies and the public in the planning process. Many locals favored a parallel design to replace the aging bridge quickly, while USFWS and environmental groups supported a long bridge to bypass the Refuge completely. Refuge staff noted that this long bridge option would be compatible with the mission of the Refuge by preserving wildlife habitat and allowing a return to natural barrier island processes. The ensuing debate raised issues of competing agency priorities and public values. Figure 4.7 demonstrates the ebb and flow of activity in the bridge debate, using newspaper coverage (articles, editorials, guest commentaries, letters to editor from prominent coalition figures) plotted against the year of publication.

There was a surge in coverage in the early 1990s around the partial bridge collapse and reopening, followed by a lull for the remainder of the decade. The introduction of the long bridge in 2003 triggered an increase in activity that generally persisted for the remainder of the case study time period. The temporary decline in activity in around 2008 marked a period when the FEIS was published and no new bridge designs were introduced. Publication of the EA and the ensuing litigation saw another increase in activity, with a noticeable spike in activity in 2013 that is discussed in Chapter Six. The following two chapters apply aspects of the ACF and NPF policy process frameworks to the bridge project to examine the coalitions that emerged to

support these two positions and the strategies they used to influence the policy process, exploring the ebb and surge in coalition activity.

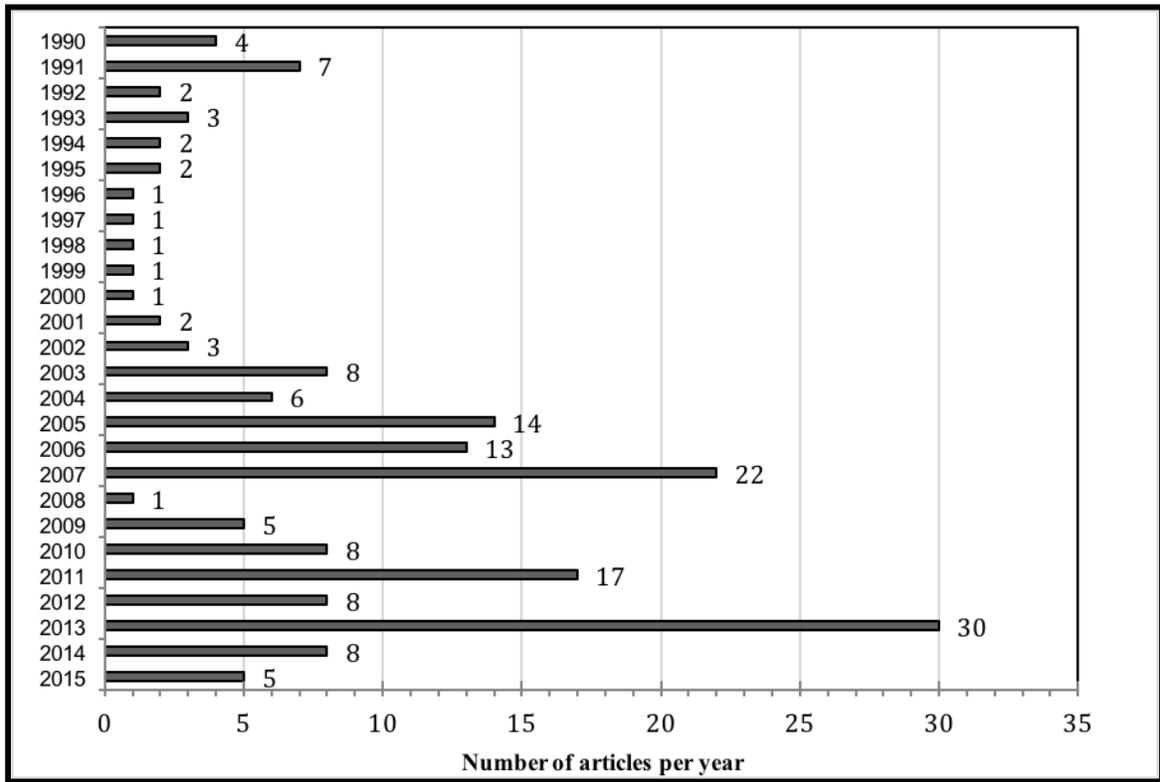


Figure 4.7: Newspaper Items Concerning Bridge Project, Plotted by Publication Year

Chapter Five: Findings and Analysis of Early Policy Phases (1990-2003)

For the first half of the case study, the bridge replacement debate followed the typical course for road projects on the Outer Banks: NCDOT presented its preferred plan and negotiated the details and permits with the relevant agencies through normal agency channels. The coalitions that are the focus of this project did not begin to emerge until around 2004, but the groundwork for their positions and strategies were laid in these early agency negotiations. This chapter explores these positions and strategies through the first two policy phases. The policy phases are presented separately; each section opens with a summary of the context, then continues with a discussion of each side's position and general strategic choices, and concludes with a summary.

Pre-1990 Bridge Condition

Standing at the edge of Oregon Inlet, Bonner Bridge curved in a broad arc against the horizon. The grey concrete of the navigation span cut a stark, graceful line across the blue of water and sky. From afar, the bridge seemed a monument to human engineering and design. A closer look presented a troubling image: pitted and broken concrete contrasted with the rust-red of steel supports that shored up shaky pilings. Decades of salt, waves, and erosion had taken their toll, leaving a bridge near the end of its service life and much worse for wear. Figure 5.1 shows the bridge in the 2008 and 2012, depicting similar conditions as would have existed in the 1980s.



Figure 5.1: Left – Bonner Bridge, 2012 (Photo by D Swain); Right – Structural Deterioration to Bridge, 2008 (OBTF 2008)

NCDOT began repair projects on Bonner Bridge within three years of its completion in 1963; in the following decades, tens of millions of dollars were spent on maintenance and repairs. Pilings, threatened by erosion and scour, were reinforced in 1965 and 1978. Support pilings were added in 1978, again in 1981, and yet again in 1989. That same year, the erosion threat to the southern bridge terminus prompted the state to lift its long-standing ban on hardened structures along the ocean shoreline to construct a \$14 million terminal groin (rock jetty) to stabilize the southern shoulder of the inlet.

Policy Phase 1: 1990-2001

Policy Phase Preview: The bridge replacement created an opportunity for USFWS to break longstanding patterns and oppose future road maintenance within the Pea Island Wildlife Refuge. Within agency interactions, two distinct positions emerged that laid the groundwork for future coalition positions. The following discussion traces the development of those positions.

Strategies are discussed only in the sense that the choices made in this policy period influenced the strategic choices of the coalitions that emerged in later policy periods.

Context: Round up the Usual Suspects

As this case study opens, the scene is set: Bonner Bridge was built in the early 1960s using the best available information about the dynamic barrier island, inlet, and local conditions. The bridge was designed for a 30-year service life. By the early 1990s, salt water and air had penetrated the concrete and corroded the reinforcing steel. Tides and storms threatened to undermine the bridge pilings. Despite near continuous dredging, the navigation channel repeatedly shifted away from the navigation span, forcing boat traffic to pass under neighboring spans between pilings not engineered to withstand collisions. The current bridge could not endure indefinitely. The issue was not *whether* to replace the bridge, but *how* and *where*?

At this early stage, the cast of characters was predictable: NCDOT took the lead in initial bridge replacement planning, with FHWA supervising over its shoulder. The National Park Service controlled the northern bridge terminus as part of the Cape Hatteras National Seashore.

Likewise, the southern terminus lay within the Pea Island National Wildlife Refuge and was managed by the local Refuge Manager, a USFWS employee. Any bridge replacement would require a US Army Corps of Engineers permit for dredge and fill of waters of the United States.

A new bridge would cross a navigable waterway, requiring a permit from the US Coast Guard.

The key state agency was the North Carolina Division of Coastal Management (since reorganized as part of NC Department of Environmental Quality), which oversaw the North Carolina Coastal Area Management Act (CAMA) (Table 5.1).

Table 5.1: Lead Actors, Federal Agencies, and State Resource Agencies Active in Policy Phase 1

Lead Actors	Federal Agencies	State Resource Agencies
NCDOT FHWA	USFWS National Park Service US Army Corps of Engineers US Coast Guard US Department of the Interior	NC Division of Coastal Management

Familiar Opponents

Most of these groups were quite familiar with one another. Nearly every NCDOT maintenance project on NC 12 within the Refuge, routine or emergency, required a permit from the Refuge Manager. Likewise, the National Park Superintendent issued permits for roadwork within the Seashore. Those decisions were generally made by the local site managers, with the USFWS and National Park Service retaining final permitting oversight.

Familiarity did not lead to cooperation. In 1990, the bridge replacement was not the only debate surrounding Oregon Inlet. The State of North Carolina, US Army Corps of Engineers, US Coast Guard, and Department of the Interior were engaged in a longstanding dispute over plans to stabilize Oregon Inlet. When the Bonner Bridge was designed, engineers anticipated the inlet being stabilized with jetties within five years (NCDOT 2008). Thirty years later, the jetties were still in the planning stage. The project remained stalled in a mire of agency objections and numerous environmental impact statements. The Department of the Interior lodged one of the key objections to the jetties, refusing to issue permits based on findings that the plan was incompatible with the purposes and mission of both the National Seashore and the Refuge.

When initial planning for the Bonner Bridge replacement began, the stalled jetty debate was revived. NCDOT and FHWA both favored moving forward with the jetty project to stabilize the inlet beneath the bridge. The National Park Service and USFWS steadfastly opposed any inlet stabilization. The decades of disagreement over how to manage Oregon Inlet may have shaped the agencies' initial response to bridge planning.

Considering the Options

NCDOT initiated scoping for a bridge replacement feasibility study in early 1990. The feasibility study considered six replacement alternatives, including ferries, a tunnel, and a new bridge. After consideration, a bridge replacement built parallel to the old bridge was selected for analysis in the upcoming Draft Environmental Impact Statement (DEIS).

At this early stage, all parties agreed that the bridge must be replaced (NCDOT 1998). In October 1990, a hopper dredge struck the bridge during a storm, causing a span to collapse. For more than three months, Hatteras Island residents relied on emergency ferry service and generators for all supplies, transportation, and services. This emergency underscored the importance of the bridge as a lifeline for Hatteras Island. According to an Outer Banks Chamber of Commerce official, “[t]he bridge outage had a devastating impact on the people of Hatteras Island, no question about it” (Thiel 1991a). Another local agreed, telling a newspaper that the bridge collapse “made people realize the importance of tourism on the island. . . it really hit county officials how much revenue Hatteras Island contributes to the occupancy tax and the general fund” (Thiel 1991a). In 1993, the bridge sufficiency rating was 32.5 out of 100.

Despite the discontent in other agencies, NCDOT published the DEIS for a parallel bridge replacement in 1993. The DEIS was submitted to 13 federal and eight state agencies for formal comment, with additional copies sent to local government entities, civic and business groups, and environmental organizations. Two public hearings were held on the DEIS, where 31 out of 74 total attendees presented comments. NCDOT prepared a preliminary Final Environmental Impact Statement (pFEIS) in 1996, but this document was never formally signed or published due to permitting issues with USFWS.

Early Signs of Future Discord

In this early period, outlines of the future coalition positions were already visible, though the coalitions had not yet formed. The discussions were limited to agency interactions in regulatory consultations, with NCDOT and USFWS emerging as chief proponents of the two positions. The core positions developed during this period formed the foundation for later coalition debates. These proto-coalition positions were communicated through environmental impact studies and formal comments rather than persuasive narratives, but there are embedded indications of which issues were given priority.

NCDOT (Future Short Bridge Coalition) Position

NCDOT's position focused on replacing a critical transportation lifeline before it reached the end of its service life. NCDOT noted that the Bonner Bridge "provides the only highway connection of Hatteras Island and the mainland via NC 12" and that the bridge was constructed after the existing "ferry was unable to keep pace" with the traffic demand. "During the 1994 summer season, more than 7,900 vehicles crossed the bridge each day. The bridge is the only exit for

evacuation from Hatteras Island during major storms. Many residents of Ocracoke Island also evacuate via Bonner Bridge. The bridge also carries the island's electrical power and telephone lines" (NCDOT 1993, 1.1).

In 1990, NCDOT estimated the bridge had a service life of 12 years until major repairs would be required. By 1993, that estimate had dropped to six years. In a fanciful description, the NCDOT planner overseeing the bridge studies explained that she saw "this bridge lying in a hospital bed with its leg up in a cast and bandages all over it. It's still alive, but it's costing a lot of money to get it better again, and it's probably on Medicare and doesn't know where that money is going to come from" (Glass 1993).

Priorities

NCDOT acknowledged the necessity of factoring the dynamic physical environment into bridge planning; the official project purpose described the need to account for natural inlet migration and shoreline movement through 2050. The proposed bridge was designed "so it can continue to serve NC 12 easily, even if that road must be shifted because of shoreline erosion and overwash" (NCDOT 1993, 1.11). NCDOT recognized the need to accommodate the natural conditions, yet the planning documents were clear that this was not the only consideration. The pFEIS identified 23 "trade-off" factors for the bridge alternatives. The pFEIS seemed to indicate NCDOT's order of priorities. The ferry alternative was "substantially more expensive," would reduce traffic service, and require extensive dredging. The tunnel alternative "also would be substantially more expensive" and require excavation of the inlet bottom. The west bridge corridor would require a "substantially longer [crossing]. . . , would involve greater cost, and would result in more difficult

and less desirable connections to NC 12” (NCDOT 1998, S.3-S.4). The east bridge corridor would pose greater impacts to wildlife habitat while increased exposure to waves and currents would offset any cost savings. NCDOT’s choice of wording emphasized cost with a secondary focus on environmental interests, including dredging and habitat.

NC 12 Planning

NCDOT did not consider planning for the future of NC 12 along Pea Island to be part of the bridge project. Discussion about NC 12’s future did not feature prominently in the pFEIS (covering only pages 58-60 in the second chapter), with NC 12’s relocation omitted from the alternative bridge designs. NCDOT argued, both in the DEIS text and in response to agency comments, that the “need to replace Bonner Bridge is urgent . . . [and] it seemed unreasonable to tie the largely long term need of NC 12 with the clearly short-term need of replacing Bonner Bridge” (NCDOT 1993, 2.61). Instead, NCDOT reasoned that “[b]etter decisions related to the disposition of NC 12 near the Bonner Bridge could be made if it were studied as part of a comprehensive study of NC 12 rather than as a part of the Bonner Bridge replacement study” (NCDOT 1993, 2.58). They pointed to the 1993 creation of an interagency task force (OBTF) tasked with “develop[ing] a long range protection and maintenance plan for the Outer Banks’ transportation system” (NCDOT 1993, 2.62). Noting the time it would take for this new task force to produce recommendations, NCDOT argued that it was unreasonable “either to artificially accelerate NC 12 studies to conform with the urgency of the Bonner Bridge replacement or to delay the design . . . to meet the need for thoughtful consideration of the full range of NC 12 issues” (NCDOT 1993, 2.63).

During the formal commenting period, the USFWS suggested that a long bridge be constructed from Roanoke Island or the mainland to Rodanthe to avoid the Refuge. NCDOT dismissed such an alternative as “longer, more expensive, and [creating] a circuitous traffic circulation pattern” (NCDOT 2008, 8.12) for National Seashore visitors. This suggestion would reappear later in the policy debate.

USFWS (Future Long Bridge Coalition) Position

The separation of NC 12 planning and the bridge project was the central point of disagreement between the NCDOT and USFWS positions. The key agencies all agreed that the bridge required replacement. In formal comments, the National Park Service acknowledged that “a transportation link on the Outer Banks is essential and that the proposed Bonner Bridge replacement plan is the only likely means by which that link will be maintained for the near future. . .” (NCDOT 1993, C.66).

Various federal agencies and environmental groups disagreed with NCDOT’s decision to sever the bridge and road planning. The US Army Corps of Engineers’ formal comments deemed it “very unfortunate” (NCDOT 1998, C.54) that the timing of the bridge project and the OBTF long-term NC 12 planning could not coincide. The NC Chapter of the Sierra Club echoed this sentiment, advising that the “environmental impacts of replacing Bonner Bridge and relocating NC Highway 12 should be considered together instead of in a segmented or piecemeal fashion” (NCDOT 1993, C.93).

The Department of the Interior, speaking on behalf of the USFWS, took the firmest stance regarding coordination of the bridge replacement and NC 12 planning. As early as 1993, they laid out the position that would be the core of the future Long Bridge Coalition argument:

Replacing the bridge connection at Oregon Inlet will require future maintenance of NC 12 for the life of the bridge. In that period, the management options available to the Service to carry out its mission at the Refuge will be restricted, as they have been in recent years, by the recurring need to protect NC 12 from erosion and storm overwash. . . It is impossible to evaluate the future of Bonner Bridge without addressing the issue of NC 12 potential relocation. . . Replacement of Bonner Bridge will restrict alternatives to highway relocation for the life of the bridge. Now that the bridge needs replacing, it is also appropriate to study the highway's future (NCDOT 1993, C.45 – C.46).

In the same 1993 comment letter, USFWS formally proposed a long-term solution to the NC 12 issue that anticipated many aspects of the long bridge. “One way to remove NC 12 from the Inlet area would be to construct a bridge on pilings from Wanchese [Roanoke Island] to Hatteras Island” (NCDOT 1993, C.46). USFWS explained that such a bridge would meet traffic demand, accommodate island migration and sea level rise, avoid many navigation hazards, reduce dredging demands, and potentially provide both a shorter route to the mainland and a safer evacuation route, while also eliminating the need to maintain the engineered dune line and terminal groin on Pea Island.

In 1994, USFWS refused to concur with NCDOT's Section 4(f) analysis (required for federally funded road projects within the Refuge) that there were no “feasible and prudent alternatives” to keeping the bridge and NC 12 within the Refuge. In language that would reappear in future legal briefs, USFWS argued that the analysis failed to present a sufficiently rigorous examination of alternatives (NCDOT 1993, C.57). USFWS suggested that the FEIS and 4(f) analysis should not be issued until the OBTF completed its NC 12 analysis and made recommendations.

Other Voices

Though the bridge discussion was centered in agency consultations, some interested individuals shared their thoughts about the various proposals with the media. Although few, these comments provide a glimpse into conversations likely taking place outside of the formal process. Orrin Pilkey, a Duke University coastal geologist with extensive experience on the Outer Banks, was one of the most prominent voices. Pilkey deemed any plan to rebuild a bridge over the inlet as “just madness” (Glass 1991), and lent his support to a ferry system that could adjust as islands moved and sections of NC 12 were lost to erosion. A high-ranking NCDOT official dismissed ferries as “extremely undesirable” and “virtually cost-prohibitive” (Glass 1990), with such a limited capacity that they could not begin to meet demand. State Senator Marc Basnight (D-Dare) was unequivocal in responding, “If I’m around, they’re not going back to ferries” (Glass 1990).

Throughout the early 1990s, sporadic news articles about NC 12 provided a preview of arguments that would see widespread discussion in the following decade. The Roanoke Island to Rodanthe bridge formally suggested by USFWS in 1993 had entered public discussion early, with the Chairman of the Hyde County, NC Board of Commissioners publicly favoring exploring such a design as early as 1991 (Glass 1991). The suggestion met with a discouraging response from a NCDOT planner, who noted that a long bridge was “way beyond the scope of this project,” citing a ballpark cost estimate of \$380 million dollars (Glass 1991).

Following the announcement of a plan to add sandbags to storm-damaged NC 12 in 1992, the influential *Raleigh News & Observer* editorialized “It was the ocean, not man, that built these

glorious but fragile sand-spits, the ocean that ever since has moved them at its whim – and will move them again, no matter what puny men do with their puny machines . . . before NCDOT dumps a fortune in sand to seaward of NC 12, it should take a closer look at moving the road toward where the ocean will move the islands” (Raleigh News & Observer 1992).

General Strategic Choices

During this early period in the case study, the bridge discussion generally remained within formal agency interactions, which restricted strategic options. These interactions were mandated by statutes or regulations and generally followed established formats. NCDOT consulted unofficially with key agencies during the scoping process and submitted the DEIS and the pFEIS to the agencies for comment. The agencies, including USFWS, advocated their positions in their formal written comments, focusing on concerns particular to their regulatory missions. The language was formal, restrained, and professional. USFWS used their formal comments to indicate that NCDOT’s plan may be contrary to statutory and permitting requirements.

Summary of Phase 1

As Table 5.2 shows, the future Short Bridge and Long Bridge Coalitions differed in their narrative topics, but used the same general strategy in Policy Phase 1. NCDOT placed significant emphasis on the costs of various bridge design alternatives. While environmental concerns, by law, must factor into NCDOT’s analysis, it was already apparent that funding issues took priority. Most agencies accepted NCDOT’s selection of the parallel bridge, but the USFWS was already firm in its position that the bridge and NC 12 could not be analyzed separately and that the 4(f) analysis was insufficient.

