City of Bath, Maine Comprehensive Action Plan 2009

Bath (Me.). City Council

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City of Bath, Maine

COMPREHENSIVE, ACTION PLAN

Adopted by the Bath City Council
September 2, 2009
CITY OF BATH, MAINE
COMPREHENSIVE, ACTION PLAN
2009

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CHAPTER 1
INTRODUCTION

There are many descriptions of what a comprehensive plan is and what the comprehensive planning process is all about. Some descriptions focus on the plan as the legal basis for zoning; some highlight the fact that the plan is the community’s vision. Other descriptions compare a comprehensive plan to a corporation’s business plan—after all, large towns and cities are big business, raising and spending millions of dollars. Some describe a comprehensive plan as a statement of where the municipality is, where it wants to go, and instructions for getting there. We believe that this Comprehensive Plan is all of these descriptions, and we hope it is one that will be read, implemented, monitored, and updated.

The City of Bath has been doing comprehensive, community planning for decades. The Comprehensive Plan in effect until the adoption of this Plan was developed in the 1990s and adopted by the City Council in 1997. Prior to the 1997 Plan, Comprehensive Plans were written for the City in 1983 and 1959. Several waterfront, downtown, neighborhood, transportation, and other plans have been written over the years, including the following:

- Late 1960s: "The DX (DD963) Municipal Program" (referred to as "The DX Plan")
- 1967: "Master Plan Update"
- 1978: "Longreach, A Resource Conservation & Development Plan for the Bath Waterfront"
- 1983: "Transient Boating Facilities Study"
- 1985: "Development Marketing Survey and Action Plan"
- 1988: "Waterfront Planning Project"
- 1988: "Between the River and the Bay: An Inventory and Evaluation of Bath’s Shoreline"
- 1998: "Bath Transit Study"
- 1999: "Downtown Bath Traffic and Parking Study"
- 1999: "Action Plan for the Bath Waterfront and Downtown"
- 2001: "City of Bath Housing Assessment"
- 2002: "South End Urban Design Plan"
- 2005: "Route 1 Corridor Feasibility Study"

Some of the recommendations from the Comprehensive Plans and transportation, housing, neighborhood, downtown, and waterfront plans and studies have been implemented, but many have not. This statement is not
meant to detract from the quality of the plans or the planning. These documents are cited to demonstrate that planning is not new to the City of Bath.

We hope that in the future this Comprehensive Plan will be referred to as one that was implemented. In our attempt to have it implemented, we have not immersed ourselves in the tasks of developing numerous long-range community goals, followed by a number of objectives for each goal, followed by several policies for each objective, and then followed by even more strategies designed to achieve each policy. Instead, the Comprehensive Plan Advisory Committee discussed what each member likes about Bath and wants to protect as well as what each member dislikes and wants to change. These likes and dislikes were “boiled down” to a number of Issue Statements—that is, positive Issues that we can act on and negative Issues that show us where we need improvement. When the Issue Statements were compiled, the Committee developed a number of Actions (or answers) for the Issues. All of the Issues and Actions were also “reality-checked” by an examination of the numerous inventories included in the appendices. The process is shown in the following flow diagram.

This approach may be a departure from the typical municipal comprehensive planning or master-planning process. In the past, municipal plans often were long-range plans that attempted to predict and/or plan for the final build-out of the community. They were grand plans. In fact, one of the fathers of city planning in the United States said that we should “make no little plans; they have no magic to stir men’s blood” (Daniel Burnham, 1893). Recently, there has been a new approach to city planning. It claims that “[c]ontrary to common perception, effective planning is not contingent on infallible, precise, or even highly accurate long-range projections. More vital to successful comprehensive planning is continual application of short-range projections to current decisions, which must be made and cannot be postponed. In real life, the immediate future is more critical than the distant future, for the continued functioning and survival of the [city] depends on the essential needs of tomorrow more than probable or possible requirements of a more distant day” (Melville C. Branch, Comprehensive Planning General Theory and Principles, 1983).
City of Bath Comprehensive Planning Process

Issues
Issue Statements:
The result of the Likes and Dislikes discussion

Inventory
The various inventory appendices

Analysis
Planning Implications:
What we learned from the inventories

Actions
Sometimes called Strategies: Now that we know what the positive and negative Issues are, and we know what is happening (Inventory and Analysis), this is how we want to capitalize on the positive Issues and improve the negative Issues

The Plan

COMPREHENSIVE PLAN
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This approach also states that “if you are going to plan, plan well and plan for action. If you aren’t going to plan well and plan for action, don’t mess with it” (Frederick H. Bair, Planning Cities, edited by Virginia Curtis, 1970). The Comprehensive Plan for the City of Portland, Oregon, emphasizes that the plan should “concentrate on what’s do-able.” It also states that old-fashioned “master planning” is not what we need to be doing; that we need to work toward achieving the possibilities and be strategic; and that we need to get the “fluff” out of plans, making them readable, usable, and interesting. After all, it is not the plan, or even the planning process, that makes things happen. It is the implementation. “Planning, in and of itself, results in nothing but planning. If action does not follow the planning, the effort is wasted” (Bair, 1970).

The Comprehensive Plan Advisory Committee wants this to be a “comprehensive action plan”—one that will be used, referred to, and implemented; one that can and will be updated with new information as it becomes available. We believe that a committee (perhaps the Planning Board) should periodically review both Issues and Actions. If the Plan’s Issue Statements no longer reflect what the current Issues are, they need to be dropped from the Plan. A process should be established to formulate new, up-to-date Issue Statements. If an Action is not working, then a new Action should be recommended or the Action should be assigned to a different department or committee.

The Comprehensive Plan Advisory Committee began its work in December 2004. It began with a broad geographic and age distribution of members but, as with all committees, the time that each member could commit to the task caused some to drop out. Also, as with many tasks that don’t have an end in sight, interest dwindled. Fortunately, there was a devoted core of Bath citizens who worked to develop this Plan, which was submitted by the Comprehensive Plan Advisory Committee to the Planning Board in January 2009. (According to the Land-Use Code, the Planning Board is the entity responsible for developing the Plan and submitting it to the City Council for its review and adoption.)

During development of the Plan, the Committee held forums for the public and workshops with the City Council. All City department heads met with the Committee to explain the workings of their respective department and to outline their future concerns and needs. All meetings were open to the
public and, as draft chapters were written, they were posted on the City's web site.

The total document is the City of Bath's Comprehensive Plan. The first part includes Issue Statements, summaries of what was learned in the lengthy inventory process, and the Actions that we expect will be accomplished to enhance the City by acting on the positive Issues and by improving the negative Issues. The last part of the Plan—the appendices—is an extensive inventory of various planning elements such as demographics, economy, public facilities and services, and natural resources.

As previously mentioned, it is hoped that the inventories will be updated periodically as new information becomes available, that Issues will be reviewed, and that Actions will be monitored for their appropriateness and success. In this way, updating the Plan won't take three years—perhaps only three weeks.
CHAPTER 2
VISION OF BATH IN 2025

This is how we see Bath in 2025:

*Bath has remained a unique place when many other small cities have lost this authenticity by succumbing to fast-money development. It thus has preserved one of the most important characteristics, which attract the creators of jobs in the new economy: quality of place. This new economy is based on individual initiative, is small, knowledge based, and transportable. Throughout Bath’s history, individual initiative was paramount for its success. Now, because of its well-preserved harmonious architecture, walkability, and waterfront environment, it is a good city in which to live, work, play, and shop and it is a great place to visit.*

This Comprehensive Plan is not an amorphous set of many goals, more policies, and even more strategies, most of which might never be dealt with after the Plan is adopted. Although it contains ambiguities necessary for creative action, this Plan will generate real action by providing a blueprint. To be effective, the Plan must be kept current by revising data when needed and by regularly reviewing its elements. The Plan will be implemented by assigning responsibilities to the people, boards, and departments that will accomplish them.

*It is the City’s vision that this Plan will create the type of future that we, as a community, want. Bath will become a better place by implementing the recommendations of this Plan. Given that the future is not a location to which we are going but rather one that we are creating, the paths to this future are not to be found—they are to be made. This Plan will create the paths.*

The following statements are our vision for the next twenty years:

*Bath has created a more diversified economy. Bath has preserved its authenticity of place for both new and long-established residents. The creative economy with its new jobs is drawn to the City.*
Bath plays an important role in the larger regional economy. The City continues to work with its municipal neighbors on economic diversification and economic development strategies for the region. However, Bath also promotes its own competitive advantages. A diverse industrial cluster is growing in Bath, making use of its unique competitive advantage of industrial land adjacent to deep-water access—a competitive advantage that has been Bath's for centuries.

Bath's downtown persists as the geographical, commercial, and emotional focal point of the community, a lively location in both evening and daylight hours. The development and redevelopment of previously undeveloped, under-developed, and mis-developed parcels have been accomplished in such a manner as to preserve the downtown's historic feel and sense of place, thereby increasing property values. The transportation system provides citizens and visitors the ability to explore the riches of our maritime heritage, cultural treasures, natural resources, and all the places beyond—and then return to the heart of the City.

Educational opportunities for all ages exist because Bath’s taxpayers have supported the notion that good schools are a community's best asset, best promotion, and best insurance for the future. Furthermore, the strong educational resources are a primary recruiting tool in making both the community and the region attractive to new business. They demonstrate an understanding of the future’s challenges.

Bath’s historic resources are also major economic resources that have been actively and sensitively preserved by working with the owners of these community assets. Recognized are not only buildings and landscapes that testify to Bath’s place in the past, but also the community’s diverse history is promoted as a vital part of national maritime history, regional development, and local accomplishments. Education about our historic past—and how to protect it—plays a major role in these efforts by presenting information and solutions to citizens, property owners, and visitors.

The strong distinction between what is urban and what is rural has been a part of Bath’s appeal for centuries. This component of Bath’s land use pattern continues to be preserved and protected. Bath has kept what was urban, urban, and what was rural, rural. All the qualities of rural Bath, not
just a shallow veneer of a pastoral past, are protected. Bath’s agrarian elements remain important and, therefore, shielded from inappropriate residential development as well as promoted. Natural resources such as Merrymeeting Bay, the New Meadows River, the Kennebec River, Winnegance, Thorne Head, Sewall Woods, Butler Cove, and the City parks are equally vital pieces in the cityscape. These green and blue spaces are augmented by the undeveloped parcels, the cemeteries, and the new park with its wind turbine that rests on the former landfill. All of these places are respected and guarded for the role that they play in the natural resources of the region.

As a walkable community for decades, Bath has enhanced further this aspect of the City. In 2025, Bath is laced together with bicycle trails and esplanades, walkways and pocket parks, river walks and running paths from the northern tip of Thorne Head to the southern reaches of the Winnegance. These features link residential neighborhoods to the downtown and other important community-gathering spots. Sidewalks and trails not only strengthen the City’s tangible ties with the various natural resources, such as the Kennebec River, but also connect the urban portion to the rural resources, and link us to our neighboring communities. These paths also play a part in making our community healthier, offering formal and informal athletic activity to all age groups.

Paths are also an important element in the “Cool Communities” initiative—a movement about the wise use of energy and sustainable development that Bath has undertaken. In 2025, Bath is a zero-energy city. Through wind, solar, water, and other “clean” technologies, we produce enough renewable energy to power our City and others in our region. Our homes, businesses, vehicles, industries, and other public systems have been rehabilitated to be as energy-efficient as possible. The City’s residents and leaders are all aware of what we individually and collectively put into our environment and we are protective of our natural resources.

The appearance and safety of Route 1 are improved—unlike the time when the gateway was an affront to our City’s unique character. Innovative and flexible techniques are used to make Route 1 a more attractive entrance to the City, one more representative of Bath’s character. These changes have altered the character of the roadway itself and the vehicle-oriented businesses that surround this commercial streetscape. The Route 1 Corridor
has become a welcoming streetscape, representative of Bath’s character, providing necessary services and connecting the various neighborhoods of the City.

The appearance and safety of the waterside approach on the Kennebec, a most important calling card for the City, are improved. The residents remain actively engaged with the river in a multitude of ways—recreationally, economically, industrially, historically, and visually.

Bath maintains an important role in the region, which includes Georgetown, Arrowsic, Woolwich, Phippsburg, and West Bath, as well as Bath. As the County Seat, host to both the Patten Free Library and one of the state’s largest private employers—Bath Iron Works (BIW)—and home to regional recreational opportunities, Bath is the region’s “downtown.”

The significance of Bath as the Service Center to this region is accepted, celebrated, used as a tool for development, and supported by neighboring towns. The downtown has become a versatile source of service-related businesses, embracing that portion of the municipal role in the region. The City has invested in the infrastructure needed to attract business. Reflecting regional needs and opportunities, Bath and the surrounding communities actively participate in a variety of regionalized public services—including fire, police, education, waste recycling and disposal, and transportation issues—and in the preservation of recreational space and natural habitat.

An often-recommended attitude about the role of a comprehensive plan is to anticipate change and to work with it. That’s not good enough! We believe that we should be creating visionary change and pragmatic improvement—better schools, an improved Route 1, improved Kennebec approach, great neighborhoods where people want to live, a vital downtown, a better and more diversified economy. Being serious about implementing this Comprehensive Plan and its recommendations is the way to make the vision a reality.
CHAPTER 3
BATH’S HISTORICAL AND GEOGRAPHICAL SETTING

INTRODUCTION

Shaped by historical and geological events, Bath, Maine is a slim needle of a city, pulled north and south along the western bank of the Kennebec River. This needle—about 5 miles long and 1 mile wide—formed of homes, farms, businesses and industries has sewn the inhabitants of Bath into centuries of American history with the threads of the many ships built here. This chapter examines the historical and geographical setting of the City of Ships. But any examination of this history that numbers so few pages cannot possibly present all the important events, individuals and groups. The following provides illustrative examples and aspects, but does not do justice to the rich history of this community and those that have peopled it.

THE GEOLOGIC SETTING OF THE CITY

Bath’s suitability as a shipbuilding port was, in a sense, created by the ancient geologic forces that molded the entire east coast of the United States. The folding, faulting, and crumpling of the earth’s crust formed the Appalachian Mountains and its associated chains. Two-hundred million years of uplift and river erosion, followed by two-million years of glacial erosion, shaped the New England landscape. During the glacial epoch the weight of the ice depressed the crust, allowing flooding of the valleys upon the melting of the glacial ice. The valleys of the drowned coastline became bays and inlets; the higher ridges producing the peninsulas and islands of the midcoast region. Through eons the geologic landscape evolved into local topography that encouraged our maritime industry.

The glacier left many lakes in New England; the largest in the area is Moosehead Lake, the source of the Kennebec River. In Bath about 12 miles upstream from Popham and the river’s mouth, the channel of the Kennebec flows wide and straight from Thorne Head to Fiddler’s Reach and Winnegance, almost five miles of what would be known as Long Reach. This maneuverable half-mile-wide stretch of tidal river was made accessible by the low and gentle relief of the area, particularly at water’s edge where land
slopes gradually, allowing the easy use of shore for maritime industries. The Kennebec here, despite troublesome currents, also possesses a soft, sandy bottom that provided good anchorage.

On the western bank of Long Reach, a series of granite-supported ridges generally parallels the line of the river, successive ridges rising like steps away from the river. Three of these ridges hold the major north-south streets that emphasize the elongated shape of Bath—Washington, Middle, and High Streets. The subdivision of early land holdings would create long, slender parcels that stretched across these ridges to the all-important water. These property lines often determined the placement of the east-west cross streets in the young community. To the south and west, the land rises more sharply to heights that strongly influenced and contained the location of initial settlement and continued development. The settlement focused on the river, the major road of its time and the source of much industry. As time progressed, development even reached out into the water as wharves were extended, creeks diverted, and low and near-shore areas artificially filled. And so, the coastline of Long Reach was rewritten, not by geological forces, but by human action into Bath, the City of Ships.

**PREHISTORY AND EARLY CONTACT IN THE MIDCOAST REGION**

That human imprint on the landscape began with the Native-American presence in the region some twelve thousand or more years ago—before the state was completely ice-free from the glacier. Approximately one thousand years prior to European contact, this part of North America was the home of the Eastern Algonquian who typically organized in small local bands with seasonal residences. For some of those bands, the Kennebec River provided an important transportation route, providing a path between the subsistence-lifestyle resources of the interior lakes, the tidal estuaries, and the offshore islands. Just before contact with the Europeans, the patterns of life in the Northeast for the Native Americans were evolving rapidly in response to technological innovations within agricultural practices, ceramic use, and canoe construction. The rhythms of this well-rooted but developing life were interrupted by the arrival of the European explorer and trader.

European interest in this portion of the so-called "New World" was intermittent. The contact between European fishermen and the natives of Maine was limited in the sixteenth century. The shifting fashionable and
political desires of a European population, however, drove more explorers to the coast and inland in their search for both beaver pelts and areas for colonization. The Kennebec River in the immediate vicinity of Bath was investigated by Samuel de Champlain in 1605 and John Smith in 1616. With this intensification of interest in the area of Maine and the resulting visits came the epidemics that left a coastline of New England described in 1619 as dotted with “ancient Plantations, not long since populous now utterly void; other places a remnant remains but not free of sickness” (quoted in Bourque: 119). No permanent Native-American settlements have been identified in Bath, but in the shoreland zone some archaeological sites associated with seasonal or hunting camps of pre-contact and early post-contact populations have been located.

POPHAM COLONY AND EARLY SETTLEMENT: 1607-1750

English colonization began famously and briefly on the doorstep of Bath at the failed Popham Colony in 1607. That temporary settlement contributed to the general knowledge of the Kennebec River and the neighboring region. More serious resettlement slowly began in 1630 in the area labeled as Sagadahock that included Bath, West Bath, Woolwich, Arrowsic, Georgetown, Phippsburg, and even portions of Brunswick. Trading posts and budding settlements by adventurous individuals sprang up along the Kennebec in the middle of the seventeenth century. In the current limits of the city, settlements by Christopher Lawson and Alexander Thwaite were significant. Within a dozen years they were joined by a handful of others. In 1665 as the number of colonists rose, the town of Kennebec was acknowledged formally although bounds were not specifically defined. This town of Kennebec separated Bath, Phippsburg, and Brunswick on the western bank of the river from the more populated eastern portions of the Sagadahock area. Much of what was the central portion of Bath was owned by Robert Gutch. When he died in 1667, the land that he had obtained from Robinhood, Terrumquin, Weasomonasco, Scawque, and Abumhamen, representatives of the Kennebec tribe, was left to his eight children, although it would not be divided and sold for nearly ninety years by the remaining descendants of four of his daughters.

The pattern of settlement, including the process of purchasing parcels, establishing homes and businesses, and creating local governments, was disrupted in the third quarter of the seventeenth century. The generally
good relations between the indigenous people and the newer residents of New England were torn apart by a series of wars that may have been inevitable, considering the differing world views of these groups and the competitive nature of the European powers. The first of these wars, known as King Philip's War, began in Massachusetts in 1675. The turmoil spread to Maine, culminating in this region in the raids the next year on both the Hammond Trading Post at the Narrows across from Chops Point on the eastern shore of the Kennebec and the Clarke and Lake Post in Arrowsic, from which only five colonists escaped death or capture. Although some colonists persevered in the coming years, additional wars, attacks and counter-incursions soon persuaded virtually all that the towns of Sagadahock and Kennebec were best abandoned at this time.

After the resolution of Queen Anne’s War in 1714, English settlers returned to this region, at least temporarily, beginning with Arrowsic Island. Here in 1716 the township of Georgetown was established. In Bath, repopulation dragged; only three families lived within the current limits of the city between the resolution of Queen Anne’s War and the beginning of Dummer’s War in 1722. At that time, apparently all three lost their homes to the fires of Indian raids. In North Bath at the Chops, Joseph Maynes established his ferry where Merrymeeting Bay and the Kennebec meet during the first part of the eighteenth century (Dearborn Lovetere). Rebuilding began once again in 1725. By 1738 five families had created homesteads in Long Reach, as Bath was known at that time. This time the foothold was permanent, despite skirmishes with Indians in the coming years. In that same year Georgetown was organized and enlarged to encompass the current towns of Bath, West Bath, Phippsburg, Arrowsic, Woolwich, and Georgetown.

THE SECOND PARISH BEGINS: 1753-1760

In 1753 the forty families north of Winnegance Creek successfully petitioned the legislature of the Massachusetts Colony for permission to incorporate the second parish of Georgetown. Noting the difficulty, particularly in winter, of travel to the Meetinghouse in Georgetown, the inhabitants wished to establish their own place of worship, but not to separate from the town or its governance. The residents had already set

\[1\] A map dating from 1718 indicates the pioneering homestead of the cooper Christopher Lawson from some fifty years earlier, noting “Mr. Lawson’s Cellar” in North Bath (Dearborn Lovetere).
aside small parcels as private cemeteries.\(^2\) The first meetinghouse, Bath's first public building, finished in 1762, was on the current Berry's Mill Road in West Bath, where the town road (corresponding to today's Western Avenue which was a continuation of High Street) intersected the old military road. This military road that extended through North Bath connected the Scots-Irish settlement on Merrymeeting Bay to other parts of the mid-coast (Dearborn Lovetere).

As the Province of Maine grew, Lincoln and Cumberland counties were carved from York in 1760. Bath would remain part of Lincoln County until the mid-nineteenth century. The Gutch parcel now became a saleable asset as the frontier was gradually domesticated. New families joined the community of Long Reach. The names of these early inhabitants, such as Lemont, Marshall, Philbrook, Purington, Crooker, Coombs, Donnell, Trufant, Rogers, Sewall, Lambert, and Turner among others, have echoed through the decades of the city's development, naming the streets and geographic features, still appearing among the residents more than two hundred and fifty years later. The cemetery of that early meetinghouse and much of the existing street pattern remain as evocative inscriptions of that time. So too, historic archaeological sites, such as the Henry and Dummer Sewall mill of 1763 on Whiskeag Creek, located on or near a mill site that itself may date from the Gutch occupation of a hundred years earlier, survive as relics of the past (Dearborn Lovetere).

**LONG REACH BECOMES THE TOWN OF BATH: 1760-1800**

During this time the natural resources of mixed forest and hospitable river sparked the shipbuilding activity that still dominates Bath's economic profile. Initially, locally built vessels were in the service of other businesses. Not until William Swanton arrived in Long Reach in the early 1760s did the shipbuilding industry truly begin. His yard and the first wharf in town are believed to have been at the foot of Federal Street, an area now covered by BIW, north of Russell Street. The reported first launching of 1762 saw the

\(^2\) The Trufant Burying Ground found at the corner of Middle and Springs Street was said to have been established before the 1730s, possessing more than 90 graves. As Owen noted, this was likely an exaggeration, at least of the founding-date estimate. No markers have been standing for over 70 years to document these claims. The earliest extant marker at the Witch Springs Cemetery, next to the first meeting house, belongs to Mrs. Abigail Gleason who died in 1766 (Owen:434). In North Bath, the oldest gravestone dates to a death in 1749 in the Welch-Wise Burial Ground (Dearborn Lovetere).
Earle of Bute slide into the Kennebec, built for a Scottish merchant. Swanton continued until the Black Prince, a privateer, was constructed in 1776, during the American Revolution, for a Salem company.

The year before that latter launch, Dummer Sewall and several armed Bath residents had stopped the loading of masts and timber by the British at the King’s dock at the foot of Harward Street. Later numerous Bath men joined the Continental Army. A 1777 summary of the 169 male inhabitants of military age demonstrates the growth of the Second Parish since its separation from Georgetown. No doubt, it was with great pride, that Long Reach, now rechristened Bath, became the first town incorporated under the new state constitution of Massachusetts in 1781 and the forty-first town in the province of Maine. Approximately ten structures or portions of buildings in the current city limits may stand as testaments of that period from the mid-eighteenth century to the time of the town’s incorporation.

Local economic growth included many occupations other than shipbuilding as the settlers within North Bath and elsewhere practiced subsistence farming. A land deposition of 1763 acknowledged still other ways of making a living in the area, listing tanners and weavers besides those who were farming. Period maps also indicate the presence in North Bath of mills and ferries that contributed to the increasing expansion of the larger settlement (Dearborn Lovetere).

Development continued as the town grew sufficiently to support stores and an embryonic infrastructure. In the early 1780s, the second wharf in town was built at the foot of South Street. Its owner, Jonathan Davis, also constructed a store that was joined in the next decade by others. Not surprisingly, the street was known initially as Davis’s Lane and became the first central business district of the community. Bath was connected to other communities not only by the Kennebec, but also by the post road that led from Boston, via Portland and Brunswick, down High Street to Thorne Head where the ferry crossed the river at the Narrows. Traces of a canal that joined the Kennebec and New Meadows River can still be found in North Bath. The customs district of Bath was established in 1789. All of these

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3 Captain John Peterson, a transplant from Massachusetts, conceived of the canal and began petitioning the courts for permission to construct it. Likely opened by 1792, the canal ran from the New Meadows River to the Kennebec via a waterway called Welch’s Creek [Also identified by Nancy Dearborn Lovetere as a stream known variously as the Little Whiskeag, Whittam’s or Crawford Creek]
developments attracted more people, such as the Pettersons, Tallmans, and the notable William King.

**THE ENDURING SKELETON OF THE CITY DEVELOPS: 1800-1815**

By 1800, as Henry Owen noted in his history of Bath, the underlying form of the modern city was in place. Two roads ran much of the city's length - the Town Road/High Street and the County Road/Washington Street. The latter's route curved its way up present-day Winship and Whiskeag Roads toward Brunswick. Another path, still visible in Thorne Head today, continued north to the ferry that had been operating since the early 1760s across the river to Pownalboro, the seat of Lincoln County. These two major roads were crossed by three streets—North, Centre, and South Streets. Western Road still moved off the town road toward the meetinghouse and parts east. The foot of Davis Lane remained the central business district.

Joshua Shaw, however, had purchased “The Point” to the north, dividing his property into lots. This peninsula of slightly higher land was approachable through a narrow neck in the vicinity of Vine Street. Shaw appears to have offered more reasonably priced parcels than were available in the South End, thereby diverting development and rewriting the face of the city. Nevertheless, the coves, creeks, and tidal flats that surrounded the Point created a problematic landscape where several bridges were needed to extend Centre Street, to create Front Street, to connect Elm Street, to bridge the waters of Water Street, and so on. Throughout the nineteenth century, fill changed the landscape of downtown as construction eliminated the obviously low places, and crept out into the river. The basements of several commercial establishments still demonstrate daily at high tide the river's tenacity.

The growth of the city is illustrated by the 1800 population of 1225 residents. More shipyards and wharves began to line the waterfront from one end of the community to the other. Their primary market was the West

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. Only economically viable for a little more than a decade, the hours of operation were limited to three hours of each tidal cycle since the times of high tides at each end differed. Without sufficient depth and flow control with locks or tidal gates, the canal could not remain a workable and profitable concern. After the canal's demise, Peterson and his son Levi moved into town where they operated a saw and gristmill (Dearborn Lovetere, referencing William E. Gerber's article “Twice-A-Day-Island” from *The Best from American Canals*, number II, page 11.).
Indies where they sold the natural resources of sea and shore. Bath ships also carried goods for both France and Great Britain, to great profit. As William Baker writes, “Frequently a vessel earned her entire cost on one voyage. Bath had never seen such prosperity as in those early years of the nineteenth century” (Baker: 166). That money started the creation of a civic fabric that showed the pride of the inhabitants. The first church in the town, North Church, was built in 1802 at the northeastern corner of High and Centre Streets, neighboring the first public school, “Erudition,” constructed in 1794. It was this church that received, in 1803, the Paul Revere Bell that is now housed in Davenport Memorial City Hall. The next year, South Church, the result of a disagreement within the congregation, was built where only the place name “Old South Place” remains to testify to its presence and the accompanying common where the Bath City Grays, the local militia, once drilled. The fire department was organized that same year.

Another school, the Female Academy, went up the next year in 1805. Another educational institution, variously known as the North Bath Mixed School or the Ireland School, was built in North Bath in the year 1808 (Dearborn Lovetere). The first brick structure, the Bath Bank, on Shaw’s Point, was constructed for William King on the southwestern corner of Front and Center. Residential construction kept pace with these developments, including the notable Stone House of Ann and William King – believed to be the first Gothic-Revival structure in Maine. This was the centerpiece of King’s substantial farm with extensive orchards. But this burgeoning settlement hesitated, as did many in New England, because of national events – the Embargo of 1807 through 1809, and the War of 1812.

**BOOM TIMES FOR THE CITY OF SHIPS: 1815-1860**

When the news of peace reached the United States in February of 1815, a new era began not only for the country, but also for Bath – an extended period of expansion of the maritime fleets. This boom time truly cemented Bath’s reputation as a shipbuilding community, increasing the population and the architectural fabric of the town. The dense neighborhoods of Greek-Revival detailed capes and two-story homes were largely constructed in the two decades before the Civil War. The visual character of Bath was established at that time, remaining remarkably intact to this day.
The extensive family-owned fleets were a significant portion of this growth. As discussed in Baker's *Maritime History of the Kennebec Region*, three generations of McLellans built or managed 51 vessels between 1807 and 1865. Their fleet measured over 21,000 tons. Two generations of Houghtons began their shipbuilding at the foot of South Street. The senior Levi Houghton had some twenty-six vessels constructed between 1819 and 1858. John and George Ferguson Patten moved to Bath where they began another great family fleet in 1821. In their yard on Front Street just south of Cedar/Holly Street they built one or two ships a year for almost the next 40 years. Since the Pattens built for their own commercial use and not for sale, their fleet became one of the largest of its time under the American flag. Owning shares in other locally built vessels, it is estimated that they owned all or part of 65 vessels at one time. As Baker noted, the Patten house flag, which featured a blue anchor on a white field, was known around the world.

The remaining notable family fleet is that of the Sewalls whose yard was begun by William D. Sewall, grandson of Dummer Sewall. Working at the yard that was established on Front Street, just north of Cedar Street, William D. Sewall began building about 1827 and continued for the next fifty years. Before the beginning of the Civil War approximately 35 vessels were associated with the Sewalls. As the firm and its successors continued until 1903, the total number grew to over one hundred, including both the *Rappahannock* of 1841, the largest ship in the world at the time at 1133 tons, and the *Roanoke* of 1892, the largest square-rigged ship to fly the American flag in commercial service. It is the latter's silhouette that graces the weathervane of our city hall. Besides contributing significantly to the city's economic growth, each of these families also left its mark on her architectural heritage, having a constellation of homes built by the different generations. Many other families and individuals contributed to the vitality of the shipbuilding industry within the city, too many to be discussed here, but mention must be made of the master builder Johnson Rideout. Among his feats was the construction of the 240-ton steamer that was carried by the bark *Emma* in 1849 around the Horn to the California Gold Rush.

Other businesses found in North Bath were also water-dependent. They ranged from the Sewall mill, located near where the railroad tracks now cross Old Brunswick Road, to those mills associated with the Peterson, Lemont, and Rogers families on the Lower Mill Pond where Whiskeag Road intersects Whiskeag Creek. Some small shipbuilding enterprises were
conducted in this area and other manufacturing ventures like a blacksmith shop and the Crooker cooperage contributed to the urban and rural shipyards. The Crooker manufactory created other products of wood including sleighs. The shallow waters of Butler Cove on Merrymeeting Bay offered opportunities for rich harvests by fish weir. Thomas Stetson ran the ferry from North Washington Street across the Kennebec River to Day's Ferry (Dearborn Lovetere).

The population of the town in 1830 more than tripled from the census of 1800 to over 3700; in the coming decade another 1400 individuals would be added. This growth in numbers, and the catastrophic Front Street fire of 1837 that destroyed 30 buildings, produced a new central business district of brick buildings beginning in the late 1830s. A brick town hall was begun in 1837 at the intersection of Centre and Water Streets. Only two structures in the current downtown date from before that time. 106 Front Street is a commercial building that was constructed in 1832 not long before the fire. Its simple Greek Revival lines of brick with granite sill and lintel were repeated from 1832 to 1841 throughout “Merchant's Row,” the downtown stores ranging from 100 to 136 Front Street. The second survivor of that time period before the fire, the residence near the south-west corner of Centre and Water streets reminds the current-day observer of the mix of dwellings, commercial and manufacturing establishments that created nineteenth-century downtowns.

More elaborate structures joined these in the 1850s and 60s to form closely the modern reach of the downtown. While some families, like Oliver and William Moses and their descendants, could be hailed for their achievements in the maritime arena, they should also be remembered for their role in shaping a central business district of architectural merit. William King not only influenced the face of the city in his backing the construction of the South Church and the Bank Block, but also campaigned for the separation of the province from Massachusetts, serving as the first Governor of Maine in 1820.

The boom era of the pre Civil-War period molded other aspects of Bath's landscape as the population jumped from five thousand in 1840 to eight thousand, with an additional 600 non-resident seamen, in 1850. Many of the extant architectural artifacts still speak to the prosperity of that time, for example, these grand new churches: the Swedenborgian (1843), Winter
Street Church (1844) and the Central Congregational/Chocolate Church (1847). In his maritime history, Baker quoted a traveler to the Kennebec in the early 1850s:

Woolwich had an inhospitable appearance, being hardly more than a town of granite ledges, and it is said that the farmers were accustomed to file the noses of their sheep to make them sharp enough to obtain sustenance. ... On the western bank of the river [in Bath] it was a never-to-be forgotten scene. As far as the eye could extend there was nothing else to be seen but ships on the stocks, some with their bare ribs, others nearly completed—often 20 or 30 in number (423).

These operations were overseen by the new elaborate Italianate Customs House, begun in 1852 with the most technically advanced fireproof construction of the time.

The city was laced in new ways to the outside world by new means of transportation. The Portland & Kennebec Railroad, presided over by a Patten began operations in 1849 and joined the land stages and ferries that brought travelers to the city.

The largest changes to the community’s landscape, however, were lines drawn on maps. Bath lost part of its western holdings as the New Meadows River residents incorporated in 1844 as West Bath. These citizens of West Bath objected to the growing expenditures in the increasingly urban portion of Bath.4 The remaining portion, with dreams of its metropolitan future, was incorporated as a city in 1847, the third city in the state after Portland and Bangor. A few years later in 1854 when Sagadahoc County was formed from a portion of Lincoln County, Bath was made the county seat.

The statistics of the 1850s paint an evocative picture of that quickly arriving future. In 1854, the biggest shipbuilding year of that decade, nineteen major firms were building ships in Bath. It has been written by P. L. Pert that Bath was third nationally in 1854 in wooden-hull production and the fifth leading port in 1857 in registered tonnage. Reportedly the strip of Kennebec frontage from North Street to Drummond has had more ships built upon it than any other equal area in the world (Pert:2). This explosion in shipbuilding was accompanied by growth in all the associated industries such as chandleries and ropewalks, but also in those that supported the resulting

4 This left some residents like Samuel Foote, who worked both as a farmer and the toll-keeper at the Merrymeeting Bay Bridge, wondering just where they lived. His home, still on Old Brunswick Road just over the West Bath line, stood on a parcel that was suddenly divided by both towns (Dearborn Lovetere).
population. A city of shipbuilders still needed dressmakers, grocers, shoemakers, and so on.\(^5\) Six more churches were constructed; three new banks joined the existing three. Bath High School of 1860, designed by Bath native Francis J. Fassett, joined the nearly dozen small neighborhood schools constructed since 1840. Of all of these schools only the former Weeks Street Grammar School still exists as part of the Corliss Street Church holdings. The Trufant Historic District documents the virtual frenzy of construction. Of the sixty-one structures in the district, thirty were built in the nine-year period between the city's incorporation and 1856. These homes are just some of the wooden survivors throughout Bath, the domestic counterparts to the golden age of wooden shipbuilding. The economic depression that began in the late 1850s, deepened by the hardships of the Civil War, changed all that activity and probably changed the nature of the city's future forever.\(^6\)

**THE CIVIL WAR AND ECONOMIC DISRUPTIONS: 1860-1880**

The Civil War disrupted the shipbuilding industry of the city in numerous ways. Young men went to war and many didn’t come home; others came home disabled by their experiences. It is estimated that some 800 Bath residents served in the armed services during the conflict, ten percent of the city’s population, and over 100 died in that service to the Union. The fleets were hamstrung by the disruption in trade and actual destruction or capture by Confederate destroyers. Large numbers of Bath vessels unable to come home, were sold in foreign ports. The deep-sea fleet never recovered. The economic downswing resulted in a citywide reassessment of real estate, reflecting the depressed values in the early 1860s.

\(^5\) It should be noted that the editor of the *Weekly Mirror* in February of 1853 stated that there was a clear need for the city to encourage greater diversification in the city's economy (Baker: 427).

\(^6\) As discussed at more length in Pert's *A Summary History of Bath, Maine 1850 to 1990*, the 1850s were not years of unmitigated progress for all in the community. Civic efforts were made to find aid for the poor, some of whom occupied the poorhouse that had been initially constructed in 1808 and expanded in 1837. [A portion of the Alms House still stands.] The spasmodic tensions concerning race, religion and ethnicity that gripped the nation, erupted in Bath in 1854. In early July, a mob of anti-immigrant, anti-Catholic members of the “Know-Nothing Party” set fire to the Old South Meetinghouse on High Street that had been leased to the Roman Catholics in 1847. A painting of the church’s fiery end can be seen in the Reading Room of the Patten Free Library. They also attempted to drag a home rented by a Catholic family into the river, after stoning several other such homes. The municipal authorities, as noted by Owen, were remarkably understated in their efforts to contain the rioting.
The Confederacy rebellion, however, brought the first government contract for naval vessels to the city. Two wooden steamships were constructed for the Union Navy by the partnership of Stephen Larrabee and Amos L. Allen. As Pert details in his history, the firm was ruined when penalties ate more than the profit realized, penalties levied because of the delays of an out-of-state supplier (Pert: 5). That pattern of unanticipated expenses spoiling investments continued with the expansion of city interests into several railroads and the running of the Merrymeeting Bay Bridge between Topsham and Brunswick, a piece of infrastructure seen as instrumental in facilitating additional traffic to Bath. Those civic debts, notably the railroad bonds, would shackle the city’s budget and ability to invest in other pieces of infrastructure for a century to come.

The economic climate of the 1870s remained depressed as a result of local and national factors. One winter brought twelve feet of snow to an underemployed city and the number of people requiring aid more than doubled from 1872 to 1877. The city’s responsibilities were spiraling out of control as the per-capita debt increased from $2.10 in 1850 to $53 in 1870. This later figure doesn’t include the issuing of bonds for the railroads that further increased the city’s obligations. Attempts to bring additional industry to the city sometimes failed, as did the Patten Car Works that built luxurious cars for the railroads that stretched their tracks from coast to coast. That local business ended in 1877 when a national depression cut the market. Nevertheless, the size of Bath’s combined sea-going fleet of the 1870s was still impressive. In 1877 it numbered more than 200. But rather than retaining ownership and keeping the subsequent profits from voyages, Bath shipyards now made their income simply from the contractual construction and sale of vessels, many of which were smaller and engaged in the coastal trade.

Despite the financial difficulties of these two decades, improvements were made to the city and to individual fortunes. Sarah Sampson and other Bath women, sensitive to the devastation of family life by the Civil War, were instrumental in the creation of the Bath Military and Naval Orphan Asylum in 1866. Another charitable institution was begun in the “Old Ladies’ Home,” sparked by the bequest of Mrs. Mary J. Ledyard and further funded by

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7 Sampson, one of numerous Maine women who served as nurses in the Civil War, was unusual in her stubborn devotion to the orphans and veterans, ending her working career in the Pension Bureau in Washington D. C. She was buried in Arlington Cemetery in recognition of her decades-long service.
private citizens of Bath. The Patten Library Association, formed in 1847, was given a house and lot to occupy on lower Centre Street by Captain John Patten in the late 1870s. The Sagadahoc Historical Association was formed in 1877 when residents began to see the need to save artifacts and document the stories of Bath’s past. Additional commercial and government buildings were constructed within the downtown, including the Church Block, the neighboring Lincoln Block [44-56 Front Street], the Hyde Block [Bath Savings Institution] and the Sagadahoc Country Courthouse – all designs of Francis Fassett. The Church Block featured iron architectural elements made by the Bath Iron Foundry, one of the incarnations of the foundry begun by William and Oliver Moses in the 1820s. After a series of owners it was this foundry that was purchased by Thomas Worcester Hyde, the son of a successful chandler, upon his return to his hometown after the war, eventually becoming Bath Iron Works.

RECOVERY AND NEW DIRECTIONS: 1880-1900

The last two decades of the nineteenth century brought a level of economic recovery to the city. The population that had dropped in 1870 to 7371, recovered to 8723 in 1890, and popped to 10,477 in 1900. This increase produced a housing shortage and then, a small building boom in modest dwellings at the end of the century. Many of these residents were still working in the shipbuilding industry as Bath continued to construct schooners for the coastal ice and coal trade, albeit in fewer yards. Pert’s history states “in 1882, Bath was turning out more wooden vessels every year than any other place in the world. And by 1890, the tonnage output would exceed that of any other decade in the city’s history” (Pert:7). Since many skilled laborers had left during the bad times, new hands had to be hired. Many were Canadian immigrants, some of whom traveled down the well-established Chaudiere Trail that included that one great constant highway, the Kennebec River. The river also provided jobs as the Bath-based Knickerbocker Towing Company, owned by the Charles Wyman Morse family,

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8 The south side of the Hyde Block on Broad Street was the scene of an 1883 murder, the killing of a policeman, "Uncle Billy" Lawrence, by a robber surprised in the act of breaking into the chandlery here at that time. The city government, having a small police force, called on the services of a private investigator. He was able to identify and track down the guilty party, arresting Daniel Wilkinson in Bangor. The public followed the event, the investigation, the confession, and the trial avidly in newspaper stories. Wilkinson's execution by hanging in 1885 did not go as planned, and the rope strangled him slowly, horrifying Mainers. Before two years passed, the state legislature had abolished the death penalty in Maine.
provided the ocean tugs that guided first the schooners, and then the barges of ice bound for parts south.

North Bath continued to develop, gaining new services for those who lived and worked in the mills, farms, small factories, ferries, and fishing operations of the area. The construction of Union Chapel, located near the North Bath School, provided another reason to avoid the trip into the urban heart of the community. Although the establishment of a public post office was requested and refused by the federal government, farmer John Grace Rogers maintained a private post office from 1890 to 1898. Other changes were about to begin in this rural portion of the city. In the last years of the nineteenth century, an existing industry began to burgeon throughout the state. Tourism, particularly for the summer visitors or rusticators, expanded dramatically, both inland and along the coast. North Bath saw its version of this expansion when camps for children were constructed on Thorne Island and at the Chops in Woolwich in the early twentieth century. These camps, just part of a growing summer-home movement, continued into the 1950s and 60s. Increasingly, the waterways like Whiskeag Creek were not just routes of transportation or power for mills, but locations for recreational activities (Dearborn Lovetere).

The 1880s saw the expansion of Thomas Hyde's foundry. He expanded the ship-machinery products of the manufactory, including his patented steam windlass. In 1884, the business was incorporated as Bath Iron Works, Limited. In 1889 Hyde purchased the Goss Marine Iron Works, a business begun seven years earlier to produce marine engines in Bath. Hyde understood that despite the profitable past of wooden ships, a new era had come. He pursued new technology and contracts from the U.S. Navy. In 1889, President Benjamin Harrison and his Secretary of the Navy inspected the company, later speaking to Bath citizens from the steps of the Customs House. With Hyde's successful bid to build two gunboats for the Navy, Bath Iron Works both constructed the first steel vessels to be built in the state and began an association that has survived for more than 125 years. In the coming decade BIW would construct 30 more vessels, including the "largest and fastest steel steam yacht ever built in the U.S. up to that time, the first composite, electrically lighted lightship, the first ocean-going American tramp steamship, and two of the fastest torpedo boats of the U.S. Navy for that time" (Pert:8).
Additional accomplishments in the industry were achieved by other Bath yards in the 1890s. As mentioned earlier, Arthur Sewall & Company produced a series of sizeable, square-rigged ships, including the *Dirigo*, the first steel sailing ship built in America. Other yards pursued the five and six-masted schooners. The latter was first produced in Bath by the Percy & Small Shipyard, established in the mid-1890s, where the largest schooner ever built in Bath was constructed. This property now houses the Maine Maritime Museum with its collections documenting both local and state maritime history, as well as the sculpture evoking that huge ship, the six-masted *Wyoming* built in 1909.

This prosperity and the urge to modernize brought improvements to the city’s infrastructure. The establishment of a public water supply (1887), a local electric company (1887), a city trolley system (1893), and the eventual connection to the Lewiston and Brunswick inter-urban system (1898) must have brought a sense of optimism and progress to the community. The first appropriation for streetlights in 1888 brought a new illumination to the night – even if there were just 20 lights that operated only on moonless nights for the 35 miles of streets. That confidence was also reflected in the construction of new structures for the entertainment and edification of Bath residents. Alameda Hall (1882), on the present-day parcel of the BIW Credit Union, was initially built to take advantage of one of the wildly fashionable trends of the late nineteenth century – roller skating. While the large structure housed the games of the award-winning local roller polo teams, the galleries there also allowed an audience for theatrical events, dances, political gatherings, and fairs of assorted types. The Kennebec Yacht Club was constructed late in the century, an example of the numerous other social clubs and organizations formed. The Patten Free Library, through the generosity of Galen Moses gained its first new building in 1891, a structure designed by George Harding—a New York architect born and raised in Bath across the street from the library’s site. This was his only building in Maine.9

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9 Another Bath native came to national attention when Arthur Sewall became the running mate of the Democratic presidential nominee William Jennings Bryan who campaigned unsuccessfully in 1896. Sewall’s wife Emma Duncan Crooker Sewall was also known internationally, albeit to a much more select group. Learning photography in her fifties and largely practicing the art between 1884 and 1899, she became the first woman to be invited to join the Boston Camera Club, winning awards there and in France.
This last decade of the century also saw a profound change in the business district as a series of fires ravaged establishments on Front Street and nearby properties. The first fire in 1893 destroyed the Columbian Hall and Columbian Hotel at the northern end of the downtown between Summer and Elm Streets. These structures were being replaced by a new Columbia Theatre and YMCA building, under the auspices of Galen Moses, when another fire in January of 1894 started in the stables of the Sagadahock House, behind that grand hotel at the corner of Front and Centre Streets. This blaze devoured the hotel, the Granite Block beside it on Front Street, additional buildings on Centre Street, and then jumped the streets to damage multiple buildings on the east side of Front Street and the south side of Centre, despite the efforts of firefighters from Bath, and those contacted by telegram from neighboring communities. The situation was badly exacerbated by the break in a water line from the New Meadows River that fed the city’s water system. Not a month later, plans for the construction of new retail and office spaces in this part of the city were being formulated when a fire in the joiner shop of Bath Iron Works spread, virtually destroying the shipyard of the Works in the far northern portion of what continues to be BIW property today. Again, the lack of water pressure played a major role. While Thomas Hyde decided in the long run to stay in Bath and rebuild fireproof buildings, his anger at the situation nearly moved the entire business to New London, Connecticut.

The new downtown buildings, one designed by Francis Fassett and several by John Calvin Stevens, the leading architect of the state in this period and a former apprentice to Francis Fassett, again demonstrated the community’s belief in itself. The destruction from the fire was used as an opportunity to widen Front Street. Here was also a chance to construct “modern” buildings with large expanses of plate glass to entice the window shopper, fancy mosaic entrances to lead them into the retail establishments, embossed metal ceilings and columns to emphasize the safe fireproof conditions, and fashionable architectural details to echo the classical and colonial inspirations of the day. These buildings showed Bath as an up-to-date city, quick to recover from catastrophe.
A NEW CENTURY, NEW CHALLENGES, AND A NEW WAR: 1900-1918

Although the twentieth century began with great activity in the social and economic spheres of the city, things changed because of the difficulties in the shipbuilding industry. As Pert’s history summarizes “shipyard activity was at a peak in the city between 1899 and 1902, but by 1910 all shipyards would be idle except for BIW, Ltd.” (Pert:11). Yet, improvements in the city continued. Beginning in 1904 the generosity of Charles Wyman Morse, a successful entrepreneur in steamsboats and ice, financed the construction of Morse High School, named after his mother Anna E. J. Morse. In 1909 the former Winship Street residence of James Jones was renovated as the Bath City Hospital, gaining a three-story brick addition shortly after the facility opened. A portion of the city farm was set aside the same year for recreational purposes to become Kelley Field. In 1913 the Alameda was torn down and replaced by the Bath Opera House. As in the 1870s, the private citizens of the community did not allow the economic situation to preclude social progress they felt the city needed.

Of course, that industrial slowdown was about to change in a completely unanticipated way to an unfathomable level of construction and population. Despite America’s initial reluctance to join the Great War, the shipbuilding industry was drawn into the maelstrom as soon as war broke out abroad. The European merchant marines had been carrying 90 percent of America’s foreign commerce. Their immediate conversion to military purposes meant a shortage in cargo-carrying ships. Locally one response was the purchase of the New England Shipyard and the lease of the Sewall shipyard by The Texas Oil Company for its Texas Steamship Company. Bath Iron Works also capitalized on these opportunities. Workers in the thousands came flooding into the city for these companies, in particular, and the four yards still producing wooden ships. And while the stereotypical figure of “Rosie, the Riveter” is associated with World War II, young women were helping in both the yards and the offices of the shipyards during this industrial push of World War I.

Despite a residential project begun before the war on Snow Park between Centre and Academy Streets, additional, immediate actions had to be taken to house the new arrivals. Temporary measures ranged from a tent city on North Street, houseboats on the river, one-family homes converted to multifamily, to temporarily transformed garages and camps. The Texas Steamship
Company began constructing homes in northern portions of the city, including the streets of Edward, North, Washington above Winship, Park, Oak west of High, and so forth. But, by 1918 the population was unmanageable, swelling to 14,000 and perhaps as much as 20,000 during the workday.

Once war was declared in the United States, the new Emergency Fleet Corporation requisitioned all steel ships under construction in the country. One of the corporation’s responsibilities was the housing of workers for the war effort. They facilitated the efforts of the local companies and the city to create additional housing, infrastructure, and public utilities such as schools for these workers. One project aimed at the workers of the Texas Steamship Workers was the development of brick homes with slate roofs in the area bordered by Oliver, Winship and High Streets. Construction of the sixty-eight homes that would house 122 families began in August of 1918. The 700-plus laborers would finish 95 percent of them, sixty-five homes in ninety-seven days. Another development pursued at the same time, the so-called “White Project” for BIW workers, consisted of seventy-eight modest wooden structures finished in the spring of 1919. These houses have created their own small neighborhood with shared architectural elements, streetscape details, and common beginnings. Together, these infill and housing projects moved northward and westward the boundaries of the denser portion of Bath’s urban sections, while maintaining a walkable city.

Complicating the worldwide crisis was the onset of the deadly influenza epidemic. The population of Bath, already dense, and made more so by the war industry, was a fertile breeding ground in September of 1918. By mid-October there were more than 1800 cases, and forty deaths. Mayor J. Edward Drake had established several emergency hospitals—at the Kennebec Yacht Club, the Grace Church Parish House, the Elks Home, and the Winter Street Church. Nurses and doctors came from Augusta and Bangor to help with the onslaught. By the end of 1919 sixty-four had died from some 2300 cases, including three nurses.

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10 It speaks well to Bath’s stability and housing stock that not only are there homes of nearly two-hundred years that have the same family occupying them, but the granddaughter of one of the original builders of the Brick Project lived until 2007 in one of the homes her grandfather built nearly ninety years ago and bought as soon as they were no longer needed for shipyard workers.
The formal end of hostilities at eleven minutes past eleven o’clock on November 11, 1918 cut short the federal shipbuilding effort. Existing contracts were completed. The Texas Steamship Company finished its vessels in 1921: 35 cargo carriers, 10 large steam tankers, 9 tank barges, 4 small and 2 large freighters, and 1 steamship while Bath Iron Works had by 1920 constructed 11 new destroyers and 2 cargo steamships. The population melted away in the next few years as the complete shift in technology tolled the end of large-scale wooden vessels for the City of Ships. Even steamboat construction decreased as the automobile increasingly became the preferred mode of transportation. As Denise Larson notes in her introductory history for the book celebrating the city’s sesquicentennial, “No launchings were recorded in 1922, 1926, and 1927, and all the shipyards closed down” (Bath Historical Society:13).

And on a different economic front, the 1920 census for Bath listed fewer farms as the rural hinterland began its evolution away from agriculture and toward homes for individuals like teachers, nurses, machinists, and the like working in the city. In 1931 a chunk of North Bath farmland was purchased by Hyde Windlass Co. for the construction of a nine-hole golf course. The existing farmhouse was converted into a clubhouse. Still another portion of land was acquired by the Sagadahoc Rod, Gun, and Skeet Club. This organization formed in 1934, purchasing the land in 1942. North Bath demolished its schoolhouse in 1935, suggesting that the automobile had brought the rural area closer to the public services of the urban portion of Bath (Dearborn Lovetere).

The Great Depression came early to this city. The Texas yard closed shortly after its contractual obligations were met. With that closing three thousand jobs left. Bath Iron Works, which had employed more than 1900 at the height of the war efforts, was down to 650 employees in 1925. That same year the company went into receivership, sold at public auction to an out-of-state concern that dismantled the facility for its salvage value. In the 1920s, the city’s population dropped more than 33 percent to just over 9100 people.

As the car gained popularity, more changes were made to accommodate the increasingly prevalent mode of transportation. The efforts of Luther
Maddock of Boothbay Harbor and State Senator Frank Carlton of Woolwich pushed through a three-million-dollar bond issue for the construction of a new double-decked train and automobile bridge across the Kennebec River. If its construction, finished in 1927, brought a new accessibility to the city and connection to the region, it also resulted in the demolition of the King Tavern, once the home of the state’s first governor and the compact neighborhood of residences and businesses that anchored the south end of the central business district. With its six gasoline-filling stations, the resulting Route 1, only a tenth of a mile long in that small part of Bath, almost instantly took on a new character that reflected the growing car culture.

Perhaps because of William S. Newell’s persistence in creating a new BIW on the old plant property in 1927 and his success in obtaining contracts to build steel yachts, fishing trawlers, Coast Guard patrol boats, tugboats, and utility vessels, other business ventures came to Bath as the financial situation worsened elsewhere. Oakhurst Dairy opened a plant at Centre and Middle while two new department stores opened in 1931 on Front Street. City improvements kept apace because of the generosity of private citizens once again. George Patten Davenport left two sizeable bequests to the city: one providing for the construction of a new city hall to be named Davenport Memorial in honor of his father whose home was once on that parcel; and the other for the creation of the Davenport Fund for various charitable causes that continues to ease the hardships of citizens and to facilitate the missions of non-profit organizations in the city today.

The Boston architect, Charles Loring, designed the 1929 City Hall in the popular Classical Revival style, contrasting strongly with the streamlined and pragmatic lines of the new gas stations nearby. The new structure inherited the Revere Bell that had been moved from the North Meetinghouse to the 1837 town hall on Centre Street. In Bath’s cultural landscape the light-colored City Hall provides an interesting visual tension with the dark mid-nineteenth-century Sagadahoc County Courthouse designed by Francis Fassett at the other end of Centre Street. Two seats of government, local and regional, gaze steadfastly at each other over filled-in land where water once isolated Shaw’s Point.

That steadfastness was needed on the part of the citizens when Morse High School burned in 1928. It was replaced by another, built on the same spot.
and financed largely by a $150,000 bond issue. Although concerted and partially successful efforts had been made to reduce the city’s debt since the 1870s, the fiscal outlook continued to be problematic. Not surprisingly, the need to provide jobs and public assistance in the early 1930s added to the city’s financial problems.

Some work was found through federal programs, such as the Civil Works Administration, with employment for some 200 people in local projects. For example, the upgrading of Kelley Field and the conversion of the Goddard Pond area into a playground offered some employment. Additional improvements to the road system as increasing automobile traffic demanded more access and more space also provided jobs. Vine Street was widened to provide a four-lane approach to the Carlton Bridge. A new road was constructed from Cook’s Corner to Bath in 1938, following the path of King’s Turnpike, a toll road built by William King and other Bath investors in the first years of the nineteenth century. As Pert noted, the key to many of these improvements was the accessibility that the Carlton Bridge created in the midcoast region. He indicated that “almost a million vehicles crossed the Carlton Bridge in 1937” (Pert: 17). The increased automobile traffic led to Bath’s first traffic light in 1938 at the intersection of Washington and Centre Streets. The growing reliance on the car led to the demise of the intercity trolley system, although a local bus service started in 1937.

Private employers also made modest gains in the 1930s as BIW gained a Navy contract to build a destroyer in 1931. By 1940 the shipyard would build seven more destroyers and thirteen additional vessels, allowing the company to move beyond the lease it possessed and buy the property of the Works outright. The yard’s increasing employment, combined with the growing through-traffic, probably encouraged the construction of the W. T. Grant department store on the site of the old city hall on Centre Street and the renovation of Albert Shaw’s mansion as the Sedgwick Hotel in the mid 1930s. The Congress Shirt Company, on Middle and Centre Streets, expanded its factory at the same time. This facility, built in 1895 as the doomed Bath Shoe Manufacturing Company, had changed to shirt production in 1898.

Once more, the Columbia block was hit by fire in 1937. The gutted theatre and several of the neighboring damaged businesses were reorganized into a hall, a new motion picture theatre, and the first self-serve grocery store in Bath, run by the Great Atlantic and Pacific Tea Company. The salvaged
exterior walls made these adaptive reuses not as apparent from the outside as the results of earlier fires. Another catastrophe happened on March 1, 1938, when gasoline fumes ignited in Plant's garage at 737 Washington Street. The resulting explosion, the largest in Bath history, killed two men and injured seven others, besides destroying the structure and shattering windows in the neighborhood.

WORLD WAR II: PREPARATION AND EXECUTION: 1940-1950

As was the case in World War I, Bath’s shipbuilding industry and its major employer, the federal government, determined well before the formal pronouncement of war in 1941 that additional destroyers were needed. The work force at BIW was above 2800 in mid-1940, above 4600 in mid-1941, and above 12,000 – working in three shifts—in 1943. As Pert, with justifiable pride, wrote in his summary history:

BIW would launch 4 destroyers by the end of 1940, 3 destroyers and 4 cargo ships in 1941, 15 destroyers in 1942, 21 destroyers each in 1943 and 1944, and 19 destroyers in 1945. During peak production in 1943-44, the shipyard was turning over a destroyer to the U. S. Navy every 17 days—each produced in fewer man hours, and with fewer defects, and at a cost 10 to 25 percent less than the same ships built elsewhere. By war’s end, production of destroyers by BIW exceeded not only that of any other United States shipyard, but more than all the shipyards in either Germany or Japan. (Pert:18)

This remarkable production was accomplished by hard work and the improvement of the facility by acquiring land in Brunswick, expanding the Bath shipyard to the south, relocating the Bath railroad tracks and demolishing the nineteenth-century railroad station, to be replaced by a new one in 1941.11

Unlike the last war, there were no efforts to house all of the new workers within the city, since regional transportation had changed so dramatically. Thirty-seven buses were purchased for commuting within a sixty-mile radius and ride-sharing was organized. Cities like Rockland saw buses to and from Bath, several times a day for each of the three shifts. Nevertheless, two housing developments were constructed in the city at federal expense. Hyde Park Terrace, built in 1941, was to house 200 families in 56 brick structures that, curiously to local residents, rested on cement slabs rather than cellars. Lambert Park of 1942, between High and Oak Grove Streets, was a combination of permanent and temporary modular housing for 400 families.

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11 This station has been recently renovated.
But, as in World War I, these various provisions didn’t negate the need for additional single-home construction or the conversion of larger homes into multi-family units. As the largest contributor to new housing within the twentieth century in Bath, the federal government also paid for the public-works improvements necessary to service these developments, make improvements to the high school, and build a new elementary school. At this time, as it became clear that the old city dump on the extension of North Street was insufficient and dangerous, the municipal dump was moved to the north end of Bath, just west of High Street.

Again the growing concentration of a busy and employed population in Bath, and the rural North Bath area that the city served, produced a healthy business economy. The downtown possessed four major anchors in J.J. Newberry, F. W. Woolworth, W.T. Grant and Sears Roebuck that were accompanied by six grocery stores, two local department stores, seven men’s clothing stores, twelve beauty parlors, 4 jewelry stores, and 9 restaurants, among a host of other establishments.

Once again, the pattern of retrenchment occurred after the end of the war, although with much less severe effects. From August 1945 to a year later, the work force at the shipyard and Hyde Windlass would be reduced from more than 10,250 to fewer than 1400. However, the company was in a firm enough financial position in 1948 that it was able to purchase, from the federal government, the improvements made in Bath and Brunswick during the war years. In the later portion of the decade, the yard built 32 fishing trawlers for the French government.

Other shifts in the business and social landscape occurred in this period. The city lost a major business when the Bath Box Company, on Trufant’s Point in the South End, burned in 1946, although it had gained a sardine cannery where the Texas Steamship Company had once operated on Clapp’s Point in the North End. A local landmark, Elmhurst, the 1914 mansion designed by John Calvin Stevens for John Sedgwick Hyde, the son of Thomas Worcester Hyde, was given by Hyde heirs to the Pine Tree Society for Crippled Children and Adults in 1947.¹²

¹²This twentieth-century home replaced one built in the 1840s by Zina Hyde, father to Thomas Worcester Hyde. Zina had also called his home Elmhurst.

Other changes in the post-war years and into the 1950s and 60s revolved around the automobile, the most influential factor in the rewriting of the twentieth-century American landscape. In the late forties, a new four-lane highway was constructed at the cost of $695,000, literally cutting deep into the granite bedrock between Granite and Centre Streets to create Leeman Highway. This highway, while relieving congestion, began a trend of encouraging traffic to move quickly through Bath, without stopping to engage with the city. In 1957 ten years after this step, a high-level approach or viaduct to the Carlton Bridge was begun to carry traffic over Washington Street and the railroad tracks. The viaduct was followed less than ten years later by a new stretch of four-lane highway connecting Leeman Highway to Cooks Corner in Brunswick.

As the general prosperity of the period allowed even more families to purchase automobiles, parking became a problem in the downtown area. The solution seemed to be the installation of parking meters. In the mid-1950s a newly created three-man Bath Parking District decided to act decisively to create additional space. The district acquired properties on both sides of Water Street and, in 1959, purchased a 400-foot parcel on the waterfront on Commercial Street. In 1967 the city acquired the assorted properties held by the Bath Parking District, estimated to hold off-street parking for 545 cars. The city then chose to eliminate the parking meters.

The post-war desire for modernity found in the new uncluttered design of many aspects of objects such as cars, televisions, and architecture, may have figured in the way that Bath residents examined their post-war city. The citizens saw the bulging school enrollments of the baby boom hampered by aging schools. They saw a downtown of historic buildings with historic problems—a mixture of deteriorating industrial sites, poorly maintained residences, and well-worn retail establishments. Those structures seemed to reflect an age and a technology long gone. This led to a protracted reconsideration of the downtown, in particular, a citywide conversation of what should be altered, demolished, and salvaged. How would Bath define urban renewal?
There were also changes in rural North Bath. The dairy farms that had once dotted the landscape were nearly gone. Small businesses that had made bricks or stored ice had disappeared. There, nevertheless, remained an attitude of rural life where eggs were delivered door-to-door and professional men made house calls. The rural center still had its chapel, until its demolition in 1965, and also a small country store run by Sam London by the Whiskeag Bridge. Like today, smelt shanties still stood on the frozen waters. A developer proposed in 1960 an intensive development of Lines Island, off North Bath, once used primarily for the grazing of animals. The plan with its 345 lots, pool, restaurant, and marina was approved but never came to pass. Rather the island eventually passed to the Maine Department of Inland Fisheries and Wildlife (Dearborn Lovetere).

There seemed little controversy over the solution for the aging schools. The two decades saw the destruction of nineteenth-century schools and a fire station, parallel with the construction of new schools—three in the 1950s, and one in the 1960s with several additions to the schools in the latter decade. A new private secondary school also opened, as the Hyde mansion Elmhurst found new life as a boarding school. The demolition of the nineteenth-century Bath High School provided land reused for a new central fire station. Also in the 1960s, the Patten Free Library doubled in size through the gift of Mrs. Mildred C. Wright. It was also in this decade that William Zorach's sculpture, “The Spirit of the Sea,” became the new fountain in Library Park.

VISIONS OF THE DOWNTOWN: RENEWAL OR RENOVATION

The downtown provided a less easily solved problem. In 1947 Bath citizens had decided to replace their mayoral-bicameral form of city government with a system that divided responsibilities between a city manager and city council. Eight years later the council decided to create a Planning Board to assist with the reconfiguration of the city and formulate a development plan for the city. That board’s efforts to plan, in conjunction with the Boston planning firm hired to create a comprehensive plan, were complicated by the comings and goings of services, businesses, and buildings within the downtown and neighboring properties.

Among those departures was passenger train service, to and from Bath, in 1959. The Uptown Theatre closed the same year. Also disappearing from the
downtown were the weekly *Bath Independent*, the home offices of the *Bath Daily Times* when it merged with the Brunswick *Record* to be published in Brunswick, and the closing of Ferry Street. Among the buildings torn down in the 1960s were the Park Bowling Alley, the Bath Iron Works Recreational Hall (former People’s Baptist Church), the Universalist Church, the Centre Street fire station and school, the Desmond Clothing Store, the Hotel Phoenix, the Commercial Street Sail Loft, Torrey Roller Bushing Works, several dilapidated businesses at the corner of Washington and Centre Streets, Redlon Plumbing Supply on Front Street, the Elks Lodge, and another Front Street building at the corner of Arch.

A new grocery store was built for the A & P on Front Street. The former Uptown Theatre was converted to a swimming pool for the YMCA. Congress Sportswear moved from its old factory on Middle Street to a new facility on Centre Street near the extension of North Street, now named for the company—Congress Avenue. Additional construction on Front Street included the addition to the Prawer warehouse and a new bank.

The proposal formulated by the Boston planners was both supported and dismissed passionately by different well-meaning segments of Bath’s leadership. It called for additional demolition, a pedestrian walkway, the construction of modern buildings that would serve as offices, homes, and various public institutions, all to be funded by a $625,000 bond. The voters decided decisively in the summer of 1965 that they did not want this definition of downtown Bath as a renovated shopping mall. Businesses left the downtown as their buildings were torn down or as they sought “greener pastures” in the developing shopping areas of other communities. In 1965 after the referendum was defeated, Grant’s and Sears left for Cooks Corner. Newberry’s went to a new structure in Brunswick’s downtown Maine Street.

As a parallel study in contrasts Bath’s debt reached an all-time high of 2.1 million dollars at the end of the 1960s, while in 1961, with a band’s fanfare, the city finally retired the ninety-two-year debt incurred in 1869 with the Knox & Lincoln railroad bonds.

A sea change for the City of Ships came when one shipping era truly ended in 1962 as the last transport of coal was delivered to the Coal Pocket.
HISTORY REVISITED AND APPRECIATED

The defeat of the urban-renewal referendum and the accompanying debates forced many citizens to re-examine the relevance of the city's past and architectural heritage. One integral part of local history, the maritime history, had intrigued several key individuals for decades: Mark Hennessy, a Bath reporter for the Portland newspapers, Harry Webber, editor of the Bath Daily Times, and Sumner Sewall, descendant of the early settler Dummer Sewall, World War I Ace, and governor of Maine during World War II. Their efforts and that of other Bath residents resulted in the Marine Research Society of Bath in 1962. The society opened a display space in the old Ledyard/Stetson building on Centre Street. Later the collection moved to the Sewall House on Washington Street. In 1971 the society leased the former Percy & Small shipyard, birthplace of the Wyoming, later obtaining the property in 1975.

At the same time, awareness of the city's architectural fabric was being raised by the possibility of losing some of the landmarks on Washington Street—the Winter Street Church and the Central Congregational Church. The Winter Street Church property, specifically, had caught the eye of several developers who thought it an excellent parcel for high-rise housing. Several residents, energized by this dismaying prospect, incorporated Sagadahoc Preservation Inc. and moved to purchase the building from the congregation. In 1973, SPI deeded Winter Street Church to the Bath Marine Society. That same year the society published A Maritime History of Bath by William Avery Baker, a project that had begun with the detailed research of Mark Hennessey, and a publication that increased the understanding of the region's historical significance. The Central Congregational Church, sold to SPI rather than to the city for a parking lot, was eventually deeded to the Chocolate Church Arts Center. The city and its citizens, wrestling through the ideas together, undertook one part of the Boston plan to recreate a historic atmosphere. Funds to upgrade storefronts and add brick sidewalks lined with period electrical lamps were raised from the general fund and a bond issue. As Bath celebrated its historic identity, the city's work and historic landscape were recognized by the National Trust for Historic Preservation with the prestigious President's Award in 1977.
1970S AND 1980S: CHANGES ABOVE AND BELOW GROUND

P. L. Pert captured the events of the 1970s in a jam-packed sentence that noted the continuation of trends of the 1960s and saw:

the YMCA enlarge by not as much as it would have liked, three long-time businesses leave town, the former railroad station change owners again, a landmark downtown building come down, underwater pipe problems interrupt the city's water supply, a fatal fire destroy a landmark building, two nursing homes merge, a waterfront park emerge, a hospital expand, the downtown traffic pattern change, fire severely damage the Hyde School, and considerable new construction take place in the form of a sewage treatment facility, waterfront business building, nursing home, post office building, housing for the elderly, medical building, shopping center, and building extension by the Bath Iron Works (Pert:30).

Mr. Pert found housing construction and capital improvements to the municipal infrastructure, trends begun in the seventies, continued into the 1980s.

Public improvements were both chosen and forced upon the City of Bath in this time period. Problems with the breaking of pipes forced the upgrading of the water system by the Bath Water District in 1970, while construction of a new sewage treatment and interceptor plant in the north end of the city was underway. That plant, costing 5.5 million dollars, was substantially built with federal and state funds. It, however, did not separate waste from storm water, causing overflow problems in parts of the city at times of heavy runoff. That continuing problem has been addressed repeatedly as the Public Works Department has included separation projects whenever opportunities presented in other roadwork or water-system projects allowed. Voters agreed to bonds numerous times in the 1980s and 1990s to facilitate this process.

Other bonds were required to update the public infrastructure, such as capping portions of the landfill and opening new cells for use. Still other bonds were used to improve other public facilities, including the replacement and duplication of water-supply lines from Woolwich's Nequasset Lake under the Kennebec River to Bath. On the corner of Elm and Water Streets stood the infamous American House. Before the structure could be demolished, arson gutted the building. The city sold the lot to a developer and a State Motor Vehicle Office was constructed. In 1986 the city reacquired the land, vacant for 6 years, to build a two-story structure devoted to the police
department. Previously that department had been housed in different portions of City Hall, subject to a constant press for space.

Another significant change was the razing of the hundred-year-old downtown sail loft in 1964. As Pert remarked this “provided a clear, 400-foot view of the Kennebec River not seen from downtown Bath since the 1700s” (Pert: 25). In 1973 a portion of this land, sold to private interests by the city, was developed for various commercial purposes in a large building called Bathport, which pulled from both vernacular and modern architectural inspirations. The following year a waterfront park became a reality, named after Linwood Temple who had worked to bring it into reality. This window onto the Kennebec River has become an important component of the downtown landscape with its welcoming green space, space for public events, and docks for local and visiting boaters. Another development scheme for an 11-acre retail complex within the historic district and on the waterfront was proposed in 1979. Although projections suggested that 345 jobs and $192,000 would be added to the tax rolls, public opinion and the city councilors reviewed the project skeptically, not acting on the proposal.

Other changes with the central business district included experimentation with one-way streets. The idea, first tried in 1957 and abandoned because of the vociferous complaints of a large retailer, was revisited in 1974. During the 1980s the traffic pattern was finalized and remains largely in effect today except for tweaking required by the construction of the Sagadahoc Bridge in 2000.

Within the downtown and the outskirts of the city, businesses and buildings came and went. Herbert Douglas’s photo studio had been on Broad Street since 1940. After his retirement and the structure’s use by still another photographer, the space was cleared for the expansion of Bath Savings Institution. 1973 witnessed the removal of some older structures on Vine Street for the expansion of the Canal National Bank, now Key Bank, opposite the Customs House. In 1989 the Bath Iron Works Credit Union was constructed approximately on the site of the Bath Opera House, which had been torn down in 1971. Also in the 1980s the last operating gas station of the six that once serviced Vine Street in the 1930s was demolished. The sole survivor from those days of early “car culture” on the northeast corner of Vine and Water Streets has been used as a sandwich shop since 1977. Another remnant of the past was lost in 1973, when Albert Shaw’s mansion
burned after years of use as the Hotel Sedgwick at Centre and High Streets.

Other businesses simply left the downtown or stopped operations. In 1971, McFadden's Drugstore closed on Front Street after 55 years in a space now used by Maxwell's restaurant. In 1974, Oakhurst Dairy decided to consolidate its processing in Portland, shutting down the plant it had built in 1929 on Centre Street. The A & P grocery store closed its Bath Branch the following year after being part of the central business district since 1938. Further north on Front Street, the S. Prawer and Co., wholesale food distributor at that site since 1944, also choose to relocate its operations to Portland. That structure had originally been constructed around 1920 for the Watson-Frye foundry.

In 1977, the first stores opened in a new 35,000 sq. ft. retail shopping center next to Route 1, in the former Chandler's Field, the site of seasonal circuses and carnivals (Longley: 315). The Shaw Supermarket anchor for the site opened the following year. Associated with this shopping center was the beginning of Route 1 fast-food restaurants with a strip appearance, starting with McDonald's in 1977, which was joined in 1990 by Burger King. The character of the southern entrance to Bath changed dramatically.

Bath Iron Works found itself either reeling or rejoicing with the decisions of the Navy. In 1970 the Navy initially awarded all of the contracts for the 30 ships of a then new class of DX destroyers to the Ingalls Shipyard in Mississippi, which delivered the ships late and over-budget. In 1971, BIW, paring properties and costs, gave the 1941 railroad station to the City on the condition it be used as a non-profit dental clinic for children of low-income families from the region. Then in 1972, the BIW shipyard received a contract for the design of a new FFG class destroyer. The design work required new workspace, so BIW acquired a lease on the former W.T. Grant building at Centre and Water Streets. Additional office space was also acquired in the 1980s by the use of the supermarket building between State Road and Route 1.

BIW was then awarded construction contracts for 21 FFG vessels that were completed between 1972 and 1981, both ahead of schedule and under initial cost estimates. The yard also worked on diversifying its contracts, building several container ships in the 1970s. An assembly building was needed and
built in 1972, doubled in 1978 and expanded once again in 1982, creating the 1,280 feet of corrugated green metal that dominates this portion of Washington Street. This space was utilized, not just by the 24 FFG class destroyers finally constructed, but also by the work done on the Arleigh Burke class of Aegis destroyers begun in the early 1980s. As Pert reports, “this work pushed the company’s employment level by 1990 (including the Portland drydock facility) to a new peace-time high of approximately 12,000” (Pert:37). The last of the Aegis vessels will be launched in 2010. In the 1980s, Prudential Insurance acquired Bath Iron Works.

Housing projects for senior citizens came in a variety of forms during the seventies and eighties—a level of construction activity that had not been seen since the war years. In April 1973, a 54-unit high-rise was constructed on the corner of Washington and Centre Streets that had held the Sears Roebuck store and the First National Grocery Store. Construction issues arose with the Washington House as it rests partially on Crooker’s Creek, part of that “made” land that winds throughout the once watery central business district. Other developments specific to the older midcoast resident include the 1973 consolidation of the Old Ladies Home and the 1917 Plant Memorial Home, the creation of the 1974 nursing home now known as Winship Green, as well as the construction of two 40-unit senior housing, the Anchorage in 1977 and the Moorings in 1979. These were joined in the early 1980s by Seacliff, another 40-unit complex, on Congress Street and the adaptive reuse and expansion of Dike School into Dike’s Landing. Still another 30-unit housing complex for the elderly was added in 1991, Oak Ridge on Oak Grove Avenue. The Bath Area Senior Citizens organization had a building built in 1985 on Floral Street. Here a great variety of services are offered from bingo, bridge, and bocce to more serious eldercare and informational assistance.

Those various developments were just part of the housing expansion in the city at this time. The largest housing complex since the 1942 construction of Lambert Park came in 1972 with the 200 pre-fabricated apartments, now known as Northwood Court on the east side of Oak Grove Avenue. In the mid to late 1980s several apartment and condominium complexes were added to the city, 35 apartments and 106 condos at Oak Grove Commons, Pine Hill, Schooner Ridge, Springview, and Conifer Woods. More than twenty private homes have also been constructed in the West Chops Point area since the mid 1980s.
Other notable changes in these two decades include the 1974 renovation and 1983 expansion of Bath Memorial Hospital. The institution, begun in 1909, had seen many changes since its original 36-bed capacity of 1910. But changes would be coming shortly with the 1991 merging of the Bath Memorial Hospital with its Brunswick counterpart and the decisions to build anew.