Table 5.2: Narrative Issues and Strategies by Future Coalition, Policy Phase 1

	Future Long Bridge	Future Short Bridge
Lead Actors	USFWS	NCDOT
Narrative Issues	link between road and bridge restricting options in future	transportation needs design costs
General Strategies	agency procedures	agency procedures

Policy Phase 2: 2002-2003

Policy Phase Preview: The parallel bridge design that seemed settled at the end of the previous policy phase was completely set aside in light of new coastal engineering data. With the planning process reset, USFWS had an opportunity to use its permitting authority to steer the bridge corridor selection and incorporate NC 12 planning into the bridge project. This resulted in a long bridge design that bypassed the Refuge. Dare County officials responded by exerting political pressure to slow or reverse this longer bridge project.

Context: Back to the Drawing Board

At the close of 2001, NCDOT was arranging funding and working on permitting issues for the parallel bridge. The process had stalled in 1999 when the pFEIS was left unsigned due to a conflict over the USFWS Section 7 Endangered Species consultation, but construction was still

projected to start in 2006. A few months later, all of NCDOT's expectations were turned on their heads.

In late 2001, NC Senator Marc Basnight, then President Pro Tempore (highest ranking member) of the NC Senate, had used his political influence to accelerate bridge planning. After a meeting with the NCDOT Secretary, Basnight announced NCDOT's plan to "proceed as quickly as we can to construct a new bridge. It is not a matter of not being able to . . .the bridge has to be replaced" (Kozak 2001). These plans came to an abrupt halt a few months later when a new coastal engineering report predicted that areas near the planned junction of the bridge and NC 12 south of the inlet were at risk of washing away. This area, dubbed the "Canal Zone" for its banks of sand dunes on either side of the road, was experiencing an average erosion rate of six feet per year, with a higher rate of nine feet closer to the bridge. At its narrowest spot, there were just 115 feet between ocean shoreline and NC 12's pavement.

Faced with building a bridge that would connect to a road that could soon be washed away, NCDOT agreed to scrap its parallel bridge design. New bridge corridors would be designed, followed by a Supplemental Draft EIS (SDEIS), with planning coordinated through the new Merger Team process described in Chapter Four. This clean-slate planning process presented USFWS with an opportunity to use provisions of the National Wildlife Refuge System Improvement Act of 1997 (henceforth, 1997 Refuge Act) to possibly block construction of any bridge landing within the Refuge. Under this Act, the USFWS was directed to determine whether a proposed use (or project) was compatible with the mission of the Refuge before

issuing a Special Use permit. On that basis, USFWS advised that any bridge design that landed within the Refuge was unlikely to receive a permit.

With the parallel bridge off the table and USFWS's permitting restrictions in mind, the Merger Team identified two new bridge designs for detailed study in the SDEIS: (1) a six-mile bridge that would join NC 12 south of the Canal Zone "hot spot;" and (2) a 17-mile bridge through the Pamlico Sound that would avoid the Refuge entirely and rejoin NC 12 in Rodanthe. Both designs would avoid the high erosion area on northern Pea Island. The Merger Team officially selected the 17-mile bridge as the Preferred Alternative for study in summer 2003. The Dare County Board of Commissioners objected strongly to this plan, repeatedly expressing concern about its effect on public access to the Refuge. In late 2003, responding to political pressure, the Governor ordered a six-month hiatus on all bridge planning to address Dare County's concerns.

NCDOT and USFWS (Future Long Bridge Coalition) Position

NCDOT made a significant policy shift when the 1993 bridge design was scrapped in favor of new, longer alternatives. During this policy period, NCDOT's new position put it on the same side as USFWS. Whether this alliance reflected expediency or common priorities, it resulted in a long bridge design that ended in Rodanthe and completely bypassed the Refuge. The existing bridge and terminal groin would be removed. NCDOT's policy shift was a significant reversal of its previous position:

- In 1996, NCDOT had firmly indicated that the bridge replacement and NC 12 planning operated on two different time scales and should not be considered jointly

- In 2003, NCDOT and the Merger Team adopted joint planning for the bridge and the segment of NC 12 within the Refuge, concurring that (1) the project area should be extended south to Rodanthe [outside the Refuge] to avoid frequent overwash areas on NC 12, and (2) if the selected bridge alternative did not extend to Rodanthe, planners must consider a future bridge extension to Rodanthe (NCDOT 2005).

The new NCDOT and USFWS position emphasized compatibility with management of the Refuge. This is reflected in NCDOT's 2002 screening criteria for proposed bridge corridors, which directed that they should (1) be compatible with the Refuge management plan and 1997 Refuge Act; (2) be eligible for a non-impairment determination from the Park Service; (3) minimize impacts on multiple natural resources; and (4) be compatible with a potential longer bridge to the south or other long-term NC 12 solutions (NCDOT 2005).

In 2003, NCDOT explained in a bridge update newsletter that the 17-mile bridge "minimize[s] natural resource impacts and bypass[es] three locations on NC 12 regularly threatened by overwash" (NCDOT 2003, 1). By avoiding the Refuge and "hot spots," the long bridge presented a long-term solution for many NC 12 problems. In comparison, the shorter six-mile bridge "cost substantially less but had greater potential impacts to wetlands and waterfowl feeding areas. . . [and] may not be compatible with management strategies of the Pea Island National Wildlife Refuge" (NCDOT 2003, 1). The 17-mile bridge was chosen for further study based upon indications from USFWS that a long bridge was the only option that would receive required permits.

The long bridge plan would include removal of the 13-mile segment of NC 12 within the Refuge along with the terminal groin at the inlet. USFWS committed to providing alternative Refuge access, but maintained that the situation was too preliminary to determine the type of access. As the Refuge Manager explained in 2003:

The National Wildlife Refuge System Improvement Act, which is what we administer under, we manage for wildlife first but not to the exclusion of people, we manage our public so that it doesn't overly impact the wildlife. We want to have the public enjoy and utilize the Refuge. Agreed it's going to be a huge and different way, a huge challenge . . . there will always be public use as far as I know on portions of Pea Island . . . other Refuges handle people with trams to move people and minimize impact from a lot of vehicles (Dare County, NC Board of County Commissioners 2003a, 8).

NCDOT and USFWS justified bypassing the Refuge based upon its importance to migratory waterfowl habitat and migration. The shorter six-mile bridge would have landed in the Refuge, resulting in "valuable wildlife habitat [being] lost or severely impacted" (Bryant 2003, 1).

Beyond the effects on birds and habitat, USFWS also pointed out that a bridge bypassing the Refuge "makes the best economic sense and will have the best long-term sustainability – making this a more reliable transportation corridor" (Bryant 2003, 1).

USFWS and NCDOT (Future Long Bridge Coalition) General Strategies

USFWS used a strategy of working "within the system" in this policy phase, skillfully using its permitting leverage during the Merger Team meetings to significantly redirect the course of bridge and road planning. The 2002 reset on bridge planning gave USFWS the opening to apply pressure and persuade NCDOT to change course on both the bridge and the road.

At the end of Policy Phase 1 in 2001, USFWS and NCDOT held differing opinions on the connection between the short parallel bridge and NC 12 planning. NCDOT had dismissed

USFWS's earlier suggested 22-mile bridge from Wanchese to Rodanthe out-of-hand as "way beyond the scope of this project" and unduly expensive. NCDOT also firmly resisted calls to jointly plan for both the bridge replacement and NC 12. A year later, NCDOT had designed and endorsed a 17-mile bridge that completely avoided the Refuge and erosion "hot spots" on NC 12. This change of heart was apparently due to USFWS's timely application of permitting pressure.

When NCDOT agreed to start with a blank slate in designing the replacement bridge, USFWS had a prime opportunity to apply regulatory leverage. There were three regulatory "pressure points" for the bridge and NC 12. First, any roadwork outside the NCDOT easement required a USFWS Special Use permit. Second, under Section 4(f), any federally funded road project within the Refuge required planners to demonstrate that there was no "prudent and feasible" alternative and that the selected alternative minimized harm to Refuge. A failure to do so could result in legal action. Third, as a member of the Merger Team, USFWS could refuse to concur on the selection of alternatives or the designation of the Preferred Alternative. Such a refusal would require elevating the NEPA process to a Review Board for a final decision.

NCDOT would have recognized USFWS's power to stall any short bridge plans, so when the Merger Team favored a long bridge circumventing the problem areas, NCDOT concurred in the decision. The likely explanation for this is expediency. NCDOT's goal was to replace the bridge quickly, safely, and at a reasonable cost. The predicted erosion on northern Pea Island and non-negotiable permitting roadblocks restricted NCDOT's options. The bridge could not be built within the Refuge without USFWS permits; USFWS indicated that it would not issue those permits. The bridge replacement could not be postponed and re-negotiated indefinitely.

In the face of these constraints, NCDOT's only apparent option was to concede to building a bridge outside the Refuge. While this was a reversal of a long-standing position, it had the benefit of solving many of the NC 12 maintenance issues by bypassing the major erosion "hot spots." While permitting pressures may have limited their options, it is important to remember, in light of the controversy soon to follow, that NCDOT both designed and supported the long bridge corridor in 2002.

Dare County (Future Short Bridge Coalition) Position

The decision to eliminate the parallel bridge design in favor of a long bridge was made by the Merger Team without input from the public or local officials. As word began to circulate of the new plan, the Dare County, NC Board of Commissioners recognized that this plan would likely eliminate 13 miles of road access on northern Hatteras Island. This would restrict access to popular recreational beach areas and the fishing catwalk on the southern bridge terminus. The Dare County Commissioners took the lead in expressing surprise and disapproval of the new plan. Stan White, a County Commissioner, also served on the NC Board of Transportation; this increased the Board's access and influence in the debate. The Board consistently addressed the issue during its monthly meetings, referencing the importance of Refuge access to both the tourism economy and the local way-of-life. Their position was summarized in the following list of concerns presented to USFWS and NCDOT at a 2003 meeting:

- Access: Access to Pea Island National Wildlife Refuge must be maintained in a manner that permits the same use and enjoyment of the Refuge that exists today, including:
 - complete access twenty-four hours per day, seven days per week;
 - vehicular access on a paved, two-lane road (Highway 12);
 - preservation of the State's right to maintain and repair NC 12, even in the event of a full breach of the road.

- South Terminal Groin: The south terminal groin that currently gives some stability to Oregon Inlet, and that protects the beaches and habitat on the north end of Pea Island, the historic Coast Guard Station, and the prime recreational fishing areas must be preserved and maintained.
- Time Frame: The replacement bridge must be designed so as to be fully funded and constructed on a time frame that guarantees completion by 2010 (Dare County Commissioners 2003b, 1-2).

The Dare County Board of Commissioners was the most prominent voice in this period, but the mayors and councils of several northern Outer Banks communities expressed support for the County's position. A citizen surfing group, the "Pea Island Coalition," formed to oppose the long bridge plan. The group gathered over 700 signatures and letters with a petition reading, in part,

[N]o planned access to Pea Island north of Rodanthe is unacceptable to me. . . I would like to see . . . a commitment to a maintained 2 lane blacktop road that would be open 24/7 to the public. . . [the parties should] revisit the idea of replacing the current bridge with a bridge just to its west. This option would . . . save over \$130 million dollars on the bridge project . . . [T]housands of people utilize the recreational opportunities on Pea Island and not having this area available will assuredly crowd the other beaches. . . (Pea Island Coalition 2003).

Dare County (Future Short Bridge Coalition) General Strategy

The Dare County Board of Commissioners used a political strategy to oppose NCDOT's proposed long bridge. By May 2003, updates on the bridge project had become a standing agenda item at every Board meeting. In June 2003, the Board invited Refuge Manager Mike Bryant and a NCDOT representative to make a presentation and answer questions during their regular meeting. They used this opportunity to voice their concerns and get clarification of USFWS's and NCDOT's positions. At this time, the Commissioners' primary concerns were Refuge access and terminal groin removal. There was some division regarding acceptance of the long bridge, with most Commissioners opposing it. A few were willing to support the long bridge if access and groin issues were adequately addressed.

The Board also arranged a meeting on August 12, 2003 between local officials and USFWS and NCDOT staff in Manteo, NC to ask questions and share their constituents’ concerns (Table 5.3). While there were no immediate results from this meeting, the willingness of senior state officials and regional federal agency staff to attend demonstrates the political clout of the county Board of Commissioners. As mentioned previously, Commissioner Stan White was also serving on the state Board of Transportation. This allowed him greater political access in his dual roles, including meetings with NC Governor Easley and NC Secretary of Transportation Tippet to express his displeasure with NCDOT’s position on Refuge access and groin removal.

Table 5.3: Attendees at Meeting Between County Commissioners and Agencies– August 12, 2003, Manteo, NC

Federal and State Officials	Local Officials
NCDOT Secretary	Dare County Board of Commissioners
NCDOT Deputy Secretary	State Representative NC House District 2
USFWS Atlanta office representative	Staff Member – office of NC Senate President pro tem
Pea Island NWR Manager	Mayor Southern Shores, NC
2 staff members USFWS Raleigh office	Mayor Kill Devil Hills, NC
2 staff members NCDOT Raleigh office	
1 staff member NCDOT Edenton office	

The Board found an ally in Senator Marc Basnight (D-Dare). In Fall 2003, Senator Basnight sent a letter to the Governor that incorporated the Board's concerns as addressed in the August meeting with NCDOT and USFWS. Basnight raised additional concerns about long bridge funding difficulties and Refuge access. He concluded by expressing his hopes that the Governor would "take a personal interest in this project and see to it that the citizens of Dare County are heard. This is a very important project, Governor, in a community that contributes very strongly to our state's economy. It is only fair that their voices be heard and that their concerns be addressed" (Basnight 2003).

This combination of political pressure from the Board, a member of the state Board of Transportation, and the state's most prominent legislator was effective. In mid-September 2003, the Secretary of Transportation ordered a six-month halt to the bridge studies to allow Dare County officials the opportunity to develop an alternative bridge plan. While this was a noteworthy political concession, it also set a lofty goal for rural county officials: draft a plan that addressed local concerns, was fiscally responsible, environmentally sound, and described a route that could be permitted by USFWS.

Whether this was a token offer from NCDOT or not is debatable. What is less debatable is the outcome of an October meeting in Atlanta between Dare County officials, the NCDOT Deputy Secretary, and USFWS regional staff. As Commissioner White explained at the next Board meeting, USFWS officials were adamant that any bridge landing within the Refuge could not be permitted. The meeting minutes note that Commissioner White was "now convinced that USFWS has mandates that say that we cannot land that bridge anywhere except within the

existing right of way” (Dare County Commissioners 2003c, 4). This meeting showed that there were limits to political influence. Dare County’s political strategy yielded some results at the state level but was ineffective at the federal level in this policy phase.

Summary of Phase 2

In this policy phase, NCDOT reversed its previous position and designed a long bridge that would completely bypass the Refuge. This reversal was prompted by an engineering study that indicated that the planned parallel bridge terminus would face serious erosion problems in the near future. With NCDOT forced back to the drawing board, USFWS seized the opportunity to use its permitting authority to restrict the feasible options to a single design: a bridge that avoided the Refuge entirely. In response, the Dare County Board of Commissioners used political pressure to draw attention to the loss of road access to the Refuge and removal of the terminal groin. This political pressure had some results at the state level, but was unsuccessful in swaying the federal USFWS. Table 5.4 summarizes the differences between the two positions in Phase 2.

Table 5.4: Narrative Issues and Strategies by Future Coalition, Policy Phase 2

	Future Long Bridge	Future Short Bridge
Lead Actors	USFWS, NCDOT	Dare County Commissioners
Narrative Issues	link between road and bridge permitting issues	refuge access terminal groin quick replacement
General Strategies	permitting leverage	political efforts

Chapter Summary

In the first two policy phases, the coalitions had not yet emerged, but the core positions and strategies were already becoming apparent. USFWS remained consistent in favoring a long bridge alternative, expressing concerns that attempts to separate the bridge and road projects were short-sighted and would limit future road planning options. As circumstances forced a reset on bridge planning, USFWS built on its earlier agency strategy, using permitting leverage in Phase 2 to “persuade” NCDOT to change its position and support a long bridge.

The Future Short Bridge position saw remarkable evolution in this period. Initially, the short bridge was favored by NCDOT based on costs and the need for a quick replacement. When NCDOT reversed this position, the Short Bridge cause was taken up by the Dare County Commissioners, who changed both narrative and strategy tacks. Faced with opponents skilled in using agency and permitting leverage, the Commissioners relied on their own area of influence, using a political strategy to advance new arguments about Refuge access, the terminal groin, and the need for a speedy replacement. The next chapter explores how the “Future Short Bridge” and “Future Long Bridge” positions became the core of the coalitions that dominated the remainder of the case study.

Chapter Six: Findings and Analysis of Later Policy Phases (2004-2015)

This chapter focuses on the last half of the bridge debate when the two coalitions emerged and actively worked to influence the outcome of the bridge decision. Like the previous chapter, the policy phases are presented in sections. The Phase 3 and Phase 4 sections each open with a context discussion; then proceeds to an analysis of the Long Bridge Coalition positions, narratives, and strategies; followed by similar treatment of the Short Bridge Coalition; then concludes with a summary. The Phase 5 discussion, which covers the legal settlement where the coalitions were not active, is limited to a general discussion. The format is as follows:

- Policy Phase 3
 - Context
 - Long Bridge Coalition
 - Positions – Narratives – Strategies
 - Short Bridge Coalition
 - Positions – Narratives – Strategies
 - Summary
- Policy Phase 4
 - Context
 - Long Bridge Coalition
 - Positions – Narratives – Strategies
 - Short Bridge Coalition
 - Positions – Narratives – Strategies
 - Summary
- Policy Phase 5
 - Context and General Discussion

Policy Phase 3: 2004 – 2010

Policy Phase Preview: The coalitions formed as local and elected officials successfully lobbied to have a short parallel bridge design added to the environmental studies. USFWS continued to warn that a short bridge would not receive permits. NCDOT proposed multiple design variations in an effort to satisfy the permitting restrictions. As cost estimates climbed with each new environmental impact study, public interest in the issue grew. Each coalition continued its previous strategy while adding public outreach efforts. Ultimately, the short bridge was selected for construction.

Context: Alternatives, Supplements, and Hearings

As this policy phase opened, NCDOT found itself in a difficult position. The bridge replacement could not be delayed indefinitely, but the only design likely to receive USFWS permits was proving to be politically unpopular. During NCDOT's six-month planning moratorium, Dare County officials proposed several short bridge designs with a terminus on state-owned property adjacent to the existing easement. By avoiding a bridge terminus on Refuge property, the designs potentially eliminated the need for a USFWS compatibility determination and permit. They would also keep the existing NC 12 road access through the Refuge and, possibly, leave the terminal groin in place.

While NCDOT ultimately rejected the County's proposals after cost studies, it took the opportunity to reconsider the 1993 Parallel Bridge design. With some alteration, NCDOT noted that the 1993 version "could be designed and built so it would terminate within the state's

existing NC 12 easement. No new NC 12 right-of-way would be needed, so no Refuge compatibility determination would be needed” (NCDOT 2005, 2.56) for the bridge terminus. This plan would still need USFWS permits for any NC 12 maintenance within the Refuge.

This parallel bridge re-design appeared to sidestep the USFWS permitting roadblock. In a surprise move, the Merger Team agreed in October 2004 to add a parallel bridge design with an assortment of NC 12 maintenance options to the Supplemental Draft EIS (SDEIS). When the SDEIS was published, NCDOT and USFWS once again found themselves on opposite sides of the issue. The SDEIS cost analysis estimated the 17-mile bridge construction costs at around \$420 million (NCDOT 2005). The short parallel bridge had a significantly lower up-front cost (\$191 million) but similar or higher long-term costs over 50 years. USFWS warned that the proposed NC 12 maintenance options were unlikely to receive permits.

NCDOT was left to choose between a politically unpopular long bridge it could not afford and a shorter, cheaper bridge that would not receive the necessary permits. In 2006, NC Senator Basnight proposed an alternative “Balanced Approach” design, featuring a parallel bridge, with future bridges at the “hot spots” to be constructed within the existing easement as necessary. Around the same time, the newly appointed Secretary of the Interior suggested that the bridge and NC 12 be considered separately for USFWS permitting. This appeared to offer a way out for NCDOT: the deteriorating Bonner Bridge could be replaced with a parallel bridge while NC 12 planning continued separately. NCDOT prepared a new Supplement to the Supplemental DEIS (SSDEIS) to study Basnight’s proposed design.

The 2007 SSDEIS analysis of the newly renamed “Phased Approach” met with nearly unanimous objection from state and federal resource agencies. They argued that the plan would result in ongoing construction within the Refuge, with bridges eventually left standing in the surf. USFWS insisted that future NC 12 work would not be compatible with the Refuge and questioned the legal sufficiency of the Section 4(f) analysis. The Merger Team would not concur with the plan, forcing NCDOT to elevate the approval decision to a Merger Review Board. The Review Board overrode agency objections and selected the Phased Approach as the Preferred Alternative.

In 2008, NCDOT published the Final EIS analysis of both the long and short bridges with the short parallel bridge (Phased Approach) designated as the Preferred Alternative. USFWS and other resource agencies continued to voice strenuous objections to the plan, including the accompanying 4(f) analysis. During negotiations, a representative from EPA suggested that future NC 12 planning be deferred. Faced with key agencies’ clear opposition to the Phased Approach, NCDOT followed EPA’s suggestion and presented yet another short bridge proposal, featuring a parallel bridge with NC 12 project planning deferred for future analysis as erosion conditions changed. An Environmental Assessment (a less detailed review than an EIS) of this plan was published and met with the same objections from USFWS and other agencies. Despite the opposition, the 2010 Record of Decision identified the new proposal as the Selected Alternative. After seven years of non-stop planning, revision, and more planning, NCDOT ultimately chose a short bridge that it could afford but that was certain to face legal challenges in the near future.

Every one of this seemingly endless series of environmental studies required both public hearings and a formal notice and comment period. The back-and-forth between NCDOT and USFWS provided opportunities for interested parties to choose sides. The issue became highly visible and hotly debated. The coalitions formed into recognizable factions during this policy phase as the debate attracted new and vocal participants.

Long Bridge Coalition Position

As Phase 3 opened, Long Bridge supporters were taken aback by NCDOT's reversal and the inclusion of a short bridge alternative in the SDEIS. Up to this point, their arguments focused on permitting issues that would be persuasive to agency staff. Introduction of a competing design and increasing public attention needed a new presentation of the long bridge position that would be persuasive to a wider audience. This refined argument emerged as the Long Bridge Coalition formed.

The Long Bridge position first appeared in environmental advocacy groups' formal comment letters and was elaborated upon in public outreach efforts. The key issues were preservation of Refuge function, cost comparisons, the environmental consequences of NC 12 maintenance, transportation needs, politics, and altered Refuge access. The core Long Bridge argument could be, and frequently was, boiled down to a single sentence: "[A] long bridge that bypasses the sensitive Pea Island National Wildlife Refuge is the best option because it is safer, more reliable, more cost-effective and environmentally sound" (Defenders of Wildlife 2006b). A more detailed exploration of the issues central to the Long Bridge Coalition position follows.

Refuge and Barrier Island Processes

The long bridge proponents argued that NC 12 maintenance efforts caused ongoing harm to the Refuge, contending that Refuge concerns should take priority in the bridge debate. As an advocacy group noted, the Refuge “was established in 1937 (sic) and provides habitat for more than 365 species of migratory birds . . . [and] provides one of the last stretches of undeveloped Atlantic coastline in the U.S.” (Build The Long Bridge 2007c). Defenders of Wildlife explained that “[t]he continual fight to preserve NC 12 from overwash has seriously compromised the ability of Refuge staff to ensure proper marsh accretion, resulting in a diminution of the Refuge ecological integrity” (Defenders of Wildlife 2006c). Efforts to maintain NC 12 have “profound negative impacts on the Refuge’s diverse habitat types and associated wildlife species” (Build the Long Bridge 2007a). The harm caused by beach nourishment and engineered dunes was not balanced by successful road protection. Despite NCDOT’s best efforts, sections of NC 12 had been moved westward multiple times until they abutted wetland habitat areas. There was nowhere left to move the road.

Cost

The upfront cost of the long bridge was estimated at \$420 million in 2005. By 2007, this was revised upward to between \$1.01 billion and \$1.4 billion. This was significantly higher than the 2007 upfront costs of the short bridge, estimated between \$250 million and \$350 million (NCDOT 2007). Although coalition members questioned the accuracy of these figures, an advocacy group explained that “the long bridge option would save the state money over time by avoiding the millions of dollars in upkeep to continuously clear and maintain NC Highway 12 south of the proposed short bridge option” (Build the Long Bridge 2006a). They extended this

argument further, noting that, over the long term, the long bridge would actually be cheaper than the short bridge. Defenders of Wildlife explained, “In reality, the costs of maintaining NC 12 for decades to come will require hundreds of millions of dollars more in removing over-washed sand, repairing pavement, and spanning so called ‘hotspots’ with additional bridges” (Defenders of Wildlife 2006a).

Safety and Reliability

Safety and reliability were interrelated concerns for the Long Bridge Coalition, with traveler safety threatened by an unreliable road. They cited the frequent storm closures of NC 12, the primary transportation and evacuation route for Hatteras Island. Defenders of Wildlife noted that “[T]he long bridge option would completely avoid vulnerable sections of NC 12 that routinely wash out during storms, effectively stranding Hatteras Island residents and visitors in dangerous conditions” (Defenders of Wildlife 2006c). The long bridge would enhance resident and visitor safety by providing a “dependable method of travel, free from the threat of overwash and traffic disruption during storms and emergencies” (Defenders of Wildlife 2006b).

Politics

Coalition members pointed out the unanimous agency support for a long bridge in 2003. As one advocacy organization explained, “[e]xperts from 14 federal and state agencies spent years debating every aspect of the Bonner Bridge replacement, including safety, cost, and reliability. Their decision to pursue the long bridge option should be respected” (Build the Long Bridge 2006a). Coalition members accused political figures of disrupting this early accord. “Political pressure eroded the plan for the bridge” (Defenders of Wildlife 2010), with planning “brought to

a screeching halt by state and Dare County officials who intervened in the NCDOT approval process” (Southern Environmental Law Center 2008).

Local and state political officials were also accused of working against the public interest and engaging in deliberate deception. An advocacy group remarked, “Local politicians, including State Senator Basnight, are pushing the short bridge option despite the fact that it is not as safe, reliable, cost-effective, or environmentally sound” (Build the Long Bridge 2006b). They argued that NCDOT engaged in intentional misrepresentation in the SDEIS, presenting project costs over a 50-year period instead of the potential 100-year life span of the structures. They alleged this shorter time frame reduced the apparent cost of the short bridge, presenting a false basis for comparison with the upfront long bridge costs (Build the Long Bridge 2007b).

Refuge Access

The long bridge design would bypass the Refuge entirely, including 13 miles of NC 12. USFWS indicated that it wanted this portion of the paved road removed from the Refuge. They agreed that some form of public access must be provided, but deferred planning for alternative access until the final bridge decision was made. The Long Bridge Coalition cheered USFWS’s commitment to alternative access; some proponents suggested that NC 12’s removal would “drastically improve visitors’ experience on the Refuge by providing long-term protection for the wildlife and habitat that attract so many enthusiasts” (Build the Long Bridge 2007a). They argued that various short bridge designs would also limit Refuge access, since proposed future bridge designs did not include access points. The Southern Environmental Law Center (SELC) explained that, “The Phased Approach would interfere with fishing, surfing and other beach

activities and will severely limit and reduce access to the Refuge” (NCDOT 2008, B-276).

Finally, they noted that many other parks and Refuge areas were not accessible by road but were still used by the public.

Time

Finally, supporters of the long bridge referenced NCDOT’s tentative project schedules from 2003 in contending that short bridge supporters actually delayed bridge construction. In a letter to the Interior Secretary, multiple advocacy groups argued, “If the project had moved forward from [the 2003 Merger Team] agreement, all permits would have been issued in May 2006 and construction of the replacement bridge could have begun [in] August [2006]” (Defenders of Wildlife 2006c). In their view, short bridge supporters lengthened the process by introducing numerous bridge designs, each of which would require additional environmental analysis and still be unlikely to receive USFWS permits.

Long Bridge Coalition General Strategies

The Long Bridge Coalition continued the previous strategy of working within agency and regulatory channels, but supplemented those efforts with a public outreach strategy, using websites, newspaper commentaries, and advertising. They found allies in the editorial boards of several major regional newspapers. Despite some public mobilization in the early public comment periods, environmental advocacy groups were the primary voice for the coalition in this phase. Several prominent coastal geoscientists in the state entered the debate, arguing for the long bridge in newspaper guest commentaries and letters to the editor. Table 6.1 lists some of the

more visible coalition members. A discussion of the general strategies used by the coalition follows.

Table 6.1: Long Bridge Coalition Phase 3 - Prominent Members

Governmental	Environmental Advocacy Groups	News Outlets	Coastal Scientists
-Pea Island NWR staff	-SELC	-News & Observer (Raleigh, NC)	-O. Pilkey
-USFWS	-Defenders of Wildlife	-Fayetteville Observer (Fayetteville, NC)	-A. Coburn
-US Dept of the Interior	-National Wildlife Refuge Assoc.		-S. Riggs
	-Coastal Refuge Society		
	-Audubon NC		
	-Sierra Club (Cypress Chapter)		
	-Environmental Defense Fund (Raleigh, NC)		
	-Wilderness Society		
	-NC Coastal Federation (compromise)		

Permitting Authority

It is almost impossible to overstate the strategic importance of controlling the USFWS permitting for the bridge project. The long bridge design was a response to agency warnings that any shorter bridge landing within the Refuge would not receive necessary permits. Any project within the Refuge required a determination from the Refuge Manager that the use was compatible with the Refuge mission. This made the Refuge Manager a key figure in bridge planning.

Refuge Manager Mike Bryant’s role in encouraging the long bridge design was recognized when he received the 2003 Interior Department Environmental Achievement Award and the 2004 Paul Kroegel Refuge Manager of the Year from the National Wildlife Refuge Association and the

National Fish and Wildlife Foundation, respectively. The press release for the 2004 award cited his work on the Bonner Bridge replacement project as a key accomplishment (National Wildlife Refuge Association 2004). Bryant explained his role in the bridge planning process: “Rather than just sitting behind my desk and saying this not compatible, I crafted my rationale and went to them. I respect what they do. They have to maintain a road system. That isn’t easy. I have to maintain a wildlife Refuge” (Rawlins 2004). In 2003, it had appeared that Bryant’s negotiations had carried the day.

With NCDOT’s 2004 addition of a short bridge alternative in the SDEIS, Bryant’s permitting “veto point” again became a key consideration. The short bridge would keep NC 12 within the Refuge and USFWS’s permitting authority. The Deputy Refuge Manager said, “if they come to [Bryant] with the same alternative they presented to him in ’93, then he’s going to have the same opinion. We’re back to square one” (Kozak 2004).

USFWS and the Refuge Manager were also influential in the Merger Team, whose members had to concur at various stages for the planning process to proceed. USFWS, National Park Service, and the Refuge Manager were all Merger Team members. It is possible that the USFWS and Refuge Manager used the Merger Team meetings as an opportunity to make their case to other agencies. While this is only speculative, the Merger Team ultimately refused to concur on proceeding with the short bridge.

Formal Written Comments

Advocacy organizations in the coalition used the formal notice and comment period for each version of the EIS to varying degrees. The SELC submitted highly detailed legal arguments while larger national environmental organizations presented detailed comments about design specifics. Regional organizations submitted shorter and more general comments about Refuge importance, permitting issues, overwash and reliability, costs of NC 12 maintenance, and environmental degradation. A few organizations submitted letters for each round of planning, while others only commented on only one or two versions. As expected in formal commenting, these written comments followed a standard format and maintained a professional tone. There is no apparent coordination or planning in these comments (i.e. similarity in phrasing and topics). These formal written comments feature the coalition's most detailed discussion of science, though they focused more on the sufficiency of the EIS scientific data and monitoring than general scientific arguments supporting their position.

Public Outreach Efforts

The coalition credited politics for NCDOT's return to a short bridge design. As one advocacy group said, "We're surprised that DOT succumbed to political pressure" (Allegood 2004). The coalition responded to this political pressure with a public outreach campaign, presumably intended to sway public opinion and exert counter-pressure on politicians. In Fall 2006, a group of environmental advocates (SELC, Environmental Defense Fund, Audubon NC, Defenders of Wildlife, and Wilderness Society) formed a group called "Build the Long Bridge Coalition" (henceforth, BTLB). BTLB created a website with an issue overview page and multiple advocacy pages that presented the bridge as "more cost effective," "the safest choice," and a

means to “restore a wildlife Refuge.” BTLB also sponsored a radio ad presenting a new message that politics had unduly influenced the debate. The script is reproduced below verbatim to give a sense of the tone of these efforts:

MALE: Psst. Hey, wanna buy a bridge?

FEMALE: Some NC politicians have a bridge in the Outer Banks they’d like to sell you.
Don’t buy it.

MALE: But the Bonner Bridge is old and needs to be replaced.

FEMALE: We all agree on that. In fact, construction of a new, “long bridge” to connect Bodie Island with Rodanthe was proposed to begin this month, until a handful of politicians stopped it in its tracks.

MALE: Yeah, they say a short bridge will be cheaper.

FEMALE: Don’t buy it. The short bridge connects to NC 12, which gets washed out every time we have a major storm. It costs us taxpayers millions of dollars to clear year after year.

MALE: So over time, the long bridge will be cheaper?

FEMALE: Yes. So, if someone says they have a short bridge to sell you, don’t buy it. Get the facts at . . . Call Governor Easley’s office at . . . and ask him to replace the Bonner Bridge with the long bridge now (Build the Long Bridge 2006b).

The BTLB, Defenders of Wildlife (DOW), and SELC used their organization websites for public outreach. There was apparent coordination, both in phrasing and subject matter between organization websites. Some phrases were shared, sometimes verbatim, between websites. For example (*italics added to show similarity*):

- BTLB: “The need to replace the aging Bonner Bridge with the *safer, more reliable, more environmentally sensitive long bridge . . .*” (Build the Long Bridge 2006a).
- DOW: “A long bridge . . . is the best option because it is *safer, more reliable, more cost-effective, and environmentally sound*” (Defenders of Wildlife 2006a).
- SELC: “SELC pushes for *cost effective, environmentally sound solution*” to replacing Outer Banks bridge (Southern Environmental Law Center 2008).

Newspaper Commentaries and Editorials

The coalition used newspaper commentaries and editorials to reach a wider audience, occasionally adopting an argumentative and political tone in some newspaper commentaries, especially toward the end of this policy phase. The guest commentaries presented the usual arguments about cost, road maintenance, and environmental harm, but added allegations that special interests and Dare County officials were deliberately misrepresenting the facts to the public. For example, one scientist wrote “Misinformation and half-truths have been spread by special interests pushing one alternative over the other, and it’s no surprise that most people have a hard time separating fact from fiction” (Coburn 2005). Another guest commentary accused Dare County officials of blocking the long bridge in a self-dealing attempt to preserve both the terminal groin at Oregon Inlet and funding for another planned bridge in northern Dare County (the mid-Currituck bridge) (Pilkey and Coburn 2005).

Editorials by newspaper staff shifted in tone over the course of the policy phase. In early years, the editorials favored the long bridge but kept a neutral tone. For example, a 2006 News & Observer editorial described the short bridge as follows:

For all its soaring elegance, the Bonner Bridge is overdue for replacement. It has served Bankers and tourists well, but even a mighty bridge can withstand only so much battering by storms, collisions with vessels and pressures from the strong and ever-shifting currents of Oregon Inlet (Raleigh News & Observer 2006).

In 2007, the tone had shifted to more colorful and negative language, as the same newspaper labeled the bridge “a high-maintenance money eater” and a “maintenance nightmare” (Raleigh News & Observer 2007a). By 2010, the editorial staff wrote

Combine an aging bridge and an erosion-prone inlet plagued by some of the harshest tidal conditions on the East Coast with the thousands of island residents and tourists who must be evacuated ahead of hurricanes and you've got a formula for disaster, or at least a disaster movie (Raleigh News & Observer 2010).

This attitude shift carried over to descriptions of the bridge decision process. The short bridge was described in 2006 as “favored by many state and local officials, primarily because it would be faster and cheaper to build” (Raleigh News & Observer 2006). By 2007, the short bridge was potentially “the ultimate ‘bridge to nowhere’” (Raleigh News & Observer 2007b). In 2010, it became “the path of least resistance . . . that gets the immediate job done but which promises trouble – and more expense – down the road” (Raleigh News & Observer 2010).

Public Hearings and Comments

NCDOT was statutorily required to hold public hearings and accept written public comments for each version of the environmental impact studies. These hearings and comments provided both advocacy organizations and the general public the opportunity to be heard. The ACF policy framework used in this project does not usually include the general public in advocacy coalitions; here, the public's input was formally submitted as part of the debate. As such, public commenters are incorporated into the appropriate coalition.

Table 6.2 shows the number of comments by coalition members, broken down by date, forum, and speaker. The data shows a pattern of declining participation even as the policy debate became more public and heated. Comparing the comment periods for the

environmental studies (EIS or EA) that analyzed new alternatives, there was a 53 percent decline in submitted comments between the 2005 SDEIS and 2007 SSDEIS. There was an additional 60 percent decline in comments between the SSDEIS and the 2010 EA. Overall, organization staff submitted around 23 percent of Long Bridge comments, with the remainder coming from the public. No local officials submitted comments in support of the Long Bridge.

Miscellaneous Strategies

Coalition members attempted to use federal agency oversight to overturn the Review Board's 2007 designation of the short bridge as the Preferred Alternative. They requested that the White House Council on Environmental Quality (CEQ) review the adequacy of the environmental impact statement; the request was denied because the coalition members did not have standing to request a review. Coalition members also wrote letters to higher political figures, including US Senators and the President, in response to letters from the opposing coalition.

Long Bridge Coalition Narrative Strategies

In Policy Phase 3, the coalitions had emerged and were actively trying to influence policy outcomes through their choice of key issues and narrative strategies. With both coalitions producing unfiltered narrative statements of their positions, it is possible to track and compare these NPF narrative strategies at this point. The following section first examines key narrative issues, then examines the NPF strategy of assigning costs and benefits.

Table 6.2: Long Bridge Coalition Phase 3 – Numbers of Public Comments Sorted
by Speaker Category

	Organization Staff	Local Officials	General Public	TOTAL
2005 SDEIS Public Hearings	4	0	4	8
2005 SDEIS Comment Letters	5	0	30	35
2007 SSDEIS Public Hearings	2	0	1	3
2007 SSDEIS Comment Letters	3	0	14	17
2008 FEIS Comment Letters	3	0	2	5
2010 EA Public Hearings	0	0	0	0
2010 EA Public Comments	1	0	7	8
Total Comments	18	0	58	76

Choice of Key Issues

The Long Bridge Coalition made strategic choices to emphasize some issues more than others. These choices demonstrate both the differences between the coalitions and how they responded to changing events. Table 6.3 lists the topics most frequently mentioned in Long Coalition narratives in this policy phase, as well as typical examples of how those topics were discussed. The coalition devoted roughly equal attention to (1) addressing the Dare County Commissioners' 2003 concerns about Refuge access, (2) arguing that NC 12 was an unreliable transportation corridor because of barrier island processes, (3) comparing the long-term and short-term costs of both bridge plans, and (4) discussing the unlikelihood of a short bridge receiving permits. Other topics mentioned to a lesser degree included long-term versus short-term planning, agency roles, general environmental concerns, transportation, and the economy.

Assignment of Costs/Benefits (NPF)

The NPF narrative strategy of assigning costs and benefits is a way of expanding or contracting the policy issue. According to the NPF, a coalition that perceives itself as “losing” will portray an opponent’s policy as concentrating benefits on a select few while diffusing costs among a large group. In reverse, the “winning” coalition will depict its policy as delivering benefits to a diffuse group while concentrating costs on only a few individuals.

Table 6.3: Most Frequently Mentioned Narrative Topics - Long Bridge Coalition, Phase 3

Topic	Percentage of coded sources mentioning topic	Examples
Refuge Access	36% 43/120	<p>“Pea Island National Wildlife Refuge is mandated to provide access to the public. They can’t determine what type of access will be provided until public meetings, etc. are held” (NCDOT 2008, B.103).</p> <p>“The text overlooks the fact that those who do not return to visit the Refuge because of changes in access may be replaced by those who prefer the new means of access, relative isolation, and improved scenery and wildlife viewing opportunities afforded by the Pamlico Sound Bridge Corridor alternatives” (NCDOT 2008, A.17).</p> <p>“It is very likely that visitors to Pea Island National Wildlife Refuge will have a better quality and safer visit without the constant drone of vehicles whizzing by at high speeds traveling down the island on the way to other destinations” (NCDOT 2008, B.104).</p>
Barrier Island Processes	32% 38/120	<p>“Since Highway 12 obviously has a number of “hot spots” on Pea Island Refuge, keeping this open is not only expensive for the state, but potentially harmful for the Refuge” (NCDOT 2008, B-148).</p> <p>“The Refuge is subject to ocean overwash and high ocean shoreline erosion rate, inlet formation, and other impacts associated with large storm events, sea level rise and general barrier island dynamics” (NCDOT 2008, B.31).</p>

Topic	Percentage of coded sources mentioning topic	Examples
Reliability	32% 38/120	<p>“[The long bridge] seems to provide a more reliable travel route should NC 12 be covered by wind-blown sand, overwashed, flooded or breached by a storm north of Rodanthe” (NCDOT 2008, A.18).</p> <p>“What happens when a person has a stroke or heart attack and weather conditions won’t allow med flights? How many times have we heard that the first hour can make the difference in life or death? These folks can’t afford to wait for low tide or winds to decrease, or machinery to clear the roads” (NCDOT 2008, B.219).</p>
Cost	31% 37/120	<p>“The initial cost of constructing the Pamlico Sound Bridge is much higher than that of the parallel bridge. But the overall long-term costs of a parallel bridge greatly exceed those of the Pamlico Sound Bridge” (Pilkey and Coburn 2005).</p> <p>“In reality, the costs of maintaining NC 12 for decades to come will require hundreds of millions of dollars more in removing over-washed sand, repairing pavement, and spanning so called “hotspots” with additional bridges” (Defenders of Wildlife 2006a).</p>
Permitting	26% 31/120	<p>“It is our further belief that the Pamlico Sound Bridge Corridor options will be easier to move through the permitting process and, as such, will be better able to meet the urgent demands of the bridge replacement schedule” (NCDOT 2008, B.266).</p> <p>“The idea that you can segment the bridge from the road it connects is absurd. It puts off serious compatibility issues, i.e. moving Highway 12” (Kozak 2006).</p>

Table 6.4 shows how the Long Bridge Coalition assigned costs and benefits in its Policy Phase 3 NPF narratives. Again, if a narrative described a group as suffering the consequences or reaping the benefits of a policy, that group is included under costs or benefits, respectively. As this is specifically a NPF strategy, the analysis was limited to the NPF narratives subset. The coalition primarily identified diffuse costs for the short bridge, with the costs falling on taxpayers, Refuge function and habitat, and traveler safety. The coalition devoted little attention to identifying benefits of the short bridge; the benefits identified were concentrated on NCDOT and the local officials who wanted to preserve funding for the Mid-Currituck bridge. This pattern is characteristic of a coalition that perceives itself as losing and is seeking allies.