These varied changes and improvements, mentioned by Pert in his more detailed history, parallel some changes in the cultural resources of the community. The Maine Maritime Museum gained space and property by the acquisition of the Percy & Small shipyard and neighboring properties that included structures, such as the mold loft and the Donnell house that would expand the Museum’s ability to interpret the maritime history of the state. The museum also began a construction program that would bloom into a true museum campus in the coming decades. Bath Historical Society (BHS) was founded in 1989, in the words of Pert, “for a principal purpose of helping to defray funding of the position of Historian in the Maine History and Genealogy Room of Patten Free Library” (Pert: 37). The society’s other activities revolved around ways to educate the community about its past and provide reference services to the public. This history room houses many original sources of information about regional history and research produced by BHS, SPI, and assorted individuals in their efforts to preserve the rich stories and material culture of the area.13 In the early 1970s, the Bath Area YMCA also upgraded and expanded its facilities, but like the alterations at the hospital and the museum, these changes were just a hint of bigger transformations to come.

The city finances in the latter part of this period were in good order; the last eight years (1982-1990) saw both the city and school budgets ending with surpluses. Despite largely responsible local spending, the taxpayers in the last years of the decade railed against the burden of the “ever-increasing, regressive local property taxes” as described by Peter A. Garland in his City Manager report within the 1987-1988 City of Bath Annual report.

13 The collections of the History Room hold many documents important to the writing of this piece, including government records, civic documents, original journals, historic photographs, to name just a sampling, and the useful secondary sources of previous city histories. These are further detailed in the attached annotated bibliography. Also of note, there are also numerous monographs on various Bath topics by P. L. Pert done under the auspices of Bath Historical Society.
In response to the lack of action by the state legislature to address the problem on a statewide basis, Bath voters in November of 1988 "imposed an annual municipal spending cap based upon the previous year's Consumer Price Index increase, on all future and School budgets" (Annual Report 1987-88:2). This same action was approved in several other communities in the state. While Garland sympathized with the property-tax burden and the voter's discontent, he felt that a cap was problematic, in the long run hamstringing the local government's ability to provide services. He hoped it would be repealed soon, after legislative action at the state level to alleviate the underlying cause.

**THE ENDING OF ONE CENTURY, THE BEGINNING OF ANOTHER**

In the years since the last comprehensive plan and summary history have been written Bath has grown and developed. In some ways, one might say that the city's existing characteristics—its reliance on BIW, its sense of history, its need to correct past problems of infrastructure, and its vibrant, if small, downtown—have strengthened rather than changed. BIW has fared well in general, implementing new methods of construction, although the workforce has diminished significantly. The industrial economy of the city has diversified, although not to the desired extent, while a significant business on the working waterfront closed its doors. An architectural survey of properties in the South End produced the nomination of one historic district, the likely eligibility of another, and a new sensitivity to the historic nature of Bath. Individual structures and neighborhoods have been revitalized by the restoration and, sometimes, gentrification of buildings. These improvements often are the product of new residents of Bath, who were drawn by the city's sense of place. The establishment of the National Trust's Main Street Program here has reminded many of the value of Bath's central business district and helped to instigate projects that protect and promote the marketable qualities of a small, historic downtown. Along the waterfront, within formally protected Thorne Head and Sewall Woods, in both a new YMCA and an adaptively reused old one, through renovated public facilities, and on an expanded golf course, recreational spaces have increased for residents and visitors. The city infrastructure has also improved as the repeated passage of bonds has allowed modifications of the landfill, the wastewater treatment plant, the separation of sewer and storm water, and the modernization of existing schools. Traffic congestion has been greatly alleviated by the construction of the 4-lane Sagadahoc Bridge,
while other more localized issues of speeding and other problems have remained. In all these wide-ranging developments, however, the essential nature and appeal of the community has not been altered.

Opening in the late summer of 2000, the Sagadahoc Bridge brought a new ease to Bath's traffic problems, breaking a bridge-span record in the process of construction. At the time, the 420-foot bridge created the "longest balanced-cantilever, precast-concrete segmental span in the United States" (Phipps: 35). The steel-truss Carlton Bridge of 1927, with its two lanes, and central lift for river traffic, could no longer serve the traffic of more than 25,000 vehicles per day. As early as 1981, the replacement of the bridge was planned. The tourists of summer and the afternoon shift of BIW snarled the free flow through the city. But it was in 1996 that Maine State Department of Transportation began the formal process of soliciting bids for the design/build project. While the Sagadahoc Bridge has facilitated traffic locally and in the mid-coast region, it does not permit passage to tall ships bound north on the Kennebec River. The reworking of the Carlton Bridge to remove the roadbed and renovate portions of the aging structure continues to this day, as that 80-year-old truss bridge remains as the only way for trains to cross the river. Although the replacement of the viaduct approach was the subject of a lengthy feasibility study, financial constraints on the Maine Department of Transportation budget dictated that the viaduct be resurfaced with substantial repair in the late spring of 2007. With careful planning, the detour through the commercial district moved smoothly without the congestion many residents and merchants feared.

Although the bridge has eased shift change for residents and workers, Bath Iron Works has seen another kind of roller-coaster ride in the last two decades. General Dynamics acquired BIW in 1995. The 1990 high of 12,000 employees dropped to 8500 within five years. Today employment stands around 5100. Part of that decrease in employment stems from an increase in efficiency, as new manufacturing methods have allowed fewer employees to be more productive. The construction of the land-level facility (1998-2001) moved the shipyard away from the traditional method of assembling a vessel, launched through the inclined ways, toward a new manner of assembling modules that was less vulnerable to the vagaries of weather and more cost-

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14 The March 2000 issue of Civil Engineering discussed the construction of the four-lane bridge with precast-concrete segments by the Colorado companies Figg Bridge Engineers, Inc. and Flatiron Structures, LLC.
efficient. To that same end, of putting together more and larger components
of a vessel in controlled conditions, the mega-unit building was completed in
2006, and is currently being further expanded. As the shipyard finishes up
the last Arleigh Burke-class destroyers, a class of vessels begun more than
twenty years ago, BIW gained the contract in September 2007 to build the
first DDG-1000 Elmo Zumwalt-class destroyer, the next generation of
destroyers for the U.S. Navy.

The most substantial of these improvements, the land-level facility, was
constructed on several conditions. Bath Iron Works requested and received
a Tax Increment Financing District that reduced its tax burden on the new
business infrastructure, but returned a portion of those savings to the City
of Bath for a special development fund. The Iron Works was also responsible
for the financing of the removal of Edwards Dam on the Kennebec River; the
restoration of wetlands in Woolwich, to compensate for the alteration of
wetlands at the site of the project; and the gift of ten acres for a park in the
City of Bath, near the land-level facility. This “park,” as defined by the
Maine Department of Environmental Protection, was created in two stages.
The larger parcel, once capped and covered with soil by the company because
of the underlying hazardous materials, was given to the city in early 2004;
the smaller portion was accepted in late 2005. The plans for this park are
still in flux at this time, although a walking path, a small parking area, and a
bocce court have been constructed while the existing pier has been repaired.

This was not the only expansion of recreational opportunities since 1990.
Early in this period, the private Burgess Marina was purchased by the city,
becoming the South End Boat Launch. In the late 1990s, Lambert Park’s
Varnum Field was graded and seeded, adding almost another 6 acres to the
community’s playing fields. More recently, Lambert Park gained a community
center, built with the help of the Vocational School here in Bath. 1997 saw
the installation of a new, all-weather track at considerable cost while
McMann Field was rehabilitated and Tainter Field expanded. Other aspects
of various facilities have been improved, including the refurbishing of the
shelter at Goddard’s Pond in 2004 and the construction of dugouts and a new
fence at Kimball’s field in 2006-7. The waterfront park has gained a marine
pump-out station, new light fixtures, and new benches in an ongoing effort to
spruce up Bath’s gateway from the Kennebec River. Druid Park, a small park
planned, but never executed, in the late nineteenth-century for the Five
Corners Area as a green entry to the city’s public cemeteries, has begun to
take shape in the last couple of years through the work of the Bath Forestry Committee, the City Arborist, and public donations.

Of particular note are the building of a new YMCA and the reuse of the old Y building in the central business district. The local chapter of the YMCA began in 1856, making it one of the oldest in the country. Not until 1894 did it gain a building of its own, which gathered assorted additions through the 1970s. In 1998 the organization began raising funds for the larger, popular facilities on Centre Street that opened in April 2001. An important source of money was the $500,000 bond endorsed by Bath voters that contributed to the construction costs, in turn for the City receiving the old building. In early 2002 the City Council agreed to develop a skateboard park and youth meetinghouse in this space. This largest indoor-skateboard park in the state opened in late 2002 as a private-municipal partnership, created by city personnel, business leaders, assorted residents, and committed young skaters, working together. Within the private sector, another expansion was seen when the Bath Country Club added another nine holes to its course in 1994.

An important piece of Bath’s long-established green space was formally preserved by the Lower Kennebec Regional Land Trust when the organization began raising money for the purchase of the 96-acre Thorne Head in the late 1990s. With the help of the state program, Land For Maine’s Future, the land trust acquired the area, long used by locals for walking, hunting, and admiring the view of Merrymeeting Bay, opening the preserve officially in 2000. This significant open space, noted as an important natural habitat by the Maine Department of Inland Fisheries and Wildlife, was enhanced by William D. Sewall’s gift of over 60 neighboring acres in 2004. This area, known as Sewall Woods, was augmented in 2006 by the purchase of 26 acres from the Bath Housing Authority. The preserve was ceremonially opened in 2006 by the Lower Kennebec Regional Land Trust.

Another important dedication occurred in September of 1998, when a substantial addition of Patten Free Library was opened to the public. This expansion had been part of a building program considered by the Board of Trustees initially in 1993. The project called for an expanded children’s and young adults’ areas, nonfiction stacks, and a new climate-controlled History Room. This architecturally sympathetic addition, whose ramps and elevator made the facility more accessible, was balanced by the restoration of the
The setting of the library has also seen improvement. In 1989-90, the nineteenth-century gazebo, torn down in the 1950s, was reconstructed by volunteers led by James Stilphen. The bridge over the pond was built in 1994. A new non-profit group was formed, Friends of the Zorach Fountain, after a 2002 grant awarded to the Bath Garden Club, found the "Spirit of the Sea" in need of conservation. The efforts of the Friends and their friends resulted in a widely-attended celebration in August of 2005 where the restored sculpture, pond, new landscaped setting and benches were admired. The library and its park serve the communities of Arrowsic, Phippsburg, Georgetown, Woolwich, West Bath, as well as Bath. This regional role makes Patten Free Library with its enhanced facilities a strong anchor of the city's downtown.

Since 1990, the downtown itself has seen some changes. Some have been physical, while others have been more of a shift in attitude. Although the citizens of Bath rejected urban renewal in the 1960s, the central business district continued to face the problems encountered by historic downtowns nationally, such as deteriorating infrastructure, convenience, and competition with malls and the new "big boxes". In the early 1990s, William F. King and other local merchants formed the Bath Business Association (BBA), a multi-function group to consider these problems and possible solutions. Working together to revitalize the downtown, promote the unique qualities of a small historic commercial district, and demonstrate the special opportunities within the welcoming space, the BBA found a large degree of success in their collective and individual efforts. The organization also learned that many of its ideas dovetailed with the work of the National Trust for Historic Preservation's National Main Street Program. Once that program came to the State of Maine, Bath was one of the first communities chosen to participate in 2001. The BBA was dissolved as its functions were taken on by the new Main Street Bath organization (for more information, see the Inventory of Historical and Archaeological Resources in the Appendix). The BBA's efforts in conjunction with many other city-wide cultural and economic resources, and the rich reserve of the generous
citizens themselves, probably accounted for Bath's appearance twice on the list of the 100 Best Small Cities in America, the second time at the seventeenth position. Recognized in 2005 by the National Trust of Historic Preservation as one of a "Dozen Distinctive Destinations," Bath has garnered a reputation for the appeal of the city and the downtown, but also has gained self-confidence and knowledge by being labeled a "jewel hidden in plain sight," by Richard Moe, the president of the National Trust.

There have been physical changes, enhancing the downtown through the efforts of the City of Bath, Main Street Bath, and individual property owners. In the mid 1990s, the Farmers' Market was re-established along Commercial Street. New benches replaced deteriorating ones along Front and Centre Streets, as well as in Waterfront Park, an important component of downtown. A community bulletin board and new directories were constructed to help visitors orient themselves and find local attractions and businesses. The archway, from Front Street to the city-owned parking lot on Water Street, was transformed in 2006 by paint, new lights, and the hanging of restored large, dramatic murals on various historic Bath subjects, painted by James Stilphen. Several downtown structures were renewed or restored by property owners, some with the assistance of a new façade-improvement program started by the city. A new variety of businesses now exists in the downtown, businesses that are both mindful of the nineteenth century in their sale of shoes, cooking pots, sweets, or weaving materials, and modern in their promotion of new technologies as the essence of their business or facilitating the enjoyment of their products. In a 2002 move to the former Rite-Aid Store, a structure initially built by the A & P Company for a grocery store in 1961, Brackett's Market brought the family-owned grocery store closer to the center of downtown. Some long-existing establishments, such as Wilson's Drugstore and Bath Savings Institution, both tenants of downtown for a hundred or more years, remain alongside new ventures.

One controversial new downtown venture was the New Bathport Condominium project, first brought before the Planning Board in 2005. The developers hoped to build a multi-storied, high-end condominium structure that would exceed the height restrictions in place. This application was possible because of the use of an incentive development tool, Contract Rezoning. The community, Planning Board, and City Council were divided on the merits and shortcomings of the project, which would bring wealthy residents, but little
space for retail businesses, into the heart of Bath’s waterfront downtown. After several redesigns and eventual approval by both Board and Council, a citizens' petition brought the item to voters for their opinion, and the project was approved. During this time, the economic downturns and softening of the housing market changed the perspective of the prospective developers, who, in November of 2007, decided not to continue with the project, but to renovate the existing Bathport, a mix of business and residential space in its existing, vernacular style of the 1970s.

This was one of several housing initiatives in the last fifteen years. Washington Heights, a nine-lot subdivision, was approved by the Planning Board in 2003. This was the first subdivision of any size brought to the Planning Board since the late 1980s. It was followed by two others on the north end of Front Street. Although approved, one subdivision has not been built; the other is currently in the early stages of construction. This latter project, “The Old Shipyard,” which rests on land once part of the Sewall shipyard on the Kennebec River, will feature a three-structure plan that houses nineteen units. Being within the National Register of Historic Places and the locally designated Historic District, like the proposed New Bathport, the design of this development was scrutinized for its ability to fit into the historic neighborhood and the existing patterns of scale, detailing, materials, and massing. Approval was granted in the last weeks of 2006.

Another multi-family development was constructed in 2007 on an extension of Edgett Street by Tedford Housing to provide housing for 6 chronically homeless families. In 1999 and 2000, a multi-million dollar project renovated the Maritime Apartments. Beginning in 2002, the Plant Memorial Home, established in 1917 by the generosity of former Bath native and successful shoe manufacturer Thomas Plant, undertook a substantial addition and reworking of the existing room arrangements to create more modern apartment-like assisted-living opportunities. While each year has seen the construction of a few single-family homes, there have been no spikes in such residential development or in subsequent population numbers.

While the population of Bath has dropped in the last twenty years, the services required by the residents, and by visitors to this service center, continue to need updating. As seen in earlier decades, bonds were repeatedly brought to the voters to improve various aspects of the city’s infrastructure. The voters approved many of these projects: in 1989 and
1998, the separation of storm and sewer water; in 1992 and 1994, the wastewater treatment plant; in 1991 and 2006, a landfill cell closure, cell opening, and gas mitigation; in 1998, streets and sidewalks; in 1993, 1995, 1999, and 2006, the Vocational School addition, renovations to Morse High School, Bath Middle School, and other repairs needed to local schools. (The aging of Bath Schools, as the city's school-age population appears to diminish, presents problems and possible regional solutions that are discussed in the Education Inventory.) In 1988, Bath was one of several communities statewide that received spending and tax caps through voter initiatives. Although most have rescinded these restrictions, Bath continues to operate under such a cap. This cap may constrain the Council's budget decisions on capital improvement and maintenance needs, forcing it to choose bonds as a method of financing.

The separation of sewer and storm water has diminished, but not eliminated, the overflows that occur most often at the Harward Pump Station. A secondary treatment plant has been finished, adding considerably to the efficiency and capacity of the system. The landfill has been expanded, and monies voted to open still another cell. The gas mitigation system, being put in place in the late 2007, has not yet demonstrated its efficacy to counteract the unpleasant and possibly unhealthy effects of the landfill. In November 2007 voters turned down a bond for funds to close the landfill permanently although many North End residents felt that it was time for closure. Curbside recycling of limited items started in the early 1990s, but changed substantially in 2007 when single-stream recycling of many more materials began. This push to reduce the material going to the landfill was underlined by the city's change to a "Pay as You Throw" program where only garbage placed in purchased city-endorsed bags would be picked up curbside.

Some public services once found in Bath departed, while others expanded and new ones arrived. The closing of Bath Hospital, as services were gradually discontinued throughout the 1990s, was anticipated when the merger with Brunswick's Hospital took shape. The newly constructed Mid Coast Hospital opened in 2001 near Cooks' Corner and is already planned for expansion. But, this consolidation left the city with a large building, formed over almost 100 years of service, only part of which was still needed for medical offices. Out of the debate on how best to use this space for the betterment of the community and the region came a great answer. Here was a space for a community college. In January 2003, the Mid Coast Center for
Higher Education opened with classrooms and other educational facilities for the Senior College, the University College, and Southern Maine Community College. Each year has seen increasing enrollments as this local resource opens educational doors for many regional residents.

In a similar manner, when the Jesse Albert Dental Clinic moved from the former railroad station downtown to a larger and modern facility on Congress Avenue in 2001, the train station was left empty, but full of local hopes. The restoration of the 1941 structure, last used as a railroad station in 1959, was completed in the summer of 2007. Now it offers tickets, visitor information, and Maine-made products to those who enjoy the seasonal train rides in the Mid Coast area. As the numbers of train riders increase on the Boston to Portland run, plans continue to extend the line up the coast.

Bath Community TV, a public service begun in May of 2000, now is part of the fabric of everyday life, broadcasting live and recorded programs. Many locally-produced shows from the traditional MOHIBA performances to Morse High School basketball, to religious services and local-history talks are offered. The live broadcast and reruns of City Council, Planning Board, and Board of Education meetings have brought a new transparency to the process of local governance.

Many of the businesses that have come to Bath in the last fifteen years have been directly or indirectly impacted by the decisions of the council or planning board. One such significant development was the creation of the Industrial Park at Wing Farm. The idea of a local industrial park was around for quite awhile before it took form. A 1997 grant of $400,000 allowed work on the necessary public infrastructure. In the fall of 1999 the first phase of development began when Coastal Economic Development and The Kennebec Company began their buildings. Others followed with manufacturing facilities, which varied from composite to biscuit production, alongside dance studios and warehouses, until nearly all the parcels have been developed. In 2006, an expansion feasibility study suggested that Wing Farm could be expanded, both within Bath and, possibly, with a cooperative regional effort, into West Bath. The City Council decided to begin that expansion in early 2008. Other successful efforts to find additional space for small businesses resulted in the rehabilitation of 2 Town Landing near the Water Treatment Plant, beginning in 2004.
Other developments, with the use of incentive zoning, have modified the face of Bath’s gateway, including the expansion of Shaw’s alongside the construction of other commercial spaces at the Bath Shopping Center, and the building of the Big Apple Service Station. Approved by the Planning Board in early 2001, the use of Contract Rezoning encouraged the developers of the Bath Shopping Center to incorporate a facelift of the existing buildings, design approval on the new construction, an upgraded parking lot made more attractive and safer, and new decorative streetlights along the revamped access road with its added sidewalks. The attractiveness of an application was also part of the 2006 approval of the Big Apple Service Station on Route One. The developer allowed the Board design approval of the brick structure, extensive landscaping including street trees and a new sidewalk along Route One and Western Avenue, and a decorative fence—all a great improvement over the abandoned car dealership with its broken windows along the city’s gateway.

But there have been losses too during this time period. Stinson’s Seafood, established as Stinson’s Canning Co. in 1927 for the production of canned sardines, closed in 2005. Located on Bowery Street on a parcel that was once part of the Texas Steamship Company in the early twentieth century and several other shipyards before that time, the property was purchased by a developer who has unsuccessfully, at this time, sought to have the land rezoned as residential, rather than waterfront industrial. In May of 2006, arson destroyed all of the buildings on the site in a fire that called upon the services of a dozen fire departments. This was the largest fire in Bath for more than thirty years. Fortunately the effects of the fire were contained with relatively little damage to neighboring structures. In August 2007, another costly fire destroyed one of the two condominium buildings of Schooner Ridge in the South End. There was no loss of life, but the ten-unit structure was destroyed. The owners intend to rebuild the apartment-like condominiums.

A portion of the South End from Lehman Highway to Marshall Street was surveyed by Sagadahoc Preservation Inc volunteers beginning in 2000. The recording and photography of more than 600 structures for information on the architectural style and integrity were combined with searches in the Sagadahoc History and Genealogy Room at Patten Free Library for background on the structures and their assorted residents. The survey report recommended the nomination of two historic districts and the
extension of the local historic district. At this time one historic district, the Trufant Historic District along Pine, Corliss, Middle, Highland, and Washington Streets has been added to the National Register of Historic Places. The publicity around this nomination and survey appears to have reminded many long-term residents and informed new ones about the rich historic nature of the city. Brochures produced by Main Street Bath, yearly house tours, the newsletters of SPI and Bath Historical Society, the enlarged presence of the Maine Maritime Museum, the local history talks, and other resources at the library have all built on the work of the residents who rejected urban renewal and embraced their history in the 1960s and 1970s. Bath, that slim needle of a city keyed to north and south, knows that much must be done to prepare for the future in order to draw new businesses and new residents, but also recognizes that much of that future rests in honoring and preserving her past.
CHAPTER 4
THE COMPREHENSIVE, ACTION PLAN
Issue Statements, Planning Implications, and Actions

4.1 DEMOGRAPHICS
The specific details of Bath's demographic profile that underscore these Issue Statements, Planning Implications, and Actions are discussed at length in Appendix A, Demographics Inventory. All Issues have a corresponding inventory appendix that provides additional background material.

Issue Statement
It is important that Bath have a mix of ages, income levels, and ethnic groups. This mix contributes to the community energy, friendliness, and the overall sense of community.

Planning Implications of the Demographic Inventory
- Bath's population has remained relatively unchanged (except for a large temporary increase in 1920) for the last 100 years, hovering just above or just below 10,000 people. It has been declining since 1980, and this decline is forecast to continue into the near future.
- Surrounding towns have grown in population. In some cases, this growth has been substantial, at least in percentage terms.
- Bath's population decline is due to a combination of various factors:
  - a relatively small land area
  - higher tax rate compared to neighboring rural towns
  - relatively high population density in the built-up portions of the City
  - decreasing household size
- A key trend that affects demand for housing, community facilities, and services such as schools is the aging of Bath’s population.
- Trends show that, percentage-wise, Bath is growing significantly in the 45- to 64-year-old age groups and losing population in the under-45-year-old age groups.
- Based on recent trends, the number of school-aged children (ages 5-17) is predicted to decline in the future. This trend can strain the maintenance of enrollment levels in public schools and the levels of public services for senior citizens in later years.
- Data from the 2000 U.S. Census (i.e., 1999 income data) show that the City of Bath lags behind the remainder of the Bath Region in family
income and has a larger percentage of families living below the poverty level. Bath also has a relatively high percentage of family households headed by single mothers with children under the age of eighteen. These factors strain the families as well as many of the City’s public services.

**Actions**

Readers may notice that several actions are repeated in different Issue sections. This repetition underlines the connections among different perspectives, problems, and possibilities within the City. Planners are fond of saying that “everything is connected to everything else.” Also, after each Action is text that designates the person or group responsible for undertaking the Action and the time frame.

- **Encourage housing development different than what exists:** for example, housing attractive to young professionals, loft space, and senior housing, and allow and encourage mixed-use, mixed-income, and mixed-age housing developments. Planning Board, City Council – when the Land Use Code is updated, 2010. Community Development Office – ongoing.
- **Continue renter-to-owner programs.** Community Development Office – Ongoing.
- **Develop a children’s park, with young-family-friendly amenities.** The City’s Capital Improvements Plan (CIP) – 2014.
- **Improve neighborhoods, including urban neighborhoods, by improving infrastructure, utilities, and the public realm.** Provide incentives to landowners who help preserve or increase a sense of neighborhood. CIP, Community Development Office – Ongoing.
- **Support Community Policing.** Police Chief, City Council – Ongoing.

**4.2 ECONOMY**

**State Goal**

- Promote an economic climate, which increases job opportunities and overall economic well-being.

**Issue Statements**

- Bath’s arts, crafts, and cultural resources contribute to our cultural enjoyment and are both regional and local economic resources. The non-profit (i.e., nongovernmental) organizations such as Sagadahoc Preservation, Bath Historical Society, Main Street Bath, Chocolate Church Arts Center, Bath Area Family YMCA, Skate Park, Maine Maritime Museum, Elmhurst, and Patten Free Library add much to the
community. In addition, Patten Free Library is a regionally important cultural and educational resource. The Maine Maritime Museum is an important educational resource in addition to being an economic resource for the City.

- **Community celebrations in Bath, such as Heritage Days, help make Bath a great place in which to live.**
- The City's geographic location—close to the coast so we don't have the extremes of weather that more inland locations have, within an hour's drive to Augusta and Portland, and an easy drive to Reid and Popham Beach State Parks—helps make Bath an enjoyable and convenient place in which to live and is an economic asset.
- The tax base provided by Bath's major taxpayers helps keep taxes lower for residential property owners. However, the City's over-dependence on BIW and BIW's future—and the belief on the part of City government (especially in the past during times of BIW's prosperity) that diversifying the local economy was neither possible nor necessary—could place the City's future prosperity at risk.
- The City's historic downtown—its walkability, vitality, and the "nonfranchise" stores that cater to local needs, including both a locally owned supermarket and drugstore—make Bath unique and is important to both our sense of place and our economy.

**Planning Implications of the Economy Inventory**

- For many industry categories, the percentages of state-resident workers, regional-resident workers, and Bath-resident workers are similar. Bath had a high percentage of resident workers in manufacturing in 1990; although the percentage dropped in 2000, it was still higher than the region and the state.
- The major employer in Bath is also one of the state’s largest private employers and is the State's largest manufacturer—BIW. Other employers in Bath are considered small- or medium-sized. Bath and the Bath Region are dependent on BIW for jobs.
- Bath, because of the large employment at BIW, has a high jobs-to-worker ratio. In fact, there is 2.5 times the number of jobs in Bath as there are Bath-resident workers.
- Although Bath-resident workers earn wages higher than the Sagadahoc County and state averages, the non-wage sources of income (e.g.,
retirement accounts, pensions, and social security) are below the county and state per-capita averages.

- Home-based businesses are where many larger businesses get their start. Bath is flexible when it comes to starting a business in a residential area, provided the business does not negatively impact the residential quality of the neighborhood.

- The unemployment rate in Bath has consistently been below the state average, even with layoffs that have occurred at BIW.

- Many retail sectors in Bath show moderate to high weakness compared to the state and the neighboring, competing communities of Topsham and Brunswick. Overall, Bath’s taxable retail sales per capita are 32 percent lower than the state average. The aspects of the retail market showing the most promise are “niche” sales that appeal to the tourism market, consumer goods that may appeal to higher quality and/or a higher level of customer service, and the restaurant category. By focusing on various specialty goods and other niche markets and by offering high levels of service, Bath retailers are distinct from the malls and “big box” retailers. Also, there would be value in marketing the downtown as an attractive destination (including restaurants and specialty shops) such that the whole is greater than the sum of its parts.

- The multiplier or spin-off effects of further downsizing at BIW coupled with the decision to close Brunswick Naval Air Station (BNAS) in 2011 potentially bodes poorly for the regional economy without active programs to diversify and reduce dependency on the defense industry.

- It is important that Bath’s economic-development activities focus on job-creation types of businesses.

- The report by the Maine State Planning Office (SPO) on the impacts of the closure of the BNAS states, “redevelopment efforts must be cognizant of prevailing market forces. In particular, on- and off-base redevelopment plans should capitalize on the unique strengths and assets of the mid-coast economy.”

- The report titled *Measures of Growth 2007*, written for the Maine Economic Growth Council, reminds us that “in order for societies to thrive, they must focus investment in their people [this means education] as well as in cutting-edge technology.”
Actions

- Encourage non-profits and for-profits to continue mutually supporting one another. City’s Community Relations Coordinator – Ongoing.

- Use the Internet to publicize a city calendar and directory of cultural events, including Main Street Bath, City of Bath, and other web sites. City’s Community Relations Coordinator, Main Street Bath – Ongoing.

- Continue to host and/or support Community Involvement Day and other events and annual celebrations (e.g., Heritage Days and Autumnfest) that “celebrate” community and neighborhoods. Make sure these are well organized, supported, and publicized. City’s Community Relations Coordinator, Community Development Office – Ongoing.

- Encourage local artists to participate in the Five Rivers Arts Alliance with open studio days. City’s Community Relations Coordinator – Ongoing.

- Erect new outdoor directories, which include transportation schedules, at:
  o Community College
  o Bath Shopping Center
  o Front & Elm Streets
  o Maine Maritime Museum. CIP – Ongoing.

- Prepare an economic development plan that includes contingency planning for the possibility of BIW shrinking or closing, a clear and concise business-attraction and business-retention process, a staff “go-to” contact, and an economic development committee if appropriate. City Manager, Assistant City Manager, Community Development Director, Planning Director – 2011.

- Expand Wing Farm in Bath, develop incubator industrial space, and pursue high-tech companies. Wing Farm’s expansion should be included in the Capital Improvements Plan (CIP), with funding through the 2008 BIW-Wing Farm Tax Increment Financing (TIF). (The Wing Farm expansion is also a high priority project on the Midcoast Economic Development District’s Comprehensive Economic Development Strategy.) City Manager, Assistant City Manager, Finance Director, Planning Director - 2011.

- Work with regional development agencies to promote the regional economy. City Manager, Assistant City Manager - Ongoing.

- Develop links between the Community College and existing and new businesses. City Manager, Assistant City Manager, Planning Director – 2010.

- Include geographical information in the City’s promotional materials, emphasizing Bath as a multimodal transportation hub. City’s Community Relations Coordinator, Main Street Bath – Ongoing.
• Encourage cultural tourism on a year-round basis and work with the City's accommodations industry to promote elder-hostel programs. City Manager, Assistant City Manager, Planning Director - Ongoing.

• Promote City, region, and individual agriculture. Establish a permanent indoor farmers market, organize a program of community-supported agriculture, and develop community gardens. City's Community Relations Coordinator, Community Development Office, Planning Office, Parks and Recreation Director - 2010.

4.3 CULTURAL AND NONGOVERNMENTAL RESOURCES

Issue Statement
Bath's arts, crafts, and cultural resources are both regional and local economic resources and contribute to our cultural enjoyment. The Patten Free Library is important to the Bath Region as a cultural and educational resource. The Maine Maritime Museum is an important economic resource for the City. Non-profit (i.e., nongovernmental) organizations such as Sagadahoc Preservation, Inc; Bath Historical Society, Main Street Bath, Chocolate Church Arts Center, Maine Maritime Museum, Elmhurst, and Patten Free Library add much to the community. Community celebrations such as Heritage Days help make Bath a great place in which to live.

Planning Implications of Cultural and Nongovernmental Resources

Inventory
• Review of this inventory reveals that many organizations, both cultural and social service, are regional in scope. It is apparent that the population needed to support each effort—whether as participants, volunteers, or financial donors—is achieved by grouping several towns together. Also, the traffic patterns of Southern Midcoast Maine residents usually include several area towns, resulting in the natural outcome of regional groupings.

• Communication is key to taking advantage of available resources. One of the most effective ways is current organizational web sites. Then, the City of Bath, Main Street Bath, and Patten Free Library can assist inquiries by identifying links. Only partial attempts have been made to coordinate a community calendar. Each organization must keep its information current rather than it being the responsibility of a central body.

• Section 4.1, Demographics, indicates a growing number of older residents, many of whom are retired. Service-related and cultural organizations may need to revise their programs to stay relevant. A positive effect
resulting from the additional number of retirees is the availability of more volunteers.

**Actions**

- Organize, support, and publicize celebrations and other events, and establish an on-line City calendar/directory to publicize them. City’s Community Relations Coordinator, Main Street Bath – Ongoing.
- Encourage local artists to participate in the Five Rivers Arts Alliance with open studio days. City’s Community Relations Coordinator – Ongoing.
- Continue to host and/or support Community Involvement Day and other events and annual celebrations (e.g., Heritage Days and Autumnfest) that “celebrate” community and neighborhoods. Make sure these are well organized, supported, and publicized. City’s Community Relations Coordinator, Community Development Office – Ongoing.
- Encourage non-profits and for-profits to continue mutually supporting one another. City’s Community Relations Coordinator – Ongoing.
- Work with the Lower Kennebec Regional Land Trust (LKRLT) and use its resources and skills to help preserve appropriate open-space areas. Planning Director, Conservation Commission – Ongoing.

### 4.4 HOUSING

**State Goal**

- Encourage and promote affordable, decent housing opportunities for all Maine citizens.

**Issue Statement**

- It is important that the City of Bath have a mix of ages, income levels, and ethnic groups. This mix contributes to the community energy, friendliness, and the overall sense of community.

**Planning Implications of the Housing Inventory**

- The City of Bath’s existing housing stock is old compared to surrounding towns (i.e., the Bath Region), with almost half of the housing built before 1939. Although this old housing stock is what gives Bath its historic heritage and is an element of local pride, it costs more to maintain, is often less energy efficient, and may have lead-based-paint health hazards.
- Housing projects constructed during the two World Wars greatly affected Bath’s housing stock. It is one reason for the higher
percentage of multifamily homes resulting in more renter-occupied housing.

- The housing stock in Bath has grown little since 1990. The surrounding small towns, as well as Topsham and Brunswick, have seen increases more similar to the state average.

- According to the 2001 "Bath Housing Assessment" and the 2007 update, the Dike-Cobb neighborhood; properties around the Bailey and Fitz Streets intersection; the neighborhood between Route 1 and Rose Street; Washington and High Streets; and Elm Street contain clusters of housing in poor condition. Also listed in poor condition in the assessment are homes on Middle Street on each side of the viaduct; the Union and Granite Street areas; Western, Elsinore, Quimby, and Cottage Streets; Centre Street; Court Street; Charles Street and other streets between Centre and Court Streets; Bailey and Tolman Streets; and Windjammer Way, including parts of North Street.

- Only about half of the dwelling units in Bath are in single-family structures.

- Bath has a high percentage of dwelling units in multifamily structures and a low percentage of mobile homes.

- Bath has a small percentage of seasonal dwellings and little conversion of seasonal dwellings to year-round residency.

- The percentages of owner- versus renter-occupied housing reveal that Bath is similar to larger urban Service Center communities in the state.

- Approximately 65 percent of the residential growth in Bath from 2000 through 2007 occurred in the City's designated Growth Areas.

- It is difficult to predict the effect that the price of gasoline, the surplus Navy housing at BNAS (slated for closure in 2011), the tightening of credit, and other factors will have on regional housing growth and the location of that growth. The surplus BNAS housing temporarily may eliminate moderate-income housing demand. The price of gasoline, if it goes to $4 per gallon and stays there, may affect rural housing construction and cause a demand for housing that is closer to people's employment. Credit-tightening will likely restrict housing construction everywhere.

- Although Bath has the highest percentage of federally assisted multifamily housing (for Maine communities with populations of more than 7,500) and has zoning regulations that encourage both single- and multifamily housing development at high densities, the City still has an
Affordability Index below 1.0. A number below 1.0 means the housing is unaffordable according to Maine State Housing Authority (MSHA) criteria.

- Rental housing is also considered unaffordable according to MSHA criteria.

Actions
- Promote housing development unlike what already exists—for example, housing attractive to young professionals, loft space, senior housing—and allow and encourage mixed-use, mixed-income, and mixed-age housing developments. Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
- Strive for at least 10 percent of all new housing to be affordable to first-time homebuyers and support such efforts of the Bath Housing Authority (BHA). Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
- Continue renter-to-owner programs. Community Development Director – Ongoing.
- Develop a children’s park, with young-family-friendly amenities. CIP - 2014.
- Improve neighborhoods, including urban neighborhoods, by improving infrastructure, utilities, and the public realm. Provide incentives to landowners who help preserve or increase a sense of neighborhood. CIP, Community Development Office – Ongoing.
- Support the Bath Police Department’s Community Policing program. Police Chief, City Council – Ongoing.
- Implement locally if appropriate, and advocate for state level energy- and water-saving building and plumbing regulations. Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
- Encourage and assist Bath residents and property owners to implement the Recommended Actions for the Bath Community and Residents listed in the “City of Bath Energy and Climate Action Plan.” (See appendix M) City Manager, Community Development Director – Ongoing.

4.5 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

State Goal
Preserve the State’s historic and archaeological resources.

Issue Statements
- The City of Bath’s history, its historic atmosphere, the historic architectural fabric, and the fact that all is well documented are all part of what makes Bath a wonderful and extraordinary place in which to live,
as well as greatly benefiting the City’s economy. The historic nature and appeal of Bath adds to both our sense of place and the City’s economic well-being.

- In neighborhoods with a high degree of historic architectural integrity, ensuring that additions, modifications, and new structures are harmonious with the character of existing buildings will help maintain those neighborhoods’ sense of place and economic well-being.

### Planning Implications of the Historical and Archaeological Resources Inventory

- As noted in Section 4.4, the housing stock in Bath is old compared to that of surrounding towns. Although the old housing stock is what makes Bath historic, it also costs more to maintain, is often less energy efficient, and may have lead-based-paint health hazards. As homeowners seek to fix the problems, they may unknowingly destroy historic characteristics and possibly eviscerate the historic appearance of the structures.

- Because of the past emphasis on large, impressive homes in the Washington Street area, many homeowners are unaware that their more modest home is equally historic and significant in the history and current appearance of the City. Although some archaeological sites and significant structures are known to local inhabitants, not all historic resources are known to decision makers.

- Because of its pattern of development, Bath has retained much of its historic landscape, including residences, religious buildings, commercial structures, street widths, trees, and stonewalls. This cultural landscape has become one of the City’s primary defining characteristics for both residents and visitors. Protecting and promoting the City’s historic character while not impeding the City’s continuing development will be a challenge.

- Time and again, report after report, “quality of place” is said to be an important (and often under-recognized) economic resource. This needs to be recognized in Bath as the City works toward economic diversification. Educating residents about the importance of Bath’s quality of place and historic character as economic resources make them easier to protect. Showing visitors the City’s quality of place and historic character will help capitalize on these economic resources.
• Heritage tourism and quality-of-place issues for retirees may hold promise for economic diversification.
• Finding ways to measure the success of programs designed to promote the historic resources of Bath would highlight their importance.
• A Heritage Center and a historic-marker program would help focus attention on Bath’s historic resources.
• The requirements of the Americans with Disabilities Act (ADA) hamper the economically viable reuse of historic buildings in the downtown and elsewhere. It is often difficult to add to or rehabilitate nineteenth-century buildings using current building codes.
• There are numerous nationally recognized significant structures and areas of the City that are not protected by local law.
• Studies have shown that there are economic benefits to historic-property owners when their property is located in a locally protected historic district. We know that the historic character of Bath attracts many visitors to the City each year. Thus, it is important financially to both the owners of historic properties and the City to preserve and promote these resources.
• More knowledge of the City’s archaeological resources and sites could put them at risk; however, more knowledge and public information about the City’s historic resources could help protect them.

**Actions**

• **Plan and implement a system of City-wide historical markers.** City Manager, Community Relations Coordinator, Planning Director – 2010.
• **To educate the public, homeowners, and City leaders, produce and distribute an informative brochure and provide information on the City’s web site about the value and importance of our historic resources, appropriate additions and renovations, and Historic District regulations.** Planning Director, Planning Board, City Council – when the Land Use Code is updated, Sagadahoc Preservation, Inc – 2010.
• **Provide more local-history resources to schools (e.g., Patten Free Library History Room) and other educational programs (e.g., lectures and senior college).** Sagadahoc Preservation, Inc, Patten Free Library, Bath Historical Society – begin in 2009.
• **Undertake additional and updated architectural surveys.** Planning Director. Sagadahoc Preservation, Inc – 2012.
• **Develop easily understood and administered Historic District approval standards, which ensure that Bath maintains the authenticity of its historic buildings, structures, and landscape and also encourage**
contemporary, imaginative, and innovative design. Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.

- **Enlarge the local and national historic districts.** Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
- **Continue the façade loan program.** Community Development Director – ongoing.
- **Enact a delay on the demolition of historic resources.** Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
- **Incorporate information provided by the Maine Historic Preservation Commission (MHPC) into land use planning and the development review process.** Planning Board, Planning Director - 2010.

### 4.6 NATURAL RESOURCES

**State Goals**

- Protect the quality and manage the quantity of the State's water resources, including lakes, aquifers, great ponds, estuaries, rivers and coastal areas.
- Protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas.
- Protect the State’s marine resources industry, ports and harbors from incompatible development and to promote access to the shore for commercial fishermen and the public.
- Safeguard the State’s agricultural and forest resources from development, which threatens those resources.
- Promote and protect the availability of outdoor recreation opportunities for all Maine citizens, including access to surface waters.

**Issue Statements**

- Despite the fact that Bath is one of the most densely populated cities in Maine, the street trees, the rest of the urban forest, the green spaces of our cemeteries and parks (including Maple Grove and Oak Grove Cemeteries and the scattered small family cemeteries), City Park at the Library, Waterfront Park, Thorne Head, and Butler Head help make the City an enjoyable place in which to live and are valued economic assets to the community.
- The street trees and urban forest are important to how much we, as well as visitors to Bath, enjoy our community.
• The numerous water resources, including the Kennebec River, Winnegance Creek, Whiskeag Creek, New Meadows River, and Merrymeeting Bay, are valuable natural-resource assets.

• Views of the Kennebec River from downtown Bath, as well as from other locations in the community, are important to our sense of place.

• The Kennebec River, with its working waterfront, is also a critically important economic resource.

Planning Implications of the Natural Resources Inventory
• The surficial geology and resulting soils of Bath have not been kind to agriculture. The limited agriculture and forest practices, however, add to the lasting rural scenic quality of North Bath.

• There are steep slopes along the west side of High Street from near Nichols Street south to near Fairview Lane. The steepness of the slopes makes development of this area difficult, if not impractical.

• The City of Bath has approximately 414 acres of land that is either permanently removed from development potential or set aside in the state’s Open Space Tax Program. All of the protected parcels are in North Bath.

• There are almost 205 acres of land in Bath classified in the Farmland Tax Program. Land in this classification is valued for tax purposes as farmland, not at market value. The farmland is used to grow hay, board horses, grow vegetables and flowers, harvest Christmas trees, and raise bison. Although this acreage is not a significant portion of the City, the farms add to the economy of Bath and to the rural character of North Bath.

• The Tree Growth Tax Program includes more than 376 acres of forestland.

• The lands in conservation plus the lands in one of the state’s current-use tax programs total approximately 995 acres. This is about 1.5 square miles, or about 15 percent, of the area of the City of Bath.

• Nine large islands in the Kennebec River are part of the City of Bath.

• Large blocks of undeveloped land add greatly to the rural quality of Bath and also provide habitat for many birds and mammals. If these blocks are broken up, by even minor development, the value of the habitat to many species of animals is greatly diminished.
• The Kennebec River carries a huge volume of water. It is a visual, recreational, and economic resource. The river adds to our sense of place, our recreational enjoyment, and our economic livelihood.

• As stated on the Friends of Merrymeeting Bay’s website, “the [Merrymeeting] Bay, by virtue of its unique characteristics and large size, is an ecological gem in our midst. Unfortunately, many factors, particularly water pollution and pressures from development, have reduced much of the once-abundant resources of the Bay to remnant levels.”

• Beginning with Habitat’s Kennebec Estuary Focus Area includes the Merrymeeting Bay, Lines Island, and other portions of Bath. This focus area is depicted on the Critical Natural Areas map. Working with landowners, the Kennebec Estuary Land Trust, and developing and implementing appropriate development regulations will help to protect this area of statewide ecological significance.

• The facilities, land, and businesses that can be referred to as the Port of Bath make our City somewhat unique. This gives the City a competitive advantage on which the City has capitalized for decades. The loss of any of these would make Bath much less economically competitive.

• As stated in the “Gulf of Maine Council on the Marine Environment Action Plan 2007–2017”: “Working waterfronts are essential to marine-dependent industries and often define the character of coastal communities.” What is left of Bath’s working waterfront is a former marina in the downtown area, a vacant parcel once used as a shipbuilding site and sardine cannery, and BIW.

• Wetlands are not just swamps that need to be filled to accommodate development. They provide important water-cleansing and flood-control functions, and they provide a breeding ground for many large and small animals. Wetlands also add to the beauty of Bath.

• As emphasized by Maine’s Natural Areas Program (MNAP), knowledge of the significant plant and animal habitat, including rare species and natural communities, helps to avoid development conflicts and assists landowners in making informed decisions about development or conservation of their land. This is true whether or not the plant and animal habitats are catalogued by the MNAP.

• Views form our sense of place and are important to our enjoyment of Bath. The views include the Kennebec River, islands in the river, the east shore of the river, and open fields that contrast with Bath’s urban
qualities. The views of the City from the river are also important to this sense of place.

- **Much of the downtown is in a 100-year flood-hazard area.** At times of astronomical high tides, some street-flooding occurs on Commercial and Washington Streets. If a sea-level rise occurs in the future, additional flooding will take place.

- **Natural resources and natural areas provide both opportunities for and constraints to development.** The natural areas with severe constraints are generally located along the West Bath town line in the southwest portion of Bath, along the Kennebec River south of BIW, along Whiskeag Creek east of Ridge Road, Butler Cove, along the New Meadows River west of Ridge Road, along the shore of Merrymeeting Bay, east of Varney Mill Road, and the large wetlands east of Windjammer Way and Bernard Street.

**Actions**

- **Protect the City’s natural resources, including its critical natural resources, ground water and surface water, locally important views, Merrymeeting Bay, and the Kennebec River with its working waterfront,** by adopting, administering, and enforcing appropriate standards and regulations, and making information from MDEP, MIF&W, SRRRI, and others available to landowners. Planning Director, Planning Board, Conservation Commission, City Council – ongoing and when the Land Use Code is updated, 2010.

- **When the Open Space Plan is developed (see Public Facilities and Services Actions, page 24), include a section on appropriate techniques to protect important views.** Planning Director, Planning Board, Parks and Recreation Director – 2011.

- **Support the City’s code-enforcement program with appropriate staff resources and adequate training.** City Manager, City Council – annual budgets, ongoing.

- **Develop a plan to eliminate point (including CSOs) and nonpoint sources of pollution entering Merrymeeting Bay and the Kennebec River.** The plan should encourage marine business and industries to participate in programs such as clean marina programs. Planning Board, Public Works Director, Planning Director – 2011.

- **Incorporate stormwater-management standards such as low-impact development standards and appropriate Best Management Practices (BMPs), as well as “LEED for Neighborhood” criteria, into land use regulations.** Make these standards available to landowners and developers. Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
• Conserve the urban forest by protecting existing assets, including trees in the downtown, street trees in neighborhoods, and specific trees; by promoting a design that has esplanades and trees on all streets; by improving sidewalks and expanding the sidewalk network from which to view the City’s urban forest; and by undertaking research for new resources and funding. Planning Board, Planning Director, CIP, Parks and Recreation Director – ongoing.

• Amend the City of Bath Public Works Department (PWD) Street Handbook, if needed, to include appropriate standards for stormwater management as well as erosion and sedimentation control, and incorporate MaineDOT’s Waterway and Wildlife Crossing Policy and Design Guide. Public Works Director - 2011

• Inform the public about the City’s varied natural resources—rural and urban—by promoting education in Bath schools; developing hiking and biking maps and guides; encouraging the use of public green spaces in parks and cemeteries by both residents and visitors; and updating and distributing the self-guided brochure about Bath’s trees. Encourage the use of the Farm and Open Space Program and the Tree Growth Tax Program. RSU 1, Planning Director, Parks and Recreation Director, Bath Trails, Assessor’s Office - ongoing.

• Require the use of BMPs for agricultural activities and require developments in critical rural areas to retain areas of prime farmland soils as open space. Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.

• Consult with the Maine Forest Service and the Soil and Water Conservation District when developing forest- and agricultural-management standards, respectively. Planning Director – ongoing.

• Reorganize the existing Forestry Committee into an expanded Conservation Commission that will suggest and support appropriate regulations to properly protect water and land assets, will provide information to land owners regarding appropriate trees and shrubs to plant, and that will work with neighboring towns and local and regional conservation stakeholders, including regional land trusts and the Sagadahoc Region Rural Resources Initiative. Forestry Committee, Parks and Recreation Director, Planning Director - 2011.

• Undertake a monitoring and assessment program of the streams and riparian areas covered by the Critical Resources Areas map, using volunteers and/or the Conservation Commission. Forestry Committee (to become the Conservation Commission), Planning Director - 2011.

• Consistently use programs such as “Beginning with Habitat” in the planning process. Planning Board, Planning Director - ongoing
• When the Land Use Code is updated, amend it to conform to the State's Storm Water Management Law and Storm Water Rules, and incorporate any updates to the Floodplain Management Ordinance. Planning Director, Planning Board, City Council – 2011.

• Continue the policy of not extending subsidized public sewer or water lines across Whiskeag Creek into North Bath. Planning Board, City Council – ongoing.

• Maintain the City’s accesses to the Kennebec River: the North End and the South End Boat Launches, Waterfront Park, and South End Park. Parks and Recreation Director - ongoing.

4.7 TRANSPORTATION

Issue Statements

• Public transportation within the City of Bath and to other communities, as well as the City’s location relative to the varied forms or modes of transportation (e.g., Route 1, rail, and the “marine highway”), adds to the enjoyment of our community and can provide great economic benefit. However, the full potential to use rail and the marine highway has not been realized.

• The negative aspects of the Route 1 corridor—its appearance, litter, traffic, the number of curb cuts, lack of access management, speed of vehicles, and the fact that it is out of character with the rest of the City—do not present an inviting gateway to the City of Bath. These negative aspects of Route 1 detract from our sense of place, are detrimental to the City’s downtown, and harm the Bath economy.

• Traffic speed and congestion on many of the City’s major streets are detrimental to the affected adjacent neighborhoods.

• The unavailability of parking in the downtown, a result of either not enough parking spaces or poorly managed, designated, and signed parking lots and spaces, is detrimental to the downtown and the City’s overall economic health.

• Many of the privately owned (and some City-owned) parking lots are eyesores. They detract from our sense of neighborhood, the downtown pedestrian-friendliness, and the general attractiveness of the downtown.

Planning Implications of the Transportation Inventory

• With Route 1, the Kennebec River, and the railroad all coming together in the downtown, the City of Bath is a true transportation hub. This critical mass of transportation services can greatly enhance transportation access in the Bath Region and also significantly position Bath to become
more of a tourist and visitor destination. Enhancing these transportation modes and integrating them into broader community goals (e.g., neighborhood preservation and downtown revitalization) are important to Bath’s economic and community-development future.

- The design of Route 1 west of High Street presents a poor image as a City of Bath gateway. It also provides poor vehicular and pedestrian connectivity between the North End and the South End in that portion of the City. The design of Route 1 encourages speeding, has poor access management, and several High Crash Locations (HCLs) are associated with it.

- The City’s participation in the Maine Department of Transportation (MaineDOT) Gateway 1 planning process is important for Bath as well at the rest of the Route 1 corridor.

- The present Route 1 viaduct through the downtown has poor aesthetics. Although it offers a link north and south under Route 1, the viaduct creates a visual and perhaps a psychological barrier between the North End and South End of the City.

- The MaineDOT forecasts that traffic on Route 1 in Bath, especially summer traffic, will continue to increase through 2030 (although annual average daily traffic [AADT] counts at many locations decreased between 2002 and 2005).

- The local committee that worked with the MaineDOT and its consultants on the conceptual design of the Route 1 viaduct replacement voted that a new four-lane viaduct was the best alternative. Although it will be several years before the viaduct is replaced, the improvements for Route 1 west of High Street suggested by the study could be implemented independent of the viaduct improvements.

- BIW commuter-traffic impacts have been significantly lessened by the Sagadahoc Bridge. Any design of the viaduct replacement should ensure that maintaining free traffic flow onto the bridge is mandatory.

- South of Route 1, High Street serves as access to Phippsburg and Popham Beach. The volume and speed of the traffic is negatively impacting quality of life of this neighborhood.

- Quality of life is also impacted in neighborhoods such as the Richardson Street-Western Avenue neighborhood and the Court Street neighborhood by vehicles using local streets as cut-throughs to and from Route 1 and/or West Bath. Local streets are also impacted by BIW traffic between High and Washington Streets.
• Whereas the Route 209 Bypass might solve some of the traffic problems mentioned previously, funding for it cannot be justified by the Maine DOT as a Route 1 improvement.

• Knowing the location of HCLs helps identify streets’ trouble spots. HCLs are associated with Route 1, Leeman Highway, and the intersections at State Road and Congress Avenue and at Centre and Middle Streets.

• The rail line through Bath is called the Rockland Branch and is owned by the State of Maine. This line has had significant upgrades to rails, ties, crossings, and ballast in recent years. The line through Bath is used to move freight and for the seasonal Coastal Maine Scenic Passenger Train. Long-term plans for the line include providing tourists with multimodal, vehicle-free vacations; connecting the Rockland Branch to Amtrak; and alleviating traffic on Route 1 with a BIW commuter service.

• The City of Bath is served by a City-operated deviated fixed-route transit system, a seasonal trolley, an intercity bus, and a demand-response bus service—not all of which connect at one location.

• The marine highway offered by the Kennebec River has functioned as a vital economic resource for centuries and it is still a major economic resource today.

• According to recent studies, Waterfront Park is the best location for expanded waterfront facilities to support Maine’s “Strategic Passenger Transportation Plan,” which envisions bringing tourists to Maine for vehicle-free vacations.

• A study completed in 1999 found that in the downtown, parking supply was approximately in balance with parking demand. It also found, however, that there were block-specific shortages of parking, primarily along Front Street.

• There are several parking lots in the downtown that serve BIW employees. These lots are more valuable to Bath’s economy than for simply storing vehicles for 8 hours a day.

• The City of Bath is located on the East Coast Greenway, the national nonmotorized pathway from Key West, Florida, to Calais, Maine. The local long-term plan for the Greenway is to extend the Androscoggin River Bike Path from Brunswick to the Sagadahoc Bridge.

• More work is needed on sidewalks in and around the downtown to meet the “walkable city” goal described in the 1999 “Action Plan for the Bath Downtown and Waterfront.” A pedestrian pathway linking various locations on lower Washington Street to the downtown and located along
the river in the downtown area would provide an important connection and would complement the “walkable city” initiative. The various City and non-City trail and pathway initiatives could be coordinated, mapped, and publicized as a City-wide trail system.

- Addressing the negative impacts of the transportation system will make Bath a more pleasant and healthy community.
- The uses of land and transportation systems have a complex connection. The City of Bath—being old, mature, and compact—exemplifies what is today called “Smart Growth.” Bath continues to promote Smart Growth by discouraging growth in the rural parts of town, promoting infill development, allowing small lots (by Maine standards), allowing narrow streets in new developments and the narrowing of existing streets, allowing on-street parking in the downtown and in most residential neighborhoods, encouraging mixed-uses in the Downtown, and permitting houses to be built close to the street in high- and medium-density residential neighborhoods.

**Actions**

**Multimodal Actions**

- Encourage the development of all modes of transportation that tie the City effectively to the Midcoast Region and the rest of Maine. CIP, City Manager, Planning Director – ongoing.

- Undertake an educational program to emphasize the potential health and conservation benefits of walking and bicycling for work and play. Such a program will depend on the installation of bicycle racks, the clearing of sidewalks in winter, and the continued construction of connective sidewalks and trails throughout the City that facilitate movement within Bath and to neighboring towns. CIP, Bath Trails, Parks and Recreation Director, Public Works Director – 2011.

- Finish the Bath Railroad Station and surrounding projects, developing the train station as the central hub of local transportation—that is, the terminal/station for bus service, as well as the train, CityBus, trolley, and Visitors’ Center. CIP, Planning Director, Bath Transportation Commission – 2011.

- Develop a ferry service along the Kennebec River and into Boothbay Harbor. Planning Director, Bath Transportation Commission - 2015.
Actions to Improve the Appearance and Functionality of Route 1 and the Viaduct

- Undertake Route 1 gateway changes (e.g., a landscaped median and sidewalks and traffic-calming landscaping along the sides) CIP and Planning Director- 2013 and adopt design standards for the C4 Zone regardless of whether Contract Rezoning is pursued. Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.
- Beautify (e.g., paint and flowers) the existing viaduct until it is removed or rebuilt. Maine DOT, Main Street Bath – ongoing.
- Develop a safe way for pedestrians to cross Route 1 west of High Street. Maine DOT, Planning Director - 2015.
- Actively participate in the MaineDOT’s Gateway 1 planning process and any other regional transportation-planning processes. Planning Director – ongoing.

Actions to Improve Parking

- Employ various methods to increase the effective use of existing parking by developing signage to direct motorists to appropriate parking locations and by adopting the City Council’s Parking Committee plans, including development of a “Where to Park in Bath” brochure that explains locations and time regulations. City Council’s Parking Committee, Planning Director, CIP – 2010.
- Improve the appearance of City-wide parking lots with the City taking the lead by landscaping the Water Street lot. Then, encourage the beautification of private and public parking lots by requiring annual business licenses with maintenance and landscaping standards. Planning Director, Public Works Director, CIP, City Council – 2010.
- If it is deemed necessary, develop new parking locations with appropriate time limits. CIP, Planning Director, City Council’s Parking Committee – 2012 Then, if a parking garage is warranted, require it to include other uses (e.g., retail uses and a movie theater). CIP, City Council – 2020.

City-Wide Actions

- Use traffic-calming measures, including on-street parking, where needed. Planning Director, Public Works Director – Ongoing.
- Continue to analyze problematic intersections and improve them as needed. Planning Director, Public Works Director – ongoing.
- Develop and implement a ten-year plan for all streets and highways to maximize their efficiency and to make repairs and upgrades on a prioritized scheduled. Efficiency measures should include access management and appropriate permitting of developments. The repair and
upgrade schedule should reflect local, regional, and state priorities. Public Works Director, Planning Director - 2011.

- To improve health and safety, develop and implement a plan for improved winter maintenance of sidewalks to schools, the downtown, and other activity centers for pedestrians of all ages. Public Works Director – 2010.

- Continue to work with Bath Trails and other hikers, bike riders, community health advocates, historic preservationists, and motorized trail users as appropriate, to develop, maintain, and promote a local and regional trail system. Parks and Recreation Director, Planning Director – ongoing.

- Work with MaineDOT and the yet to be created Gateway 1 regional entity to address deficiencies in the City’s transportation systems—rail, bus, highway, and port—and any conflicts between the City’s priorities and regional and state priorities. Public Works Director, Planning Director - ongoing.

- Work with MaineDOT to redirect the large amount of stormwater that come from the Route 1 and the Route 1 viaduct, and enter the City’s sanitary sewer system. Public Works Director – ongoing.

- When the Land Use Code is updated, amend it to conform to the policy objectives of the Sensible Transportation Policy Act, the State Access Management Regulations, and the requirements pertaining to the State Traffic Permitting regulations for large developments. Planning Director, Planning Board, City Council – 2011.

4.8 PUBLIC FACILITIES AND SERVICES

State Goals

- Plan for, finance, and develop an efficient system of public facilities and services to accommodate anticipated growth and economic development.

- Promote and protect the availability of outdoor recreation opportunities for all Maine citizens, including access to surface waters.

Issue Statements

- Overall efficiencies of City of Bath departments save the taxpayers money and allow the City to accomplish more with less.

- Energy costs will increase in the future and the impact on the environment of burning oil is well documented. As the City becomes more energy efficient and reduces emissions of carbon dioxide and other greenhouse gases—and assists Bath residents and property owners to do the same—the community’s financial resources will go farther, quality of life will be improved, and the earth’s climate will benefit.
• Managing the City's solid waste will be a major financial burden for Bath taxpayers in the future.

Planning Implications of the Public Facilities and Services Inventory
• The Bath Fire Station is being used beyond its designed capacity and is inadequate. However, it makes sense to explore fire-service regionalization before building a new fire station.
• The BNAS Fire Department is an automatic aid provider to the Bath Fire Department. The Bath Fire Department's staffing level may need to change after BNAS closes.
• The Bath Fire Department is not sufficiently staffed to provide adequate responses to tall-building (i.e., ten to twelve stories) fires because safety procedures require teams of personnel to be used to evacuate people. The height of any new buildings may impact staffing needs of the Bath Fire Department.
• The Bath Police Department has kept budget costs down by using volunteers, being proactive with programs such as the Community Policing program, and by using grant funds.
• The City of Bath landfill expansion (i.e., creating a new cell), management of gas generated as material biodegrades, and the facility's closure will be enormous costs for which the City has only recently begun to plan and budget. There may be financial benefits to selling carbon credits from the burning of landfill gas. There may also be opportunities to generate energy from the gas-combustion process.
• The Rose Street pumping station is operating beyond its design capacity and will stop residential growth in its service area until the capacity is increased.
• The physical growth of the City is linked to the expansion of public water and sewer systems. These systems can be used to guide growth toward appropriate and away from inappropriate locations.
• Understanding the growth potential in various parts of the City will help the PWD plan street, intersection, and sewer-system capacity improvements.
• The age of the infrastructure (Bath being an old city) and previous funding priorities and budget decisions have resulted in a public infrastructure (i.e., streets, pumping stations, sanitary sewers, storm sewers, and water mains) that is in need of repair.
• The aging of the City's population (see Section 4.1) will result in a change in recreation needs of the community.
• The City of Bath has 671 acres of land in public recreation and parks (including cemeteries and boat launches) and open space (including lands in conservation), which is 0.07 acre (3,154 square feet) per capita. (This calculation excludes the 75-acre state-owned Lines Island, which—being located in the middle of the Kennebec River—is relatively inaccessible.)
• In the future utility costs are likely to increase for everything from heating oil for public buildings to fuel for vehicles and electricity.
• The City of Bath owns non-utilized and under-utilized public buildings. A study of these buildings revealed that some should be sold or redeveloped.
• Several buildings are owned by the City and leased to other businesses, including the Midcoast Center for Higher Education (MCHE), the former YMCA, the Customs House, and the Bath Railroad Station. Only the Customs House is self-sufficient—that is, it operates without taxpayer support.

**Actions**

• Use of the Bath Landfill should be optimized in several ways: regionalize recycling to increase opportunities to recycle more materials; encourage the creation of landfill fees to enhance further recycling; prohibit use of the landfill by non-Bath residents; and participate in local efforts for a building-materials exchange. Public Works Director, City Council - Ongoing.

• Develop an action plan for the remaining useful life of the landfill and its anticipated closure. Public Works Director – 2011.

• Develop a 10-year wastewater treatment plant facility plan and continue to fund sewer-line improvements and storm and sanitary sewer separation projects in the CIP. CIP – ongoing, Public Works Director – 2012.

• Utilize highly energy-efficient buildings and resources in all areas of City government and strongly encourage the same in the private sector: conduct energy audits of all City-owned buildings, promote City use of alternative sources of fuel, and adopt standards in the Land Use Code to encourage or require energy-efficient designs in the private sector. City Manager, Planning Board, City Council and Planning Director, Planning Board, City Council – when the Land Use Code is updated, 2010.

• Implement the Recommended Actions for the City of Bath Government listed in the "City of Bath Energy and Climate Action Plan." (See appendix M) City Manager – 2010.
• Encourage and assist Bath residents and property owners to implement the Recommended Actions for the Bath Community and Residents listed in the “City of Bath Energy and Climate Action Plan.” (See appendix M) City Manager, Community Development Director – 2010.

• Explore regional reorganization, which is discussed further in Section 4.11, Regional Coordination. City Manager, Appropriate Department Heads - Ongoing.

• Promote and protect public green spaces as discussed in Section 4.6, Natural Resources and in Appendix F, Natural Resources Inventory. Planning Board, Conservation Commission - Ongoing.

• Develop a recreation plan that addresses the needs of the City’s changing demographics. Parks and Recreation Director – 2010.

• Develop an Open Space Plan that identifies open space needs, issues, preservation methods and potential sources for acquiring and/or preserving important areas. Parks and Recreation Director, Planning Director, Conservation Commission – 2011.

• Continue to plan for capital improvements to upgrade the City’s aging infrastructure and to maintain public facilities. CIP, Public Works Director - Ongoing.

• Maintain the current (i.e., 2008) per capita acreage of park and open-space land. Require developers of residential subdivisions to either contribute land or the funds to purchase land so the City can maintain the per capita acreage. Planning Board, City Council - Ongoing.

• Continue the policy of not extending subsidized public sewer and water lines across Whiskeag Creek into North Bath. Planning Board, City Council - Ongoing.

4.9 EDUCATION

Issue Statement
• All public and private education institutions in the City and the region—from those that serve our youngest to those that serve our oldest, from general education to specific—are important to the community and our economy.

Planning Implications of the Education Inventory
• With the very recent formation of Regional School Unit 1 (RSU 1), it is too early to inventory past trends for an idea of the future.

• Bath school facilities are showing their age with a long list of needed and expensive capital improvements. These improvements could translate into major costs for RSU 1 in the future.

• The enrollment of Bath-resident students has declined and will likely continue to decline. Including former Union 47 students, enrollment will
likely stay level in the future. Predicted enrollments for RSU 1 will be critical planning information for the RSU 1 School Board in the near future.

- In the past five years, the overall percentage decrease in Bath School Department staff was greater than the percentage decrease in teachers. This reflects the emphasis of the Bath Board of Education on keeping teachers and making cuts in non-teacher personnel. It is too early to determine whether this will be the same approach taken by the RSU 1 School Board.

- The Bath Board of Education busing policy shows concern for student safety, as it should. There could be savings in transportation costs, however, if attention were given to mitigating or eliminating the safety problems and require students to walk farther to school. Walking to school could result in healthier students.

- The percentage of Bath students who graduate from high school is high and the rate is increasing. However, the percentage of Bath residents with college degrees is low compared to the rest of the Bath Region. Although a possible family tradition of placing high value on high school graduation as an entrance to BIW is positive, the possible tradition of placing a low value on a college education is negative.

- Bath is rich in a variety of educational resources in addition to those offered by the Bath School Department. These resources include the Head Start program, Senior College, Bath Regional Vocational Center, Bailey Evening School, The Hyde School, a campus of Southern Maine Community College (SMCC), and the University of Maine’s University College.

- As discussed in Section 4.2, the report titled “Measures of Growth 2007” written for the Maine Economic Growth Council reminds us that “in order for societies to thrive, they must focus investment in their people [i.e., education] as well as in cutting-edge technology.”

**Actions**

- Actively participate in the RSU 1 School Board’s deliberations pertaining to curricula and budgeting. City Council, City Manager, Finance Director - Ongoing

- Promote the importance of quality education, from kindergarten to senior college, as an economic development tool and to attract young families. RSU 1 School Board, City Manager - Ongoing.

- Develop links between the Community College and existing and new businesses. City Manager, Assistant City Manager, Planning Director - 2010.
Encourage the RSU 1 School Board to solve its deferred-maintenance problems by developing a thorough CIP for schools. City Manager, Finance Director, RSU 1 School Board - 2010.

4.10 FISCAL

State Goal

- Plan for, finance, and develop an efficient system of public facilities and services to accommodate anticipated growth and economic development.

Issue Statements

- The costs of operating the City government and providing the facilities and services that the public wants and needs continue to increase.
- The tax base provided by the City’s major taxpayers helps to keep taxes lower for residential property owners. However, the City’s over-dependence on BIW and its future, and the belief on the part of the City government (especially in the past during times of BIW’s prosperity) that diversifying the local economy was neither possible nor necessary, could place the City’s future prosperity at risk.
- The City’s spending limitation assures the public that the City Council will not spend any more in a given year than was spent the previous year plus the rate of inflation (i.e., the Consumer Price Index [CPI]). However, the constraints of the spending limitation may outweigh the assurance it provides.

Planning Implications of the Fiscal Inventory

- The increase in valuation shows that the City of Bath’s property value is growing. However, it is not growing as fast as the total municipal valuation in Sagadahoc County. This means that although Bath still pays the largest portion of the Sagadahoc County Tax, that portion is decreasing.
- Although BIW pays a major percentage of total taxes, Bath is dependent on its residential tax base to fund municipal services. Bath has few other industrial taxpayers and its commercial tax base is growing only slowly. This is a good reason to pursue new industrial and commercial development.
- Tax-exempt properties—that is, non-profits and other entities that pay no property taxes—accounted for more than 16 percent of Bath’s total valuation in 2006. Urban communities are where colleges, hospitals, churches, Elks Clubs, and even state and federal properties are located. These properties pay no taxes, while still needing many municipal...
services. There are significantly more tax-exempt properties in Bath and other large urban municipalities than in small rural communities. It is important for the City to be aggressive in recruiting new and keeping the existing commercial and industrial tax base to offset the large number of tax-exempt properties.

- A review of equalized tax rates indicates that larger municipalities in the Bath Region and other Service Center communities need higher taxes than smaller rural towns. The larger municipalities are also willing to levy taxes for the additional public facilities and services that citizens need and want. The fiscal capacity of a community apparently is more related to a balance of need, willingness to pay, and desired quality of life than other measures.
- A significant percentage of taxes paid by the City's taxpayers supports the facilities and services of the Sagadahoc County government. This highlights the need for elected officials in Bath and other Bath residents to be as involved as possible when the Sagadahoc County Commissioners prepare the county budget.
- Obtaining grant funding for projects in Bath has helped keep taxes down. Millions of dollars in grants (i.e., see the “Intergovernmental” column in the “Bath Revenue Sources, 1997 through 2007” table in Appendix J, Fiscal Inventory) have been used in the last ten years for housing-improvement loans, infrastructure upgrades, and other public improvements.
- The City's total expenditures decreased significantly in 2007. Time will tell (along with state revenue sharing, state support to education, and the county budget) whether expenditures will continue to drop.
- Although the City has significant debt (i.e., more than $27 million), it is well below the legal debt limit. Borrowing money for projects allows those residents who will benefit most from the improvements to pay for them over time, as they are being used and enjoyed.
- The City's CIP is designed to identify capital needs in the next five years and to develop a strategy to pay for them. The more that the CIP can be tied to the City's land use and other non-financial planning, the more successful all City planning will be.
- The City's spending-limitation regulation allows no more yearly increase in spending than the CPI. It also encourages each department to spend its entire budget, and it requires the City Council to artificially appropriate funds at the end of a fiscal year to increase the budget up to the ceiling.
to enable the next year’s budget to grow if necessary. The rating agencies have downgraded Bath’s bond rating due to this action. There should be a better way to control spending.

- Conversely, when the City Council voted to override LD 1, the bond rating agencies viewed this action favorably. There should be a better way than LD1 to address statewide local property tax increases.
- Tax Increment Finance is an economic-development tool that can be used to pay for public and private improvements associated with commercial and industrial growth. It also shelters some of the additional value from this growth so that the City’s tax liabilities for Sagadahoc County and local education, as well as the amount of state revenue sharing, are benefited.

Actions
- Review options and opportunities pertaining to the most appropriate spending and budgeting procedures, including the Charter’s spending limitation. City Manager, Finance Director, City Council – 2010.
- Continue the annual preparation and implementation of the CIP. Use the CIP to promote land use consistent with the Future Land Use Plan. City Manager, Finance Director, Planning Director - Ongoing.
- Prepare an economic development plan that includes contingency planning for the possibility of BIW downsizing or closing, a clear and concise business-attraction and business-retention process, a staff “go-to” contact, and an economic development committee if appropriate. City Manager, Assistant City Manager, Community Development Director, Planning Director - 2011.
- Use development incentives when in the best interest of the taxpayers and the City’s economic future. City Manager, City Council - Ongoing.
- Pursue high-tech companies, expand Wing Farm Business Park, and develop “incubator” industrial space. City Manager, Assistant City Manager, Community Development Director, Planning Director - Ongoing.
- Work with regional development agencies to promote regional economic development. City Manager, Assistant City Manager - Ongoing.
- Develop links between the Community College and existing and new businesses. City Manager, Assistant City Manager, Planning Director - 2011.
- Include geographical information in the City’s promotional materials, highlighting Bath as a multimodal transportation hub. City’s Community Relations Coordinator, Main Street Bath – Ongoing.
- Encourage cultural tourism on a year-round basis and work with the City’s accommodations industry to promote elder-hostel programs. City Manager, Assistant City Manager, Planning Director - Ongoing.
• Promote City, regional, and individual agriculture by establishing a permanent indoor farmers market, organizing a program of community-supported agriculture, and developing community gardens. City’s Community Relations Coordinator, Community Development Office, Planning Office, Parks and Recreation Director - 2010.

• Take an assertive role in the Sagadahoc County budget-preparation process making sure that the County’s activities and funding levels serve the best interests of City of Bath taxpayers. City Manager, City Council - Ongoing.

4.11 REGIONAL COORDINATION

Issue Statements
• The City of Bath is the Service Center and the “downtown” for a group of five area towns.
• The City of Bath can maintain its vibrant downtown in part because it is also the downtown for these other regional towns.
• Because of the City’s higher valuation than other municipalities in RSU 1 and Sagadahoc County, Bath bears the largest part of the RSU 1 budget and the County Tax.

Planning Implications of the Regional Coordination Inventory
• Many services—municipal services and cultural, nongovernmental services—are shared in the Bath Region. This is done to provide more and better services and opportunities with lower costs.
• As costs to provide services increase, and as new residents in the towns of the Bath Region demand additional services, municipalities will have to become more efficient. This may reduce past concerns about the loss of local control when services are provided regionally and may encourage additional coordination.

Actions
• Encourage the City Council to consider regional coordination for more cost-effective, efficient, and productive service delivery of solid-waste management and recycling; development of housing affordable to first-time homebuyers; protection of natural resources; and promotion of local forestry and agriculture, recreation, energy conservation, economic development and tourism, transportation and public works, and fire and ambulance service. City Manager, Appropriate Department Heads - Ongoing.

• Conduct annual meetings of the Bath Region’s Planning Boards, Select Boards and Councils, and County Commissioners. City Council, Planning Board, City Manager, Planning Director - 2011.
• Take an assertive role in the Sagadahoc County budget-preparation process making sure that the County’s activities and funding levels serve the best interests of City of Bath taxpayers. City Council, City Manager – Ongoing.

• Participate in other regional-planning, economic development, resource-protection, and decision-making processes. Planning Board, City Council, City Manager, Planning Director – Ongoing.
CHAPTER 5
FUTURE LAND USE PLAN

State Land Use Goal
Encourage orderly growth and development in appropriate areas of each community and region while protecting the State's rural character, making efficient use of public services and preventing development sprawl.

Introduction
Many of the Issue Statements in this Comprehensive Plan have spatial, location, and/or land use implications and will require Actions intended to guide, encourage, prohibit, mandate, or restrict various uses of land. This chapter—the Future Land Use Plan—will guide Planning Board and City Council decisions regarding land use policies and regulations for the next ten years, and it is the basis for the City's zoning.

As a starting point for this Land Use Plan, we have also studied:
- existing land use
- existing land use problems and conflicts
- interrelationships of the various land uses and their relationship to the City's needs, as well as how they affect and are affected by changes in the local economy
- economic development issues and opportunities
- natural opportunities and constraints
- existing transportation network
- land-use patterns that will be best for the community in the future

This chapter is also based on the 1997 Comprehensive Plan, and it does not vary appreciably from its well-done Future Land Use Plan. However, it has been updated by information gathered for this Comprehensive Plan—that is, the information in Appendices and Inventory Sections 4.1 through 4.11.