Table 6.4: Long Bridge Coalition Phase 3 - Assignment of Costs and Benefits

Costs of Short Bridge	Frequency	Benefits of Short Bridge	Frequency	Benefits of Long Bridge	Frequency
taxpayers (diffuse)	12	Mid-Currituck bridge (concentrated)	2	safety (diffuse)	4
Refuge (diffuse)	11	NCDOT (concentrated)	2	Refuge (diffuse)	3
habitat (diffuse)	10				
safety (diffuse)	6				

Other Narrative Strategies

The NPF literature suggests that coalitions may also identify policy surrogates or condensation symbols. Coalitions use a policy surrogate when they link the policy

subsystem to a larger policy debate, such as tying offshore windmills to energy independence. A condensation symbol is a form of symbolic shorthand, where a complex issue is reduced down to a phrase that most people immediately recognize and emotionally respond to, such as the “American Dream.” Here, the coalition did not appear to strategically use policy surrogates. There were a few references to local Refuge regulatory decisions affecting the management of the entire Refuge system, but this was not a clear policy surrogate. Likewise, the coalition did not use a condensation symbol strategy. Several comments invoked Alaska’s “Bridge to Nowhere” scandal, which could be considered a condensation symbol, but these were only sporadic references.

Short Bridge Coalition Position

The Short Bridge Coalition viewed the bridge issue from a strikingly different perspective. The central issue in their narratives was not *how* to replace the bridge, but rather *when* to replace it. The question was not which design was best, but which could be finished first? The coalition argued that the upfront costs of the long bridge exceeded the available funding and would delay construction for years. The short bridge, with its costs spread over decades, was presented as the only option that could be funded and constructed in the near future. Therefore, they preferred the short bridge.

The coalition formed around a central assumption that traveler safety should be the top priority. Any plan that delayed construction posed a risk to the lives and safety of residents and visitors. The long bridge was synonymous with indefinite delay. The coalition also expressed frustration with the speed of bridge replacement planning, noting

that it had been ongoing for more than a decade. They stressed that the bridge was part of the only road servicing the Hatteras Island communities. These arguments are examined in greater detail below.

Safety

Short Bridge Coalition advocates often noted that the Bonner Bridge was many years past its intended service life, with a bridge sufficiency rating of 2 out of 100. While this rating was due more to its projected service life than structural safety, the rating was seen as a sign that replacement could not be postponed. Delays posed “a clear and present safety issue for all concerned,” according to an advocacy organization (Replace the Bridge Now 2007b). As described by the Outer Banks Chamber of Commerce,

. . . each hour that passes puts disaster an hour closer. Our residents and visitors should be afforded a safe, reliable trip across the inlet. Our children should be able to travel to or from Hatteras Island so that they can go on field trips or to a routine doctor’s visit without fear of becoming a victim of a catastrophic bridge failure. Our residents don’t need to cross the bridge daily with trepidation (NCDOT 2010b, 103).

Along with routine travel concerns, the coalition pointed out that the bridge was the primary evacuation route. As the Replace the Bridge Now advocacy group noted, this problem was “greatly magnified when considering peak season populations estimated to reach over 50,000 some weeks on Hatteras Island” (Replace the Bridge Now 2007b).

Time

Coalition members were frustrated with the pace of the bridge project. As a resident commented in 2010, “Since 1990, study after study after study has been done on replacing

this bridge. . . [it] has been studied ad nauseum, and the sheer number of Environmental Impact Statements and their supplements and their supplements' supplements is simply ridiculous" (NCDOT 2010b, 89). The coalition largely blamed the delay on a "lack of cooperation by the US Fish and Wildlife Service and by an ominous cloud of threatened litigation by environmental groups" (Basnight 2010c).

The opposing coalition's ongoing insistence on the expensive long bridge was also seen as contributing to the delay. As Senator Basnight commented in 2005, the long bridge was "not fully funded, and would exhaust the [regional NCDOT] Division's total federal highway funds and state trust funds allocation for the next seven years" (NCDOT 2008, B.58). The long bridge was regarded as a project that would never be funded, so the Long Bridge Coalition's insistence on that option added pointless delay.

Transportation

According to the coalition, delays in replacing the existing bridge increased the likelihood that the main transportation route to Hatteras and Ocracoke Islands would be closed. Not only was NC 12 the designated evacuation route, it was the primary travel route for more than 4,000 local residents and 2.2 million annual visitors. If the existing bridge were closed, emergency ferry capacity could not handle the 5,000 vehicles that crossed the bridge each day on average, let alone the 10,000 daily vehicle crossings in peak summer season. A local resident explained at a public hearing that loss of the transportation route would affect "essential medical emergency services, mail service, logistical and supply

support, and the interruption of the reliable commercial electrical power” (NCDOT 2010c, line 1137).

Economy

Extending their transportation concerns, the coalition contended that the loss of tourism from a bridge closure would devastate Dare County’s economy. Citing statistics that Hatteras Island’s economy accounted for over 27 percent of the county’s occupancy taxes, coalition members predicted economic devastation if the bridge were closed (NCDOT 2008, A.79). They buttressed those arguments with recollections of the nearly four-month bridge closure in 1990. Aside from the loss of tourism income, re-routing and delay of trucks carrying groceries, building supplies, and other commercial goods would cause higher prices for goods and services for residents.

Opponents

To many within the coalition, the problem was the environmentalists’ and lawyers’ insistence on building an “unfundable” long bridge. This argument surfaced primarily in public comments and hearings. They expressed anger at the groups for keeping the debate alive, viewing the ongoing discussion as a pointless delaying tactic. As the NEPA process concluded, the environmental advocacy groups’ efforts to set aside the Record of Decision with agency appeals strengthened the resentment. Senator Basnight, in a 2010 letter to President Obama, wrote that coastal families’ heritage and livelihoods were threatened by “out-of-state and out-of-touch environmental groups whose ultimate goal is to remove all human activities from Hatteras and Ocracoke Islands” (Basnight 2010b). The Dare County

Board of Commissioners accused these groups of “circumvent[ing] the process to achieve their goals, to the detriment of the public” (Dare County Board of Commissioners 2007).

Cost and Access

Cost of the long bridge design featured frequently in narratives from Dare County officials, Senator Basnight, and the Replace the Bridge Now group. Descriptions of the long bridge as “unfundable” increased after 2007 when revised cost estimates put the up-front costs for long bridge construction over \$1 billion dollars. The coalition distinguished these sums from the comparable long-term costs of the short bridge, noting that the short bridge costs were spread over decades. Coalition members continued to express concerns about Refuge access, but to a much lesser degree than in Policy Phase 2. Public comments addressing access issues without identifying a bridge preference were not included within the coalition.

Short Bridge Coalition General Strategies

The Short Bridge Coalition membership included an array of politicians, citizens, grassroots groups, local civic groups, area business groups, local media, and visitors (Table 6.5). Generally, the Short Bridge Coalition should be read as a loose organization of private individuals, public officials, and organizations. NCDOT was, in some sense, both part of and outside of the coalition. NCDOT’s primary role was as a decision maker. Once the preferred alternative was selected, NCDOT shifted to defending that choice. At times, those efforts included media statements and advocacy. Coalition members

continued to pursue a political strategy, adding grassroots public mobilization to increase political pressure on decision makers.

Table 6.5: Short Bridge Coalition Phase 3 – Prominent Members

Governmental and Political Figures	Civic and Business Organizations	Local Advocacy Groups	News Outlets
-NCDOT	-Outer Banks Chamber of Commerce	-RTBN Citizens Action Comm.	-Outer Banks Voice
-FHWA	-Outer Banks Visitors Bureau	-BridgeMoms Facebook group	-Island Free Press
-NC Governors Easley and Perdue	-Outer Banks Board of Realtors		
-US Senators Hagan, Burr, Dole	-Dare County Marine Association		
-NC Senate President pro tem Basnight	-Outer Banks Association of Home Builders		
-various state legislators	-Mirlo Beach Homeowners Assoc.		
-Dare County Board of Commissioners	-Chicamacomico Livesaving Station Historical Site		
-various town boards and mayors	-Cape Hatteras EMC		

Recruitment of Political Officials

After its political strategy failed at the federal level in Phase 2, the coalition expanded its strategic recruitment of political figures to include both state and federal legislators. The Dare County Board of Commissioners reached out with letters to state and federal politicians, including the Congressional delegation, NC Attorney General, and NC Governor. This political outreach was effective, with NC Senators Burr (R-NC), Dole (R-

NC), and Hagan (D-NC) joining US Representative Jones (R-NC) and NC Governors Easley (D) and Perdue (D) in publicly supporting the short bridge. Governor Perdue communicated her support for the short bridge in a 2010 letter to the NCDOT. NC Senator Basnight (D-Dare) tried, unsuccessfully, to persuade President Obama, via two letters in 2010, to intervene in the bridge permitting dispute.

This political outreach strategy yielded results. In 2005, the North Carolina General Assembly passed a legislative provision expediting the state bridge project permits and expressing support for the short bridge. In 2006, US Senator Burr (R-NC) raised the issue of Bonner Bridge during the confirmation hearing for the incoming Interior Secretary. Three months later, the newly-appointed Secretary Kempthorne issued a letter advising that the short bridge could receive USFWS permits if the bridge and NC 12 were permitted as separate projects. Multiple political figures submitted written comments on one or more environmental impact statements during this policy phase, including NC Senator Basnight, NC Representative Spear (D-District 2), NC Governor Perdue, the Dare County Board of Commissioners, and the city councils of several Dare County communities. Additionally, NCDOT and the Dare County Board of Commissioners sent letters to several political figures in response to letters from the SELC.

Public Outreach Efforts

The RTBN Citizens Action Committee emerged in this policy phase as the most prominent public outreach group working to promote the short bridge. The group formed in 2006 as a grassroots effort, then was quickly brought under the umbrella of the Dare

County Board of Commissioners as an advisory committee. RTBN described its mission to “bring a human face to what we felt had become a stalled and detached scientific debate over the bridge replacement” while promoting both the replacement of the bridge and maintenance of the entire NC 12 corridor as “a sustainable and viable transportation link” (Replace the Bridge Now 2013). When the RTBN group became an advisory committee, it established a website intended to serve as an information hub to counter misinformation and rumor. RTBN initially expressed neutrality, favoring whichever design could be completed the quickest. By 2007, they favored the short bridge as the fastest replacement option.

The RTBN website included a timeline, fact sheet, and news updates. These materials maintained a fairly neutral tone, focusing on the age and safety of the Bonner Bridge, traffic demand, and the economic importance of Hatteras Island tourism. The site also featured advocacy materials, including sample letters to Congress and “Speaking Points.” The tone of these materials was less neutral, urging lawmakers to support those “desperately working to save the lives of those who must travel across this bridge” because “without an expedited replacement schedule, we feel we are another tragedy waiting to happen” (Replace the Bridge Now 2007a). These materials expressed frustration with bureaucratic delays, arguing that residents “are losing confidence in some of our government officials to act responsibly” (Replace the Bridge Now 2007a).

A second local advocacy group, the BridgeMoms Facebook group, was formed in 2010. Organized by a prominent member of the RTBN, the BridgeMoms shared information and

updates on the bridge project and road issues. The group described its purpose as “gi[ing] voice to the fears and concerns of the mothers who have children on Hatteras Island and Ocracoke Island whose well being is dependent on the lifeline of Herbert C. Bonner Bridge” (BridgeMoms 2010). This group mobilized letter-writing campaigns, but was a latecomer and less active than RTBN.

Newspaper Letters to the Editor

The coalition’s newspaper access in this policy phase was limited to sporadic letters to the editor. Time was a central theme running through these letters. The writers attributed delays in planning and construction to agency and advocacy group obstruction. Again, the long bridge was described as impossible to fund and the cause of ongoing delay and hazard. Senator Basnight wrote a 2006 open letter to newspaper editorial boards addressing, in part, the role of USFWS in the bridge delay:

It is simply incredible to me that one single federal agency can stall this project for years, and potentially force us into the position of building a bridge that we don’t want, can’t afford (and in fact, do not even have enough funding to construct), and threaten our ability to fully enjoy lands that the public owns and which are an integral part of our economy and indeed, our heritage. And yet, this appears to be exactly the case (Basnight 2006).

In a 2007 letter to the editor, Beth Midgett of the RTBN similarly chastised political leaders as “more interested in political posturing than in the urgent need of the people behind this debate” (Midgett 2007).

Jim Trogdon, transportation planning director for the NC General Assembly, wrote a 2007 guest column in an Outer Banks online newspaper discussing the long bridge funding

problems. He described the long bridge as “a classic example of an unreasonable and unfeasible alternative . . . if approved, it would have been a project that could never have been built.” He concluded that, “Despite all efforts to endorse the goodness of the long bridge in the Pamlico Sound, it is an alternative that guarantees that the Bonner Bridge will not be replaced – except following catastrophic failure, under an emergency contract and where it currently stands” (Trogon 2007). Senator Basnight echoed this sentiment in a 2010 letter to the editor, arguing that, “Construction cannot begin until the funding is secured, so a replacement will be delayed indefinitely if we continue advocating for the long bridge” (Basnight 2010a).

Public Hearings and Comments

Short Bridge Coalition members actively participated in the public hearing and comment periods for each environmental study, with participation increasing over time. The public participated to a greater degree than organizations or public officials, with a RTBN grassroots campaign producing a record number of written public comments for the EA (Nolan 2010). In 2010, the EA received 3,970 written comments favoring the short bridge; most were form letters, but 863 unique written comments were sent individually or appended to form letters. This was a remarkable increase over the previous environmental studies, which saw comment totals in the double digits. This increase was largely due to the efforts of RTBN’s volunteers. Beth Midgett of RTBN described these efforts in her public hearing comments: “In the midst of the summer heat, these volunteers turned out to do a face to face and talk with people at fish fries, community events, church gatherings, grocery stores, local businesses, and door-to-door” (NCDOT 2010c, line 799).

Table 6.6 depicts this coalition public comment activity. Unlike the Long Bridge Coalition, which saw large declines in participation throughout the policy phase, the Short Bridge Coalition saw a 24% decline in numbers of comments between 2005 and 2007, and a remarkable 5,549% increase in 2010 that reflected the RTBN grassroots letter campaign. While the massive public comment response skews the results of calculating the percentage of comments from organizations and elected officials, it is worth noting that all comments from elected officials favored the short bridge.

The public comments reflected the usual short bridge focus on the risks of continuing to rely on the existing bridge. They referenced the bridge's age and safety rating along with the economic and transportation consequences of a bridge collapse before the replacement was built. By 2010, a common refrain in hundreds of written comments was "enough is enough" and "build the bridge now!"

Short Bridge Coalition Narrative Strategies

Choice of Key Issues

As discussed previously, the two coalitions differed in the issues they chose to emphasize in their narratives. Table 6.7 lists the topics most frequently mentioned in Short Bridge Coalition narratives in this policy phase, along with typical examples of those discussions. The coalition devoted the greatest attention to the safety threat from delaying the bridge replacement and the length of time spent on planning. A secondary set of topics focused

on (1) the importance of the bridge to the transportation system and economy and (2) expressing anger at the opposition.

Table 6.6: Short Bridge Coalition Phase 3 – Numbers of Public Comments Sorted by Speaker Category

	Local Civic & Business Groups	Elected Officials	General Public	TOTAL
2005 SDEIS Public Hearings	3	1	16	20
2005 SDEIS Comment Letters	3	2	19 +50 form letters	74
2007 SSDEIS Public Hearings	3	3	22	28
2007 SSDEIS Comment Letters	1	0	42	43
2008 FEIS Comment Letters	0	1	9	10
2010 EA Public Hearings	8	6	27	41
2010 EA Public Comments	5	5	863 + 3,097 form letters	3,970
Total Comments	23	18	4,145	4,186

Table 6.7: Most Frequently Mentioned Narrative Topics – Short Bridge Coalition, Phase 3

Topic	Percentage of coded sources mentioning topic	Examples
Safety	42% 398/954	<p data-bbox="651 447 1317 590">“I hold my breath when we cross the bridge for fear that it might be our vehicle that is the first to ‘take the plunge’. Please take this replacement issue more seriously!” (NCDOT 2010b, 64)</p> <p data-bbox="651 632 1317 774">“To undertake another study and further litigation puts the safety of citizens who use the bridge on a daily basis and the visitors to Hatteras Island at risk” (NCDOT 2010b, 94).</p> <p data-bbox="651 816 1317 989">“I support the construction of the new bridge as outlined as soon as possible and hope the federal government can be convinced of same before the bridge falls and people are killed or hurt” (NCDOT 2010b, 176)</p>
Time	37% 356/954	<p data-bbox="651 1068 1317 1283">“It is time to take action. A decision must be made, NOW. The Bonner Bridge replacement must begin, NOW, before tragic circumstances occur. PLEASE stop the delays. Make a decision on which span to build and build it” (NCDOT 2008, B.229).</p> <p data-bbox="651 1325 1317 1577">“Enough with the studies, enough with the delays, and enough ignoring the men and women who make their livings because of the deteriorating Herbert C. Bonner Bridge. The time for studies has passed. Environmental groups have had 20 years to gather data, and if they do not have enough now, they never will” (NCDOT 2010b, 90).</p> <p data-bbox="651 1656 1317 1829">“I want to comment that I have attended meetings for over 15 years and seen many changes in administrations with the only result being more meetings. We need some action and need it now” (NCDOT 2010b, 33).</p>

Topic	Percentage of coded sources mentioning topic	Examples
Transportation	17% 166/95]	<p>“Not only does this structure provide the sole means of access to and from our homes and to medical care, but the power lines that provide us electricity and the phone/data lines that connect us to the outside world run under it” (NCDOT 2010b, 76).</p> <p>“The bridge is our everyday highway to transport kids for shopping, school events, sports, and entertainment, and non-everyday activities such as doctor’s appointments and trips to the Emergency Room. Again, you know that there is no way that we could accomplish this with a ferry system when the 10,000+cars per day (summer) would be shifted to a system that could accommodate merely hundreds of cars” (NCDOT 2010b, 148).</p> <p>“[W]e consider the replacement of the Bonner Bridge to warrant the highest possible NCDOT priority. It is our only link to the mainland. In storms and when medical emergencies arise, the bridge is vital to our health, welfare, and safety” (NCDOT 2010e, 443).</p>
Economy	17% 164/954	<p>“We own a store that is totally dependent on the bridge not only for transporting all our products here but for also transporting 80% of all our customers here” (NCDOT 2010e, 503).</p> <p>“Please, our livelihood is dependent on tourism, and without an easy way to get here, the tourists won’t come” (NCDOT 2010d, set 17 of 33, 88).</p> <p>“While safety and convenience are important considerations, the pivotal role of the bridge in our economy must not be overlooked. The survival of the Ocracoke and Hatteras economies depends upon free access from the upper regions and the mainland” (NCDOT 2010b, 52).</p>

Topic	Percentage of coded sources mentioning topic	Examples
Opponents	13% 125/954	<p>“While I may be “preaching to the choir” all of us realize that the pendulum has gone too far in the direction of the environmentalists. For environmentalists and people like the Environmental Law Center to control the lives of all of Hatteras Island citizens as well as the millions of visitors wishing to come to enjoy Hatteras Island is unconscionable and fundamentally wrong” (NCDOT 2010b, 163).</p> <p>“I would like to direct several comments to the Southern Environmental Law Center and the Audubon NC. How dare you sit in your homes and offices in Chapel Hill, NC and dictate an issue of health and safety for the residents of Hatteras Island and Dare County?” (Judge 2007)</p>

Assignment of Costs/Benefits (NPF)

The Short Bridge Coalition’s assignment of costs and benefits in this policy phase is shown in Table 6.8. The coalition depicted diffuse costs for the long bridge plan, with residents, the local economy, and taxpayers likely to suffer. The coalition described only a few concentrated benefits of the long bridge, aiding the SELC and environmental groups. Like their opponents, this pattern indicates that the coalition perceived itself as losing.