For ease of reading and understanding, this chapter is divided into two sections. Section 5.1 reviews the existing land use, issues, implications, and relevant information and recommendations from prior City of Bath and other planning documents. Section 5.2 defines the future land use areas created by our common community vision and from our information gathering.
5.1 EXISTING LAND USE

Historically, cities grew from a center, with higher densities at that center and decreasing densities as one moves farther out. Also, there was a mix of uses, with residential, office, retail, warehousing, and often manufacturing in the center (now a city's downtown). The land use pattern in the City of Bath is traditional, with high density and mixed uses in the center, a somewhat lesser density and less mixed uses moving away from the center, and very low density at the outer edge. (Whereas this traditional land use pattern is often depicted as concentric circles or rings around a downtown center, Bath's pattern shows decreasing densities and fewer types of uses north and south from the downtown center.) The activities that made Bath a thriving shipbuilding city were located in the center. Even today, the center—the downtown—is a mix of residential, retail, office, and civic uses; at its edge is part of the marine-manufacturing working waterfront.

Whereas many towns and cities suffered from growth "leap-frogging" out from the built-up parts of the community, Bath was already fairly well developed by the end of the 1800s, before sprawl and low-density residential development became a common form of municipal growth—that is, before the automobile age. There are other reasons why Bath has not seen this type of residential sprawl in recent years: (1) very few people interested in a rural-residential or suburban type of living are moving to Bath; (2) the public policy of not extending public sewer and water lines beyond Whiskeag Creek on Whiskeag Road has kept this portion of North Bath rural; and (3) the fact that Bath's population is not increasing reduces growth pressures on the rural parts of the City.

Bath's downtown is still the community's (and the region's) retail, office, and civic center. Except for the Bath Shopping Center and the commercial uses along Route 1 and State Road, the downtown does not have much competition for its limited number of commercial customers. This has helped keep Bath's downtown buildings fully occupied and the vacancy rates, even for second and third floors, almost at zero.

Working outward from the downtown center, land uses become residential with densities ranging from as high as one dwelling unit per 2,000 or 3,000
square feet of land area to densities that are somewhat lower. The 1997 Comprehensive Plan (Chapter 13) discussed the matter of very high residential densities: “[d]uring the 1980s, much of the City was placed in the high-density residential area category. Densities were set at one unit per 3,000 square feet, or 14 units per acre (Bath’s [average] density is more than two persons per acre—three times higher than neighboring towns). Analysis of seven neighborhoods throughout the current high-density residential area suggests that, for problem neighborhoods, there are usually parcels under 5,000 square feet, turnover rates of six or seven owners in the last 15 years, densities in excess of eight units per acre, and estimated lot coverage approaching 100 percent.”

The land uses in this high-density residential area are mostly residential, with very few businesses or mixed uses.

Continuing outward from the high-density residential area is a medium-density residential area. There is no one place or a specific street where high densities stop and what could be called medium densities begin; the densities simply lessen as one travels out from the downtown center. Here, as in the higher-density residential area, the predominant land use is residential.

Court Street, Five Corners (the intersection of Congress Avenue, North Street, Oak Grove Avenue, and Lincoln Street), Route 1 and State Road, the Bath Shopping Center area, the northwest corner of Park and Washington Streets, and the Wing Farm Business Park are where the traditional “concentric-circle” pattern of land uses described previously deviates in Bath. There are a number of professional office uses on Court Street. This street connects the downtown and the Bath Shopping Center. Historically, it was not uncommon for commerce to expand outward from a downtown center along traffic arteries. On Court Street, business uses are expanding outward from the downtown, as well as inward from the Bath Shopping Center.

Five Corners is the location of a number of small, neighborhood commercial uses. It was historically customary to see neighborhood commercial areas occur at major street intersections; Five Corners is a good example of this.
Along Route 1 and State Road are business uses. Here, again, we see the expansion of business uses along a traffic arterial; however, in this case, the uses should be described as highway-oriented business uses.

The Bath Shopping Center is anchored by regional commercial uses, which are also present on the adjacent portion of Congress Avenue.

The former Bath Memorial Hospital, located on Park and Washington Streets, was built in what has become a medium-density residential area, and it is now occupied mostly by civic land uses.

Business and light industrial uses are located at the western end of Centre Street and on Wing Farm Parkway. There is vacant land adjacent to this area that may be appropriate for expansion of this type of land use.

Vacant land also exists outside the medium-density residential area in the vicinity of the north end of High Street, as well as the south end. Topography is not an obstacle to future residential expansion in the north High Street area, but topography and other development constraints pose obstacles in much of the south High Street area from about Nichols Street to Fairview Lane.

Outside of this vacant area is a large part of the City that was once an agricultural area and is now occupied by low-density residential and agricultural uses, with the exception of what could be termed a natural-resource-based recreation land use (e.g., the Bath Country Club) and a heating-oil distribution site.

Closer to the City center is a once world-renowned, five-mile long working waterfront that was lined with shipyards, piers, and businesses to support shipbuilding. In 2008, it is limited to the marine-industrial use of the BIW shipyard, the vacant land (next to the City’s wastewater treatment plant) that was historically home to shipbuilding and more recently occupied by the Stinson sardine cannery, a now-vacant marina (i.e., Bath Fuel Company [BFC] Marine), and the marina at the Kennebec Tavern. This is the extent of the City’s remaining commercial and industrial working waterfront.
There have been only a few changes in this land use pattern in the last ten to twenty years. As revealed in the study of housing and population growth in Appendix A, there is more residential growth (for various reasons) in the small neighboring towns. Much of the residential growth in Bath has been in a thirty-five-lot subdivision approved by the Planning Board in the mid-1980s. The remainder of residential development, most taking place in the City’s Growth Area, is happening lot by lot. Most important, the rural part of Bath is still rural and the pattern of growth is consistent with the Vision of Bath in 2025 (see Chapter 2).

From a nonresidential perspective, the few changes have been lot by lot, with the exception of the WingFarm Business Park built in 1998 off outer Centre Street. As for other land use changes mentioned previously, the sardine cannery is now closed and a marina (i.e., BFC Marine) located in the downtown is also closed. The former Bath campus of Midcoast Hospital is now occupied by University College, SMCC, and various other, mostly civic, uses.

**Issue Statements That Affect or Are Affected by Land Use**

- It is important that the City of Bath have a mix of ages, income levels, and ethnic groups. This mix contributes to the community energy, friendliness, and overall sense of community. (also a Demographics Issue and a Housing Issue).
- The City’s history, its historic atmosphere, the historic architectural fabric, and the fact that it is well documented are all part of what makes Bath a wonderful and extraordinary place in which to live, as well as greatly benefiting the City’s economy. The historic nature and appeal of Bath adds to both our sense of place and the City’s economic well-being (also a Historical and Archaeological Resources Issue).
- In a neighborhood with a high degree of historic architectural integrity, any additions, modifications, and new structures that are harmonious with the character of existing buildings will help maintain that neighborhood’s sense of place and economic well-being (also a Historical and Archaeological Resources Issue).
- The tax base provided by Bath’s major taxpayers helps to keep the taxes lower for residential property owners. However, the City’s over-dependence on BIW and its future, and the belief on the part of the City government (especially during times of BIW’s prosperity)
that diversifying the local economy was neither possible nor necessary, could place the City's future prosperity at risk (also an Economy Issue and a Fiscal Issue).

- The compact size and walkability of Bath contribute to the City's sense of charm. These features afford an opportunity to walk in neighborhoods, to work, and to the downtown. Bath presents a unique combination of feelings: an urban place with its grid pattern of streets and a small town. This combination of characteristics makes Bath a great place to live and visit. Neighborhoods are important to us in Bath: they are walkable and they are places where our children play and attend school.

- Views of the Kennebec River from downtown Bath, as well as from other locations in the community, are important to our sense of place.

- The City's historic downtown—its walkability, vitality, and "nonfranchise" stores that cater to local needs, including a locally owned supermarket and a drugstore—makes Bath unique and is important to both our sense of place and our economy (also an Economy Issue).

- The downtown's lack of an "activity draw"—such as a movie theater, movies shown at an existing location, additional and varied restaurants, and other "nightlife"—contributes to it being "lifeless" in the evenings. Another cause may be the need for more people to live in and next to the downtown, whether in homes, condominiums, apartments, or a hotel.

- The downtown benefits from being located on the water, providing access to the river from downtown and access to downtown from the river. This access is part of Bath's history, is part of what we like about the City, and is an economic resource.

- The under-developed waterfront and the undeveloped area beneath the Sagadahoc Bridge contribute to an "unfinished" and "shoddy" appearance on the City's waterfront and on the edge of the downtown. Although these undeveloped areas have great potential for development, in their present condition they are negatively impacting the downtown. Bath residents would enjoy the river more with a riverfront walkway, which would also contribute to downtown vitality and help make Bath more of a destination.

- Despite the fact that the City of Bath is one of the most densely populated cities in the state, the street trees, urban forest, and...
green spaces of our cemeteries and parks—including Maple Grove and Oak Grove Cemeteries, scattered small family cemeteries, City Park at the Library, Waterfront Park, Thorne Head, and Butler Head—make the City an enjoyable place to live and are valued economic assets to the community (also a Natural Resources Issue).

• The numerous water resources, including the Kennebec River, Winnegance Creek, Whiskeag Creek, New Meadows River, and Merrymeeting Bay, are valuable natural-resource assets (also a Natural Resources Issue).

• The Route 1 corridor—its appearance, litter, traffic, number of curb cuts, lack of access management, speed of vehicles, and the fact that it is out of character with the rest of the City—does not present an inviting gateway to Bath. These negative aspects of Route 1 detract from our sense of place, are detrimental to Bath’s downtown, and harm the City’s economy (also a Transportation Issue).

Existing Land Use Planning Implications

• The existing land use pattern in Bath is one that many other towns and cities try to achieve: a downtown center core with high densities and mixed uses; an area of high-density (mainly) residential uses surrounding the downtown center; and the residential densities decreasing farther away from the center.

• Regional and neighborhood commercial uses take advantage of their highway locations: the Route 1 and State Road highway-oriented commercial businesses, the Bath Shopping Center adjacent to Route 1, and the neighborhood commercial uses at Five Corners.

• The heavy industrial use adjacent to the downtown is located there because of Bath’s numerous riverport advantages.

• Vacant land next to (i.e., north of) the Wing Farm Business Park and light-manufacturing area may be appropriate for expansion of this land use. Vacant land next to the wastewater treatment plant is appropriate for waterfront-dependent light-manufacturing land uses.

• There is vacant land adjoining the medium-density residential area in both the north and south High Street areas. The north High Street area is more appropriate than the south for expansion of the medium-density residential land use.
Land use-Related Planning Implications from the Inventory Chapters
Following are summary statements of the implications pertaining to land use, discussed in more detail in specific inventory appendices.

• The Economy Inventory (Appendix B) revealed again both the City’s and the Bath Region’s dependence on BIW and the need to develop additional local jobs. The SPO report and common sense suggest that local development needs to focus on the inherent strengths and unique assets of the area, as well as taking advantage of the growing regional industrial clusters. The City is already flexible in one area of growth—home-based businesses—where many larger businesses get their start. Compared to the state and neighboring communities, many local retail sectors demonstrate a weakness.

• Appendix D, the Housing Inventory, discusses the unique characteristics of Bath: the significant percentage of older housing; the impact of projects constructed during the World Wars and their major contribution to multifamily, renter-occupied housing; the location of some substandard housing clusters; and the unpredictable effect of current market factors such as the price of energy and fuel, the surplus housing at BNAS, and the tightening of the credit market. The implications also include the fact that 65 percent of residential growth that occurred in Bath from 2000 through 2007 was in the City’s designated Growth Areas.

• In Appendix E, the Historical and Archaeological Inventory, the implications with land-use ramifications primarily revolve around the need to protect Bath’s treasures: to identify all resources for decision makers and property owners, to educate stakeholders in the roles that these resources play in defining the City and serving as an economic draw, and to promote methods to ensure the survival of the integrity of significant features of both the architectural fabric and the cultural landscape while also allowing owners to modernize and personalize their property.

• The land-use implications in Appendix F, the Natural Resources Inventory, concern the appropriate use of vulnerable or endangered areas, including the steep slopes along the west side of High Street from about Nichols Street south to near Fairview Lane; the ecology of the unique Merrymeeting Bay and wetlands (and their recently understood role); and the remaining blocks of undeveloped land and

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their role as plant and animal habitats. The City of Bath has been intimately connected to the Kennebec River since earliest times, and that unusual and continuing relationship with its working waterfront is elemental in the City’s understanding of itself and its future. Vital to the City’s sense of place are the viewsheds of the river and the bay, the wooded preserves, and the open fields, all presenting a strong contrast to the dense urban quality of central Bath. The urban downtown rests on made land and much of it is in a 100-year flood-hazard zone, at risk to the possibility of rising sea levels.

- The implications in Appendix G, the Transportation Inventory, are largely driven by traffic, gateway-appearance, parking, and pedestrian concerns. Route 1 and the viaduct present unattractive gateways to the City. Route 1 with its poor connectivity and access management and further complicated by speeding, has long troubled residents. The viaduct, which carries Route 1 traffic and allows north-south connectivity beneath it, detracts from the appearance of the downtown and also may be a psychological barrier. The debates about the number, location, and attractiveness of parking lots also continue. Bath is already a walkable city, and additional measures must be taken to extend sidewalks and make them safer by controlling traffic speed. Smart Growth practices will encourage growth in designated areas, maintaining a denser core for the City and a clearly defined rural portion.

- In Appendix H, the Public Facilities and Services Inventory, the implications pertinent to land use concentrate on limitations. The Bath Fire Department is not sufficiently staffed to provide adequate responses to tall-building (i.e., ten to twelve stories) fires, which must be considered when planning the heights of any new structures. One pumping station is currently operating beyond capacity and will hinder additional residential growth until the situation is addressed. The limits of the public water and sewer have directed growth to appropriate areas; any changes in growth patterns must be planned to allow the PWD to anticipate needed changes in infrastructure.

- The Education Inventory, Appendix I, indicates that the Bath schools had capital needs that were postponed until recently. It also points out that it is too early in the life of RSU 1 to determine needs and trends. This inventory does discuss the fact that the Bath Board of Education’s busing policy, which addresses student walkers, from a
safety point of view, and has the unintended consequences of higher transportation costs and possibly less healthy students. It is not known if the RSU 1 School Board will have the same policy or whether it will work with the City to solve the safety concerns.

- Appendix J, the Fiscal Inventory, reinforces awareness that to relieve the tax burden on residential taxpayers, the City must actively engage in business-retention as well as business-attraction activities.

Additional Land Use Material from Other Planning Documents

**Neighborhoods.** Neighborhoods and their significance to the quality of life in Bath were an important element in the 1997 Comprehensive Plan, which was protective of the City's various neighborhoods. In Chapter 3, the 1997 Plan states the following:

The strength of the City is in the integrity of its neighborhoods. More than 20 separate neighborhoods can be identified with specific boundaries, patterns, service areas, or focal points. Some were identified as ideal, others as needing specific attention to stem their decline.

Several forces have created both positive and negative changes in Bath's neighborhoods. On the negative side, apartment conversion, high densities, loss of local stores, inappropriate commercial encroachment, lack of open space, architectural impact, and property deterioration were issues that the Comprehensive Plan Core Committee felt the City can influence and help to bring about change. On the positive side, new investment, sidewalks, landscaping, connection to schools and parks, and stable property values were positive aspects that also could be influenced and fostered by the City. Specific issues to be addressed about neighborhoods include the following:

- There is a need to adjust ordinances to slow down and better control the negative impacts of converting single-family housing to multifamily units.
- Housing for all citizens, including all income and sociological levels, is encouraged. Bath's heritage is that of a "melting-pot" community.
- In many neighborhoods, historic renovation and rehabilitation are obvious ways to make improvements and add to the tax base by maintaining or increasing property values.
- It also must be recognized that with changing technologies, more home-based businesses will emerge. Policies and performance standards must be developed that permit these conversions while protecting the neighborhood from associated impacts. The character of the neighborhood should always remain the same. [This last sentence seems to indicate a policy to "lock neighborhoods away," ignoring neighborhood-improvement policies.]
• Open space is needed in a variety of neighborhoods. Pedestrian ways connecting open spaces, neighborhoods, and rural areas are needed if the sense of high density is to be overcome.

• Projects such as urban greenways (i.e., parks along streets and highways) are improvements in quality of life and add to property values.

• Rural neighborhoods should be viewed in terms of their individual characteristics and tied to their role as rural transitions in community development. Maintaining natural resources and encouraging rural activities such as agriculture can be accomplished while also permitting limited residential development.

• As the hub of Sagadahoc County, Bath is the model for the county in regard to the siting of housing for the disadvantaged, halfway houses, and similar uses.

**Downtown.** According to the “1999 Waterfront and Downtown Action Plan,” the downtown, although thriving, was at a crossroads. The drafters of that plan felt that the modernization at BIW, the new Sagadahoc Bridge, increased public and private investment in the downtown, and the planning and design for a new Route 1 viaduct had all increased momentum for downtown revitalization. (Although the viaduct replacement has been postponed for several years, the design for Route 1 west of High Street is still a well-thought-out design and could be implemented even before the viaduct is replaced.) Today (i.e., 2008), many of the observations in the “1999 Waterfront and Downtown Action Plan” are still accurate and many of the suggestions are still appropriate.

In addition, the 1997 Comprehensive Plan made strong statements about the importance of the downtown. In Chapter 3 that Plan stated:

First and foremost, the integration of downtown and waterfront development is vital. Expansion and capital improvements that benefit one can and should benefit both. The failure to do this has resulted in a sense of under-development, as evidenced by the properties around Front and Centre Streets. The Core Committee believes this under-development has resulted in under-achievement in terms of the potential clientele base that could be developed and drawn to the City. It is also a poor use of Bath’s most valuable asset—the Kennebec River.

Ideas for the downtown and waterfront are limited only by imagination. At the same time, a number of activities must occur for the development process to go forward, including a vision of what the waterfront could and should look like, and the need for basic infrastructure, including sidewalks, pier construction, street improvements, and parking.
Development of this area is viewed as part of the economic diversification of the community. Expansion should be oriented less toward tourists and more toward providing a broader range of services that appeals to people within the regional economy on a year-round basis. Such development also would attract tourists because of the unique choice of services and activities available, potentially resulting in increased dollar flow to the private sector, a rise in property values, and increased generation of tax dollars to offset municipal expenses. Investment and development in the downtown can maintain this balance.

These are still important concerns today.

The “1999 Waterfront and Downtown Action Plan” also stated the importance of making Bath and its downtown a year-round place: “[i]t is desired that Bath’s historical role as a year-round regional employment, retail and services center be the emphasis. It is not desired to become overly reliant on tourism, but rather a vital retail, recreational and cultural destination for Bath’s residents and the larger surrounding communities” (Chapter IV, page 31). Again, these concerns are still valid today.

In January 2007, sixty-six members of the Bath community attended a facilitated downtown Visioning Forum. According to the Forum’s final report, its purposes were to:

1. Share opinions with each other about what types of buildings we favor in downtown Bath and what types we don’t favor
2. Improve understanding of all the factors to be considered when making downtown development decisions and improved understanding of others’ perspectives
3. Develop and document opinions in a way that will be useful to decision makers

According to the final report of the facilitator, Good Group Decisions, the outcomes of the Visioning Forum were several key themes repeated during group discussion that could be used as the basis of a list of elements to consider in future developments in Bath’s downtown. The list includes a strong desire for the following characteristics: appropriate fit with structures that honor the historic architectural fabric by harmonizing stylistically and echoing the materials and scale of existing buildings; developments that are architecturally interesting, reflecting a variety of

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styles and details that add inviting visual interest and offer space for public art; community-building aspects that present pedestrian-friendly gathering spaces; and places uniquely designed for our small Maine city, taking advantage of and promoting its riverside urban landscape.²

The following final citation about our downtown could be considered a summary of proper planning for any downtown. It is from a book titled, *A Good Place to Live: America's Last Migration.*³ In this book, travel writer and former City Councilor from Keene, New Hampshire, Terry Pindell discusses a journey he took across the United States and Canada in the early 1990s to discover and learn about the successful cities to which people were moving. The appendix of the book, in which he summarizes the common, important characteristics of these successful cities, could be used as a textbook for downtown planning:

The old, strictly retail-based downtown is dead. The department stores have moved out to the malls, and until there is actually a divorce between Americans and their automobiles, the department stores are not coming back. The successful new downtowns are built around a different profile. First, some general principles:

- **Pedestrian friendliness.** People on foot with money in their pockets make a downtown thrive. This means downtown beautification and the establishment of sidewalk amenities—benches, gathering places, trees, wastebaskets, pocket parks, and attractive window displays.
- **Thriving, quality adjacent residential neighborhoods.** Successful downtowns almost always have a ring of renovated ("gentrified," if you will) older housing within walking distance of the downtown. [Remember those people on foot, with money in their pockets].
- **Ownership of downtown properties by merchants, rather than tenant-ship.** Ownership on Main Street tends to create a whole different mindset, one that is more vested in the good of the downtown as a whole.
- **Parking improvements.** Downtowns cannot thrive and cannot compete with malls and plazas through auto traffic alone. But in tandem with residential develop and pedestrian friendliness, free, easy parking can help.
- **Public transit.** Anything that gets people downtown without their cars is even better than acres of free parking.
- **Redevelopment of the existing stock of buildings under historical designation status rather than "wrecking ball sixties-era urban renewal."** People with money in their pockets are attracted to renovated, older buildings whether or not my ruminations about the reasons are correct. It is a fact of downtown economics.

² *Good Group Decisions,* pages 9–11.
• The use of tax increment districts, rather than special assessment, to finance public amenities and the public side of public-private partnerships is development. The tax-weary public, not to mention the tax-burdened downtown property owners, can swallow the idea of new projects that are financed entirely through tax revenue generated by these projects themselves.

Beyond these general principles, the new downtowns are characterized by a new mix of establishments with four critical elements:

• **Entertainment establishments.** Restaurants, bars, coffee shops, ice cream parlors, newsstands, bookstores—these are places that attract people wanting simply to gather and experience the joys of community.

• **Downtown residences.** Condos and apartments in renovated upper floors of downtown buildings are the new frontier of residential development. Again, the goal is to get more bodies downtown on foot with money in their pockets.

• **Professional and corporate offices in the downtown.** Architects, lawyers, dentists, accountants, insurance and travel agents, and so forth—relocating such offices from the surrounding neighborhoods frees up housing as well as provides an additional attractant to coming downtown. Professionals also form a valuable vested interest to complement the usual downtown merchants. Significant downtown corporate employers put more people on Main Street with money in their pockets and a valuable vested interest.

• **Niche retail.** Retail that thrives in the new downtowns offers something that can't be found at the mall. That means quality rather than price. That means service rather than convenience. That means creativity and uniqueness rather than staples.

Finally, there are some specific anchor features of various successful new downtowns:

• **The rescue of a marquee-type theater as a performing arts center** provides the downtown with a critical cultural and entertainment magnet that generates action on the sidewalks as well as the right kind of spin-off investment.

• **A downtown hotel and conference center,** often financed by a consortium of local businesses, banks, and city government, pumps new energy into the downtown. The best places always have visitors, even if institutionalized tourism is not a significant feature of the local economy. These establishments need to be grand, and some communities have erred by putting all of their eggs in this basket. But the age-old general principle that a town can be anchored by a place for visitors to stay on its Main Street still holds true.

• **The development of a waterfront park with public, residential, business, and commercial mixed uses.** Water is a centering feature of local geography. The success stories of waterfront development across the country are legion.

• **The downtown siting of recreational facilities** such as ballparks, ice-skating rinks, playgrounds, or traditional public recreation centers. One of the ways to attract people to Main Street with money in their pockets is to get them to play there and to watch others play there.
Most essential of all is an aggressive downtown association with muscle. The really successful ones think big and operate almost like mall management. A strong downtown association should perform the following functions:

1. Build a calendar of public events that bring people into the downtown.
2. Analyze the specific needs, opportunities, and deficiencies of the downtown as a commercial entity.
3. Provide promotion and marketing functions for the downtown as a whole, often with a full-time professional heading the effort.
4. Actively recruit appropriate stores and businesses.
5. Provide leadership and incentives to assist merchants to adopt practices good for the downtown as a whole, such as staying open evening and weekend hours, preventing use of Main Street parking by employees, maximizing special opportunities such as Street Fair Days, maintaining standards of appearance, and so forth.
6. Develop a downtown master plan with public consensus to guide the development of the downtown in directions in which the community wants it to go.

Rural and Natural Resources. The 1997 Comprehensive Plan (Chapter 3) stated that most of the City of Bath's planning has been focused on urban issues:

Natural resources typically have been ignored in most Bath policy documents. Yet Bath is a haven of natural resources, many of which are linked to the marine environment. The City must identify these resources by the role they play and then decide how to best manage them. Specific issues to be addressed about critical natural resources include the following:

- Among the most important critical natural resources are the viewsheds, or visual access, as well as the physical access to them.
- Merrymeeting Bay and North Bath, including the various ecosystems that lie between the land and water, are in need of additional study.
- More attention must be paid to Bath's wealth of waterfowl, bald eagles, osprey, and other bird life [and wildlife] that surrounds the urban community.

The publication titled, "Beginning with Habitat," prepared in 2003 in cooperation with Maine Department of Inland Fisheries & Wildlife (MDIF&W), MNAP, Maine Audubon Society, SPO, U.S. Fish and Wildlife Service, Maine Cooperative Fish and Wildlife Research Unit, Southern Maine Regional Planning Commission, The Nature Conservancy, and Wells National Estuarine Research Reserve, stated: "[w]hen we alter and diminish our natural world, we often destroy habitat. Habitat is the place where a plant
or animal lives; it includes everything a plant or animal needs to survive and reproduce. When natural habitat is lost or degraded, we lose biological diversity and a landscape that has been a part of our Maine heritage, the backbone of Maine’s economy, communities, and sense of place.” The publication further states: “Maine, without its rich landscape of plant and animal life, is just not Maine.” The combination of Bath’s urban qualities and its natural resources, natural areas, and wildlife habitats is an integral part of what makes Bath so special. Without its rich landscape of plant and animal life, Bath would just not be Bath.

**Route 1.** In the summer of 2005, MaineDOT completed a study of design alternatives for an eliminated, refurbished, rebuilt, or replaced Route 1 viaduct. In the analysis of existing conditions along Route 1 (“Bath Feasibility Study,” Chapter 2, Section 2.9.2), the following are good descriptions of the views from and of Route 1.

*View from the Road*

The first impression of the City of Bath is made from the Route 1 Corridor. From the west, or northbound on Route 1, the first glimpse, albeit small, is that of the relatively new signature city sign. The motorist is then greeted in the Commercial Zone by the chain-link fencing and metal guardrail fencing in the median and the aboveground utility poles and wires that line both sides of Route 1. There are multiple and frequent curb cuts to local businesses on either side along the Route 1 Corridor in the Commercial Zone, prior to the Downtown Zone. As one approaches the Downtown Zone, Route 1 continues onto an elevated structure (the Bath Viaduct) with views of the Bath Iron Works (BIW) parking and building facilities. Once on the Bath Viaduct, there is no point of egress to Downtown Bath. From the east, or southbound on Route 1, motorists have views of Downtown Bath and the Waterfront as one crosses the Sagadahoc Bridge into the City of Bath.

- **Fencing and Screening Devices**
  Chain-link fencing and metal guardrail run all along the highway median in the Commercial Zone. The fencing is unattractive and is, as intended, a physical barrier to vehicular and pedestrian movements north and south across Route 1. The same chain-link fence is used for right-of-way security fencing, when used in the controlled-access portion of Route 1.

- **Landscape Plantings**
  There is minimal planting along the corridor. There is no space available for planting along the Commercial Zone or the Downtown Zone. Landscaping outcroppings have occurred along the Route 1 right-of-way.
• Visual Impact of Adjacent Land Uses
The adjacent land uses have a considerable visual impact to the corridor. Businesses along the Commercial Zone in some cases have encroached onto the Route 1 right-of-way with their parking facilities, and multiple curb cuts for access exist. The BIW facility in the Downtown Zone is an important presence in the city. The physical scale of its facilities with its buildings, ships, and cranes provide a positive gateway feature to the City of Bath from the east. The parking required to accommodate BIW employees has caused encroachment problems in the Downtown Zone with large surface lots adjacent to the Route 1 corridor.

• Signage/Wayfinding
The sign at the entry to the city from the west is visually attractive and establishes an identity for the City of Bath. Yet the scale is small in relation to its context. There is no entry sign to the city from the eastern city limits. The Route 1 Corridor lacks a wayfinding system – both physical and intuitive. The transient motorist has little chance to acknowledge that they are in the Historical City of Bath. There is only a small sign located on the High Street Bridge to indicate Historic Downtown Bath. However, this location leaves the motorist little time to make the decision to take the exit to downtown. The only opportunity for motorists to get an extensive view of Historic Downtown Bath is when approaching from the east.

• Streetscape Components
The frontages along the Route 1 Corridor do not have streetscape components, such as sidewalks, benches, lighting, or pavers. Both the Commercial Zone and the Downtown Zone contain retail, office, and mixed-use buildings with some residential in the Commercial Zone. Generally, most street frontages in the Commercial Zone do not provide pedestrian sidewalks.

Views to the Road
The view to the road is unattractive. The adjacent businesses on either side of the Study Corridor in the Commercial Zone front onto Route 1. They face a metal guardrail with chain-link fencing on top and no landscape areas. In the Downtown Zone, there is an elevated structure, the Bath Viaduct. The viaduct lacks aesthetics and has caused a visual, physical, and psychological barrier between the northern and southern parts of the city. Crossing for pedestrians is difficult and potentially unsafe because the crossings are unorganized and ill-defined. The Downtown Zone could take more advantage of its historic and vibrant downtown and the viaduct could tie in better architecturally to the Sagadahoc Bridge and its surroundings by applying some of the vernacular textures, colors, and materials.

• Fencing and Screening Devices
The same chain-link fence is used for right-of-way security fencing. Landscape outcroppings have served as screening for adjacent neighborhoods.

• Landscape Plantings and Berms
Overgrown plantings have occurred along the right-of-way security fencing. There was some effort made to include planting in planter boxes beneath the viaduct in the Downtown Zone, but it is unmaintained, stands empty, and does not tie well with the viaduct architecture.

- Visual Impact of Adjacent Land Uses
The adjacent land uses have an important role in the visual aesthetics of the corridor. Historic Downtown Bath has maintained its historic architecture and storefront businesses, but it is only relegated to a few streets and generally does not extend to the Route 1 Study Corridor. The City of Bath prides itself as “The City of Ships” with its waterfront natural resources. However, the adjacent businesses back up to the waterfront. There could be a better visual connection from the main streets of downtown to the waterfront and the waterfront park with enhanced access and orientation.

- Signage/Wayfinding
There are two signs, similar in size and design to the entry sign, located beneath the Route 1 Bath Viaduct to direct motorists to the historical and cultural amenities in the city.

- Streetscape Components
Route 1 corridor roadway elements lack an aesthetic architectural style unlike the Historic Downtown Bath. Downtown Bath is pedestrian friendly and has an appropriate human scale to its streetscape elements. Elements that are in good to fair condition include brick sidewalks, granite curbs, pedestrian-scaled lighting, street trees, bollards, bike racks, trash receptacles, and benches. Although the Route 1 corridor serves a different transportation function than Downtown Bath, some of the Downtown Bath streetscape elements may be appropriate for the Route 1 corridor.

The “1999 Waterfront and Downtown Action Plan” discussed Route 1 in the context of its impact on the downtown. It pointed out that the initial image on descending Witch Spring Hill and approaching Bath is not characteristic of the “real Bath.” According to that plan:

The image a new visitor gets when approaching Bath on Route 1 heading east [northbound] is not the “real Bath.” It is too easy to choose to bypass Bath because of these first impressions. The strip development and roadway design in the west end of the City relate poorly to the remainder of the City. The City is pursuing ideas to reclaim this corridor to support the community rather than solely dividing it.

Accomplishing this will be difficult, requiring a complex balance between accommodating through-traffic and providing more accessibility within Bath. Much needs to be done to soften the effect of the traffic barriers and chain-link fencing along this segment. An intensive gateway landscaping program can signal to
motorists that they are entering an urban environment. Visual cues are missing that provide these signals to slow down from the highway speeds of 55 mph to 35 mph.

**Working Waterfront.** The 1997 Comprehensive Plan (Chapter 5) states: "Bath, 'The City of Ships,' is characterized by a unique marine resource not found anywhere else in the state (or New England). The City is surrounded on three sides by water—the Kennebec River to the east and Merrymeeting Bay to the north and northwest. The Kennebec River provides the only protected deep-water access in the state, enabling the construction, launching, and docking of ships more than 700 feet long, and is considered a safe haven in periods of foul weather. Substantial deep-water access remains for future development."

The State of Maine has recognized the importance of working waterfronts statewide. The State Legislature enacted two policies in 1986 as part of the State's Coastal Program that are particularly important. Policy #1 is to "promote the maintenance, development and revitalization of the State's ports and harbors for fishing, transportation and recreation." The second is Policy #3, which is to "support shoreline management that gives preference to water-dependent uses over other uses; that promotes public access to the shoreline; and that considers the cumulative effects of development on coastal resources."

According to the Maine Coastal Program web site:

Realizing these goals requires careful planning at both state and local levels. The comprehensive-planning process described on this site can help your community realize its goals for future waterfront uses. Staff at the Maine Coastal Program and Regional Planning Councils can provide resources and technical assistance in the planning process. The State provided funding support for this policy in creating the Land for Maine's Future Program's Water Access Fund, which provides local communities with grants to acquire new lands that offer public access to coastal and inland waters.

Working waterfronts cover a mere 25 miles along Maine's 5,300-mile coastline, yet they supply the lifeblood of many coastal communities, enriching the regional economy and sustaining cherished cultural traditions. A diverse array of businesses—including seafood harvesters and processors, freight and fuel companies, boat builders and ship chandleries, ferries, cruise boats, kayak outfitters, and marinas—all depend on access to the water and shorefront infrastructure to flourish.
Working waterfronts provide a link between land and sea that is critical to sustaining a diverse and thriving coastal economy. Commercial fishing and marine trades in Maine contribute more than $800 million annually to the state’s economy and employ about 30,000 people, giving fishermen and others both a livelihood and a valued way of life.

Only 175 miles of Maine’s long coastline are sufficiently deep and sheltered to support water-dependent uses. More than half of these prime shorefront miles are already occupied by residential, commercial, and industrial structures that may benefit from a waterfront location but do not depend on it.

The small portion of remaining shorefront suited to water-dependent uses is becoming harder for long-time landowners to retain, given development pressures and rising shorefront property taxes. Increasingly, those engaged in water-dependent businesses are driven from the waterfront—losing both their livelihood and their familiar way of life. This trend, coupled with declines in traditional industries and infrastructure, makes it hard for many marine businesses to survive.

5.2 LAND USE ACTIONS: THE 2008 FUTURE LAND USE PLAN

This Future Land Use Plan describes where various land uses will be in the future. It explains what the various areas will look like and what types of uses will be allowed. The locations of the Future Land Use Areas and the Future Land Use Overlay Areas are depicted, in general terms, on the Future Land Use Map and the Future Land Use Overlay Map, which is a part of this Comprehensive Plan. The Future Land Use Areas and Overlay Areas will be implemented by the Zoning Map, which shows specifically where various uses (or categories of uses) are permitted.

This important part of the Comprehensive Plan is the legal foundation for the City’s zoning. It is intended to be the outcome of the various Actions in the Plan that relate to land use, and it implements the City’s Vision of Bath in 2025. The Future Land Use Map is the visual representation of these. As mentioned previously, we also studied the following:

- existing land use
- existing land use problems and conflicts
- interrelationships of the various land uses and their relationship to the City’s needs, as well as how they affect and are affected by changes in the local economy
- economic development issues and opportunities
Any community's zoning, both the text of its zoning ordinance and its zoning map, is its most important tool in determining how the community will grow and what it will look like. According to the "1999 Waterfront and Downtown Action Plan," "[z]oning is the most direct way in which a community expresses its desire on how it wishes to physically develop. How a community develops over time is generally based on the cumulative effects of its day-to-day implementation of its zoning provisions. It is, in effect, the design specifications for a community, establishing how the blueprints for development are done."

The Future Land Use Areas are as follows:

- Low-Density Residential (LR)$^{(R)}$
- Medium-Density Residential (MR)$^{(G)}$ (R)
- High-Density Residential (HR)$^{(G)}$
- Park and Open Space (PO)
- Resource Protection (RP)
- Golf Course (GC)$^{(R)}$
- Downtown (DT)$^{(G)}$
- Highway Commercial (HC)$^{(G)}$
- Mixed Commercial and Residential (CR)$^{(G)}$
- Neighborhood Commercial (NC)$^{(G)}$
- Business Park (BP)$^{(G)}$
- Maritime Museum (MMM)$^{(G)}$
- Plant Home (PH)$^{(G)}$
- Low-Intensive Working Waterfront (LWW)$^{(G)}$
- High-Intensive Working Waterfront (HWW)$^{(G)}$

Notes:

$^{(R)}$ The "Rural Area," as required by the Maine Comprehensive Planning and Growth Management Act.

$^{(G)}$ A "Growth Area," as required by the Maine Comprehensive Planning and Growth Management Act.

There also are several overlay Future Land Use Areas that will contain and allow certain uses in addition to the uses in the "underlying" area. The overlay Future Land Use Areas are as follows:

- Natural Resource Preservation (NRP)
- Historic (H)
- Special Purpose
- Mobile Home Park (MHP)
- Shoreland

Low-Density Residential Area
The Low-Density Future Land Use Area contains most of the “Rural Area” required by the Maine Comprehensive Planning and Growth Management Act. This is the area where rural resources—open space, rural views, and wildlife habitat—will be protected and farming and forestry will be encouraged. Public sewer and water lines will not be extended into this area and medium- and high-density development will not be allowed.

This area, encompassing North Bath northwest of Whiskeag Creek, is also located adjacent to many important natural-resource areas that should be protected by the City. As a result, this area will permit only low-density, low-intensive uses and natural resource-based activities. In this area, rural homes in a low-density setting will be the most common land use.

Densities will be low and will reflect the capacity of the soils to support subsurface wastewater-treatment systems. The residential density in this area will be no greater that one dwelling unit per 1.5 acres of developable land. Clustering of homes and other uses will be encouraged to permit wise land use, to protect Critical Resource Areas, and to maintain large blocks of undeveloped, connected wildlife habitat—as long as septic systems and drinking water can be provided safely and overall densities are not increased.

The historic pattern of development—with buildings built close to public roadways—will be required, which will also protect and allow the connection of large areas of important wildlife habitat. This area is served by rural country roads that will not be widened or straightened except to eliminate safety hazards. New roadways will not be extended into large, undeveloped blocks of land. Clustering will be required if the land to be developed contains any Critical Natural Area or Critical Rural Area, and large, unfragmented blocks of land must remain unfragmented to the greatest extent possible.

Regulations and standards for mineral-extraction activities will be consistent with findings of the City’s mineral-extraction study and ordinance. Other requirements will be developed for natural-resource-utilization activities. Commercial activities in this area will be restricted to passive-recreation activities, small home-based businesses, animal
husbandry, farming and the sale of locally grown products, mineral extraction, and similar operations.
**Medium-Density Residential Area**

Much of the Medium-Density Residential Future Land Use Area is one that the Maine Comprehensive Planning and Growth Management Act considers a Growth Area. It includes areas where residential neighborhoods exist today at lower densities than the densely settled high-density residential areas, as well as areas that are currently not developed. This Future Land Use Area also encompasses parts of the City that do not currently have public sewer mains or public water at the proper volume and pressure from existing Bath Water District (BWD) facilities.

Two sets of density standards for this area will exist. Where public sewer and water services (i.e., proper volume and pressure from existing BWD facilities) do not exist, the standards will be the same as in the Low-Density Residential Area. A higher density will be allowed where both services are used.

Clustering will be required if the land to be developed contains any Critical Natural Area or Critical Rural Area, and large, unfragmented blocks of land must remain unfragmented to the greatest extent possible.

Much of this area is served by the existing local-street network. Because much of this is a Growth Area, new streets may be constructed in the Growth Area portion as new growth occurs.

The Medium-Density Residential Future Land Use Area is intended as primarily a residential area, but home-based businesses will be allowed, as long as they do not disrupt the residential character and quality of life of the area.

**High-Density Residential Area**

As stated in the 1997 Comprehensive Plan, during the 1980s, much of the built-up portion of the City was placed in the High-Density Residential Zone. Densities were set at one unit per 3,000 square feet, or fourteen units per acre. The drafters of the 1997 Plan analyzed seven neighborhoods throughout that High-Density Residential Zone. The analysis suggested that in neighborhoods where the densities were very high (i.e., the majority of lots under 5,000 square feet), there were turnover rates of six or seven owners in the previous fifteen years and lot coverage approached 100
percent. The 1997 Plan revealed that this high density reduced open space on the lots, increasing the feeling of congestion.

As a result of this analysis, the 1997 Comprehensive Plan recommended decreasing the density in this part of the City by increasing the minimum lot size to 6,000 square feet per dwelling unit. The density in this High-Density Residential Future Land Use Area will remain at one dwelling unit per 6,000 square feet of lot area, however if certain standards are met such as being within an easy walk to the center of the downtown, employing low impact development standards, and being certified as an extremely “green” development, the density may be increased. Space and bulk standards will be such that privacy, sunshine, ventilation, identity, and proper access to buildings are maintained, and physical and visual congestion, spread of fire, and overcrowding are prevented.

In addition to much of the Medium-Density Residential Future-Land Use Area, this is also a Growth Area. It is served by public sewer and water, by the existing grid pattern of streets, and by the City’s fixed-route bus system. The predominant land use in this area will be residential. Commercial uses will be restricted; however, home-based businesses will be allowed as long as they do not disrupt the residential character and quality of life of the area. Also, allowing certain neighborhood-scale, neighborhood-needed commercial uses, such as small grocery stores, should be considered but only on major through-streets or only at major intersections.

As the 1997 Plan emphasized, investment and reinvestment in these high-density neighborhoods are critical. The City will encourage homeownership, property upgrade, and energy efficiency. High-density neighborhoods should be pleasant places in which to live. The City will lead this effort by improving the public realm—the streets, sidewalks, and open-space areas—as recommended in the “2002 South End Urban Design Plan.”

**Parks and Open-Space Areas**

The Parks and Open-Space Future Land Use Area is the location of City parks and lands in conservation (including lands owned by the state and a land trust). Only lands that are publicly owned, owned by a non-profit land trust, or that the development rights of which are owned by a public entity or a non-profit land trust will be included in this Future Land Use Area. The
purpose of the Parks and Open-Space Area is to protect public and private interests in these areas by limiting the uses to those intended in the owner's adopted management plan.

Resource Protection Area
The 1997 Comprehensive Plan states: "[t]he resource protection area will protect the environmental integrity of those areas of the City that have severe physical development limitations, or have extremely high natural-resource value" (Chapter 13).

In the Resource Protection Future Land Use Area, only uses that do not negatively impact the land's environmental quality or will not be harmed by the land's development limitations will be allowed. The following types of lands will be included in the Resource Protection Future Land Use Area:

- 2 or more contiguous acres of slopes greater that 20 percent;
- wetlands 2 or more acres in size and appropriate buffer areas around them;
- 100-year floodplains, if located in the rural portion of the City; and
- significant wildlife habitat.

Golf Course Area
This area is designed to maintain the golf course operation on the current Bath Country Club property. It may be appropriate in the future to expand the area if the operation grows. Other compatible accessory facilities and uses such as tennis courts, a restaurant and/or a meeting room, ski trails, and other passive-recreation activities will also be allowed. A year-round operation will be encouraged. Residential uses may also be associated at the golf course in the future. Such residential uses may be clustered, but the overall density must be similar to the Low-Density Residential Future Land Use Area.

Downtown Area
The 1997 Comprehensive Plan stated that it was "taking a dramatic step away from previous plans and zoning strategies" by combining the previous Waterfront District located along the edge of the urban waterfront with the Downtown District. This 2008 Comprehensive Plan does not vary from that approach. The 1997 Plan also pointed out that "the success of Bath's
future is tied to the unique advantage that exists in the downtown and [its adjoining] waterfront.”

According to “Revitalizing Maine’s Downtowns,” a report written in October 2005 by The Maine Downtown Center and the SPO:

Maine’s downtowns are critical components of the State’s economic structure. Downtowns provide residents and visitors with retail, industry, tourism opportunities, and services all conveniently located. Vibrant downtowns provide local municipalities with increased revenues and help stabilize local tax rates, while attracting creative entrepreneurs and young professional talent. Downtowns in Service Center communities provide services and resources on a regional basis, mitigating the effects and costs of sprawl. Our downtowns are each unique, providing distinct cultural and social opportunities in lovely, historic settings. Both as economic engines and as ambassadors for the qualities of life Maine residents and visitors enjoy, our downtowns are valuable treasures worthy of support.

This excerpt also explains the importance of the Bath Downtown. The downtown is the center of Bath’s and a larger region’s retail, service, cultural, and civic activity. It is the central business district of Bath and the surrounding region and is served by local streets, Route 1, rail, the marine highway, and public transit—and should, in the future, be served by an intercity bus service.

The Downtown Future Land Use Area will continue to allow—and even encourage—a wide range of retail, service, cultural, and civic uses. Multifamily residential uses, both renter- and owner-occupied, will also be encouraged because people living in the downtown will help keep the downtown economically healthy with “people on the street with money in their pockets” (referring to the important goal in A Good Place to Live) and the downtown “alive after five.”

The uses in the Downtown Area will support downtown Bath as a year-round community, which—if implemented correctly—will attract tourists looking for a “real” small-downtown experience. Types of uses that do not support Bath as a year-round business center or do not add additional “people on the street” will be discouraged. The architectural style, proper building scale, diversity of businesses, views of the river, attractive and well-maintained streets and sidewalks, and well-managed public parking will comprise the image that the City projects—not only for City and regional residents but
also for visitors. Design standards will be employed in this area so that
downtown Bath does not take on the appearance of "Anyplace, USA."

Although it is important that the Kennebec River waterfront and the rest of
the downtown be combined for the purposes of land use, these two areas
(i.e., west of Commercial Street and east of Commercial Street) are and will
continue to be different from the perspective of building size, height, and
mass. West of Commercial Street will be an urban downtown with
appropriately tall buildings built to the property lines. The area east of
Commercial Street will be sensitive to maintaining river views and will not
create the feeling of a wall along the riverfront. The east side of
Commercial Street in the downtown will continue to provide a physical and
visual connection between the Kennebec River and the City.

New buildings will be respectful of Bath's historic downtown but will not
pretend to be old; they must represent their own time in history. Parking in
the downtown area will continue to be a public responsibility. A mix of uses
in the downtown will be encouraged but, in any one building, a mix of uses will
not be required.

Incentives such as Contract Rezoning will be used in the downtown to
encourage developers to exceed development standards and to meet other
public goals such as burying overhead wires, constructing public walkways and
river overlooks, improving and constructing other public amenities, and
integrating business with residential uses. Contract Rezoning may allow taller
buildings close to one another on the east side of Commercial Street, but
any development allowed will still be sensitive to maintaining views of the
river and not creating the feeling of a wall along the entire riverfront.

Highway Commercial Area
To the extent that Route 1 does not negatively impact Bath's downtown by
reducing its importance as the City's central business district, and as long as
Route 1 can be improved to provide an attractive gateway, the land abutting
it will allow highway-oriented businesses such as service stations, retail and
service businesses, and restaurants.

The Highway Commercial Future Land Use Area will consist of the Route 1
corridor, State Road, and the adjoining part of Congress Avenue. It is the
intent that highway-oriented commercial land uses not extend into the residential neighborhoods on Western Avenue and Richardson Street or to Court Street.

Creating a safer and more visually appealing gateway will be the aim of the standards and regulations used in this area. Incentives such as Contract Rezoning will be used to encourage developers to exceed development standards, to create an attractive and safe gateway, and to implement various other public goals. Even in cases when Contract Rezoning is not used, design standards will be employed so that this area does not take on the appearance of a commercial strip that could be "Anywhere, USA" with franchise-appearing images, motifs, colors, or styles.

**Mixed Commercial and Residential Area**

In the Mixed Commercial and Residential Future Land Use Area, there will be both High-Density Residential land uses and Low-Impact Business uses. The purpose of this mixed-use area is to protect the residential qualities of neighborhoods that are located between commercial or industrial areas and existing residential areas. The mixed-use area will allow residential uses with the same space and bulk standards as those of the High-Density Residential Future Land Use Area. It will also allow small- to medium-sized, low-impact commercial uses that not only serve the neighborhood but may also serve the larger community. This will not be the location of commercial uses that serve the Bath Region. To better protect the residential neighborhood on and near Court Street, as well as to prevent the proliferation of traffic on Court Street and at the Court and High Streets intersection, the Mixed Commercial and Residential Future Land Use Area in this location will not allow retail uses.

The residential qualities of this area will be protected by various standards and restrictions imposed on the commercial uses. These standards may include requirements pertaining to design, size and mass, landscaping and screening, setback, traffic generation, noise, signage, exterior lighting, prohibition of drive-ups or drive-throughs, hours of operation, and location of parking. The purpose of these standards is to allow some commercial development without negatively impacting or changing the residential look or quality of life in the area. The size of commercially used buildings will not be allowed to exceed 7,000 square feet. The residential qualities will also be
protected by requiring adequate recreation and open space on each lot that has a residence.

**Neighborhood Commercial Area**
The Neighborhood Commercial Future Land Use Area is the location of neighborhood-scale commercial uses to which neighborhood residents can walk. Commercial uses will be limited and controlled in the same way as in the Mixed Commercial and Residential Future Land Use Area. Residential uses will not be allowed in this area. The neighborhood commercial area (there could be more that one location for this land use area) could appear as an island of light commercial use surrounded by residential uses. This land use will only be located on arterial or collector roadways and usually at roadway intersections. There will be standards and other methods employed to prevent this land use from negatively impacting the residential character of, and the quality of life in, the abutting residential areas.

**Business Park Area**
The Business Park Future Land Use Area will be the location of the City’s business and non-water-dependent light-manufacturing land uses. This area is served by local streets, has easy access to Route 1, and will be the location of professional office, light industrial, research and development, and similar land uses. This area already has the necessary infrastructure such as sewer, water, three-phase power, and Internet access. The purpose of the Business Park Future Land Use Area is to develop high-quality jobs and help diversify the City’s economic base in an attractive park-like setting located close to Route 1, with no negative impact on residential neighborhoods. Businesses that generate or rely on customers coming to this location (e.g., retail uses and medical and other professional offices) will not be allowed.

**Maine Maritime Museum Area**
Just as the Golf Course Future Land Use Area is intended to maintain the existing golf course operation, the Maine Maritime Museum Future Land Use Area is intended to maintain the Maine Maritime Museum's operation. This area will continue to allow the museum and other marine-related cultural and educational uses. Compatible and complementary accessory uses will also be allowed, which may include limited marina, restaurant, retail, and assembly and meeting operations.
The Plant Memorial Home Area
Similar to the Golf Course Future Land Use Area and the Maine Maritime Museum Future Land Use Area the land occupied by the Plant Memorial Home will be the Plant Memorial Home Future Land Use Area. According to Bath Historian Henry Owen:

The splendid institutional gift to the city by one of its successful sons, Thomas G. Plant, shoe manufacturer, the Old Folks' Home, was built in 1917 at the south end of Washington Street. The beautiful colonial building designed by Coolidge & Carson of Boston and constructed by the Charles Logue Company of that city cost between $75,000 and $80,000. It was presented to the corporation formed to operate it, with an ample endowment by the generous donor, "to provide a comfortable home for the aged men and women of Bath who, by honest industry, clean lives and sterling character have earned the right to a comfortable old age." The capacity of the home is about 35 persons.

It remains an important facility to the residents of Bath. In 2002 an addition was constructed and today it operates as an assisted living facility with about 48 residents. The services it provides are important to the Bath community and the historic building at the south end of Washington Street is important to the character of the City and to the lower Washington Street neighborhood.

This area will continue to allow this use and associated accessory uses, as well as residential uses similar to those of the abutting residential area. The density of units per land area will, also, be similar to the abutting residential area so that the facility will not be out of character with the neighborhood.

Low-Intensive Working Waterfront Area
The Low-Intensive Working Waterfront Future Land Use Area will be the location of industrial and commercial land uses that are marine-related. This area also will accommodate certain municipal uses that are waterfront-dependent (i.e., the wastewater treatment facility and the boat launches and landing). Residential uses will not be allowed in this area. The purpose of this land use area is to benefit from the competitive advantage long afforded by the Kennebec River to promote job creation and economic development.

Uses within the Low-Intensive Working Waterfront Future Land Use Area may include typical waterfront-dependent and marine activities such as...
commercial fishing, marinas, and light (indoor) manufacturing. These uses will be allowed up to the water's edge if water access is necessary. This area is served by local streets and the marine highway.

Incentives such as Contract Rezoning will be used in this area to encourage developers to exceed development standards and to implement various other public goals. This area already has the necessary infrastructure such as sewer, water, three-phase power, and Internet access.

**High-Intensive Working Waterfront Area**
The High-Intensive Working Waterfront Future Land Use Area is the location today (i.e., 2008) of BIW's shipyard, offices, and support facilities. It is a heavy industrial land use area that takes advantage of Bath's deep-water setting along a sheltered, navigable, large river. Local streets and the marine highway serve this area. Using these assets to their utmost while controlling impacts on surrounding residential and commercial neighborhoods will be of major importance. Regulations and standards will be used to control noise, odors, light, vibrations, size and mass of buildings, and vehicle and pedestrian traffic.

Incentives such as Contract Rezoning will also be used in this area to encourage developers to exceed development standards and to implement various other public goals. This area already has the necessary infrastructure such as sewer, water, three-phase power, and Internet access.

**Natural Resource Preservation Overlay Area**
The Natural Resource Preservation Overlay Future Land Use Area will be an area abutting Merrymeeting Bay and other water resources in the rural areas of Bath, where the setback from the water will be determined by site-specific environmental characteristics of the land and the aesthetics of the proposed development. Natural resources such as wetlands, steep slopes, floodplains, and critical wildlife habitats, as well as the appearance of the proposed buildings, will be reviewed to determine the appropriate setback from the water. This land use area will permit only low-density residential development while also protecting environmentally sensitive shorelands. In this area, buildings may be built 150 feet back from water bodies. However, after a thorough review of certain environmental characteristics of the land
and the appearance of the proposed buildings, the setback to the water may be adjusted but will not be less than 75 feet.

**Historic Overlay Area**
The Historic Overlay Future Land Use Area is the portion of the City that contains the buildings and areas important historically, architecturally, or archaeologically as well as for the City’s heritage, economy, and general welfare.

In this Future Land Use Area, there will be an additional layer of regulatory review to ensure that inappropriate alterations of and additions to buildings and sites with significant historic or architectural importance will be prevented and that such buildings will not be demolished without a public review. It will also ensure that new buildings constructed in neighborhoods with historic or architectural value (including the downtown) or in an area of significant archaeological importance are designed and built in a manner compatible with the character of that neighborhood. The Planning Board or a newly created Historic District Commission will have regulatory review authority.

**Special-Purpose Overlay Areas**
The 1997 Comprehensive Plan included a Special-Purpose Overlay Future Land Use Area, which stated:

Because of the nature of land-use planning and the Comprehensive Plan, planners, as well as planning committees and planning boards, look at the City with a very broad view. The process looks at large areas and attempts to determine what land uses would be most appropriate in these large areas in the future. The process very rarely looks at small areas or at individual parcels of land. In most situations this broad view is most appropriate. In a few cases, however, this approach leads to problems on individual parcels when the building and/or parcel is important to the community, architecturally significant, or otherwise meaningful to the character or fabric of the City.

The City of Bath, being a mature city, has a few such buildings and/or parcels of land that do not fit well into this broad view taken by the comprehensive future land-use planning process and the resulting Land Use Code. What we have ended up with is not simply nonconforming situations that will eventually become conforming by market forces. What we have, in these few situations, are buildings that are not going to be converted to residential use, are not going to be removed so that a residential use can take its place, and are not allowed a wide enough range of
nonresidential uses by the Land Use Code to make them viable. And, most important are buildings that are important to the City. These have become "islands" of nonresidential use, surrounded by residential uses. And, because of the broad view approach to most land-use planning, these islands end up zoned residentially.

Mentioning only three of these situations, there is:

1. Mitchell School, at 361 High Street
2. Winter Street Church, at 880 Washington Street
3. the Bath campus of Mid Coast Hospital and the Medical Office Building, at Davenport Circle off Washington Street

There may be other buildings like these that are an important part of the fabric of the community and are not suited for residential use but are in a residential zone.

Treating these as typical nonconforming situations is not appropriate. The basic premise of nonconformities is that a zoning ordinance or land-use code restricts the changes that can take place to these buildings and/or uses and eventually the nonconformity will go out of existence and a conforming situation (use or building) will take its place. This is unrealistic and even inappropriate in the case of these types of buildings mentioned previously.

Because these buildings are an important part of the community, and because they are not appropriate for residential use, a different zoning classification and scheme should be considered for these parcels. The regulations should:

- preserve the buildings
- allow for appropriate reuse of these buildings
- revert to the underlying residential classification if the buildings are ever removed
- allow for uses that do not create undue, adverse impacts in the surrounding neighborhood, or on abutting or nearby streets
- prevent negative environmental impacts
- prevent over-building on the lot

The future land use of these parcels should be the underlying future-land use designation as recommended by the future land-use plan with an overlay of commercial land-use designation. Additional standards to control exterior lighting, construction of additional buildings and/or additions, and so forth should be applied to these future land-use overlay areas.

If at anytime the principal building in any of these overlay areas is demolished, the commercial overlay should be removed. The commercial use should not have a legal nonconforming status if the building is no longer there.
This 2008 Comprehensive Plan continues this directive. There may be other buildings important to the fabric of the community—whether or not they were originally intended for residential purposes—that are now unsuitable for residential uses given today’s typical family size, which may be included in this Special-Purpose Overlay Future Land Use Area. It will allow the City to rezone a parcel to allow certain nonresidential uses while also limiting inappropriate uses and preventing inappropriate high densities and crowding. The Special-Purpose Overlay must only be used for buildings that are historically significant and unsuited for a permitted residential use.

**Mobile Home Park Overlay Area**

Maine State Law requires that every municipality “permit mobile home parks to expand and to be developed in a number of environmentally suitable locations in the municipality.” The Mobile Home Park Overlay Future Land Use Area will be an environmentally suitable area, easily accessed by public sewer and water, relatively flat land, and in the City-designated Growth Area. Proper development standards will ensure that any mobile home park that is developed will be environmentally sound; will protect the health, safety, and general welfare of the residents of the park; and will create as little impact on the public infrastructure and surrounding neighborhood as possible.

**Shoreland Overlay Area**

According to Maine State Law, all land within 250 feet of rivers, fresh water, and coastal wetlands and within 75 feet of streams must be regulated according to minimum guidelines adopted by the Maine Department of Environmental Protection (MaineDEP). The purposes of this requirement are to promote safe and healthy conditions; to prevent and control water pollution; to protect fish spawning grounds, aquatic life, and bird and other wildlife habitat; to protect buildings and lands from flooding and accelerated erosion; to protect archaeological and historic resources; to protect fishing and maritime industries; to protect fresh water and coastal wetlands; to control building sites, placement of structures, and land uses; to conserve shore cover and visual as well as actual points of access to coastal waters; to conserve natural beauty and open space; and to anticipate and respond to impacts of development in the shoreland areas.
The Shoreland Overlay Future Land Use Area is within 250 feet of the normal high-water mark of the Kennebec River, Merrymeeting Bay, Whiskeag Creek, and the upland edge of certain wetlands. Some of the shoreland overlay area may be urban or industrial. Other parts of this area will be rural and undeveloped. However, throughout this area, land uses and their location and size will be regulated, as they are now, by certain additional regulations as required by the MaineDEP.

**Critical Resource Areas**

Critical Resource Areas are a compilation of Critical Natural Resources or Areas, Critical Rural Areas, and Critical Waterfront Areas and are shown on the Critical Resource Areas Map.

The Critical Waterfront Areas are shown on the Critical Waterfront Areas map and are defined by SPO as “shorefront areas characterized by functionally water-dependent uses, as defined in MRSA 38 §436-A(6), and specifically identified and designated by a community’s comprehensive plan as deserving maximum protection from incompatible development.” We have included the former shipbuilding and sardine canning site on Bowery Street, the City’s boat launches, the City’s wastewater treatment plant, two waterfront parks, and the shipyard at Bath Iron Works.

The Critical Rural Areas are shown on the Critical Rural Areas map. These areas are defined as by SPO as “rural areas that are specifically identified and designated by a community’s comprehensive plan as deserving maximum protection from development to preserve natural resources and related economic activities that may include, but are not limited to, significant farmland, forest land or mineral resources; high-value wildlife or fisheries habitat; scenic areas; public water supplies; scarce or especially vulnerable natural resources; and open lands functionally necessary to support a vibrant rural economy.” We have included the lands in the farm, open space, and tree growth tax programs and a clay pit that is off from North Bath Road. The few areas with prime farmland soils are included in the analysis of constraints to development and are one of the items in the Bath Constraints Map Matrix. Critical Rural Areas are important in that they connect Bath, one of the most densely settled communities in the State, with its rural past. And these areas provide residents with agricultural, forest, and natural-resource products.
The Critical Natural Areas are shown on the Critical Natural Areas map. These areas are defined as “areas in the community comprised of one or more of the following:

- shoreland zone;
- large habitat blocks;
- multi-function wetlands;
- Essential Wildlife Habitats and Threatened, Endangered, and Special Concern Species occurrences as depicted on maps prepared by the Department of Inland Fisheries and Wildlife pursuant to the Maine Endangered Species Act;
- significant wildlife habitat as defined in 38 MRSA §480-B(10);
- significant freshwater fisheries habitat;
- rare and exemplary natural communities, and rare plant occurrences as determined by the State’s Natural Areas Program database;
- coastal sand dune systems as defined in the Natural Resources Protection Act (38 MRSA §480-B(1));
- Beginning with Habitat Focus Areas of Ecological Significance identified by the Beginning with Habitat Program of the Maine Department of Inland Fisheries and Wildlife;
- fragile mountain areas as defined in 38 MRSA §480-B(3);
- coastal bluffs and coastal landslide hazards as depicted on maps prepared by the Maine Geological Survey;
- flood plains as depicted on Federal Emergency Management Agency flood hazard identification maps; and
- areas designated as a National Natural Landmark pursuant to the National Park Service’s National Natural Landmark Program (36 Code of Federal Regulation, Section 62)."

Some of these resources are not present in Bath. We have included:

- shoreland zone;
- large habitat blocks;
- multi-function wetlands;
- rare and exemplary natural communities, and rare plant occurrences as determined by the State’s Natural Areas Program database;
- Essential Wildlife Habitats and Threatened, Endangered, and Special Concern Species occurrences as depicted on maps prepared by the Department of Inland Fisheries and Wildlife pursuant to the Maine Endangered Species Act;
- significant wildlife habitat as defined in 38 MRSA §480-B(10);
- Beginning with Habitat Focus Areas of Ecological Significance identified by the Beginning with Habitat Program of the Maine Department of Inland Fisheries and Wildlife; and
- flood plains as depicted on Federal Emergency Management Agency flood hazard identification maps.
This plan goes to great lengths to discuss the importance of Bath’s sense of place. This includes the varied neighborhoods and the walkable downtown, the urban waterfront and the historic districts. It also includes the rural and natural areas; the agricultural areas, the wetlands, the unfragmented blocks of rural land, important wild life habitat, and the rare plant communities. These areas, too, provide us with our sense of place. And many of these areas are within an easy walk of many Bath residents.

The Critical Natural Areas and Critical Rural Areas will be protected by requiring that any development of land that contains any of these areas incorporate such areas into the undeveloped open space of a cluster subdivision, to the extent possible. Clustering will be required if the land to be developed contains any Critical Natural Area or Critical Rural Area. And large, unfragmented blocks of land must remain unfragmented to the greatest extent possible. Also, whether in a subdivision or not, residential as well as non-residential, plans for development must identify the specific location of any Critical Natural Areas and Critical Rural Areas that are likely to be affected by the proposed development and must take appropriate measures to protect them. The development plans and reports must demonstrate that there will be no adverse impacts on these areas.

The Critical Waterfront Areas will be protected by placing these areas in either the Park and Open Space, or Low- or High-Intensive Working Waterfront Future Land Use Area.

Buffers, Screening, Performance Standards, and Design Requirements

In a compact urban community such as Bath, ensuring that the residential quality of life is maintained and neighborhoods are pleasant places in which to live is extremely important. Homes are often close if not adjacent to commercial and/or industrial uses. How this edge of residential and nonresidential land use is addressed will determine whether the residential neighborhood is enjoyable or whether it drives residents to country living and residential sprawl.

Mixed-use is a great concept. It reduces the need to drive to buy groceries. It can eliminate the need to drive a vehicle to work. It is one of the features that is so attractive about the Bath Downtown. However, introducing nonresidential uses into or next to established residential
neighborhoods is a sensitive and complicated matter. It only works if the nonresidential uses do not negatively impact quality of life of the people living there. This can only be accomplished with strong buffering, screening, performance standards, and design requirements—in other words, "good-neighbor" principles.

The nonresidential uses at the edges where residential and nonresidential uses come together will be subject to strict good-neighbor requirements to help maintain and improve residential quality of life. These measures will include buffering, screening, and design requirements; control of the hours of operation, traffic, and noise; and the placement of parking.

**Implementation**

Implementation will be accomplished by a Land Use Code containing the zoning, design requirements, and performance standards established to protect public facilities, public safety, the environment, public health, and neighborhoods as directed by this Future Land Use Plan. Implementation will also be accomplished by measures such as low-impact development standards, appropriate BMPs, "LEED for Neighborhood" criteria, design requirements and historic preservation, and street- and highway-access management. Standards for mining operations, standards for managing floodplains, regulations pertaining to the subdivision of land and buildings, and shoreland zoning will implement this Plan, as will the CIP.

The Land Use Code does and will continue to contain appropriate permitting procedures that provide for an open, fair, and timely development review and approval process.

Because the Land Use Code will be implementing this Comprehensive Plan, any project, development, or other activity that is consistent with such resulting regulations would be considered consistent with this Plan.

Updating the standards and regulations in the Land Use Code to implement this Future Land Use Plan will be the responsibility of the Planning Board, with the City Council adopting the Planning Board-recommended amendments. The Planning Director, Finance Director, and City Manager will annually update the CIP.
Continuous Planning
Each year, the Planning Director and the Planning Board, with members of an Advisory Committee, will undertake the review of this Comprehensive Plan. Data in the Inventory appendices will be updated and Issue Statements will be reconsidered. Those Issues that are no longer important will be deleted and new Issues may be drafted. Actions will be studied and it will be determined whether they have been implemented; if not, why not? If necessary, new Actions will be developed. The location and amount of growth in relation to the Growth and Rural Areas and Critical Resource Areas will be analyzed. It will be determined whether the Future Land Use Plan guided growth as planned and if Critical Resource Areas have been protected. The CIP will be reviewed to determine what percent of funding has supported projects in the Growth Areas. Through this continuous planning process, the Comprehensive Plan will be kept current. Instead of spending more than three years to develop an updated Comprehensive Plan, the goal will be to spend as little as three weeks.
Map prepared by Spatial Alternatives
March 2009

Legend

Critical Rural Area

Sources: Critical Rural identified by City of Bath
Legend

Coastal Bluffs (MEGS)

FloodPlain (FEMA)

Rare & Exemplary Natural Communities/Plants (MNAP)

Multi-function wetlands (Total value > 4) (SPO)

Shoreland Zoning (City)

Essential Wildlife Habitat

Significant Wildlife Habitat

Undeveloped Blocks (> 150 Acres) (IFW)

BWH Focus Area of Ecological Significance (IFW)

Sources:
Data from Beginning with Habitat program
MEGS - Maine Geologic Survey
FEMA - Federal Emergency Management Agency
MNAP - Maine Natural Areas Program,
SPO - State Planning Office,
IFW - Inland Fisheries and Wildlife
Legend

- Critical Rural Areas
- Critical Waterfront Areas
- Critical Natural Resource Areas

Sources: Critical Rural and Waterfront Areas identified by City of Bath
Critical Natural Resource Areas identified through Beginning with Habitat data
See individual maps and text for more detail.
APPENDIX A
DEMOGRAPHICS INVENTORY

INTRODUCTION

Population analyses and projections are important elements of any comprehensive plan. Knowing who lives in the City of Bath and for whom we are planning is essential. An understanding of the possible future population size and characteristics is critical in predicting the need for and impact on such areas as public facilities and services, housing, transportation facilities, and the transportation network. Knowing the size, location, and future trends of the City’s population will also provide an understanding of its impact on natural resources, open space, important wildlife habitats, views, and water resources.

This appendix explains what has happened to Bath’s population in the past and will try to predict what might happen in the future. Readers of this Comprehensive Plan must be cautioned, however, about the difficulty of projecting and forecasting population with any degree of accuracy many years into the future. The Bath Comprehensive Plan written in 1959 forecast that Bath’s population in 2000 would be between 13,997 (the low projection) and 16,377 (the high projection). The 1997 Comprehensive Plan also anticipated that Bath’s population would increase in the future. The 1997 Plan estimated that there were more than 11,000 people in Bath as of 1990, and it predicted that the 2000 population would be even higher. However, the U.S. Census in 1990 and again in 2000 showed that Bath’s population was not growing as previously forecast but, in fact, was decreasing—to 9,799 in 1990 and to 9,266 in 2000. The Maine State Planning Office (SPO) predicted that this population decline will continue. In 2001, SPO projected Bath’s 2010 population would decrease to 9,064. In 2003, it projected a bigger decline for Bath’s population—8,359 in 2010—and down again to less than 7,000 in 2020. Yet, increases in gasoline prices may bring people back into the City. It is difficult to forecast the future population with certainty.

That said, we must do the best job we can to determine what Bath’s population size and characteristics are likely to be in the future.
Before we start the discussion of Bath's population, it is important to know what is meant by certain population terms. In *decennial years* (e.g., 1970, 1980, 1990, and 2000), the U.S. Census Bureau counts the number of people living in the United States by municipality and by other Census-designated areas. The U.S. Census Bureau also statistically determines certain characteristics of that population. These data are referred to as *census counts*. A *population estimate* refers to the population for a current or past year between actual decennial census counts.

A *population projection* is an attempt to determine what the population will be at some time in the future. There are two common types of techniques used to project a future population. One type is referred to as an *extrapolation technique*. This technique uses the population change from the past and trends, or projects, it into the future—the assumption being that what has happened in the past will continue to happen in the future. The other technique is referred to as a *cohort-component* or a *cohort-survival* technique. This is a data-intensive technique that disaggregates total population into age and gender groups (i.e., cohorts) and—making certain assumptions about fertility, mortality, and migration—projects the size of these cohorts in the future.

Although the second technique produces reams of computer-generated reports, some experts claim that it does not produce a projection any more accurate than a simpler technique. Planning texts also point out that there are certain factors about the population that often determine how accurate any projection method might be: accuracy increases with total population size (i.e., a projection for a large population is likely to be more accurate than a projection for a small population); accuracy increases for areas with slow but positive growth rates and decreases for areas with rapid increases; accuracy decreases for areas with population declines; and accuracy decreases more the farther into the future the projection is made.

A *population forecast* is a judgment call, a "best guess," as to which of the various (i.e., low, medium, or high) projections is most likely to occur.

This appendix reviews the changes that have occurred in Bath’s population in the past. It also reviews certain components of Bath’s population: births,
deaths, age groups, household size, age, density, and income and poverty. This appendix also forecasts what the population is likely to be in the future.

It is important to review the population size and some of its characteristics of the towns in the Bath Region (i.e., Bath and the five small surrounding towns—Woolwich, Arrowsic, Georgetown, West Bath, and Phippsburg—plus Brunswick and Topsham). Knowing whether the region’s population is growing or declining, aging or getting younger, and other characteristics of the population will help us better plan for Bath’s future.

**BATH POPULATION CHANGE**

With the exception of a big spike in 1920, Bath's population has hovered around 9,000 to 10,000 since 1900 (see the following graph). In 1920, the City was still bursting at the seams with shipyard workers and their families here for shipbuilding jobs during World War I. However, after the number of shipyard jobs declined, so did the population. Between 1920 and 1930, the population declined by about 38 percent; in 1930, there were fewer people in Bath than twenty years earlier. The population increased again in 1940 and continued to increase until after 1950. Since the 1980 U.S. Census, Bath has seen a steady decline in population.

**CITY OF BATH POPULATION**

1850-2000

![Graph showing population of Bath from 1850 to 2000](source: 2000 U.S. Census)
As discussed previously, a 2003 SPO projection predicts that Bath’s population will be smaller in 2010 and smaller still in 2020. These projections were using the cohort-component technique. The difficulty with relying on this projection is that if it is run far enough into the future, this method would have Bath’s population (as well as that of many other urban Service Center communities) down to zero—and that certainly is not likely to happen.

### BATH’S POPULATION AND PERCENTAGE CHANGE 1850-2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>% Change</th>
<th>Year</th>
<th>Population</th>
<th>% Change</th>
</tr>
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<tbody>
<tr>
<td>1850</td>
<td>8,020</td>
<td></td>
<td>1930</td>
<td>9,110</td>
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<tr>
<td>1860</td>
<td>8,076</td>
<td>0.69%</td>
<td>1940</td>
<td>10,235</td>
<td>12.35%</td>
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<tr>
<td>1870</td>
<td>7,371</td>
<td>-8.73%</td>
<td>1950</td>
<td>10,644</td>
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<td>1880</td>
<td>7,874</td>
<td>6.82%</td>
<td>1960</td>
<td>10,717</td>
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</tr>
<tr>
<td>1890</td>
<td>8,723</td>
<td>10.78%</td>
<td>1970</td>
<td>9,679</td>
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<tr>
<td>1900</td>
<td>10,477</td>
<td>20.10%</td>
<td>1980</td>
<td>10,246</td>
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<td>1910</td>
<td>9,396</td>
<td>-10.32%</td>
<td>1990</td>
<td>9,799</td>
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<tr>
<td>1920</td>
<td>14,731</td>
<td>56.78%</td>
<td>2000</td>
<td>9,266</td>
<td>-5.44%</td>
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</table>

*Source: 2000 U.S. Census*

### COMPONENTS OF POPULATION CHANGE

The variables associated with population change are the number of births to Bath residents, the number of deaths of Bath residents, the amount of in-migration, and the amount of out-migration. Births and deaths are recorded each year by municipal clerks, and trends can be projected to give a fairly accurate picture of future natural increase (i.e., the number of births minus deaths; see the following table).

Migration is a difficult trend to project. Certain assumptions need to be made and questions answered in order to make predictions about migration: Will certain economic conditions (e.g., price and availability of gasoline) change patterns of development? Will job availability change? Will families moving to the Bath Region want to live in rural areas or urban areas? Will urban neighborhoods decline in attractiveness, pushing families to the less urban neighboring towns? Will various state policies that now subsidize rural communities at the expense of Service Center communities change?
Wars have had a tremendous influence on the population of municipalities. The Civil War changed many Maine town and city populations. As discussed previously, Bath's population soared during World War I and increased again during and for fifteen years after World War II as people came here for thousands of new shipbuilding jobs. (Also, during the two World Wars, government-financed housing developments were constructed in Bath, which have had a lasting effect on the City. This is discussed further herein and in Appendix D, the Housing Inventory.) Factors such as these must be considered when making population projections.

**BATH'S NATURAL INCREASE**

**2000–2007**

<table>
<thead>
<tr>
<th>Year</th>
<th>Births</th>
<th>Deaths</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>133</td>
<td>95</td>
<td>38</td>
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<tr>
<td>2001</td>
<td>107</td>
<td>95</td>
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<td>2002</td>
<td>140</td>
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<tr>
<td>2007</td>
<td>126</td>
<td>122</td>
<td>4</td>
</tr>
<tr>
<td>2008</td>
<td>99</td>
<td>89</td>
<td>10</td>
</tr>
</tbody>
</table>

*Source: City of Bath Clerk’s Office 2009*

Another factor of population growth or decline is a change in household size. The following graphs show that whereas the number of new housing units has increased (although not as rapidly as in many of the surrounding towns), the number of people living in each unit is decreasing. The average (i.e., mean) number of new homes built annually from 2000 through 2007 is twelve. (In 2007, twenty-five new dwelling units were permitted; however, as of October 2008 only five had been constructed.) This means that even if there is a natural increase (i.e., more births than deaths) and new housing units are built, there may still be a population decline because there are likely to be fewer people living in each housing unit. The mean household size decreased from 2.62 in 1980 to 2.40 in 1990 and then to 2.26 in 2000.
There is another factor in this change in population. The following graphs show that the median age of Bath’s population is increasing and that the middle-age population group (i.e., 45- to 64-year-old group) is growing rapidly.
What does this reveal? There is (or, at least, there was from 1980 to 2000) an aging of the Bath population, a decrease in the average household size, and a large increase in the middle-aged group. This means that there were families moving to Bath but they were smaller and in the early-retirement and retirement age groups. This may also be evidence that the young childbearing-age group (i.e., 18- to 24-year-olds) is leaving Bath.
Anecdotally, there is evidence of both of these factors. We are aware of homes in Bath that were occupied by younger families of four to five people in 1980 and/or 1990 and then by 2000 were occupied by older, two-person families. The fact that Bath schools are losing Bath-resident students (discussed in more detail in Appendix I, the Education Inventory) also confirms this population shift.

Demographics experts expect this trend to continue in the future. However, there may be some evidence (again, anecdotal) that families with young children have been moving into Bath in the last three to five years, replacing some of the older, two-person families. In fact, results of a survey (by the City of Bath Assessor’s Office) of people who have recently purchased homes in Bath apparently confirm this finding. With an approximate 15 percent response rate, results indicate that 50 percent of the families in the recently purchased homes have children seventeen years old or younger; 29 percent of the population represented by the survey responses were in the infant to seventeen-year-old age bracket. Although this is not a scientific survey and the 15 percent response rate is low, it is interesting data. It also shows that it is difficult to accurately determine population characteristics between U.S. Census counts.

The aging of the Bath population has many impacts on the City; for example, the needs and demands on public facilities and services (e.g., schools, recreation, and emergency medical services), health care, housing, and retail services.

INCOME AND POVERTY

Other characteristics of the population that are important from a city-planning point of view are income and poverty. The first of the two following tables shows the median family income of Bath and the Bath Region towns according the 1990 and 2000 censuses and the percentages of families living below the poverty level.

Another measure of potential poverty in a town or city is the percentage of households headed by a female, with no husband present, and with children under eighteen years of age. Bath has a high percentage and, in fact, it is
higher than other urban Service Centers in Maine, which is shown in the second table.

Several factors may be involved, including a large number of multifamily (i.e., apartment) dwellings and many of them being rent-subsidized. These factors are discussed in Appendix D, the Housing Inventory.

### MEDIAN FAMILY INCOME AND PERCENTAGE OF FAMILIES LIVING BELOW THE POVERTY LEVEL

**BATH REGION 1990–2000**

<table>
<thead>
<tr>
<th>Town/City</th>
<th>Median Family Income</th>
<th>% of Families Living Below Poverty Level</th>
<th>Median Family Income</th>
<th>% of Families Living Below Poverty Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>34,126</td>
<td>9.1</td>
<td>45,830</td>
<td>9.3</td>
</tr>
<tr>
<td>Brunswick</td>
<td>36,577</td>
<td>5.3</td>
<td>49,088</td>
<td>5.0</td>
</tr>
<tr>
<td>Topsham</td>
<td>37,464</td>
<td>4.4</td>
<td>52,134</td>
<td>3.0</td>
</tr>
<tr>
<td>Woolwich</td>
<td>36,952</td>
<td>3.8</td>
<td>47,984</td>
<td>5.6</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>35,851</td>
<td>6.0</td>
<td>61,875</td>
<td>0</td>
</tr>
<tr>
<td>Georgetown</td>
<td>36,477</td>
<td>2.6</td>
<td>58,438</td>
<td>3.9</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>33,819</td>
<td>5.7</td>
<td>53,631</td>
<td>5.8</td>
</tr>
<tr>
<td>West Bath</td>
<td>40,994</td>
<td>3.4</td>
<td>52,986</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Source: 2000 U.S. Census*

### PERCENTAGE OF FAMILY HOUSEHOLDS, FEMALE HOUSEHOLDERS, NO HUSBAND PRESENT, WITH CHILDREN UNDER 18 YEARS

**2000**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>9.8</td>
</tr>
<tr>
<td>Auburn</td>
<td>8.1</td>
</tr>
<tr>
<td>Augusta</td>
<td>7.5</td>
</tr>
<tr>
<td>Bangor</td>
<td>8.7</td>
</tr>
<tr>
<td>Biddeford</td>
<td>8.3</td>
</tr>
<tr>
<td>Lewiston</td>
<td>8.4</td>
</tr>
<tr>
<td>Portland</td>
<td>6.6</td>
</tr>
<tr>
<td>Waterville</td>
<td>8.9</td>
</tr>
</tbody>
</table>

*Source: 2000 U.S. Census*
DAILY AND SEASONAL CHANGES IN POPULATION

As discussed in Appendix B, the Economy Inventory, there are many more workers who commute to rather than from Bath. Also, in the summer, and especially when neighboring coastal towns are fogged in, Bath experiences a sizable influx of shoppers. The daytime population, although difficult to measure exactly, is considerably more than the U.S. Census number of 9,266. This significantly impacts certain public services such as the size of the police force and fire and rescue services.

The City of Bath has a small number of seasonal dwellings (see Appendix C, Housing Inventory). The seasonal population is not significantly greater than the year-round population except for summer daytime visitors.

REGIONAL POPULATION

In recent years, as the City of Bath has been losing population, the towns around Bath have been gaining population. This same population shift has been occurring in and around other urban (although larger) Service Center communities such as Bangor, Waterville, Augusta, Lewiston, Auburn, and Portland.

BATH POPULATION VERSUS SURROUNDING AREAS 1960-2010

The graph shows that the smaller Bath Region towns are growing at rates similar to one another. The larger towns of Brunswick and Topsham are growing more rapidly than the smaller towns, and the rates almost mirror each other. The SPO predicts that Topsham will grow somewhat faster than Brunswick in the future.

Just looking at Bath and the five towns around it (not including Brunswick and Topsham), significant growth took place between 1980 and 1990; however, this growth slowed between 1990 and 2000. Still, there were more people living in the Bath Region in 2000 than in 1990, even with Bath’s decline of more than 500 people.

The characteristics of the population of the Bath Region are changing. The following two graphs show the median age of the population of the towns for 1980, 1990, and 2000, as well as the mean household size for the same years.

![Mean Household Size Graph](Image)

Source: U.S. Census
Another interesting characteristic of the population of Bath and the Bath Region is the density of the population. The City of Bath’s 9,266 people (i.e., the 2000 population) were occupying less than 10 square miles, which is a population density of almost 942 people per square mile.

The following table shows the population density for Bath, the Bath Region towns, and selected Service Center communities in 2000.
### POPULATION DENSITY
**BATH, BATH REGION, AND SELECTED SERVICE CENTER COMMUNITIES**

#### 2000

<table>
<thead>
<tr>
<th>Town/City</th>
<th>Population</th>
<th>Area in Square Miles</th>
<th>Population per Square Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>9,266</td>
<td>9.84</td>
<td>941.6</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>477</td>
<td>8.85</td>
<td>53.9</td>
</tr>
<tr>
<td>Brunswick</td>
<td>21,172</td>
<td>49.73</td>
<td>425.7</td>
</tr>
<tr>
<td>Georgetown</td>
<td>1,020</td>
<td>19.62</td>
<td>52.0</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>2,106</td>
<td>30.96</td>
<td>68.0</td>
</tr>
<tr>
<td>Topsham</td>
<td>9,100</td>
<td>33.19</td>
<td>274.2</td>
</tr>
<tr>
<td>West Bath</td>
<td>1,798</td>
<td>12.33</td>
<td>145.8</td>
</tr>
<tr>
<td>Woolwich</td>
<td>2,810</td>
<td>37.60</td>
<td>74.7</td>
</tr>
<tr>
<td>Auburn</td>
<td>23,205</td>
<td>61.67</td>
<td>376.3</td>
</tr>
<tr>
<td>Augusta</td>
<td>18,560</td>
<td>57.35</td>
<td>323.6</td>
</tr>
<tr>
<td>Bangor</td>
<td>31,473</td>
<td>34.59</td>
<td>909.9</td>
</tr>
<tr>
<td>Lewiston</td>
<td>35,690</td>
<td>36.83</td>
<td>969.1</td>
</tr>
<tr>
<td>Portland</td>
<td>64,249</td>
<td>19.15</td>
<td>3355.0</td>
</tr>
<tr>
<td>South Portland</td>
<td>23,324</td>
<td>12.93</td>
<td>1803.9</td>
</tr>
<tr>
<td>Waterville</td>
<td>15,605</td>
<td>15.27</td>
<td>1021.9</td>
</tr>
</tbody>
</table>

Sources: 2000 U.S. Census; Maine State Planning Office; City of Bath Planning Office

### BATH POPULATION FORECAST

Making many assumptions about population trends (i.e., mean household size, occupancy rate, and number of people living in group quarters), an estimate of the 2007 population of Bath was developed and is shown in the following table. (As discussed previously, in 2007, twenty-five new dwelling units were permitted; however, as of October 2008, only five had been constructed. Given the 2008 economic and housing situation, 2008 numbers have not been used in the population estimate and forecast. If the economic and housing situation continues in 2009, a new estimate and forecast is recommended.) The method used would be considered an extrapolation technique. Using this technique, a population decline since the 2000 U.S. Census count is estimated.
BATH POPULATION ESTIMATE

2007

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 year-round housing units</td>
<td>4,315</td>
</tr>
<tr>
<td>New year-round housing units 2000-2006</td>
<td>+ 77</td>
</tr>
<tr>
<td>Year-round housing units 2007</td>
<td>= 4,392</td>
</tr>
<tr>
<td>Assumed occupancy rate 2007</td>
<td>× 92.2%</td>
</tr>
<tr>
<td>Estimated year-round households 2007</td>
<td>= 4,049</td>
</tr>
<tr>
<td>Assumed persons per household 2007</td>
<td>× 2.12</td>
</tr>
<tr>
<td>Assumed persons living in households 2007</td>
<td>= 8,584</td>
</tr>
<tr>
<td>Assumed persons living in group quarters 2007</td>
<td>+ 118</td>
</tr>
<tr>
<td>Estimated population 2007</td>
<td>= 8,702</td>
</tr>
</tbody>
</table>

Sources: 2000 U.S. Census; City of Bath Planning Office

Using the same method, the population for 2010 was projected, which is shown in the following table. Again, it shows a population decline.

BATH POPULATION PROJECTION

2010

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 year-round housing units</td>
<td>4,315</td>
</tr>
<tr>
<td>Assumed year-round housing units 2000-2010</td>
<td>+ 110</td>
</tr>
<tr>
<td>Assumed year-round housing units 2010</td>
<td>= 4,425</td>
</tr>
<tr>
<td>Assumed occupancy rate 2010</td>
<td>× 92.2%</td>
</tr>
<tr>
<td>Assumed year-round households 2010</td>
<td>= 4,080</td>
</tr>
<tr>
<td>Assumed persons per household 2010</td>
<td>× 2.07</td>
</tr>
<tr>
<td>Assumed persons living in households 2010</td>
<td>= 8,446</td>
</tr>
<tr>
<td>Assumed persons living in group quarters 2010</td>
<td>+ 118</td>
</tr>
<tr>
<td>Population projection 2010</td>
<td>= 8,564</td>
</tr>
</tbody>
</table>

Sources: 2000 U.S. Census; City of Bath Planning Office

The following graph shows the SPO projections of Bath’s 2010 population done in 2001 and in 2003 and the City of Bath Planning Department projection done in 2007. The population forecast most likely to happen according to this Comprehensive Plan is also shown.
PLANNING IMPLICATIONS OF THE DEMOGRAPHICS INVENTORY

1. The size of Bath’s population has remained relatively unchanged (except for a large temporary increase in 1920) for the last 100 years, hovering just above or just below 10,000 people. It has been declining since 1980 and this decline is forecast to continue into the near future.

2. Surrounding towns have grown in population. In some cases, this growth has been substantial, at least in percentage terms.

3. Bath’s population decline is due to a combination of various factors:
   - Bath’s relatively small size in land area
   - higher tax rate in Bath compared to neighboring rural towns
   - relatively high density of population in built-up parts of the City
   - decreasing household size

Sources: Maine State Planning Office; City of Bath Planning Department
4. A key trend that affects demand for housing, community facilities, and services such as schools is the aging of Bath’s population.

5. Trends in percentages show Bath is growing significantly in the 45- to 64-year-old age groups and losing population in the under-45-year-old age groups.

6. Based on recent trends, the number of school-aged children (i.e., ages 5-17) is predicted to decline in the future. This trend can strain the maintenance of enrollment levels in public schools and the levels of public facilities and services for senior citizens in later years.

7. Data from the 2000 U.S. Census (i.e., 1999 income data) show that Bath lags behind the remainder of the Bath Region in family income and has a larger percentage of families living below the poverty level. Bath also has a relatively high percentage of family households headed by single mothers with children under the age of eighteen. These factors strain the families as well as many of the City's public facilities and services.
APPENDIX B
ECONOMY INVENTORY

INTRODUCTION

The purpose of this inventory is to give public and private decision makers an idea of the local and regional economic picture. It shows where Bath residents work and in which industries, the size of the labor force, which industries are and are not growth industries, a snapshot of retail sales, and other information.

THE MAINE ECONOMY

To begin, let's look briefly at the Maine economy. How well Maine's economy is doing depends on what reports are read and when they were written. According to “Measures of Growth 2007,” a report written by the Maine Development Foundation for the Maine Economic Growth Council:

Current policy discussions in Maine often center on the ongoing shift away from an old economy towards a new economy, and what Maine is doing to make its way through this transition. “Innovation-driven,” “knowledge-based,” “creative economy,” and, perhaps most popular, “the world is flat” are terms and concepts used to describe the emerging economic landscape. What all of these arguments have in common is the conclusion that in order for societies to thrive, they must focus investment in their people as well as in cutting-edge technology. It might also be that societies must have reasonable costs for doing business in place if they are to be competitive.

The Measures of Growth 2007 report shows that Maine has experienced little economic growth since the 2006 edition of this report was published last February. Maine’s personal income has grown slowly but the state’s ranking has fallen to 37th nationally; Maine’s Gross Domestic Product (GDP) growth has slowed; job growth has stalled; and more workers are holding multiple jobs—an indicator that some jobs may not be paying enough.

Behind these measures of Maine’s prosperity are signs that tell the story of the state’s performance in the new economy. After a strong showing in research and development last year, the Maine Economic Growth Council gave R&D investment a Red Flag in this year’s report. This measure—a key indicator of the steps Maine is taking to become a more knowledge-based and innovation-driven economy—has moved away from the benchmark. Another troubling sign is the widening gap between Maine and the United States in manufacturing productivity, which the Council has flagged as well. Simply put, investments in
worker training and skill development, as well as in capital upgrades, have fallen off when compared to the rest of the country. Transportation infrastructure is also an area of concern. This new indicator has received a Red Flag, and shows that Maine's transportation system needs improvement. Quality, state-of-the-art transportation infrastructure is vital in order to facilitate economic activity.

In addition to the above, the Growth Council has drawn attention to burdensome costs that continue to strain Maine's economic development. The cost of health care and the tax burden in Maine—both recipients of Red Flags—stifle the creation of wealth and business in the state. Maine must reduce these costs and bring them more in line with the rest of the region and the United States.

On the bright side, Maine is performing exceptionally well in two areas: health insurance coverage of Maine citizens and sustainable forest lands. The Growth Council has awarded a Gold Star to each of these indicators. Maine is a national leader in health coverage, and the high percentage of Maine people with health benefits means that more workers are apt to be productive in the workplace. The state also enjoys a thriving stock volume in its forested areas. Maine is doing a good job of protecting an important part of its natural-resource–based economy and quality of life.

Other highlights in this year's report include a bounce-back year for international exports; continued expansion of high-speed Internet subscribers; a decrease in the poverty rate; and continued decreases in death rates from chronic diseases.

Consistent with a broader consensus, the Maine Economic Growth Council believes that a skilled and educated workforce, technological innovation, and a sound cost structure are the keys to success in the new economy. The Measures of Growth 2007 report shows that there is still work to be done to improve these critical underpinnings of Maine's future.

Similar conclusions were drawn by the state's Consensus Economic Forecasting Commission (CEFC), a group of Maine economists and financial professionals charged with making forecasts that are used to project state revenue. A review of its work was written for the Fall 2006 issue of the Maine Policy Review by Catherine Reilly, State Economist. In the conclusion, she states:

The CEFC's Fall 2006 forecast shows slow and steady growth in Maine's economic future. Moderating energy prices, lower inflation, and the continued expansion of Maine's service industries should increase economic activity. The weakened housing market and the closure of Brunswick Naval Air Station will moderate growth in some years but not enough to create net job losses.

Appendix B Page 2
For the average Mainer looking at the CEFC's forecast, the message is that Maine's economic future currently looks very similar to its recent past. Employment and income growth will be positive and steady, but moderate. There is currently nothing in the crystal ball suggesting that Maine's economy will jump to a higher growth path. Only a change of a fundamental economic factor could trigger such a jump. The fundamental elements include the skills and size of our workforce; the age and racial composition of our population; the structure and cost of our government; the technology and resources available to our businesses; the expenses faced by our businesses and households; and our natural resources.

To alter the course of Maine's $44 billion economy, at least one, and likely several, of those fundamentals would have to change. For example, access to higher education would have to increase dramatically; new, diverse populations would have to move to Maine in greater numbers; the most expensive aspects of government would have to be meaningfully restructured; we would make large, targeted investments in research and development; and our natural resources would be firmly protected against sprawl and incremental development.

The CEFC's current economic forecast for Maine is both comforting (it calls for slow and steady growth) and aggravating (it calls for slow and steady growth). Either way, it reflects the fundamental characteristics of our economy and points to where they lead. Whether we follow or point in a new direction is up to us.

The CEFC calls the forecast both comforting and aggravating, whereas the Economic Growth Council focuses on the fact that economic growth has slowed, job growth has stalled, and more workers are holding multiple jobs. The reports have similar recommendations for the future.

This is what the experts think about Maine's economy in the future, but what about the past, at least the recent past? Maine has had an economy based on natural resources—farming, forestry, fishing, and tourism—and manufacturing. Fifty years ago, half of the jobs in Maine were in manufacturing. By 1990, that percentage had fallen to approximately 20 percent and, by 2000, it had fallen to below 15 percent. The following two tables show the percentage of Mainers employed in the various industry categories in 1990 and in 2000.

Whereas some of the industry categories reported by the U.S. Census were not the same in both 1990 and 2000, most were. The tables show that between 1990 and 2000, the percentage of those who were employed in retail trade also declined. The category showing the largest percentage
increase was education and health services. (However, it is not certain whether the 1990 category is exactly the same in 2000.) Also, the entertainment and recreation services category had a significant change, but it is likely that in 2000 the category included industries that the 1990 category did not. The other categories, if it is inferred that categories are similar, show that few changes occurred in the percentage of employed workers by industry.

STATE OF MAINE
PERCENTAGE OF EMPLOYED BY INDUSTRY
1990

<table>
<thead>
<tr>
<th>Industry</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing, &amp; Mining</td>
<td>3%</td>
</tr>
<tr>
<td>Construction</td>
<td>7%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>20%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>4%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>18%</td>
</tr>
<tr>
<td>Transportation, Communications, &amp; Other Public Utilities</td>
<td>6%</td>
</tr>
<tr>
<td>Finance, Insurance, &amp; Real Estate</td>
<td>6%</td>
</tr>
<tr>
<td>Business, Repair, &amp; Personal Services</td>
<td>7%</td>
</tr>
<tr>
<td>Education &amp; Health Services</td>
<td>19%</td>
</tr>
<tr>
<td>Entertainment &amp; Recreation Services</td>
<td>1%</td>
</tr>
<tr>
<td>Other Professional &amp; Related Services</td>
<td>6%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: 1990 U.S. Census

STATE OF MAINE
PERCENTAGE OF EMPLOYED BY INDUSTRY
2000

<table>
<thead>
<tr>
<th>Industry</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Mining</td>
<td>3%</td>
</tr>
<tr>
<td>Construction</td>
<td>7%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>14%</td>
</tr>
<tr>
<td>Wholesale &amp; Trade</td>
<td>3%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>14%</td>
</tr>
<tr>
<td>Transportation, Warehousing, &amp; Utilities</td>
<td>4%</td>
</tr>
<tr>
<td>Information</td>
<td>3%</td>
</tr>
<tr>
<td>Finance, Insurance, Real Estate Rental &amp; Leasing</td>
<td>6%</td>
</tr>
<tr>
<td>Professional, Scientific, Mngt., Admin., &amp; Waste Mgt. Services</td>
<td>7%</td>
</tr>
<tr>
<td>Education, Health, &amp; Social Services</td>
<td>23%</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation, Accommodation &amp; Food Services</td>
<td>7%</td>
</tr>
<tr>
<td>Other (except Public Administration)</td>
<td>5%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: 2000 U.S. Census
To stimulate the state and regional economies, the state identified economic clusters (i.e., critical masses or groupings of related skills and industries) that have economic benefits by being located closer to one another and that, if promoted, will lead to strong job growth. Manufacturing and technology skills associated with the defense industry in the Bath Region certainly qualify as an economic cluster; the new emerging composites-manufacturing industry is another.

REGIONAL ECONOMY

In many categories, the regional economy (i.e., the percentage of people employed by industry) is similar to that of the state. A major difference in 1990 was in the manufacturing category. That is, in 1990, the percentage of workers who lived in the region who were employed in manufacturing was slightly higher that the state’s percentage. Also, in 1990, the Bath Region had a higher percentage of people employed in retail trade than the state. The area where the region had a smaller percentage was in the finance, insurance, and real estate category. By 2000, the differences between the region’s and the state’s percentages were almost eliminated.

### BATH REGION (INCLUDING BATH)
#### PERCENTAGE OF EMPLOYED BY INDUSTRY

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing, &amp; Mining</td>
<td>4%</td>
</tr>
<tr>
<td>Construction</td>
<td>6%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>23%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>22%</td>
</tr>
<tr>
<td>Transportation, Communications, &amp; Other Public Utilities</td>
<td>4%</td>
</tr>
<tr>
<td>Finance, Insurance, &amp; Real Estate</td>
<td>3%</td>
</tr>
<tr>
<td>Business, Repair, &amp; Personal Services</td>
<td>6%</td>
</tr>
<tr>
<td>Education &amp; Health Services</td>
<td>19%</td>
</tr>
<tr>
<td>Entertainment &amp; Recreation Services</td>
<td>1%</td>
</tr>
<tr>
<td>Other Professional &amp; Related Services</td>
<td>7%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Source: 1990 U.S. Census*
A Location Quotient (LQ) Analysis compares the relative strength of employment by industry categories within one locale (community or region) to another locale (often the state). An LQ of 1.0 means that employment within one locale is the same percentage as in the other locale. An LQ of 1.5 means that it is 50 percent higher; an LQ of 0.5 means that it is 50 percent lower. Of the ten industry categories, the Bath-Brunswick Labor Market Area (LMA) is strong compared to the state in two categories (i.e., manufacturing and construction), moderately strong in two categories (i.e., services and local government), weak in three categories (i.e., state government, wholesale, and transportation/utilities), and moderately weak in three categories (i.e., fire, agriculture/forestry/fishing, and retail). The high employment percentage in the manufacturing sector due to BIW has a major effect on these figures.

Perhaps the most significant data regarding the regional economy is the projected closing of BNAS in 2011. The likely impact is discussed later in this appendix.

**BATH’S ECONOMY**

Bath's economic and settlement history has been written largely by the presence of the Kennebec River and those who took advantage of it. The river and its resources drew bands of Native Americans before European
settlers explored the area. Once a more permanent settlement was established by English colonists next to the Kennebec, the river offered transportation and industrial opportunities. Increasingly as the community became more than a rural outgrowth of Georgetown, the topography of “Long Reach” (as the area was called) was utilized as space for marine industry, where closely spaced homes and businesses were also near to the river. The step-like placement of granite-supported ridges created streets that ran parallel to the river, offering a view of the yards and vessels that began to crowd the shore in the mid-nineteenth century.

That era brought the City its most substantial growth, its grid of streets and historical homes, and its entrenched economic participation in the shipbuilding industry. Economic downturns in the coming decades and World Wars would decrease the number of yards and workers and, at times, increase the workforce and the infrastructure needed to house them, school their children, and maintain the City’s vitality. However, the resulting developmental pressures were never long-term or sufficiently intense to destroy the historic tone of the City. Increasingly, the City has celebrated these consistent ties to the sea—past, present, and future—understanding that the dense patterns of settlement and dependence on BIW brought both benefits and inherent problems.

In 1990, the percentages of Bath residents employed in the various industries were similar to both the region and the state, with the main exceptions of manufacturing (where BIW’s employment of Bath residents considerably increased Bath’s percentages); retail trade (where Bath’s percentage was slightly below the state’s and somewhat more below the region’s); the finance, insurance, and real estate category (where Bath’s percentage, like the region’s, was below the state’s percentage); and health and education (where Bath’s percentage was below both the region’s and the state’s). In 2000, the percentage of Bath residents employed in the manufacturing category was still higher than the state’s and the region’s percentage. The percentage of Bath residents employed in retail trades was closer to those for the state, as was the percentage of Bath residents employed in education, health, and social services.
### BATH

#### PERCENTAGE OF EMPLOYED BY INDUSTRY

**1990**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing, &amp; Mining</td>
<td>1%</td>
</tr>
<tr>
<td>Construction</td>
<td>5%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>34%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>20%</td>
</tr>
<tr>
<td>Transportation, Communications, &amp; Other Public Utilities</td>
<td>4%</td>
</tr>
<tr>
<td>Finance, Insurance, &amp; Real Estate</td>
<td>3%</td>
</tr>
<tr>
<td>Business, Repair, Personal Services</td>
<td>6%</td>
</tr>
<tr>
<td>Education &amp; Health Services</td>
<td>14%</td>
</tr>
<tr>
<td>Entertainment &amp; Recreation Services</td>
<td>2%</td>
</tr>
<tr>
<td>Other Professional &amp; Related Services</td>
<td>5%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Source: 1990 U.S. Census*

**2000**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, &amp; Mining</td>
<td>1%</td>
</tr>
<tr>
<td>Construction</td>
<td>6%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>20%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>1%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>13%</td>
</tr>
<tr>
<td>Transportation, Warehousing, &amp; Utilities</td>
<td>4%</td>
</tr>
<tr>
<td>Information</td>
<td>2%</td>
</tr>
<tr>
<td>Finance, Insurance, Rental &amp; Leasing</td>
<td>5%</td>
</tr>
<tr>
<td>Professional, Scientific, Mgt., Admin., &amp; Waste Mgt. Services</td>
<td>9%</td>
</tr>
<tr>
<td>Education, Health, &amp; Social Services</td>
<td>22%</td>
</tr>
<tr>
<td>Arts, Entertainment, Rec., Accommodations, &amp; Food Service</td>
<td>10%</td>
</tr>
<tr>
<td>Other (except Public Administration)</td>
<td>3%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Source: 2000 U.S. Census*

### MAJOR EMPLOYERS IN BATH

The following table lists major employers in Bath in May 2008. BIW dominates the employment picture in Bath (as well as in the Bath Region). It is important, however, that the number of BIW employees has continued to fall since its peak of more than 12,000 in the 1980s. Whether this employment number will continue to decrease is difficult to predict. Other
major employers include the Bath School Department, City of Bath, Shaw’s Supermarket, M.W. Sewall, and Elmhurst, Inc. None of these businesses have plans for major hirings or layoffs.

### BATH’S MAJOR EMPLOYERS
#### MAY 2008

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath Iron Works – Shipbuilding</td>
<td>5,857</td>
</tr>
<tr>
<td>City of Bath School Department – Public Schools</td>
<td>350 (including substitutes)</td>
</tr>
<tr>
<td>Supervisor of Shipbuilding – Shipbuilding</td>
<td>189</td>
</tr>
<tr>
<td>Shaw’s Supermarket – Retail Groceries</td>
<td>175 (mostly part-time)</td>
</tr>
<tr>
<td>M.W. Sewall – Oil Company</td>
<td>161 (total), 52 (in Bath)</td>
</tr>
<tr>
<td>Aegis Test Team – Shipbuilding</td>
<td>146</td>
</tr>
<tr>
<td>City of Bath – Local Government</td>
<td>118 (non-seasonal)</td>
</tr>
<tr>
<td>Elmhurst – Social Service</td>
<td>100 (in Bath)</td>
</tr>
<tr>
<td>Midcoast Maine Community Action – CAP Agency</td>
<td>94</td>
</tr>
<tr>
<td>Hyde School – Private Secondary School</td>
<td>90 full-time, 14 part-time</td>
</tr>
<tr>
<td>Bath Savings – Financial Institution</td>
<td>87 (in Bath)</td>
</tr>
<tr>
<td>Sagadahoc County – County Government</td>
<td>70 full-time, 23 part-time, elected officials, grant people, et al.</td>
</tr>
<tr>
<td>Midcoast Federal Credit Union – Financial Institution</td>
<td>37 full-time, 8 part-time</td>
</tr>
<tr>
<td>Five County Federal Credit Union – Financial Institution</td>
<td>36 full-time, 6 part-time</td>
</tr>
<tr>
<td>Midcoast Medical Group – Medical</td>
<td>35</td>
</tr>
<tr>
<td>First Federal Savings &amp; Loan – Financial Institution</td>
<td>25</td>
</tr>
</tbody>
</table>

*Source: City of Bath Planning Department, 2008*

### BIW EMPLOYEES’ PLACE OF RESIDENCE

Of the 5,600 employees at BIW in 2007, approximately 1,600 resided in Sagadahoc County, 1,045 resided in Androscoggin County, and 966 resided in Cumberland County. Approximately 500 BIW employees were Bath residents. The next highest towns of residence were Brunswick (401), Lewiston (316), Topsham (259), and Woolwich (205) (BIW Summary Data, 2007).

### COMMUTING PATTERNS

In 2000, people commuted to Bath from every county in the state (see the following table).
RESIDENTS OF THESE COMMUNITIES COMMUTED TO BATH FOR WORK
2000

<table>
<thead>
<tr>
<th>Town/City/County/State</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Androscoggin County</td>
<td></td>
</tr>
<tr>
<td>Auburn</td>
<td>255</td>
</tr>
<tr>
<td>Durham</td>
<td>131</td>
</tr>
<tr>
<td>Lewiston</td>
<td>354</td>
</tr>
<tr>
<td>Lisbon</td>
<td>439</td>
</tr>
<tr>
<td>Sabattus</td>
<td>133</td>
</tr>
<tr>
<td>Balance of Androscoggin County</td>
<td>278</td>
</tr>
<tr>
<td>Aroostook County</td>
<td>9</td>
</tr>
<tr>
<td>Cumberland County</td>
<td></td>
</tr>
<tr>
<td>Brunswick</td>
<td>1,150</td>
</tr>
<tr>
<td>Freeport</td>
<td>130</td>
</tr>
<tr>
<td>Harpswell</td>
<td>219</td>
</tr>
<tr>
<td>Portland</td>
<td>122</td>
</tr>
<tr>
<td>Balance of Cumberland County</td>
<td>392</td>
</tr>
<tr>
<td>Franklin County</td>
<td>20</td>
</tr>
<tr>
<td>Hancock County</td>
<td>11</td>
</tr>
<tr>
<td>Kennebec County</td>
<td></td>
</tr>
<tr>
<td>Augusta</td>
<td>150</td>
</tr>
<tr>
<td>Gardiner</td>
<td>131</td>
</tr>
<tr>
<td>Balance of Kennebec County</td>
<td>672</td>
</tr>
<tr>
<td>Knox County</td>
<td>156</td>
</tr>
<tr>
<td>Lincoln County</td>
<td></td>
</tr>
<tr>
<td>Dresden</td>
<td>155</td>
</tr>
<tr>
<td>Wiscasset</td>
<td>296</td>
</tr>
<tr>
<td>Balance of Lincoln County</td>
<td>591</td>
</tr>
<tr>
<td>Oxford County</td>
<td>99</td>
</tr>
<tr>
<td>Penobscot County</td>
<td>34</td>
</tr>
<tr>
<td>Piscataquis County</td>
<td>6</td>
</tr>
<tr>
<td>Sagadahoc County</td>
<td></td>
</tr>
<tr>
<td>Arrowsic</td>
<td>94</td>
</tr>
<tr>
<td>Bath</td>
<td>2,422</td>
</tr>
<tr>
<td>Bowdoin</td>
<td>174</td>
</tr>
<tr>
<td>Bowdoinham</td>
<td>198</td>
</tr>
<tr>
<td>Georgetown</td>
<td>131</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>380</td>
</tr>
<tr>
<td>Richmond</td>
<td>233</td>
</tr>
<tr>
<td>Topsham</td>
<td>524</td>
</tr>
<tr>
<td>West Bath</td>
<td>336</td>
</tr>
<tr>
<td>Woolwich</td>
<td>544</td>
</tr>
</tbody>
</table>
Bath residents had a much smaller commuting range in 2000 (see the following table).

RESIDENTS OF BATH COMMUTED TO THESE COMMUNITIES FOR WORK 2000

<table>
<thead>
<tr>
<th>Town/City/County/State</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Androscoggin County</td>
<td>49</td>
</tr>
<tr>
<td>Cumberland County</td>
<td></td>
</tr>
<tr>
<td>Brunswick</td>
<td>1,067</td>
</tr>
<tr>
<td>Freeport</td>
<td>136</td>
</tr>
<tr>
<td>Portland</td>
<td>134</td>
</tr>
<tr>
<td>Balance of Cumberland County</td>
<td>172</td>
</tr>
<tr>
<td>Kennebec County</td>
<td>38</td>
</tr>
<tr>
<td>Knox County</td>
<td>12</td>
</tr>
<tr>
<td>Lincoln County</td>
<td>151</td>
</tr>
<tr>
<td>Oxford County</td>
<td>8</td>
</tr>
<tr>
<td>Sagadahoc County</td>
<td></td>
</tr>
<tr>
<td>Bath</td>
<td>2,422</td>
</tr>
<tr>
<td>Topsham</td>
<td>127</td>
</tr>
<tr>
<td>Balance of Sagadahoc County</td>
<td>206</td>
</tr>
<tr>
<td>Waldo County</td>
<td>23</td>
</tr>
<tr>
<td>York County</td>
<td>26</td>
</tr>
<tr>
<td>Alaska</td>
<td>4</td>
</tr>
<tr>
<td>Connecticut</td>
<td>12</td>
</tr>
<tr>
<td>Louisiana</td>
<td>5</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>10</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>7</td>
</tr>
<tr>
<td>Texas</td>
<td>10</td>
</tr>
<tr>
<td>Virginia</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: 2000 U.S. Census
JOBS-TO-WORKER RATIOS

The importance of BIW to the City of Bath employment picture is indicated by the jobs-to-worker ratio. According to the 2000 U.S. Census, Bath had more jobs than the number of residents employed. Bath's jobs-to-worker ratio was 2.5 in 2000, which is much higher than the state and county ratios of 0.87 and 0.97, respectively. This means that there were 2.5 times as many jobs in Bath as there were workers. This is directly attributable to the presence in Bath of BIW, which is still one of the state's largest private employers and is the state's largest manufacturer.

WAGE AND PER CAPITA INCOME

Whereas on average, Bath's resident workers received higher weekly wages than the rest of Sagadahoc County and the state, Bath's per capita income historically has been lower than other areas. This indicates that Bath's residents received less from nonwage income sources, such as retirement accounts, pensions, and social security.

UNEMPLOYMENT

Unemployment rates were reviewed for Bath, the Bath-Brunswick LMA, and Sagadahoc County, which all had unemployment rates below those for the State of Maine during the 2000-2007 period.
AVERAGE YEARLY UNEMPLOYMENT RATE
STATE OF MAINE, BATH-BRUNSWICK LMA,
AND SAGADAHOC COUNTY
2000–2007

Employment Forecasts

In December 2005, the Center for Business and Economic Research (CBER) at the University of Southern Maine (USM) prepared “Economic and Demographic Forecasts” for the state for the 2005–2030 period. These data include the recent announcement regarding the closure of BNAS (scheduled for 2010–2011) and recent downsizings at BIW. The CBER forecasts are prepared at the county level or for groups of counties. Bath is included in the Lincoln–Sagadahoc Counties grouping. The data forecast total growth in private non-farm employment at approximately 17 percent during the forecast period, the major component of which is in various services.

Appendix A discusses the difficulty in making population projections and forecasts many years into the future with much accuracy. It is also difficult to make accurate economic and employment forecasts many years into the future. The following forecast may be meaningless, given the economic events that occurred in the fourth quarter of 2008.
LINCOLN–SAGADAHOC COUNTIES
EMPLOYMENT FORECASTS: 2005 TO 2030

<table>
<thead>
<tr>
<th>Sagadahoc &amp; Lincoln Counties</th>
<th>Year</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>2030</td>
</tr>
<tr>
<td>TOTAL PRIVATE NONFARM</td>
<td>35,934</td>
<td>42,095</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>7,924</td>
<td>7,271</td>
</tr>
<tr>
<td>Natural Resources, Mining, Utility, Construction</td>
<td>5,643</td>
<td>5,594</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>5,393</td>
<td>5,374</td>
</tr>
<tr>
<td>Services</td>
<td>14,118</td>
<td>20,611</td>
</tr>
</tbody>
</table>

Sources: CBER, USM, December 2005

HOME-BASED BUSINESSES

Statistics indicate that many businesses in the United States start as home-based businesses or home occupations. The City of Bath has flexible rules and regulations regarding businesses in the home. Many types of businesses—especially offices and craft-type manufacturing—are allowed, provided that they do not negatively impact the residential character of or quality of life in the neighborhood.

BATH’S RETAIL PICTURE

In the last ten years, the retail picture of Bath has changed only minimally. The Bath Downtown, the most important retail area, includes a medium-sized family-owned grocery store, an independent drugstore, gift shops, jewelry stores, bookstores, antique shops, specialty stores, a home-appliance store, a furniture store, a kitchen-gadget store, and a department store. There is (in 2008) little vacancy.

The Bath Shopping Center encompasses a wide range of retail stores, from a major regional grocery store and chain drugstore to stores selling sporting goods and renting movies and DVD games. This retail area has changed only slightly in the last ten years.

Bath’s other retail area is located along State Road, where significant changes have occurred in the last ten years. A building that housed a BIW...
office is now a large auto-parts store and a discount store, and what had been a vacant lot is now occupied by a 14,000-square-foot chain drugstore.

**BATH RETAIL-MARKET-SHARE ANALYSIS**

A market-share analysis, also referred to as the "pull factor," is the ratio of per capita sales in a community to the per capita sales in another community (e.g., the state, the county, or another municipality). Based on information obtained from Maine Revenue Services, the seven-year (i.e., 2000-2006) retail history of Bath by product group is compared to that of Sagadahoc County, the state, and the nearby competing towns—Topsham and Brunswick. Results of the market-share analyses (i.e., the pull factors) are discussed in this section with significant findings by category.

**Total Taxable Retail Sales.** For overall taxable retail sales (i.e., total retail sales include consumer retail sales plus special types of sales and rentals to businesses in which the tax is paid directly by the buyer, such as commercial or industrial heating oil purchases) between 2000 and 2006, Bath's share continued to erode whereas Topsham's share gained dramatically. Per capita retail sales levels were much higher in Brunswick and Topsham in 2006 (i.e., approximately $16,440 and $12,500, respectively), whereas they were approximately $9,300 per capita in Bath. Bath's relative share of taxable sales within Sagadahoc County eroded in this period from approximately 42 percent of the Sagadahoc County retail sales in 2000 to approximately 30 percent in 2006.

Bath's pull factor for total taxable retail sales in 2006 was 0.72. This means that Bath's total taxable retail sales are 28 percent lower than the statewide per capita average, indicating a general weakness in the retail sector of the Bath economy relative to the rest of the state.

**Building-Supply Sales.** For the building-supply sales category (i.e., durable equipment sales, contractors' sales, hardware stores, and lumberyards), Bath's share has eroded from essentially the same level of per capita sales as the state average to approximately 70 percent of the state average. Topsham, with additional development at the Topsham Fair Mall, has gained significantly in this area to approximately 50 percent higher than the state average.
Bath’s pull factor for building-supply sales in 2006 was 0.71, meaning that Bath’s retail sales in this category were 29 percent lower than the state average.

**Food-Store Sales.** For the food-store sales category (i.e., all food stores, from large supermarkets to small corner stores, based on the value of snacks and nonfood items only because food intended for home consumption is not taxed), Bath’s per capita sales decreased slightly. Bath’s pull factor for food-store sales was 1.4 in 2006. This means that Bath’s food-store sales were 40 percent higher than the state average, indicating that Bath draws from a larger retail market area in the food-store sales category.

**General-Merchandise Sales.** For the general-merchandise category (i.e., stores carrying product lines generally carried in large department stores, such as clothing, furniture, shoes, household electronics equipment, and household durable goods), Bath had significantly lower per capita sales than its nearby competitors, with its share of sales in this product group declining slightly relative to the state. Bath’s relative share of sales in this category in Sagadahoc County dropped from 65 percent in 2000 to only 24 percent in 2006. Bath’s pull factor in the general-merchandise category was 0.43 in 2006, which means that Bath’s general-merchandise sales are 57 percent lower than the state average, indicating a severe weakness in this sales category.

**Other Retail.** For the other-retail category (i.e., various taxable sales not covered elsewhere such as dry-goods stores, drugstores, jewelry stores, sporting goods stores, antique dealers, bookstores, photo-supply stores, and gift shops), Bath’s per capita retail sales have grown slightly since 2000 to approximately equal to the state average. Bath’s pull factor in 2006 was 0.91, which means that Bath’s other retail sales in this category are just below the state average.

**Auto/Transportation Sales.** For the auto/transportation category (i.e., all transportation-related retail outlets such as auto dealers, auto parts, aircraft dealers, motorboat dealers, and automobile rental), Bath’s relative market share and per capita sales remained relatively steady between 2000 and 2004, with an upturn occurring in 2005-2006. The nearby communities of Topsham and Brunswick have much higher levels of per capita sales in this category. Bath’s pull factor in 2006 was 0.23, which means that Bath’s
auto/transportation sales were 77 percent lower than the state average, indicating a severe weakness in this category.

**Restaurant/Lodging Sales.** For the restaurant/lodging category (i.e., all stores selling prepared food for immediate consumption and the lodging category including only taxed rentals)—although Bath had slight increases in per capita sales—its market share in Sagadahoc County eroded slightly but still remained approximately 30 percent higher than the state per capita sales average. Bath’s pull factor was 1.3 in 2006, which means that Bath’s restaurant/lodging sales were 30 percent higher than the state average.

Reviewing the combined restaurant/lodging product group in more detail shows that restaurant sales per capita in Bath are much stronger than lodging sales relative to state averages. In the restaurant category, Bath’s pull factor was 1.5 in 2006, which means that Bath’s restaurant sales were 50 percent higher than the state average. In the lodging category, however, Bath’s pull factor was only 0.66 in 2006, which means that Bath’s lodging sales were 34 percent lower than the state average, indicating a weakness in this tourism indicator. Sales in Bath in this category are also becoming weaker relative to the rest of the state and Sagadahoc County.

Following are the graphs that show the City of Bath’s retail-market-share analysis.
Bath Comprehensive Plan Update
Retail Sales Analysis
August 2007

Per Capita Sales 2000 - 2006: Restaurant

Per Capita Sales 2000 - 2006: Lodging

Appendix B Page 22
ECONOMIC DEVELOPMENT

There is often some misunderstanding about what constitutes economic development. Is it the same as downtown development or redevelopment? Is it real estate development? Is it community development? According to an economic development text, Planning Local Economic Development, by Edward J. Blakely, “[l]ocal economic development refers to the process in which local governments or community-based organizations engage to stimulate or maintain business activity and/or employment. The principal goal of local economic development is to stimulate local employment opportunities in sectors that improve the community, using existing human, natural, and institutional resources.” The American Economic Development Council defines economic development as the process of creating wealth through the mobilization of human, financial capital, physical, and natural resources to generate marketable goods and services. Another definition of economic development is the creation of jobs and wealth and the improvement of quality of life. Employment growth is a key component of economic development.

In the handbook written for the SPO by Evan Richert and Sylvia Most, entitled Comprehensive Planning: A Manual for Maine Communities, the authors state that the economy of a locale can be divided into two types of activities: “export” and “service” activities. Richert and Most explain that “export activities are those that, through sale of goods and services, bring dollars into the region from outside” and that “service activities are those that provide goods and services locally. They recirculate money that is already in the area, rather than bring in new money from outside.”

An economy based strictly on local service activities has been compared to one in which members of the community are employed simply to do one anothers' laundry. No new money is brought into the system; only the same money is recirculated. Thus, there is no economic growth and no economic development.

Bath’s economic-development activities are coordinated by the City Manager with support from the Assistant City Manager, the Planning Director, the Community Development Director, and the City Council-appointed Economic Development Committee. The City has no written economic development strategy; however, the unwritten goal is to diversify the economy (i.e.,
create new jobs and a new tax base) that has for so long relied on the jobs and tax base provided by BIW.

The City Council has also formed a local development corporation (LDC). The board of this City Council-appointed corporation can straddle the public-private sectors to manage and/or promote development. The City Manager, Planning Director, several City Councilors, and appointed citizens are members of the Board of Directors of the Bath LDC.

The City is also an active member of the Midcoast Economic Development District (MCEDD). This Economic Development Administration-recognized regional district includes the municipalities of Sagadahoc and Lincoln Counties and Harpswell and Brunswick. Periodically, the MCEDD prepares a regional economic development plan referred to as the Comprehensive Economic Development Strategy (CEDS). The goals of this regional group also include economic diversification and job creation.

The infrastructure in place to support economic development includes the City’s multi-modal transportation system, public sewer and water, three-phase power, cable, telephone and high-speed Internet. The City does not have a source of natural gas. Tools used to promote economic development include the Military Redevelopment Zone (discussed in a subsequent section), the TIF process (discussed in Appendix J, Fiscal Inventory), and the City’s quality of place, which is discussed throughout this Comprehensive Plan.

**IMPACT OF THE BNAS CLOSING**

In 2005, the federal Base Realignment and Closure Commission (BRAC) voted to close BNAS. The naval air station was built in 1943 on a 1,487-acre parcel of land that was willed to the needy people of Brunswick for the purpose of picking blueberries. After World War II, BNAS was closed and the property was leased to the University of Maine and Bowdoin College so that the two educational institutions could expand to accommodate the influx of students attending college on the G.I. Bill. Both schools gave up their leases in 1949 and the property was then controlled by the Brunswick Flying Service, although still owned by the federal government. In 1951, the air station again was needed by the federal government. Since then, BNAS served the U.S. Navy in various capacities, primarily for antisubmarine surveillance.
According to the Summary and Recommendations section of the SPO’s report, “Understanding the Impact: Closing the Naval Air Station Brunswick,” published in January 2007:

Naval Air Station Brunswick is currently one of Maine’s largest employers. But compared to a manufacturing firm of similar size, it has fewer direct economic linkages to other Maine industries. The impacts of its closure will mainly be felt through reductions in local household consumption with little spillover to the high value-added sectors of the economy, such as manufacturing, information, or professional services. After peaking in the final year of the base closure, direct and indirect job losses stabilize, as does GSP [Gross State Product] growth, and population growth starts to show signs of recovery. Furthermore, even with near-term annual reductions of $400 million GSP and 6,000 jobs, the state economy is still expected to grow. Growth will simply be at a slightly slower pace for a few years. The forecast coincides with the generally favorable long-term economic outlook for Brunswick and the rest of the Mid-Coast Region.

The results of this analysis offer important guidance for helping the regional and state economies adjust to life after NASB. First, most of the base closure’s impact will stem from the lost spending of households supported by federal military and civilian jobs. That underscores the need to repopulate the base and surrounding areas with new households and replenish the community with new families. The availability of prime commercial and industrial real estate, and the instant availability of affordable housing units, will play key roles in this effect.

Second, the relative health of the Mid-Coast Region bodes well for economic recovery, but the region may be susceptible to economic shocks during the recovery period. Historically, NASB has helped to shield the region from negative shocks because military employment is fairly insensitive to market cycles (i.e., economic booms and recessions). Without NASB, the region becomes more susceptible. The industries and communities that are most effected by the closure will be especially vulnerable to additional shocks.

Third, studies from prior BRAC rounds show that most communities recover from major base closures. Some actually experience higher long-term economic growth if military facilities are successfully converted to private-sector uses. But the transition period immediately following the closure is often challenging for individuals, communities, and businesses with direct ties to the base. Swift economic recovery hinges on early planning, leadership, coordination of key stakeholders, and full community involvement.

Fourth, redevelopment efforts must also be cognizant of prevailing market forces. In particular, on- and off-base redevelopment plans should capitalize on the unique strengths and assets of the Mid-Coast economy.
MILITARY REDEVELOPMENT ZONE

In 2003, the Maine Legislature created areas, or districts, throughout the state called Pine Tree Zones. The purpose of the Pine Tree Zone legislation was to stimulate business investment in economically distressed regions of the state. For businesses that are "Pine Tree Zone-qualified," there would be corporate income tax credit, employment tax increment financing, insurance premium tax credit, availability for local tax increment financing, sales and use tax exemption, and reduced utility rates. Qualified businesses must include those that fit into the following categories: advanced technologies for forestry and agriculture, aquaculture and marine technology, biotechnology, composite materials, environmental technology, financial services, information technology (IT), manufacturing, and precision manufacturing. The City of Bath is not located in an area designated by the original Pine Tree Zone legislation.

In 2005, the Maine Legislature created an additional Pine Tree Zone area that has important benefits for the City of Bath and Bath businesses. This area includes the LMA that will be most affected by the closure of BNAS. The new designation is called the Military Redevelopment Zone and Bath is located in this zone. The designation provides benefits to businesses and is for the categories of businesses cited previously.

PLANNING IMPLICATIONS OF THE BATH ECONOMY INVENTORY

1. For many industry categories, the percentages of state-resident workers, regional-resident workers, and Bath-resident workers are similar to one another. In 1990, Bath had a high percentage of resident workers in manufacturing; although the percentage dropped in 2000, it was still higher than the region and the state.

2. The major employer in Bath—BIW—is also one of the state's largest private employers and is the state's largest manufacturer. Other employers in Bath are considered small- or medium-sized. Bath (and the Midcoast Region) is very dependent on BIW for jobs.
3. Because of the significant employment at BIW, Bath has a high jobs-to-worker ratio. In fact, there is 2.5 times as many jobs in Bath as there are Bath-resident workers.

4. Whereas Bath-resident workers receive high wages—higher than the Sagadahoc County and state averages—the nonwage sources of income (e.g., retirement accounts, pensions, social security) are below the county and state per capita averages.

5. Home-based businesses are where many larger businesses get their start. The City of Bath is flexible when it comes to starting a home-based business in a residential area, provided it does not negatively impact the residential qualities in the neighborhood.

6. The unemployment rate in Bath has consistently been below the state average, even with layoffs that occur at BIW.

7. Many retail sectors in Bath show moderate to high weakness compared to the state and the neighboring, competing communities of Topsham and Brunswick. Overall, Bath’s taxable per capita retail sales are 32 percent lower than the state average. Aspects of the retail market that show the most promise are niche sales, which appeal to the tourism market; consumer goods that may appeal to higher quality and/or a high level of customer service; and the restaurant category. By focusing on various specialty goods and other niche markets, and by offering high levels of service, Bath retailers would be distinct from the malls and “big-box” retailers. Also, there would be value in marketing the downtown (including its restaurants and specialty shops) such that the whole is greater than the sum of its parts—marketing it as an attractive destination.

8. The multiplier or spin-off effects of further downsizing of BIW coupled with the decision to close BNAS in 2011 potentially bode poorly for the regional economy without active programs to diversify and reduce dependency on the defense industry.

9. The industry clusters growing in the Midcoast Region may be an opportunity for Bath’s economic-development focus.
10. It is important that Bath’s economic-development activities focus on job-creation types of businesses. The City of Bath must use its unique, competitive advantages—the quality of place, historic architecture, Maine Maritime Museum, and waterfront—for economic development.

11. The report by the SPO on the impacts of the BNAS closure states that “redevelopment efforts must be cognizant of prevailing market forces. In particular, on- and off-base redevelopment plans should capitalize on the unique strengths and assets of the Mid-Coast economy.”

12. The report titled “Measures of Growth 2007,” written for the Maine Economic Growth Council, is a reminder that “in order for societies to thrive, they must focus investment in their people [this means education] as well as in cutting-edge technology.”
# APPENDIX C
## CULTURAL AND NONGOVERNMENTAL RESOURCES INVENTORY

### INTRODUCTION

The Bath Region is fortunate to have a wide array of cultural and nongovernmental resources for its residents. These resources contribute greatly to the quality of life in Bath. The following table lists the names, descriptions, and contacts for many of them. Internet links for most are also available on the City of Bath and Main Street Bath web sites.

<table>
<thead>
<tr>
<th>Organization Name</th>
<th>Contact Information</th>
<th>Mission</th>
<th>Service Population</th>
<th>Service Area</th>
<th>Number of Employees, Members, or Clients</th>
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</thead>
<tbody>
<tr>
<td>Bath Area Family YMCA</td>
<td>303 Centre Street Bath, ME 04530 443-4112 <a href="mailto:bathymca@gwi.net">bathymca@gwi.net</a>, <a href="http://www.bathymca.org">www.bathymca.org</a></td>
<td>To promote the health and well-being of individuals and communities</td>
<td>All service area community members</td>
<td>Bath, Brunswick, Topsham, Phippsburg, Woolwich, Georgetown, Arrowsic, West Bath</td>
<td>100-125 employees</td>
</tr>
<tr>
<td>University College of Bath/Brunswick</td>
<td>7 Park Street Bath, ME 04530 442-7736 <a href="http://www.maine.edu/ucbb">www.maine.edu/ucbb</a></td>
<td>To provide support services and local access to college classes and degrees</td>
<td>Diverse array of learners, both seeking and not seeking college credit</td>
<td>Freeport to Boothbay</td>
<td>6 full-time, 15–45 part-time employees</td>
</tr>
<tr>
<td>Midcoast Senior College</td>
<td>7 Park Street Bath, ME 04530 442-7349 <a href="http://www.midcoastseniorcollege.org">www.midcoastseniorcollege.org</a></td>
<td>To provide curriculum of intellectually stimulating learning opportunities and special activities for persons 50 years of age or older</td>
<td>Persons who are at least 50 years of age</td>
<td>Freeport to Boothbay</td>
<td>200 students</td>
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<tr>
<td>Patten Free Library</td>
<td>33 Summer Street Bath, ME 04530 443-5141 <a href="http://www.patten.lib.me.us">www.patten.lib.me.us</a></td>
<td>To provide library services and programming</td>
<td>Residents of the service area communities</td>
<td>Bath, Georgetown, Arrowsic, Woolwich, Phippsburg, West Bath</td>
<td>10 full-time employees</td>
</tr>
<tr>
<td>Friends of Patten Free Library</td>
<td>33 Summer Street Bath, ME 04530 443-5141</td>
<td>To promote the services of the library by sponsoring programs for all ages and providing financial support</td>
<td>All members of the Patten Free Library</td>
<td>Bath, Georgetown, Arrowsic, Woolwich, Phippsburg, West Bath</td>
<td>160 member households</td>
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<td>Salvation Army</td>
<td>25 Congress Avenue Bath, ME 04530</td>
<td>To provide social and religious services</td>
<td>General community members</td>
<td>Midcoast Maine</td>
<td>2 employees</td>
</tr>
<tr>
<td>Rotary Club of Bath</td>
<td>P.O. Box 313 Bath, ME 04530</td>
<td>World peace and understanding, service above self, financial support to community projects</td>
<td>Local and worldwide community</td>
<td>Bath</td>
<td>46 members</td>
</tr>
<tr>
<td>Maine Maritime Museum</td>
<td>243 Washington Street Bath, ME 04530</td>
<td>To collect, preserve, and interpret materials relating to the maritime history of Maine</td>
<td>Members, families, school groups, community members</td>
<td>Midcoast Maine and general Maine tourism</td>
<td>9 part-time employees, 3 seasonal employees</td>
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<td>Maine Maritime Museum</td>
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<td>To assist the Maine Maritime Museum in its mission</td>
<td>Provides services to the museum</td>
<td>The museum</td>
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<td>Maine Maritime Museum</td>
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<td>Elmhurst, Inc.</td>
<td>400 Centre Street Bath, ME 04530</td>
<td>To provide support services to individuals with developmental disabilities and autism</td>
<td>Individuals with developmental disabilities and autism</td>
<td>Lisbon to Boothbay Harbor</td>
<td>115 employees, 80 clients</td>
</tr>
<tr>
<td>Mid Coast Hospital</td>
<td>123 Medical Center Drive Brunswick, ME 04011</td>
<td>To provide quality health care and health-related services directed toward continually improving the health and well-being of the patients and communities</td>
<td>About 100,000 people in the Midcoast Maine area</td>
<td>Midcoast Maine</td>
<td>94 beds; more than 130 doctors plus support staff</td>
</tr>
<tr>
<td>Lanyard Theatre</td>
<td>20 Sunset Lane Portland, ME 04102 773-2727</td>
<td>To provide world-premiere productions, exploring the complex dynamics of our global community</td>
<td>Anyone interested in the subject of our productions</td>
<td>Bath and surrounding communities</td>
<td>Paid casts, directors, crew (sizes vary by production)</td>
</tr>
<tr>
<td>Studio Theatre</td>
<td>P.O. Box 710 Bath, ME 04530</td>
<td>To provide semi-professional theatrical performances (305 per year)</td>
<td>Audiences from Portland to Rockland; casts typically from Bath and surrounding communities</td>
<td>Midcoast Maine</td>
<td>6-8 volunteers, 20-25 members, cast and crew paid depending on production</td>
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<tr>
<td>Organization Name</td>
<td>Contact Information</td>
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<td>Service Population</td>
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<td>Bath Housing Authority</td>
<td>80 Congress Avenue Bath, ME 04530 443-3116</td>
<td>To help meet affordable housing needs</td>
<td>Low- and very low-income persons</td>
<td>Bath and a 10-mile radius</td>
<td>10 employees, 263 clients</td>
</tr>
<tr>
<td>Midcoast Maine Community Action</td>
<td>34 Wing Parkway Bath, ME 04530 442-7963</td>
<td>MMCA is a community action organization advocating on behalf of low-income and other at-risk individuals, assisting them to identify and address their needs, enabling them to achieve self-sufficiency and independence. MMCA actively promotes economics and community development of the businesses and communities in the Midcoast area where individuals and families reside.</td>
<td>Low- and very low-income families and individuals</td>
<td>Northern Cumberland, Sagadahoc, Lincoln, Knox and Waldo Counties</td>
<td>MMCA currently has a staff of 94. This past year, 15,628 individuals and 5,955 families were provided with services.</td>
</tr>
<tr>
<td>Pine Tree Society</td>
<td>149 Front Street Bath, ME 04530 443-3341 <a href="http://www.pinetreesociety.org">www.pinetreesociety.org</a> <a href="mailto:info@pinetreesociety.org">info@pinetreesociety.org</a></td>
<td>To provide Maine children with disabilities the opportunities and the means to create better lives for themselves and their families</td>
<td>Individuals with disabilities</td>
<td>State of Maine</td>
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<tr>
<td>Bath Historical Society</td>
<td>Patten Free Library Sagadahoc History and Genealogy Room 33 Summer Street Bath, ME 04530 <a href="http://www.patten.lib.me.us">www.patten.lib.me.us</a></td>
<td>The collection and preservation of local history, including genealogy and the sharing of these resources</td>
<td>Those interested in the history of Bath and the genealogy of its families</td>
<td>City of Bath</td>
<td>5-10 volunteers, 200 members</td>
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<tr>
<td>Sagadahoc Preservation, Inc.</td>
<td>880 Washington Street Bath, ME 04530 443-2174</td>
<td>To preserve and maintain the Bath area’s fine architectural heritage through the creation of a historic district commission, the promotion of stewardship, and the use of protective covenants.</td>
<td>All residents of Bath and surrounding towns who are interested in historic preservation</td>
<td>Lower Kennebec County</td>
<td>0 employees, approximately 175 members</td>
</tr>
<tr>
<td>Chocolate Church Arts Center</td>
<td>798 Washington Street Bath, ME 04530 442-8455 <a href="http://www.chocolatechurcharts.org">www.chocolatechurcharts.org</a></td>
<td>To provide affordable, accessible programming that would otherwise be unavailable to residents and visitors in our region. To bring the visual and performing arts to the Midcoast and surrounding regions of Maine. The preservation of the Arts Center’s historic buildings that are an integral part of historic Bath. Make the Chocolate Church Arts Center a destination venue for those seeking entertainment, exposure to, and participation in the visual and performing arts. Contribute to the regional economy.</td>
<td>CCAC provides programs and events to more than 7,000 patrons annually</td>
<td>Sagadahoc, Androscoggin, Knox, Lincoln, Cumberland, and Kennebec Counties</td>
<td>1 full-time, 2 part-time, numerous volunteers</td>
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<tr>
<td><strong>Lower Kennebec Regional Land Trust</strong></td>
<td>P.O. Box 1128 Bath, ME 04530 442-8400 <a href="http://www.lkrlt.org">www.lkrlt.org</a></td>
<td>To promote for public benefit the preservation and enhancement of natural and other resources in the Lower Kennebec Region</td>
<td>General public living in or visiting the area</td>
<td>Georgetown, Arrowsic, Woolwich, Bath, West Bath, Westport Island, and around the estuaries of the Kennebec and Sheepscot Rivers</td>
<td>1.75 full-time, 10 volunteers</td>
</tr>
<tr>
<td><strong>Friends of Merry-meeting Bay</strong></td>
<td>P.O. Box 233 Richmond, ME 04357 666-3372 <a href="http://www.friendsofmerry-meetingbay.org">www.friendsofmerry-meetingbay.org</a></td>
<td>Preserve, protect, and improve the unique ecosystems of Merry-meeting Bay through education, research, advocacy, land conservation, and membership activities</td>
<td>General public living in or visiting the area</td>
<td>Merrymeeting Bay—the confluence of Androscoggin, Kennebec, Eastern, Abagadasset, Cathance, and Muddy Rivers</td>
<td>2 employees, 100 volunteers, 350 members</td>
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<tr>
<td><strong>Bath Area Food Bank</strong></td>
<td>United Church of Christ 150 Congress Avenue Bath, ME 04530</td>
<td>To provide food for needy individuals and families</td>
<td>Families and individuals in need living in the Greater Bath Area</td>
<td>Greater Bath Area</td>
<td>40 volunteers/month, 400-450 food boxes/month</td>
</tr>
<tr>
<td><strong>Bath Area Soup Kitchen</strong></td>
<td>First Baptist Church 851 Washington Street Bath, ME 04530</td>
<td>To provide three meals per week to those in need</td>
<td>Families and individuals in need living in the Greater Bath Area</td>
<td>Greater Bath Area</td>
<td>60 volunteers/month, 1,800 meals served/month</td>
</tr>
<tr>
<td><strong>Bath Area Clothing Exchange</strong></td>
<td>Corliss Street Baptist Church 402 Middle Street Bath, ME 04530</td>
<td>To provide used clothing to those in need</td>
<td>Families and individuals in need living in the Greater Bath Area</td>
<td>Greater Bath Area</td>
<td>25-30 volunteers/month, 75-100 visitors/month</td>
</tr>
<tr>
<td><strong>Tri-County Literacy</strong></td>
<td>2 Sheridan Road Bath, ME 04530 443-6384 877-885-7441 <a href="mailto:tricountyliteracy@tricountyliteracy.org">tricountyliteracy@tricountyliteracy.org</a>, <a href="http://www.tricountyliteracy.com">www.tricountyliteracy.com</a></td>
<td>To improve people’s lives through two literacy programs: Literacy Volunteers Adult Literacy and Read with Me Family Literacy Project</td>
<td>Adults who could benefit from the services and families of children attending Head Start, Kindergarten, and 1st grade in Bath</td>
<td>Midcoast Maine (Bath and 38 other communities in Sagadahoc, Cumberland, and Lincoln Counties)</td>
<td>9 part-time employees, 75 adults served, 250 children and 350 adults</td>
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<td>Organization Name</td>
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<tr>
<td>Bath Area Senior Center</td>
<td>45 Floral Street Bath, ME 04530 443-4937</td>
<td>To provide a place of meeting for their mutual benefit, pleasure, and</td>
<td>Senior citizens (55+) in the Greater Bath Area</td>
<td>Greater Bath Area</td>
<td>50 volunteers, 419 members</td>
</tr>
<tr>
<td>Bath Adult Education</td>
<td>826 High Street Bath, ME 04530 443-8255</td>
<td>To provide Bath residents with a number of critical adult education</td>
<td>Adults interested in additional</td>
<td>Greater Bath Area residents</td>
<td>Enrollment and number of teachers varies each term</td>
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<td><a href="http://www.bathpublicschools.com/bes/body">www.bathpublicschools.com/bes/body</a></td>
<td>services, including GED preparation, high school diploma certification,</td>
<td>scholastic opportunities</td>
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<td>college preparation, and vocational training</td>
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<tr>
<td>Five Rivers Arts Alliance</td>
<td>108 Main Street Brunswick, ME 04011 798-6964</td>
<td>To connect regional arts, culture, and heritage through advocacy,</td>
<td>Residents of Bath and surrounding</td>
<td>Bath, West Bath, Phippsburg,</td>
<td>1 employee, 14-member board, several hundred members</td>
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<td></td>
<td><a href="http://www.fiveriversartsalliance.org">www.fiveriversartsalliance.org</a></td>
<td>education, promotion, and celebration</td>
<td>communities interested in the arts</td>
<td>Woolwich, Arrowsic,</td>
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<td>Georgetown, Harpswell,</td>
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<td>Bowdoin, Bowdoinham,</td>
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<td>and Brunswick</td>
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<tr>
<td>Habitat For Humanity/7 Rivers Maine</td>
<td>108 Centre Street Bath, ME 04530 386-5081</td>
<td>A division of Habitat for Humanity International, which &quot;seeks to</td>
<td>Low-income individuals and families in need of housing assistance</td>
<td>31 communities extending</td>
<td>6-7 staff, 17-member board, 50-60</td>
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<td><a href="http://www.hfh7riversmaine.org">www.hfh7riversmaine.org</a></td>
<td>eliminate poverty housing and homelessness from the world and to make</td>
<td></td>
<td>along the coast from</td>
<td>businesses / organizational</td>
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<td>decent shelter a matter of conscience and action&quot;</td>
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<td>Brunswick to Bremen</td>
<td>partnerships, hundreds of</td>
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<td>and inland to Richmond</td>
<td>volunteers</td>
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<td>Main Street Bath</td>
<td>4 Centre Street Bath, ME 04530 442-7291 <a href="http://www.visitbath.com">www.visitbath.com</a></td>
<td>Revitalization of traditional downtowns to enhance the appearance and economic stability of the commercial district and to improve community pride and quality of life for residents and visitors</td>
<td>Property owners, business owners, in Downtown Bath</td>
<td>Downtown Bath</td>
<td>2 staff, 11-member board, hundreds of volunteers</td>
</tr>
<tr>
<td>Tedford Housing</td>
<td>P.O. Box 958 14 Middle Street Brunswick, ME 04011 729-1161 <a href="http://www.tedfordshelter.org">www.tedfordshelter.org</a></td>
<td>Works to end homelessness in Midcoast Maine by providing—in collaboration with others—shelter, housing, and services to those in need</td>
<td>All of Lincoln and Sagadahoc Counties, Cumberland County south to Freeport, and Androscoggin County north to Lisbon</td>
<td></td>
<td>20 staff, 20-member board, number of volunteers varies</td>
</tr>
<tr>
<td>Bath Farmers Market</td>
<td>Karen Sparrow Sparrow Farm Route 126 Pittston, ME</td>
<td>To provide customers in Bath and the Midcoast the best quality farm-fresh produce</td>
<td>Midcoast Maine</td>
<td>Midcoast Maine</td>
<td>15 vendors</td>
</tr>
</tbody>
</table>
PLANNING IMPLICATIONS OF THE CULTURAL AND NONGOVERNMENTAL RESOURCES INVENTORY

1. A review of this inventory finds that many organizations, both cultural and social services, are regional. It would seem that the population needed to support each effort—whether as participants, volunteers, or financial donors—is achieved by grouping several towns together. Also, the traffic patterns of Southern Midcoast Maine residents usually include several area towns; therefore, the regional groupings are a natural outcome.

2. Communication is key to making the most of the resources available. One of the most effective ways is with current organizational websites. With this in place, the City of Bath, Main Street Bath, and Patten Free Library can assist inquiries by identifying links. Attempts at a coordinated community calendar have only been partial. Keeping information current must be the responsibility of the specific organization, not a central body.

3. Appendix A, the Demographics Inventory, describes a growing number of older residents, many of whom are retired. Service and cultural organizations may need to revise their programs to stay relevant. A positive effect of the additional retirees is the availability of more volunteers.
APPENDIX D
HOUSING INVENTORY

INTRODUCTION

Housing usually comprises the major land use in a community. It certainly does in Bath. Housing is the shelter for inhabitants of a city, the major portion of the tax base, the single largest investment for most of the residents, and a major element of a community’s visual quality. Knowing about housing in Bath is important from many points of view.

This appendix provides information about the existing housing stock—its age and conditions—and a brief discussion about the housing developments that were built in Bath during the World Wars. It also discusses topics including the occupancy status, number of units per structure, percentages of units that are owner- versus renter-occupied, housing growth, and affordability. In many instances, we compared Bath to other towns in the Bath Region (i.e., Georgetown, Arrowsic, Woolwich, Phippsburg, West Bath, Brunswick, and Topsham). We also compared Bath to certain Service Center communities when it was appropriate. The information was obtained from the U.S. Census Bureau, the City of Bath, the SPO, and the MSHA.

AGE OF HOUSING STOCK

We are aware that Bath is an old city with a rich history and many historic homes. In fact (according to the U.S. Census Bureau), Bath has a much higher percentage of housing units built in or before 1939 than any other municipality in the Bath Region. This statistic is often thought of a measure of poor housing or inadequate housing; in Bath, it is a measure of the City’s historic character—something that elicits community pride. An older housing stock, however, requires more maintenance and costly upkeep, is usually not energy efficient, and often indicates the potential presence of lead-based paint.

The following table shows percentages of total houses in Bath Region communities that were built during various periods. (Note: These data, although from U.S. Census Bureau reports, are based on homeowners’ estimates of the age of their home, and therefore may be inaccurate.)
YEAR BUILT BY PERCENTAGE OF TOTAL HOUSES
BATH REGION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>48.5%</td>
<td>19.0%</td>
<td>7.0%</td>
<td>11.9%</td>
<td>6.4%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Georgetown</td>
<td>30.2%</td>
<td>10.7%</td>
<td>7.8%</td>
<td>14.7%</td>
<td>16.9%</td>
<td>19.7%</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>20.2%</td>
<td>10.7%</td>
<td>5.9%</td>
<td>14.2%</td>
<td>30.4%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Woolwich</td>
<td>22.1%</td>
<td>11.2%</td>
<td>8.4%</td>
<td>18.9%</td>
<td>18.4%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>27.3%</td>
<td>15.1%</td>
<td>8.8%</td>
<td>15.4%</td>
<td>17.8%</td>
<td>15.5%</td>
</tr>
<tr>
<td>West Bath</td>
<td>18.5%</td>
<td>13.8%</td>
<td>9.2%</td>
<td>21.3%</td>
<td>22.7%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Brunswick</td>
<td>25.0%</td>
<td>16.9%</td>
<td>7.7%</td>
<td>13.1%</td>
<td>21.0%</td>
<td>16.4%</td>
</tr>
<tr>
<td>Topsham</td>
<td>15.6%</td>
<td>12.1%</td>
<td>12.7%</td>
<td>20.4%</td>
<td>25.2%</td>
<td>14.0%</td>
</tr>
</tbody>
</table>

Source: 2000 U.S. Census

MULTIFAMILY HOUSING PROJECTS BUILT FOR THE WORLD WARS

Another historic element of the Bath housing inventory (also discussed in Chapter 3) is the volume of housing built in Bath during World Wars I and II. No other community in the state, with the possible exception of South Portland, had such an increase in housing during these periods, and no other community still has this type of housing.

According to A Summary History of Bath, Maine: 1850 to 1990 by P. L. Pert, Jr. (Copyright 1995, P. L. Pert, Jr), the housing shortage in Bath during World War I, caused by the thousands of shipbuilders and their families seeking housing, was one of the two most stressful challenges Bath has ever faced. (The other, according to Pert, was the prolonged influenza outbreak that also occurred during World War I.) Pert wrote:

The immediate problem created in Bath by this development [the increased shipbuilding in Bath associated with World War I] was how to house all of the 3,000 employees of the Texas yard, more than 1,400 at the BIW, Ltd., and unknown numbers of others at the four shipyards still turning out wooden ships. The newcomers filled all of the available housing at both ends of town rather quickly, with as many as three families crowding into a one-family house. Many occupied houseboats, garages, and fishing camps. One entrepreneur set up a village of tents on rented property off North Street near old Patten Car Works. Another man dismantled a house in Gardiner, loaded it onto a lighter,
transported it to Bath, and put it back together near a development of new houses on Park Street. But still there weren't enough housing facilities.

It wasn't as if there hadn't been any home construction underway in the city. A new street (Snow Park) running between Centre Street and Academy Street opened to development in 1915. In February of 1917, the Texas Steamship Company started purchasing lots for two-family houses in the north end on High Street opposite Bedford Street, on the corner of Edward Street and Edward Street Court, Washington Street above Winship, Oak Street west of High Street, and on North Street near High Street. In September of 1917, Bath Contractor W.J. Holbrook remodeled a Shepard Street barn into a five-room tenement and had contracts to build five houses the following summer. By the end of October, three houses in the new development called Washington Park on Park Street were nearing completion and more that 16 of 20 lots had been sold.

But there was just no way to keep up with the demand for housing for the numbers of people working and living in the city at the time. By 1918, Bath's population had swelled to between 14,000 and 20,000, at least during the daylight hours.

On May 1, 1918, municipal officials and frustrated home-seeking shipyard workers were elated to hear that the Emergency Fleet Corporation had taken an option on 30 acres of land bordered by Oliver Street, Winship Street, and High Street in the north end to build housing for 1,000 persons working in the Texas Steamship Yard. An agreement was quickly worked out that included an advancement by the Emergency Fleet Corporation of up to $500,000 for construction of the houses, purchase of the necessary land by the Texas Steamship Company, and a commitment by the city to build, grade, and surface streets and sidewalks, construct a water distribution system, construct a trunk sewer line from the railroad to King's Dock, construct necessary school facilities, install street lamps, and provide police and fire protection. The only problem was, Bath, within $70,000 of its debt limit at the time, didn't have the $100,000 needed to do this. But this didn't turn out to be a problem for very long. The city administration borrowed it from the Emergency Fleet Corporation at 5% interest.

After a construction contract was awarded on July 3 to the L.P. Soule & Son Company of Boston, a 600-foot spur track was laid from Maine Central Railroad tracks just east of Oak Grove Avenue to the vicinity of the intersection of High Street and Beacon Street, where construction was commenced on an administration building for the contractors and barracks and commissary buildings for an army of 700 or more laborers. Actual construction of the houses began on August 17. Ninety-seven days later on December 7, 65 out of 68 houses had been completed. The other three were in the finishing stages. Each featured brick siding, a roof of slate shingles, electric lights, hardwood floors,
modern plumbing and hot air heat. Fifty-one of them were two-tenement buildings. In all, they would provide housing for 122 families.

While this was going on, the United States Housing Corporation on July 9 completed negotiations for the purchase of a 24-acre site on the western edge of the city bordered by Lincoln Street, Centre Street, and Academy Street to build 74 single-family, wood-shingled houses and four new apartments for workers at Bath Iron Works, Ltd. Contractor Leighton & Mitchell of Boston began work on the houses on September 17 and most were substantially completed by the time mud season ended in May of 1919.

World War II also brought with it expanded shipbuilding in Bath, a vastly increased number of shipbuilders, and more housing developments. In his summary of Bath’s history, Pert wrote:

No attempt was made to house all the BIW workers within the city this time and some 75% of them lived outside the city. The shipyard actively recruited commuting employees from a 60-mile radius, established a ride-sharing program that would become tops in the nation, purchased 37 buses to transport workers, and set up a training program for inexperienced applicants. These included in 1942 an initial class of 15 women learning to become welders. Two more housing developments went up in the city at federal government expense. Hyde Park Terrace, just off Centre Street extension, was built in 1941 to provide accommodations for 200 families in 16 single houses, 14 duplexes, and 26 six-family brick houses. The fact they were built on cement slabs rather than cellars suggested a colossal logistical snafu somewhere between Bath and Washington, D.C. Lambert Park between High Street and Oak Grove Avenue was built in 1942 by the Volpe Construction Co. of Malden, Mass. to house 250 families in 62 single-family and 94 two-family permanent homes and another 150 families in 44 single-family and 53 two-family modular houses designed to be taken down and moved somewhere else, which they were after the war. In addition to these, dormitories for single workers were constructed on the east side of High Street at the Denny Road entrance to Lambert Park and barracks buildings to house U.S. Navy personnel assigned to Bath went up off Western Avenue. New private homes were built and existing larger houses were converted into apartment complexes.