Other Narrative Strategies

While the coalition occasionally used colorful language, the strategic use of condensation symbols was marginal. They did refer to “bureaucrats” in a number of coalition narratives,

but this is questionable as a condensation symbol. Likewise, they made several references to the 2007 collapse of the I-35W bridge in Minneapolis. At the time, the collapse would have been a vivid symbol to many people. There did not appear to be strategic use of policy surrogates, although a few narratives did describe the long bridge plans as attempting to deprive the “common” “working man” of access to the ocean and beaches.

Table 6.8: Short Bridge Coalition Phase 3 - Assignment of Costs and Benefits

Costs of Long Bridge	Frequency	Benefits of Long Bridge	Frequency	Benefits of Short Bridge	Frequency
safety (diffuse)	21	SELC & environmental groups (concentrated)	4	taxpayers (diffuse)	3
economy (diffuse)	13	Refuge (concentrated)	1	residents (diffuse)	3
residents' welfare (diffuse)	11				
taxpayers (diffuse)	6				

Policy Phase Summary

The coalitions emerged and assumed their broadest membership in this policy phase as the multiple rounds of environmental impact statements and increasing cost estimates attracted public attention. The Long Bridge Coalition continued to work within agency channels and appeals, but also initiated public outreach efforts to recruit support to pressure decision makers. The Short Bridge Coalition continued its political strategy,

recruiting state and federal elected officials. They also coordinated a grassroots public campaign that produced a record number of public comments in 2010. Both coalitions depicted diffuse costs and concentrated benefits, indicating a “losing” strategy and an effort to recruit allies (Table 6.9).

Table 6.9: Summary of Narrative Issues and Strategies by Coalition, Policy Phase 3

	Long Bridge Coalition	Short Bridge Coalition
Lead Actors	USFWS environmental advocacy groups	NCDOT elected officials civic and local organizations
Narrative Issues	reliability and safety cost comparisons altered Refuge access politics	safety risks of delay duration of planning transportation and economy opponents
General Strategies	permitting leverage outreach	political efforts outreach
Cost/Benefit Assignment	costs: taxpayers, Refuge, habitat, safety benefits: mid-Currituck bridge, NCDOT	costs: safety, economy, welfare, taxpayers benefits: environmental groups, Refuge

Policy Phase 4: 2011-2014

Policy Phase Preview: In this policy phase, the Long Bridge Coalition filed a federal lawsuit seeking to overturn the Record of Decision, arguing that the multiple rounds of NEPA analysis and the 4(f) analysis were inadequate. The two coalitions shifted their primary narrative focus, with the Long Bridge Coalition criticizing the NCDOT plan and the Short Bridge Coalition accusing their opponents of deliberately delaying bridge construction, putting lives and welfare at risk. After losing in the US District Court, the SELC appealed the ruling, setting off a remarkable exchange of personal attacks by coalition leaders.

Context: Civil Suits and Uncivil Comments

After the Record of Decision was published in 2010, the bridge debate was quiet until the SELC filed a federal lawsuit in July 2011 on behalf of the Defenders of Wildlife and National Wildlife Refuge Association. The lawsuit alleged that the FEIS and EA were inadequate and violated NEPA by improperly segmenting, or separating, the bridge and NC 12 projects. Further, they argued that the Section 4(f) analysis improperly deemed the long bridge to not be a “feasible and prudent alternative” to road construction within the Refuge.

NCDOT expressed frustration with the lawsuit, but continued with bridge planning, awarding a \$216 million contract for bridge construction in August 2011. That same month, Hurricane Irene breached Hatteras Island in four places. The largest breach required installation of a temporary bridge. The Long Bridge Coalition took the opportunity to again suggest either a long bridge or high-speed ferries as a solution. After Hurricane Sandy struck a glancing blow to the Outer Banks in 2012, leaving Highway 12 buried under sand and overwash in several areas, the coalition again suggested NCDOT reverse course on the short bridge.

In 2013, the US District Court ruled in favor of NCDOT and FHWA, finding both the NEPA Environmental Impact Statements and the 4(f) analysis adequate. NCDOT praised the decision, noting that SELC had raised similar claims in a pending state suit. Construction could begin upon resolution of those claims. Plans were put on hold, though, when the SELC appealed this ruling to the Fourth Circuit Court of Appeals. A few months later, a very public war of words broke out between the two coalitions over the appeal. In August 2014, the Court of Appeals ruled that the NEPA analysis was adequate, but remanded the case back to the District Court for further review of the 4(f) analysis.

Both sides claimed a partial victory. NCDOT announced that “the Fourth Circuit said the environmental studies and Record of Decision are complete and valid” (NCDOT 2014) and noted that the Section 4(f) analysis had been remanded for further review to a federal judge who had previously found the analysis adequate. The SELC, in turn, focused on the 4(f) analysis, saying that “The U.S. Court of Appeals for the Fourth Circuit today ruled that the NC Department of Transportation and Federal Highway Administration have a duty to provide and disclose to the public a long-term plan . . . [and] minimize harm to the Refuge and fully assess alternative solutions to NCDOT’s current plan . . .” (Southern Environmental Law Center 2014a). Despite each side claiming partial victory, they faced an uncertain result on remand. Their partial victories were also partial defeats. The two sides chose to enter into settlement negotiations in August 2014.

Long Bridge Coalition Position

The Long Bridge Coalition's positions on core issues were consistent in this policy phase, even though the order of priority shifted. Their narratives addressed reliable access, barrier island harm, ongoing costs of NC 12 maintenance, and politics, with the tone of the arguments shifting over time as the coalition responded to its opponents. After NCDOT issued its Record of Decision, the coalition filed a legal suit and shifted its focus to issues raised in the court filing. For most of the policy phase, coalition statements focused on attacking NCDOT's plan rather than promoting the long bridge.

Reliable Access

The coalition stressed that NCDOT's plan to build a series of bridges along NC 12 as conditions warranted would leave travelers dependent on "the same unreliable highway through the same narrow, exposed stretch of a shifting barrier island" (Youngman 2012). Overwash and/or island breaches from winter storms and Hurricanes Ida (2009), Irene (2011), and Sandy (2012) reinforced their argument that NCDOT's plan would not ensure a reliable transportation route to Hatteras Island. As Defenders of Wildlife explained, "The proposed NCDOT project would replace the existing Bonner Bridge over Oregon Inlet without a long-term plan to address the frequent washouts, breaches, and floods along the twelve miles of NC 12 . . . [S]torms and high tides regularly over wash NC 12 and cut off access to the mainland for residents, businesses and tourists for weeks at a time" (Defenders of Wildlife 2014). The coalition continued to suggest either the long bridge or a system of high-speed ferries to bypass high-erosion areas within the Refuge.

Barrier Island Erosion and Migration

The coalition also argued that NCDOT's plan failed to account for the ongoing erosion and westward movement of the island. Following Hurricane Irene in 2011, several additional coastal scientists joined the coalition in arguing that efforts to maintain NC 12 on Hatteras Island were both futile and harmful to the island itself. As one coastal geoscientist explained, "[w]hat we've done with that beach ridge, the sandbags and the road, is give those islands a death sentence" (Tennant 2013). The coalition described NCDOT's plan for continued beach nourishment and dune maintenance as reckless and short sighted. They argued that erosion and westward island migration would leave the new bridges in the surf and, eventually, the open ocean. A SELC attorney argued that, "[I]ike Alaska's 'bridge to nowhere,' this plan will create North Carolina's 'bridge you can't get to' as the island continues to erode" (Defenders of Wildlife 2011).

Cost

Coalition members viewed the short bridge and NC 12 maintenance plan as fiscally irresponsible. After Hurricane Irene breached the island in several places, a coalition scientist dismissed repair efforts as "just filling those holes in the road with money" (Zucchini 2011). The SELC questioned NCDOT's fluctuating cost estimates, alleging that they were manipulated to prevent a fair comparison of costs and benefits. They cited more recent data that revised the long bridge costs downward and suggested that funding could be diverted from the proposed mid-Currituck bridge in the northern Outer Banks. In 2013, the lead SELC attorney seemed to suggest that NCDOT was acting in bad faith:

After local political opposition redirected NCDOT to favor the short bridge, NCDOT increased its estimate of the cost of a longer bridge just four years later, from \$260 million to \$929 million to \$1.4 billion, and NCDOT declared it unaffordable. Last year NCDOT staff again estimated the cost of a long bridge at

a low of \$569 million and a high of \$629 million. Not satisfied with lower numbers from its own staff, NCDOT hired a consultant for a new estimate, which came in at over \$1 billion. The SELC repeatedly suggested an independent assessment of the actual cost of a long bridge not afflicted by political motivation. NCDOT refused these requests (Carter 2013b).

Long Bridge Coalition General Strategies

Venue Shifting

NCDOT's issuance of the Record of Decision in 2010 opened the door for court challenges to the legal sufficiency of the process and analyses. The coalition opted to file a federal lawsuit, thereby shifting the venue from agencies to the courts in hopes of a different outcome. As an SELC attorney explained, "[t]he court will ultimately resolve this. DOT may dismiss [coalition concerns], but the court will ultimately resolve the legal claims" (Rocky Mount [NC] Telegram 2011b). This venue shift was likely always planned, but could not occur until the Record of Decision was issued.

The SELC filed its federal lawsuit in July 2011. As described in their Complaint:

Instead of preparing an adequate analysis of alternatives to the Project and the cumulative impacts of the Project as a whole, the Defendants piecemealed the Project into separate segments and issued a Record of Decision approving a selected alternative for the project in violation of NEPA. In addition, the selected alternative for the Project will violate Section 4(f) by requiring construction through the Refuge (and "use" of Refuge lands) even though feasible and prudent alternatives exist that will not use the Refuge, and by failing to sufficiently plan to minimize harm to the Refuge (Southern Environmental Law Center 2011, 2).

The lawsuit asked the US District Court to set aside the Record of Decision and issue an injunction requiring the NCDOT to comply with NEPA and Section 4(f). The SELC also turned to the state administrative courts in 2012 and 2013, challenging the NC Coastal Resources Commission's issuance of state CAMA permits for the project. In 2013, the US District Court

ruled in favor of NCDOT and FHWA. The SELC and its clients chose to appeal the ruling to the Fourth Circuit Court of Appeals. This decision earned a quick and harsh response from the Short Bridge Coalition, setting in motion a war of words in the media that may have influenced public opinion but was irrelevant to the legal venue where the decisions would be made.

Public Outreach

The Record of Decision signaled the end of the NEPA process for the Bonner Bridge, meaning there were no more public hearings or written comment periods. The coalition continued its public outreach efforts through organization websites, but concentrated its primary effort on newspaper editorials, guest commentaries, and press releases. Just as in the previous policy phase, SELC attorneys and coastal geoscientist Orrin Pilkey submitted multiple guest commentaries for publication in state newspapers. The editorial boards of several newspapers published numerous editorials supporting the coalition's positions and legal actions. The contentious newspaper exchanges between the SELC and high-ranking state officials after the appeal are described in further detail in a following section.

Long Bridge Coalition Narrative Strategies

Choice of Key Issues

Table 6.10 lists the coalition's key issues in Policy Phase 4, along with typical examples. The Long Bridge advocates shifted their narrative focus in response to their opponents'

positions. The coalition had focused considerable effort in the previous phase on responding to the Dare County Commissioners' 2003 concerns about Refuge access, while the Short Bridge Coalition had already shifted its attention elsewhere. In Phase 4, the Long Bridge Coalition again tracked its opponents, dropping Refuge access as a primary topic. The coalition now stressed the importance of a reliable transportation route free of overwash and flooding, countering the Short Bridge Coalition's Phase 3 safety arguments. Overall, the coalition pursued a new strategy of attacking NCDOT's preferred plan, alleging it could not provide reliable long-term transportation on a barrier island prone to overwash and breach without incurring unreasonable costs.

Table 6.10: Most Frequently Mentioned Narrative Topics – Long Bridge Coalition, Phase 4

Topic	Percentage of coded sources mentioning topic	Examples
Reliability	45% 26/58	<p>“The concept from the beginning was that replacing the bridge at its current location would not meet the objective of providing reliable transportation between the two islands because if those areas overwashed or new inlets formed, you couldn’t get to the bridge” (Tennant 2013).</p> <p>“NCDOT admits its proposed bridges will end up in the ocean, and the people of Hatteras Island will continue to be stranded by NCDOT’s poor planning for decades to come” (Southern Environmental Law Center 2013d).</p>
Barrier Island Processes	31% 18/58	<p>“Instead of constructing a safe, reliable route that would serve North Carolinians for the next 50 years, NCDOT is pushing a piecemeal plan for NC12 that ignores the basic problem: this stretch of highway continually washes out because the island is eroding out from underneath it” (Southern Environmental Law Center 2013b).</p> <p>“Storms, erosion, washouts, and breaches will continue to disrupt transportation along NC12 in the Refuge. NCDOT still has no long-term plan to maintain access to and from Hatteras Island” (Southern Environmental Law Center 2013a).</p>

Topic	Percentage of coded sources mentioning topic	Examples
Cost	29% 17/58	<p>“NCDOT says it can’t fund a Pamlico Sound bridge upfront, but that claim doesn’t hold water. NCDOT is planning to fund and build multiple phases of its own plan simultaneously, using unspecified sources, for an up-front cost comparable to that of a Pamlico Sound bridge, without addressing any of the erosion-prone areas along NC 12” (Torrey 2012).</p> <p>“Now NCDOT contends a Pamlico Sound bridge is unaffordable. But its estimates of the cost of long bridge vary wildly: \$260 million in 2003, up to \$1.44 billion in 2007, and as low as \$569 million and as high as \$1.1 billion in 2012. NCDOT has refused our repeated requests for an independent cost assessment” (Carter 2013a).</p>

Assignment of Costs and Benefits

Table 6.11 shows the coalition’s assignment of costs and benefits in Phase 4. They continued to describe the short bridge as imposing diffuse costs on taxpayers, travelers, and the Refuge’s habitat and wildlife. The short bridge benefits were portrayed as concentrated on developers, business owners, and property owners. This pattern continues to indicate that the coalition perceived itself as losing.

Other Narrative Strategies

Again, the coalition did not adopt a strategy of using policy surrogates or condensation symbols. The recurring phrase of “permanent construction zone” appeared four times in

coalition narratives and comes the closest to being a condensation symbol. There were no policy surrogates.

Table 6.11: Long Bridge Coalition Phase 4 - Assignment of Costs and Benefits

Costs of Short Bridge	Frequency	Benefits of Short Bridge	Frequency	Benefits of Long Bridge	Frequency
taxpayers (diffuse)	13	developers and business (concentrated)	4	taxpayers (diffuse)	1
travelers (diffuse)	10	property owners (concentrated)	2		
Refuge and wildlife (diffuse)	8				

Short Bridge Coalition Position

The Short Bridge Coalition also maintained its positions on core issues, but shifted the emphasis to expressing frustration with the length of the planning process. They directed anger and resentment towards environmental groups and attorneys, who were seen as prolonging an approval process that had dragged on for too many years. The coalition continued to dismiss the feasibility of the long bridge or high-speed ferries based on cost projections.

Opponents

In this policy phase, prominent coalition figures began explicitly blaming environmental groups and lawyers for the perceived delay in bridge replacement, especially after the SELC filed its

federal lawsuit. This marked a change from the last policy phase, where members of the public expressed similar resentments in public comments and hearings, but high profile coalition members limited their ire to agency “bureaucrats.” Following SELC’s appeal in 2013, the gloves came off. Coalition members argued that the environmental groups and lawyers were needlessly prolonging the process to increase their visibility and gain donations and supporters. Some in the coalition viewed the legal action as a means of circumventing the outcome of 20 years of NEPA proceedings. They argued that environmental groups and the SELC were intentionally delaying bridge construction and recklessly endangering both residents and visitors to suit their own purposes. The Chairman of the Dare County Board of Commissioners shared this sentiment. “I cannot believe the SELC and Defenders [of Wildlife] are gambling with people’s lives in this great country. This is a safety issue, and their claims are preposterous. All I’ve got to say is shame on them” (Rocky Mount [NC] Telegram 2011a).

Time

The coalition adjusted its message regarding time, giving less emphasis to the duration of the bridge planning process and instead stressing the age of the bridge and the increasing likelihood of its closure before a new bridge was completed. As a NCDOT spokesman explained in 2013, “Something could pop up on a moment’s notice that would require its closing. We’re in a race against time” (Waggoner 2013). A 2011 newspaper editorial offered a similar warning that “The state has pushed its luck long enough. It’s past time to start building a replacement” (Greensboro [NC] News & Record 2011). There was an increased sense of urgency throughout the policy phase.

Cost

The coalition continued to argue that upfront costs of the long bridge made it unaffordable and unfeasible. A NCDOT official reiterated that construction costs for the long bridge would “require spending the entire NCDOT budget for this 14-county region for ten years on a single project” (Trodden 2012). As litigation delayed replacement, a new argument emerged focusing on the ongoing costs of maintaining the Bonner Bridge. As an editorial pointed out, the NCDOT was spending “about \$300,000 a year on maintenance and repairs on the existing bridge” (Virginian-Pilot 2011).

Short Bridge Coalition General Strategies

The coalition’s strategies of using political pressure and public mobilization to sway decision makers were less apparent after the Record of Decision was issued. With the bridge selection completed, the coalition was generally inactive until the SELC filed its federal lawsuit in 2011. The more prominent coalition members spoke to the media about the lawsuit, but remained relatively passive until the SELC appealed the U.S. District Court’s ruling. That appeal, which further delayed the start of construction, prompted a vigorous media offensive by high-ranking political figures within the coalition, including the NC Governor and the NC Secretary of Transportation. As mentioned above, the highly visible debate that ensued is discussed in a following section.

Short Bridge Coalition Narrative Strategies

Choice of Key Issues

The issues emphasized by the coalition in its NPF narratives reflect a general shift toward criticism of its opponents, with 49 percent of narratives singling out the SELC and environmental groups for prolonging the delay in replacing the Bonner Bridge. Once the Record of Decision was signed, the Long Bridge Coalition's legal tactics were the only thing delaying construction. Accordingly, the coalition dropped its focus on safety to concentrate on its opponents' motives, their role in the ongoing delay, and the costs of continuing to repair Bonner Bridge. Table 6.12 shows the most common coalition topics and examples.

Assignment of Costs and Benefits

Again, the coalition described the long bridge as imposing diffuse costs, with taxpayers, travelers, the economy, and residents all suffering from its opponents' ongoing insistence on a long bridge. They portrayed benefits from a long bridge as concentrated on those who wanted to make Refuge access more exclusive as well as helping fundraising efforts for environmental groups. Again, this pattern shows a coalition that perceives itself as losing. Table 6.13 shows the coalition's assignment of costs and benefits in this policy phase.

Table 6.12: Most Frequently Mentioned Narrative Topics – Short Bridge Coalition, Phase 4

Topic	Percentage of coded sources mentioning topic	Examples
Opponents	49% [38/78]	<p>“Look, if bird worshippers want to turn Hatteras into an uninhabited barrier island accessible only to strong swimmers or those with boats, they should buy the land and do it. Barring that, they should take their extreme agenda elsewhere and let the Outer Banks thrive. And to thrive, there must be a bridge” (Dougherty 2013).</p> <p>“... [the SELC and clients] are willing to use their vast amounts of money and power to distort the truth for their own selfish purposes. Instead of working with the local community and playing a productive role in the development of a replacement to the Bonner Bridge, they have merely tried to block every attempt at improving the safety and efficiency of access to Hatteras Island” (Midgett 2013).</p>
Time	29% [23/78]	<p>“We have been more than patient by playing by the rules and allowing this to work through the system, but enough is enough. The federal judge has ruled. Whatever we need to do to get this bridge started, we will do. Time has run out” (Kozak 2013).</p> <p>“The appeal will mean further delay in building a parallel bridge to replace the current bridge, which is already 30 years beyond its expected life cycle and in constant need of repair and maintenance to keep it safe for travel (NCDOT 2013b).</p>
Cost	22% [15/78]	<p>“We’ve spent enough taxpayer money already, fixing the old bridge. And it’s time to build a new one” (Siceloff 2013).</p> <p>“The long bridge would cost about \$1.15 billion in taxpayer money to build. That is not a financially viable option, nor the most efficient way to get this project done” (NCDOT 2013a).</p>

Other Narrative Strategies

The coalition did not appear to use policy surrogates in this policy phase. At the end of the policy phase, prominent political figures in the coalition used the phrases “ivory tower elitists” and “liberal elitists” to describe the opposing coalition. This phrase may function as a condensation symbol, but it was only mentioned twice in coalition narratives. Such limited use makes it more likely that this was a colorful turn of phrase by individuals rather than a strategic choice.

Table 6.13: Short Bridge Coalition Phase 4 - Assignment of Costs and Benefits

Costs of Long Bridge	Frequency	Benefits of Long Bridge	Frequency	Benefits of Short Bridge	Frequency
taxpayers (diffuse)	12	restricted Refuge access (concentrated)	4	n/a	n/a
travel safety (diffuse)	6	SELC & advocacy group (concentrated)	3		
economy (diffuse)	5				
residents (diffuse)	5				

Shift in Coalition Interaction

For much of the Bonner Bridge case study, the two coalitions behaved like debaters on a stage. Each used the available forums to explain their positions and persuade the audience of policy makers and the public that their side was correct. Following the 2010 Record of Decision, the debate grew heated. To extend the analogy a bit further, the two debaters were clearly growing

frustrated with one another, alternately making increasingly pointed remarks through clenched teeth, but never directly engaging with and attacking one another. That all changed in Fall 2013 when the SELC appealed the US District Court ruling. The hint of things to come could be seen in dueling press releases from the NCDOT and SELC on October 1, 2013.