Except for the dormitories and military barracks, these housing developments, apartment complexes, and neighborhoods are still standing in the City of Bath.
EXISTING HOUSING STOCK

There are about 4,400 housing units in the City of Bath. This number has increased slowly from 1970 to 2000. From 1990 to 2000, there was a 3.5 percent increase in housing units. The Bath Region, however, has seen a much greater increase in housing. The following graph shows the increase in Bath housing stock from 1970 to 2000 and the following table shows the number of housing units in the Bath Region in 1990 and 2000.

NUMBER OF HOUSING UNITS IN BATH
1970-2000

![Graph showing the increase in housing units from 1970 to 2000.]

Source: 2000 U.S. Census

HOUSING UNITS
BATH REGION AND STATE OF MAINE
1990 AND 2000

<table>
<thead>
<tr>
<th>Town/City</th>
<th>Total Housing Units 1990</th>
<th>Total Housing Units 2000</th>
<th>Increase Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>4,233</td>
<td>4,383</td>
<td>150</td>
<td>3.5%</td>
</tr>
<tr>
<td>Georgetown</td>
<td>803</td>
<td>916</td>
<td>113</td>
<td>14.1%</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>234</td>
<td>253</td>
<td>19</td>
<td>8.1%</td>
</tr>
<tr>
<td>Woolwich</td>
<td>1,017</td>
<td>1,210</td>
<td>193</td>
<td>19.0%</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>1,224</td>
<td>1,552</td>
<td>328</td>
<td>26.8%</td>
</tr>
<tr>
<td>West Bath</td>
<td>894</td>
<td>985</td>
<td>91</td>
<td>10.2%</td>
</tr>
<tr>
<td>Brunswick</td>
<td>8,197</td>
<td>8,720</td>
<td>523</td>
<td>6.4%</td>
</tr>
<tr>
<td>Topsham</td>
<td>3,237</td>
<td>3,573</td>
<td>336</td>
<td>10.4%</td>
</tr>
<tr>
<td>Maine</td>
<td>587,045</td>
<td>651,901</td>
<td>64,856</td>
<td>11.0%</td>
</tr>
</tbody>
</table>

Source: 1990 and 2000 U.S. Census
HOUSING CONDITIONS

One result of having an older housing stock—some of it built during the World Wars—is revealed when reviewing housing conditions. According to the “2001 City of Bath Housing Assessment,” which was conducted by Midcoast Council for Business Development for the Bath Community Development Office, less than 2 percent of housing in Bath was rated as poor, 30 percent was in only fair condition, 54 percent was in average condition, and 14 percent was in good condition. The following graph shows these conditions, and the following excerpt from the report describes the classifications and where the fair and poor housing is located.

According to the assessment report:

The condition of Bath's housing stock has improved over the last five years. There has been considerable private investment made to residences with an increase in building permits issued and through coordinated neighborhood revitalization efforts throughout the city. On the surface, housing conditions are improving.

However, in conducting windshield surveys, neighborhood walking tours, interviews with residents, and in-home inspections, there are a considerable number of
housing units that remain substandard. Roughly one third of Bath's housing stock, an estimated 1,425 units, is classified in poor or fair condition based on the following criteria:

Poor – visible deterioration of the exterior; peeling paint; structural issues that threaten the structural integrity; missing or broken windows; the presence of poly encasing the windows, doors, and foundation; foundation cracks; old roof with missing or curling shingles; chimney masonry; outdated heating and electrical systems; and other visible threats to health and safety. The property would have code violations and would be a threat to the occupant’s health and safety.

Fair – the property will have one or more of the conditions mentioned above but not to the same degree. There is visible deterioration on the exterior; some structural issues; the roof needs replacement; and there may be issues with some of the systems. The property may have code violations but doesn’t pose an immediate threat to health and safety.

A sample of 1,593 properties was given a condition code. These properties were located in the more dense portions of Bath and did not consider residences in the rural sections to the extreme north and extreme south of the city.

In mapping the conditions, poor and fair properties clustered around multifamily buildings in specific neighborhoods throughout the city. That’s not to say that a considerable number of single-family homes also met the criterion and were classified as substandard, but they too were generally located in those same neighborhoods.

The neighborhood clusters are identified as:

- The Dike/Cobb neighborhood
- Properties around the intersection of Bailey and Fitts Streets
- The Dummer Street neighborhood
- The South End between Washington and High Street, Route One and Rose Street
- The Elm Street neighborhood in downtown

Nearly all of the properties classified as poor are located in one of these neighborhoods, along with a disproportionate share of properties classified as fair. The combined impact of these buildings is having a blighting effect and causing significant decline in these neighborhoods.

In September 2007, the Community Development Office updated the data in the “2001 City of Bath Housing Assessment.” Following is its report.
Some Residential Areas of Bath Needing Housing Improvement

A multitude of programs and private initiatives has contributed to the improvement of the housing stock in Bath with the CDBG program being one that has aided homeowners and landlords in enhancing the housing conditions.

There still remain many areas of Bath where both single-family housing and multifamily rental units are in fair to poor condition. Some of these properties are in such deteriorated condition that they may be beyond renovation.

The Community Development Office of Bath City Hall has identified some of these areas as neighborhoods to address in the coming year(s). They represent areas that are scattered throughout the city, some bordering on major commercial centers, others primarily residential, yet neglected.

1) Middle Street on each side of the overpass, Union Street, and Granite Street areas

These properties are generally multifamily units, not inhabited by the property owner. Many have had economy-grade vinyl siding applied in the last 20 years. Most of these properties have inefficient heating systems, single-pane windows with older storm windows applied, somewhat limited electrical systems, and aging asphalt roofing. These properties seldom show improved landscaping, ongoing maintenance, or curb appeal. They are investments of absent landlords who show limited interest in property appearances and their locations make them unlikely to receive much investment for improving things. A few properties within this area are single-family structures in need of significant upgrading.

2) Western, Elsinore, Quimby, and Cottage Streets

Most properties on these streets are single-family homes with a 7- to 8-unit apartment structure on Cottage Street. These streets, which run from Western to Route 1, are rather short, with poor street conditions and some rather neglected single-family homes. While several show recent improvements, a good number show single-pane windows, older roofs, porches that have wood rot, and little evidence of recent improvements. The area has trees and some sense of neighborhood, but there seems little effort to somehow reduce the impact of the highway from these streets. Chances are this area will deteriorate further without some intervention to reduce the impact of the highway and aid residents in making housing improvements.

3) Centre Street, Court Street, Charles, and others between Centre and Court

Both Centre and Court streets represent major thru-traffic lanes within the city and traffic has probably increased significantly over the past decade, reducing a family's interest in living directly on these streets. Both Court and Centre have a mix of commercial and residential with several of the residential structures showing
long-term neglect. Several seem to be at critical turning points where significant investment is necessary to retain the residential quality, yet traffic congestion and traffic flow may make these properties limited in terms of appeal to purchase. The forecast does not look good without external assistance and then it could be guaranteed.

4) North Street from Bailey, Tolman, and Windjammer, including North Street
This area is primarily residential with a mix of single-family houses and multi-units. Some renovations have taken place in this area, yet several of the properties show fair to very poor conditions. On North Street, the properties are primarily multi-units in this section and several need extensive improvement, such as window upgrades, siding, wiring, and some roofing. They represent rental units with no landlord present so are sources of income rather than homes with owner improvements as a concern.

On Bailey and Tolman, several multi-units are near the turning point in terms of repair, have no aesthetic appeal, serve as income sources, but offer the tenant little comfort in living conditions. Several single-family units also show long-term neglect, yet have the potential for upgrading and improving were the owner desirous and able.

On Windjammer, two of the single-family structures appear beyond repair with extensive damage and neglect and perhaps even health and safety issues apply. A few others on this street are worthy of improvements were the owner interested and able.

These four areas represent some of the sections of the city where the housing stock shows neglect, disrepair, and potential for continued deterioration. How much city government can intervene to change the conditions is of concern. Traffic patterns are such that some areas may show little investment potential for a homeowner or investing entity. Offering assistance to improve the housing stock may require greater consideration than solely the motivation of the property owner. For example, what is the merit of investing $50,000 in a single-family residential property on Centre Street if that street is moving in the long-term direction of more commercialization? Would that $50,000 be better spent on properties on Bailey, Tolman, or Windjammer?

These are worthy considerations.

Another neighborhood that is showing decline is near the intersection of Middle and Granite Streets. On the positive side, the neighborhood of Middle Street, between Centre and Winter Streets, has seen vast improvements in the last ten years through the efforts of the Bath Housing Development Corporation (BHDC) and the Bath Community Development Office.
LEAD-BASED PAINT

Another result of the fact that so many houses in Bath are old is the high incidence of homes with lead-based paint. The MSHA estimated that statewide, 26.8 percent of households have lead-based paint. In fact, any house built before 1978 probably has lead-based paint. The following graph shows the percentage of homes in the Bath Region with lead-based paint.

PERCENTAGE OF HOMES WITH LEAD-BASED PAINT
BATH REGION
2002

![Percentage of Homes with Lead-Based Paint](chart)

Source: U.S. Census, March 2002

DWELLING UNITS PER STRUCTURE

Although the City of Bath has a high percentage of renter-occupied housing (discussed in the Housing Tenure section in this appendix), the majority is single-family dwelling units. However, Bath has a low percentage compared with rural communities in the Bath Region. It is interesting that the City has a small percentage of mobile homes compared to all other Bath Region
communities. The following table shows the percentage of units by housing type.

### UNITS IN STRUCTURE

#### PERCENTAGE OF TOTAL HOUSING UNITS

#### BATH REGION

<table>
<thead>
<tr>
<th>Town/City</th>
<th>1 Unit Detached</th>
<th>1 Unit Attached</th>
<th>2 Units</th>
<th>3 or 4 Units</th>
<th>5 to 9 Units</th>
<th>10 to 19 Units</th>
<th>&gt;19 Units</th>
<th>Mobile Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>53.9%</td>
<td>4.2%</td>
<td>12.3%</td>
<td>10.1%</td>
<td>10.9%</td>
<td>1.8%</td>
<td>4.6%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Georgetown</td>
<td>92.7%</td>
<td>2.1%</td>
<td>0.5%</td>
<td>0%</td>
<td>0.8%</td>
<td>0%</td>
<td>0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>90.1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Woolwich</td>
<td>79.7%</td>
<td>2.1%</td>
<td>1.5%</td>
<td>0%</td>
<td>0%</td>
<td>0.3%</td>
<td>0%</td>
<td>16.4%</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>85.7%</td>
<td>1.0%</td>
<td>1.1%</td>
<td>0.5%</td>
<td>0.3%</td>
<td>0%</td>
<td>0%</td>
<td>11.3%</td>
</tr>
<tr>
<td>West Bath</td>
<td>82.5%</td>
<td>1.2%</td>
<td>1.8%</td>
<td>0.6%</td>
<td>0.2%</td>
<td>0.4%</td>
<td>4.7%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Brunswick</td>
<td>48.7%</td>
<td>8.0%</td>
<td>7.1%</td>
<td>8.0%</td>
<td>5.9%</td>
<td>1.3%</td>
<td>5.1%</td>
<td>15.9%</td>
</tr>
<tr>
<td>Topsham</td>
<td>64.1%</td>
<td>5.7%</td>
<td>5.4%</td>
<td>9.7%</td>
<td>3.7%</td>
<td>0.3%</td>
<td>2.4%</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

Source: 2000 U.S. Census

### HOUSING OCCUPANCY

There were nearly 4,400 housing units in the City of Bath in 2000: 92 percent were occupied, 6 percent were vacant year-round, and 2 percent were seasonally vacant. Bath has only a small number of seasonal homes and few, if any, are being converted to year-round use. The following table compares the housing occupancy of communities in the Bath Region.

### HOUSING OCCUPANCY

#### BATH REGION

<table>
<thead>
<tr>
<th>Town/City</th>
<th>Total Units</th>
<th>Occupied</th>
<th>% Occupied</th>
<th>Seasonal</th>
<th>% Seasonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>4,383</td>
<td>4,042</td>
<td>92.2%</td>
<td>68</td>
<td>1.5%</td>
</tr>
<tr>
<td>Georgetown</td>
<td>931</td>
<td>441</td>
<td>47.4%</td>
<td>475</td>
<td>51.0%</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>238</td>
<td>196</td>
<td>82.4%</td>
<td>42</td>
<td>15.5%</td>
</tr>
<tr>
<td>Woolwich</td>
<td>1,210</td>
<td>1,101</td>
<td>91.0%</td>
<td>64</td>
<td>5.3%</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>1,554</td>
<td>859</td>
<td>55.3%</td>
<td>655</td>
<td>42.1%</td>
</tr>
<tr>
<td>West Bath</td>
<td>983</td>
<td>750</td>
<td>76.3%</td>
<td>207</td>
<td>21.1%</td>
</tr>
<tr>
<td>Brunswick</td>
<td>8,720</td>
<td>8,150</td>
<td>93.5%</td>
<td>220</td>
<td>2.5%</td>
</tr>
<tr>
<td>Topsham</td>
<td>3,573</td>
<td>3,424</td>
<td>95.8%</td>
<td>35</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Source: 2000 U.S. Census
HOUSING TENURE

In 2000, 54 percent of housing in the City of Bath was owner-occupied and 46 percent was renter-occupied. Bath's percentage of renter-occupied housing is significantly higher than the state average of 28 percent and much higher than other communities in the Bath Region. Bath is more similar to larger Service Center communities with respect to this characteristic. The percentages of owner- versus renter-occupied housing in Bath, compared with selected Service Center communities, are shown in the following table.

<table>
<thead>
<tr>
<th>Town/City</th>
<th>% Owner Occupied</th>
<th>% Renter Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>54.5%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Brunswick</td>
<td>64.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>Topsham</td>
<td>71.0%</td>
<td>29.0%</td>
</tr>
<tr>
<td>Auburn</td>
<td>57.2%</td>
<td>42.8%</td>
</tr>
<tr>
<td>Augusta</td>
<td>54.5%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Bangor</td>
<td>47.5%</td>
<td>42.5%</td>
</tr>
<tr>
<td>Lewiston</td>
<td>47.2%</td>
<td>52.8%</td>
</tr>
<tr>
<td>Portland</td>
<td>42.5%</td>
<td>57.5%</td>
</tr>
<tr>
<td>South Portland</td>
<td>64.4%</td>
<td>35.6%</td>
</tr>
<tr>
<td>Waterville</td>
<td>49.1%</td>
<td>50.9%</td>
</tr>
</tbody>
</table>

Source: 2000 U.S. Census

LOCATION OF HOUSING GROWTH

As discussed previously, the number of dwelling units in Bath has been growing slowly. The average number of dwelling units permitted each year since 2000 has averaged only twelve. The following graph shows the number of dwelling units permitted each year for the period 2000-2008.
NEW DWELLING UNITS IN BATH  
2000–2007

The location of these homes, although few in number, has an impact on the appearance of Bath and how efficiently the City can provide services to residents. As discussed in Chapter 3, Bath grew and—for the most part—stopped growing before the age of the automobile. People walked to work. This has helped Bath to appear differently than communities that had “growth spurts” reliant on the automobile. The City of Bath has also made a deliberate attempt to guide residential development away from the rural third and to what is referred to as the Growth Area—attempting to keep the rural area rural.

The next graph shows the percentage of permitted dwelling units by zoning district. As shown, the zone with the most growth from 2000 through 2007 is the Rural, Low-Density Residential Zone (R3). Most of the development has been in a thirty-five-lot subdivision approved by the City in the mid-1980s and that was slow to be built. However, looking at residential growth and comparing the percentage of permitted dwelling units in all zones that comprise the City’s Growth Area (i.e., Zones R1, C2, R2, R4, and R5) to the percentage in the rural area (i.e., R3), it is shown that the City’s policies, in fact, are guiding more growth to the Growth Area (see the second graph).
Residential growth in the Growth Area is approximately 66 percent of the total.

PERMITTED DWELLING UNITS BY ZONE
2000-2008

Source: City of Bath Codes Enforcement Department, 2009
FUTURE HOUSING FORECAST

In 2003, the SPO forecast that for the period 2000–2015, the number of occupied housing units and those for sale or rent in Bath would increase by only 1.3 percent, or 147 units. This compares to a forecast increase of almost 10 percent for Sagadahoc County, or approximately 2,100 units. Most towns in the county were forecast to grow by more than 10 percent.

It is difficult to predict the future, however. Before the housing-construction “correction” that occurred in late 2007 and 2008 and the increase and then decrease in the price of gasoline occurring in 2007 and 2008, one would predict that the future would look like the recent past; now, however, we cannot be certain. Having said this, the number of dwelling units in Bath will most likely continue to grow at a slow pace, but growth in the rest of the Bath Region may or may not be as rapid as in the past.
AFFORDABILITY

The "Maine Consolidated (Housing) Plan, 2005-2009," written by the Maine Department of Economic and Community Development and the MSHA, indicated that house prices and rental costs in Maine are increasing faster than incomes. The Plan states, "Southern and coastal real estate prices are increasing at rates way beyond the capacity of many working families and low-income first-time homebuyers." The Plan continues, stating that the lack of affordable housing has led to sprawl because families are forced to move out of urban areas into less expensive areas to find housing they can afford to buy.

There are many factors that increase the cost of housing including permitted density, whether multifamily housing is allowed, supply of both housing and land to build housing, demand, and taxes. Reports and studies repeatedly find that a significant factor that makes housing unaffordable is a community's permitted housing density: low density and large lots (i.e., more than a quarter-acre per dwelling unit) usually mean unaffordability; smaller lots and higher densities usually mean housing is more affordable. Also, communities that do not allow multifamily housing tend to be less affordable. A lengthy review process (with multifamily housing only allowed with a "special permit") can also drive up the cost of housing.

The City of Bath's land-use regulations are supportive of affordable housing. The City allows densities in the High-Density Residential Zone that are as dense as almost any city in the state—that is, 6,000 square feet of land area per dwelling unit, or almost 7.5 units per acre. In the High- and Medium-Density Residential Zones, multifamily housing is permitted-by-right (i.e., no special permits are required).

However, analyses prepared by the MSHA indicate that homeownership in Bath became less affordable from 2000 to 2006, with median house prices rising much faster than median incomes. The data show that what the MSHA calls the "affordability gap" widened considerably from 2000 to 2006. During that period, Sagadahoc County as a whole changed from being "affordable" to "unaffordable" for median household incomes.
Following is a table that, along with other data from the MSHA, shows the homeownership Affordability Index for municipalities in the Bath Region. According to the MSHA, this index is the ratio of the home price affordable at the median income to the median home price. An index of less than 1 shows that the municipality is unaffordable according to MSHA guidelines (i.e., a median household income cannot afford a median-priced home with a thirty-year mortgage, taxes, and insurance and using no more than 28 percent of gross income).

### HOMEOWNERSHIP AFFORDABILITY

**BATH REGION 2006**

<table>
<thead>
<tr>
<th>City/Town</th>
<th>Affordability Index</th>
<th>Median Home Price</th>
<th>Median Income</th>
<th>Income Needed to Afford Median Home Price</th>
<th>Home Prices Affordable at Median Income</th>
<th>Households Unable to Afford Median Home Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>0.77</td>
<td>$157,000</td>
<td>$40,812</td>
<td>$52,734</td>
<td>$121,506</td>
<td>2,625 (62.9%)</td>
</tr>
<tr>
<td>Georgetown</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Woolwich</td>
<td>0.77</td>
<td>$198,000</td>
<td>$47,905</td>
<td>$62,534</td>
<td>$151,680</td>
<td>742 (63.7%)</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>0.57</td>
<td>$308,500</td>
<td>$55,730</td>
<td>$97,433</td>
<td>$176,456</td>
<td>709 (80.9%)</td>
</tr>
<tr>
<td>West Bath</td>
<td>0.63</td>
<td>$239,325</td>
<td>$51,569</td>
<td>$81,526</td>
<td>$151,384</td>
<td>644 (76.5%)</td>
</tr>
<tr>
<td>Brunswick</td>
<td>0.60</td>
<td>$220,000</td>
<td>$46,498</td>
<td>$78,008</td>
<td>$131,136</td>
<td>6,500 (75.3%)</td>
</tr>
<tr>
<td>Topsham</td>
<td>0.80</td>
<td>$197,250</td>
<td>$57,049</td>
<td>$70,998</td>
<td>$158,497</td>
<td>2,494 (64.1%)</td>
</tr>
</tbody>
</table>

Source: Maine State Housing Authority, 2006

The cost of rental units had significant but not as dramatic increases from 2000 to 2006. The MSHA data in the following table show the rental Affordability Index for the Bath Region. According to the MSHA, this index is the ratio of two-bedroom rent affordable at the median renter income to the average two-bedroom rent. An index of less than 1 shows that the municipality is unaffordable according to MSHA guidelines (i.e., a median renter income cannot afford the average two-bedroom apartment including utilities and using no more than 30 percent of gross income).
<table>
<thead>
<tr>
<th>City/Town</th>
<th>Affordability Index</th>
<th>Average Two-Bedroom Rent</th>
<th>Renter Household Median Income</th>
<th>Income Needed to Afford Average 2BR Rent</th>
<th>2BR Rent Affordable at Median Income</th>
<th>Households Unable to Afford Average 2BR Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>0.87</td>
<td>$835</td>
<td>$28,999</td>
<td>$33,390</td>
<td>$725</td>
<td>1,101 (57.7%)</td>
</tr>
<tr>
<td>Georgetown</td>
<td>No data</td>
<td>No data</td>
<td>$38,749</td>
<td>No data</td>
<td>$969</td>
<td>No data</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>No data</td>
<td>No data</td>
<td>$42,499</td>
<td>No data</td>
<td>$1,062</td>
<td>No data</td>
</tr>
<tr>
<td>Woolwich</td>
<td>No data</td>
<td>No data</td>
<td>$33,999</td>
<td>No data</td>
<td>$850</td>
<td>No data</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>No data</td>
<td>No data</td>
<td>$31,332</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>West Bath</td>
<td>1.50</td>
<td>$609</td>
<td>$36,499</td>
<td>$24,363</td>
<td>$912</td>
<td>47 (29.6%)</td>
</tr>
<tr>
<td>Brunswick</td>
<td>0.89</td>
<td>$918</td>
<td>$32,684</td>
<td>$36,733</td>
<td>$817</td>
<td>1,645 (55.6%)</td>
</tr>
<tr>
<td>Topsham</td>
<td>1.10</td>
<td>$894</td>
<td>$39,175</td>
<td>$35,761</td>
<td>$979</td>
<td>511 (44.7%)</td>
</tr>
</tbody>
</table>

Source: Maine State Housing Authority, 2006

The affordability varies for different income levels. The affordability of housing in Bath for various income levels, and the change in affordability, for 2000-2004 is shown in the following table.
### Homeownership Affordability by Income Categories

**Bath 2000-2004**

<table>
<thead>
<tr>
<th>Year</th>
<th>Income Category</th>
<th>Affordability Index</th>
<th>Income Median</th>
<th>Home Price</th>
<th>Income Can Afford</th>
<th>Annual Income Needed for Median Home Price</th>
<th>Income by Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>30%</td>
<td>0.28</td>
<td>$10,912</td>
<td>$96,000</td>
<td>$26,972</td>
<td>$36,946</td>
<td>$17.76</td>
</tr>
<tr>
<td>2000</td>
<td>50%</td>
<td>0.48</td>
<td>$18,186</td>
<td>$96,000</td>
<td>$46,240</td>
<td>$36,946</td>
<td>$17.76</td>
</tr>
<tr>
<td>2000</td>
<td>80%</td>
<td>0.78</td>
<td>$29,098</td>
<td>$96,000</td>
<td>$75,195</td>
<td>$36,946</td>
<td>$17.76</td>
</tr>
<tr>
<td>2000</td>
<td>100%</td>
<td>0.98</td>
<td>$36,372</td>
<td>$96,000</td>
<td>$94,509</td>
<td>$36,946</td>
<td>$17.76</td>
</tr>
<tr>
<td>2000</td>
<td>150%</td>
<td>1.48</td>
<td>$54,558</td>
<td>$96,000</td>
<td>$141,894</td>
<td>$36,946</td>
<td>$17.76</td>
</tr>
<tr>
<td>2001</td>
<td>30%</td>
<td>0.29</td>
<td>$11,246</td>
<td>$95,000</td>
<td>$27,666</td>
<td>$36,617</td>
<td>$17.60</td>
</tr>
<tr>
<td>2001</td>
<td>50%</td>
<td>0.50</td>
<td>$18,744</td>
<td>$95,000</td>
<td>$47,517</td>
<td>$36,617</td>
<td>$17.60</td>
</tr>
<tr>
<td>2001</td>
<td>80%</td>
<td>0.81</td>
<td>$29,990</td>
<td>$95,000</td>
<td>$77,356</td>
<td>$36,617</td>
<td>$17.60</td>
</tr>
<tr>
<td>2001</td>
<td>100%</td>
<td>1.02</td>
<td>$37,488</td>
<td>$95,000</td>
<td>$97,261</td>
<td>$36,617</td>
<td>$17.60</td>
</tr>
<tr>
<td>2001</td>
<td>150%</td>
<td>1.54</td>
<td>$56,232</td>
<td>$95,000</td>
<td>$146,174</td>
<td>$36,617</td>
<td>$17.60</td>
</tr>
<tr>
<td>2002</td>
<td>30%</td>
<td>0.27</td>
<td>$11,541</td>
<td>$107,000</td>
<td>$29,209</td>
<td>$39,836</td>
<td>$19.15</td>
</tr>
<tr>
<td>2002</td>
<td>50%</td>
<td>0.47</td>
<td>$19,235</td>
<td>$107,000</td>
<td>$50,343</td>
<td>$39,836</td>
<td>$19.15</td>
</tr>
<tr>
<td>2002</td>
<td>80%</td>
<td>0.77</td>
<td>$30,775</td>
<td>$107,000</td>
<td>$82,124</td>
<td>$39,836</td>
<td>$19.15</td>
</tr>
<tr>
<td>2002</td>
<td>100%</td>
<td>0.97</td>
<td>$38,469</td>
<td>$107,000</td>
<td>$103,329</td>
<td>$39,836</td>
<td>$19.15</td>
</tr>
<tr>
<td>2002</td>
<td>150%</td>
<td>1.45</td>
<td>$57,704</td>
<td>$107,000</td>
<td>$155,340</td>
<td>$39,836</td>
<td>$19.15</td>
</tr>
<tr>
<td>2003</td>
<td>30%</td>
<td>0.24</td>
<td>$11,863</td>
<td>$127,000</td>
<td>$30,867</td>
<td>$45,763</td>
<td>$22.00</td>
</tr>
<tr>
<td>2003</td>
<td>50%</td>
<td>0.42</td>
<td>$19,771</td>
<td>$127,000</td>
<td>$53,346</td>
<td>$45,763</td>
<td>$22.00</td>
</tr>
<tr>
<td>2003</td>
<td>80%</td>
<td>0.69</td>
<td>$31,634</td>
<td>$127,000</td>
<td>$87,167</td>
<td>$45,763</td>
<td>$22.00</td>
</tr>
<tr>
<td>2003</td>
<td>100%</td>
<td>0.86</td>
<td>$39,542</td>
<td>$127,000</td>
<td>$109,735</td>
<td>$45,763</td>
<td>$22.00</td>
</tr>
<tr>
<td>2003</td>
<td>150%</td>
<td>1.30</td>
<td>$59,313</td>
<td>$127,000</td>
<td>$164,840</td>
<td>$45,763</td>
<td>$22.00</td>
</tr>
<tr>
<td>2004</td>
<td>30%</td>
<td>0.19</td>
<td>$11,710</td>
<td>$159,000</td>
<td>$30,610</td>
<td>$56,828</td>
<td>$27.32</td>
</tr>
<tr>
<td>2004</td>
<td>50%</td>
<td>0.33</td>
<td>$19,516</td>
<td>$159,000</td>
<td>$53,006</td>
<td>$56,828</td>
<td>$27.32</td>
</tr>
<tr>
<td>2004</td>
<td>80%</td>
<td>0.55</td>
<td>$31,226</td>
<td>$159,000</td>
<td>$86,713</td>
<td>$56,828</td>
<td>$27.32</td>
</tr>
<tr>
<td>2004</td>
<td>100%</td>
<td>0.69</td>
<td>$39,032</td>
<td>$159,000</td>
<td>$109,208</td>
<td>$56,828</td>
<td>$27.32</td>
</tr>
<tr>
<td>2004</td>
<td>150%</td>
<td>1.03</td>
<td>$58,548</td>
<td>$159,000</td>
<td>$164,153</td>
<td>$56,828</td>
<td>$27.32</td>
</tr>
</tbody>
</table>

1 Percent of median: 30% = Extremely Low Income, 50% = Very Low Income, 80% = Low Income, 100% = Medium Income

Source: Claritas and Statewide Multiple Listing Service, 2004

According to the Consolidated Plan discussed previously, lower-income, first-time homebuyers have limited affordable-housing choices. Lack of housing affordable to first-time homebuyers is also a problem for employers in Southern and Coastal Maine and has been cited as an impediment to economic growth. Several factors cause this problem for first-time homebuyers, many of which are the same factors mentioned previously. However, Joanne Marco, Executive Director of the BHA, believes that one factor may be the high level of debt that many families carry. The debt
often disqualifies them from qualifying for loan programs designed to assist first-time homebuyers.

Projects like the five-unit cooperative housing project on Oak Street may assist with the first-time homebuyer situation. This project was begun in 2007 by the BHDC with support from the Bath Community Development Office. This project may slightly relieve the affordability situation and may also help some renters move into homeownership.

As discussed previously, although the City of Bath's regulations are supportive of affordable housing, the Affordability Index for both homeownership and rental housing is worsening. The primary feature affecting the affordability of housing in Bath is simply supply and demand. Only a few homes are being built in Bath each year; thus, there is only a minimal increase in the housing supply (discussed previously in this appendix). Also, for more than two decades, the City of Bath has had a policy that discourages residential growth northwest of the Whiskeag Road crossing of Whiskeag Creek. This area encompasses approximately one third of the City. (Public sewer and water lines have not crossed the Whiskeag Creek and it is a City policy that they won't.) This means that growth is being guided to only two thirds of the City's 9.8 square miles. Compounding this housing-supply issue is the fact that vacant land in the Growth Area is neither easy nor inexpensive to develop. For example, much of the buildable land includes infill lots, redevelopment lots, or lots that have been "left over" because of access, topography, or other constraints. Bath is a mature city with policies in place that discourage sprawl into the rural areas.

Another housing-affordability unknown is the impact of the BNAS closure on the housing supply in the Bath Region. As Navy housing that is no longer needed to house military families comes on the market, it may help make housing more affordable. However, the tightening credit situation of late 2007 and early 2008 (brought on by the low interest rates and loans to high-risk, low-creditworthy borrowers) may continue to keep people out of the housing market.
FEDERALLY ASSISTED HOUSING

According to the 2000 U.S. Census, almost 15 percent of the multifamily housing units in Bath were federally assisted or subsidized. Of the municipalities in Maine with populations of more than 7,500, the City of Bath had the highest percentage of federally assisted multifamily housing. In comparison, the three largest cities in Maine had considerably lower percentages (i.e., 12 percent in Portland, 11 percent in Lewiston, and 11 percent in Bangor).

BATH HOUSING AUTHORITY

The BHA is a public housing authority that owns and manages public housing in Bath. The BHA is governed by an eight-member Board of Directors that is appointed by the City Council. Some of the directors are from neighboring towns. BHA owns and manages the following housing:

- The Moorings, 125 Congress Avenue: forty units of low-income, elderly/disabled housing
- The Anchorage, 100 Congress Avenue: thirty-nine units of low-income, elderly/disabled housing
- Seacliff, 47 Floral Street: forty units of low-income, elderly/disabled housing
- Dike’s Landing, 20 Dike’s Landing Road: eighteen units of low-income, elderly/disabled housing
- Shaw Street: six units of low-income family housing
- Middle Street: four units of low-income family housing

In 1984, the BHA created the BHDC, which is a 501(c)(3) non-profit corporation established to construct new dwellings and rehabilitate existing dwellings to be sold to low-income families in Bath and surrounding towns. In addition, in an effort to assist low-income people interested in home purchase, the BHDC provides information about subsidized housing programs and subsidized mortgage assistance; offers social and support services related to low-income housing; and operates its own low-income rental properties.

The BHDC owns rental buildings at 822 Middle Street (i.e., four one-bedroom units), 832 Middle Street (i.e., two one-bedroom units), and 842
Middle Street (i.e., two two-bedroom units). As discussed previously in this appendix, in 2007, the BHDC developed a five-unit cooperative-housing project at 19 Oak Street.

MIDCOAST COMMUNITY HOUSING COALITION

The mission of this regional housing group is “[t]o enhance housing opportunities that improve the quality of life for all residents and support economic development opportunities for employers of the Midcoast Maine region through collaborative efforts involving education, planning, policy development, and philanthropy.” The Midcoast Community Housing Coalition includes municipalities in Sagadahoc County and Brunswick and Harpswell. The Executive Director of the BHA is a participant.

PLANNING IMPLICATIONS OF THE BATH HOUSING INVENTORY

1. The housing stock in the City of Bath is old in comparison to the surrounding towns (i.e., the rest of the Bath Region). Almost half of the existing stock was built prior to 1939. Although this old housing stock is what makes Bath historic and is an element of pride, it also costs more to maintain, is often less energy-efficient, and may have lead-based-paint health hazards.

2. Bath’s housing stock was significantly affected by projects built during the two World Wars. This is one reason for the high percentage of multifamily housing and, therefore, the high percentage of renter-occupied housing.

3. The housing stock in the City of Bath has grown little since 1990. The surrounding small towns, as well as Topsham and Brunswick, have seen increases more like the state average.

4. According to the “2001 Bath Housing Assessment” and the 2007 update, the Dike–Cobb neighborhood, properties around the Bailey and Fitts Streets intersection, the neighborhood between Route 1 and Rose Street, Washington Street and High Street, and Elm Street had clusters of housing in poor condition. Also in poor condition are homes
on Middle Street on each side of the viaduct; the Union Street and Granite Street areas; Western, Elsinore, Quimby, and Cottage Streets; Centre Street; Court Street; Charles Street and other streets between Centre and Court Streets; Bailey and Tolman Streets; and Windjammer Way, including parts of North Street.

5. Only about half of the dwelling units in Bath are in single-family structures.

6. Bath has a high percentage of dwelling units in multifamily structures and a low percentage of mobile homes.

7. Bath has a small percentage of seasonal dwellings and little conversion of seasonal to year-round dwellings.

8. Review of the percentages of owner- versus renter-occupied housing shows that the Bath percentages are similar to those in larger urban Service Center communities of the state.

9. About 65 percent of the residential growth that occurred in Bath from 2000 through 2008 was in the City's designated Growth Areas.

10. It is difficult to predict which factors—such as the price of gasoline, the surplus housing at BNAS (which is slated for closure by 2011), and the tightening of credit—will have on regional housing growth and the location of that growth. The surplus BNAS housing may temporarily dampen the moderate-income housing demand. If it goes over $4 per gallon and stays there, the price of gasoline may affect rural housing construction and cause a demand for housing closer to people’s employment. Credit-tightening will likely restrict housing construction everywhere.

11. Although the City of Bath has the highest percentage of federally assisted multifamily housing (i.e., for Maine communities with populations more than 7,500) and zoning regulations that encourage both multifamily housing development and housing in general at high densities, Bath still has an Affordability Index below 1.0 (a number
below 1.0 means that the housing is unaffordable according to MSHA criteria.)

12. Rental housing is also considered unaffordable by MSHA criteria.
APPENDIX E
HISTORICAL AND ARCHAEOLOGICAL INVENTORY

INTRODUCTION

Descriptions of Bath by residents and visitors often focus on the historic architecture of both the central business district and residential neighborhoods. These older structures are, of course, a tangible link to the past, but also appear to be one of the primary physical characteristics of the City we wish to promote to outsiders and protect for future citizens. These historic buildings, a surprising percentage of Bath’s built environment, present both opportunities and challenges as the architectural fabric of the City continues to age and deteriorate. Less obvious are the other aspects of the City’s historic landscape and also the archaeological sites that contain information about the City of Ships during earlier periods, including those that precede European colonialization. The recognition of this varied cultural landscape and any decisions on how to preserve or maintain it will impact strongly Bath’s character in decades to come.

This inventory of historical and archaeological resources will consider those structures formally recognized nationally and locally, as well as those worthy of such respect. Other aspects of Bath’s historical resources will be considered, such as landscapes, archaeological sites, and the organizations concerned with these various aspects of the City. The chapter will also review the protections currently in place, those suggested in past planning documents, and the implications of these ordinances and resources.

HISTORIC RESOURCES OF BATH
The National Register of Historic Places

BATH HISTORIC DISTRICT (1973 [date of nomination]) – Bath’s first historic district and its nomination to the National Register, the national list of significant historic places and objects under the auspices of the National Park System, contains both the Downtown and the neighborhood directly to the north. It covers the area roughly from High Street to the River, between Beacon Street and Route One. The residential, commercial, and institutional structures within the district range in age from the second half of the eighteenth century through the twentieth century, representing most of the major architectural styles of those decades in addition to many
vernacular buildings, meaning constructed without explicit reference to or concern with period fashions. Some of the state’s leading architects, including John Calvin Stevens and Bath native Francis Fassett have examples of their work within this district. This district also contains two structures nominated on their own merit to the National Register: the Winter Street Church, an 1843 structure done by master builder Anthony Coombs Raymond in a unique blend of Greek Revival and Gothic Revival architectural styles; and the Customs House, a particularly elegant and crisp Italianate building designed by Amni Burnham Young in 1852 and completed in 1858.

PERCY AND SMALL SHIPYARD (1971) - The authors of Maine’s Historic Places (Beard and Smith, 1982) wrote that this yard may remain as the only existing wooden-shipbuilding yard that once built large merchant vessels in this country. This particular yard operated between 1894 and 1920. The largest American wooden vessel ever built, the Wyoming, was a product of this yard.

GOVERNOR WILLIAM KING HOUSE (1976) - The stone farmhouse on Whiskeag Road, the oldest Gothic Revival house in the state, possibly in northern New England, is thought to have been constructed around 1812 and remains significant for both its architecture and its association with the state’s first governor.

ELMHURST (1978) - The mansion built for John Sedgewick Hyde from designs by well-known Maine architect John Calvin Stevens was constructed in 1913 and is the second house to be known by this name on this site. This jewel of a Georgian Revival structure is still partially surrounded by the gardens and grounds created by landscape architect Carl Rust Parker at the time of construction. The former residence now houses Hyde School.

WILLIAM D. CROOKER HOUSE (1979) - This impressive Greek Revival home, built substantially in 1847 by the housewright Isaac D. Cole and perched proudly on South Street, faces the river that would have been an all-important focus for its shipbuilding family.

CAPTAIN WILLIAM/ISAAC MERRITT HOUSE (1985) - This Italianate home of 1854, representing Bath’s period of most intense development, is now a part of the Hyde School campus. One notable owner of the late
nineteenth century was William Rogers, a shipbuilder who served in City
government and in both branches of the Maine State Legislature.

WILLIAM T. AND CLARA DONNELL HOUSE (1989) - This Italianate
structure, updated in the late nineteenth century with an Eastlake flair, was
the home of a successful shipbuilder whose shipyard was literally his back
yard. Now the home is part of the holdings of the Maine Maritime Museum.
It is difficult to determine the exact date of construction since the house
may surround a much older, smaller home that dates from the early
nineteenth century and was expanded at mid-century.

TRUFANT HISTORIC DISTRICT (2004) - The Trufant Historic District
represents the heyday of Bath's wooden-shipbuilding era when shipbuilding
firms and accompanying industries were rushing in on a high tide of economic
good times. As the City's population was exploding, this modest neighborhood
of sixty-odd structures on Pine, Corliss, Middle, Highland, and Washington
Streets helped to accommodate the resulting housing needs. More than half
of the historic structures were built between 1845 and 1856, illustrating the
construction boom responsible for much of the City's Greek Revival
architectural fabric that continues to characterize the community.

AREAS OR STRUCTURES ELIGIBLE FOR THE NATIONAL REGISTER OF
HISTORIC PLACES - When the South End Survey and the Trufant Historic
District nomination were pursued by Sagadahoc Preservation Inc. from 2000
to 2004, other areas were considered as potentially eligible for the National
Register. These include: several individual structures scattered throughout
the City; the neighborhood on High Street and the cross streets of South
and Bath from Route One to Hyde School; and the cluster of historic houses
on Green Street between Lincoln and High Streets. Individual structures
that might be considered eligible for the National Register range from the
Arts and Crafts home on Old South Place, the only nineteenth-century
schoolhouse left in Bath on Weeks Street, the Harward home on upper
Washington, Jacob Robinson's brick Federal home on Washington Street
across from BIW, as well as many of the small and beautifully detailed Greek
Revival capes and gablefronters scattered throughout the City. Also, it is
likely that candidates for nomination exist in the North Bath and Winnegance
areas, parts of Bath not yet surveyed in detail. The Bath Railroad Station has
also been found eligible for the National Register.

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Although no nominations of archaeological significance have been written for this city, there are likely Bath sites could be so honored. Thorne Head, currently held by the Lower Kennebec Regional Land Trust, was surveyed, identifying the site of the mid-eighteenth century colonial home of the Thorntons and the mid-eighteenth-century road from the small community of Long Reach to a ferry landing, still defined by stonewalls and wear patterns. Additional areas of interest are noted below in the discussion of previous documents in past recommendations.

**THE HISTORIC AMERICAN BUILDING SURVEY**

The Historic American Building Survey is a program begun during the Great Depression to both employ out-of-work architects and document significant historic structures across the United States. It became a permanent program, housed under the auspices of the National Park Service, in 1934. A corresponding program, entitled Historic American Engineering Survey (HAER), was begun in 1969. A number of Bath structures have been honored by this thorough level of documentation and research; the resulting research can be found at the Library of Congress and the Library's website. Most were done in the period of 1971-72 by Earle G. Shettleworth, Jr., then a student architectural historian and now the State Historic Preservation Officer of Maine and the State Historian, with the assistance of others. The precursor to the Maine Maritime Museum, the Marine Research Society, encouraged the inclusion of Bath sites in the work being done at that time. The locations include the Bath Railroad Station, Captain John G. Richardson House at 964 Washington, Central or Chocolate Church, Church Block at 44 Front, George F. Patten House at 118 Front, the now-demolished Grace Episcopal Church at Oak and Middle Streets, Henry Tallman House at 982 High, the Percy and Small Shipyard – 263 Washington, Swedenborgian Church –876 Middle, the Customs House on Front, and Winter Street Church at 880 Washington Street.

**LOCAL HISTORIC DISTRICTS**

The 1997 Comprehensive Plan recommended the upgrading of the Land-Use Code in the specifications applied to the historic district, the creation of a Historic District Architectural Review Committee, and a Downtown Design Review process.

Appendix E Page 4
Thus far, the only local historic district consists of a portion of the larger, federally recognized Bath Historic District nominated to the National Register in 1973. The Historic Overlay District extends along the Kennebec River from Vine Street, north to Bowery and Edward Streets. The western boundary is irregular—moving along Carriage House Lane back to Washington, along Turner Court and York Street to Willow Street, along North Street to Middle Street, and along the railroad track back to Vine. Section 8.12 of the land-use code notes that the purpose of this designated area is “to provide for the review of certain activities within this historic part of the City in order to prevent inappropriate alterations to buildings of historic or architectural value, to preserve the essential character of historic neighborhoods, and to ensure that new buildings or structures constructed in areas of architectural or historical significance are designed and built in a manner compatible with the character of the neighborhood.”

A recent change (2007) to the details of this section created a process with a smaller Historic District Committee, consisting of two Planning Board members and the Planning Director, that would streamline the process for some applications that do not involve significant alterations of historic fabric, but nevertheless still require review. Neither this new advisory group nor the Planning Board have specific written requirements for members to be knowledgeable in the area of historic preservation or architectural history.

No recognition of the Trufant Historic District or the individually nominated properties exists on the local level although they are partially protected by the language in the section on general performance standards.

HISTORIC LANDSCAPES AND SITES

The historic resources of a community are often seen as only the older buildings that remain above ground, such as those discussed in the previous section on the National Register of Historic Places. But there are additional resources, both hidden underground, the archaeological sites, and above-ground sites, invisible through their everyday quality.

In the second category, the street names, layouts, and widths within Bath should be included. These elements document the development of the community from small hamlet to thriving city while maintaining some of the
intermediate qualities. But another subtle aspect of the historic landscape that documents the City's past is the remaining stonewalls. These walls, that usually divided the properties of landowners or different land uses, stand today as one of the few original and precious features of mid-eighteenth-century Long Reach. The small family cemeteries and the larger "garden-design" cemeteries are historic landscapes that document period attitudes about death and life, besides offering the relief of green spaces to the urban landscape.

There are still other characteristics of the City's settlement pattern that are part of the historic cultural landscape. For example, the density of structures, particularly in the R-1 section of Bath, may be even more accentuated because of the closeness of many homes to the street. This historic configuration reminds us of a pre-automobile age where walkability was essential and neighborly discussions from porch to porch not uncommon. The connected and telescoping nature of both large and small nineteenth-century homes with rear ells, sheds, and sometimes converted barns echoes a regional rural trait of connected farmhouses. Other aspects that contribute to the historic ambience of the City are infrastructural details like street lamps, and Bath's urban forest, which includes nine state champion trees that range from the Gingko and the Katsura to the Paperback Maple and European Ash. Also not to be forgotten is the Kennebec River, recognized as part of the Chaudiere Heritage Trail that served the aboriginal inhabitants of Maine, the colonists, the settlers, immigrants and subsequent industries.

HISTORIC SITES

The Maine Historic Preservation Commission in Augusta has provided several maps of Bath indicating the general location of known historic and prehistoric sites and also where it is likely that prehistoric archaeological sites could be found. Five prehistoric sites where largely chipped stone tool fragments of an unknown age were found, have been identified in the northern half of the City. Seventeen historic sites scattered throughout the City have been inventoried. There is more variety in these later locations that consist of homesteads, mill sites, commercial locations, farmsteads, shipyards, shipwrecks, and roads with ethnic associations that range from English, American, French to Canadian. The areas that have a high probability of possessing prehistoric material tend to cluster around the various waterways that can be found within and bounding the City. Additional historic sites
have been identified at Thorne Head as mentioned above and along the western Bank of the Kennebec River where so many nineteenth-century shipyards once stood. These latter sites often coincide with problematic brownfields or areas already actively reused for other commercial and industrial purposes. No citywide professional survey of archaeological sites has occurred; there are, no doubt, numerous places of interesting and instructive artifacts.

**RELEVANT ORGANIZATIONS**

_Sagadahoc Preservation, Inc. (SPI)_

SPI is a nonprofit corporation dedicated to the recognition of significant architectural or historic buildings in the Bath area. The organization's stated mission "is to preserve and maintain the Bath area's fine architectural heritage through the creation of a historic district commission, the promotion of stewardship, and the use of protective covenants." SPI also has an educational program that offers information on various aspects of architectural history, not just to adults, but also to children.

_Sagadahoc Preservation Inc. was founded in 1971 because of a crisis created when the Winter Street Church was scheduled for demolition. Building on that hard-won success, the members saw a public need to survey, recognize, and preserve Bath's distinctive architectural legacy, a treasure they saw as increasingly threatened by loss.

As noted on its web site, the organization has worked hard for more than thirty-five years to bring preservation principles to decisions made on different aspects of the City. "Since its formation, SPI has been instrumental in preserving the "Chocolate Church", a fine Gothic Revival structure now housing the Center for the Arts, and has been a major player in the restoration of the nineteenth-century downtown business district. SPI has completed an architectural survey of all buildings built in Bath before 1920. Two federally designated National Register Historic Districts as well as a city historic district exist in Bath due directly to the efforts of SPI." These districts were the result of two architectural surveys of the City of Bath, conducted largely by the members of SPI and funded by their efforts and grants from the Maine Historic Preservation Commission. Members of the organization also constitute the Historic District Architectural Review Committee (HDARC) that provides advice on applications within the local Historic district to the Planning Board. Their recommendations do not
determine the Board’s decisions, but do offer an additional informed perspective.

SPI’s mission to publicize the heritage of Bath and to increase awareness of the Midcoast’s wealth of historic structures depends on several programs. One important program is the basic architecture course taught by SPI volunteers to fourth-grade classes in Bath, Georgetown, and Woolwich. SPI also sponsors lectures for adults on a variety of pertinent preservation topics. Through a Preservation Award Program, SPI yearly recognizes citizens and groups that promote preservation in the area. SPI also offers house plaques to homeowners interested in recognizing the age and origin of their homes and produces a newsletter.

Bath Historical Society (BHS)
The Bath Historical Society was incorporated in 1989 by a small group of Bath citizens. The initial membership of the non-profit organization was 36 people, but now numbers nearly 200 individuals and families. The Society’s goal as stated on the Patten Free Library website “is the collection and preservation of local history, including genealogy, and the sharing of these resources.” This goal is attained by providing major financial and volunteer research support for the History Room, and by publications such as the commemorative collection of historical photographs and text entitled “The Sesquicentennial of Bath, Maine, 1847-1997”. BHS also shares the results of its research through a quarterly newsletter, a “Times of Bath” research publication, and regular public programs on various aspects of local history.

One of the most important functions of the Bath Historical Society is supporting the Sagadahoc History and Genealogy Room, where much of the monies raised by membership dues, research services and fundraising efforts is directed. This part of the Patten Free Library offers an important historical resource for the people of Bath and surrounding towns, although many users come from elsewhere in the State and the nation in search of their ancestors and local details about how and where they lived.

The collections of the room are wide-ranging, including copies of the SPI architectural surveys, period maps, genealogical material ranging from Dr. Alfred Holt’s research into the nineteenth-century families of Bath to published individual family histories, city directories of residents and businesses, annual reports produced by the City, Federal census records,
vital records for the region, yearbooks for Morse High School, local histories for communities state-wide, microfilm of the local newspapers beginning early in the nineteenth century and Bath tax records of the nineteenth and early twentieth centuries.

Other significant holdings of the History Room include a substantial photograph collection and business and family papers from the nineteenth and twentieth century. For Bath residents wanting to learn about the history of their houses or a particular aspect of city history, this resource is priceless and unusual statewide in its breadth and depth.

Main Street Bath (MSB)
The national Main Street Program is a strategy originated by the National Trust for Historic Preservation, a private non-profit organization concerned with “the revitalization of traditional downtowns to enhance the appearance and economic stability of the commercial district and to improve community pride and quality of life for residents and visitors.” This program was developed as a pragmatic method to aid historic preservation in downtowns, understanding that the attempts to protect a community’s historic buildings could not be successful if undertaken in isolation from the other economic and civic forces at work. These efforts needed to be part of a package, a collaborative endeavor of the private and public sector, as the Board of Directors reflects in its composition with representatives from the central business district, local government, and community leaders. The program, adopted in more than 1,650 communities across the U.S., began here in Bath in 2001. Although start-up costs were initially subsidized, Main Street Bath is responsible for its operating expenses and must raise the money locally.

The organization’s work is carried out through four standing committees made up of community volunteers, who are assisted by a paid Program Coordinator and assistant. The four standing committees constitute the “Main Street Four-point Approach” which focuses on four sometimes overlapping areas of concern. These committees include: the Design Committee that considers the physical appearance of the central business district (CBD), its historic buildings and their needs as well as harmonious new construction and infrastructure; the Promotion Committee that focuses on marketing the unique aspects of the downtown - its businesses, its buildings, and its events to residents and visitors; the Economic Restructuring group that concentrates on strengthening the economic base.
of the CBD while investigating new directions for additional development; and the Organization Committee that looks to building consensus between the many stakeholders who are concerned with the economic and cultural vitality of our downtown.

The MSB website contains both the organization's vision and mission statements, declarations that try to combine recognition of the historic resources of downtown Bath and the larger community as well as the practical necessities of doing business in a modern world. Their vision statement says that MSB wishes "to maintain and strengthen a thriving community that lives its sense of history, is culturally active and encourages community spirit and the involvement of all its citizens."

Maine Maritime Museum
The Maine Maritime Museum, unlike the organizations discussed above, focuses its considerable collection and energy on a more specialized topic—the rich seafaring heritage of the State of Maine. As the museum's website describes, "in 1962 seven residents of Bath, Maine formed the Marine Research Society of Bath which did business for years as the Bath Marine Museum. In 1975, the name was officially changed to Maine Maritime Museum". The gifts that expanded the collection dramatically include the Percy & Small Shipyard donated by Mr. and Mrs. L. M. C. Smith in 1975; the Donnell House bestowed by Mrs. Smith in 1981, and in 1985 the seasonal use of the schooner Sherman Zwicker. In 1989 the new Maritime History Building was opened, housing exhibition space, storage facilities, library, and administrative offices. Prior to this the museum had been housed several places within the City, including the Sewall House on Washington Street, Winter Street Center, and a storefront on Centre Street. An additional large meeting space was constructed in 2001, offering function space for the museum, and the community.

The mission statement of the museum, also on the website, indicates the range of its activities to appeal to local visitors and tourists, adults and children. "The Maine Maritime Museum celebrates Maine's maritime heritage and culture in order to educate the community and a worldwide audience about the important role of Maine in regional and global maritime activities. The Museum accomplishes its stewardship through: discriminate collection, preservation and dissemination of historic materials and information, engaging educational programs, relevant and compelling exhibitions, and a
unique historic shipyard, all connecting the past to contemporary and future issues.” Also of particular note, the museum maintains an extensive library and archives that offer resources not only on the maritime history of the state and City, but information on other aspects of Bath’s past.

**Bath Fire Department**

The City’s fire department may be one of the most unexpected and least recognized holders of a substantial collection of historic documents and artifacts. The Bath Fire Department collection is largely housed in the Central Fire Station, a 1957 structure on the site of the former Bath High School, later the Central Grammar School. The department has collected, preserved, and restored a variety of treasures. For example, both the Kennebec hand tub, purchased in 1847 just before Bath became a city, and the department’s second log, beginning in the mid-nineteenth century, document in different ways the organization’s history. Various canvas-and-leather buckets, other items of gear, nozzles, period fire alarms, the carved eagle from the gable end of Water Street Fire Station #3, trophies from various musters, and equipment models built by past generations of Bath firemen share space on the station’s site with the recently restored 1942 fire engine, the “Little Mac.” These objects, in conjunction with a variety of other documents, photographs, and equipment illustrate the general history of firefighting, but in a place-specific manner. The Bath Fire Department remains on the lookout for other memorabilia to add to their collection and a more appropriate and accessible location to house the items.

**PERTINENT PLANNING DOCUMENTS**

**Existing Land Use Code Relevant to these Resources**

The sections of the Land Use Code that protect historic and archaeological sites exist in several places in the ordinance, not only in the section that deals with the historic district overlay discussed above [see 8.12 Land Use Code]. Within the Performance Standards of the Subdivision section, the code states in 13.13.H.2 that “if any portion of the subdivision is designated a site of historic or prehistoric significance by the Comprehensive Plan or the Maine Historic Preservation Commission, appropriate measures for the protection of the historic or prehistoric resources must be included in the plan.” In a similar vein, Article 10.28 of the General Performance Standards advises, in the case of new or expanded non-residential or multi-family uses, that “if any portion of a site being proposed for development has been identified as potentially containing historic or prehistoric resources, the
applicant must notify the Maine Historic Preservation Commission." Measures to mitigate any negative effect on the resource, may include, but not be limited to "modifying the proposed design of the site, timing of construction, and limiting the extent of excavation."

**Past Recommendations**

1997 COMPREHENSIVE PLAN

The ordinance pertaining to the Historic Overlay District and the Historic District Advisory Committee was suggested by the 1997 Comprehensive Plan. Originally it was anticipated that members of the Advisory Committee would include SPI and BHS members, and other interested citizens with specialized backgrounds (pg. 13-13). It was also anticipated that this group could focus on the marketing of Bath’s historic nature, perhaps pulling a variety of cultural entities together in that effort. Another element recommended in this plan was the implementation of a Downtown Design Review, a process that has occurred within the confines of the Historic District Overlay (pg. 13-9). The plan drew attention to three areas of concern – Winter Street Church, the Railroad Station, and the larger structures on the periphery of downtown (pg. 3-9). Events that have transpired since that plan was written have partially accomplished these tasks, i.e., the restoration of the Railroad Station, the establishment of Main Street Bath, and the continuing restoration of the Winter Street Center by SPI.

The effectiveness of the Downtown Design Review, with its underlying concern for the entire central business district’s attractiveness, has been augmented by the Façade Improvement Program, funded by a Community Development Block Grant the City received in 2005. At this time, October 2007, five businesses have received monies to complete façade improvements. While not all of the buildings are historic, the changes wrought by the renovations add to the general appeal of the downtown. Of particular note is the property at 193-199 Water Street. The loan permitted the removal of man-made siding, a return to clapboard on the front façade with its former pilasters, and a new paint job that now allows this gateway building, a rare, late nineteenth-century, wooden commercial structure in our downtown, to be admired from Lehman Highway. The grant works by offering a deferred loan to the building owner. If the property is not sold within a five-year period, the loan is retired. The success of this program is encouraging the City to apply for additional funding this year.
In Chapter 7, the 1997 Comprehensive Plan noted under its introductory paragraph to housing goals that the “unique architectural housing stock” was a strength of the City and that while “old in age, varied in style, the City chooses to focus on maintaining that housing stock in the best method possible” (pgs. 7-6.7). Fears concerning the density of some neighborhoods were also expressed, although that is a long-standing characteristic of the older areas.

AN ACTION PLAN FOR BATH WATERFRONT AND DOWNTOWN (FEBRUARY 1999)

The Wilbur Smith Associates/TAMS Consultants document suggested a number of actions with ramifications for Bath’s historic resources. These recommendations rested on assumptions that Bath’s maritime and historic heritage was an integral part of the City and a draw for both new residents and tourists. At the time of writing in 1999 these consultants felt that the Maine Maritime Museum was the only individual attraction that brought visitors here from both the region and the state (pg. 45). The consultants also believed that both Bath’s role as a destination and her need for economic diversification would be enhanced by significantly increased specific cultural and heritage-based businesses and attractions. These might be clustered around the library at the north end of the central business district, perhaps even with a civic museum (pg. 34-35). The report also noted that this focus on history would pull retirees to Bath, increase tourist traffic, increase civic pride, and provide a continuing learning resource for Bath schools (pg. 46). To raise awareness of the City’s history, the report recommended a historic marker program that would link the waterfront with the Washington Street Historic District. If tied into the way-finding system, the marker program would knit the commercial and residential sections of the City together effectively and underline the walkable nature of the City for outsiders and residents (pg. 35). The business district itself would be improved with design guidelines that would preserve or restore existing historic buildings, guarantee harmonious development and infill, and increase the landscaping along the waterfront and in the downtown (pgs. 40-43). Many of these efforts were to be coordinated by a “Heritage Consortium” consisting of existing cultural and historical organizations, and the schools (pg 52).
Dr. Hawes and his fellow authors recommended that the Planning Board consider strongly proposing historic districts in the rural areas of Whiskeag and North Bath, as well as in the Northern [centering around Bowery] and Southern [Maine Maritime Museum and other side of Washington Street] shipyard areas and in Kings Landing [upper Washington-Harward Streets area] (Executive Summary pg. 4). They wrote that provisions should be strengthened to protect the owners’ investments in preservation through such means as clear standards, fair review of proposals by competent preservation officials and an adequate means of enforcement. In addition, the City should establish clear property tax benefits for placing land under conservation easements or placing facades under facade preservation easements (E.S. pg. 5). The recommendations also included applying for recognition from the Maine State Historic Preservation Commission as a “certified Local Government.” This commitment to Historic Preservation requires a specific Historic Preservation Ordinance within the Land Use Code and a corresponding Historic Preservation Commission to enforce it. This action would facilitate additional nominations to the National Register and provide possible sources for funding some of the projects necessary for this documentation and protection (E.S. pg. 7). In the report’s section suggesting further investigation were research projects designed to support the recommendations above and an archaeological survey since many of the rural areas are likely candidates for seasonal or multi-seasonal prehistoric camps.

The follow-up report of June 1991 discussed the points above with the addition of the necessity for these historic districts to be recognized locally as well as nationally. The need for interpretive signage in the downtown was noted, and it was recommended that one or two of the old wharfs with their buildings and sheds be reconstructed as they were in the 1878 bird’s eye map of Bath.

SOUTH END SURVEY AND URBAN DESIGN PLAN 2002
report notes, these suggestions include a nomination to the National Register of the High Street neighborhood from Granite to Bath Street, several individual nominations, the creation of a tiered local historic district that includes significant, contributing and non-contributing designations, and a walking-tour brochure for the South End. It should be noted that the Trufant Historic District was the result of this survey and a walking-tour brochure exists for this neighborhood.

The 2002 urban design plan also proposed a “series of interpretive signs along Washington Street that would tell stories associated with shipbuilding and the South End,” an expansion of SPI efforts to recognize significant historic structures and landscapes in the area, and a copiously illustrated “design-standards manual for all new construction and renovations” (pgs 29-30). DeWan and Associates further urged that the residential nature of Middle Street on both sides should be preserved and improved, while a physical buffer such as a linear park be formed to separate the more intensive uses of Washington Street from the established and historic residential neighborhoods (pg. 30).

**STATE AND FEDERAL LEGISLATION PROMOTING HISTORIC RESOURCES**

In 1999 the Maine Constitution was amended by the voters of the state to “provide that municipalities may reduce taxes on real property if the property owner agrees to maintain the property in accordance with criteria adopted by the governing legislative body of the municipality to maintain the historic integrity of important structures or to provide scenic easements to significant vistas.”

This program allows the municipalities that chose to adopt this program to raise money to reimburse taxpayers a portion of taxes paid on real property (real estate) if the property owner agrees to maintain the property in accordance with regulations adopted by the municipality. The regulations must be for the purpose of maintaining the integrity of historic structures or providing a scenic view. The Maine Historic Preservation Commission has prepared materials to help municipalities that choose to use this State law provision.
The bill entitled "An Act to Amend the Credit for Rehabilitation of Historic Properties" was passed by the Maine Legislature and signed into law in March 2008. This law went into effect on July 1, 2008, and allows tax credits for certified qualified rehabilitation expenditures. The Maine Historic Preservation Commission administers the program.

The Federal Tax Code allows tax credits for the rehabilitation of historic properties when the properties are to be used for income-producing purposes—including commercial, industrial, agricultural, and rental residential. This federal program is included in Section 67.1 Sec. 48(G) and Sec. 170(H) of the Internal Revenue Code of 1987. Although this program has been available to redevelopers for 20 years it is not often used in Maine according to a report entitled "The Economic Benefits of an Expanded Historic Tax Credit in Maine," written by Planning Decisions for Maine preservation in 2007.

THREATS TO THE HISTORIC RESOURCES

The rich historic resources found throughout Bath, not just in the historic districts, are threatened by the double-edged sword of knowledge and ignorance. For example, the prehistoric sites are protected largely by the public's ignorance of the specific nature and location of these vulnerable places. Publicity and more widespread knowledge might easily compromise the value of these local sites. On the other hand, the historic building fabric of Bath has drawn new residents, who admire the period architecture, to the City. Here the greatest threat to the structures' continued integrity consists of the public's and, to some extent, the decision-makers' ignorance of architectural styles and details. When wishing to renovate or rehabilitate their properties for personal reasons, desires for energy efficiency, or necessary maintenance, many property owners do not understand what defining architectural elements should be maintained for either historic integrity and/or stylistic consistency. Without a historic and architectural understanding of their properties, owners discard significant features or incorporate unsuitable ones that destroy the building's integrity and damage the larger authentic cultural landscape of the neighborhood. In some other portions of the City not formally recognized as historically important, owners unfortunately do not yet see their properties as significant pieces of Bath's overall historic sense of place. Not having a comprehensive survey of both architectural and archaeological resources citywide prevents protective
planning for sites not yet identified. However, at this time, it is often these unintentional, and unwitting actions that threaten Bath's treasures, rather than purposeful destruction or developmental pressure.

PLANNING IMPLICATIONS OF THE INVENTORY OF HISTORICAL AND ARCHAEOLOGICAL RESOURCES

1. As noted in the Housing Inventory Chapter, the housing stock in Bath is old in comparison to that of surrounding towns. While the old housing stock is what makes Bath historic, it also costs more to maintain, is often less energy efficient, and may have lead-based paint health hazards. As individuals seek to fix some of these problems, they may unknowingly destroy historic fabric and possibly eviscerate the historic appearance of these structures.

2. Because of the past emphasis on large, impressive homes in the Washington Street area, many homeowners are unaware that their more modest homes are equally historic and significant in the history and current appearance of the City. Although some archaeological sites and significant structures are known to local inhabitants, not all historic resources are known to decision-makers.

3. Because of its pattern of development, Bath has retained much of its historic landscape, including residences, religious establishments, commercial structures, street widths, trees, stonewalls, etc. This cultural landscape has become one of the City's primary defining characteristics for both residents and visitors. Protecting and promoting the City's historic flavor while not impeding the City's continuing development will be a challenge.

4. Time and again, report after report, quality of place is said to be an important (and often under-recognized) economic resource. This needs to be recognized in Bath as the City works toward economic diversification.

5. Educating residents of the importance of Bath's quality of place and historic character as economic resources make them easier to protect.

6. Showing visitors the City's quality of place and historic character will help to capitalize on these economic resources.

7. Heritage tourism and quality-of-place issues for retirees may hold promise for the economic diversification.
8. Ways to measure the success of programs designed to promote the historic resources of Bath would highlight the importance of these resources.

9. A Heritage Center and a historic marker program would help to focus attention on Bath's historic resources.

10. The requirements of the Americans with Disabilities Act hamper the economically viable reuse of historic buildings in the downtown and elsewhere. It is often difficult to add to or rehab nineteenth-century buildings using today's building and rehabilitation codes.

11. There are numerous nationally recognized significant structures and areas of the City that are not protected by local law.

12. Studies have shown that there are economic and property-value benefits to historic property owners when their property is located in a locally protected historic district. And we all know that the historic character of Bath attracts many visitors to Bath each year. Thus, it is important financially to both the owners of historic properties and to the City to have these historic resources preserved and promoted.

13. More knowledge of the City's archeological resources and sites could put them at risk; however, more knowledge and public information about the City's historic resources could help to protect them.
APPENDIX F
NATURAL RESOURCES INVENTORY

INTRODUCTION

Although much of the focus of the Comprehensive Planning effort and much of the focus of the people who live in Bath is on the neighborhoods and the urban portion of the City, there is a significant percentage of Bath that is quite rural. The land area northwest of the Whiskeag Road crossing of Whiskeag Creek (currently zoned as Low-Density Residential) comprises approximately 34 percent of the City’s total. (See the Growth and Rural Areas map.) As discussed during the Comprehensive Plan process, the rural portion adds greatly to the reason we enjoy living in Bath.

Natural resources also offer certain natural opportunities for and constraints to development. There are natural areas where development is more costly (e.g., floodplains) and where development should be avoided (e.g., steep slopes). There are natural areas that are important and could be harmed by development (e.g., wetlands).

This appendix inventories the land- and water-based resources of the City of Bath. Much of the information has been mapped to show general locations of these resources with certain characteristics and their relationship to one another. The maps should not be used to make definitive decisions about specific parcels of land. On-site investigations still need to be conducted in most cases. The maps, however, have great value in our City-wide planning efforts. The inventorying and mapping of natural resources provide knowledge to public and private decision makers about which resources could potentially harm development and potentially be harmed by development. This appendix provides an understanding of the natural opportunities and constraints associated with various land uses and development.
THE LAND

Surficial Geology

A study of the surficial geology of an area explains what is covering the land’s bedrock, how this material got there, what the soils formed from this material are likely to be, and, more important, what opportunities or constraints the land presents.

The great ice sheets of the last ice age receded from what is now Bath about 10,000 years ago. Although much of the earth’s fresh-water supply was in the massive continental ice sheets, the ocean flooded the land as the glaciers receded. This was caused by the weight of the ice, thousands of feet thick, having depressed the land surface.

The materials deposited by the glaciers—either directly on the bedrock or in the ocean waters when the sea flooded the land—are primarily the source materials for soils in Bath. These soils affect activities such as building and road construction, farming, installation of utility lines and septic systems, and utilization of natural resources (e.g., clay-mining).

Most of Bath’s land area is overlain by thin unstratified (i.e., unsorted) layers of mixed sands, gravels, silt, clay, and boulders. This mixed glacial debris is referred to as till.

The next most common surficial material is silty clay deposited over rock or till in what were marine settings. Interspersed throughout the City’s land area are pockets of freshwater wetlands and a few saltwater wetlands along the Kennebec River. In North Bath, there are three locations marine near-shore deposits. These are areas of sand, gravel, and mud that were deposited near the shore or in shallow locations when the land was flooded by the ocean.

Soils

Knowledge of the surficial geology enables understanding of the soil. As the 1997 Comprehensive Plan explained, the soils in Bath are dominated by what are called Hollis and Buxton soil series.

Hollis soils are relatively well-drained shallow soils that formed in glacial till. Severe limitations for most uses (e.g., buildings, septic systems, and
farming) are primarily due to the shallowness to bedrock. Surface runoff is slow to medium, permeability is moderate, and available water capacity varies depending on soil depth. Hollis soils are identified as either medium or low potential for most uses. In low-potential soils, the depth to bedrock is usually the limiting factor. Overall development costs on medium-potential Hollis soils are 70 percent to more than 100 percent higher than development on high-potential soils consisting of fine, sandy loam on a mild slope (i.e., 0 to 8 percent), such as a Charlton soil (Charlton soil is used for comparison).

Buxton soils are deep, moderately well-drained soils. They were formed in marine or lacustrine (i.e., lake) deposits of silt or clay over bedrock, glacial till, or sand and gravel. Severe limitations for most uses mainly result from slow permeability of the subsoil. Surface runoff is medium and available water capacity is high. Buxton soils are susceptible to frost-heaving and have low shear strength (i.e., subject to shearing and sliding on steep slopes). Disturbed and unprotected areas are highly susceptible to erosion. Overall development costs on Buxton soils are estimated to be 34 to 63 percent higher than costs on the comparison soil.

The dominant wet soil in Bath is the Scantic series, which consists of deep, poorly drained, level or nearly level (i.e., 0 to 3 percent slope) soils that formed in silt and clay deposited by ponded water. Surface runoff is medium to ponded (i.e., having no runoff), permeability is slow or very slow, and available water capacity is high in the surface layer and moderate below it.

According to the Natural Resource Conservation Service (NRCS), a part of the U.S. Department of Agriculture (USDA), Hollis fine sandy loam with 8 to 15 percent slopes is considered a farmland soil of statewide importance. Bath has large areas of Hollis soils; however, the predominant type is Hollis very rocky, fine sandy loam, which is not considered a farmland soil of statewide importance.
Topography and Elevation
For the purposes of this Comprehensive Plan, the term topography is used to mean the relief of the land—the heights, slopes, and flat areas. Awareness of the City's topography helps in knowing where development is suitable or unsuitable and/or very costly. Bath has been described as a series of rolling hills that form "steps" moving from east to west toward West Bath and Brunswick. Steep slopes occur moving westerly, up the steps, away from the Kennebec River. In general, the height of the land increases from Washington Street to Middle Street, from Middle Street to High Street, and from High Street westward. Elevations range from less than 10 feet above sea level along the Kennebec River to more than 260 feet above sea level on the Butler Head property owned by the City. Most of the land in Bath is in the watershed of the Kennebec River (including Merrymeeting Bay), with some land in the northwest portion of the City in the watershed of the New Meadows River.

As stated in the 1997 Comprehensive Plan, the slope of the land influences its use and development potential. Land with slopes between 3 and 8 percent (i.e., a gentle slope) is considered ideal for most types of development. Very flat land can create significant problems for proper drainage on a site. At slopes greater than 8 percent, large-scale commercial and industrial uses become difficult unless extraordinary construction and development techniques are employed. At slopes between 8 and 15 percent (i.e., a moderate slope), residential development is practical. At slopes greater than 15 percent (i.e., a steep slope), development even for moderate-density residential use becomes more difficult and costly. Road construction is expensive if grades are kept suitable for winter maintenance. Extensive areas with slopes exceeding 25 percent are generally unsuitable for conventional development in this climate and should be avoided, if possible, except for very-low-density residential or recreational use. Development activities on steep slopes can result in environmental pollution from runoff and erosion.

The steepest slopes occur on the west side of High Street from about Nichols Street south to about Fairview Lane and on the north side of Thorne Head.
Land in Conservation
For an urban community like Bath, it is important to understand the number and locations of the parcels of land in some form of conservation—that is, where the development potential has been removed. Land in conservation includes lands owned by the state, lands owned by the City, lands owned by the LKRLT, and lands in the State Constitution-allowed Open Space Current-Use Tax Program. These parcels of land in conservation are shown in the following table and on the Lands in Conservation map.

<table>
<thead>
<tr>
<th>Map-Lot and Location</th>
<th>Acres</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-9, Rocky Reach Road</td>
<td>10.3</td>
<td>Open-space tax</td>
</tr>
<tr>
<td>15-18, North Bath Road</td>
<td>6.0</td>
<td>Open-space tax</td>
</tr>
<tr>
<td>6-10, Rocky Reach Road</td>
<td>9.5</td>
<td>Open-space tax</td>
</tr>
<tr>
<td>10-15 &amp; 12-3, (Thorne Head) High Street</td>
<td>85.2</td>
<td>Land-trust-owned</td>
</tr>
<tr>
<td>15-41, 43 &amp; 49, Whiskeag Road &amp; High Street</td>
<td>85.9</td>
<td></td>
</tr>
<tr>
<td>6-15, Lines Island</td>
<td>77.6</td>
<td>State-owned</td>
</tr>
<tr>
<td>4-26, (Butler Head) Varney Mill Road</td>
<td>136.0</td>
<td>City-owned</td>
</tr>
<tr>
<td>5-1, Varney Mill Road</td>
<td>3.9</td>
<td>City-owned</td>
</tr>
</tbody>
</table>

Source: City of Bath Assessor’s Office, 2008

Agricultural and Forest Resources
One of the state’s comprehensive-planning goals, which municipalities are required to address, is to safeguard Maine’s agricultural and forest resources from development that threatens them. Agriculture and forestry add to the City’s economy and help preserve some of the remaining rural quality of place. The major agricultural activities occurring in Bath today are the Hawkes Family greenhouse business in North Bath on Bayshore Road and Walter Taggart’s bison and cattle farm on Ridge Road. The Hawkes Family has nine greenhouses and approximately 18 acres of gardens where it grows vegetables, flowers, and landscaping materials. Taggart’s farm encompasses 50 acres and has ten head of Angus cattle and forty bison.

Other parcels are included in the Farmland Current-Use Tax Program, a state program that allows farms to be assessed for tax purposes at farmland rather than market values. These parcels are shown in the table and on the Current Use Tax Programs map.
Another agricultural resource is the Bath Farmers Market that operates in Downtown Bath on Thursdays and Saturdays from May through October, and at a church on Congress Avenue two Saturdays a month for the rest of the year.