SELC: NCDOT's insistence on this outdated route for NC12 has gone beyond the impractical to the absurd. The agency itself has acknowledged that erosion will undo the time, labor and expense of this futile project in less than a decade. There are sustainable alternatives that provide reliable transport and protect the Refuge at the same time (Southern Environmental Law Center 2013b).

NCDOT: The additional stall tactics of the SELC continue to put a strain on taxpayer money and our ability to keep this vital lifeline open for the people of eastern North Carolina and the millions of visitors who travel to the area each year. As the federal judge's ruling confirmed last month, NCDOT cares about the economy, the environmental impact, and the people in all that we do (NCDOT 2013b).

The turning point was the December 3, 2013 emergency closure of the bridge after routine scanning indicated that scour was undermining bridge pilings. The sudden closure alarmed locals and triggered an outpouring of blame from both sides in the following days. The first volleys came at a press conference by public officials held the day after the bridge closure. A selection of comments is presented below.

- Dare County Commissioner Warren Judge described the bridge closure as “a manmade disaster” and called on the people to “stand with us and tell these special interest groups that have stalled, delayed, and obstructed the replacement of this bridge that they need to stop. They need to put this down” (Judge 2013).
- NC Representative Tine (D- District 6) also called on the public to contact the “special interest groups that have put us in this situation” (Tine 2013).

- NC Senator Cook (R-District 1) was less diplomatic, expressing his frustration at the “stupidity of what these environmental nuts have been doing to us down here. This has got to stop. This is insane. . . . We have let overzealous environmental folks . . . delay a bridge for twenty years. . . . I call for the Southern Environmental Law Center to give it up. You’ve done enough damage. Quit” (Cook 2013).
- NC Board of Transportation member Malcolm Fearing asked the SELC to “look within yourselves, look deep within yourselves and to see what you’re doing. I know you’re committed to this cause of the environment, I believe that. But are you right? Is it about winning, or is it about doing the right thing?” (Fearing 2013)
- Department of Transportation Secretary Tata emphasized the US District Court’s ruling that NCDOT had complied with all legal requirements in the bridge planning. To him, the appeal showed the SELC’s “lack of concern and contempt for the people” of the Outer Banks. He described the SELC as:

an organization that pretends to care about the environment. What they care about is winning . . . They’re ivory tower elitists down here that, I don’t even know if they have been here. They are ivory tower elitists who file these lawsuits from their air-conditioned offices in Chapel Hill or Charlottesville or wherever. And they do so with their lattes and contempt and chuckle while the good people of the Outer Banks are fighting hard to scratch out a living here based on tourism and based on access (Tata 2013).

The SELC responded the next day with a press release blaming NCDOT and county officials for the closure, implying that NCDOT acted for political purposes:

NCDOT’s inability to secure all the necessary permits for its faulty plan to build a new bridge in the same unstable location is delaying construction of any new bridge. In 2003, NCDOT and the Secretary of Transportation warned Dare County officials that if they pushed for a replacement plan that could not receive the necessary permits, it “will only cause further delay.” But NCDOT noted that to get what they wanted, Dare County officials were “willing to take the risk that Bonner Bridge might deteriorate to the point that it would be closed to traffic.”

One way around these continuous problems is a more reliable and safer bridge through the Pamlico Sound . . . We were surprised to see the Bonner Bridge closed so suddenly, without warning to the public after the bridge had been declared safe for travel just days before. SELC has submitted a public records request seeking information regarding NCDOT's abrupt decision and the reasons behind it (Southern Environmental Law Center 2013d).

The following day, December 6, saw a flurry of public statements and exchanged letters, all closely followed by the media. Governor McCrory joined Dare County officials at a press conference at the Outer Banks, offering the following remarks:

The Bonner Bridge was a thirty-year bridge, it is now in its fiftieth year. The construction of a new bridge is two decades too late at this point in time. And we are being blocked by groups, including the Southern Environmental Law Center, who I don't think have the best long-term interests of our state and especially this area in mind and especially the citizens in this area. And right now I'm asking for public support to convince the Environmental Law Center and other groups that have signed on to the lawsuit against North Carolina to tell this group to get out of our way, and do what's good for the public interest of North Carolina, the public interest for the safety of our citizens, and the public interest of saving jobs and creating jobs for this area. Get out of the way (McCrory 2013).

The SELC responded by publicly releasing a letter to the Governor, saying:

[W]e find it disingenuous and irresponsible that you have chosen to aggressively, publicly, and inaccurately blame environmental organizations for this bridge closure. As a result of your urging, we have been at the receiving end of multiple threats based on misinformation you have provided. . . If objections from the Dare County Commission and local political leaders had not derailed [the 2003 long bridge] proposal, construction was scheduled to begin in 2006 with completion of a new bridge three years ago in 2010. The current bridge problem would have been avoided, and a long range solution in place" (Southern Environmental Law Center 2013c).

Later that same day, the Governor and Secretary of Transportation responded with a letter to the SELC Board of Trustees and clients asking them to immediately withdraw their appeal and all other legal challenges. The letter read, in part:

Continued delays of the construction of a new bridge and the remainder of NC 12 will jeopardize the health, education, safety, welfare, and economy of the citizens

of Hatteras Island. You and your organization are responsible for these delays and should consider yourselves accountable for the impacts to the people of Hatteras Island and the taxpayers of North Carolina (McCrory and Tata 2013).

NC Senate President Pro Tempore Berger (R-Rockingham) and NC House Speaker Tillis (R-Mecklenburg) joined the fray, issuing a joint statement condemning the SELC's "frivolous lawsuit" as only another episode in "their scheme to agitate the left and raise funds for an extreme, fringe agenda – this time, at the expense of Northeastern North Carolina's economy. We'd expect no less from liberal elitists from Chapel Hill and Charlottesville who want to turn the Outer Banks into a private nature retreat they can visit on the weekends" (Berger and Tillis 2013).

Following this wave of criticism, SELC supporters jumped to their defense. A NC League of Conservation Voters newsletter asked, "What do you do when you're stalled in the courts on a major transportation project? If you're Governor Pat McCrory, you launch a personal attack against the citizen conservation group that's challenging you" (North Carolina League of Conservation Voters 2013). The *News & Observer* editorial staff argued that the Governor "has chosen to pander to the short-term needs of Outer Banks business interests," and argued that "[t]his demagoguery is bad on its own, but it's even worse for being inaccurate. There's nothing elitist or extreme about the long bridge option" (Raleigh News & Observer 2013).

NC Policy Watch, a political advocacy group, responded to Secretary Tata's remarks with similar personal attacks. An opinion piece in a Durham, NC newspaper noted that "it's a really bad idea for rich guys with big salaries, big houses, big offices, big staffs and big cars who live in big, swanky homes to lambast committed advocates with whom they disagree. . . as latte-

sipping, air-conditioned elitists” (Schofield 2013). They accused the administration of deflecting blame and resorting to “theater and hyperbole” to cover their lack of understanding of the issue.

Amidst this highly charged back and forth, there were guest commentaries from each side purporting to lay out the facts to correct “inaccuracies” in opponents’ statements. A few cooler heads on editorial boards acknowledged fault on both sides and called for an end to the bickering. This burst of rhetorical activity ceased almost as abruptly as it began. Lasting roughly a month, this interlude peeled back the veneer of civility to expose strong undercurrents of anger, resentment, and contempt between the coalitions.

The sudden flare of insults is intriguing from a strategic level. The Short Bridge Coalition encouraged its supporters to contact the SELC to urge them to drop their appeal. The likelihood of such efforts succeeding was highly doubtful. The war of words played out entirely in a public forum. At that point, the bridge decision had moved beyond political figures and agencies to the federal courts. An appellate court in Virginia would make the decision months later, without public input. This public exchange of insults and blame was brief, but was a noteworthy deviation from the coalition patterns established in previous years.

Policy Phase Summary

In this policy phase, the two coalitions maintained their core positions on the issues, but took more aggressive stances regarding their opposition. The Long Bridge Coalition’s decisions to shift the venue to the courts with a lawsuit and appeal led to accusations from the opposing coalition that they were deliberately delaying replacement of the deteriorating bridge for their

own purposes. The Long Bridge Coalition took the offense, criticizing NCDOT’s plan both in the media and the courts. Both coalitions viewed themselves as losing, portraying their opponents’ plan as imposing diffuse costs and concentrated benefits. The Policy Phase ended with the coalitions entering settlement negotiations. Table 6.14 summarizes these positions.

Table 6.14: Summary of Narrative Issues and Strategies by Coalition, Policy Phase 4

	Long Bridge Coalition	Short Bridge Coalition
Lead Actors	environmental advocacy groups	elected officials
Narrative Issues	reliability barrier island processes cost comparisons	opponents duration of planning bridge getting older
General Strategies	venue shifting to courts media outreach	media outreach
Cost/Benefit Assignment	costs: taxpayers, travelers, Refuge and wildlife benefits: developers, business owners, property owners	costs: taxpayers, safety, economy, residents benefits: restricted Refuge access, environmental group fundraising

Policy Phase 5: 2015

Context: Finding a Middle Ground

Policy Phase 5 saw a negotiated resolution to the bridge dispute and practically no public coalition activity. In Phase 4, SELC and NCDOT had agreed to enter into closed settlement

negotiations following the appellate ruling in 2014. The US Court of Appeals had found that NCDOT's environmental studies satisfied NEPA requirements, but remanded the case back to the District Court for further review of the Section 4(f) analysis. The outcome of that review was uncertain. While the Appellate Court ordered another review, the same lower court judge had already found the 4(f) analysis adequate in the first analysis. If NCDOT prevailed, the SELC would gain no concessions. If the SELC prevailed on the 4(f) analysis, the bridge landing and road maintenance within the Refuge would not be allowed, meaning NCDOT would possibly have to start over with bridge planning. The prospect of further litigation and delays loomed. Each passing day meant further delay in replacing the deteriorating Bonner Bridge, increasing the chances of the bridge being closed to traffic. These all served as strong incentives to negotiate a settlement.

The two sides entered into closed negotiations in September 2014. They issued a joint statement at the outset of negotiations, with NCDOT remarking, "We remain committed to building a new parallel bridge over the Oregon Inlet to ensure the safety of Outer Banks residents and visitors. We have been in conversations with the SELC about the Bonner Bridge project for more than a year and believe these recent proactive discussions are a positive step toward a permanent solution" (Southern Environmental Law Center 2014b). The SELC agreed, saying "We are continuing to work together with NCDOT to resolve this matter with a reliable, long-term solution that ensures the safety of the traveling public and avoids the problems that currently threaten NC 12" (Southern Environmental Law Center 2014b).

No further statement was made by NCDOT or SELC during negotiations. In February 2015, the two sides requested the appointment of a federal court mediator to facilitate negotiations. In June 2015, NCDOT and SELC jointly announced a settlement on the bridge project, touting an agreement that would allow “NCDOT to replace the aging Herbert C. Bonner Bridge over Oregon Inlet with a new parallel bridge. Under the agreement, NCDOT will also consider options that would move vulnerable portions of NC 12 out of the southern half of Pea Island National Wildlife Refuge and into Pamlico Sound” (NCDOT 2015b).

Each side emphasized different aspects of the settlement. NCDOT explained “the settlement agreement will allow NCDOT to provide a safe and reliable bridge for thousands of residents who rely on this lifeline to get to work, school, and healthcare and for millions of visitors who travel to the Outer Banks every year” (NCDOT 2015b). The SELC was “pleased that NCDOT and its partner agencies will consider additional options for NC 12 that will provide safe, reliable transportation by avoiding the areas where erosion and washouts shut down the road in its current location. This is a win-win for the Refuge and everyone who relies on NC 12” (NCDOT 2015b).

SUMMARY AND COMPARISONS

Twenty-five years elapsed between the first scoping efforts for replacement of the bridge and the final agreement on the bridge design and route. Within that period, two sides emerged, first as factions within formal agency interactions, then as advocacy coalitions with stable positions and clear strategies. The Long Bridge Coalition used the USFWS’s permitting authority to

advantage, succeeding in getting the long bridge selected as the only corridor for further study in 2002. In response to this “behind the scenes” agency strategy, the Short Bridge Coalition formed around the Dare County Commissioners’ successful efforts to use political pressure to add a short bridge design to the environmental studies.

Once the multiple rounds of environmental studies commenced, the Long Bridge Coalition focused its arguments on the reliability and long-term cost savings of moving NC 12 off of the migrating barrier island within the Refuge. The Short Bridge Coalition countered with arguments that the upfront costs of the long bridge were unaffordable, meaning the bridge would not get built. This would force residents and visitors to continue to travel over a deteriorating bridge. This reliance on a bridge decades beyond its service life risked the safety of travelers and the tourism economy of Hatteras Island.

The coalition memberships differed significantly, with the Long Bridge Coalition largely consisting of environmental advocacy groups, agency personnel, coastal scientists, and newspaper editorial boards. The Short Bridge Coalition included local, state, and federal elected officials, local civic and business organizations, local grassroots advocacy groups, and many residents and visitors. In keeping with these differing memberships, the coalitions opted for different general strategies, with the Long Bridge Coalition relying primarily on permitting authority, agency influence, venue shifting, and media outreach. The Short Bridge Coalition used a political strategy, recruiting politicians and mobilizing the public to exert political pressure on decision makers through the NEPA public comment process. The two coalitions, interestingly, used the same NPF narrative strategies, describing the opposing plan as imposing costs on many

while concentrating benefits on a select few. This suggests that both coalitions viewed themselves as ‘losing’ the debate. Neither coalition used condensation symbols or policy surrogates as a strategy. The coalitions are compared directly in Table 6.15, and are compared over time in Tables 6.16, 6.17, and 6.18.

Table 6.15: Summary Comparison of Coalitions

	Long Bridge Coalition	Short Bridge Coalition
Core Position:	<p>The key issue is not the bridge replacement, but the future of NC 12 within the Refuge. The short bridge commits NCDOT to maintaining the road through the Refuge for decades. The beach nourishment and road construction required to maintain NC 12 undermine the ecological integrity of the Refuge and the long-term function of the barrier island. It also keeps the primary transportation route in high-erosion areas prone to overwash and island breaches. Over the long term, the costs of building the short bridge and maintaining NC 12 are higher than the long bridge costs.</p>	<p>The existing bridge exceeded its design life in the early 1990s and must be replaced as quickly as possible. The bridge is the lifeline for the residents, visitors, and economy of Hatteras Island and Dare County. Delaying the bridge replacement puts lives at risk. The Short Bridge can be funded and constructed quickly. The Long Bridge is unaffordable and will never be built. The Short Bridge plan allows the bridge to be replaced quickly and maintains vehicular access to the Refuge.</p>
Key Issues:	<ul style="list-style-type: none"> reliability barrier island processes cost comparisons permit issues Refuge access politics 	<ul style="list-style-type: none"> safety time cost comparisons transportation economy opponents

Key Coalition Actors:	USFWS SELC environmental advocacy groups coastal scientists newspaper editorial boards	NCDOT local and state elected officials local and civic groups residents & visitors
Primary Strategies:	permitting leverage agency procedures public outreach (media) venue shift (courts)	political efforts public outreach (grassroots)
Costs and Benefits:	Costs (diffuse): taxpayers, Refuge & habitat, safety, transportation Benefits (concentrated): NCDOT, mid-Currituck bridge, developers & business owners	Costs (diffuse): safety, economy, residents, taxpayers Benefits (concentrated): environmental groups & SELC, Refuge, limited access
Condensation Symbols & Policy Surrogates	No	No

Table 6.16: Coalition Lead Actors, by Policy Phase

	Long Bridge	Short Bridge
Phase 1	USFWS	NCDOT
Phase 2	USFWS NCDOT	Dare County Commissioners
Phase 3	USFWS environmental advocacy groups editorial boards	NCDOT elected officials civic and local organizations
Phase 4	environmental advocacy groups editorial boards	elected officials

Table 6.17: Coalition Narrative Issues, by Policy Phase

	Long Bridge	Short Bridge
Phase 1	road/bridge link limited future options	transportation needs design costs
Phase 2	road/bridge link permit issues	Refuge access terminal groin quick replacement
Phase 3	altered Refuge access reliability & safety cost comparisons politics	safety risks of delay duration of planning transportation & economy opponents
Phase 4	reliability barrier island processes cost comparisons	opponents duration of planning age of bridge

Table 6.18: Coalition General Strategies, by Policy Phase

	Long Bridge	Short Bridge
Phase 1	agency procedures	agency procedures
Phase 2	permitting leverage	political efforts
Phase 3	permitting leverage public outreach (media)	political efforts public outreach (grassroots)
Phase 4	media outreach	media outreach

After all this effort and conflict, did the final result differ from the plan at the outset 25 years earlier? In the 1990s, the original plan was to build a short parallel bridge to tie into the northern end of Hatteras Island. The initial planning acknowledged that overwash and island migration

were problems on NC12 through the Refuge, especially in the “hot spots.” The plan was to build the bridge and defer planning for the road’s future until the OBTF completed its work and made long-term planning recommendations for the road. Twenty-five years later, the plan called for a short parallel bridge to be built to tie into northern Hatteras Island. A number of options for NC 12 within the Refuge had been studied, including a combination of road, bridges, and beach nourishment. While the Bonner Bridge replacement is constructed, planning will commence for a 2.4 mile bridge through the Pamlico Sound just north of Rodanthe to bypass the ‘S’ Curves “hot spot.” Future projects will be implemented in phases as conditions warrant, guided by a coastal monitoring program. The combination of road, bridge, and nourishment for those future projects will be determined by prevailing conditions.

All said and done, the plan at the end of the process bears a remarkable resemblance to the 1993 version of the bridge. An extraordinary amount of time, money, and passion have been expended in the interim, resulting in minor policy change. The implications for the case study and research questions are explored in the final chapter.

Chapter Seven: Discussion and Conclusions

After the dust has settled, NCDOT's policy for the Bonner Bridge and NC 12 in 2017 looks strikingly similar to its 1990 policy. The current plan is to build a short parallel replacement bridge over Oregon Inlet in the general location described in the 1993 plan. Future bridges and road maintenance along NC 12 will be designed and built as conditions warrant. These future projects will require USFWS permitting and NEPA environmental impact studies and may face legal and funding challenges. Although NCDOT's coastal infrastructure policy appeared on the brink of significant change in 2003, the Short Bridge Coalition's political strategies aligned with NCDOT's funding concerns to tip the balance of priorities and values in favor of maintaining the status quo. This chapter addresses the research questions to explore how and why decades and millions of dollars spent in the bridge planning and debate resulted in no significant policy changes.

Research Question 1: Did the bridge replacement project act as an internal shock to the policy area? Could the bridge replacement be considered a potential focusing project?

One thing is clear – something significant happened in the bridge debate around 2003. Between 1990 and 2002, the bridge debate was limited to agency interactions, largely out of the public eye. Figure 4.7 showed a flurry of news coverage surrounding the partial bridge collapse in late 1990, followed by a decade averaging one to three articles per year. This pattern abruptly shifted in 2003, with the number of articles more than doubling from the previous year. The heightened

attention lasted for the remaining 12 years of the case study, with fluctuations corresponding to the cycles of environmental impact statement revisions and public comment periods. The increased coverage reflects the emergence of the coalitions and rapid expansion of the debate into a matter of public concern.

What happened in 2003 to trigger this sea change in the bridge debate? It was not the bridge replacement itself – planning had been underway for more than a decade by that point. A comparison of the case timeline with the content analysis shows that the change was a response to the introduction of the long bridge design as the sole replacement alternative for further study. Over the following decade, thousands of public comments were submitted, dozens of newspaper commentaries were written, petitions were circulated, lawsuits were filed, and local and state elected officials offered comments and support.

ACF Internal Shock Analysis

Did this surge in coalition activity signal an internal shock in the ACF formulation? Close analysis suggests the answer is both *yes* and *no*. The ACF literature has limited treatment of internal shocks, with Sabatier and Weible’s 2007 initial formulation remaining the definitive description. A close look at this formulation suggests that the bridge debate may satisfy the spirit of an internal shock while not fitting within the actual definition.

The introduction of a long bridge design triggered a reaction that clearly upset the status quo and brought many new voices and resources to a quiet policy area that had previously been limited to agency negotiations. This is similar to the general idea of ACF internal shocks as events or

crises, generally within the control of subsystem actors, that upset the status quo and give a minority coalition an opportunity to exploit the situation to shift the balance of power, resulting in policy change.

Sabatier and Weible (2007) presented internal shocks as a potential pathway to major policy change. This pathway has a series of steps: (1) an internal shock occurs, attracting public attention and revealing flaws in the majority coalition's policy; (2) a minority coalition may exploit the internal shock, recruiting new allies and taking advantage of any redistribution of critical political resources following the shock; and (3) this active minority coalition's efforts may shift the balance of power in the subsystem, creating the possibility of policy change. In the bridge case, the steps outlined above appear to have been reversed.

In the previous chapters, the following series of events were presented:

- (1) NCDOT pursued a plan in the 1990s to replace the existing bridge with a short parallel bridge, categorically dismissing any attempts to link the bridge project with planning for the future maintenance of NC 12 on Hatteras Island;
- (2) NCDOT deemed coastal conditions sufficiently changed since the 1993 DEIS to warrant preparation of a Supplemental DEIS (SDEIS);
- (3) This new SDEIS gave the Refuge Manager and USFWS a chance to participate in planning as part of the Merger Team. Using permitting leverage created by the 1997 Refuge Act, the Refuge Manager warned that he likely would not issue a permit for a bridge landing within the Refuge;

- (4) The Merger Team, including NCDOT, designated a long bridge as the sole alternative for further study in the SDEIS;
- (5) Local elected officials opposed the long bridge, using political pressure at the state level to get a short bridge alternative added to the SDEIS in 2004. The two coalitions emerged soon after and the scope of the bridge debate expanded.

This series of events up-ends the order suggested by the ACF. Instead of an internal shock giving a minority coalition an opportunity to produce policy change, here an agency representative used permitting leverage to force a potential policy change, creating an internal shock that triggered the emergence of an active coalition determined to maintain the status quo. A second coalition formed to counter the first. In less than a year, a quiet policy subsystem centered in agency interactions ballooned into a highly-visible and emotionally-charged public debate.

ACF: internal shock → coalition action → potential policy change

Case study: potential policy change → internal shock → coalition action

What does this mean in regards to the bridge project as an internal shock for the policy subsystem? On the one hand, if the ACF internal shock formulation is followed rigidly, then the inverted sequence found in this case study does not seem to fit. On the other hand, if an internal shock is interpreted more generally as an internal event that destabilizes the policy subsystem and creates the potential for lasting policy change, then the bridge project seems to qualify. The state's coastal infrastructure policy had hung in the balance for more than a decade as a public battle was fought, first within the agencies then in the courts, between maintaining the status quo

or shifting to a policy of retreat and avoidance of recurring coastal hazards. While a modified version of the status quo eventually won out, the potential was quite real for major policy change that would have shaped future coastal infrastructure projects.

The question of whether this is an ACF internal shock is a judgment call. Here, following the spirit rather than the letter of the ACF formulation seems appropriate. Given how the bridge project destabilized the coastal infrastructure policy subsystem and created potential for lasting policy change, it seems to have functioned as an internal shock in a general, if not literal, sense.

Potential Focusing Project Analysis

Given the awkward fit between the bridge project and ACF's internal shocks, it is worthwhile to consider the project through the lens of related policy concepts. Lowry's (2006) potential focusing project (PFP), briefly discussed in Chapter Two, similarly evolved from the focusing events literature. Like the ACF internal shocks, PFPs have not been widely explored in the literature, so Lowry's presentation remains definitive. Lowry described a PFP as a routine or planned project that is a logical extension of policy goals, but is of such scale or impact that it shocks the system and draws public attention.

Is PFP a good fit for the bridge case? The answer again seems to be *not quite*. To borrow a metaphor, a PFP serves as "a bridge too far," extending a policy in such a manner that the flaws in that policy become impossible to ignore. In the bridge case, the coalition emergence and public debate were a response to the scale and cost of the proposed long bridge. As cost projections neared and then exceeded \$1 billion dollars for what would be one of the longest

continuous over-water bridges in the world, the long bridge design was “perceived as excess” (Lowry 2006, 313) by opponents. Again, the misalignment between the bridge case and PFP lies in the details. A PFP logically extends existing policy goals to such an extent that it reveals the flaws in the policy. Here, the project in question was not an extension of existing policy, but was instead a significant shift in policy.

It can be argued that the general idea of a PFP is applicable to the bridge case, even if the specific criteria do not fit. The long bridge design, if chosen, could have signaled a new era in the state’s coastal infrastructure policy. The potential fiscal and social costs of a long bridge were not out of line with the trade-offs inherent in a policy of retreat and adaptation. In this case, those costs were high enough to capture public attention and reveal the drawbacks of the potential new policy.

Policy Window Analysis

While the potential policy change in the bridge project does not quite fit either the ACF internal shocks or PFP models, it is worth considering the project using the policy window concept borrowed from Multiple Streams Analysis (Kingdon 2013). In a nutshell, a policy window is a period of time when a *problem* arises, a policy *alternative* is available, *political will* exists to address the issue, and a policy entrepreneur is ready to tie the problem, solution, and political will together to get the issue on the decision agenda. This concept seems a reasonable explanation for why NCDOT reversed its previous position to support the long bridge design in 2003.

Using a policy window analysis, the *problem* was impossible to ignore – the barrier island was migrating westward, the inlet was moving southward, and NC 12 was seriously threatened by erosion in a number of places. Engineering efforts to hold the road in place were very costly, threatened the island’s integrity, and were of questionable effectiveness. Geologists and environmental groups had been proposing variations on a long bridge *alternative* since the initial bridge scoping process in 1990. This alternative would route the road away from the island, allowing the natural migration to resume while maintaining a reliable transportation route. The only missing piece, prior to 2003, was the *political will* to resolve the issue. The 2002 coastal erosion study forced a reset of the planning process to compile the SDEIS. This reset opened a *policy window*, allowing the Refuge Manager to act as a policy entrepreneur to couple the different streams.

The Refuge Manager’s firm stance on future bridge permitting issues posed a potential roadblock for the project and created the *political will* to shift the policy direction toward a long bridge alternative. The Refuge Manager’s successful coupling of the different streams during the open policy window resulted in NCDOT designing and agreeing to a bridge project similar to one they previously rejected, reversing their established position on long-term NC 12 maintenance. As Multiple Streams Analysis suggests, this policy window allowed policy change to get on the decision-making agenda (here, the NEPA process), but a combination of coalition activity and politics averted lasting policy change.

In summary, in regards to Research Question 1, the answer is a qualified *yes*. The bridge project seems in line with the general spirit of an ACF internal shock, in that the proposed long bridge

modification shocked the system, resulted in the emergence of active coalitions, and redistributed critical political resources within the subsystem. Similarly, the bridge project is in keeping with the general idea of a PFP, with the long bridge design being of such a large scale and high cost that it captured public attention and inspired strong debate. For more than a decade, the future direction of the state's coastal infrastructure policy was uncertain, due entirely to the expansion of the bridge replacement from a routine project into a larger debate about priorities and trade-offs.

On the technical side, the bridge project does not quite line up with the specific formulations of either an ACF internal shock or a PFP. If such a significant project came so close to policy change without qualifying as an internal shock or PFP, then the problem may lie with the way those concepts have been developed, or not developed, in the literature. The not-quite-fit of the concepts with this case study suggests that there is room for these concepts to be revised to better explain situations like the Bonner Bridge replacement. While this research project did not focus on policy windows, the cursory analysis above appears to present the best explanation of how the subsystem came so close to policy change. Ultimately, the bridge project seems to be a hybrid of all three concepts.

Research Question 2: How did the coalitions use narratives and strategies to exploit the opportunity for change created by the bridge replacement?

As Table 6.15 showed, the two coalitions took distinctly different approaches in promoting their preferred bridge design. The Long Bridge Coalition was a semi-formal alliance of regional and

national environmental advocacy groups with vocal support from several coastal scientists and newspaper editorial boards. Their approach, well suited to “outsiders,” was to focus primarily on agency procedures and regulatory leverage, with a public outreach effort through major regional newspapers and advocacy organization websites. When these tactics failed, the Long Bridge Coalition turned to the courts for relief. The Short Bridge Coalition, an informal alliance of local and state elected officials, local civic and business groups, and grassroots activists, used an “insider” strategy of political pressure and a strong public outreach campaign via word of mouth and local news outlets.

The central messages of the two coalitions were as different as their approaches. The Long Bridge Coalition focused on the long-term costs of maintaining NC 12 through the Refuge, arguing that a long bridge would provide reliable transportation and allow a return to natural barrier island migration. The Short Bridge Coalition emphasized the urgency of the bridge replacement, noting the potential threat to safety, lives, and livelihoods if the old bridge had to be closed before a new bridge was completed. They argued that the short bridge was the only alternative that could be funded and constructed quickly, leaving NC 12 issues to be resolved after more planning.

ACF General Strategies

Chapters Five and Six explored the coalitions’ strategies in depth, tracking them both over time and comparatively; the bigger picture of the coalitions’ strategic choices emerges when those analyses are consolidated. The following discussion tracks the back-and-forth of coalition

activities during the case study. It shows that the coalitions responded to each other and changing events, adapting arguments and strategies to fit what seemed most persuasive at the time.

The coalitions had not formed in the first decade of the case study, yet the views that would become the core positions of the coalitions were already present. NCDOT represented one side, seeking to separate the bridge and NC 12 and stressing the urgent need to replace the old bridge. USFWS took the opposite position, arguing that the bridge and road must be considered together through long-term planning.

In the late 1990s, USFWS was a consulting agency in the NEPA process, with limited influence in bridge planning. Agency staff warned that the project might not receive required permits, but had no direct input into project planning. The bridge project stalled when USFWS rejected NCDOT's request for the required Endangered Species Act consultation on regulatory procedural grounds. It may be coincidental, but other Interior Department agencies had used similar tactics to delay the proposed Oregon Inlet jetties for years. Senator Basnight, a short bridge supporter, exerted political pressure on NCDOT in late 2001 to get the project restarted.

At this point, changing conditions reset the planning process, requiring a new version of the Environmental Impact Statement (SDEIS) through the Merger Team process. This gave USFWS an actual seat at the table. They opted for a regulatory leverage strategy, using the 1997 Refuge Act to reinforce their assertions that any bridge design that landed in the Refuge would be very unlikely to receive USFWS permits. NCDOT, faced with nearly unanimous opposition from the Merger Team and pressure from the FHWA, surrendered to this regulatory opposition and turned

its attention to designing a long bridge outside the Refuge. This decision appeared to commit NCDOT to a new policy of retreat and adaptation on Hatteras Island.

NCDOT's sudden shift to a long bridge design took local elected officials and residents by surprise. For decades, NCDOT had reliably negotiated NC 12 maintenance permits out of sight of the public eye. Now, it appeared NCDOT had conceded the bridge issue before local officials and the public even had a chance to enter the discussion. The eventual strength of the public response to the long bridge design may reflect a local sentiment that a major change was being imposed on the residents of Hatteras Island without their input. This sentiment may have been compounded by a strong local resentment toward the SELC, USFWS, and National Park Service stemming from beach driving and access disputes. Disappointed with the outcome of the Merger Team process, local elected officials turned to their own area of influence, shifting the debate into the political realm. A combination of dogged persistence and political influence from the Dare County Commissioners and Senator Basnight resulted in NCDOT first adding a short bridge alternative, then designating it as their favored alternative in 2004. The County Commissioners' political strategy was successful at the state level, though a disappointing meeting with USFWS regional staff in Atlanta showed the limits of their influence.

The momentum appeared to have swung toward the emerging Short Bridge Coalition at this point. Short Bridge supporters found considerable support in the state legislature, which passed a bill including a provision endorsing the short bridge. As the Short Bridge Coalition notched political victories, long bridge supporters saw the remarkable policy change represented by the long bridge seeming to slip from their fingers. Environmental advocacy groups and coastal

scientists joined in a Long Bridge Coalition to coordinate their efforts more closely, writing guest commentaries and letters to the editors in major regional newspapers. Their inability to gain support from many residents or visitors may have been related to negative local sentiment toward environmental groups and the SELC, again stemming from an unrelated beach driving controversy.

Participation in the 2005 SDEIS public comment period likely showed the relative local enthusiasm for each coalition. Of those expressing a bridge preference, 71 percent of oral and 68 percent of written comments favored the short bridge. The major themes for each coalition were already evident in this first round of comments, though their relative importance would shift throughout the debate. While reliability, long-term costs, and permitting issues featured heavily in the Long Bridge Coalition's remarks, many commenters directly responded to the Dare County Commissioners' Refuge access concerns from 2003-2004. The Short Bridge Coalition's priorities had shifted in the intervening months, though, as more voices joined the discussion and details of the bridge designs were presented. While Refuge access remained a concern, their comments now also addressed tourism, the economy, the safety risks of the long bridge, and potential environmental harm from the long bridge.

In 2006, USFWS reiterated that it was unlikely to issue permits for the short bridge NC 12 alternatives. Facing a looming permitting impasse, the Short Bridge Coalition again turned to political influence. US Senator Burr (R-NC) raised the bridge issue during confirmation hearings for incoming Interior Secretary Kempthorne. A few months later, Kempthorne intervened in the bridge project, suggesting that the bridge and road projects should be separated for USFWS

permitting consideration. Once again, the Short Bridge Coalition's political influence seems to have trumped the Long Bridge Coalition's permitting leverage.

While NCDOT prepared a SSDEIS for a modified short bridge design, both coalitions used the lull to expand their public outreach efforts in 2006. The Short Bridge Coalition acted first, with a group of concerned residents forming "Replace the Bridge Now," relying on word of mouth and a website for publicity. The Long Bridge Coalition countered a few months later with their own group, "Build the Long Bridge Coalition," formed as a joint effort of five environmental advocacy groups. The group announced its formation via a press release, followed quickly by a website and radio ad campaign. They also used their own organization websites to post updates and position statements, many directly addressing the safety and transportation issues raised by short bridge supporters in their public comments.

When the SSDEIS was released in early 2007, the coalition supporters were markedly different in their participation. Of the comments expressing a preference, 92 percent of oral comments and 72 percent of written comments supported the short bridge. The Short Bridge Coalition's concerns had again evolved, with most of the speakers addressing the safety and economic consequences if the bridge collapsed or was closed before the replacement was ready.

The Long Bridge Coalition focused on agency channels rather than public comments. USFWS repeated their warning that they could not issue permits for the NC 12 alternatives in the SSDEIS short bridge design. Ultimately, the Merger Team agencies refused to concur on the SSDEIS

design in 2007, forcing NCDOT to elevate the issue to a Review Board to get the necessary agreements to proceed over agency objections.

The 2008 FEIS, which only refined previous plans, was met with muted public response and a significantly lower number of public comments (Short Bridge: ten, Long Bridge: five). The Long Bridge Coalition's agency allies on the Merger Team continued their firm opposition to the short bridge and, again, warned that the FEIS design would not receive permits. When NCDOT addressed agency concerns by presenting an Environmental Assessment for another short bridge design alternative, with the possibility of yet another supplemental EIS after that, the Short Bridge Coalition's frustration spilled over in a record number of public comments in 2010.

There was a striking difference in the coalitions' response to the 2010 public comment period. While 42 speakers supported the short bridge, not a single person spoke in favor of the long bridge design at the 2010 public hearings. The Long Bridge Coalition's eight written comments were dwarfed by the Short Bridge Coalition's massive grassroots letter campaign yielding 863 unique written comments and 3,097 form letters. A common refrain was frustration over the length of the planning process, citing the threats to safety and the local economy from continuing reliance on the aging Bonner Bridge.

The reason for the Long Bridge Coalition's silence became clear the following summer. The writing was on the wall regarding NCDOT's decision, with the 2010 Record of Decision only confirming what everyone expected. The Long Bridge Coalition had reached the limits of what could be accomplished through permitting and agency channels and could not match their

opponents' political influence and public mobilization. The coalition changed strategies, shifting the issue away from the regulatory and political realms into the courts, a move which had been unavailable until the Record of Decision was issued. The coalition's lack of participation in the EA public comment period likely signals they saw the process as futile and had already decided to pursue a legal strategy.

At this point, the strategies of both coalitions took a puzzling turn. A federal judge would decide if NCDOT could proceed with the bridge. There would be no more public hearings, comment periods, or opportunities for politicians to intervene in the process. Yet this is when both coalitions took the argument to the media with renewed vigor, casting blame and defending their preferred design as the only reasonable option.

These guest commentaries and letters to the editor were framed as attempts to persuade the other side to either drop the lawsuit or drop the short bridge plan, which seem unrealistic. A speculative explanation is that both coalitions were emotionally involved at this point with no productive outlet, so they turned to the media to both vent and keep their base supporters engaged. Both sides went on the offensive in the media, attacking the merits of the other design and their opponents' motivations. The rhetoric ramped up considerably once the SELC filed an appeal, culminating in the remarkable media exchange of personal insults and derision in December 2013.

This overview shows that the "agency versus politics" strategic divide was present in the initial stages of the case study, even before the coalitions had formed. The Long Bridge Coalition grew

out of the USFWS position, while the Short Bridge Coalition formed from the Dare County Commissioners' political efforts to maintain NCDOT's longstanding policy. Each coalition relied on strategies and areas of influence already familiar to them. Though details varied over time, the coalitions kept their core strategies throughout the case study. The Short Bridge Coalition clearly had more effective public mobilization, allowing its key issues to evolve as information changed and new voices joined the chorus. The Long Bridge Coalition relied on standard environmental advocacy themes familiar to its members, leaving it playing "catch up" as it responded to its opponents' shifting discussion points. Table 7.1 depicts the coalitions' differing use of general ACF strategies.

NPF Narrative Strategies

The coalitions' use of NPF narrative strategies was also analyzed, specifically their efforts to either expand or contract the policy area through depiction of costs/benefits and condensation symbols and policy surrogates. As explained in Chapter Six, individuals made sporadic references that could be interpreted as condensation symbols, but did not indicate a coordinated coalition strategy. Policy surrogates were not used in the case study.

The NPF costs/benefits analysis in this case yielded unexpected results. The NPF, following Schattschneider (1960), predicts a subsystem will have a coalition that perceives itself as winning and a coalition that perceives itself as losing. The winning coalition will try to contain the policy debate by depicting diffuse benefits and concentrated costs. The losing coalition will try to expand the debate and recruit allies by depicting concentrated benefits and diffuse costs. Surprisingly, both coalitions in this case study perceived themselves as losing. Over the ten years

(2004-2014) that the coalitions were active, both consistently depicted the opposing design as creating diffuse costs and concentrated benefits. The Long Bridge Coalition saw the short bridge as imposing costs on taxpayers, the Refuge, wildlife habitat, and traveler safety while benefitting NCDOT, business and property owners, and supporters of the mid-Currituck bridge project. The Short Bridge Coalition depicted the long bridge as harmful to traveler safety, the local economy, the welfare of residents, and taxpayers. They saw the plan as benefitting environmental groups, Refuge management, and those favoring restricted access to the Refuge.

Table 7.1: Coalitions’ Use of General (ACF) Strategies. X signifies a primary strategy, *x* signifies a secondary strategy. -- signifies no consistent use.

General (ACF) Strategies	Long Bridge Coalition	Short Bridge Coalition
Submission of formal written/oral comments	<i>x</i>	X
Public outreach through regional media	X	<i>x</i>
Public outreach through local media	--	X
Public outreach on organization websites	X	X
Lobbying political figures	--	X
Lobbying agency staff	X	--
Public mobilization via letter campaigns/petitions	<i>x</i>	X
Litigation	X	--

Why did the coalitions deviate from the expected winner/loser pattern? Likely, it is because of NCDOT’s policy change in 2003 and reversal in 2004. For decades, NCDOT dominated the

policy subsystem, with environmental advocates occupying a minority position. This changed in 2003 when NCDOT yielded to agency pressure and agreed to study a long bridge that bypassed the entire Refuge. The environmental advocates suddenly gained the upper hand in the policy area, leaving those preferring the status quo feeling left out of the process.

As local elected officials and residents began to coordinate their efforts to oppose the long bridge, they faced powerful opponents in NCDOT, USFWS, and an array of other federal and state agencies. Accordingly, they adopted underdog tactics, seeking to recruit allies among island residents and visitors. Although NCDOT soon reversed its position to support a short bridge, the Short Bridge Coalition recognized that the USFWS still held a trump card in the form of a regulatory “veto point.” Despite now having NCDOT on its side, the Short Bridge Coalition still expanded the debate, needing to make use of every political resource available to overcome USFWS’s permitting leverage.

On the other hand, although USFWS and their environmental advocacy allies had gained the upper hand for that brief window in 2003-2004, their momentum was stopped short when NCDOT reversed its position in favor of a short bridge. This put the newly-formed Long Bridge Coalition in the same position its members had occupied for decades, struggling to use whatever tools it could to overcome NCDOT’s undeniable advantage in state transportation matters. They also tried to recruit allies, targeting environmentally inclined outsiders and local residents, with mixed results. As a result, both coalitions perceived themselves as fighting an uphill battle against opponents with the upper hand. They both strategically expanded the debate, competing, in part, for the same pool of potential recruits. Ultimately, the Short Bridge Coalition’s “insider”

strategy and narrative themes were more persuasive, allowing them greater success in mobilizing supporters.

Research Question 3: What roles did scientific data and political processes play in the coalitions' strategies and narratives during the bridge debate?