Forest resources, based on parcels in the Tree Growth Current-Use Tax Program (similar to the Farmland Current-Use Tax Program) are shown in the following table and on the Current Use Tax Programs map. Very few parcels have been removed from any of the current-use tax programs in the past five years, and some have been added. The amount of farm and forest land has stayed about the same over the last five years.
## PARCELS IN BATH IN THE TREE GROWTH
### CURRENT-USE TAX PROGRAM
#### 2008

<table>
<thead>
<tr>
<th>Map-Lot and Location</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-10, Washington Street</td>
<td>6 Softwood</td>
</tr>
<tr>
<td></td>
<td>5 Mixed</td>
</tr>
<tr>
<td></td>
<td>11 Total</td>
</tr>
<tr>
<td>15-22, North Bath Road</td>
<td>7 Softwood</td>
</tr>
<tr>
<td></td>
<td>11 Mixed</td>
</tr>
<tr>
<td></td>
<td>18 Total</td>
</tr>
<tr>
<td>15-41, Whiskeag Road</td>
<td>40 Softwood</td>
</tr>
<tr>
<td></td>
<td>7 Hardwood</td>
</tr>
<tr>
<td></td>
<td>47 Total</td>
</tr>
<tr>
<td>15-15-1, Whiskeag Road</td>
<td>7.5 Softwood</td>
</tr>
<tr>
<td></td>
<td>8.0 Mixed</td>
</tr>
<tr>
<td></td>
<td>15.5 Total</td>
</tr>
<tr>
<td>5-23, Varney Mill Road</td>
<td>16 Softwood</td>
</tr>
<tr>
<td></td>
<td>9 Mixed</td>
</tr>
<tr>
<td></td>
<td>6 Hardwood</td>
</tr>
<tr>
<td></td>
<td>31 Total</td>
</tr>
<tr>
<td>15-49, Whiskeag Road</td>
<td>13.63 Softwood</td>
</tr>
<tr>
<td></td>
<td>13.63 Total</td>
</tr>
<tr>
<td>7-43, Varney Mill Road</td>
<td>17 Softwood</td>
</tr>
<tr>
<td></td>
<td>20 Mixed</td>
</tr>
<tr>
<td></td>
<td>3 Hardwood</td>
</tr>
<tr>
<td></td>
<td>40 Total</td>
</tr>
<tr>
<td>18-4, Old Brunswick Road</td>
<td>5 Softwood</td>
</tr>
<tr>
<td></td>
<td>7 Mixed</td>
</tr>
<tr>
<td></td>
<td>12 Total</td>
</tr>
</tbody>
</table>

*Source: City of Bath Assessor’s Office, 2008*

The Assessor’s Office has calculated the “loss” of tax revenue because these parcels are taxed at a current-use rather than fair-market value of approximately $25,000 annually.

**Islands in the Kennebec River**

The large islands in the Kennebec River, although not visited by most Bath residents, are viewed by many from several different vantage points and are part of Bath’s sense of place. All are privately owned except for Lines Island. They are listed in the following table.
MAJOR ISLANDS IN BATH

<table>
<thead>
<tr>
<th>Map-Lot</th>
<th>Name of Island</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-14</td>
<td>Little Sturgeon Island</td>
<td>0.38 Acre</td>
</tr>
<tr>
<td>1-15</td>
<td>Big Sturgeon Island</td>
<td>0.78 Acre</td>
</tr>
<tr>
<td>5-31</td>
<td>Varney Island</td>
<td>3.2 Acres</td>
</tr>
<tr>
<td>6-13</td>
<td>Little Ram Island</td>
<td>0.26 Acre</td>
</tr>
<tr>
<td>6-14</td>
<td>Ram Island</td>
<td>6.8 Acres</td>
</tr>
<tr>
<td>6-15</td>
<td>Lines Island (owned by the State of</td>
<td>77.2 Acres</td>
</tr>
<tr>
<td></td>
<td>Maine)</td>
<td></td>
</tr>
<tr>
<td>10-11</td>
<td>Muskrat Island</td>
<td>0.18 Acre</td>
</tr>
<tr>
<td>10-12</td>
<td>Crawford Island</td>
<td>6.8 Acres</td>
</tr>
<tr>
<td>10-13</td>
<td>Wood Island</td>
<td>13.8 Acres</td>
</tr>
</tbody>
</table>

Source: City of Bath Assessor's Office, 2007

Other Land Resources
There are no significant sand and/or gravel aquifers in Bath. Homes that are not served by the public water system are on wells, mostly drilled into the bedrock. (The extent of the City served by the BWD is discussed in Appendix H, 4.8.)

Large blocks of undeveloped land are important natural resources. Not only do they provide a sense of the City’s enduring rural character, they are also critical to many species of wildlife. According to Beginning with Habitat: An Approach to Conserving Maine’s Natural Landscape for Plants, Animals, and People “[i]f we want to maintain habitat for animals that have large home ranges, such as bear, bobcat, fisher, and moose, and other animals that are sensitive to human disturbance, such as upland sandpipers and wood thrushes, we need to conserve large blocks of forest or grassland, or wetland habitat.” The following table lists the habitat block size needed for various animals.
## HABITAT BLOCK SIZE REQUIREMENTS FOR WILDLIFE IN MAINE

<table>
<thead>
<tr>
<th>Tier 5</th>
<th>1-19 Acres</th>
<th>Tier 4</th>
<th>20-99 Acres</th>
<th>Tier 3</th>
<th>100-499 Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raccoon</td>
<td>Raccoon</td>
<td>Raccoon</td>
<td>Raccoon</td>
<td>Raccoon</td>
<td>Raccoon</td>
</tr>
<tr>
<td>Small Rodent</td>
<td>Hare</td>
<td>Hare</td>
<td>Hare</td>
<td>Hare</td>
<td>Hare</td>
</tr>
<tr>
<td>Cottontail</td>
<td>Small Rodent</td>
<td>Small Rodent</td>
<td>Small Rodent</td>
<td>Small Rodent</td>
<td>Small Rodent</td>
</tr>
<tr>
<td>Squirrel</td>
<td>Porcupine</td>
<td>Porcupine</td>
<td>Porcupine</td>
<td>Porcupine</td>
<td>Porcupine</td>
</tr>
<tr>
<td>Muskrat</td>
<td>Cottontail</td>
<td>Cottontail</td>
<td>Cottontail</td>
<td>Cottontail</td>
<td>Cottontail</td>
</tr>
<tr>
<td>Red Fox</td>
<td>Beaver</td>
<td>Beaver</td>
<td>Beaver</td>
<td>Beaver</td>
<td>Beaver</td>
</tr>
<tr>
<td>Songbirds</td>
<td>Squirrel</td>
<td>Squirrel</td>
<td>Squirrel</td>
<td>Squirrel</td>
<td>Squirrel</td>
</tr>
<tr>
<td>Skunk</td>
<td>Weasel</td>
<td>Weasel</td>
<td>Weasel</td>
<td>Weasel</td>
<td>Weasel</td>
</tr>
<tr>
<td>Most Reptiles</td>
<td>Woodchuck</td>
<td>Woodchuck</td>
<td>Woodchuck</td>
<td>Woodchuck</td>
<td>Woodchuck</td>
</tr>
<tr>
<td>Most Amphibians</td>
<td>Muskrat</td>
<td>Muskrat</td>
<td>Muskrat</td>
<td>Muskrat</td>
<td>Muskrat</td>
</tr>
</tbody>
</table>

---

Source: "A Response to Sprawl: Designing Communities to Protect Wildlife and Accommodate Development," Maine Environmental Priorities Project, 1997

The large blocks of undeveloped land in Bath identified by the MDIF&W are shown on the Critical Natural Areas map and located as follows:

- in the South End west of High Street; part of a 1,500-acre block, much of which is in West Bath
- between Old Brunswick Road, Ridge Road, Whiskeag Road, and Whiskeag Creek; approximately 360 acres
- between Whiskeag Road, Ridge Road, and North Bath Road; a block of approximately 370 acres

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• a block at Butler Head; approximately 360 acres  
• a block west of Ridge Road and south of Bayshore Road; part of a 690-acre block, most of which is in Brunswick  
• Thorne Head, mapped as a 237-acre block; however, part of it includes the 42-acre Bath Landfill

The land-based resources, including farms, forests, and mineral resources, which are needed to support Bath’s rural economy are shown on the Critical Rural Areas map.

THE COMMUNITY FOREST

The community forest consists of the street trees, the trees in the rural and undeveloped parts of Bath, and all the various treed and forested parts of the community. The City-owned community forest consists of approximately 270 acres of forested areas, 9,000+ trees, and 6,000+ street trees. The City-owned and privately owned community forest is enjoyed by residents of and visitors to Bath. It is a large part of what we like about the community.

Based on Geographic Information System technology and aerial photography analyses, the City has a canopy cover of approximately 87 percent. A tree inventory determined that the City has 160 different species growing along the street and in wooded and forested areas. Norway maple (*Acer platanoides*) is the most common species, with approximately 45 percent of the total. This high percentage of tree cover for such an urban community provides a multitude of environmental, social, and economic benefits. The City is also home to nine of the State Champion Trees registered by the State of Maine’s Forest Service Project Canopy.

Since its formation in 1992, the Community Forestry Committee has planted more than 900 trees around the City with an eye for "the right tree in the right spot," early pruning and training, watering, and selecting for broadening the diversity of the overall tree population. Since 1992, the two groups—the Forestry Committee and the Forestry Division of the Parks and Recreation Department—have been awarded $390,000 in grants for the City for tree planting and management since 1992. Bath has been a National Arbor Day Foundation-recognized Tree City USA community for eleven
years and received the Growth Award for five consecutive years. In 2007, the City of Bath received an award for excellence as a community from the State of Maine Forest Service Project Canopy.

WATER RESOURCES

Another of the state’s comprehensive-planning goals is to protect the quality and manage the quantity of Maine’s water resources, including lakes, aquifers, great ponds, estuaries, rivers, and coastal areas.

In Bath, there are no great ponds (a great pond is a naturally occurring body of water 10 acres or more in size) nor significant sand and gravel aquifers (an aquifer is an underground layer of water-bearing permeable rock or unconsolidated materials—gravel, sand, silt, or clay—from which groundwater can be usefully extracted). And, there are no known locations grown water supplies have been polluted. The inventory of other water resources is discussed in the following section.

MARINE RESOURCES

Another of the state’s comprehensive-planning goals is to protect the state’s marine resources industry, ports and harbors from incompatible development and to promote access to the shore for commercial fishermen and the public. Included in this section are discussions of the Kennebec River and Merrymeeting Bay; ports and harbors; and access to the shore for commercial fishermen, marine trades, water-dependent businesses, and the public. The following subsections inventory these resources.

Kennebec River
The Kennebec River, upstream of Merrymeeting Bay, is 230 miles long and drains an area of almost 6,000 square miles. The largest tributary to the Kennebec is the Androscoggin River, which drains an area of almost 3,500 square miles and is more than 160 miles long. The origin of the Kennebec River is Moosehead Lake; the origin of the Androscoggin River is Rangeley Lake. These two rivers come together at Merrymeeting Bay with a combined total water flow of more than 10 billion gallons per day (gpd).
Each river is significantly impacted by the urban areas it flows through, as well as by rural farmlands. The Kennebec River flows through the urban areas of Skowhegan, Waterville, Winslow, Augusta, Hallowell, and Gardiner before reaching Bath. The Androscoggin River flows through Berlin (New Hampshire), Bethel, Rumford, Mexico, Jay, Livermore Falls, Auburn, Lewiston, Brunswick, and Topsham before reaching Merrymeeting Bay. The water quality is significantly impacted by all of these municipalities. The Kennebec River is also impacted by the farmlands and fields along the shores of both it and the Androscoggin as evidenced by the slight brown color of the water of the Kennebec after a heavy rain event.

The Kennebec River is affected by various pollution sources located in the City of Bath, both point sources and nonpoint sources. Point sources are those that come directly from a pipe, such as a stormwater drain, an “overboard discharge,” or a combined sewer overflow (CSO). Nonpoint sources are those that do not flow directly from a pipe, such as runoff from streets, bridges, and parking lots and runoff from agricultural fields, construction operations, and mining.

Even with this urban impact, according to 38 MRSA, Section 465-B, the water quality of the Kennebec River is Class SB, which is the second highest of three levels of classification. According to this Maine State Law, “Class SB waters must be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other estuarine and marine life. The habitat must be characterized as unimpaired.” The law further states, “[d]ischarges to Class SB waters must not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. There may be no new discharge to Class SB waters that would cause closure of open shellfish areas by the Department of Marine Resources.”

The Kennebec River is protected by the City’s adopted Shoreland Zoning, which has been approved by MaineDEP. The shoreland zoning regulations are contained in the Bath Land Use Code.
In addition to the Androscoggin River, tributaries to the Kennebec River include Whiskeag Creek, Winnegance Creek, and an unnamed brook that enters the West Branch portion of the Kennebec southwest of Lines Island. Winnegance Creek abuts rural and low-density-residential uses. Whiskeag Creek abuts residential development and crosses under Route 1. The unnamed brook abuts rural and agricultural land uses. These tributaries are protected by MaineDEP-approved shoreland zone and with the exception of Winnegance Creek by an overlay zoning district that requires special permitting for development closer to the water than 150 feet.

The MaineDEP licenses overboard discharge systems. These systems are allowed in certain situations for existing homes that have no other alternative for wastewater treatment or collection. In Bath, there are six such discharges to the Kennebec River, two to Merrymeeting Bay, and one each to Whiskeag Creek and Winnegance Creek.

The MaineDEP also licenses CSO locations. CSOs occur when heavy rain or snowmelt causes one or more of the City’s combined sewers (i.e., a sewer pipe carrying both sanitary waste and stormwater) to discharge into the Kennebec River because the volume is greater than a pumping station can accommodate. All discharges are documented by frequency and volume and this information is reported monthly to the MaineDEP. The number of CSO locations has decreased from thirty-one in 1971 to eight in the mid-1990s to four today (i.e., 2008). They are located at the Rose Street, Pleasant Street (Castine Avenue), Commercial Street, and Harward Street pumping stations.

Fish species in the Kennebec River in Bath include striped bass, alewife, Atlantic and short-nosed sturgeon, and American eel. The existence of striped bass supports an active fishing-guide business.

**Merrymeeting Bay**
According to the web site of Friends of Merrymeeting Bay:

The Bay is the 9,000-acre confluence of six rivers, two of which, the Androscoggin and the Kennebec, are two of Maine’s largest. Four smaller rivers flow from the towns surrounding the Bay: the Eastern from Dresden and Pittston; the Abagadassett from Bowdoinham and Richmond; the Cathance from Bowdoinham and Bowdoin; and the Muddy River from Topsham. Merrymeeting Bay is a unique
ecosystem; technically, it is an inland delta, not an estuary, as it is cut off from direct access to the ocean; at low tide the waters of the Bay flow out through The Chops, a narrow gap, into the lower Kennebec. Though the Bay is affected by tides, there is very little salt in its waters. Large areas of the Bay consist of freshwater mud flats and sand bars upon which wild rice and pickerel weed flourish, plants that provide food and cover for waterfowl.

Merrymeeting Bay is home to several endangered and protected species of wildlife; short-nosed and Atlantic sturgeon, bald eagles, ospreys; and many species of anadromous fish [anadromous fish are those species that migrate from the sea to freshwater to spawn], such as shad, smelt, striped bass, river herring, and salmon. The Bay and its tributaries are favored breeding grounds for Canada geese, herons, and other wading birds, and for many species of ducks.

Merrymeeting Bay, by virtue of its unique characteristics and large size, is an ecological gem in our midst. Unfortunately, many factors, particularly water pollution and pressures from development, have reduced much of the once-abundant resources of the Bay to remnant levels.

The Kennebec Estuary Focus Area
According to Beginning with Habitat:

The Kennebec Estuary Focus Area contains more than 20 percent of Maine’s tidal marshes, a significant percentage of Maine’s sandy beach and associated dune habitats, and globally rare pitch pine woodland communities. More than two dozen rare plant species inhabit the area’s diverse natural communities. Eight imperiled species of animals have been documented in the Focus Area, and it contains some of the state’s best habitat for bald eagles.

The Focus Area extends southward from Gardiner and Pittston at its upstream end to Phippsburg and Georgetown at the coast. Along with the mainstem of the Kennebec River, it encompasses numerous inlets and tributaries with hundreds of miles of tidal waterfront.

Conservation priorities in the Kennebec Estuary include habitat for migratory fish, undeveloped shoreline for bald eagle nesting and roosting, intact beaches and dunes, freshwater and saltwater tidal marshes, and the upland forests that buffer these shoreline ecosystems and provide habitat for songbirds and mammals. Publicly owned conservation lands in the Focus Area help to protect clam flats, drinking water, and community-based agriculture, and they provide recreational opportunities, such as fishing, hunting, and hiking.

At the heart of the Kennebec Estuary is Merrymeeting Bay, one of the most important waterfowl areas in New England. Six rivers, draining one-third of the state of Maine, converge in Merrymeeting Bay to form an inland, freshwater, tidal...
delta. Extensive beds of emergent and submerged aquatic vegetation support thousands of ducks, geese, rails, wading birds, and other water-dependent species during spring and fall migrations. Wild rice is common throughout the bay, providing an important food source for migratory waterfowl and other birds such as bobolinks. The intertidal mudflats are also important feeding areas for migrating shorebirds. Floodplain forests and shrub swamps serve as key migratory stopover sites for neotropical passerines. Over 50 species of freshwater fish and ten species of anadromous fish use Merrymeeting Bay, including the rare Atlantic salmon (Salmo salar), shortnosed sturgeon (Acipenser brevirostrum), and Atlantic sturgeon (Acipenser oxyrinchus). At least one rare mussel species, the tidewater mucket (Leptodeaohcracea), inhabits the bay. One of the small tributaries flowing into Merrymeeting Bay is Maine's only known location for the redfin pickerel (Esox americanus). American eels, currently believed to be declining in much of their geographic range, are abundant in parts of the bay. Merrymeeting Bay has some of the northeast's best habitat for rare plants associated with tidal freshwater marshes. Several sites around the bay are particularly significant, such as the Cathance River, Chops Creek, Eastern River, Lines Island, Abagadasset Point, and Swan Island.

Because Merrymeeting Bay drains nearly one third of Maine, the potential for water-quality degradation is high. Both the Androscoggin and Kennebec Rivers have major industries upriver. Although these industries are much cleaner than in years past, contamination remains in the bay's fine-grained sediments. Eagle eggs from Merrymeeting Bay have been found to contain some of the highest levels of PCBs ever recorded. Mitigating past and future contamination of the watershed will be a continuing challenge.

Beginning with Habitat goes on to discuss Lines Island, about half of which is in Bath, also in the Kennebec Estuary Focus Area:

Along the southeast side of Lines Island is a 20-acre freshwater tidal marsh with some of the bay's largest populations of rare plants. Dominated by wild rice, this marsh contains softer mud that supports hundreds of spongy arrowhead along with scattered populations of Parker's pipewort and estuary burmarigold. Water pimpernel occurs sporadically where the base of the rocky upland meets the mud flats. In part because of its importance for bald eagles, Lines Island has been protected as a wildlife refuge by the Maine Department of Inland Fisheries and Wildlife.

The portion of the Kennebec Estuary Focus Area in Bath is shown on the Critical Natural Areas Map.

The New Meadows River
According to the New Meadow River Watershed Project's website:
The New Meadows River is located in the northeastern corner of Casco Bay in southwestern Maine. ... Its watershed, estimated at approximately 23 square miles, falls within two counties, the western shore being in Cumberland Country, the eastern shore in Sagadahoc County. The watershed covers areas in five municipalities, the City of Bath to the north, Brunswick and Harpswell to the west, and West Bath and Phippsburg to the east. All but the City of Bath have shoreline on the River proper.

Although named a “River,” technically it is not, since no river actually flows into or down the New Meadows. In fact, since there is no river flow, the New Meadows does not even meet the definition of an estuary, for there is normally only a relatively small drop in salinity between the mouth at Bear Island and the Lakes at the north. ... The New Meadows River, therefore, is simply an embayment, but a very interesting one. The New Meadows River encompasses a wide range of habitats and ecological niches within its 23 square mile watershed in the Sagadahoc and Cumberland counties of Midcoast Maine. Originating from volcanic activity, the river benefits from glacial deposits of varied sediment types that help contribute to its high productivity and diversity. Interestingly, because little fresh water flows into the system, the New Meadows is not technically a river but an embayment, fact that only underscores the need to preserve this unique watershed.

The "headwaters" (if it can be called that) of the New Meadows are along the boundary of Brunswick and Bath; Bath's northwestern boundary, north of the Old Brunswick Road. The New Meadow's watershed management plan points out that only one percent of its watershed lies in Bath. This plan does cite three potential non-point pollution locations in Bath: one is a residential land use, and two are roads. There may be some water flow from the Bath Country Club (golf course) property along Whiskeag Road under Ridge Road to a wetlands at the head of the New Meadows, however, it is not certain if this is the case. More study and monitoring should be done determine this and to determine appropriate non-point pollution mitigation strategies.

The Port of Bath and the Working Waterfront
Chapter 3 relates that in Bath’s heyday, the waterfront was lined with boatbuilding and shipbuilding facilities, docks, piers, and warehouses. The Kennebec River was full of river traffic and ships at anchor.

Today, what might still be called the Port of Bath is used for recreation and as a working waterfront. Along the Kennebec River are two working waterfront locations that continue the marine-dependent qualities of Bath’s industrial sector, which has made Bath the “City of Ships” for well over 150
years. These working waterfront locations are BIW’s shipbuilding, repairing, and launching facility (perhaps the most intensive working waterfront in the state) and the site (including the pier with deep-water access) of the recently closed Stinson sardine cannery—previously the shipbuilding site of the Texas Steamship Company.

The recreational part of the Port of Bath includes the City’s North End and South End Boat Launches; the marina at the Kennebec Tavern; the City’s pier, float facility, and moorings at Waterfront Park; BFC Marine, and pier facilities at Maine Maritime Museum.

The North End and South End Boat Launches were built by the City with financial assistance from the Maine Department of Conservation. The North End Boat Launch, built in 1976, is located off Bowery Street and has about forty parking spaces for vehicles with trailers and ten more for vehicles without trailers. It is open from sunrise to sunset and there is no fee charged for launching or retrieving boats.

The South End Boat Launch, built in 1998, is on Washington Street in the South End and has thirty-seven parking spaces for vehicles with trailers. Associated with the South End Boat Launch are a parking area for about fourteen vehicles without trailers and an open-space area used by the neighborhood as a small park. The South End Boat Launch is open from sunrise to sunset and there is no fee charged for launching or retrieving boats. The South End Boat Launch also has a restroom facility that must be pumped out as needed.

The marina at the Kennebec Tavern is a privately owned facility consisting of 80 to 100 slips (depending on boat size) located in front of the restaurant and the property downstream known as Bath Port. Gasoline, shore power, and fresh water are available.

The City’s pier, float, and mooring facilities are located in the downtown at Waterfront Park. New floats were installed in 2004 and can accommodate more than 200 feet of watercraft. Fresh water, electricity, and a holding-tank pumpout facility are available but no fuel. Waterfront Park has a public restroom. There is 2-hour parking at Waterfront Park for thirty vehicles and about fifteen spaces within 600 feet where 4-hour parking is allowed.
Waterfront Park is located across Commercial Street from a large grocery store, and it is within an easy walk to several restaurants, numerous shops, and a proposed 94-room hotel. A walkway has been proposed between Waterfront Park and the Bath Railroad Station, which is located less than a quarter-mile to the south.

Until 2006, BFC Marine, Inc., operated a marina directly downriver from Waterfront Park, servicing boats and outboard motors and supplying gasoline. There also was a small chandlery. At the time of writing this Comprehensive Plan, the BFC property is for sale and BFC Marine is closed. Whether a new buyer will operate it as a marine business in the future is not known.

Approximately 1 mile downstream from Downtown Bath is Maine Maritime Museum. The museum offers ten guest moorings and a "visiting yachtsmen's building" with two heads (i.e. restrooms), showers, and a washer and dryer. At the downstream end of the museum property is Deering Pier, which can accommodate vessels up to 200 feet long with a draft of 17 feet. The Deering Pier has electricity and fresh water.

The maximum "air draft" or height of a vessel that can come into Downtown Bath, upstream of the Sagadahoc Bridge, is 73 feet. Vessels that cannot get upstream of the Sagadahoc Bridge often tie up at Deering Pier. The City operates a fixed-route bus system and a seasonal trolley service that can bring visitors from the Maine Maritime Museum into the downtown.

The site of the former Stinson sardine cannery is a 5.6-acre parcel with about 820 feet of river frontage. The existing pier can accommodate vessels up to 350 feet long and has deep water. The pier has not been maintained well and is in need of repairs. The site is zoned Marine Business, which allows manufacturing and many water-related and water-dependent uses. The site is currently vacant (i.e., 2008). The cannery closed in 2005 and a fire destroyed all of the buildings on the site in 2006. Before the site was used as a sardine cannery, it was a shipbuilding facility of the Texas Steamship Company.

The BIW facility, adjacent to Bath's downtown, is a 75-acre site with about 4,000 feet of deep-water frontage on the Kennebec River. (Although there
is deep water along its piers, BIW periodically dredges the floating dry dock's “settling basin” and the river channel so the ships can transit safely to and from the Atlantic Ocean.) BIW builds ships almost exclusively for the U.S. Navy. The BIW facilities include a 750-foot floating dry dock, three shipways, three wharves, an outfitting pier, five cranes, and indoor facilities for pre-outfit and assembly. Also located within the facilities are engineering, design, ship-support, and administrative offices.

The BIW property (zoned Industrial) and the former Stinson sardine cannery property, the Maine Maritime Museum, and the two City-owned boat launches (zoned Marine Business) are the only sites on the river where water-dependent manufacturing uses are allowed. Other than the loss of the sardine cannery (the site is still available for water-dependent uses) and the closing of the BFC Marine marina, there have been no conversions in the last ten years from water-dependent to nonwater-dependent uses.

The Kennebec River is also home to about fifteen full-time fishing guides; another eleven part-time guides assist fishermen on weekends and/or when they use vacation time from their full-time job. Four of the guides keep their boats berthed at Bath marinas; the other guides have their clients meet them at the two boat launches. The fishing-guide “industry” brings fishermen to Bath from all over the United States as well as other countries, mostly for striped bass.

The day-to-day management of the “Port” is the responsibility of the City’s Harbor Master, who is a full-time Bath Police Officer. He administers and enforces the City’s harbor ordinances.

The waterfront areas that include functionally water-dependent uses and waterfront areas that deserve maximum protection from incompatible development are shown on the Critical Waterfront Areas map.

CRITICAL NATURAL RESOURCES

According to SPO, Critical Natural Resources or Areas in Bath include:
• the shoreland zone;
• large habitat blocks;
• multifunction wetlands;
• essential wildlife habitats and threatened, endangered, and special-concern species occurrences as depicted on maps prepared by the MDIF&W;
• significant wildlife habitat as defined by Maine State Law;
• significant freshwater fisheries habitat;
• rare and exemplary natural communities and rare-plant occurrences as determined by the MNAP database;
• Beginning with Habitat Focus Areas of Ecological Significance identified by the Beginning with Habitat Program of the MDIF&W;
• floodplains as depicted on Federal Emergency Management Agency (FEMA) flood-hazard identification maps.

Knowledge of these features and areas is an essential part of planning for any town or city, and protecting them is an important responsibility. In fact, one of the state's comprehensive-planning goals, which all communities need to address, is to protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas.

The City's Land-Use Code presently protects some of these features but not all of them. The Shoreland Zone is protected as required by the MaineDEP. The City's Floodplain Management Ordinance was approved by the SPO in 2000. The City participates in the Sagadahoc Region Rural Resources initiative, which has been working since 2002 to protect natural resources in Eastern Cumberland County and Central Sagadahoc County. Whereas some of the critical natural resources are less well protected than others, the threat has been relatively low because Bath is experiencing only limited growth in the rural areas.

Wetlands

Wetlands are land areas in which water has become the dominant factor in determining the type of plant and animal life and the nature of the soil development. Wetlands are transitional areas between dry land and open water, with low topography, poor drainage, and standing water subject to variation with season and climate. The actual delineation of wetlands is complex and boundary identification requires extensive fieldwork.
According to Maine State Law, freshwater wetlands are “freshwater swamps, marshes, bogs and similar areas that are inundated or saturated by surface or groundwater at a frequency and for a duration sufficient to support, and which under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soils; and, not considered part of a great pond, coastal wetland, river stream or brook” (38 MRSA 480-B(4)). Coastal wetlands are “all tidal and subtidal lands, including all areas below any identifiable debris line left by tidal action; all areas with vegetation present that is tolerant of salt water and occurs primarily in a salt water or estuarine habitat; and any swamp, marsh, bog, beach, flat or other contiguous lowland which is subject to tidal action during the maximum spring tide level as identified in tide tables published by the National Ocean Service. Coastal wetlands may include portions of coastal sand dunes” (38 MRSA 480-B(2)).

Many years ago, wetlands were often considered useless land needing to be drained or filled for agricultural purposes or to create land for development. More recently, however, it has been shown that wetlands have many important environmental and cultural functions. In the 1970s, scientists, ecologists, and conservationists began to articulate the value of wetlands. We now know that wetlands act as groundwater-recharge areas; mitigate floodwater damage; and act as storage basins during wet periods and as water retainers during dry periods, stabilizing water flow and supply.

Wetlands are important wildlife habitats. Like tropical rain forests and coral reefs, wetlands contain a tremendous variety of wildlife species; they are teeming with life. Wetlands are home to numerous fish, wildlife, and plant species that rely on this type of habitat to survive. Many other species rely on the wetlands species as food.

Wetlands are also important water-cleansing mechanisms. Aquatic plants commonly found in wetlands change inorganic nutrients into organic materials, trapping phosphorus and suspended solids. Water flow is slowed, allowing silt to settle out. Studies of wetlands functions have shown that 77 percent of total phosphorus and 94 percent of suspended solids entering wetlands are retained. Wetlands, therefore, protect downstream water resources from siltation and pollution.
In addition, wetlands provide important visual and open-space value. According to the U.S. Environmental Protection Agency (USEPA) web site, “wetlands have recreational, historical, scientific, and cultural values. More than half of all U.S. adults (98 million) hunt, fish, birdwatch or photograph wildlife. They spend a total of $59.5 billion annually. Painters and writers continue to capture the beauty of wetlands on canvas and paper, or through cameras, and video and sound recorders. Others appreciate these wonderlands through hiking, boating, and other recreational activities. Almost everyone likes being on or near the water; part of the enjoyment is the varied, fascinating life forms.” The wetlands in Bath, both freshwater and coastal, add greatly to the visual quality of life that we enjoy.

The discharge of dredged or fill material into wetlands is regulated nationwide by the Clean Water Act under the supervision of the Army Corps of Engineers. Maine State Law (i.e., the Natural Resource Protection Act [NRPA], 38 MRSA 480) regulates the dredging, filling, draining, and construction in, over, or adjacent to wetlands and activities that could impact wetlands. This Maine State Law is enforced by the MaineDEP. Also, the Maine subdivision law requires that all wetlands be shown on any subdivision plan.

The wetlands depicted on various Critical Natural Areas map in this Comprehensive Plan have been identified from aerial photography. The maps are important from a broad-view, community-wide planning perspective. However, the maps are not suitable or intended for site-specific planning, which should only be done after on-site wetlands delineation has occurred.

These wetlands (from Maine Department of Conservation date) were characterized based on six wetlands functions using a process developed by the SPO. The six functions are cultural or educational, freshwater fish habitat, flood-flow control, wildlife habitat, marine habitat, and sediment retention. The wetlands shown on the map have also been ranked according to this evaluation procedure. This ranking provides an understanding of the values of particular wetlands. However, as the Beginning with Habitat publication states, some wetlands functions are essential to the specific environment even without a high score or ranking.
The MaineDEP also evaluates wetlands and recognizes “wetlands of special significance.” These wetlands are any coastal wetlands; any wetlands within 250 feet of coastal wetlands; any wetlands within 250 feet of a great pond; any wetlands with at least 20,000 square feet of aquatic or marsh vegetation or open water; any wetlands located within a 100-year flood zone; any wetlands that contains significant wildlife habitat as defined by the MDIF&W; any wetlands that is part of peat lands not previously mined; and any wetlands within 25 feet of a river, brook, or stream.

In our City-wide planning process, we should be aware of threats to the wetlands in Bath. According to the MaineDEP’s web site:

Wetlands are threatened by many human activities. Since colonial times, over half of the wetlands in the lower 48 states have been lost due to development, agriculture, and silviculture, including 20% of Maine's wetlands. Although modern legislation has greatly slowed wetlands loss, the U.S. continues to lose almost 60,000 acres per year. Moreover, the ecological health of our remaining wetlands may be in danger from habitat fragmentation, polluted runoff, water-level changes and invasive species, especially in rapidly urbanizing areas.

“Human activities threaten wetlands in several different ways. Stressors to wetlands can be chemical (e.g., toxic chemicals), physical (e.g., sedimentation), or biological (e.g., non-native species).

- Hydrologic alterations can significantly alter the soil chemistry and plant and animal communities. These alterations can be the results of deposition of fill material, draining, dredging and channelization, diking and damming, diversion of flow, and addition of impervious surfaces in the watershed, which increases water and pollutant runoff into wetlands.
- The input of pollutants, such as sediment, fertilizer, human sewage, animal waste, road salts, pesticides, and heavy metals, can exceed the wetlands natural ability to absorb such pollutants and cause degradation. Pollutants can come from urban, agricultural, silvicultural and mining runoff, air pollution, leakage from landfills and dumps, and boats stirring up pollutants around marinas.
- In addition to being impacted by hydrologic alterations and pollutants, wetlands vegetation can be damaged by domestic animals grazing on them, non-native species that compete with natives, and the removal of natural vegetation.”

Vernal Pools

Vernal pools are a type of wetlands. According to the MaineDEP web site:

Vernal pools, or “spring pools,” are shallow depressions that usually contain water for only part of the year. In the Northeast, vernal pools may fill during the fall and winter as the water table rises. Rain and melting snow also contribute water during
the spring. Vernal pools typically dry out by mid to late summer. Although vernal pools may only contain water for a relatively short period of time, they serve as essential breeding habitat for certain species of wildlife, including salamanders and frogs. Since vernal pools dry out on a regular basis, they cannot support permanent populations of fish. The absence of fish provides an important ecological advantage for species that have adapted to vernal pools, because their eggs and young are safe from predation.

The Board of Environmental Protections Rules, adopted to implement the NRPA, protect significant vernal pools by regulating activities in, on, over, or adjacent to them. The Rules went into effect on September 1, 2007. Also, significant vernal pools are considered a significant wildlife habitat. Significant wildlife habitats and shown on the Critical Natural Areas map.

**Significant Plant, Wildlife, and Fisheries Habitat**

In 1974, the Maine Legislature established the Maine Critical Areas Program in an effort to conserve the best examples of Maine’s natural diversity. (In 1993, the Critical Areas Program and the Natural Heritage Program merged to become the MNAP.) The legislation charged the SPO with conducting statewide surveys to identify significant botanical, geological, zoological, and scenic areas worthy of preservation. The program has three basic functions: (1) identify and document significant natural areas, (2) register them as Critical Areas, and (3) promote their voluntary conservation through cooperation with landowners. The MNAP is now a part of the Maine Department of Conservation.

There are four Critical Areas in Bath: Butler Cove and Headland, West Branch Cove, Whiskeag Creek outlet, and Winnegance Creek outlet. In a previous program, the state also designated two Natural Areas in Bath: Bath Cliffs and Thorne Head.

The Natural Heritage Program coordinated inventories of sensitive natural features and provided data and technical assistance for conservation planning and permit review. It compiled data from field surveys, museum and live collections, publications, and consultations with experts throughout the Northeast. The Natural Heritage Program conducted field surveys to verify specific locations of high-priority features and to collect accurate information on the condition and quality of rare features. The program identified five sites in Bath containing eleven rare and/or endangered plant
species. Two species—Long’s bittercress (*Cardamine longii*) and Lilaeopsis (*Lilaeopsischinensis*)—are threatened species, which means only two to four occurrences have been documented recently in all of Maine. Historical records identify six additional species that have not been identified or located since 1916.

The MDIF&W designated portions of Bath as Essential Habitat, which means they contain features vital to the recovery of an endangered or threatened species in Maine. Essential Habitats for bald eagles are located on Lines Island, on a small unnamed island in Merrymeeting Bay, on the east shore of the Kennebec River south of Day’s Ferry in Woolwich, and in the Winnegance section of Phippsburg. The “Essential Habitat” designation restricts development and construction activities, without a permit, within a quarter-mile radius of the active nests. The quarter-mile-radius circles of protection of these areas include some portions of Bath; the areas are shown on the Critical Natural Areas map. Because eagles are known to rotate established nesting sites, areas around inactive nests also are protected against localized development for five years from the last known occupation.

Here in Bath, Significant Wildlife Habitats include Tidal Waterfowl and Wading Bird Habitat, Inland Waterfowl and Wading Bird Habitat, and Significant Vernal Pools. Vernal pools were discussed earlier in this appendix. According to a “DEP Fact Sheet”:

**Tidal waterfowl and wading bird habitat:** The DIF&W [MIF&W] has identified and rated certain intertidal areas along the coast as high or moderate value to waterfowl and wading birds. This high to moderate value tidal habitat is limited to the identified tidal habitat area and is located within the coastal wetland, which is already regulated as a protected natural resource pursuant to the NRPA [Natural Resource Protection Act].

**Inland waterfowl and wading bird habitat:** [MIF&W] has identified significant inland habitats for ducks, geese, herons, and similar species of waterfowl and wading birds throughout the state, rating them as having “high to moderate value.” A high to moderate value inland bird habitat is a complex of freshwater wetland and open water areas plus a 250-foot wide area surrounding the complex itself where inland species of waterfowl and wading birds nest.

Certain activities in or near a Significant Wildlife Habitat are regulated by the State. Activities that require a permit are:
• The dredging, bulldozing, removing, or displacing of soil, sand, vegetation or other materials;
• Draining or otherwise dewatering the habitat;
• Filling; or
• The construction, repair, or alteration of any permanent structure.

Critical waterfowl habitats are associated with the Bath shore of Merrymeeting Bay, the mouth of Whiskeag Creek where it enters the Kennebec River, the shore of so-called Log Pond at King's Landing (near the intersection of Harward and Washington Streets), Trufant Marsh south of BIW, the marsh between Maine Maritime Museum and Bath's South End Boat Launch, and the marsh at Winnegance. The large freshwater wetlands associated with the upper reaches of Whiskeag Creek (on the Bath-West Bath town line) is also considered a significant waterfowl habitat by the MDIF&W.

In December 2006, the MaineDEP adopted new rules to protect shorebird, tidal, and waterfowl habitat. According to the MaineDEP's web site:

As Maine marks the edge of the range for many wading bird species, their populations are small and consequently vulnerable to habitat loss and alteration. For example, Great and Snowy Egrets, Glossy Ibis, and Least Bittern reach the northern extent of their range in Maine, where they nest in just a few locations.

In contrast, Great Blue Herons are among the more abundant and widely distributed of the wading birds. However, they often nest in the tops of dead trees where they build large stick nests. These colonies of 2 to 200 nesting pairs are frequently, but not always, located in places with limited human disturbance. Road construction, logging, and human presence within or near established colonies can result in loss of many young herons in a single nesting season and abandonment of the colony in future years.

The diet of many wading birds includes fish, amphibians, and large insects, placing them near the top of the food chain. Top predators, especially in aquatic ecosystems, such as herons and egrets, are vulnerable to accumulation of environmental contaminants. Increased toxins can negatively affect feeding and breeding behaviors and result in a shortened life span and reduced productivity.

There are habitats for these waterfowl species along the Kennebec River south of BIW, in the Winnegance area, along Whiskeag Creek and where it meets the Kennebec River, along the shore of Merrymeeting Bay, and the
upper reaches of the New Meadows River. These are shown on the Critical Natural Areas map.

Another significant habitat is the location in North Bath of the redfin pickerel. This rare-animal location and habitat are also shown on the Critical Natural Areas map.

Mapped rare-plant communities are located along the southeast shore of Merrymeeting Bay in Bath, near Butler Cove, and along the west shore of the Kennebec River west of Lines Island and Ram Island. The brackish tidal marsh where Whiskeag Creek enters the Kennebec River is also considered an important natural-community location.

Important Views
It is a truism that important views provide our sense of place: from the built-up portions of Bath on the Kennebec River and its eastern shore, the City from the river, the river and its islands from rural parts of Bath, the rural areas of Bath, and the built-up portions of Bath from various vantage points. Quality views add greatly to our quality of life and also have been proven to attract visitors, new residents, and even new businesses.

A report written in 1988 for the Bath Waterfront Resources Committee, entitled "Between the River and the Bay," identifies many important views, as follows:

- view of the Arrowsic shore and the Kennebec River from the South End Boat Launch
- view across the river to Day’s Ferry from upper Washington Street
- view from Thorne Head of Woods Island, Crawford Island, Ram Island, Thorne Island, Lines Island, Burnt Jacket Channel, and the West Branch of the Kennebec River
- view of these islands from the Rod and Gun Club and surrounding properties east of North Bath Road
- view of the West Branch of the Kennebec River from the fields east of Varney Mill Road

Other important views include the following:
• the Kennebec River and the Woolwich and Arrowsic shore from the Winnegance area and from the route along Washington Street, Front Street, Kings Landing, and upper Washington Street, and from Thorne Head (homeowners in this area are fortunate to have these views but they are also available to those who drive and walk this route)

• Fiddlers Reach, Winnegance, and up the Kennebec River from Hospital Point at the Plant Memorial Home on lower Washington Street

• up and down the Kennebec River from the South End Boat Launch

• Maine Maritime Museum’s marsh south of Deering Pier, seen from Washington Street

• the Kennebec River and Woolwich shore from Waterfront Park

• up and down the Kennebec River and across to the Woolwich shore from the Coal Pocket

• spectacular views of the Kennebec River and islands in the river and even mountains from Thorne Head Cliffs

• the field next to the Stone House Farm on Whiskeag Road, where several horses usually can be seen grazing

• open fields in Whiskeag Creek area on the east and west of Lower Mill Pond; pleasant woodland vistas from the road to either side of the Lower Pond dam and bridge

• dramatic views out over the Whiskeag Creek estuary from the Lower Pond dam

• wonderful views from several points (walking or driving) on North Bath Road by the large inlet out to Lines Island

• beautiful views of the Kennebec River and Merrymeeting Bay from West Chops Point; other than from Thorne Head, this is one of few places where the Bay can be seen

• the Bay from the Butler Cove area

• Lines, Crawford, Woods, and Ram Islands in the Kennebec River seen from Whiskeag, North Bath, and Varney Mill Roads and from Thorne Head

• City and its skyline, and up and down the river, from the Kennebec River and the Sagadahoc Bridge

• the downtown from the Court House

• the cranes at BIW from Route 1
Locations of these important views are indicated on the Important Views map.

**NATURAL HAZARDS AREAS**

Natural hazards include floods, hurricanes and other coastal storms, windstorms, coastal erosion and landslides, forest fires, and winter snow and ice storms. The state goal is to discourage development in areas affected by these natural hazards.

For residents of Bath, probably the most significant hazard is flooding. The flood-hazard areas in Bath are shown on the Critical Natural Areas map. The City participates in the National Flood Insurance Program, and the City’s Floodplain Management Ordinance, adopted in 2000, has been approved by the SPO. As shown, much of Bath’s riverfront from and including BIW to the North End Boat Launch is in a 100-year flood-hazard area, which means that there is a 1 percent chance the area will flood in any given year. In the future, this area may or may not be larger if the sea level rises, as some experts forecast that it will.

The other significant natural hazard affecting Bath and its residents is winter ice storms. The ice storms of 1998 and 2008 caused electrical power outages in large areas of the City of Bath, in both rural and urban areas.
CONSTRAINTS TO DEVELOPMENT

As stated in the introduction to this appendix, natural resources provide both opportunities and constraints. On the constraint side, there are natural areas where development is more costly or where the natural features could harm development and natural areas where the important natural features could be harmed by development.

The Constraints to Development map shows natural areas that should be avoided because of slope, drainage, prime farmland soils, flood-hazard areas, proximity to a water body, proximity to rare or endangered species, or a combination of these. The following matrix ranks the criteria and provides a score, which has been mapped.

The natural areas with severe constraints are generally located along the West Bath town line in the southwest portion of Bath, along the Kennebec River south of BIW, along Whiskeag Creek east of Ridge Road, Butler Cove, along the New Meadows River west of Ridge Road, along the shore of Merrymeeting Bay, east of Varney Mill Road, and the large wetlands east of Windjammer Way and Bernard Street.
# BATH CONSTRAINTS MAP MATRIX

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<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Drainage</td>
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<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Soils</td>
<td>Moderately well drained</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Well drained</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Poorly drained</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Somewhat excessively drained</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Very poorly drained</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Prime Farmland</td>
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<td>x</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Farmland of Statewide Importance</td>
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<td></td>
<td></td>
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<tr>
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<td>Flood</td>
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<tr>
<td></td>
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<td>x</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Out</td>
<td>x</td>
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<tr>
<td>Wetlands</td>
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<td></td>
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</tr>
<tr>
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<td>Water Bodies</td>
<td>Shoreland Zone, RP, NRPO</td>
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<td></td>
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<td>x</td>
<td></td>
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<tr>
<td>Habitat</td>
<td>Rare/Endangered Species</td>
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<td></td>
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<tr>
<td></td>
<td>Wading Bird, Shorebird,</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Coastal Birds, other habitat</td>
<td></td>
<td></td>
<td></td>
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<td>Undeveloped Blocks &gt;250 acres</td>
<td>x</td>
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<td></td>
<td>Undeveloped Blocks &lt;250 acres</td>
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<td></td>
<td></td>
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<td>Large Undeveloped Forest</td>
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<td></td>
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<td>No Specific Habitat</td>
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<td></td>
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<table>
<thead>
<tr>
<th>Constraint Category</th>
<th>Point Range</th>
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<th>Percentage</th>
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<tr>
<td>Low</td>
<td>0-5</td>
<td>91,607,333</td>
<td>2,103</td>
<td>35%</td>
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<td>Low-Moderate</td>
<td>6-10</td>
<td>120,826,906</td>
<td>2,774</td>
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<td>Moderate</td>
<td>11-15</td>
<td>30,656,334</td>
<td>704</td>
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<tr>
<td>Moderate-Severe</td>
<td>16-20</td>
<td>13,258,298</td>
<td>304</td>
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</tr>
<tr>
<td>Severe</td>
<td>21-25</td>
<td>6,274,656</td>
<td>144</td>
<td>2%</td>
</tr>
</tbody>
</table>

No areas had a score greater than 25.
PLANNING IMPLICATIONS OF THE NATURAL RESOURCES INVENTORY

1. The surficial geology and resulting soils of Bath have not been kind to agriculture. The limited agriculture and forest practices do, however, add to the lasting rural scenic quality of North Bath.

2. There are steep slopes along the west side of High Street from about Nichols Street south to about Fairview Lane. The steepness of these slopes makes development of the area difficult if not impractical.

3. The City has approximately 414 acres of land either permanently removed from development potential or set aside in the state's Open Space Tax Program. All of the protected parcels are in North Bath.

4. There are almost 205 acres of land in Bath classified in the Farmland Current-Use Tax Program. Land in this classification is valued for tax purposes as farmland, not at market value. The farmlands are used to grow hay, board horses, grow vegetables and flowers, cultivate Christmas trees, and raise bison. Although the farms do not comprise a significant portion of the City, they contribute to the economy of Bath and the rural character of North Bath.

5. The Tree Growth Tax Program includes more than 376 acres of forestland.

6. The land in conservation plus the land in one of the state's current-use tax programs total approximately 995 acres. This is about 1.5 square miles, or about 15 percent, of the area of Bath.

7. The nine large islands in the Kennebec River are part of the City of Bath. They add greatly to the Kennebec River views we enjoy.

8. Large blocks of undeveloped land contribute to the rural quality of Bath and also provide habitat for many birds and mammals. If these blocks are broken up—even if development is minimal—the value of the habitat to many animal species is greatly diminished.
9. The Kennebec River carries a huge volume of water and has a high water quality. It is a visual, recreational, and economic resource, and it adds to our sense of place, recreational enjoyment, and economic livelihood.

10. As stated by Friends of Merrymeeting Bay, "the [Merrymeeting] Bay, by virtue of its unique characteristics and large size, is an ecological gem in our midst. Unfortunately, many factors, particularly water pollution and pressures from development, have reduced much of the once-abundant resources of the Bay to remnant levels."

11. Beginning with Habitat’s Kennebec Estuary Focus Area includes the Merrymeeting Bay, Lines Island, and other portions of Bath. This focus area is depicted on the Critical Natural Areas map. Working with landowners, the Kennebec Estuary Land Trust, and developing and implementing appropriate development regulations will help to protect this area of statewide ecological significance.

12. The facilities, land, and businesses that comprise what can be referred to as the Port of Bath make the City of Bath somewhat unique. It gives the City a competitive advantage that has been capitalized on for decades. Its loss would make Bath much less economically competitive.

13. As stated in the "Gulf of Maine Council on the Marine Environment Action Plan 2007-2017": "Working waterfronts are essential to marine-dependent industries and often define the character of coastal communities." What is left of Bath’s industrial working waterfront includes a vacant parcel once used as a shipbuilding site and sardine cannery, and the BIW facility.

14. Wetlands are not just “swamps that need to be filled to accommodate development.” They provide important water-cleansing and flood-control functions; are breeding grounds for many large and small animals; and they add to the beauty of Bath.

15. As pointed out by the MNAP, knowledge of the significant plant and animal habitat—including rare species and natural communities—helps
avoid development conflicts and assists landowners in making informed decisions about development or conservation of their land. This is true whether or not the plant and animal habitat is catalogued in the MNAP.

16. Views form our sense of place and are important to our enjoyment of living in and visiting Bath. These views include the river, the islands in the Kennebec River, the east shore of the river, and the open fields that contrast with Bath's urban qualities. The important views also include vistas of the City from the river and from the Sagadahoc Bridge.

17. Much of the downtown is in a 100-year flood-hazard area. At times of astronomical high tides, some street-flooding occurs on Commercial and Washington Streets. If a sea-level rise occurs in the future, additional flooding is likely.

18. Natural resources and natural areas provide both opportunities for and constraints to development. The natural areas with severe constraints are generally located along the West Bath town line in the southwest portion of Bath, along the Kennebec River south of BIW, along Whiskeag Creek east of Ridge Road, Butler Cove, along the New Meadows River west of Ridge Road, along the shore of Merrymeeting Bay, east of Varney Mill Road, and the large wetlands east of Windjammer Way and Bernard Street.
APPENDIX G
TRANSPORTATION INVENTORY

INTRODUCTION

Roads, streets, and the means of transportation are often referred to as the City’s circulation system. This system is necessary to move people, goods, and services from one part of the City to another, into and out of the City, and through the City. The street system also provides access to private property and is the framework on which the City is built. In addition to these functions, the street system is the setting from which we view the rest of the City: the historic homes and other historic buildings, the Kennebec River, open fields, the downtown, and the various places where people live, work, and play. These features form the visual impressions of our community. The efficiency of our City, the value of private property, and how we view and experience our surroundings are all affected by the City’s streets. However, the various tasks we expect our streets to perform often conflict with one another. How well streets perform these conflicting tasks frequently determines how well we enjoy our community.

BATH, A MULTIMODAL TRANSPORTATION HUB

The City of Bath’s Kennebec River location and transportation assets make it uniquely positioned to become a multimodal passenger transportation hub in the Midcoast Region. It has great potential for high-quality highway, rail (both passenger and freight), bus (both intercity and local), bicycle and pedestrian, and passenger-ferry transportation services. This critical mass of services can greatly enhance transportation access in the region and also significantly positions Bath to become more of a tourist and visitor destination.

The rehabilitation of the Bath Railroad Station, completed in 2007, provides an opportunity to capitalize on this transportation hub. The station houses an office of Maine Eastern Railroad and the Regional Chamber of Commerce-operated Tourist Information Center. Ticketing for Maine Eastern Railroad’s excursion trains that run between Rockland and Brunswick, stopping in Bath, is done from the station.
ROADWAYS
Route 1
Bath is a gateway community to Midcoast Maine and a crossroads for visitors accessing coastal communities to the south in Arrowsic, Georgetown, and Phippsburg. As such, Bath has heavy seasonal variations in traffic. Route 1, classified as a Principal Arterial Expressway, has increases in traffic of more than 30 percent during the summer months over average daily traffic (AADT) volumes.

Concerns related to the Route 1 corridor through Bath are well documented in the recently completed “Route 1 Corridor Feasibility Study” (MaineDOT, 2005) that defined options for expansion, replacement, or rehabilitation of the elevated portion of Route 1—the viaduct—through the center of the City. The study also looked at the land-use and transportation connection and at image issues associated with the Route 1 portion west of High Street.

According to the MaineDOT study:

- The current configuration of the Route 1 corridor in Bath presents numerous issues for the City:
  - Route 1's design west of High Street presents a poor "gateway image" to the City, is not representative of the rest of Bath, provides poor vehicular and pedestrian connectivity between the north end and the south end in that portion of the City, and discourages drivers from obeying the 35 mph speed limit (studies by the Bath Police Department indicate that the average speed of the traffic is greater than the posted speed of 35 mph and during the studies there were a number of vehicles traveling at greater than 50 mph), has poor access management, and has a number of High Crash Locations along it or associated with it.
  - The design of the Route 1 viaduct through the downtown has poor aesthetics and, while actually offering a link north and south under Route 1, creates a visual barrier and perhaps a psychological barrier between the north and south ends of the City.
  - The capacity of the road is routinely exceeded during the summer weekend days, especially Friday evenings.
  - Traffic operations at the at-grade intersections under the viaduct are poor due to the "dead time" created in the traffic signal timing caused by the large size of the intersections.
  - Accessibility from the south into the downtown is poor because of the location of exits from Route 1 that bring motorists down under the viaduct or to High Street, and is compounded by the poor gateway image west of High Street and poor highway signage northbound.
The "Route 1 Corridor Feasibility Study" forecasts that traffic on Route 1 will continue to increase substantially by 2030. Summer peak-hour traffic is forecast to increase by approximately 50 percent west of High Street, by more than 50 percent on the two-lane (i.e., one lane in each direction) viaduct, and by about 50 percent on the Sagadahoc Bridge.

The local committee chosen by the City Council to work with the MaineDOT and its consultant on the "Route 1 Corridor Feasibility Study" reviewed various future options for the viaduct: removal, replacement with a new four-lane structure, and replacement with a below-grade four-lane alternative. The committee voted that replacing the existing viaduct with a new four-lane viaduct was the alternative that best met the study's agreed-to criteria. However, because of funding considerations and a more detailed structural review of the viaduct, the MaineDOT decided to postpone the project for fifteen to twenty years. The committee expressed its intention to pursue changes to the portion of Route 1 west of High Street that would improve the highway's gateway image and reduce the number of curb cuts.

In April and May of 2007, the viaduct was closed for a four-week period while the bituminous surface and a portion of the concrete below it was removed and replaced with a new concrete surface. This replacement was done to extend the life of the viaduct for fifteen to twenty years. As a result of extensive planning, downtown route changes, Bath Police Officers on-site to direct and enforce traffic regulations, and time of the year, the closure caused minimal disturbance in the downtown.

Traffic conditions on Route 1 have improved significantly since the opening of the Sagadahoc Bridge in 2000. The new bridge created a dedicated access lane northbound onto the bridge from Leeman Highway, thus allowing a free flow of traffic onto the bridge instead of requiring a merge into a single traffic lane. This has been especially important during the BIW afternoon-shift change. Traffic congestion that used to last up to 3 hours on Friday afternoons in the summer is now almost nonexistent.

From a regional perspective, long-term planning for Route 1 in the Midcoast Region is the Gateway 1 process, which is a transportation and land-use
planning process for the corridor from Brunswick to Prospect. The City of Bath has representatives actively involved with this process.

Local Streets
The other major concern with our roadway network is the incompatibility of traffic on specific neighborhood streets. High Street south of Route 1 (i.e., Route 209) provides access from Route 1 to South End neighborhoods as well as to Phippsburg and the Popham Beach area. Due to its current narrow width, curves, and houses located close to the road, High Street is unable to handle further increases in traffic; the traffic is impacting quality of life for neighborhood residents.

Speeding and cut-through traffic on several City streets have also become major concerns in recent years. Richardson Street, Western Avenue, and Court Street are local streets used as cut-throughs to and from Route 1 and/or West Bath. Granite, Union, South, and Bath Streets are used by commuters to and from BIW.

Route 209 Bypass
Since the 1980s, a so-called Route 209 Bypass has been considered. This new roadway (if built) would result in the creation of a street from Route 1 (near the Congress Avenue interchange), across (and connecting with) High Street near Nichols Street, and then to Washington Street near Castine Street. The bypass, it is assumed, would facilitate the movement of vehicles between Route 1 and Phippsburg as well as BIW. Shorter versions and a longer version of the bypass have been considered. One concept would simply connect Route 1 to High Street, easing congestion on part of High Street. Another concept would only connect Washington Street to High Street, helping to keep BIW commuter traffic off the narrow local streets between High and Washington. The longer version would take traffic all the way to a location on High Street near Winnegance. The High Street to Route 1 portion of this concept (1.3 miles) would mostly traverse The Hyde School property. The High to Washington portion (about 1,300 feet) would traverse Central Maine Power (CMP) property or abut its right-of-way. The longer version would traverse The Hyde School property, a capped special waste landfill owed by BIW, and numerous other privately owned properties.
“The Route 1 Corridor Feasibility Study” considered whether constructing the Route 209 Bypass would be an effective measure in changing the needs of Route 1. That is, would it eliminate or postpone the need to widen the two-lane section of Route 1? It was determined that the bypass would have only limited benefit to Route 1; therefore, the MaineDOT could not justify building the bypass as a Route 1 improvement. The report also stated that any plan to build the bypass would have to be judged exclusively as a non-Route 1 traffic improvement.

New-Street Construction Standards
New streets in Bath are required to be safe enough for the volume of traffic expected and proposed locations, and the standards encourage street and utility connectivity. The standards also address street widths by allowing urban-scale streets, often narrower than those suggested for new suburban locations. The City of Bath PWD Street Handbook dictates construction practices required of contractors.

FUNCTIONAL CLASSIFICATION OF ROADS AND STREETS

As stated in the introduction to this appendix, roads and streets serve many functions, including carrying high-speed traffic through the City and people to and from their home. The functional classification of a road or street is a reflection of the street’s role in providing transportation mobility or access to property or some role in between. The Federal Highway Administration classifies roads and streets according to their function, as follows:

- **Principal Arterial Freeways** (partial control-of-access) and **Principal Arterial Expressways** (full control-of-access) are highways that serve through-traffic and major circulation movements within federally defined Urban Areas. In Bath, Route 1 and Leeman Highway are classified as Principal Arterial Freeways and Expressways.
- **Other Principal Arterials** are highways that provide long-distance connections but do not fit the Principal Arterial Freeway or Expressway category. The on- and off-ramps to Route 1 have this classification.
- **Minor Arterials** are roadways within a federally designated Urban Area that interconnect with and supplement the urban principal arterial system. They distribute travel to geographic areas smaller
than those of higher classified roadways. There are no Minor Arterials in Bath.

- **Major Urban Collectors** provide both land access and traffic circulation within urban residential neighborhoods and commercial and industrial areas in federally designated Urban Areas. In Bath, the Major Urban Collectors are as follows:

  - High Street from Phippsburg and West Bath to Park Street
  - Park Street
  - Webber Avenue
  - Washington Street from Webber Avenue to Park Street
  - South Street
  - Richardson Street
  - State Road
  - Court Street
  - Centre Street
  - King Street
  - Water Street
  - Elm Street
  - Summer Street
  - Front Street from Vine Street to Summer Street
  - Vine Street
  - Commercial Street
  - Oak Street from Commercial Street to High Street
  - North Street from Washington Street to Congress Avenue
  - Congress Avenue
  - Lincoln Street
  - Old Brunswick Road from Five Corners to the railroad underpass
  - Oak Grove Avenue
  - Crawford Drive
  - Denny Road

- **Minor Collectors** link locally important traffic generators to the arterial system. Old Brunswick Road from the railroad underpass to the Brunswick town line is in this classification.

- **Local roads** are everything else.

This information is important when planning major improvements to these streets. The functional classification of a street requires certain design requirements (e.g., width). This information is shown on the Functional Classification Map.

### ROADWAY MAINTENANCE RESPONSIBILITY

Some of the roads and streets in Bath are the responsibility of the State, some are the responsibility of the City, and some are shared by both. According to the MaineDOT web site, “the State Highway System is grouped into three categories [for maintenance responsibility]:

- **State Highways** form a system of connected routes throughout the state that primarily serve intra- and inter-state traffic. With the exception of compact...
areas, the MaineDOT has responsibility for the year-round maintenance of state highways. The State Highway category generally corresponds with the federal 'arterial' classification.

State Aid Highways connect local roads to the State Highway System and generally serve intracounty rather than intrastate traffic movement. With the exception of compact areas, state aid roads are usually maintained by MaineDOT in the summer and by the municipalities in the winter. The State Aid Highway category generally corresponds with the federal 'collector' classification.

Townways are all other highways not included in the State Highway or State Aid Highway classifications that are maintained by municipalities or counties. These roads are classified as federal 'local' roads.

- The only State Highway in Bath is Route 1-Leeman Highway.
- The State Aid Highways are as follows:
  - High Street from Bridge Street and the West Bath town line to North Street
  - Bridge Street
  - Old Brunswick Road
  - Centre Street from Lincoln Street to Washington Street
  - Commercial Street
  - Congress Avenue
  - Elm Street
  - Front Street from Vine Street to Elm Street
  - Lincoln Street
  - North Street from 5 Corners to Washington Street
  - Oak Grove Avenue from Old -Brunswick Road to 5 Corners
  - Oak Street from Commercial Street to Washington Street
  - Richardson Street
  - Vine Street
  - Washington Street from Webber Avenue to North Street
  - Webber Avenue
  - Water Street

- The other streets in Bath are considered Townways.

When planning and budgeting maintenance, as well as major improvements to these streets, this information is important. The City of Bath passed a street bond in 2006. That money is being used for a multi-year improvement program to improve local streets. In addition, URIP funds are used on State-Aids roads that require capital improvements. These improvements are done annually. When the street bond is completed the City will revert to yearly operational funds that only allow limited improvements. The responsibility—City of Bath or MaineDOT—is shown on the Roadway Maintenance Responsibility Map.
TRAFFIC COUNTS

Knowing the volume of traffic a road or street carries reveals much about the importance of that roadway and the impact it will have on the neighborhoods through which it passes. The MaineDOT conducts periodic traffic counts in various Bath locations. Route 1 has the highest traffic counts. State Road and Congress Avenue have the next highest counts, followed by High Street (south of Route 1), and Washington Street in the downtown.

Traffic counts are shown in the following table as AADT for 2002 and 2005 at locations with AADT counts more than 3,000 vehicles.

### BATH TRAFFIC COUNTS
**2002 AND 2005**

<table>
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<tr>
<th>LOCATION</th>
<th>2002 AADT</th>
<th>2005 AADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 1 (Sagadahoc Bridge) @ Woolwich Town Line</td>
<td>28,140</td>
<td>26,630</td>
</tr>
<tr>
<td>US 1 (Leeman Highway) (EB) W/O Quimby Street</td>
<td>16,630</td>
<td>17,350</td>
</tr>
<tr>
<td>US 1 (Leeman Highway) (WB) W/O Quimby Street</td>
<td>17,760</td>
<td>17,250</td>
</tr>
<tr>
<td>State Rd NE/O Congress Avenue</td>
<td>10,510</td>
<td>9,920</td>
</tr>
<tr>
<td>Congress Avenue N/O State Road</td>
<td>10,680</td>
<td>9,640</td>
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<tr>
<td>State Road SW/O Congress Avenue @West Bath Town Line</td>
<td>9,920</td>
<td>9,160</td>
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<tr>
<td>SR 209 (High Street) S/O Granite Street</td>
<td>9,560</td>
<td>8,730</td>
</tr>
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<td>SR 209 (High Street) N/O South Street</td>
<td>9,460</td>
<td>8,630</td>
</tr>
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<td>SR 209 (High Street) S/O Pine Street</td>
<td>7,220</td>
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<tr>
<td>Washington Street S/O Leeman Highway (EB)</td>
<td>7,130</td>
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<tr>
<td>Washington Street S/O Centre Street</td>
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<td>SR 209 (High Street) NE/O SR 209 (Bridge Street)</td>
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<td>Congress Avenue W/O Lincoln Street</td>
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<tr>
<td>Washington Street S/O Russell Street</td>
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<td>SR 209 (Bridge Street) SE/O SR 209 (High Street)</td>
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<td>4,880</td>
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<td>Centre Street E/O High Street</td>
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<td>Washington Street S/O North Street</td>
<td>4,860</td>
<td>4,720</td>
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<td>Washington Street N/O North Street</td>
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<tr>
<td>US 1 (EB) on ramp to Carleton Bridge E/O Water Street</td>
<td>4,670</td>
<td>4,590</td>
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<tr>
<td>Chandler Drive E/O Congress Avenue</td>
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<tr>
<td>Leeman Highway (EB) W/O Middle Street</td>
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<td>4,570</td>
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</table>
These counts reflect traffic generated by through-traffic on Route 1, traffic heading to Route 1 (much of it BIW commuters), traffic to Phippsburg and the Popham Beach area, and traffic in and around the downtown.

**HIGH CRASH LOCATIONS**

The MaineDOT analyzes intersections and roadway segments to determine how unsafe they are. Any intersection or roadway segment that has had eight accidents in a three-year period and has a Critical Rate Factor (CRF) of more than 1.0 is considered a High Crash Location (HCL). (The CRF is calculated by the MaineDOT based on the volume of traffic, geometrics of the intersection or roadway segment, and number of crashes. A number more than 1.0 indicates more crashes than would be expected.) HCLs for 2002 through 2004 and 2004 through 2006 are summarized in the following table. The data indicate potentially serious crash problems at several locations along or leading to Route 1, as well as at two locations on Centre Street.

**BATH HIGH CRASH LOCATIONS**

**2002-2004 and 2004-2006**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Critical</td>
</tr>
<tr>
<td></td>
<td>Accidents</td>
<td>Rate Factor</td>
</tr>
<tr>
<td>1. Route 1 &amp; Leeman Highway</td>
<td>24</td>
<td>6.07</td>
</tr>
<tr>
<td>2. Centre Street &amp; High Street</td>
<td>25</td>
<td>4.51</td>
</tr>
</tbody>
</table>
3. Route 1 NB & State Road 17 3.56 13 6.36
4. Route 1 SB & Leeman Highway SB 16 3.31 17 4.05
5. High St on-ramp to Route 1 SB 11 2.00 8 1.90
6. Congress Avenue & State Road 9 1.34 9 5.33
7. Centre Street & Middle Street 11 2.10 -- --

Source: MaineDOT, 2007

BRIDGES

Most of the bridges in the City of Bath are the responsibility of the MaineDOT to maintain and replace them whenever necessary. The following table shows the inventory of bridges in Bath. Sewall’s Farm Bridge, located in one of the City’s cemeteries, was removed recently because it was unsafe; it was replaced in 2008.

BATH BRIDGE INVENTORY

<table>
<thead>
<tr>
<th>Name &amp; Location</th>
<th>Type</th>
<th>Year Built</th>
<th>Length (feet)</th>
<th>Capital &amp; Maintenance Responsibility</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sagadahoc Bridge, Route 1 over Kennebec River</td>
<td>Pre-cast concrete box girder</td>
<td>1997</td>
<td>2,952</td>
<td>MaineDOT</td>
<td>Very Good</td>
</tr>
<tr>
<td>Carleton Bridge, RR tracks over Kennebec River</td>
<td>Steel truss</td>
<td>1926</td>
<td>3,098</td>
<td>MaineDOT</td>
<td>Fair</td>
</tr>
<tr>
<td>Paul Davis Memorial, High Street over Route 1</td>
<td>Concrete, rigid frame</td>
<td>1947</td>
<td>123</td>
<td>MaineDOT</td>
<td>Fair</td>
</tr>
<tr>
<td>West Approach (Viaduct)</td>
<td>Steel girder</td>
<td>1958</td>
<td>1,288</td>
<td>MaineDOT</td>
<td>Fair</td>
</tr>
<tr>
<td>New Meadows #2, Old Brunswick Road over New Meadows River</td>
<td>Steel girder</td>
<td>1918</td>
<td>58</td>
<td>MaineDOT</td>
<td>Fair</td>
</tr>
<tr>
<td>Sewall Bridge, Old Brunswick Road over Whiskeag Creek</td>
<td>Steel culvert</td>
<td>1993</td>
<td>11</td>
<td>MaineDOT</td>
<td>Good</td>
</tr>
<tr>
<td>Congress Avenue over Route 1</td>
<td>Steel girder</td>
<td>1966</td>
<td>179</td>
<td>MaineDOT</td>
<td>Good</td>
</tr>
<tr>
<td>Winter Street Bridge over RR tracks</td>
<td>Concrete slab</td>
<td>1996</td>
<td>28</td>
<td>MaineDOT</td>
<td>Good</td>
</tr>
<tr>
<td>Oak Street Bridge over RR tracks</td>
<td>Pre-cast concrete slab</td>
<td>1994</td>
<td>31</td>
<td>MaineDOT</td>
<td>Very Good</td>
</tr>
<tr>
<td>Bridge Description</td>
<td>Type</td>
<td>Year</td>
<td>Rating</td>
<td>Agency</td>
<td>Condition</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------------------</td>
<td>------</td>
<td>--------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>High Street Bridge over RR tracks</td>
<td>Pre-cast concrete slab</td>
<td>2006</td>
<td>39</td>
<td>MaineDOT</td>
<td>Good</td>
</tr>
<tr>
<td>Oak Grove Avenue Bridge over RR tracks</td>
<td>Pre-cast concrete slab</td>
<td>1999</td>
<td>47</td>
<td>MaineDOT</td>
<td>Very Good</td>
</tr>
<tr>
<td>Whiskeag Bridge, Whiskeag Road over Whiskeag Creek</td>
<td>Aluminum rigid frame</td>
<td>1999</td>
<td>21</td>
<td>MaineDOT</td>
<td>Very Good</td>
</tr>
<tr>
<td>Sewall’s Farm Bridge over RR tracks</td>
<td>Steel Truss</td>
<td>2008</td>
<td>38</td>
<td>City of Bath</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Sources: MaineDOT and City of Bath, 2008.

**VEHICLE AVAILABILITY, MODE TO WORK, AND COMMUTE TIME**

On the roads and streets, as part of the traffic, across the bridges, and through some of the HCLs, Bath residents drive their vehicles. According to the U.S. Census Bureau, in 2000 only about 9 percent of Bath households did not own a vehicle. Approximately 43 percent of households owned one vehicle, 38 percent owned two, and 10 percent owned more than two.

About 70 percent of Bath workers drove alone to work, which is lower than the state percentage of about 80 percent.

Compared with the state, Bath had the highest percentage of workers who walked to work (i.e., 11 percent). Also, Bath workers spent less time than workers in the rest of the state commuting to work; the majority—more than 80 percent—spent less than 25 minutes to get to work. Almost a quarter of Bath workers (i.e., 23 percent) spent between 5 and 9 minutes commuting, which compares to 14 percent for the state.

**SIDEWALKS AND TRAILS**

Because it is such a dense, urban community, the City of Bath has a good system of sidewalks in the downtown. There is a plan to link residential neighborhoods to destination locations such as schools, recreation facilities, and the Bath Area Family YMCA.
The City's Ordinances Codes require property owners or tenants to clear downtown sidewalks of snow and ice within 4 hours after a storm ends. If the sidewalk is not cleared, the property owner or tenant is subject to a fine. The Bath PWD clears snow from sidewalks leading to schools and other sidewalks, as time permits.

RAIL

Another important mode of transportation in the City of Bath is the railroad. Bath is served by the Rockland Branch rail line, which connects Brunswick to Rockland and points in between. This rail line is owned by the State of Maine and operated by Maine Eastern Railroad, which is owned by Morristown and Erie Railway, Inc. The Rockland Branch rail line recently had approximately $30 million of rehabilitation, repair, and upgrade of tracks, bridges, and grade crossings. According to the "Portland North Service Extension: Business Plan" (VHB, 2003), an additional $4 million in capital investments in passenger rail stations is planned. The $1.3 million rehabilitation of the Bath Railroad Station, completed in June 2007, was one of those investments. The station still lacks parking and safety improvements (slated for 2009) and the construction of a permanent railcar boarding platform.

Maine Eastern Railroad hauls freight through Bath and also operates the Coastal Maine Scenic Passenger Train between Brunswick and Rockland in the summer. The train stops in Bath four times a day Wednesday through Saturday, with two additional stops on Sundays.

According to the MaineDOT's "Route One Corridor Feasibility Study," two other types of passenger rail service are being considered for the Rockland Branch through Bath: (1) connecting the planned extension of Amtrak service to Brunswick, to Rockland via Bath; and (2) commuter rail service to BIW. The "Rail Station with Park and Ride Lot: Site Evaluation Study" for the MaineDOT about Park and Ride Lots that may be needed to complement commuter rail service to BIW estimated a reasonable potential for a 20 percent market share of the 600 day-shift workers originating east of the Kennebec River for this service (Stafford Business Advisors, 2002). The 20 percent share would translate to 120 BIW workers potentially using this rail service.
The "Explore Maine" initiative of the MaineDOT (i.e., the implementation program of the 1997 "Strategic Passenger Transportation Plan") envisions a statewide passenger rail system (and other complementary transportation networks such as passenger ferry, intercity bus, and shared-use paths) implemented during a twenty-year-plus time frame. Highest priority service is scheduled to commence in areas that would positively impact the Route 1 corridor through the Midcoast Region.

As discussed previously, Maine Eastern Railroad also hauls freight through Bath. The primary customer on the line is Dragon Cement in Thomaston—New England’s only cement manufacturer.

South of the tracks (i.e., across the tracks from the Bath Railroad Station), along the north property line of BIW, is a 1.3-acre parcel of land owned by the City. A rail spur runs along the north side of this parcel. Although the land is currently leased by the City to BIW for parking, if there were a need, it could be a small freight transfer site.

PUBLIC TRANSIT

The Bath CityBus is a City-operated, fixed-route transit service. The CityBus operates on weekdays from 7:30 a.m. to 5:30 p.m. and covers most of the urban portion of Bath with a figure-eight, two-loop route. The service carries approximately 10,000 riders per year. Morning and afternoon commuter runs that coordinate with BIW’s day-shift changes are also provided by the CityBus. The CityBus is funded with financial assistance from the MaineDOT (actually, Federal Transit Administration funds), the City of Bath’s annual budget, and the $1-fares paid by the riders.

The City is served by a so-called demand-response bus service operated by Coastal Trans, Inc. (a non-profit corporation formed by the Methodist Conference Home, Inc.), which serves clients who call ahead for rides. It serves mostly Medicare and Medicaid clients in Knox, Lincoln, and Sagadahoc Counties and the towns of Brunswick and Harpswell.

Concord Trailways operates regularly scheduled, intercity bus service on its Maine Coastal Route, which connects Bath to both Bangor and the University of Maine in Orono to the north and Portland, Boston, and Logan Airport to
the south. There are two daily stops in Bath for both northbound and southbound customers, plus an extra Sunday southbound stop. Concord Trailways currently uses a business located at the Coastal Plaza on State Road for arriving and departing passengers.

During the summer months and the winter holiday season, a trolley operates in Bath primarily for tourists and other sightseers. The trolley is owned by the City and from 1999 to 2007 was operated by the Bath Trolley Company, a non-profit corporation established solely for that purpose. Since the autumn of 2007, the trolley has been operated by the Bath Transportation Commission, a corporation formed by the City Council to operate the newly restored Bath Railroad Station and the Bath Trolley Company and to provide advice on the operation of the Bath CityBus.

BIW BUSES AND VANS

Several buses and vans transport BIW commuters to and from work. Coastal Trans, Inc., has a bus from the Gardiner area and BOMAR, Inc., operates five buses under a contract with BIW to serve its Park and Ride Lots. Also, thirty-eight twelve- or fifteen-passenger vans carry BIW commuters. The Regional Transportation Program in Portland operates some of the vans and BIW employees operate others. The only support that BIW provides to the vanpooling program is free parking.

THE MARINE HIGHWAY

Passenger Ferry

According to the "Route One Corridor Feasibility Study," passenger ferry service is a major component of the MaineDOT's "Explore Maine" initiative. The program envisions a multi-tiered network of intercoastal ferry service with some supporting intracoastal service (i.e., upriver connections on the Kennebec River to Augusta and the Penobscot River to Bangor). Portland, Rockland, and Bar Harbor would anchor the network and be the primary destinations for travelers. Other planned intercoastal hubs include Bath, Boothbay Harbor, Belfast, Bass Harbor, and Eastport.

The "Maine Strategic Passenger Plan" (Wilbur Smith Associates, July 1997) identified "new seasonal tourists and visitors" as the most likely market for ferry services. The Plan suggests that 25 to 33 percent of the potential
90,000 new annual visitors in this group could be attracted to ferry service. It also suggests that a smaller percentage (i.e., 5 to 10 percent) of the larger pool of "current seasonal residents and visitors" could be attracted to the service. One of the main objectives of these services is to reduce tourist traffic along the Route 1-Midcoast Maine corridor. The services would provide seamless transfers from other modes in the corridor, such as intercity bus and passenger rail.

Currently (i.e., as of 2008), Long Reach Cruises operates the 50-foot, sixty-four-passenger Sagadahoc from Maine Maritime Museum. The Sagadahoc takes passengers on boat rides, sightseeing tours, and nature cruises on the Kennebec River, into Merrymeeting Bay, and along the shore in the Midcoast Region.

Other Marine Highway Inventory Items
The Kennebec River has functioned as a vitally important marine highway for centuries (see Chapter 3, and Appendix F). The City of Bath exists because of this highway provided by the river. BIW, one of the state’s largest private employers and the state’s largest manufacturer is in Bath because of the river and other untapped economic benefits offered by the river. Downtown Bath benefits by being a destination for recreational boaters.

In 1999, the MaineDOT commissioned a study of urban waterfronts that could be support for the marine highway associated with the "Maine Strategic Passenger Transportation Plan." The study, titled "Marine Highway Waterfront Assessment" (Frederic R. Harris, Inc., 1999), reviewed three locations in Bath’s downtown waterfront as sites for expanded waterfront support facilities: (1) the City Pier at Waterfront Park, (2) the Coal Pocket on the north edge of the downtown, and (3) the site often referred to as the Guilford Lot that abuts and is under the Sagadahoc Bridge. The study found that the City Pier is suitable for upgrading to service expanded ferry use, whereas the other two sites are not suitable. The City pier is, however, deteriorating and in need of being replaced.

PARKING

Where and how much parking to provide, and for whom, in a small mature city like Bath are complicated questions. Not enough parking and parking
that is not easily accessible sends shoppers to the shopping centers and malls. Too much parking takes away from the density that makes a downtown what it is and also discourages the use of public transportation. Inconveniently located long-term parking causes downtown employees to use valuable short-term spaces, moving their vehicle every 2 hours, and results in visitors who are enjoying an extended visit often getting parking tickets. Inadequate signage makes parking difficult to find. And, the enforcement of parking regulations is strict—it has to be; however, this strict enforcement sometimes upsets Bath visitors.

Parking in Bath is also complicated by the location of BIW—that is, adjacent to the downtown and to residential neighborhoods. In the past, expanding parking for BIW employees who commute to work has resulted in residential buildings being torn down and ruining neighborhoods. Not enough parking forces employees to consider residential streets and the downtown as parking options. The shortage of parking encourages more BIW employees to walk, carpool, vanpool, and take buses to work. However, to providing parking, BIW has acquired large lots on the edge of the downtown that are used solely to store vehicles for 8 or 9 hours a day—which contributes no economic benefit to the downtown.

Downtown Public Parking
Public parking lots are located on both sides of Water Street. The lot on the east side is limited to 2-hour parking and is heavily used by downtown shoppers. The lot on the west side of the street is a permit lot—that is, monthly permits are sold by the City. There is also a permit lot located on Commercial Street under the Sagadahoc Bridge on state land leased to the City of Bath. On-street, mostly 2-hour parking exists throughout the downtown. A few 4-hour parking spaces are located at the outer edges of the downtown, and parts of two streets that had been under-utilized for parking are designated for on-street permit parking.

In 1999, the City of Bath completed a parking study that found that within the downtown, parking supply was approximately in balance with parking demand. It found, however, that there were block-specific shortages of parking, primarily along Front Street.
This study and subsequent follow-up work by the City found that it was necessary to enhance parking in the downtown, identify potential locations for increasing the supply of parking, and better identify (i.e., signage) parking locations. Possible parking-expansion locations include the public parking lot next to the Bath Police Station on Water Street, and new parking along the riverfront adjacent to and under the Sagadahoc Bridge and on Commercial Street. Other recommendations included the following:

- relocation of BIW employee parking to outside of the downtown (north of Route 1) to enhance redevelopment opportunities within the downtown
- reconfiguration of on-street parking to create more parking spaces
- allowing longer-term parking on the periphery of the downtown, thus encouraging downtown employees to park in the less valuable locations and freeing up spaces in front of businesses for customers
- streetscape and other aesthetic improvements to parking lots along Water Street

Addressing downtown parking concerns is entirely a City matter. New developments in the downtown (in the C1 Zone) are not required to provide parking spaces as are developments in all other zones. When the current Land-Use Code was drafted in 2000, the City Council decided that providing parking in the downtown would be a City responsibility.

For many years, it has been suggested that a parking garage be constructed either in the downtown or at a BIW site. Two locations considered include the west side of Water Street, south of the Bath Police Station, and the BIW main parking lot on Washington Street. Studies (i.e., a 2005 study at Ohio State University and a 2002 study at the University of New Hampshire) indicated that constructing a parking garage would cost between $15,000 and $20,000 per space if only limited environmental and/or underground factors were associated with the construction. The studies estimated that the costs to maintain a garage were between $250 and $500 per space per year, depending on whether the garage was staffed.
Other Parking
Because of the proximity of BIW to the downtown, several downtown parking lots are used by BIW employees (discussed previously). Some lots are BIW-owned, others are not. In the non-BIW-owned lots, parking-lot owners rent spaces monthly to downtown employees, BIW employees, and others. Three BIW-owned lots are located at the Middle Street and Centre Street intersection, and a privately owned lot, primarily used by BIW employees, is located south of Leeman Highway between Middle and Washington Streets. Outside of the downtown, there are numerous other BIW-owned and non-BIW-owned lots, as well as a lot owned by the City. These lots are located near the south end (and South Gate) of BIW.

Other Concerns
The Land-Use Code appropriately regulates parking-lot layout, traffic circulation, vehicle and pedestrian safety, and landscaping. However, several lots that existed before these regulations were adopted are not landscaped. Some have gravel surfaces that are dusty when dry, causing sand and gravel to wash into the streets and storm drains during heavy rains and snowmelt.

BICYCLE AND PEDESTRIAN INITIATIVES
In addition to the sidewalk system discussed previously, there are a number of trails and pathways—existing, planned, and envisioned. The proposed Washington Street—Webber Avenue sidewalk from High Street to Hinckley Street can be thought of as an on-street, riverside pathway along the Kennebec River. It was described in the 2001 "Urban Design Plan." The pedestrian path would promote walking from the South End, including Maine Maritime Museum, into the downtown. The plan also states that the City should "[n]arrow the width of Washington Street to provide a more pedestrian environment and help reduce traffic speed. Where parking is not needed, the travelway should be 24 feet wide." Part of this South End pedestrian pathway was designed in the autumn of 2007 and planned for construction in 2009.

The Androscoggin River Bike Path is a pathway used by many walkers, runners, bike riders, and others. In 2003, Bath, Brunswick, and the MaineDOT undertook a study to determine the feasibility of extending the pathway to Bath and the Sagadahoc Bridge. The design calls for the new
pathway to parallel the north side of the southbound lane of Route 1 from the current terminus of the Androscoggin River Bike Path to the Congress Avenue interchange. The pathway would continue along Congress Avenue just beyond Chandler Drive (i.e., the Bath Shopping Center entrance) to North Street, North Street to Commercial Street, and along Commercial Street to the Sagadahoc Bridge. The concept plan for the Congress Avenue section and most of the North Street section is for a bike-pedestrian facility separated from the street. The North and Commercial Streets portion would include a bike lane and an improved sidewalk.

The Androscoggin to Kennebec Trail is a part of the East Coast Greenway, which is a national effort to establish an off-road pathway from Key West, Florida, to Calais, Maine. Until it can be constructed, an interim, on-road route has been established as follows: Androscoggin River Bike Path, Old Bath Road (in Brunswick to Bath), Old Brunswick Road, North Street, and Commercial Street to the Sagadahoc Bridge.

Also, the City of Bath began a study in 2008 to develop a concept plan for a riverfront pathway in the downtown connecting Waterfront Park at the Bath Railroad Station to the north end of the City's downtown waterfront.

There are other trail initiatives as well. In 2008, the Lower Kennebec Regional Land Trust (LKRLT), the City's Planning Department and Parks and Recreation Department, the Lower Kennebec RSU 1 and the Bath Middle School, Bath Cool Communities, The Hyde School, Healthy Maine Partnerships, Bath Area Family YMCA, interested citizens, and local businesses came together to form Bath Trails. Currently (i.e., 2008), the organization is under the auspices of the LKRLT. Although several trails, sidewalks, walkways, and other bicycle and pedestrian pathways are located in Bath that connect the South End of the City to the downtown, the highly important natural areas such as Thorne Head to the City's outdoor recreation complex and then to the YMCA, the downtown to the City's Historic District, and the neighborhoods to schools and recreation areas, they are not thought of as a connected network. The goal of Bath Trails is to connect them into an integrated system, to maintain them, to publicize them, and to get people to use them.
EVACUATION ROUTES

Depending on the type of emergency situation, the weather, and the intended destination, evacuation routes in the City of Bath include Route 1, State Road, High Street, and Old Brunswick Road.

IMPACTS OF THE TRANSPORTATION SYSTEM

BIW Commuters
The day shift at BIW starts at 7:00 a.m. and ends at 3:30 p.m. During the morning commute time, arrival times for workers are spaced out enough so there is little impact on local streets. The afternoon shift change, however, is quite different. With the entire day shift leaving at once, Washington Street, streets that connect Washington to High, and High Street are very congested for a short period. However, traffic studies for nearby development projects (e.g., the 2003 Hannaford’s grocery store traffic study) do not model the BIW situation very well. Models show it as being a peak-hour phenomenon; however, the congestion—the queues on High Street at Richardson Street and at the Route 1 on-ramp—is more severe than the models indicate but for a shorter period of time.

Idling
Idling occurs in the downtown in numerous parking lots and on Front and Centre Streets, as drivers leave engines running while doing errands. It is well documented the idling a vehicle’s engine negatively impacts air quality; emissions from an idling engine contain extremely high levels of carbon dioxide, carbon monoxide, nitrous oxides, and hydrocarbons. Idling also wastes fuel and money. It has been estimated that American drivers unnecessarily consume more than 2 billion gallons of fuel each year while idling. Idling in the downtown and near pedestrians and open windows is a health concern for people with asthma and other respiratory diseases and for those with heart disease.

Jake Brakes
The engine brakes that make so much noise are called Jake brakes. The system consists of a mechanism that can turn the diesel engine of a large truck into an air compressor, which then provides additional braking power. Although Jake brakes are efficient for slowing down a vehicle, they are noisy, impacting a neighborhood and resulting in complaints. Jake brakes
seem to be commonly used on High Street south of the Ledgeview Apartments and the northbound lane of the Sagadahoc Bridge.

**Speeding**

Speeding on High Street and Route 1 was discussed previously. Other speeding locations, according to the Bath Police Department, include Washington Street (south of Route 1 and north of Winter Street), Congress Avenue, State Road, and North Street.

**Non-point Source Pollution from roadways**

The Bath Public Works Department follows Best Management Practices when maintaining street, bridges, replacing culverts, and doing other maintenance and improvements projects. One of the largest sources of non-point pollution, however, is the water coming off the Route 1 viaduct. The solution to this problem will have to be a shared City-Maine DOT effort.

**THE TRANSPORTATION AND LAND-USE CONNECTION**

As stated at the beginning of this appendix, streets serve many (and often conflicting) functions. They carry vehicles and provide access to various land uses. There is an intricate connection between transportation and land use, which was explained in an informative briefing paper prepared for the State of Oregon’s Department of Transportation and Department of Land Conservation and Development (Oregon Transportation and Growth Management Project, 2003). Parts of the paper are quoted as follows:

> Transportation systems and land use patterns influence each other. Roads, transit, and other transportation elements shape land development, while the distribution and types of land uses affect travel patterns and transportation facilities. A dispersed pattern of low-density development relies almost exclusively on cars as the primary mode for transportation.

> Alternatively, denser urban centers can combine different land uses in closer proximity, encouraging:

  * Walking
  * Biking
  * Transit
  * Other forms of travel

Like many planning issues, the link between land use and transportation is extremely complex. Many options have been proposed for strengthening the transportation and
land use connection. Incorporating elements of Smart Growth offer a choice of transportation options.

**Conventional Development Patterns**

The layout and design of land uses affect the choice of mode of travel. Often, development patterns isolate various land uses, such as residential, office, and retail land uses. Low-density commercial and residential developments have the following problems:

- Large lots and low density discourage walking and bicycling.
- Street layout funnels traffic onto major arterials, causing congestion on major streets.
- Roads are designed for mobility of cars as opposed to accessibility for all modes.
- Streets are wide with multiple lanes of traffic and often lack sidewalks.
- In commercial areas, large parking lots often separate retail businesses.
- Buildings set far apart by vast parking areas and wide access roads discourage walking between uses.
- Residential streets have gradual curves encouraging higher speeds and may end in cul-de-sacs, minimizing through-traffic.
- Community development [land use or zoning] codes usually include neighborhood street layout and design standards that only conform to the automobile.

**Newer Development Patterns: Smart Growth**

The design of newer development patterns displays a different street layout and land use. This alternative includes an integration of different land uses in closer proximity by promoting higher densities with a mix of land uses. The principles of this form of development include:

- The revitalization of cities and older suburbs with new growth in already developed areas.
- The protection of farms, open spaces, and sensitive environments from new development.
- The reduced cost of building and maintaining public infrastructure and services. Compact communities can be less costly to local governments, allowing communities to spend money on other services.
- Traffic-calming devices on local streets, such as traffic circles [roundabouts] or speed bumps.
- The addition of on-street parking provides a buffer between moving vehicles and pedestrians, while moderating traffic speed.
- Houses built closer to the sidewalk and street. Porches instead of garages in front facilitate interaction and are pedestrian-friendly.
This discussion highlights the relationships between transportation and land use. The “conventional development pattern” that it describes occurred in towns and cities in the United States after World War II, during the growth of the automobile era. As explained in Chapter 3, the City of Bath experienced most of its growth and development before the automobile, when people walked to work. Bath’s development pattern is not the conventional pattern mentioned in the Oregon paper—it is an old, mature development pattern, after which the “Newer Development, Smart Growth” is modeled.

Land-use regulations in the City of Bath continue to encourage this type of growth and development:

- Growth is discouraged in the rural parts of Bath.
- Infill development is promoted.
- Small lots (by Maine standards) are allowed.
- Narrow streets are allowed in new developments and narrowing of existing streets is being promoted.
- Street connectivity is encouraged.
- On-street parking in the downtown and in most residential neighborhoods is allowed.
- Access-drive management is strict.
- Houses are allowed close to the street in high- and medium-density residential neighborhoods.

**PLANNING IMPLICATIONS OF THE TRANSPORTATION INVENTORY**

1. Bath is a true transportation hub with Route 1, the Kennebec River, and the railroad all coming together in the downtown. This critical mass of transportation services can greatly enhance transportation access in the area as well as significantly position Bath to become more of a tourist and visitor destination. Enhancing these transportation modes and integrating them into broader community goals (e.g., neighborhood preservation and downtown revitalization) are important to the City’s economic and community-development future.
2. The Route 1 design west of High Street presents a poor image as a City gateway. It also provides poor vehicular and pedestrian connectivity between the North End and the South End in those parts of the City. The design encourages speeding, provides poor access management, and has several HCLs along or associated with it.

3. The City’s participation in the MaineDOT Gateway 1 study is important for Bath as well as the rest of the Route 1 corridor.

4. The current Route 1 viaduct through the downtown has poor aesthetics and—although offering a link north and south under Route 1—creates a visual barrier and perhaps a psychological barrier between the North End and the South End of the City.

5. Although AADT counts at many locations decreased between 2002 and 2005, the MaineDOT forecasts that traffic on Route 1 in Bath, especially in the summer, will continue to increase through 2030.

6. The local committee that worked with the MaineDOT and its consultants on the conceptual design of the Route 1 viaduct replacement voted that a new, four-lane viaduct was the best alternative. Although it will be several years before the viaduct is replaced, the improvements that the study suggested for Route 1 west of High Street could be done independently of the replacement.

7. BIW commuter-traffic impacts are significantly lessened by the Sagadahoc Bridge. Any design of the viaduct replacement should ensure that maintaining free traffic flow onto the bridge is mandatory.

8. High Street, south of Route 1, serves as access to Phippsburg and Popham Beach. The traffic (and the speed of the traffic) is negatively impacting quality of life of this neighborhood.

9. Quality of life is also being impacted in neighborhoods such as the Richardson Street-Western Avenue neighborhood and the Court Street neighborhood by vehicles using local streets as cut-throughs to and from Route 1 and/or West Bath. Local streets are impacted by
BIW traffic using local streets between High and Washington Streets.

10. Although the Route 209 Bypass might solve some of these traffic problems (discussed previously), the funding of the bypass cannot be justified by the state as a Route 1 improvement.

11. HCLs help to identify trouble spots on streets and roadways. HCLs are associated with Route 1, Leeman Highway, the State Road and Congress Avenue intersection, and the Centre Street and Middle Street intersection.

12. The Rockland Branch rail line through Bath is owned by the state. In recent years, the line has had significant upgrades to rails, ties, crossings, and ballast. The line through Bath is used to move freight and for the seasonal Coastal Maine Scenic Passenger Train. The long-term plans for the line include providing tourists with multimodal, vehicle-free vacations; connecting the Rockland Branch to Amtrak; and alleviating traffic on Route 1 with a BIW commuter service.

13. Bath is served by a City-operated deviated fixed-route transit system, seasonal trolley, intercity bus, and demand-response bus service. Not all of these services connect at one location.

14. The marine highway offered by the Kennebec River has functioned as a vital economic resource for centuries and it is still a major economic resource today.

15. According to recent studies, Waterfront Park is the best location for expanded waterfront facilities to support Maine’s “Strategic Passenger Transportation Plan,” which envisions bringing tourists to Maine for vehicle-free vacations.

16. A 1999 study found that within the downtown, parking supply was approximately in balance with demand. It found, however, that there were block-specific shortages of parking, primarily along Front Street.
17. Several parking lots in the downtown serve BIW employees. These lots are more valuable to Bath's economy than simply storing vehicles for 8 or 9 hours each day.

18. Bath is located on the East Coast Greenway, the national non-motorized pathway from Key West, Florida, to Calais, Maine. The local long-term plan for the Greenway is to extend the Androscoggin River Bike Path from Brunswick to the Sagadahoc Bridge.

19. Sidewalks in and around the downtown need to be upgraded to meet the “walkable-city” goal described in the 1999 “Action Plan for the Bath Downtown and Waterfront.” A pedestrian pathway linking various locations on lower Washington Street to the downtown, and along the river in the downtown, would provide an important connection and complement the walkable-city initiative. The various non-City and City trail and pathway initiatives could be coordinated, mapped, and publicized as a City-wide trail system. Addressing the negative impacts of the transportation system will make Bath a more pleasant and healthy community.

20. The uses of land and transportation systems have a complex connection. Being an old, mature, compact city, Bath exemplifies what is today called “Smart Growth.” Bath continues to promote Smart Growth by discouraging growth in the rural parts of the City, promoting infill development, allowing small lots (by Maine standards), allowing narrow streets in new developments and the narrowing of existing streets, allowing on-street parking in the downtown and most residential neighborhoods, and permitting houses to be built close to the street in high- and medium-density residential neighborhoods.
APPENDIX H
PUBLIC FACILITIES AND SERVICES INVENTORY

INTRODUCTION

Community facilities and services are the most tangible link between any local government and its citizens, and there is a good explanation for this. The primary reason for the existence of local government is to provide public facilities for and services to its residents. How well this is accomplished is often the only measure that residents have of the quality of their government. As demands on local government increase, how well this is accomplished now and in the future will play a major role in determining the quality of life in the City of Bath.

This inventory of public facilities and services reviews the City's departments, focusing on the major departments: Fire, Police, Public Works, Parks and Recreation, and Administration (the Bath School Department and RSU 1 are discussed in Appendix I). The inventory lists staffing levels, equipment and facilities, services and service-delivery area, capacity, budget, needs and concerns, and estimated costs to meet needs and address concerns.

FIRE DEPARTMENT

Staffing
- twenty-three full-time and ten on-call personnel

Equipment and Facilities
- Equipment is listed in the Inventory of Capital Equipment.
- The Bath Fire Station, built in 1957, is located on High Street.

Services
- Fire suppression: 455 calls in 2007; showing some increase
- Fire prevention by education, business inspections, and limited inspections of multifamily dwellings
- Emergency Rescue: 2,048 calls in 2007, up from 1,100 calls in 1998 (an increase of 86 percent)
- Dispatch and E911 provided by Sagadahoc County Dispatch, funded by the Sagadahoc County budget
• According to records of the Maine State Fire Marshall’s Office, the City of Bath has the second fastest average response time (i.e., both fire and rescue, both in and out of town) in the state; the 6-minute or less response time is second only to Portland.

Service-Delivery Area
• Bath
• Automatic aid with BNAS (provides assistance to or from BNAS without request)
• Mutual aid with Brunswick and West Bath
• Service provided to Arrowsic by contract
• More regional consolidation of the Greater Bath fire and rescue services has been discussed

Capacity
• The staffing of the Bath Fire Department is adequate to provide the appropriate level of fire suppression given the aid provided by BNAS.
• According to a 2002 study by Harriman Associates, the Fire Station is being used beyond its designed capacity. The office, living quarters, space for vehicles, restrooms, and storage are all inadequate, and the building does not have a proper fire-alarm system.
• The department is well staffed to accommodate the aging of the population anticipated in the next five to ten years.
• The department is not well staffed to accommodate adequate responses to tall buildings (i.e., ten to twelve stories) because of safety procedures that require teams of personnel to be used to evacuate people.

Needs and Concerns
• The closing of BNAS in 2011 will reduce the number of personnel available to respond to a structure fire in Bath.
• To meet appropriate design and capacity standards, the Fire Station should undergo the improvements recommended in the Harriman Associates study.
• Implementing the entire Harriman Associates study is being delayed until further discussions take place concerning regional consolidation of the Greater Bath fire and rescue services.
• Whereas the number of rescue calls is rising steeply, the cost in property tax dollars is not; individuals' insurance carriers pay much of the cost of rescue calls. Although the revenue is not local tax dollars, it is subject to the City's spending-limitation requirements, thereby impacting the ability to spend in other areas and for other needs. (The spending-limitation regulations are explained in Appendix J, Fiscal Inventory.)

Costs to Meet Needs and Address Concerns
• In 2002, it was estimated that it would cost $1.8 million to implement the Harriman Associates study recommendations.

POLICE DEPARTMENT
Staffing
• eighteen "sworn" officers (i.e., the typical police officer, capable of making arrests), down from nineteen in 2007
• two full-time and three part-time administrative personnel
• two school-crossing guards, down from three in 2007

Equipment and Facilities
• Equipment is listed in the Inventory of Capital Equipment.
• The Bath Police Station, built in 1987, is located on Water Street.
• There is a substation at the Maritime Apartments on the corner of Windjammer Way and Oak Grove Avenue.

Services
• Traffic enforcement
• Parking enforcement
• Crime prevention
• Harbor Master service
• Animal control (part-time position)
• Community Policing Partnership (CP2): Established in 1995, CP2 represents government, clergy, citizens, and neighborhoods. It is an umbrella group for a number of subgroups such as Volunteer in Policing Service (VIPS), Juvenile Resolution Team, Safety Day, Community Speed Watch, Harbor Master Safety Patrol, Neighborhood Substation at the Maritime Apartments, and Shields of Hope (i.e., a
program for Big Brothers and Big Sisters children who do not yet have a big brother or sister)

• Neighborhood Officer Program: Officers are assigned specific neighborhoods to better understand them and to provide better service. Currently, there are neighborhood officers assigned to the Hyde Park and Maritime Apartments neighborhoods.
• The Good Morning Program, in which almost twenty mostly elderly people are called every morning to make sure they are safe.
• The VIPS provides resources for traffic control, minor security details, community speed watch, school-crossing-guard substitutes, assistance with the department's web site, and boat patrols.
• Service-delivery area is the City of Bath.
• Dispatch and E911 are provided by Sagadahoc County Dispatch.
• The Police Department answers approximately 8,500 calls for service per year, down from approximately 9,000 calls ten years ago.

Capacity
• Staffing of the Bath Police Department is sufficient to provide the current level of services and for the anticipated change in the City's population.
• The Police Station is adequate in size. Maintenance is funded through the department's operations and maintenance budget.

Needs and Concerns
• According to Police Department surveys, the number-one public concern is traffic.
• The second concern is drug-related activity, which leads to other crimes such as theft.
• Downtown parking is the third public concern.
• According to Uniform Crime Reporting, there were 312 major crimes (i.e., homicide, rape, robbery, burglary, assault, theft, and vehicle theft) in Bath in 2006, down from 484 in 1996. This decline may be a result of the Police Department's Community Policing philosophy.

Costs to Meet Needs and Address Concerns
• The Police Department feels that by being proactive with programs such as CP2 it can keep expensive reactive costs down.
• Many costs have been kept down by the aggressive approach of applying for and receiving grants; almost $55,000 was received in 2005.
• Other cost savings have been achieved by the use of volunteers.

PUBLIC WORKS DEPARTMENT
Staffing
• staff includes:
  o the Director and Deputy Director (both are registered professional engineers)
  o six full-time personnel in the highway division
  o four full-time and one half-time year-round personnel in the landfill division
  o three full-time personnel in the sewer division
  o six full-time and one half-time personnel in the wastewater treatment division
  o one full-time administrative staff person
• Personnel from the highway, sewer, and wastewater divisions and the Parks and Recreation Department plow and sand streets during winter storms.

Equipment and Facilities
• Equipment is listed in the Inventory of Capital Equipment.
• The PWD garage, built in 1963, is located on Oak Grove Avenue.
• The salt and sand shed, built in 2001, is also located on Oak Grove Avenue.
• The 25-acre Bath Landfill is located off Upper High Street. The most recent expansion occurred in 2008.
• The wastewater treatment plant is located at the corner of Bowery Street and Town Landing Road. It was constructed in 1971 with a major expansion in 1998.
• There are thirteen sewer-pumping stations, as follows:
Services

- Maintenance of 52 miles of public streets, which includes repairing and rebuilding when necessary, plowing, sanding, sweeping, painting lines, and maintaining drainage facilities.
- Sidewalk maintenance and system expansion.
- Maintenance of the City’s traffic lights (i.e., Centre and Washington Streets and Washington Street and Leeman Highway).
- Signage placement, repair, and replacement.
- Maintenance of the wastewater treatment plant, which treats an average of 2.2 million gpd of wastewater. The treatment plant also accepts septage, charging $110 per 1,000 gallons.
- Administration of the contract with Soil Preparation, Inc., to dispose of the sludge produced by the wastewater treatment plant. The treatment plant produces approximately 40 cubic yards (cy) a week. Soil Preparation, Inc., mixes the sludge with organic materials such as leaves and grass clippings to create compost.
- Maintenance of 40 miles of public sewer pipes, which provide service to more than 90 percent of the dwelling units in Bath; 21 miles of storm drain pipelines; 1,500 manholes; and 750 catch basins.
- Operation of the 25-acre Bath Landfill.
• Administration of the City’s curbside pickup of waste and recycling, which is provided to residential (i.e., one- and two-family) dwellings. In 2008, the contract for these services was with Pine Tree Waste.

• The Bath recycling program includes single-stream curbside collection of household recyclables and a drop-off facility at the Bath Landfill. The weekly curbside program for residences uses a five-compartment recycling truck that is owned by the City and is operated and maintained by the City’s vendor, Pine Tree Waste. The truck collects newspaper, magazines, catalogues, telephone books, paperbacks, direct mail, envelopes, paperboard, milk and juice cartons, cardboard, brown paper, plastic bottles and containers numbered 1 through 7, glass and plastic bottles, glass jars (any color), milk jugs, bleach and detergent bottles, plastic food containers, aluminum foil items, and metal cans. These items are collected as “single-stream” (i.e., they do not have to be separated). The Bath Landfill drop-off facility is open to all customers, commercial or residential, Bath or non-Bath residents. The same items collected curbside can be dropped off and placed in one of four multicompartiment roll-off containers owned by the City and hauled by Pine Tree Waste. The Bath Landfill accepts the following materials for recycling:

<table>
<thead>
<tr>
<th>Material</th>
<th>Recyclable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office paper</td>
<td>Used antifreeze</td>
</tr>
<tr>
<td>Newspaper</td>
<td>Porcelain and glass</td>
</tr>
<tr>
<td>Propane tanks</td>
<td>Televisions/computer monitors</td>
</tr>
<tr>
<td>Asphalt roofing</td>
<td>Rechargeable batteries</td>
</tr>
<tr>
<td>Drywall/sheetrock</td>
<td>Vehicle batteries</td>
</tr>
<tr>
<td>Demolition wood</td>
<td>Mercury-containing items</td>
</tr>
<tr>
<td>Brush</td>
<td>Fire extinguishers</td>
</tr>
<tr>
<td>Leaves</td>
<td>Helium tanks</td>
</tr>
<tr>
<td>Metals/white goods</td>
<td>High-intensity discharge bulbs</td>
</tr>
<tr>
<td>Tires</td>
<td>Mercury or sodium vapor bulbs</td>
</tr>
<tr>
<td>Used oil</td>
<td>Fluorescent light bulbs (all shapes and sizes) and ballasts containing PCBs</td>
</tr>
<tr>
<td>Junk paper</td>
<td></td>
</tr>
</tbody>
</table>

Source: Bath Public Works Department, 2008.

• Operation of the “Bargain Barn” (i.e., reusable items) at the Bath Landfill.

• Planning and implementation of the annual household hazardous-waste collection program.
• Operation of a gasoline and diesel fueling station for City of Bath and Sagadahoc County vehicles.
• Maintenance, removal in the autumn and installation in the spring of floats at the North End and the South End Boat Launches and at Waterfront Park.
• Coordination of the "Pay-As-You-Throw" (PAYT) program. The program went into effect in October 2007 and requires residents to purchase PAYT bags for household waste. Any waste not in a PAYT bag will be neither picked up nor accepted at the landfill. As of March 2008, the PAYT program has decreased by half the amount of waste going to the landfill and doubled the amount of recycling.
• The Director reviews subdivision and site plans for the Planning Director, inspects sewer lines at new developments, processes street-opening and sewer-connection permits, and advises the City Manager regarding public works and infrastructure projects to be undertaken in the City.

Service-Delivery Area

• The service-delivery area is the City of Bath.
• The Bath Landfill accepts household waste and recycling from Bath and other communities.
• The service area of the City's sewer collection system is shown on the Public Utilities Map. Most of the City (i.e., approximately 66 percent) located southeast of the Whiskeag Road crossing of Whiskeag Creek is or is capable of being served by public sewer lines. Exceptions are Oak Grove Avenue north of Crawford Drive (connected to the public sewer line at Crawford Drive by private, forced sewer mains) and Whiskeag Road between Oak Grove Avenue and High Street (served by septic systems).

Capacity

• The wastewater treatment plant has the capacity to treat 7 million gpd of wastewater.
• Due to groundwater infiltration and the number of storm drains connected to the sanitary sewer, the sewer collection system is limited in capacity during heavy rain events and snowmelts. When the sewer collection system is over-capacity, it discharges to the
Kennebec River through MaineDEP-licensed discharge locations (i.e., CSOs).

- There are four CSO points in the City of Bath licensed by the MaineDEP, which is down from thirty-one in 1971. Expansion of the wastewater treatment plant, pumping-station improvements, and separation of storm and sanitary sewers resulted in the reduction of CSOs.

- The capacity of the wastewater collection was increased by separation projects in the Castine Street (formerly Pleasant Street) area in 1979, in the North End and the South End in 1988, in Lambert Park in 1997, and in the Commercial Street area in 1998. Many other smaller projects removed millions of gallons of stormwater from the sanitary sewers.

- The Hunt Street wastewater pumping station is operating beyond its design capacity (i.e., running longer and coming on more often than designed to).

- The upgrades to the sewer pumping stations have been done to improve the system as a result of system failures. There have been no upgrades the sewer pumping stations based on an analysis of the potential for growth in the pumping stations' collection area.

- The Bath Landfill is estimated to be able to operate for another twelve years at the current (i.e., 2008) rate of waste disposal. After a 2006 comparison analysis of the costs and benefits of accepting more waste from other communities, generating more revenue, and closing the landfill sooner versus accepting no waste from other communities, generating no revenue, and extending the life of the landfill, the City chose a middle approach-accepting some waste from other communities, generating some revenue, and extending the landfill's operation another twelve years. The landfill has four remaining construction phases. The second part of Phase 2 was constructed in 2008, providing 198,600 cy of additional space. Phases 3 and 4 will provide 115,000 and 54,300 cy of space, respectively. The final phase will be closure of the landfill. In 2005, the SPO calculated Bath's municipal recycling rate at 29.89 percent. The state goal is for each municipality to recycle 50 percent of all waste generated. By 2007, the Bath rate was more than 35 percent, which appears to have been achieved through the PAYT implementation. As of late 2008, however, it is too soon to have definitive percentages.
Needs and Concerns

- Development of the next two- to three-year street-improvement plan is a concern due to escalating cost of bituminous products.
- A plan for sidewalk improvements and expansions needs to be developed.
- Continued assessment of the performance of the wastewater collection and treatment system and reduction of the number and frequency of CSOs is needed.
- A segment of the older portion of the landfill is below the liner and groundwater flows through the old waste. The groundwater is monitored by the City and reported to MaineDEP.
- The landfill generates various gases as waste decomposes, one of which is hydrogen sulfide. Although it comprises less than 2 percent of the gases produced, it has the strongest odor. In 2006, the City installed gas-igniting flares to burn off the gas. In 2008, the City installed a gas-mitigation system to collect and burn nuisance odors and to better manage landfill-produced gas. In March 2008, the City began investigating the potential for generating energy from the gas-combustion process as well as the sale of carbon credits.
- Completion of a ten-year wastewater treatment plant facility plan that would identify capital investments to keep it operating efficiently is needed.
- An increase in the capacity of the Hunt Street pumping station is needed.
- The build-out potential in the pumping-station collection areas needs to be studied.
- Improvements to increase the capacity of streets and intersections are driven by the size and location of development. The build-out potential to help plan for street and intersection capacity improvements needs to be studied.
- Many of the streets, sanitary sewers, and storm sewers are old and have not been maintained well because of past funding priorities.
Costs to Meet Needs and Address Concerns

- $1.5-2.0 million in 2015 for Phase 3 cell construction (i.e., expansion) and gas-management installation
- $1.0 million in 2019 for Phase 4 cell construction (i.e., expansion) and gas-management installation
- $4 million to $5 million in 2022 for landfill closure
- $500,000 for upgrade of the Hunt Street pumping station

PARKS AND RECREATION DEPARTMENT

The Parks and Recreation Department was established in 2007 (at the beginning of FY2008) by combining the Recreation Department and the Cemetery and Parks Department. The Parks and Recreation Director manages the new department.

RECREATION DIVISION

The Recreation Division is organized differently than other City departments. The public recreation services in Bath operate with an advisory board called the Recreation Commission, which is a seven-member board appointed by the City Council for terms of three years. One of the voting Commission members is a City Councilor. The Commission now operates as an advisory board to the Recreation Division on recreational issues such as budget planning, facility and programming needs, and policy development. The Commission was a policy-making board before the merging of departments and was responsible for hiring the Recreation Director, making decisions about programming, and recommending the budget to the City Council.

The Recreation Division of the new department budget is funded approximately 50 percent from local property taxes and 50 percent from user fees. The overall goal of the Recreation Commission and the Parks and Recreation Department is to offer diverse recreational and leisure opportunities that enhance quality of life for Bath citizens.

Staffing

- six full-time and one part-time year-round personnel
- twenty to twenty-five seasonal personnel
Equipment and Facilities

- Equipment is listed in the Inventory of Capital Equipment.
- The Department’s administrative office is located at the former Donald Small School on Sheridan Road. This building was constructed in 1963 as part of the Saint Mary’s Church School facilities. The building includes classroom space and a small gymnasium. It also houses the studio of the Bath Community Television Station.
- The Community Center at Lambert Park, built in 2001, is on Office Drive. It includes an office, kitchen, restrooms, a large meeting room, parking lot, and playground, all of which can be used by the community.
- Varnum Field on Denny Road encompasses 7.4 acres used for soccer, baseball, softball, high-school physical education, and open space.
- Kimball Field and Hawkes Field on Sheridan Road encompass 7.6 acres of fields for baseball, softball, and soccer; community gardens; and two basketball courts.
- Maritime Field (privately owned and leased to the City), located at the corner of Oak Grove Avenue and Mariner Way, encompasses 3 acres used for soccer, football, and other youth sports.
- Edward J. McMann Outdoor Recreation Area on Congress Avenue encompasses 40.8 acres, including:
  - an all-weather 400-meter running track
  - Legion Field, a multi-use facility
  - Kelley Field, a multi-use facility
  - McMann Field, a 3,500-seat stadium and multi-use facility
  - Tainter Field, a multi-use facility
  - four tennis courts and a basketball court
- Goddard’s Field/Pond, located at High and Marshall Streets, encompasses 2.83 acres and is a multi-use facility; nonwinter use includes youth sports practices, winter use includes ice-skating and hockey when the weather cooperates.
- Dummer Street Pond, located at Beacon and Dummer Streets, is a 1-acre, privately owned site leased by the City and used for ice-skating when the weather cooperates.
- Hyde Park Playground, located at the corner of Lark Street and Central Avenue, encompasses 0.7 acre and is a privately owned site leased by the City.
• Lambert Park Playground on Office Drive encompasses 0.3 acre, is located at the Community Center at Lambert Park, and provides playground equipment for children.

Services
Services provided by the Parks and Recreation Department include the following:

Youth Activities
Art Programs
Basketball - Boys, grades 5 & 6
Basketball - Girls, grades 5 & 6
Basketball - Girls, grades 3 & 4
Basketball - Girls, grades 1 & 2
Basketball Travel Teams - Boys & Girls
City Foul-Shooting Championship - grades 3-8
February Vacation Camp
Hunter Safety Course - ages 10 & older

Lacrosse - Boys & Girls, grades 3-8
Mad Science
Middle School dances - grades 6-8
NFL Pepsi, Punt, Pass & Kick
Red Cross Babysitting Course - ages 11-15
Running Club, Spring - ages 6-12
Ski Lessons, Lost Valley - age 8 through grade 7
Soccer - age 5
Soccer - grades 1-8
Softball - ages 6-9
Wrestling - grades 1-5

Summer Programs
American Red Cross Babysitting Course
Baseball Academy
Basketball - Girls & Boys, grades 1-8
Basketball - High School Boys & Girls, grades 9-12
Beach Days
Challenger Soccer Camp
Cheerleading Day Camp
Golf Lessons - ages 8-14
Major League Soccer Camp - age 5 & older

Middle School Summer Experience
Soccer - High School Boys & Girls grades 9-12
Soccer Camp - grades 1-8
Softball - Girls, grades 1-8
Summer Cookout - For Participants of Summer Programs
Summer Day Camp - ages 6-12
T- Ball - Co-ed, ages 5-7
Tennis Lessons - ages 5-14
Track - ages 6-14
Youth Garden Club
Wrestling - grade 1 & up

Adult Programs
Adult Tennis Lessons
American Red Cross Sport Safety Training
American Red Cross First Aid

American Red Cross Pet First Aid
Hunter Safety Course
Line Dancing
Men's Softball League
Over 35 Men's Basketball
Senior Citizens Cribbage Tournament Volleyball - Co-ed

Special Events
Annual Auto Show Annual Community Safety Day Citizen Involvement Day Annual Scarecrow Event

Volunteer Coaches Certification Classes

Annual Heritage Day Road Race Annual Window-Painting Contest Annual Grade 5 & 6 Boys and Girls Basketball Tournament

School Vacation Activities

Outdoor Winter Activities
Cross-Country Skiing - 3 Miles of Ski Trails at Bath Country Club Ice Hockey - Goddard's Pond Ice-Skating - Goddard's Pond and Dummer Street Pond

Sledding - Bath Country Club near Ridge Road and the backside of Legion Field on Congress Avenue

Service-Delivery Area
- The service-delivery area is the City of Bath.
- Residents of other communities may participate in programs; however, some programs have increased fees for non-residents.
- At non-fee venues, services (or facilities) are also available to nonresidents.

Capacity
- The overuse and continual activities at all facilities create problems for scheduling time to conduct regular maintenance; there is little down time at most facilities.
- More facilities are needed; demand and usage continues to grow every year. Demands on staff to maintain facilities also grow, and increases in sports schedules allow less time to maintain facilities at a high standard.

Needs and Concerns
- Various guides and “standards” can be used to determine whether a community is providing “enough” recreation services and facilities. The 1997 Comprehensive Plan discussed the 1988 State Comprehensive Outdoor Recreation Plan (SCORP) and its standards for facilities such as the number of tennis courts, soccer fields, baseball fields, boat...
launches, or acres of parks per capita. Perhaps a better measure of adequacy is to determine whether (1) any facilities or services are at capacity, (2) their use is increasing and by how much, and (3) the increase is likely to continue and, if so, when will they be at capacity.

- Although the City's population is aging, few people in the 65+ age groups participate in Recreation and Parks Department programs or request new programs. The Department believes that the Bath Area Senior Citizens and the YMCA are currently meeting the needs of people in these age groups. However, these age groups should be surveyed to determine if their recreation and leisure service needs are indeed being met.

- Another possible unmet need is additional playgrounds for young children. Playgrounds at the elementary schools are usable when school is not in session, and there are playgrounds at Hyde Park and Lambert Park. However, other neighborhood-sized and neighborhood-oriented playgrounds are needed.

- Recreation in Bath is both organized and self-directed, such as bicycle riding, walking, hiking, and jogging. The importance of this form of recreation needs to be recognized and promoted.

Costs to Meet Needs and Address Concerns

- A possible solution to the field-maintenance concern is the installation of a synthetic turf on McMann Field, which could cost from $500,000 upwards. It would enable the activity usage to increase from approximately 400 hours to well over 2,500 hours annually. In addition to six times more opportunity to use the field, the City could rent it out whenever municipal or school-sanctioned events are not scheduled, with little or no impact to the integrity of the field. Other area towns that installed this type of surface have seen community and group use increase significantly.

- The cost to survey the 65+ age groups is not known.

- The cost to develop a playground for preschool-aged children could range from $5,000 to $25,000, depending on the type of equipment.

CEMETERY AND PARKS DIVISION

Staffing

- four full-time employees
- ten to fifteen temporary, seasonal employees
Equipment and Facilities

- Equipment is listed in the Inventory of Capital Equipment.
- The office, built in 1925, is located between Maple Grove and Oak Grove Avenues.
- The maintenance garage, built in 2002, is located behind the cemetery on Oak Grove Avenue.
- The former maintenance garage (currently used by the Vocational School’s building education program) is located on Congress Avenue.
- The Cemetery and Parks Division is responsible for the following cemeteries, parks, and boat launches:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Location</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummer Cemetery</td>
<td>Dummer Street</td>
<td>0.30</td>
</tr>
<tr>
<td>Fairview Cemetery</td>
<td>Winnegance Road</td>
<td>0.40</td>
</tr>
<tr>
<td>Calvary Cemetery</td>
<td>Upper High Street</td>
<td>8.60</td>
</tr>
<tr>
<td>Oak Grove Cemetery West</td>
<td>Oak Grove Avenue</td>
<td>39.00</td>
</tr>
<tr>
<td>Oak Grove Cemetery East</td>
<td>Oak Grove Avenue</td>
<td>14.60</td>
</tr>
<tr>
<td>Oak Grove Cemetery South</td>
<td>Oak Grove Avenue</td>
<td>41.00</td>
</tr>
<tr>
<td>Maple Grove Cemetery</td>
<td>Maple Grove Avenue</td>
<td>9.80</td>
</tr>
<tr>
<td><strong>Total Cemetery Acreage</strong></td>
<td><strong>113.70</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility</th>
<th>Location</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Park</td>
<td>Summer &amp; Washington Streets</td>
<td>3.90</td>
</tr>
<tr>
<td>Waterfront Park¹</td>
<td>Commercial Street</td>
<td>1.60</td>
</tr>
<tr>
<td>South End Park</td>
<td>Washington Street</td>
<td>10.00</td>
</tr>
<tr>
<td>Oliver Circle</td>
<td>Oliver Street</td>
<td>0.18</td>
</tr>
<tr>
<td>Richardson Street Triangle</td>
<td>Richardson/Lilac Intersection</td>
<td>0.05</td>
</tr>
<tr>
<td>Civil War Memorial, Centre Street</td>
<td>Centre and High Streets</td>
<td>0.20</td>
</tr>
<tr>
<td>Druid Park</td>
<td>1 Oak Grove Avenue</td>
<td>0.15</td>
</tr>
<tr>
<td>Spring Street, Trufant Burial Ground</td>
<td>West Corner of Spring Street &amp; Middle Street Intersection</td>
<td>0.17</td>
</tr>
<tr>
<td>Butler Head</td>
<td>North Bath</td>
<td>134.00</td>
</tr>
<tr>
<td>**Total Parks Acreage²</td>
<td><strong>150.25</strong></td>
<td></td>
</tr>
</tbody>
</table>

¹ Commercial Street is also used by the Vocational School’s building education program.
² Butler Head is located in North Bath.
Boat Launches

<table>
<thead>
<tr>
<th>Boat Launches</th>
<th>Town Landing</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>North End Boat Launch</td>
<td>Town Landing</td>
<td>2.40</td>
</tr>
<tr>
<td>South End Boat Launch</td>
<td>81 Washington Street</td>
<td>4.20</td>
</tr>
<tr>
<td>Total Boat Launch Acreage</td>
<td></td>
<td>6.60</td>
</tr>
</tbody>
</table>

Grand Total 270.55

1 The Waterfront Park floats and gangway are the responsibility of the PWD. The shoreside facilities are the responsibility of the Cemetery and Parks Division.

2 The LKRTL owns the 85.2-acre Thorne Head Preserve at the North End of High Street and 64.8 acres north of Whiskeag Road. The State of Maine owns 75-acre Lines Island in the Kennebec River. Although not City properties, these areas are open to the public, adding another 225 acres in Bath that is usable by the public.

3 The floats at the boat launches are the responsibility of the PWD. The shoreside facilities are the responsibility of the Cemetery and Parks Division.

Services

- The Cemetery and Parks Division is responsible for maintaining the cemeteries and overseeing burials, maintaining public parks, and caring for the City's 270+ acres of forested areas, 9,000+ identified trees located on City-owned property, and 6,000+ identified street trees. The first priority of this Division is to provide burials and maintain the cemeteries. The second and third priorities of the division are maintaining the parks and, through the Forestry Division, caring for the City's forest resources.

- The City Arborist is on call for any tree-related emergency, cultural management (e.g., planting; pruning; removal, new, and reinventory of tree stock; watering; fertilizing; applying pesticide; and cabling) of all City-owned trees, review of the landscape portion of site plans for the Planning Director, consulting for landscape projects for the City, and tree-related issues for the public. Since the 1998 Ice Storm, there have been no recorded power outages due to public trees failing, and public-tree damage has been reduced to only vehicular accidents.

- The City of Bath manages a tree nursery with more than 2,000 trees for use in projects around the City. Due to limited staffing, the Forestry Division utilizes the efforts of Bath school students to conduct ongoing street-tree inventories and timber cruises, as well as to complete a FEMA and USDA Forest Service Pre-Storm Damage Assessment.
Assessment Protocol that can be used in case of a catastrophic storm event to estimate the amount of tree damage incurred.

Service-Delivery Area
- Anyone may purchase a plot in a Bath cemetery; however, the fees are higher for nonresidents.
- Launching and retrieving boats at the boat launches is available free of charge to Bath residents and nonresidents.
- The parks are available to Bath residents and nonresidents alike.

Capacity
- The statement made previously about recreation facilities applies to the capacity of public parks as well. The 1997 Comprehensive Plan determined that the City of Bath was deficient in the per capita acreage of public parks when compared to the 1988 SCORP.
- Whereas the number of parks and boat launches has increased in the last ten years, the number and acreage of cemeteries has not, which is likely to be the trend in the future. The final disposition of those who have passed away has been changing in the last decade from regular burial to cremation, which has changed the need for developing additional burial space. Further expansion of the cemeteries will not be needed for decades.

Needs and Concerns
- Upgrades to the pier and pathways are needed at Waterfront Park.
- The restroom facilities at Waterfront Park are adequate but are showing years of use and need to be renovated. They are increasingly difficult to clean and the fixtures are beginning to fail more often.
- The South End Park needs additional park-type amenities (i.e., completion of the walking path, benches, and landscaping).
- Rehabilitation of the pavement is needed at the South End Boat Launch and at the main gate of Oak Grove Cemetery.
- Both Waterfront Park and South End Park should be accessible in the winter.
- Because of increased responsibilities and properties that the Department maintains, the Director believes that it needs to reorganize in the areas of supervision and equipment.
Costs to Meet Needs and Address Concerns

- Improvements to Waterfront Park continue to rise to approximately $80,000 plus about $330,000 to rebuild the City pier.
- Improvements for the restroom facilities range from $15,000 to $20,000.
- Planned improvements for South End Park are estimated at $60,000.
- Repaving of the main gate of the Oak Grove Cemetery is approximately $20,000.
- Repaving of the South End Boat Launch ranges from $35,000 to $40,000. (Funding for repaving the North End Launch was included in the 2009-2013 CIP and the project was completed in 2008 (FY 2009). Funding for repaving the South End Launch is an FY 2010 project included in the 2010-2014 CIP.)

ADMINISTRATION DEPARTMENTS

Staffing

- City Manager’s Office: City Manager, and Community Relations Coordinator
- Community Development Office: Community Development Director
- Finance Department: Finance Director, Deputy Finance Director (full-time but shared with RSU 1), Payroll Supervisor, and 2.5 employees in the Treasurer’s Office. The City’s General Assistance Program is overseen by the Finance Director. The individual providing the service is shared with the town of Brunswick. Service is also provided to West Bath.
- City Clerk’s Office: City Clerk, one full-time and one part-time Deputy Clerk
- Building Maintenance and CityBus: five full-time personnel
- Assessor’s Office: Assessor (who also serves as the City’s IT coordinator and the assistant City Manager) and Assistant Assessor
- Codes Enforcement Department: Codes Enforcement Officer, and half services of a full-time Administrative Assistant
- Planning Department: Planning Director and half services of a full-time Administrative Assistant
- Bath Community Television: two part-time personnel
Equipment and Facilities

- The administrative offices for the City are located in Bath City Hall. Built in 1929, City Hall (i.e., Davenport Memorial Building) is located on Front Street at the head of Centre Street.
- City Clerk’s Office: The City Clerk is responsible for the City’s voting-tabulation equipment.
- Building Maintenance and CityBus: The City’s Maintenance Supervisor is responsible for the upkeep of City Hall and the City’s buses.
- Assessor’s Office: The Assessor’s Office houses the City’s color plotter and computer and telephone equipment. (The Assessor is also the IT Director and is responsible for the City’s IT equipment.)
- Bath Community Television equipment includes the following:

<table>
<thead>
<tr>
<th>Broadcast Equipment</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nexus Win L GX Operating System</td>
<td>1 year</td>
</tr>
<tr>
<td>Leightronics Pro-16 Back-up Operating System</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Aavelin Composer Bulletin Board Program Generator</td>
<td>2 years</td>
</tr>
<tr>
<td>Dedicated Monitors (2)</td>
<td>4-5 years</td>
</tr>
<tr>
<td>VHS/SVHS Decks (9)</td>
<td>1-4 years</td>
</tr>
<tr>
<td>Mini DV/DV Deck (1)</td>
<td>4 years</td>
</tr>
<tr>
<td>Mini DV Deck (1)</td>
<td>4-5 years</td>
</tr>
<tr>
<td>DVD Player (1)</td>
<td>1-2 years</td>
</tr>
<tr>
<td>Dedicated PCs (2)</td>
<td>3-4 years</td>
</tr>
<tr>
<td>DVD Decks (3)</td>
<td>1 year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Editing Equipment</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom IMAC Package (1)</td>
<td>1 year</td>
</tr>
<tr>
<td>Technics Twin Audio Deck (1)</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Technics 5 CD Deck (1)</td>
<td>3-4 years</td>
</tr>
<tr>
<td>RCA 100w Tuner (1)</td>
<td>3-4 years</td>
</tr>
<tr>
<td>Panasonic SVHS Decks (4)</td>
<td>2-4 years</td>
</tr>
<tr>
<td>Panasonic Monitors (2)</td>
<td>4-5 years</td>
</tr>
<tr>
<td>Compac PC (1)</td>
<td>3-4 years</td>
</tr>
<tr>
<td>Pioneer DVD Recorder</td>
<td>2-3 years</td>
</tr>
<tr>
<td>Samsung PC F/S Monitor</td>
<td>1-2 years</td>
</tr>
<tr>
<td>JVC Mini DV/VHS Recorder</td>
<td>1-2 years</td>
</tr>
<tr>
<td>JVC Mini DV/DVD Recorder</td>
<td>1-2 years</td>
</tr>
<tr>
<td>EZ Dup 1 x 3 DVD Copier</td>
<td>1 year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Studio Equipment</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canon GL-1 Cameras (2)</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Canon GL-2 Cameras (3)</td>
<td>1 year</td>
</tr>
<tr>
<td>Studio Roller Tripods (3)</td>
<td>1-5 years</td>
</tr>
<tr>
<td>Studio Lights (4)</td>
<td>5 years</td>
</tr>
<tr>
<td>Shot Gun Mics (2)</td>
<td>2-4 years</td>
</tr>
<tr>
<td>Wireless Boundary Mic (1)</td>
<td>1 year</td>
</tr>
<tr>
<td>Sony ECM Lavelier Mics (6)</td>
<td>3-5 years</td>
</tr>
</tbody>
</table>
Shure Hand Held Mics (3) 3-5 years
JVC MDV/SVHS Deck (1) 2-3 years
JVC MDV/DVD Deck (1) 1 year
Panasonic SVHS Decks (2) 3-5 years
Panasonic Monitors (8) 4-5 years
Sound Mixer (1) 4-5 years
Video Titlers (2) 2-4 years
Pioneer CD Player (1) 2-3 years
Linear Editor (1) 5-6 years
Video Switcher (1) 5-6 years
Studio Communication Set (1) 5-6 years
Set Furniture 4-5 years

Services

- **City Manager's Office:** Responsible for the daily operations of the City. The City Manager is responsible to the City Council.
- **Community Development Office:** Responsible for administering the City's Community Development Block Grant Program. Applies for other grants as appropriate.
- **Finance Department:** Responsible for tax collection, treasury, payroll, accounts payable, general assistance, and investments.
- **City Clerk's Office:** Responsible for various licenses, City records, registering voters, maintaining voter records, and supervising elections. The City Clerk is responsible to the City Council.
- **Building Maintenance and CityBus:** The Maintenance Supervisor is responsible for maintaining City Hall and the former Bath Hospital (used by MCHE), supervises CityBus drivers, and acts as City Messenger.
- **Assessor's Office:** Determines the value of property and assesses real estate and personal property taxes. The Assessor also serves as the City's IT Director.
- **Codes Enforcement Department:** Enforces Land-Use Code and building, electrical, plumbing, and health codes.
- **Planning Department:** Staffs the Planning Board and provides long-range planning, project planning, and capital-improvements planning.
- **Bath Community Television:** Operates the local public, education, and government (PEG) television channel. Live broadcasts of City Council, School Board, and Planning Board meetings as well as sports events and other broadcasts of PEG interest. The service is supported by the franchise fees the City is allowed to charge the local cable provider.
Service-Delivery Area

- The only administrative department that has a service-delivery area other than the City of Bath is the General Assistance Department, which serves West Bath through a contract.
- Bath Community Television: BCTV Channel 14 is carried by Comcast, the local cable provider, and is available to cable subscribers in Bath, West Bath, Woolwich, Phippsburg, and Brunswick.

Capacity

- The administration departments are staffed adequately to meet present demands and demands of the changing population.

Needs and Concerns

- The City owns several buildings that are no longer used by City departments or for City services or functions. A study was recently conducted to determine if the buildings will be needed in the future and if any of them should be sold.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessor</td>
<td>2</td>
<td>2</td>
<td>$87,791</td>
<td>$114,128</td>
<td>$110,780</td>
<td>&lt;2.9%</td>
</tr>
<tr>
<td>BCTV</td>
<td>0</td>
<td>2 Part-time</td>
<td>0</td>
<td>0</td>
<td>$52,310</td>
<td>n/a</td>
</tr>
<tr>
<td>Cemeteries &amp; Parks²</td>
<td>4</td>
<td>6</td>
<td>$233,935</td>
<td>$304,116</td>
<td>$367,179</td>
<td>20.7%</td>
</tr>
<tr>
<td>City Clerk’s Office</td>
<td>3</td>
<td>2.5</td>
<td>$102,056</td>
<td>$132,673</td>
<td>$102,402</td>
<td>&lt;22.8%</td>
</tr>
<tr>
<td>City Manager’s Office</td>
<td>2</td>
<td>3</td>
<td>$114,523</td>
<td>$148,880</td>
<td>$154,502</td>
<td>3.8%</td>
</tr>
<tr>
<td>Planning</td>
<td>1.5</td>
<td>1.5</td>
<td>$71,198</td>
<td>$92,557</td>
<td>$71,942</td>
<td>&lt;22.3%</td>
</tr>
<tr>
<td>Codes Enforcement</td>
<td>1.5</td>
<td>1.7</td>
<td>$59,252</td>
<td>$77,028</td>
<td>$87,689</td>
<td>13.8%</td>
</tr>
<tr>
<td>Community Development</td>
<td>1</td>
<td>1</td>
<td>Contract Service</td>
<td>$41,766</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>5</td>
<td>6</td>
<td>$151,096</td>
<td>$196,425</td>
<td>$195,345</td>
<td>&lt;0.6%</td>
</tr>
<tr>
<td>Fire</td>
<td>19.5</td>
<td>24</td>
<td>$856,751</td>
<td>$1,113,776</td>
<td>$1,108,604</td>
<td>&lt;0.5%</td>
</tr>
</tbody>
</table>
## General Assistance³

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>1</th>
<th>$134,768</th>
<th>$175,198</th>
<th>$101,598</th>
<th>&lt;42.0%&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Hall, etc. Maintenance</td>
<td>1.5</td>
<td>1</td>
<td>$89,128</td>
<td>$115,866</td>
<td>$98,446</td>
<td>&lt;15.0%&gt;</td>
</tr>
<tr>
<td>Police</td>
<td>28</td>
<td>26</td>
<td>$1,106,305</td>
<td>$1,438,197</td>
<td>$1,291,133</td>
<td>&lt;10.2%&gt;</td>
</tr>
<tr>
<td>Public Works</td>
<td>24.5</td>
<td>22</td>
<td>$2,923,600</td>
<td>$3,800,680</td>
<td>$2,867,835</td>
<td>&lt;24.5%&gt;</td>
</tr>
<tr>
<td>Recreation²</td>
<td>5 plus</td>
<td>4 Full-time, 3 part-time, plus 20 to 25 seasonal</td>
<td>$151,346 (Raised from Property Taxes)</td>
<td>$253,419 (Expended)</td>
<td>$196,750</td>
<td>$199,312 (Raised from Property Taxes)</td>
</tr>
<tr>
<td>School Department</td>
<td>270</td>
<td>258</td>
<td>$12,496,068</td>
<td>$16,244,888</td>
<td>$17,171,300</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

¹FY1997 dollars are adjusted to FY2007 dollars according to the U.S. Department of Labor “inflation calculator.”

²The Cemetery and Parks Department and Recreation Department were combined beginning with the FY2008 budget year.

³The General Assistance function became the responsibility of the Finance Department beginning with the FY2008 budget year.

Source: City of Bath Finance Department, City of Bath Planning Department, 2007

### INVENTORY OF CAPITAL EQUIPMENT AND CAPITAL INVESTMENT PLAN

#### FIRE DEPARTMENT

<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Target to Replace/Build</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Station</td>
<td>1956</td>
<td>Very Poor</td>
<td>24 hours/day</td>
<td>2010</td>
<td>$800,000</td>
</tr>
<tr>
<td>Engine 6</td>
<td>2000</td>
<td>Good</td>
<td>All Fire Calls</td>
<td>2012</td>
<td>$450,000</td>
</tr>
<tr>
<td>Engine 2</td>
<td>1986</td>
<td>Fair</td>
<td>Fire Calls</td>
<td>2011</td>
<td>$450,000</td>
</tr>
<tr>
<td>Ladder 1</td>
<td>1986</td>
<td>Fair</td>
<td>Fire Calls</td>
<td>2011</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Rescue 5</td>
<td>2008</td>
<td>Excellent</td>
<td>Rescue/Fire Calls</td>
<td>2014</td>
<td>$160,000</td>
</tr>
<tr>
<td>Rescue 3</td>
<td>2001</td>
<td>Good</td>
<td>Rescue/Fire Calls</td>
<td>2010</td>
<td>$200,000</td>
</tr>
<tr>
<td>Rescue 4</td>
<td>2004</td>
<td>Excellent</td>
<td>Rescue/Fire Calls</td>
<td>2013</td>
<td>$250,000</td>
</tr>
<tr>
<td>Chief’s Vehicle</td>
<td>2008</td>
<td>Excellent</td>
<td>Daily</td>
<td>2018</td>
<td>$45,000</td>
</tr>
<tr>
<td>Pick-up truck</td>
<td>2001</td>
<td>Good</td>
<td>All Calls</td>
<td>2011</td>
<td>$35,000</td>
</tr>
<tr>
<td>Rescue Equipment Captain</td>
<td>2008</td>
<td>Poor</td>
<td>Rescue Calls</td>
<td>2018</td>
<td>$100,000</td>
</tr>
<tr>
<td>Turnout Gear</td>
<td>2004</td>
<td>Good</td>
<td>All Calls</td>
<td>2010</td>
<td>$200,000</td>
</tr>
<tr>
<td>SCBA Replacement</td>
<td>2004</td>
<td>Good</td>
<td>All Calls</td>
<td>2010</td>
<td>$75,000</td>
</tr>
</tbody>
</table>

Source: City of Bath Fire Department, 2008

Appendix H Page 23
## POLICE DEPARTMENT

<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Target to Replace/Build</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police Station</td>
<td>1987</td>
<td>Good</td>
<td>24 hours/day</td>
<td>None at This Time</td>
<td>NA</td>
</tr>
<tr>
<td>Suzuki</td>
<td>2000</td>
<td>Fair</td>
<td>8 hours/day</td>
<td>2009/2010</td>
<td>$20,000</td>
</tr>
<tr>
<td>Chevy SUV</td>
<td>2004</td>
<td>Good</td>
<td>8 hours/day</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Dodge</td>
<td>2007</td>
<td>Excellent</td>
<td>8 hours/day</td>
<td>2011/2012</td>
<td>$21,000</td>
</tr>
<tr>
<td>Ford Ranger</td>
<td>2005</td>
<td>Good</td>
<td>4 hours/day</td>
<td>2012/2013</td>
<td>$23,000</td>
</tr>
<tr>
<td>Ford CV Patrol</td>
<td>2007</td>
<td>Excellent</td>
<td>24 hours/day</td>
<td>2011/2012</td>
<td>$23,000</td>
</tr>
<tr>
<td>Ford CV Patrol</td>
<td>2007</td>
<td>Excellent</td>
<td>24 hours/day</td>
<td>2009/2010</td>
<td>$21,000</td>
</tr>
<tr>
<td>Ford CV K9</td>
<td>2006</td>
<td>Excellent</td>
<td>10 hours/day</td>
<td>2012/2013</td>
<td>$21,000</td>
</tr>
<tr>
<td>Ford CV Patrol</td>
<td>2007</td>
<td>Good</td>
<td>24 hours/day</td>
<td>2010/2011</td>
<td>$23,000</td>
</tr>
<tr>
<td>Ford CV Lieutenant</td>
<td>2005</td>
<td>Good</td>
<td>8 hours/day</td>
<td>2012/2013</td>
<td>$21,000</td>
</tr>
<tr>
<td>Chevy SUV</td>
<td>2006</td>
<td>Excellent</td>
<td>8 hours/day</td>
<td>2011/2012</td>
<td>$35,000</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>Leased</td>
<td>New</td>
<td>8 hours/day</td>
<td>Yearly</td>
<td>$3,000</td>
</tr>
<tr>
<td>Police Boat</td>
<td>Acquired in 2006</td>
<td>Good</td>
<td>Operated Once a Week and at Special Events</td>
<td>?</td>
<td>$60,000</td>
</tr>
<tr>
<td>Carpet</td>
<td>1987</td>
<td>Fair</td>
<td>24 hours/day</td>
<td>Desirable</td>
<td>$19,000</td>
</tr>
<tr>
<td>Handguns (21)</td>
<td>1991</td>
<td>Good/Refurbished</td>
<td>Carried Daily, 2X Year at Range</td>
<td>Necessary</td>
<td>$10,500</td>
</tr>
<tr>
<td>TASERS (4)</td>
<td>2004</td>
<td>Good</td>
<td>Stored in Cruisers</td>
<td>Desirable</td>
<td>$3,000</td>
</tr>
<tr>
<td>Computers (9)</td>
<td>2005</td>
<td>Good</td>
<td>24 hours/day</td>
<td>Desirable</td>
<td>$12,000</td>
</tr>
<tr>
<td>Computers (5)</td>
<td>2003?</td>
<td>Good</td>
<td>8 hours/day</td>
<td>Desirable</td>
<td>$5,000</td>
</tr>
<tr>
<td>Computer w/Accessories</td>
<td>2004</td>
<td>Good</td>
<td>20 hours/month</td>
<td>Desirable</td>
<td>$4,000</td>
</tr>
<tr>
<td>Cameras - CID(2)</td>
<td>2005</td>
<td>Good</td>
<td>8 hours/week</td>
<td>Desirable</td>
<td>$2,500</td>
</tr>
<tr>
<td>CID Equipment</td>
<td>2004</td>
<td>Good</td>
<td>8 hours/month</td>
<td>Desirable</td>
<td>$10,000</td>
</tr>
<tr>
<td>Camcorders</td>
<td>2005</td>
<td>Good</td>
<td>8 hours/week</td>
<td>Desirable</td>
<td>$4,000</td>
</tr>
<tr>
<td>Police Dog</td>
<td>2002</td>
<td>Good</td>
<td>40 hours/week</td>
<td>Desirable</td>
<td>$1,800</td>
</tr>
<tr>
<td>Portable Radios (20)</td>
<td>2003</td>
<td>Good</td>
<td>40 hours/week</td>
<td>Desirable</td>
<td>$9,000</td>
</tr>
<tr>
<td>Car Radios (8)</td>
<td>2003</td>
<td>Good</td>
<td>24 hours/day</td>
<td>As Needed</td>
<td>$4,800</td>
</tr>
</tbody>
</table>

Source: City of Bath Police Department, 2008

Appendix H Page 24
<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Target to Replace/Build</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Works Garage</td>
<td></td>
<td>Fair</td>
<td>Daily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt-Sand Storage Building</td>
<td>2000</td>
<td>Good</td>
<td>Winter/Spring</td>
<td>2025</td>
<td>$25,000</td>
</tr>
<tr>
<td>Quonset Hut</td>
<td></td>
<td>Good</td>
<td>Daily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F150 Supercrew</td>
<td>2005</td>
<td>Excellent</td>
<td>Daily</td>
<td>2015</td>
<td>$32,000</td>
</tr>
<tr>
<td>Chevrolet Pick-up</td>
<td>2003</td>
<td>Excellent</td>
<td>Daily</td>
<td>2013</td>
<td>$28,000</td>
</tr>
<tr>
<td>GMC Pick-up</td>
<td>1998</td>
<td>Fair</td>
<td>Daily</td>
<td>2010</td>
<td>$25,000</td>
</tr>
<tr>
<td>F350 Dump</td>
<td>1992</td>
<td>Fair</td>
<td>Daily</td>
<td>2009</td>
<td>$35,000</td>
</tr>
<tr>
<td>F350 4x4</td>
<td>1992</td>
<td>Fair</td>
<td>Weekly</td>
<td>2010</td>
<td>$35,000</td>
</tr>
<tr>
<td>F550 w/Utility Body</td>
<td>2008</td>
<td>Excellent</td>
<td>Daily</td>
<td>2015</td>
<td>$100,000</td>
</tr>
<tr>
<td>Case Backhoe</td>
<td>1998</td>
<td>Fair</td>
<td>Weekly</td>
<td>Not being replaced</td>
<td>N/A</td>
</tr>
<tr>
<td>Sterling Dump/Sander</td>
<td>2005</td>
<td>Excellent</td>
<td>Daily</td>
<td>2017</td>
<td>$80,000</td>
</tr>
<tr>
<td>Ford Dump/Sander</td>
<td>1993</td>
<td>Fair</td>
<td>Weekly</td>
<td>2009</td>
<td>$80,000</td>
</tr>
<tr>
<td>Ford Dump/Sander</td>
<td>1994</td>
<td>Good</td>
<td>Weekly</td>
<td>2009</td>
<td>$85,000</td>
</tr>
<tr>
<td>GMC Brigadier Dump</td>
<td>1988</td>
<td>Fair</td>
<td>Weekly</td>
<td>2009</td>
<td>$85,000</td>
</tr>
<tr>
<td>Sterling Dump/Sander</td>
<td>2005</td>
<td>Excellent</td>
<td>Daily</td>
<td>2015</td>
<td>$100,000</td>
</tr>
<tr>
<td>Ford Dump/Sander</td>
<td>1992</td>
<td>Good</td>
<td>Daily</td>
<td>2010</td>
<td>$80,000</td>
</tr>
<tr>
<td>International Wheeler</td>
<td>2004</td>
<td>Excellent</td>
<td>Daily</td>
<td>2016</td>
<td>$100,000</td>
</tr>
<tr>
<td>Komatsu Dozer</td>
<td>2004</td>
<td>Excellent</td>
<td>Daily</td>
<td>2018</td>
<td>$100,000</td>
</tr>
<tr>
<td>Ford w/Vac-All</td>
<td>1990</td>
<td>Good</td>
<td>Spring</td>
<td>2010</td>
<td>$80,000</td>
</tr>
<tr>
<td>Johnson Sweeper</td>
<td>2000</td>
<td>Good</td>
<td>Weekly</td>
<td>2015</td>
<td>$100,000</td>
</tr>
<tr>
<td>Mich/Volvo Loader</td>
<td>1989</td>
<td>Good</td>
<td>Daily</td>
<td>2009</td>
<td>$150,000</td>
</tr>
<tr>
<td>Komatsu Loader</td>
<td>2005</td>
<td>Excellent</td>
<td>Weekly</td>
<td>2020</td>
<td>$130,000</td>
</tr>
<tr>
<td>Caterpillar Grader</td>
<td>1979</td>
<td>Fair</td>
<td>Winter/Spring</td>
<td>Will Not Replace</td>
<td>N/A</td>
</tr>
<tr>
<td>Trackless Sidewalk Plow</td>
<td>2001</td>
<td>Good</td>
<td>Weekly</td>
<td>2015</td>
<td>$90,000</td>
</tr>
<tr>
<td>Kalver Snowblower</td>
<td>1990</td>
<td>Fair</td>
<td>Winter</td>
<td>2014</td>
<td>$20,000</td>
</tr>
<tr>
<td>Bombardier Sidewalk Plow</td>
<td>1974</td>
<td>Fair</td>
<td>Winter</td>
<td>2011</td>
<td>$80,000</td>
</tr>
<tr>
<td>Ford F150</td>
<td>1996</td>
<td>Fair</td>
<td>Daily</td>
<td>2009</td>
<td>$25,000</td>
</tr>
<tr>
<td>Ford Dump</td>
<td>1987</td>
<td>Fair</td>
<td>Weekly</td>
<td>2015</td>
<td>$100,000</td>
</tr>
<tr>
<td>John Deere Loader</td>
<td>1995</td>
<td>Good</td>
<td>Weekly</td>
<td>2010</td>
<td>$120,000</td>
</tr>
<tr>
<td>Volvo Excavator</td>
<td>2001</td>
<td>Excellent</td>
<td>Weekly</td>
<td>2018</td>
<td>$160,000</td>
</tr>
<tr>
<td>Trackless Sidewalk Plow</td>
<td>1999</td>
<td>Fair</td>
<td>Weekly</td>
<td>2014</td>
<td>$90,000</td>
</tr>
<tr>
<td>Ford Wheeler</td>
<td>1995</td>
<td>Good</td>
<td>Weekly</td>
<td>2011</td>
<td>$110,000</td>
</tr>
<tr>
<td>SRECO Sewer Flusher</td>
<td>1985</td>
<td>Good</td>
<td>Monthly</td>
<td>2010</td>
<td>$80,000</td>
</tr>
<tr>
<td>SRECO Sewer Tank Cleaner</td>
<td>1979</td>
<td>Good</td>
<td>Monthly</td>
<td>2010</td>
<td>?</td>
</tr>
<tr>
<td>Stow Mixer</td>
<td>1990</td>
<td>Good</td>
<td>Summer</td>
<td>2015</td>
<td>$20,000</td>
</tr>
<tr>
<td>Building/Equipment</td>
<td>Year Built/Acquired</td>
<td>Condition</td>
<td>Extent of Use</td>
<td>Target to Replace/Build</td>
<td>Estimated Cost</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------</td>
<td>-----------</td>
<td>---------------</td>
<td>-------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Ingersoll-Rand Compressor</td>
<td>1986</td>
<td>Good</td>
<td>Summer</td>
<td>2012</td>
<td>$25,000</td>
</tr>
<tr>
<td>Beck Trailer Hot Top</td>
<td>1983</td>
<td>Good</td>
<td>Summer/Weekly</td>
<td></td>
<td>$12,000</td>
</tr>
<tr>
<td>Trailer w/Culvert Steamer</td>
<td>2005</td>
<td>Excellent</td>
<td>Winter</td>
<td>2020</td>
<td>$10,000</td>
</tr>
<tr>
<td>International Recycling Truck</td>
<td>2004</td>
<td>Excellent</td>
<td>Daily</td>
<td>2014</td>
<td>$80,000</td>
</tr>
</tbody>
</table>

Source: City of Bath Public Works Department, 2008

### LANDFILL DIVISION¹

<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Target to Replace/Build</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale House</td>
<td>2001</td>
<td>Good</td>
<td>Daily</td>
<td>2016</td>
<td>$30,000</td>
</tr>
<tr>
<td>Scale</td>
<td>2001</td>
<td>Good</td>
<td>Daily</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Bargain Barn</td>
<td>1999</td>
<td>Good</td>
<td>Daily</td>
<td>2019</td>
<td>$25,000</td>
</tr>
<tr>
<td>Equipment Garage</td>
<td>1970</td>
<td>Poor</td>
<td>Daily</td>
<td>2011</td>
<td>$20,000</td>
</tr>
<tr>
<td>Pumping Station</td>
<td>2001</td>
<td>Excellent</td>
<td>Daily</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Compactor</td>
<td>1996</td>
<td>Good</td>
<td>Daily</td>
<td>2009</td>
<td>$400,000</td>
</tr>
<tr>
<td>Bulldozer</td>
<td>2004</td>
<td>Excellent</td>
<td>Daily</td>
<td>2019</td>
<td>$100,000</td>
</tr>
<tr>
<td>Skidsteer Loader</td>
<td>2000</td>
<td>Fair</td>
<td>Daily</td>
<td>2010</td>
<td>$60,000</td>
</tr>
<tr>
<td>ATV</td>
<td>2006</td>
<td>Excellent</td>
<td>Daily</td>
<td>2012</td>
<td>$9,000</td>
</tr>
</tbody>
</table>

¹The replacement portion will change when the City makes the commitment to close the landfill.