In some respects, science underpins the debate about the Bonner Bridge replacement. The bridge design choice required knowledge of inlet and barrier island migration, the consequences of beach nourishment and maintenance efforts, long-term erosion forecasts, likely areas of future breaches, storm hazards, engineering capabilities, and the effects on terrestrial and aquatic habitats. Yet, for all the science around the bridge debate, it hardly merited a mention in the debate itself. The reason for this is simple: the science is largely undisputed. The debate was not about the science, but about what conclusions should be drawn from the integration of scientific information with social, economic, and budget data.

The bridge debate was political, not scientific; this shaped the coalitions' narrative choices. The Long Bridge Coalition had a stronger scientific argument that barrier island migration would render the short bridge and long-term road maintenance efforts futile. Yet they did not explain the science behind this argument in their outreach materials. With the exception of one detailed newspaper guest commentary in 2010, the coalition addressed barrier island and inlet issues in a cursory manner, choosing instead to focus on political and economic issues. The Long Bridge Coalition discussed the environmental issues in the bridge debate with a kind of generic shorthand, using phrases like “erosion” and “habitat function” that would resonate with their

usual environmentalist constituency but would not communicate effectively with the lay audience they ostensibly sought to persuade. They reserved their detailed arguments for formal written comments on the EIS versions; even these comments addressed the sufficiency of NCDOT’s analyses rather than the underlying scientific arguments. The Short Bridge Coalition materials did not address scientific issues beyond an assurance that NCDOT’s engineering capability could adequately address island breaches and erosion. Table 7.2 shows both coalitions’ focus on political issues

Table 7.2: Coalitions’ Primary Narrative Issues

Long Bridge Coalition	Short Bridge Coalition
refuge access barrier island concerns reliable transportation cost comparisons permitting concerns	safe transportation length of planning process key transportation corridor economic impacts opponents’ motivations cost comparisons

Contributions and Directions for Future Research

This case study of the Bonner Bridge replacement demonstrates that a qualitative analysis of ACF coalitions’ narratives and strategies is a viable method for exploring how the interplay of agencies, interest groups, and the public may shape coastal management conflicts. When coastal management literature addresses policymaking, the focus is often on the effective exchange of information between scientists and decision makers. This research demonstrates that

communication between scientists and policymakers is only one part of the policy discussion. When a policy subsystem has active coalitions, they can effectively shape the public debate on an issue. Their goal is to put political pressure on a decision maker, who must consider not only the science but also the economic, social, and legal aspects of a policy.

This case study focused specifically on ACF coalition strategies during and after an internal shock. In general, ACF concepts were effective for tracking the evolution of the bridge debate, but the case study suggests that certain aspects of the framework need further development. Specifically, the ACF's view of internal shocks and their role in policy change needs clarification. The 2003 long bridge proposal appears to have acted as an internal shock by upsetting the status quo and providing an opportunity for coalitions to shift the power balance; yet the sequence of events is the reverse of that suggested by the framework. The ACF suggests that a shock gives coalitions an opportunity to mobilize and produce policy change. Here, the potential policy change served as the internal shock, building on local social and economic undercurrents to trigger latent coalitions to become active to resist or support that change. This suggests that the current ACF formulation of internal shocks does not adequately explain situations like the bridge debate. This shortcoming could be resolved by broadening the formulation of internal shocks in the literature, perhaps by incorporating a variation on the MSA policy window.

The disconnect between this case and the ACF may stem from the framework's underestimation of legal and regulatory authority as a coalition resource. In recent years, there have been calls for the ACF to incorporate a hierarchy of coalition resources to acknowledge that some resources are

more powerful than others in influencing policy debates (Jenkins-Smith et al. 2014; Nohrstedt 2011). Such a hierarchy could inform a clearer approach to coalition strategies. Case studies, bolstered by the Punctuated Equilibrium and interest group literature, can be used to develop a list of general strategies likely to be used by coalitions. A coalition's choices are shaped by the context and available resources, yet some strategies appear to be more effective than others in shaping a policy debate and influencing the outcome. While we cannot generalize from a single case study, the bridge project suggests that resources and strategies directed toward political or regulatory control of decision making are critical in a coalition's effectiveness. In this case, it appears that one coalition "captured" the decision maker (Short Bridge Coalition – NCDOT), yet another coalition had access to "veto points" that weakened, and potentially negated, that advantage (Long Bridge Coalition – USFWS permits). Furthermore, this research suggests that resources or strategies directed toward mounting an effective political strategy should be prominent in any future hierarchy. Such a hierarchy must also acknowledge the power of the courts to impose a final decision over the objections of coalitions, scientists, politicians, or the public.

This research project was originally designed to explore the intersection of the ACF and NPF. As the research progressed, the meso-level NPF was used more as a method of exploring ACF coalition strategies than as a separate framework. Elements of the NPF, including the story elements and depiction of winners/losers, were dropped as they did not appear to contribute to the analysis. This is not unforeseen in the literature, as Jones and McBeth (2010) note that one line of meso-level NPF literature has focused specifically on the strategic creation and use of narratives to shape coalition membership and influence the behavior of policy elites. Jones and

Radaelli (2015, 343) describe how the NPF has “contributed to, qualified and ultimately strengthened some popular theoretical lenses of the policy process, especially the advocacy coalition framework.” The question of whether this research used NPF as a method or framework suggests a fuzzy level of overlap between the meso-level NPF coalition strategies and the ACF. Perhaps one approach could be to adopt a variation of NPF narrative strategy analysis within a future ACF list of coalition strategies.

This case study suggests that the NPF operationalization of Schattschneider’s (1960) conflict expansion/contraction is a viable means of assessing coalition narrative strategies. The bridge project deviated from the NPF literature by having two coalitions that both viewed themselves as losing. In part, this was due to the particular context, but Morris (2007) proposes an intriguing framework in which a coalition’s perception of itself as winning or losing is more fluid, changing in response to its opponent’s apparent gain or loss of power. Incorporating this concept into the NPF narrative strategies may provide a more dynamic approach to coalition strategies.

The findings in this case suggest several avenues of future research. The clear distinction between the coalitions’ insider vs outsider strategies in the bridge debate could be further explored through network analysis. Such an analysis could further reveal coalition strategies by showing how coalition members used (or formed) relationships with influential political figures, academics, and media in the state. Another future analysis could supplement the existing database with interviews to explore whether underlying tensions between residents and outsiders (especially environmental groups) influenced coalition membership and level of participation. Finally, the findings on how both coalitions opted to discuss scientific issues using loaded

catchphrases rather than specific arguments could inform future research into the communication (or “marketing”) of scientific and risk information to lay audiences.

Conclusion

March 8, 2016 – It was clear, sunny day at Oregon Inlet when US Congressman Walter Jones stood on a podium for the groundbreaking of the Bonner Bridge replacement. Just over his shoulder loomed the same high-rise navigation span Deputy Thaddeous Pledger had raced over that stormy night 26 years earlier. The Congressman spoke of how important the new bridge would be to providing safe transportation for residents and the millions of visitors to Hatteras Island. These two different men, in very different circumstances, shared a similar concern – the threat to lives and safety if the bridge were to fall.

A lot of water has flowed under that bridge over the years since the partial collapse. Preliminary planning for the bridge replacement had already begun in 1990, yet no one would have predicted that it would require 26 years, millions of dollars in environmental studies, and a federal lawsuit to get the first replacement piling driven into the inlet. This case study has explored the complex back-and-forth between agencies, coalitions, and the public over how to replace the bridge. The Long Bridge Coalition, using the permitting leverage of a federal agency, argued that the science was clear that the short bridge and NC 12 could not be maintained on Hatteras Island long-term. Their arguments focused on long-term costs, reliable transportation, and restoring normal barrier island migration. The Short Bridge Coalition relied on political influence and public mobilization, using emotion-driven appeals about the need to replace the bridge as quickly as

possible to protect the lives and livelihoods of residents and visitors. Ultimately, the Short Bridge Coalition's political strategy won the debate.

There are lessons that can be learned here about managing conflicts over coastal infrastructure projects. If coalitions of interested organizations and individuals get involved in a debate, coastal managers should listen closely to their narrative choices. Depending on the public and political response to those narratives, the winning argument may not be what scientists or professional coastal managers would expect. The Bonner Bridge case demonstrates just that. The long bridge proposal was grounded in a solid scientific assessment of erosion rates, cost projections, and regulatory requirements. Yet the final bridge decision was driven, at least in part, by powerful and personal accounts of residents driving over the Bonner Bridge with their windows rolled down so they would have a chance of escaping their vehicles if the bridge collapsed under them. Coastal managers should never underestimate the power of a good story.

The first piling for the replacement bridge was placed near the spot where Deputy Pledger paused to pick up the crewman who climbed from the dredge *Northerly Island* that stormy night. Twenty-six years after part of the Bonner Bridge fell down, the replacement is going up.

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APPENDIX A: Coding Manual

Narrative classification to identify NPF narratives:

Narrative source:

Is the narrative statement in a newspaper? (Y/N)

If yes

Does the narrative statement appear as a quote or excerpt in a larger article? (Y/N)

If yes, classify as a “statement to media”

If no, continue to next step.

Does the narrative statement appear as a letter to the editor? (Y/N)

If yes, classify as “complete advocacy narrative”

If no, proceed to next step.

Does the narrative statement appear as a guest commentary? (Y/N)

If yes, classify as “complete advocacy narrative”

If no, proceed to next step.

Does the narrative statement appear to have been edited by a third party? (Y/N)

If yes, classify as a “statement to media”

If no, classify as a “complete advocacy narrative”

If no, proceed to next question.

Is the narrative statement presented as part of an EIS/EA? (Y/N)

If yes

Is the narrative in written form submitted by speaker/author? (Y/N)

If yes, classify as written comment

If no, classify as oral comment (should be in transcript form)

If no, proceed to next question

Is the narrative statement presented by an organization or advocacy group on a website or other forum that is not a newspaper? (Y/N)

If yes

Does the narrative statement appear edited or filtered through a third party? (Y/N)

If yes, consider under one of other categories

If no, classify as “complete advocacy narrative”

If no, proceed to next question

Is the narrative presented as a press release or official statement? If so, classify as “complete advocacy narrative”

First Coding Pass: descriptive emergent coding– derived from text of newspaper items

<p>wealthy vs taxpayers unnatural convenience barrier islands fragile dynamic environments battered by nature treacherous waters money on maintenance rising costs ferry capacity and cost flexibility ecological sensitivity storm overwash feasibility inlet shifts inlet stabilization reliable transportation link access to necessities evacuation economic/environ. Disaster environmentally disruptive efficiency construction cost development traffic volume road maintenance inevitable erosion temp vs permanent fix road relocation use of state highway funds deteriorating bridge safety sever bridge from road time to build politics vs planning stagnant process long-term effects erosion/bypass island upfront costs federal money in rural area practicality better for Refuge upfront cost = delay seeking donations runoff from bridge shellfish road in Refuge is key path of least resistance deferring trouble island collapsing cannot hold road nature will win character of Outer Banks bridge built, island lost pandering to business</p>	<p>technological capability lifeline accelerating costs impractical road maintenance costly highway system fragile fight mother nature buying time throwing money away short-term vs long-term hazardous funding availability war with ocean habitat vs road livelihoods bridge life span as soon as possible mired in bureaucracy Refuge access environment vs people loss of recreational fishing doomed road taxpayer burden to maintain access road/groin removal bridge vs road durability long-term feasibility common sense utilities wildlife vs access nourishment vs natural loss of tourism vs access build quickly overdue replacement essential link utility costs for long bridge Refuge as private playground frustration problem plagued NC 12 short-term thinking mired in controversy highway most serious question upfront vs long term cost nervous on bridge lifeline squandered funds on road long-term uncertainty realistic bridge to nowhere pay taxes – right to a road no good choices take care of road assets kicking can down the road patchwork repeated studies</p>	<p>threat of lawsuits bureaucracy bridge wreck risk cost less access to N. Pea Island better for beaches/wetlands caved to political pressure importance to state DOT and key stakeholders bypass hot spots cumulative costs access as secondary issue bridge vs bridge and road road overwash short-sighted hazard in high winds discourage public use bridge may fall – death construction vs maintenance permitting issues mid-Currituck bridge funding groin removal access vs road maintenance startling costs long bridge safety issues unaffordable one agency stall for years dangerous delays use up decade of funding water pollution effect on fisheries impasse lives at risk needs of people which interests should win which is fastest affordable unnecessary risks constant threat of overwash turf war political posturing vs safety best vs most feasible cost as key due diligence on impacts gambling with lives obstructionist FHWA and DOT cause delay wildlife and habitat effects reliable and responsible protracted scrutiny save Refuge for appreciative road- continual repairs residents vulnerable perpetual construction zones political pressure</p>
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Second Coding Pass: (NVivo)

Basic Demographic Coding:

- Date: code for year and policy phase that comment and/or item made, published, or released
- Speaker: code for category that speaker belongs to. Use speaker's self-identification and/or letterhead and address (if available) or context (if clear). If unable to determine category, code as No ID
 - Agencies – agency or agency personnel in official capacity
 - Local officials – individual elected or appointed official or board/commission at local level
 - Higher Politicians – individual elected or appointed officials at state or federal level
 - Non-Governmental Organization – comments by or on behalf of an organization that is not a governmental entity
 - sub-codes for most frequent organizations: SELC, Defenders of Wildlife, Replace the Bridge Now, Build the Bridge Now
 - Residents – resident or property owner of Dare County, NC or Ocracoke, NC
 - Visitors – individuals from outside of Dare County, NC
 - NCDOT – statements from NCDOT or employees
 - Scientists – statements from professional scientists
- Forum: code for source of comment or document
 - Newspaper (by name)
 - Editorial
 - Guest Commentary
 - Letter to Editor
 - Blog
 - Websites
 - Public Comments
- Bridge Preference: code according to expressed position on which bridge should be built
 - Long Bridge: expresses preference for long bridge or explicit disavowal of parallel bridge alternatives
 - Short Bridge: expresses preference for any of parallel bridge alternatives or explicit disavowal of long bridge corridor
 - Unclear: does not express clear preference

Emergent coding and eight anticipated codes (from first pass) (see Table 3.3)

Ten most frequent codes:

- safety: code for comments on the safety of the current bridge, the likelihood of harm to travelers, safety on NC 12, or safe travel on long bridge
 - example: “My first concern is for loss of life and risk of serious injury that could occur near a bridge failure and the subsequent search and rescue operations.”
- time: code for comments about the length of planning process, age of bridge, urges to get bridge down, urges to avoid further delays from additional studies
 - example: “Now we’ve waited seventeen years and it still hasn’t been replaced. I mean we’ve looked at all kinds of things and studied it over and over. I got half a page here. But the fact remains that you cannot google any other bridge in America that you can find that has been studied as much as this bridge has been studied and you want us to continue to study it again.”
- transportation: code statements about the importance of NC 12 and bridge as a transportation link for residents and visitors
 - example: “As the only land transportation route to Hatteras Island and as the main route to Ocracoke Island, the Bonner Bridge is vital to the residents of Hatteras Island and Ocracoke Island and to the economies of Dare and Hyde Counties.”
- reliability: code for comments about the reliability of a particular alternative for transportation, emergencies, storm evacuation, etc.
 - example: “The concept from the beginning is that replacing the bridge at its current location would not meet the objective of providing reliable transportation between the two islands because if those areas overwashed or new inlets formed, you couldn’t get to the bridge.”
- Pea Island access: code for comments about access to Pea Island, including fishing on catwalks and old Coast Guard station
 - example: “But surfers, fishermen and birders would mourn the loss of road access between Rodanthe and the inlet. Passing through the dunes and waterfowl of Pea Island National Wildlife Refuge, it is a vestige of the [old] Banks.”
- environmentalists and lawyers: code for comments concerning the role or motives of environmental groups and legal groups
 - example: “So many environmentalists have got involved and made this a monster. Enough is enough.”
 - example: “While the lawyers at the Southern Environmental Law Center claim ‘concern and sympathy’ for the people of the Outer Banks, their actions speak far louder than their words.”

- economy: code statements on the economic importance of tourism to the county and individual livelihoods, the economic effects of NC 12 being open or closed to travel, and economic contribution of Dare County to state economy.
 - example: “The residents of Dare County are aware of the vital part of the economic engine the bridge is to Dare, Currituck, and Hyde Counties.”
- cost: code for any references to cost of either bridge; also include allegations about misrepresentation of costs; also include mentions of cost of road maintenance or bridge maintenance
 - example: “The costs for a bridge of this length are so great that there is no reasonable expectation that the project could be funded now or for the foreseeable future.”
 - example: “Carter said maintenance costs over 100 years have been estimated at \$1 billion.”
- barrier island processes: code comments discussing barrier island processes, including erosion, migration, overwash, dynamic environment, inlet movement, dredging, engineering options, etc.
 - example: “. . . the phased approach foolishly assumes that the erosion rate will be regular and predictable and does nothing to address the constant threat of overwash on the highway.”
- agency influence: references to USFWS, Refuge Manager, or other agencies’ roles in the decision, including agency positions and management goals; also include comments referring to an agency with undue influence
 - example: “Bryant urged highway planners to look at a 17-mile route over the Pamlico Sound after making a case that”
 - example: “I’ve watched with complete and utter disbelief as federal agencies and third party litigation oriented interest groups have crippled the permit process”

Less frequently used codes:

- common sense: code for references to using “common sense” for bridge decision
 - example: “I encourage all persons involved in the decision-making process to use some common sense and choose the best long-term solution even though it may be more expense of less politically popular.”
- design elements: code for discussions of specific design options, such as the Rodanthe terminus, short bridge NC 12 options, etc.
 - example: “Working in phases would be costly and entail the use of “environmentally damaging methods,” such as building dunes, beach nourishment, and ongoing highway construction and repair through the refuge.

- engineering options: discussion of other engineering methods to hold NC 12
 - example: “We seek aid in protecting current property boundaries from excessive beach erosion, using whatever means available (beach nourishment, beach structures – groins, stone revetments or gabions, and minimal low bridges where absolutely required.”
- environmental concerns: code for both environmental benefits and harms, including to Refuge habitat and wildlife. Environmental benefits: code for comments on how a bridge alternative will help or improve environment or natural processes other than barrier island processes. Environmental harms: code for statements about how a bridge alternative will harm environment or processes.
 - example: “. . . [long bridge] would benefit marine and estuarine dependent fishery resources that utilize the surf zone and nearshore habitats.”
 - example: “. . . a long bridge through a shallow sound and sensitive wetlands would run afoul of the Clean Water Act and cause far more environmental harm than keeping NC 12 where it is now, in the Refuge.”
- long-term vs short-term planning and effects: code for comments discussing long-term/short-term planning, or long-term/short-term effects
 - example: “The only financially sound long-term option is to build the longer bridge, where the tides will not have such an impact on the foundation.”
 - example: “I strongly urge you to . . . refocus on an alternative that will not push long-term costs on our children and grandchildren.”
- navigation and inlet: code for comments on the importance of, or measures to maintain, the inlet and navigation channel
 - example: “We’re hoping it’s going to reduce our dredging requirements and that we’ll keep a deep-water route coming through the inlet.”
- other: code for comments that reappear but are too sporadic to need a separate code
- outsiders: code for comments that state or imply that there is a different understanding or different goals between locals and outsiders
 - example: “Why should people who don’t live here criticize us? They have convenient ways to get to the rest of the world, and we don’t!”
- permitting: code comments about likelihood of the project receiving permits or the legal requirements for aspects of the project
 - example: “. . . are concerned that the state transportation planners have unrealistic expectations about the legality of the short bridge plan. He said the group had repeatedly expressed concerns about the incompatibility of the phased approach with laws protecting wildlife refuges.”
- place attachment and heritage: code for comments about emotional or sentimental attachment to area, including comments expressing appreciation for scenery
 - example: “Our children love coming down to Rodanthe. We always called it our “little place of Heaven on Earth.”
 - example: “This ride on 12 from my place of employment in Nags Head to my home in Avon is a joy every day. I actually look forward to the drive to and from home.”

- uncertainty: code for statements about the uncertainty of erosion rates, island stability, etc.; also code for uncertainty due to lifespan of project and the adaptability of different alternatives
 - example: “The choices that we are looking at today are the short and the long bridge plus variations that are actually 50 year choices and even possibly more. So the things that we have to, I think, keep well in mind is that in this process of time there are going to be huge changes in the environment. . . we need to have a plan which makes sense today and for the next bunch of years.”
-

NPF coding (manual):

Document ID:

Document Year:

Main Issues Discussed (list):

Cost/Benefit Depiction:

Costs: code for any individual, group, place, or abstract noun (i.e. safety) that is depicted as being harmed or put at risk from plan

Benefits: code for any individual, group, place, or abstract noun (i.e. safety) that is depicted as being improved or benefitting from a plan

Costs of Long Bridge (list):

Benefits of Long Bridge (list):

Costs of Short Bridge (list):

Benefits of Short Bridge (list):

Condensation Symbols/Policy Surrogates:

Condensation Symbol: a phrase or reference that would be familiar to a reader as shorthand for a larger idea – i.e. “American Dream” – shrinks or reduces complicated concepts into simple, manageable, or memorable forms”

Policy Surrogate: linking a smaller issue with a large issue affecting many – i.e. windmills linked with energy independence and terrorism

Does narrative use condensation symbols? If yes, list.

Does narrative use policy surrogate? If yes, list.

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