Source: City of Bath Public Works Department, 2008

### WASTEWATER DIVISION

<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Target to Replace/Build</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford F250</td>
<td>2006</td>
<td>Excellent</td>
<td>Daily</td>
<td>2013</td>
<td>$34,000</td>
</tr>
<tr>
<td>Ford F150</td>
<td>2005</td>
<td>Excellent</td>
<td>Daily</td>
<td>2013</td>
<td>$22,000</td>
</tr>
</tbody>
</table>

Source: City of Bath Public Works Department, 2008

### PARKS AND RECREATION DEPARTMENT

#### RECREATION DIVISION

<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Priority</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donald Small</td>
<td></td>
<td>Fair</td>
<td>Daily</td>
<td>Urgent</td>
<td>$10,000 - $20,000</td>
</tr>
<tr>
<td>2 Sheridan Road</td>
<td></td>
<td>Poor; needs new roof</td>
<td>Daily</td>
<td>Urgent</td>
<td>$10,000</td>
</tr>
<tr>
<td>Lambert Park Community Center</td>
<td>2003</td>
<td>Excellent</td>
<td>Daily</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lambert Park Playground 2002 Good; need apparatus for younger children and replace wood chips Seasonal Necessary  

Hyde Park Playground 2002 Excellent Seasonal Wish List  
Congress Avenue Snack Shed Fair Seasonal Necessary  
Donald Small Snack Shed Excellent Seasonal Wish List  
Goddard Pond Warming Hut Good Seasonal Desirable  
Congress Avenue Maintenance Building Poor Daily Urgent  
Congress Avenue Restrooms Poor Seasonal Urgent  
Variety of Storage Sheds Poor Seasonal Urgent  
Pick-Up Truck w/Plow 1996 Poor Daily Necessary $30,000  
1-Ton w/Plow 2005 Excellent Daily Wish List $30,000  
John Deere Tractor 2005 Excellent Daily Wish List  
MT-5 Tractor Fair Daily Necessary  
Front End Mower 1435 2004 Good Daily Wish List  
Golf Cart 1996 Fair Seasonal Desirable  

Source: City of Bath Parks and Recreation Department, 2008

<table>
<thead>
<tr>
<th>Building/Equipment</th>
<th>Year Built/ Acquired</th>
<th>Condition</th>
<th>Extent of Use</th>
<th>Target to Replace/Build</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>1925</td>
<td>Good</td>
<td>Daily Year-round</td>
<td>2025</td>
<td>$175,000</td>
</tr>
<tr>
<td>Receiving Vault</td>
<td>1970?</td>
<td>Good</td>
<td>December through April</td>
<td>2050</td>
<td>$130,000</td>
</tr>
<tr>
<td>Cemetery Garage</td>
<td>2002</td>
<td>Excellent</td>
<td>Daily Year-round</td>
<td>2030</td>
<td>$230,000</td>
</tr>
<tr>
<td>Gazebo in City Park</td>
<td>1989</td>
<td>Excellent</td>
<td>Year-round</td>
<td>2040</td>
<td>$100,000</td>
</tr>
<tr>
<td>Restroom Facility in Waterfront Park</td>
<td>1983</td>
<td>Fair</td>
<td>Daily April 30 to October 30</td>
<td>2015</td>
<td>$75,000</td>
</tr>
<tr>
<td>Pavilion in the WFP</td>
<td>1979</td>
<td>Good</td>
<td>Daily Year-round</td>
<td>2015</td>
<td>$20,000</td>
</tr>
<tr>
<td>Vehicle 50 Van</td>
<td>2005</td>
<td>Excellent</td>
<td>Daily Year-round</td>
<td>2015</td>
<td>$25,000</td>
</tr>
<tr>
<td>Vehicle 51 Stake-Body Dump 1-Ton</td>
<td>1997</td>
<td>Good</td>
<td>Daily April through December</td>
<td>2010</td>
<td>$32,000</td>
</tr>
<tr>
<td>Vehicle 52 Dump-Body 1-Ton</td>
<td>2000</td>
<td>Fair</td>
<td>Daily April through December</td>
<td>2010</td>
<td>$32,000</td>
</tr>
<tr>
<td>Vehicle 53 Extended</td>
<td>1997</td>
<td>Fair</td>
<td>Daily April through 2009</td>
<td>$30,000</td>
<td></td>
</tr>
</tbody>
</table>

Appendix H Page 27
<table>
<thead>
<tr>
<th>Cab Pickup 1/2-Ton</th>
<th>1999</th>
<th>Good</th>
<th>December</th>
<th>2011</th>
<th>$25,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle 55 Pickup 1/2-Ton</td>
<td>2005</td>
<td>Excellent</td>
<td>Daily April through December</td>
<td>2016</td>
<td>$30,000</td>
</tr>
<tr>
<td>Vehicle 59 Crew Cab Pickup 3/4-Ton</td>
<td>2006</td>
<td>Excellent</td>
<td>Daily Year-round</td>
<td>2013</td>
<td>$32,000</td>
</tr>
<tr>
<td>Vehicle 60 Utility Body 1-Ton Forestry Truck</td>
<td>2006</td>
<td>Excellent</td>
<td>Daily Year-round</td>
<td>2013</td>
<td>$32,000</td>
</tr>
<tr>
<td>Skidsteer Loader Backhoe</td>
<td>1998</td>
<td>Very Good</td>
<td>Weekly Year-round</td>
<td>2012</td>
<td>$60,000</td>
</tr>
<tr>
<td>Tractor Four-Wheel Drive</td>
<td>1999</td>
<td>Very Good</td>
<td>Daily April through December</td>
<td>2011</td>
<td>$20,000</td>
</tr>
</tbody>
</table>

Source: City of Bath Parks and Recreation Department, 2008

| OTHER DEPARTMENTS |
|-------------------|-----------------|----------------|-----------------|-----------------|-----------------|
| Building/Equipment | Year Built/Acquired | Condition | Extent of Use | Target to Replace/Build | Estimated Cost |
| Balot Tabulating Machines (8) | 1998 | Good | Elections | 2009 | $7,000 each |
| City Servers | 2002 | Good | 24/7 | 2008-2010 | $35,000 |
| City Workstations | 2002 | Good | Daily | 2008-2010 | $60,000 |
| Software | 2002 | Good | Daily | 2008-2010 | $25,000 |
| Fiber WAN* | - | - | - | 2011 | $100,000 |
| Postage Meter | 2006 | Good | Daily | 2016 | $10,000 |
| 16-Passenger Bus | 2006 | Good | Every Weekday, Year-round | 2016 | $60,000 |
| 16-Passenger Bus | 2006 | Good | Every Weekday, Year-round | 2016 | $60,000 |
| Trolley | 1995/ Acquired in 1999 | Fair | May - October, Weekends in December | 2010 | $100,000 |

*As a condition of the franchise agreement, Comcast is currently providing Wide Area Networking. Uncertainty exists about whether the City can negotiate this service in future agreements.

Source: City of Bath Planning Department, 2008

| CITY-OWNED BUILDINGS |
|-----------------------|-------------------|----------------|
| Building | Map/Lot | Year Built |
| City Hall | 27/124 | 1929 |

Good
<table>
<thead>
<tr>
<th>Building Name</th>
<th>Code</th>
<th>Year Built</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Station</td>
<td>26/007</td>
<td>1957</td>
<td>Fair</td>
</tr>
<tr>
<td>Police Station</td>
<td>26/235</td>
<td>1987</td>
<td>Good</td>
</tr>
<tr>
<td>Public Works Garage</td>
<td>15/1</td>
<td>1963</td>
<td>Fair/Good</td>
</tr>
<tr>
<td>Wastewater Treatment Plant</td>
<td>20/340</td>
<td>1971 &amp; 1998</td>
<td>Good</td>
</tr>
<tr>
<td>Recreation Buildings</td>
<td>25/69</td>
<td>1963</td>
<td>Fair</td>
</tr>
<tr>
<td>Community Center, Lambert Park</td>
<td>19/145</td>
<td>2001</td>
<td>Good</td>
</tr>
<tr>
<td>Cemeteries &amp; Parks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>22/005</td>
<td>1923</td>
<td>Fair</td>
</tr>
<tr>
<td>Vault</td>
<td>22/005</td>
<td>1930</td>
<td>Good</td>
</tr>
<tr>
<td>New Maintenance Building</td>
<td></td>
<td>2002</td>
<td>Good</td>
</tr>
<tr>
<td>Former Maintenance Building&lt;sup&gt;2&lt;/sup&gt;</td>
<td>22/17</td>
<td>1920</td>
<td>Poor</td>
</tr>
<tr>
<td>2 Town Landing</td>
<td>20/338</td>
<td>~1893</td>
<td>Poor/Fair</td>
</tr>
<tr>
<td>Former YMCA Building</td>
<td>26/218</td>
<td>1894</td>
<td>Poor</td>
</tr>
<tr>
<td>Midcoast Center for Higher Ed.</td>
<td>14/96</td>
<td>1910</td>
<td>Fair/Good</td>
</tr>
<tr>
<td>Customs House</td>
<td>27/126</td>
<td>1852-1858</td>
<td>1912</td>
</tr>
<tr>
<td>Railroad Station</td>
<td>27/138</td>
<td>1941</td>
<td>2007</td>
</tr>
<tr>
<td>Library&lt;sup&gt;3&lt;/sup&gt;</td>
<td>26-217</td>
<td>1889</td>
<td>1997</td>
</tr>
</tbody>
</table>

<sup>1</sup>School buildings are discussed in Section 4.9 and Appendix I.  
<sup>2</sup>Built as the City stables.  
<sup>3</sup>Although not a City-owned building, Patten Free Library is an important publicly used facility and service. The library is discussed in more detail in Chapter 3 and Appendix C.

The former YMCA Building was given to the City in 2003 when the Bath Area Family YMCA built a new facility on Centre Street. At present (i.e., 2008), the only use in the building is the indoor skate park, which occupies the former gymnasium. The rest of the building is unused and much of it seems unusable without major improvements.

The building occupied by the McHE formerly was the Bath Memorial Hospital and then later the Bath Campus of Midcoast Hospital. It became City property in 2002. The building is managed by a Board of Directors appointed by the City Council and is occupied by a branch of SMCC and by University College. (These institutions are discussed in more detail in Section 4.9 and Appendix I.) Several medical-related and other businesses are also located in the building. The goal is to eventually have the building self-sufficient without using taxpayer support.

The Customs House became City property in 1977. The building is managed by a Board of Trustees appointed by the City Council. It is currently (i.e., 2008) occupied by seven firms including a cabinetmaking business that has its manufacturing facility at the Wing Farm Business Park, an insurance...
agent, and an architect. The Board of Trustees structured the leases so that no Bath taxpayer support is needed to maintain the building.

The Bath Railroad Station became City property in 1971. Since the major rehabilitation completed in May 2007, the building has been managed by the City Council-appointed Bath Transportation Commission. Since the spring of 2007, the Regional Tourist Information Center has occupied the building seasonally. There is also an office of the Maine Eastern Railroad and space for other tenants. The goal is to eventually have the building self-sufficient without using taxpayer support.

PUBLIC WATER

Supplying public water in Bath is not a City service. Public water is supplied by the Bath Water District (BWD), a regional, quasi-municipal corporation. The BWD, regulated by the Maine Public Utilities Commission (PUC), is governed by a five-person Board of Trustees, four of whom are appointed by the Bath City Council and one by the Selectmen in Woolwich. Public water is provided to more than 90 percent of dwelling units in Bath. (North Bath, northwest of the Whiskeag Creek crossing of the Whiskeag Road, in not served by the BWD. The homes and the very few businesses in this area have private wells. There have been no reports of water-quality or well-pollution problems in this area.)

Staffing
- eleven full-time personnel

Equipment and Facilities
- Nequasset Lake in Woolwich is BWD’s water source. The BWD is constantly working with land owners in the watershed to protect this water supply. And they purchase property in the watershed when this is appropriate. The State Drinking Water Program has completed a Source Water Protection Program (SWAP) assessment of the water supply and BWD received a low or moderate risk level for all the parameters categorized. The overall rating was Low-Moderate. Water quantity protection is maintained by constant monitoring of the dam, especially during low precipitation or approaching drought where we have the ability to close off the fishway during certain periods of
time when the migration is not occurring. And BWD has an ongoing water quality monitoring program as well as a policy of purchasing watershed land whenever economically feasible.

- The treatment plant, last upgraded in 2005, is also located at the Nequasset Lake site.
- In Bath, there are approximately 60 miles of water mains, approximately 350 hydrants, and two storage tanks—a 1.2-million-gallon tank built in 2007 on Potter Hill off the west side of High Street (south of Marshall Street) and a 1.2-million-gallon tank built in 1996 on Witch Spring Hill in West Bath.
- The administrative office is located in Bath at the corner of Commercial and Lambard Streets.
- The BWD warehouse is located next to the PWD Garage on Oak Grove Avenue.
- BWD’s contingency plans for a secondary supply are an interconnection with the Brunswick Topsham Water District.

**Services**

- Water for industrial, commercial, and residential uses, as well as for firefighting, is provided to about two thirds of the area of the City of Bath and parts of West Bath, Woolwich, Wiscasset, and East Brunswick.
- Sewer billing for the City is administered by the BWD.

**Service-Delivery Area**

- The service delivery area in Bath is shown on the Utilities Map.
- The BWD serves most of the City of Bath southeast of where Whiskeag Road crosses Whiskeag Creek; the exceptions are outer Oak Grove Avenue (north of where CMP power lines cross Oak Grove Avenue) and Whiskeag Road between Oak Grove Avenue and High Street. Also, the area at the height of land on the west side of High Street, south of Federal Street (i.e., Tar Box Hill), is not served by public water due to its high elevation—it cannot be served with adequate water pressure from BWD’s two tanks.
- The Nequasset Stakeholders Group was formed specifically to bring together individuals and group that have an interest in Nequasset Lake. This group has embarked in watershed inspections and evaluations and has been awarded grant monies to conduct several
erosion control measures. Several of these projects were completed in 2008 and more are planned for 2009.

Capacity

- The safe yield of the water source is 5.5 million gpd.
- The system currently has the capacity to provide 3.6 million gpd; however, the treatment plant can be expanded for increasing future needs. Current usage is 2.5 million gpd in the winter and approximately 1.8 million gpd in the summer. (Winter usage is higher because BIW keeps water flowing at a minimal rate through pipes on the piers and often through the ships to prevent freezing.)

Budget

- Operations of the BWD are funded by the water users (i.e., ratepayers). As payment for the availability of water for fire protection, 17 percent of the annual BWD budget is paid by the City of Bath and other towns in the service area. Rates for both fire protection and sale of water are regulated by the Maine PUC.

Needs and Concerns

- The water lines need to be extended, but the PUC (which regulates all public water districts) does not allow existing ratepayers to fund future needs.
- Looping the existing water system and ensuring that extensions are looped: Looping (i.e., not allowing dead-ended piping) keeps water quality high and allows for better water delivery and firefighting capability.
- Improving the water service in many of the older neighborhoods: Some of the piping has a small diameter and water pressure and capacity are low.
- A second main through Woolwich to connect the water source to the Kennebec River crossings is needed. BWD has looked at 2 routes in there conceptual, long-range planning. One route is along Route 1, the other would go to the Middle Road in Woolwich and then to the Kennebec River.
Costs to Meet Needs and Address Concerns

- The BWD annually budgets between $100,000 and $200,000 for pipe replacement. Projects are determined in partnership with the PWD whenever possible so that sewer replacement and complete road reconstruction can occur. Other pipe work is driven by hydraulic needs within the system.
- The BWD updated its CIP in 2008, addressing future needs such as resource protection, dam repair, transmission pipeline, and future regulations. It is budgeting and targeting for the five-, ten- and fifteen-year planning cycle.

PLANNING IMPLICATIONS OF THE PUBLIC FACILITIES AND SERVICES INVENTORY

1. The Fire Station is being used beyond its designed capacity and is inadequate. It makes sense, however, to explore fire-service regionalization before building a new Bath Fire Station.

2. The BNAS Fire Department is an automatic aid provider to the Bath Fire Department. The Bath Fire Department’s staffing level may need to change after BNAS closes.

3. The Bath Fire Department is not well staffed to provide adequate responses to tall-building (i.e., ten to twelve stories) fires because of safety procedures that require teams of personnel to be used to evacuate people. The height of any new buildings will affect the Fire Department staffing needs.

4. The Police Department has kept budget costs down by using volunteers, by being proactive with programs such as its Community Policing program, and by the use of grant funds.

5. The Bath Landfill expansion (i.e., creating a new cell), management of gas that is being generated as material biodegrades, and the facility’s closure will be enormous costs for which the City has only recently begun to plan and budget. There may be financial benefits to selling
carbon credits from the burning of landfill gas. There may also be opportunities to generate energy from the gas-combustion process.

6. The Rose Street pumping station is operating beyond its design capacity and residential growth in that service area will be halted until capacity is increased.

7. The physical growth of the City is linked to the expansion of the public water and sewer systems. These systems can be used to guide growth to appropriate locations and away from inappropriate locations.

8. Understanding the potential for growth in various parts of the City will help the PWD plan street, intersection, and sewer-system capacity improvements.

9. The age of the infrastructure (Bath being an old city), as well as previous funding priorities and budget decisions, have led to a public infrastructure (i.e., streets, pumping stations, sanitary sewers, storm sewers, and water mains) that is in need of repair.

10. The aging of the City’s population (see Appendix A) will bring about a change in the recreational needs of the community.

11. The City of Bath has 671 acres of land in public recreation and parks (including cemeteries and boat launches) and open space (including lands in conservation), which is .07 acre (3,154 square feet) per capita (excluding the 75-acre, state-owned Lines Island, which—being in the middle of the Kennebec River—is inaccessible).

12. Although the costs went down in 2008, utility costs are likely to increase in the future for everything from heating oil for public buildings to fuel for vehicles and electricity.

13. Annually updating City’s Capital Investment Plan—used to create the more detailed CIP—will ensure that the CIP is as current as possible.
14. The City of Bath has several un-utilized and under-utilized public buildings. A study of these buildings showed that some of them should be sold or redeveloped.

15. Several buildings are owned by the City but leased to other businesses, including the MCHE, the former YMCA building, the Customs House, and the Bath Railroad Station. Only the Customs House has in the past been self-sufficient—that is, operating without taxpayer support.
APPENDIX I
EDUCATION INVENTORY

INTRODUCTION

The education services of a community are important for several reasons: a good public school system is an economic resource; good schools, from kindergarten through post-secondary, attract good families; and the cost of public education is the single most expensive portion of most municipal budgets. Knowing the educational services—how they have changed, and how they might change (or need to be changed)—is essential for any community-planning process.

This being said, as this Comprehensive Plan is being finalized in late 2008, it is difficult to review the Bath school system and attempt to gain an understanding of its future by looking at its past. The future of administration and governance of education in Bath, as well as in the Bath Region, has recently changed. In the spring of 2007, the Maine State Legislature passed a bill (i.e., LD 910—An Act to Permit Public Schools in the Lower Kennebec River Area to Regionalize to Achieve Efficiency and Improve Quality) that, if adopted by Bath and at least three of the Union 47 towns (i.e., Georgetown, Arrowsic, Woolwich, Phippsburg, and West Bath), would create a new regional school system (i.e., RSU 1).

An article written in the Times Record at the time the Legislature was debating the bill outlined LD 910 by stating that it would:
- Establish one school board of nine equal members [if all Union 47 and Bath joined RSU 1], with each board member representing 1/9th of the region’s population.
- Require each of the nine districts to include parts of at least two different communities comprised of about 20,000 people and 2,500 students.
- Establish one superintendent, one administration, and one school budget.
- Allow every citizen in the region to vote on the budget every year.
- Transfer all educational assets to the region; however, any abandoned schools’ ownership would revert to present owners.
- Require the region to assume responsibility for existing debt.
- Expect students to attend schools within the region (students for whom Union 47 currently pays tuition to schools outside the district and Bath and their siblings would have “grandfathered” rights).
- Allow school choice to all schools in the region.
• Establish a "school advisory group" for each school.
• Cut costs, all other things being equal, by approximately $500,000 the first year with savings expected to grow in subsequent years.
• Require the region to assume responsibility for all existing collective-bargaining agreements.
• Allocate the local share of educational costs to the communities based on a weighted formula, one-third enrollment, one-third appraised property values, and one-third population.

Residents in each of the six municipalities voted in November 2007 on whether their town or city would join RSU 1. All but Georgetown voted to join; therefore, RSU 1 became operational on July 1, 2008.

In January 2008, the following members of the RSU 1 School Board were elected:
• District 1 representing Woolwich and Bath: Charles Durfee of Woolwich
• District 2 representing Bath and West Bath: David Barber of Bath
• District 3 representing Arrowsic, Bath, and Woolwich: Tim Harkins of Arrowsic
• District 4 representing Bath and West Bath: Chet Garrison of West Bath
• District 5 representing Bath and Phippsburg: Julie Rice of Bath
• District 6 representing Bath and Arrowsic: Francie Tolan of Arrowsic
• District 7 representing Phippsburg and Bath: Betsy Varian of Phippsburg

In March 2008, William C. Shuttleworth was chosen as Superintendent of RSU 1. He had been Superintendent of Union 47 and had also served as Superintendent of Bath Schools since Martha Witham resigned in August 2006.

Because it is still early in the consolidation process, we do not yet know specific details of the success, stumbling points, budgets, programs, enrollments, graduation rates, education attainment rates, proposed school closings, and new school needs associated with the RSU 1.

**BATH SCHOOL DEPARTMENT, PRE-RSU 1**

This discussion about Bath schools and the Bath School Department is included to provide historical background as RSU 1 begins the task of providing education for the region.
The Bath Board of Education oversaw the Bath School Department until the formation of RSU 1. The Board consisted of eight members elected by the voters and one City Councilor appointed by the Council. Seven of the eight directly elected Board members were elected from wards and one was elected at-large. Two nonvoting high school students were also on the Board, as well as two nonvoting representatives from Union 47 (Arrowsic, Georgetown, Woolwich, Phippsburg, and West Bath comprised Union 47).

School Facilities
The following table is an overview of Bath schools.

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Year Built</th>
<th>Acreage</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morse High School</td>
<td>826 High Street</td>
<td>1929</td>
<td>4.4</td>
<td>9–12</td>
</tr>
<tr>
<td>Bath Middle School</td>
<td>6 Old Brunswick Road</td>
<td>1953;</td>
<td>41.0</td>
<td>6–8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Major Renovation in 2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher-Mitchell School</td>
<td>597 High Street</td>
<td>1960</td>
<td>5.4</td>
<td>3–5</td>
</tr>
<tr>
<td>Dike-Newell School</td>
<td>3 Wright Drive</td>
<td>1960</td>
<td>14.8</td>
<td>K-2</td>
</tr>
</tbody>
</table>

Source: City of Bath Assessor’s Office, 2007

Before the 2006-2007 school year, both Fisher-Mitchell and Dike-Newell Schools had first through fifth grades and served as neighborhood schools. Kindergarteners attended the Huse School on Andrews Road. In 2006, for educational and budgetary reasons, the School Board closed the Huse School (except for the Office of the Superintendent) and arranged the grades as shown in the table. All facilities are urban schools, within easy walking or bike-ride distance from most urban neighborhoods.

Other facilities in Bath, which are owned and maintained by the City of Bath, have been used heavily by the Bath School Department and undoubtedly will be used heavily by RSU 1. Specifically, these facilities are the various athletic fields, as follows:

- Varnum Field on Denny Road encompasses 7.4 acres used for soccer, baseball, softball, high school physical education, and open space.
• Kimball Field and Hawkes Field on Sheridan Road encompass 7.6 acres with fields for baseball, softball, and soccer; community gardens; and two basketball courts

• Edward J. McMann Outdoor Recreation Area, Congress Avenue, encompasses 40.8 acres, including:
  o an all-weather 400-meter running track
  o Legion Field, a multi-use facility
  o Kelley Field, a multi-use facility
  o McMann Field, a 3,500-seat stadium and multi-use facility
  o Tainter Field, a multi-use facility
  o four tennis courts and a basketball court

At this point in the formation of RSU 1, it is not known whether the school unit will acquire these facilities from the City or sign a lease that covers the maintenance and capital costs currently being borne by the City.

Capital Improvement Needs of Bath Schools
In 2007 the Superintendent of Schools compiled a list of capital needs approximately $13 million. In the spring of 2007, the City Council agreed to submit a request to voters to bond approximately $461,000 of these needs. The following table shows the items included in the request.

<table>
<thead>
<tr>
<th>CAPITAL NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATH SCHOOL DEPARTMENT</td>
</tr>
<tr>
<td>2007</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site</th>
<th>Item</th>
<th>Category</th>
<th>Year Proposed</th>
<th>Cost</th>
<th>Recommend for Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morse High School</td>
<td>Roof</td>
<td>Code Required</td>
<td>2006-2007</td>
<td>$280,749</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>Boiler</td>
<td>Bldg. Integrity</td>
<td>2006-2007</td>
<td>$37,203</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>Stairs</td>
<td>Code Required</td>
<td>2006-2007</td>
<td>$23,289</td>
<td>No</td>
</tr>
<tr>
<td>Bath Middle School</td>
<td>Roof</td>
<td>Functional</td>
<td>2006-2007</td>
<td>$879,545</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>HVAC</td>
<td>Energy</td>
<td>2007-2008</td>
<td>$571,842</td>
<td>Yes</td>
</tr>
<tr>
<td>Bath Regional Vocational</td>
<td>Flooring, Heat &amp;</td>
<td>Bldg. Integrity</td>
<td>2007-2008</td>
<td>$200,000</td>
<td>Yes</td>
</tr>
<tr>
<td>Center</td>
<td>Plumbing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath Middle School</td>
<td>Site Development</td>
<td>Functional</td>
<td>2007-2008</td>
<td>$43,368</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>Stage Rigging</td>
<td>Modernization</td>
<td>2008-2009</td>
<td>$41,740</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>Floor</td>
<td>Hazardous Materials</td>
<td>2008-2009</td>
<td>$152,457</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>Windows</td>
<td>Bldg. Integrity</td>
<td>2008-2009</td>
<td>$479,491</td>
<td>Yes</td>
</tr>
<tr>
<td>Morse High School</td>
<td>Fire Alarm</td>
<td>Code Required</td>
<td>2008-2009</td>
<td>$41,967</td>
<td>Partially</td>
</tr>
<tr>
<td>Item</td>
<td>Code Required</td>
<td>Cost 2008-2009</td>
<td>Funded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morse High School Sprinklers</td>
<td></td>
<td>$93,455</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morse High School Floor Finishes</td>
<td>Functional</td>
<td>$51,422</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morse High School Carpets</td>
<td></td>
<td>$135,000</td>
<td>Partially</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath Middle School Floor</td>
<td>Hazardous</td>
<td>$112,379</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath Middle School Pipe</td>
<td>Hazardous</td>
<td>$22,584</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath Middle School Plumbing</td>
<td>ADA</td>
<td>$8,899</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1To be funded by annual budget.
2To be funded partly by annual budget and partly by bond.

Source: Bath School Department, 2008

Enrollment

The Bath-resident student enrollment has been declining for several years. The following tables show the trend since the 1996-1997 school year and a future projection. Future enrollment projections of the non-Bath-resident students have not been determined by the Bath School Department.

Bath elementary schools serve the City of Bath and a few students from the Town of Arrowsic. The following graph shows only Bath-resident students. As shown, the enrollment has decreased almost steadily in the last ten years and is expected to decrease in the future.

![ENROLLMENT BY GRADE
BATH-RESIDENT ELEMENTARY-SCHOOL STUDENTS
1996-2011](image)

Projections by Planning Decisions, 2004
Source: Bath School Department
The same decrease in Bath-resident enrollment is occurring in Bath Middle School (see the following graph).

**ENROLLMENT BY GRADE**
**BATH-RESIDENT MIDDLE-SCHOOL STUDENTS**
**1996-2011**

![Graph showing enrollment by grade for Bath resident middle-school students from 1996-2011.](image)

*Projections by Planning Decisions, 2004*
*Source: Bath School Department*

The enrollment of Bath-resident students by grade for Morse High School is decreasing, but it is not as dramatic as for middle-school enrollment (see the following graph).

**ENROLLMENT BY GRADE**
**BATH-RESIDENT HIGH SCHOOL STUDENTS**
**1996-2011**

![Graph showing enrollment by grade for Bath resident high-school students from 1996-2011.](image)

*Projections by Planning Decisions, 2004*
*Source: Bath School Department*
In reviewing the combined Bath and non-Bath student enrollment (see the following tables), we see that enrollment is higher for the 2006–2007 school year than shown on the previous graphs.

**ENROLLMENT BY GRADE**
**BATH RESIDENTS AND TUITION STUDENTS**
**BATH MIDDLE SCHOOL**
**2006-2007**

<table>
<thead>
<tr>
<th>School Year</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>Total 6th-8th</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>112</td>
<td>164</td>
<td>140</td>
<td>416</td>
</tr>
</tbody>
</table>

*Source: Bath School Department*

**ENROLLMENT BY GRADE**
**BATH RESIDENTS AND TUITION STUDENTS**
**MORSE HIGH SCHOOL**
**1996-2011**

<table>
<thead>
<tr>
<th>School Year</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>Total 9th-12th</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>188</td>
<td>206</td>
<td>164</td>
<td>216</td>
<td>774</td>
</tr>
</tbody>
</table>

*Source: Bath School Department*

**School Staffing**
The following table shows staffing level in the Office of the Superintendent and at various schools for the 2001 school year and then five years later in 2006. During this period, overall staffing level decreased by about 7 percent and the number of teachers decreased by about 2 percent. For the 2006–2007 school year, the student/teacher ratio was 9 to 1 at Dike-Newell School, 9 to 1 at Fisher-Mitchell School, 10 to 1 at Bath Middle School, and 13 to 1 at Morse High School.

**STAFFING LEVELS**
**BATH SCHOOL DEPARTMENT**
**2001 AND 2006**

<table>
<thead>
<tr>
<th>School</th>
<th>Staff</th>
<th>2001</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superintendent’s Office</td>
<td></td>
<td>10</td>
<td>10½</td>
</tr>
<tr>
<td>Custodian</td>
<td></td>
<td>½</td>
<td>½</td>
</tr>
<tr>
<td>Bath Middle School</td>
<td>Teachers</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Secretaries</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Ed Techs</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Custodians</td>
<td>Food Service</td>
<td>Computer Technician</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------------</td>
<td>--------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Teachers</td>
<td>5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Secretaries</td>
<td>4</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Ed Techs</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Administration</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Dike-Newell School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>32</td>
</tr>
<tr>
<td>Secretaries</td>
<td>2</td>
</tr>
<tr>
<td>Ed Techs</td>
<td>13</td>
</tr>
<tr>
<td>Custodians</td>
<td>2½</td>
</tr>
<tr>
<td>Food Service</td>
<td>2</td>
</tr>
<tr>
<td>Administration</td>
<td>1</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Fisher-Mitchell School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>21</td>
</tr>
<tr>
<td>Secretaries</td>
<td>1</td>
</tr>
<tr>
<td>Ed Techs</td>
<td>10</td>
</tr>
<tr>
<td>Custodians</td>
<td>2</td>
</tr>
<tr>
<td>Food Service</td>
<td>1</td>
</tr>
<tr>
<td>Administration</td>
<td>½</td>
</tr>
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<table>
<thead>
<tr>
<th></th>
<th>Huse School</th>
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</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>8½</td>
</tr>
<tr>
<td>Secretaries</td>
<td>1</td>
</tr>
<tr>
<td>Ed Techs</td>
<td>4</td>
</tr>
<tr>
<td>Custodians</td>
<td>1</td>
</tr>
<tr>
<td>Food Service</td>
<td>1</td>
</tr>
<tr>
<td>Administration</td>
<td>½</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Morse High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>61</td>
</tr>
<tr>
<td>Secretaries</td>
<td>4</td>
</tr>
<tr>
<td>Ed Techs</td>
<td>10</td>
</tr>
<tr>
<td>Union 47 Ed Techs</td>
<td>5</td>
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<tr>
<td>Custodians</td>
<td>8</td>
</tr>
<tr>
<td>Food Service</td>
<td>9</td>
</tr>
<tr>
<td>Administration</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Alternative Ed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>1</td>
</tr>
<tr>
<td>Ed Tech</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>District-Wide Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESL Teacher</td>
<td>1</td>
</tr>
<tr>
<td>Psychological Examiner</td>
<td>1</td>
</tr>
<tr>
<td>Computer Technician</td>
<td>1</td>
</tr>
<tr>
<td>Gifted/Talented Coordinator</td>
<td>1</td>
</tr>
<tr>
<td>Coordinator</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Contracted Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Therapist</td>
<td>1</td>
</tr>
<tr>
<td>Occupational Therapist</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>308½</td>
</tr>
<tr>
<td></td>
<td>287½</td>
</tr>
</tbody>
</table>

*Source: Bath School Department, 2007*
**Busing Policy**
The Bath Board of Education busing policy, adopted in August 2006, states that it will assume responsibility for transporting resident pupils. The policy encourages students to walk to school but promotes safety as the first consideration regarding which students walk and which students are bused. Students who are bused are all Dike-Newell students, Fisher-Mitchell students who live more than a half-mile from school, and Bath Middle School and Morse High School students who live more than 1 mile from school. In 2007, approximately 450 Bath-resident elementary students were bused daily, as well as approximately 225 Bath-resident middle and high school students.

**Graduation Rates**
The percentages of students who graduate as well as those who then go to college are important for understanding education in the City of Bath. Educational attainment—that is, the percentages of Bath residents who graduated from high school and who have college degrees—is also important (see Section 4.2 and Appendix B).


![Bar chart showing graduation rates for 1980, 1990, and 2000.](image)

*Source: 2000 U.S. Census*
The high rates of high school graduation but low rates of college education attainment may be a carried-over family tradition from when graduation from high school meant an almost certain apprenticeship at BIW. This is not the case today with employment opportunities at BIW shrinking and the need for more than a high school education in many shipbuilding trades.

**PERCENTAGE OF BATH-REGION-RESIDENT STUDENTS WHO GRADUATED FROM HIGH SCHOOL 2000**

![Bar chart showing the percentage of Bath-region-resident students who graduated from high school in 2000.](chart)

*Source: 2000 U.S. Census*
BATH REGIONAL VOCATIONAL CENTER

Bath Regional Vocational Center is located on High Street and is attached to Morse High School. The Center serves the vocational needs of students from Boothbay Region High School, Lincoln Academy, Morse High School, and Wiscasset High School. The Center is funded through the school portion of the City of Bath budget. It does not receive tuition or any funding from other towns but does receive funding from the state, which was approximately 70 percent of total costs in 2006.

Programs are offered in automotive technology, building construction, business education, culinary arts, pre-engineering design, early-childhood occupations, computer technology, and health sciences, many of which lead directly to apprenticeship programs.

In the 2006-2007 school year, 216 “true” vocational students (i.e., those with two or more vocational school periods per day) attended the Bath Regional Vocational Center.
According to its web site, “Bailey Evening School is the continuing education program for adult learners in the greater Bath area since 1913.” It is a non-profit entity that receives state and municipal funding but no funds through the education budget; however, the Supervisor of the part-time director is the Bath School Superintendent. The Bailey Evening School offers free courses for students who want to earn their high school diploma, get their GED, or improve their basic reading, writing, and math skills. The School also offers improvement and vocational courses in computer skills, languages, crafts and hobbies, exercise and health, finance, personal enrichment, and Certified Nurses Aid training. Bailey Evening School is accredited by Morse High School and offers the following courses:

- Basic Computer Literacy
- Computer Applications
- Graphic Design
- The Internet
- Web Page Design
- Web Graphics & Multimedia
- Web & Computer Programming
- Database Management & Programming
- PC Troubleshooting, Networking, & Security
- Certification Preparation
- Digital Photography & Digital Video
- Languages
- Writing & Publishing
- Entertainment Industry
- Test Preparation
- Personal Finance & Wealth-Building
- Health Care, Nutrition, & Fitness
- Personal Enrichment
- Child Care & Parenting
- Art, History, Psychology, & Literature
- Math, Philosophy, & Science
- Accounting
- Grant Writing & Non-profit Management
- Start Your Own Business
- Personal Development
- Business Administration
- Sales & Marketing
- Law & Legal Careers
- Health Care Continuing Education
- Courses for Teaching Professionals

In March 2000, Midcoast Senior College was organized and began offering courses for people fifty-five and older. Midcoast Senior College is a lifelong-learning program with courses offered at University College, which is located at the MCHE.

Currently, Midcoast Senior College offers thirteen eight-week courses during the spring and autumn semesters. Enrollment is approximately 200, with volunteer faculty teaching courses in subjects such as Russian and...
American studies, fiction and poetry, architecture, painting and drawing, computer skills, and music. There are no exams, no grades, and no credit hours given.

THE HYDE SCHOOL

The Hyde School is located on High Street on about 145 acres and has a campus with sixteen main buildings. Founded in Bath in 1966, The Hyde School provides secondary-school education to approximately 200 students. The school prides itself on its student/teacher ratio of 6 to 1 and the fact that since 2001, more than 98 percent of its graduates have enrolled in a four-year college.

MIDCOAST CENTER FOR HIGHER EDUCATION

MCHE, housed at what was Bath Memorial Hospital and, more recently, the Bath campus of Mid Coast Hospital, comprises two branches of the University of Maine System.

The Bath campus of SMCC began offering courses in 2003; in the spring 2008 semester, enrollment was 325, up from 300 in the spring 2007 semester. In Bath, SMCC offers associates degrees in Liberal Studies. Students can earn half of their degree in other programs—Early Childhood Education, Behavioral Health and Human Services, Paramedicine, and Pharmacy Technician—in Bath. In 2008, SMCC had 2.5 employees in Bath.

Also at MCHE is the University of Maine’s University College Bath-Brunswick Center. Formerly on Bath Road in Brunswick, the Bath-Brunswick Center opened in Bath in 2003. University College is part of the University of Maine System, not specifically affiliated with any one campus. It offers distance education courses from all seven of University of Maine System campuses. In Bath, on-site courses are offered from USM, University of Maine at Augusta (UMA), and University of Maine at Farmington (UMF). In a typical spring or autumn semester, more than 300 courses are offered. In the spring 2008 semester, student enrollment was 867, up 3.6 percent from the spring 2007 semester.

The University College Bath-Brunswick Center employs five full-time staff.
locally (i.e., two professional and three clerical positions), and ten to twelve part-time, work-study students, who are funded through a federal work-study grant. The estimated forty on-site courses available each autumn and spring are taught by a combination of regional adjunct faculty and a small number of full-time UMA, USM, and UMF faculty who are teaching a portion of their full-time course load in Bath.

Degrees that can be completed in Bath include the following:

**Associates**
- Business Administration
- Financial Services
- Liberal Arts/Liberal Studies
- Library & Information Services
- Medical Laboratory Technology
- Nursing
- Social Services

**Bachelors**
- Bachelors of Applied Science
- Business Administration
- Dental Hygiene
- Liberal Studies
- Library & Information Services
- Mental Health and Human Services
- RN Completion
- Social Science
- University Studies

**Masters**
- Adult Education
- Computer Engineering
- Educational Literacy
- Electrical Engineering
- Rehabilitation Counseling

**Undergraduate Certificates**
- Child and Youth Care Practitioner
- Classical Studies
- Environmental Safety and Health
- Human Services
- Library and Information Services
- Maine Studies
- Mental Health & Rehabilitation
- Technician/Community Substance Rehabilitation

**Graduate Certificates**
- Child and Family Information Systems
- Health Policy & Management
- Mental Health & Rehabilitation
- Technician/Community Non-profit Management

**HEAD START**

Midcoast Community Action (formerly Coastal Economic Development, Inc.) operates the Head Start program in the Bath Region. Head Start is a federal program that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social, and other services to enrolled children and families. As of the spring of 2008, the program had fifty-four children from ages three to five years in the program. The geographic area served by the Midcoast Community Action Head Start program includes Arrowsic, Woolwich, Bath, Phippsburg, and West Bath. The income-eligibility criterion of families is 130 percent of the federal poverty level. Financial support is
provided by the U.S. Department of Health and Human Services, the State of Maine, and the local United Way.

PLANNING IMPLICATIONS OF THE EDUCATION INVENTORY

1. With the recent formation of RSU 1, it is too early to inventory past trends to provide an idea of the future.

2. Bath school facilities are showing their age, with a long list of needed and expensive capital improvements. These needs could translate into major costs for RSU 1 in the future.

3. The enrollment of Bath-resident students has declined and is likely to continue declining. Enrollment, including former Union 47 students, will likely stay level in the future. Predicted enrollments for RSU 1 will be critical information for the Regional School Board as it considers future needs.

4. In the past five years, the percentage decrease of Bath School Department staff as a whole was greater than the percentage decrease of teachers. This indicates an emphasis by the Bath Board of Education to retain teachers while cutting nonteacher personnel. It is too early to determine if this same approach will be taken by the RSU 1 School Board.

5. The Bath Board Education busing policy shows concern for student safety, as it should. Savings could be made in transportation costs, however, if attention were given to mitigating or eliminating the safety problems when students walk farther to school. Also, walking could improve students' health. It is not known if the RSU1 School Board will have the same policy.

6. The percentage of Bath students who graduate from high school is quite high, and the rate is increasing. However, the rate of Bath residents with college degrees is low compared to the Bath Region. What may be a family tradition of placing high value on high school
graduation as an entrance to BIW is positive; however, what may be a tradition of placing a low value on a college education is negative.

7. The City of Bath and the Bath Region have abundant educational resources other than those offered by RSU 1. These resources include everything from Head Start to Senior College, as well as the Bath Regional Vocational Center, the Bailey Evening School, The Hyde School, a campus of SMCC, and the University of Maine's University College.

8. As discussed in Appendix B, the report titled “Measures of Growth 2007,” written for the Maine Economic Growth Council, reminds us that “in order for societies to thrive, they must focus investment in their people [this means education] as well as in cutting-edge technology.”
APPENDIX J
FISCAL INVENTORY

INTRODUCTION

Towns and cities in Maine spend money for the public facilities and public services that the public wants, and for services and other items required by law. Expenditures include gasoline and diesel fuel; heating oil, electricity, and building maintenance; road salt and hot-top material; police vehicles, fire trucks, and snowplows; textbooks and employees' salaries; and all the other expenses it takes to operate a city. The City of Bath also pays for a portion of Sagadahoc County services (i.e., the County Tax) and for a portion of the new RSU 1. The City's share of the County Tax and the City's portion of funding for RSU 1 are both included in Bath property owners' tax bills.

To spend this money and make RSU 1 and County payments, the City must bring in revenue. The largest and most obvious source of revenue is the tax assessed on both real property (i.e., land and buildings) and personal property (i.e., business equipment). The City also collects an annual excise tax on vehicles and boats, as well as various fees for permits, licenses, and certain services. Also, some tax-exempt property owners (discussed later in this appendix) make payments in lieu of taxes (PILOTs) to the City. Cities and towns in Maine receive a small percentage of state-collected taxes, often referred to as revenue sharing. When the state's revenues are down, so is the amount of revenue sharing. Unless a city or town is in some form of school district or RSU, they also receive General Purpose Aid to Education from the state. If a city or town is in a district or another RSU (not a School Union), the state's General Purpose Aid to Education is given directly to that district or unit.

In some states, cities and towns have the legal authority to collect sales taxes, meals and lodging taxes, and even income taxes. These local taxes are not available to municipalities in Maine.

This appendix explains where the money comes from that is used to operate the City and where the money is spent. In some discussions, this is reviewed over time and Bath is compared to other communities.
As discussed previously, the major source of local revenue is the property tax. Property—land and buildings as well as personal property—is required to be assessed by the local tax assessor at “fair market value” or at a uniform percentage of fair market value. The only exceptions are the lands classified as tree-growth land, farmland, and open-space land. These so-called current-use taxing provisions are allowed by Maine State Laws and require the assessor to assess forestland based on the amount of wood grown each year (i.e., the Tree Growth Law) and to be classified as farmland or open-space land at the farmland or open-space value (i.e., the Farm and Open-Space Law). If a landowner takes such land out of its current-use classification, a substantial financial penalty must be paid to the City of Bath. The properties in the current-use tax programs are discussed in Appendix F, Natural Resources Inventory.

The amount of tax paid by a landowner is determined by multiplying the assessed value of that property by the City's tax rate (i.e., mill rate). The tax rate is determined by dividing the amount of the City's budget that has to be raised from taxes (i.e., the total budget minus the amount of excise tax, fees, state revenues, and other non-tax revenues) by the total valuation of the City.

The Assessor sets the tax rate each year by using this calculation. By law, the Assessor is not allowed to raise more money than is needed to cover the budget approved by the City Council. The only exception can be a small "overlay" used primarily to round off the tax rate and to cover any tax abatements that may be given during the year.

To compare one municipality to another, and for County Tax assessment and educational-subsidy purposes, the State (i.e., Maine Revenue Services) calculates a "state valuation" for every Maine municipality. According to the Maine Revenue Services web site, “[t]he state valuation is compiled by determining, through field work and meetings with assessors, the approximate ratio of full value on which local assessments are made; and by then adjusting total local assessed value so that the state valuation of those municipalities are equalized.” This valuation excludes the portion of value that is “captured” by the municipality in any TIF district. (The taxes on this
captured value can be returned to the property owner and/or used for local economic development purposes. The TIF process in Bath is discussed later in this appendix.)

Shown in the following table and graph, the City of Bath’s valuation (as shown by state valuation) actually decreased from 1995 to 1996 but has steadily increased since then. If the City’s valuation were to increase at a faster rate than the rest of the total for all Sagadahoc County municipalities, Bath would pay an increasing share of the Sagadahoc County Tax (discussed later in this appendix). However, since 2002, Bath’s state valuation increased 70.6 percent, whereas the total of Sagadahoc County municipalities increased 94.2 percent.

### STATE VALUATION

**CITY OF BATH**

**1995-2007**

<table>
<thead>
<tr>
<th>Year</th>
<th>State Valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>$510,050,000</td>
</tr>
<tr>
<td>1996</td>
<td>$467,450,000</td>
</tr>
<tr>
<td>1997</td>
<td>$468,550,000</td>
</tr>
<tr>
<td>1998</td>
<td>$484,000,000</td>
</tr>
<tr>
<td>1999</td>
<td>$484,550,000</td>
</tr>
<tr>
<td>2000</td>
<td>$501,950,000</td>
</tr>
<tr>
<td>2001</td>
<td>$518,250,000</td>
</tr>
<tr>
<td>2002</td>
<td>$548,850,000</td>
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<tr>
<td>2003</td>
<td>$595,000,000</td>
</tr>
<tr>
<td>2004</td>
<td>$650,000,000</td>
</tr>
<tr>
<td>2005</td>
<td>$753,500,000</td>
</tr>
<tr>
<td>2006</td>
<td>$825,900,000</td>
</tr>
<tr>
<td>2007</td>
<td>$936,200,000</td>
</tr>
</tbody>
</table>

Source: Maine Revenue Services, 2008
This valuation consists of homes and other residential property, commercial properties, industrial properties, undeveloped land, utilities, and personal property (i.e., business equipment). These percentages and the change from 1998 (pre-BIW TIF) to 2007 (with and without the BIW TIF) are shown in the following three pie charts. The percentages of the City’s total valuation in 1998 and 2007 (adjusted for the TIF) were similar. Why the 2007 values (adjusted and nonadjusted) are different and what this all means is discussed later in this appendix.
BATH'S TOTAL TAXABLE VALUATION
1998

Source: City of Bath Assessor's Office, 2008

BATH'S TOTAL TAXABLE VALUATION
2007

Source: City of Bath Assessor's Office, 2008
The "industrial" piece of these three pie charts is mostly BIW. However, in 2007, it included Gagne Foods, Custom Composite Technologies, and the Kennebec Company. The disproportionately large size of BIW’s valuation, compared to other taxpayers, often leads people to ask how much of the City’s total value is attributed to BIW. The following table shows that BIW was almost 39 percent of the total value in 2007; when adjusted for the TIF, it is about 22 percent.
BATH VALUATION
AND BATH IRON WORKS PERCENTAGE
2007

<table>
<thead>
<tr>
<th>Bath Total Value</th>
<th>Personal Property</th>
<th>$202,002,200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Real Estate</td>
<td>$937,017,400</td>
</tr>
<tr>
<td>Total</td>
<td>$1,139,019,600</td>
<td>100%</td>
</tr>
<tr>
<td>BIW Total Value</td>
<td>Personal Property</td>
<td>$176,802,200</td>
</tr>
<tr>
<td></td>
<td>Real Estate</td>
<td>$264,305,100</td>
</tr>
<tr>
<td>Total</td>
<td>$441,107,300</td>
<td>38.7%</td>
</tr>
<tr>
<td>TIF Repayment to BIW</td>
<td>Taxes Returned to BIW</td>
<td>$(3,127,079)</td>
</tr>
<tr>
<td></td>
<td>Equivalent Valuation</td>
<td>$(187,250,240)</td>
</tr>
<tr>
<td>BIW Value NET TIF</td>
<td></td>
<td>$253,857,060</td>
</tr>
</tbody>
</table>

Source: City of Bath Assessor's Office, 2008

Another topic that needs to be discussed when reviewing the City's valuation is tax-exempt property. According to the Maine Constitution, certain types of properties are exempt from paying property taxes, including federal and state property, municipal property, airports, property owned by benevolent and charitable organizations, libraries, hospitals, certain scientific organizations, and places of worship. The following table shows the percentage of the total value of tax-exempt property in Bath, towns in the Bath Region, and other comparison communities. Most tax-exempt property still requires a certain level of public service: fire and police protection, road maintenance, snowplowing, and stormwater collection, to mention only a few. Some tax-exempt properties make PILOTs to the City of Bath.
EXEMPT PROPERTY AS A PERCENTAGE OF TOTAL VALUATION
BATH, BATH REGION TOWNS, AND COMPARISON COMMUNITIES
2006

<table>
<thead>
<tr>
<th>Municipality/Area</th>
<th>Percentage of Total Valuation Exempt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>16.3%</td>
</tr>
<tr>
<td>Georgetown</td>
<td>3.3%</td>
</tr>
<tr>
<td>Arrowsic</td>
<td>4.5%</td>
</tr>
<tr>
<td>Woolwich</td>
<td>5.0%</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>4.0%</td>
</tr>
<tr>
<td>West Bath</td>
<td>3.9%</td>
</tr>
<tr>
<td>Brunswick¹</td>
<td>49.1%</td>
</tr>
<tr>
<td>Topsham¹</td>
<td>33.5%</td>
</tr>
<tr>
<td>Auburn</td>
<td>14.6%</td>
</tr>
<tr>
<td>Augusta</td>
<td>26.2%</td>
</tr>
<tr>
<td>Bangor</td>
<td>34.0%</td>
</tr>
<tr>
<td>Brewer</td>
<td>11.4%</td>
</tr>
<tr>
<td>Lewiston</td>
<td>42.9%</td>
</tr>
<tr>
<td>Lisbon</td>
<td>9.8%</td>
</tr>
<tr>
<td>Portland</td>
<td>21.8%</td>
</tr>
<tr>
<td>Rockland</td>
<td>26.6%</td>
</tr>
<tr>
<td>South Portland</td>
<td>13.4%</td>
</tr>
<tr>
<td>Waterville</td>
<td>27.2%</td>
</tr>
<tr>
<td>Sagadahoc County</td>
<td>13.0%</td>
</tr>
<tr>
<td>Maine</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Source: Maine Revenue Services, 2008

¹When BNAS closes in 2011, the percentages for these towns could change significantly.

As discussed previously, property taxes are calculated by multiplying the assessed value of a property by the City’s mill rate. Because inflation affects property values and because the assessed value stays the same (until a new City-wide reevaluation), comparing tax rates in different years or different municipalities is difficult. The equalized tax rate, calculated by Maine Revenue Services, makes these comparisons possible. It is derived by dividing the municipal tax commitment by the state valuation with adjustments for Homestead Exemptions and TIFs. (Equalized tax rates are not those that appear on a property tax bill; rather, they are calculated to allow comparisons of tax rates over time and in different municipalities.)
The following table shows equalized tax rates for the City of Bath, the Bath Region towns, and selected Service Center communities for 1995 through 2005. The following graph illustrates this information for Bath and Bath Region towns. The graph indicates that larger communities that provide more municipal services have higher tax rates than smaller rural communities. This is due to several factors. It indicates that some municipalities are more willing than others to levy taxes to support more public facilities and services. It also shows that it is more costly to be the Service Center for a region because that is where regional services are provided by the state and federal government, hospitals, colleges, churches, and many other tax-exempt entities. Service Center communities also provide services to a larger region and often collect no fees for them from rural communities. Examples in Bath are tennis courts, ice-skating facilities, and boat launches.

The table and graph show that the equalized tax rates in all of the municipalities, except Arrowsic, were lower in 2005 than in 1995. This is a result of municipality budgets having a smaller increase than their valuation increase.
### EQUALIZED TAX RATES

#### BATH REGION AND SELECTED SERVICE CENTER COMMUNITIES

**1995–2005**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>20.70</td>
<td>20.31</td>
<td>20.30</td>
<td>19.76</td>
<td>20.15</td>
<td>19.36</td>
<td>19.17</td>
<td>20.05</td>
<td>18.95</td>
<td>18.22</td>
<td>14.10</td>
</tr>
<tr>
<td>Georgetown</td>
<td>9.45</td>
<td>9.75</td>
<td>10.52</td>
<td>10.85</td>
<td>10.24</td>
<td>10.13</td>
<td>10.05</td>
<td>9.32</td>
<td>7.43</td>
<td>6.21</td>
<td>4.32</td>
</tr>
<tr>
<td>Phippsburg</td>
<td>11.30</td>
<td>11.81</td>
<td>11.85</td>
<td>12.05</td>
<td>12.93</td>
<td>11.84</td>
<td>13.66</td>
<td>11.48</td>
<td>9.52</td>
<td>7.73</td>
<td>6.81</td>
</tr>
<tr>
<td>Brunswick</td>
<td>17.40</td>
<td>17.81</td>
<td>17.78</td>
<td>18.08</td>
<td>17.79</td>
<td>17.81</td>
<td>17.55</td>
<td>16.72</td>
<td>16.12</td>
<td>14.96</td>
<td>13.50</td>
</tr>
<tr>
<td>Topsham</td>
<td>17.60</td>
<td>17.74</td>
<td>18.83</td>
<td>18.02</td>
<td>17.25</td>
<td>15.77</td>
<td>16.22</td>
<td>17.47</td>
<td>15.26</td>
<td>13.32</td>
<td>12.90</td>
</tr>
<tr>
<td>Augusta</td>
<td>22.90</td>
<td>23.28</td>
<td>23.10</td>
<td>24.02</td>
<td>14.43</td>
<td>23.69</td>
<td>24.26</td>
<td>23.39</td>
<td>22.15</td>
<td>19.92</td>
<td>17.64</td>
</tr>
<tr>
<td>Bangor</td>
<td>23.11</td>
<td>22.42</td>
<td>22.84</td>
<td>22.90</td>
<td>22.78</td>
<td>21.82</td>
<td>22.82</td>
<td>22.05</td>
<td>21.05</td>
<td>19.34</td>
<td>18.11</td>
</tr>
<tr>
<td>Lisbon</td>
<td>21.90</td>
<td>21.63</td>
<td>22.64</td>
<td>23.16</td>
<td>23.09</td>
<td>22.43</td>
<td>22.98</td>
<td>22.26</td>
<td>19.92</td>
<td>17.81</td>
<td>15.34</td>
</tr>
<tr>
<td>Rockland</td>
<td>20.56</td>
<td>21.43</td>
<td>23.10</td>
<td>23.81</td>
<td>23.83</td>
<td>23.73</td>
<td>23.02</td>
<td>21.90</td>
<td>19.09</td>
<td>17.43</td>
<td>17.05</td>
</tr>
</tbody>
</table>

*Source: Maine Revenue Services, 2008*
As discussed previously, property taxes (and other revenues) pay for public services that the City provides—both school and municipal services. They also pay for county services. Counties in Maine do not send tax bills to property owners. They assess the towns and cities in that county a tax that is included in each municipality’s tax bill sent to its taxpayers. The amount that each municipality in a county is assessed is based on its state valuation. The City of Bath has the highest state valuation in Sagadahoc County and therefore pays the largest portion of the County Tax.

The following table shows how the percentage of a property owner’s tax bill is shared among support for the school budget, the Sagadahoc County budget, and the municipal budget, and how it has changed since 1997. The share to Sagadahoc County is substantial, especially considering the minimal services that Bath residents receive from the County.

Source: Maine Revenue Services, 2008
### PERCENT SHARE OF BATH PROPERTY TAXES FOR SCHOOL, COUNTY, AND MUNICIPAL BUDGETS 1997–2007

<table>
<thead>
<tr>
<th>Year</th>
<th>% for School</th>
<th>% for County</th>
<th>% for Municipal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>55.4</td>
<td>6.5</td>
<td>38.1</td>
</tr>
<tr>
<td>1998</td>
<td>55.6</td>
<td>6.7</td>
<td>37.7</td>
</tr>
<tr>
<td>1999</td>
<td>53.8</td>
<td>6.4</td>
<td>39.8</td>
</tr>
<tr>
<td>2000</td>
<td>56.2</td>
<td>6.7</td>
<td>37.1</td>
</tr>
<tr>
<td>2001</td>
<td>56.8</td>
<td>9.5</td>
<td>33.6</td>
</tr>
<tr>
<td>2002</td>
<td>59.0</td>
<td>10.2</td>
<td>30.8</td>
</tr>
<tr>
<td>2003</td>
<td>58.2</td>
<td>8.7</td>
<td>33.1</td>
</tr>
<tr>
<td>2004</td>
<td>58.7</td>
<td>8.9</td>
<td>32.4</td>
</tr>
<tr>
<td>2005</td>
<td>57.9</td>
<td>4.7</td>
<td>37.4</td>
</tr>
<tr>
<td>2006</td>
<td>49.4</td>
<td>12.0</td>
<td>38.6</td>
</tr>
<tr>
<td>2007</td>
<td>51.5</td>
<td>11.0</td>
<td>37.6</td>
</tr>
</tbody>
</table>

*Source: City of Bath Treasurer’s Office, 2008*

---

### PERCENT SHARE OF BATH PROPERTY TAXES FOR SCHOOL, COUNTY, AND MUNICIPAL BUDGETS 1997–2007

![Bar chart showing the percentage share of Bath property taxes for school, county, and municipal budgets from 1997 to 2007. The chart visually represents the data in the table above.](image)

*Source: City of Bath Treasurer’s Office, 2008*
The following table and graph complete the discussion of revenues and show that in addition to property taxes, City revenues include excise taxes paid on vehicles and boats, licenses and fees, intergovernmental transfers (i.e., grants, subsidies, and shared revenues), charges for services (e.g., ambulance-service payments and landfill tipping fees), investments, other (i.e., miscellaneous revenues not listed by auditors in any other category), and other financing sources (i.e., loans, bonds, and transfers from other sources).

Over the past ten years, the property-tax portion has been about half of the revenue (from 42 to 52 percent), excise tax revenue has stayed at 4 percent, licenses and fees were between 0.3 and 0.5 percent, intergovernmental transfers ranged between 25 and 30 percent, charges for services were as low as 16 percent and as high as 20 percent, investment income was from less than 1 to 3 percent, other sources contributed between 1 and 2 percent, and other financing sources ranged between 0.4 and 3 percent.

**BATH REVENUE SOURCES**

**1997-2007**

<table>
<thead>
<tr>
<th>Year</th>
<th>Property Taxes</th>
<th>Excise Taxes</th>
<th>Licenses &amp; Permits</th>
<th>Intergovernmental</th>
<th>Charges for Services</th>
<th>Investment Income</th>
<th>From Other</th>
<th>Other Financing Sources</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>$9,531,100</td>
<td>$748,978</td>
<td>$59,911</td>
<td>$5,516,207</td>
<td>$3,597,275</td>
<td>$469,068</td>
<td>$369,014</td>
<td>$336,995</td>
<td>$20,628,548</td>
</tr>
<tr>
<td>1999</td>
<td>$9,391,852</td>
<td>$808,834</td>
<td>$62,403</td>
<td>$5,954,752</td>
<td>$4,113,947</td>
<td>$436,509</td>
<td>$511,081</td>
<td>$80,000</td>
<td>$21,359,378</td>
</tr>
<tr>
<td>2000</td>
<td>$9,561,347</td>
<td>$863,626</td>
<td>$104,177</td>
<td>$6,370,566</td>
<td>$4,481,163</td>
<td>$550,927</td>
<td>$434,038</td>
<td>$83,000</td>
<td>$22,448,844</td>
</tr>
<tr>
<td>2001</td>
<td>$9,598,279</td>
<td>$876,263</td>
<td>$75,633</td>
<td>$6,718,329</td>
<td>$4,482,088</td>
<td>$570,285</td>
<td>$253,025</td>
<td>$83,000</td>
<td>$22,656,902</td>
</tr>
<tr>
<td>2002</td>
<td>$10,289,275</td>
<td>$934,686</td>
<td>$85,284</td>
<td>$6,854,712</td>
<td>$4,238,843</td>
<td>$315,152</td>
<td>$218,531</td>
<td>$128,000</td>
<td>$23,044,483</td>
</tr>
<tr>
<td>2003</td>
<td>$11,635,967</td>
<td>$987,080</td>
<td>$95,088</td>
<td>$6,485,027</td>
<td>$4,425,659</td>
<td>$158,518</td>
<td>$209,582</td>
<td>$173,450</td>
<td>$24,170,371</td>
</tr>
<tr>
<td>2004</td>
<td>$12,394,368</td>
<td>$1,034,011</td>
<td>$79,168</td>
<td>$6,619,956</td>
<td>$4,703,368</td>
<td>$109,238</td>
<td>$349,374</td>
<td>$301,000</td>
<td>$25,590,483</td>
</tr>
<tr>
<td>2005</td>
<td>$12,647,111</td>
<td>$1,012,382</td>
<td>$90,128</td>
<td>$6,053,993</td>
<td>$4,647,438</td>
<td>$152,877</td>
<td>$265,411</td>
<td>$845,403</td>
<td>$27,714,743</td>
</tr>
<tr>
<td>2006</td>
<td>$12,396,277</td>
<td>$1,008,537</td>
<td>$132,935</td>
<td>$8,952,716</td>
<td>$4,591,096</td>
<td>$211,305</td>
<td>$343,954</td>
<td>$270,248</td>
<td>$27,907,068</td>
</tr>
<tr>
<td>2007</td>
<td>$14,533,594</td>
<td>$1,013,733</td>
<td>$104,454</td>
<td>$6,902,731</td>
<td>$4,774,735</td>
<td>$253,504</td>
<td>$197,784</td>
<td>$272,800</td>
<td>$28,053,335</td>
</tr>
</tbody>
</table>

*Source: City of Bath Finance Department, 2008*
EXPENDITURES

As discussed previously, revenue that the City of Bath receives is used to fund public facilities and services that citizens want, as reflected by the City Council-adopted budget. The following table shows total expenditures for each fiscal year from 1997 through 2007. The table also shows the amount of the expenditures adjusted to 2007 dollars. (Adjusting for inflation provides a better comparison of one year to another.) In general, total expenditures (adjusted for inflation) have been increasing; however, the 2007 total indicated a significant decrease. Expenditures for each City of Bath department are listed in Appendix H.
TOTAL EXPENDITURES
FY1997-FY2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
<th>Amount (Adjusted)¹</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>$19,465,753</td>
<td>$25,286,069</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>$20,516,971</td>
<td>$26,242,841</td>
<td>3.8%</td>
</tr>
<tr>
<td>1999</td>
<td>$21,157,851</td>
<td>$26,477,792</td>
<td>0.9%</td>
</tr>
<tr>
<td>2000</td>
<td>$21,909,690</td>
<td>$26,537,011</td>
<td>0.2%</td>
</tr>
<tr>
<td>2001</td>
<td>$22,770,016</td>
<td>$26,805,881</td>
<td>1.0%</td>
</tr>
<tr>
<td>2002</td>
<td>$23,936,551</td>
<td>$27,704,539</td>
<td>3.4%</td>
</tr>
<tr>
<td>2003</td>
<td>$24,788,412</td>
<td>$28,087,695</td>
<td>1.4%</td>
</tr>
<tr>
<td>2004</td>
<td>$25,409,330</td>
<td>$28,044,421</td>
<td>-0.2%</td>
</tr>
<tr>
<td>2005</td>
<td>$27,996,464</td>
<td>$29,887,228</td>
<td>6.6%</td>
</tr>
<tr>
<td>2006</td>
<td>$29,074,326</td>
<td>$30,067,991</td>
<td>0.6%</td>
</tr>
<tr>
<td>2007</td>
<td>$27,906,459</td>
<td>$27,906,459</td>
<td>-7.2%</td>
</tr>
</tbody>
</table>

Source: City of Bath Finance Department, 2008
¹Adjusted to 2007 dollars using the U.S. Department of Labor "inflation calculator."

THE SPENDING LIMITATION

Since 1988, the City of Bath has had a voter-approved Charter provision that limits yearly expenditures. The provision limits the maximum percentage increase in the City's spending over and above the preceding fiscal year to no more than the national CPI. This is a spending limitation, not a tax cap, which means that in most cases, even if the spending does not come from taxes, it is still affected by the spending-limitation requirement. Only bonds approved by the voters, debt service on these bonds, certain grants, certain state or federal monies spent for mandates and "emergency" appropriations, and payments to RSU 1 are exempt.

The impact on the City budget is that, at times, borrowing (and paying interest) is the only way to fund capital improvements. At the end of each fiscal year, the City Council artificially appropriates funds up to the maximum limit in order to "capture the room" under the ceiling for a better starting point in subsequent years. This is the reason that the rating agencies downgraded the City of Bath's bond rating. This process also gives disincentives to each City department when it comes to not spending its entire budget.
In 2005 the State Legislature passed a bill (i.e., LD 1). LD 1 is not a spending limitation but rather a provision that limits increases in the local tax levies. The formula that determines the amount of increase allowed, without an override by the City Council is based on valuation increase and income increase. In FY2005 through FY2007, there was no override; in FY2008 and FY2009, there were overrides. According to the Finance Director, the fact that the City Council is willing to override LD 1 in order to fund needed services and infrastructure improvements is a positive with respect to the City's bond rating.

DEBT

When reviewing the City's fiscal situation, it is important to consider the amount of the City's debt. In Maine (according to State Law), a municipality's debt cannot exceed 15 percent of its state valuation. Therefore, the City of Bath's legal debt limit is $140,430,000.

The legal debt limit is divided into different categories, each of which has a maximum percentage of the total legal debt limit. For example, the municipal, stormwater, and sewer debts can each equal 7.5 percent of the total 15 percent, school debt can equal 10 percent of the total 15 percent, and special districts can equal only 3 percent of the City's total 15 percent valuation.

The following table indicates that as of July 2007, the City of Bath's debt was approximately $27,423,000.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount Outstanding on 7/1/07</th>
<th>Debt-Retirement Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988 Sewer Separation Bonds - Original amount financed is $2 million with a variable interest rate due on 12/1/2008.</td>
<td>$300,000</td>
<td>12/1/2008</td>
</tr>
<tr>
<td>1989 Sewer Separation Bonds - Original amount financed is $780,000 with a variable interest rate due on 12/1/2009.</td>
<td>$140,000</td>
<td>12/1/2009</td>
</tr>
<tr>
<td>1992 Wastewater Bond (refunded February 2005) - Original amount financed is $3,311,000 with a variable interest rate due on 10/1/2012.</td>
<td>$1,158,850</td>
<td>10/1/2012</td>
</tr>
<tr>
<td>1997 Wastewater Treatment Upgrade Bonds (refunded)</td>
<td>$3,780,000</td>
<td>10/1/2017</td>
</tr>
</tbody>
</table>
February 2005) - Original amount financed is $6.3 million with a variable interest rate due on 10/1/2017.

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount</th>
<th>Interest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998 Library Bonds</td>
<td>$500,000</td>
<td>$250,100</td>
</tr>
<tr>
<td>1999 Sewer and Street Improvement TIF Bonds</td>
<td>$4.5 million</td>
<td>$3,150,000</td>
</tr>
<tr>
<td>2001 Capital Improvement Bonds</td>
<td>$6.62 million</td>
<td>$5,280,000</td>
</tr>
<tr>
<td>2002 SRF Landfill/Pumping Station Bonds</td>
<td>$4 million</td>
<td>$1,627,500</td>
</tr>
<tr>
<td>2003 General Obligation Bonds</td>
<td>$1.95 million</td>
<td>$3,340,000</td>
</tr>
<tr>
<td>2004 General Obligation Bonds</td>
<td>$1.84 million</td>
<td>$1,715,000</td>
</tr>
<tr>
<td>2004 Note Payable</td>
<td>$550,000</td>
<td>$526,374</td>
</tr>
<tr>
<td>Building Renovation Note</td>
<td>$1 million</td>
<td></td>
</tr>
<tr>
<td>2006 Wastewater Revolving Loan Fund</td>
<td>$350,000</td>
<td>$350,000</td>
</tr>
<tr>
<td>2001 Middle School Improvement SSRRF Bonds</td>
<td>$1 million</td>
<td>$330,060</td>
</tr>
<tr>
<td>1995 Landfill/BIW Settlement Bonds (refunded in 2006 with the following school bond)</td>
<td>$4,835,000</td>
<td>$1,680,000</td>
</tr>
<tr>
<td>1996 High School Improvement Bonds (refunded with the previous BIW/Landfill Bond in 2006)</td>
<td>$4,835,000</td>
<td>$3,795,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$27,422,884</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Bath Finance Department, 2008.

**CAPITAL IMPROVEMENTS PLAN**

A CIP is a fiscal-planning tool that helps a town or city identify capital needs now and in the future and to determine how to finance those needs. A CIP can also help a municipality implement planning strategies in its Comprehensive Plan. The reasons for having a CIP are to:

Appendix J Page 17
help implement the City's planning and financial policies
spread the costs of public improvements over time
eliminate peaks and valleys that can occur in annual budgets when major expenditures are unplanned
give an overall view of the City's needs and avoid overemphasis on any one project
save taxpayer money by grouping projects together
let lenders know that the City is doing sound financial planning
coordinate capital spending with other community goals, infrastructure plans, and school-improvement plans
help guide the location and timing of development

Capital improvements include:

- acquisition of land and buildings
- construction or expansion of a facility or utility
- nonrecurring rehabilitation of a facility costing more than $10,000
- purchase of all vehicles and other equipment costing more than $10,000 with a life of more than five years
- planning, engineering, or design of a capital project

In 2007, the City of Bath developed its first detailed CIP. The following table is from the FY2009-FY2013 CIP.

**SUMMARY OF PROPOSED PROJECTS**

**2009-2013 CAPITAL PLAN**

**CAPITAL (FUND 05)**

<table>
<thead>
<tr>
<th>Project #</th>
<th>GL Line Item</th>
<th>Title</th>
<th>FY 09</th>
<th>FY 10</th>
<th>FY 11</th>
<th>FY 12</th>
<th>FY 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-pol 1</td>
<td>POL05-552</td>
<td>Police - Vehicles</td>
<td>$5,200.00</td>
<td>$47,500.00</td>
<td>$45,500.00</td>
<td>$38,500.00</td>
<td>$69,500.00</td>
</tr>
<tr>
<td>09-pol 2</td>
<td>POL05-552</td>
<td>Police - Handguns (duty weapons)</td>
<td>$0.00</td>
<td>$8,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pol 3</td>
<td>POL05-552</td>
<td>Police - Facility carpeting</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$17,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pol 4</td>
<td>POL05-552</td>
<td>Police - Vehicle radios</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$6,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pol 5</td>
<td>POL05-552</td>
<td>Police - Dispatch Console</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$30,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
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<tr>
<td>09-pol 6</td>
<td>POL05-552</td>
<td>Police - Parking lot reconstruction</td>
<td>$17,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pol 7</td>
<td>POL05-552</td>
<td>Police - Portable radios</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$6,000.00</td>
<td>$6,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pol 8</td>
<td>POL05-552</td>
<td>Police - Tasers</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$4,000.00</td>
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<tr>
<td>09-f1</td>
<td>FD05-551</td>
<td>Fire/Rescue - Defibulator replacement</td>
<td>$0.00</td>
<td>$25,000.00</td>
<td>$25,000.00</td>
<td>$25,000.00</td>
<td>$0.00</td>
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<tr>
<td>09-f2</td>
<td>FD05-551</td>
<td>Fire - Vehicles</td>
<td>$25,000.00</td>
<td>$595,000.00</td>
<td>$140,000.00</td>
<td>$0.00</td>
<td>$150,000.00</td>
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<tr>
<td>09-a1</td>
<td>CF05-521</td>
<td>Assessing - Revaluation</td>
<td>$0.00</td>
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<td>$10,000.00</td>
<td>$10,000.00</td>
<td>$10,000.00</td>
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<tr>
<td>09-IT1</td>
<td>CF05-575</td>
<td>IT Management - City Servers</td>
<td>$0.00</td>
<td>$16,000.00</td>
<td>$16,000.00</td>
<td>$16,000.00</td>
<td>$16,000.00</td>
</tr>
<tr>
<td>09-IT2</td>
<td>CF05-575</td>
<td>IT Management - Workstations</td>
<td>$5,000.00</td>
<td>$5,000.00</td>
<td>$5,000.00</td>
<td>$5,000.00</td>
<td>$5,000.00</td>
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<tr>
<td>09-IT3</td>
<td>CF05-575</td>
<td>IT Management - Fiber Optic WAN</td>
<td>$0.00</td>
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<td>$50,000.00</td>
<td>$50,000.00</td>
<td>$50,000.00</td>
</tr>
<tr>
<td>09-IT4</td>
<td>CF05-501</td>
<td>IT Management - New Phone System</td>
<td>$0.00</td>
<td>$75,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pln1</td>
<td>CIP-744</td>
<td>Planning - Train Park</td>
<td>$500,000.00</td>
<td>$800,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-pln6</td>
<td>Planning - Riverwalk</td>
<td>$25,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$100,000.00</td>
<td></td>
</tr>
<tr>
<td>09-c4</td>
<td>CIP-558</td>
<td>Cemeteries - Waterfront Park</td>
<td>$28,000.00</td>
<td>$328,000.00</td>
<td>$28,000.00</td>
<td>$28,000.00</td>
<td>$28,000.00</td>
</tr>
<tr>
<td>09-c5</td>
<td>CP05-501</td>
<td>Cemeteries - Cemetery Main Gate</td>
<td>$20,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-c6</td>
<td>CP05-501</td>
<td>Cemeteries - Cemetery Building</td>
<td>$0.00</td>
<td>$10,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-c7</td>
<td>CP05-501</td>
<td>Cemeteries - Vehicles &amp; Equip’t replacement</td>
<td>$18,500.00</td>
<td>$31,500.00</td>
<td>$50,000.00</td>
<td>$41,000.00</td>
<td>$41,000.00</td>
</tr>
<tr>
<td>09-c9</td>
<td>CP05-501</td>
<td>Cemeteries - Gazebo</td>
<td>$25,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>09-c10</td>
<td>Cemeteries - City Park pathway pavement</td>
<td>$20,000.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$20,000.00</td>
<td>$0.00</td>
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PW05-550 | Current Leases-PW05-550 | $28,976.07 | $0.00 | $0.00 | $0.00 | $0.00 |
CP05-554 | Current Leases-CP05-554 | $10,718.03 | $0.00 | $0.00 | $0.00 | $0.00 |
### CAPITAL (LANDFILL FUND 06)

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### CAPITAL (SEWER UTILITY FUND 07)

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### BIW TIF (FUND 15)

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### WING FARM TIF (FUND 16)

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### MIDCOAST CENTER FOR HIGHER EDUCATION (FUND 25)

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Source: City of Bath Planning Office, 2009-2013 Capital Improvement Plan

Appendix J Page 21
TAX INCREMENT FINANCING

Tax increment financing is an economic-development tool available to municipalities in Maine. A brief explanation of TIFs is on the Maine Department of Economic and Community Development web site. “TIF is a tool that permits a municipality to participate in local project financing by using some or all of the new property taxes from a capital investment within a designated geographic district. The municipality has the option of using the 'incremental' taxes to retire bonds it has issued for the project, compensate a developer or business for development project costs, or fund eligible municipal economic development activities. TIF districts may be designated for up to 30 years and bonds may be issued for up to 20 years.”

The Bath City Council has created two TIF programs. In 1998, a TIF was created to assist BIW in funding the $300 million Land Level Transfer Facility (LLTF). This type of TIF is called a credit enhancement TIF, in which a percentage of the new "increment" of taxes is returned to BIW. The City actually created two BIW TIF Districts. In one—the district that includes the LLTF on the new land in the river—BIW is returned 100 percent of new taxes on the new real property (i.e., land and buildings) and 50 percent on personal property (i.e., business equipment, which includes the new cranes, crane-ways, and wiring and conduits). What was the existing shipyard is the second TIF district; in this district, 50 percent of the taxes on any new value over the original assessed value is returned to BIW. In 2008, $3,623,778 was returned to BIW and $926,862 was available for City projects.

In 2008, the City Council created two other TIF programs. The first is the Wing Farm TIF that geographically includes the Wing Farm Business Park, certain parcels of land abutting it, and land to the north that the City intends to purchase in order to expand the Business Park. It also includes land at BIW on which BIW, in 2007 and 2008, constructed a major addition to its Pre-Outfit 2 (PO2) Building. The second TIF program created in 2008 includes most of the downtown.

The Wing Farm TIF allows the City to capture a percentage of the taxes on the new increment of value created by the addition to the PO2 Building and
to use those taxes to retire bonds associated with expansion of the Wing Farm Business Park. This type of TIF is referred to as an "infrastructure TIF" (or an "old-fashioned TIF" because it was the first type used in Maine).

The Downtown TIF program allows taxes from the PO2 Building addition that are not needed for the Wing Farm expansion, plus a percentage of the taxes on the new increment of value created in the expanded Wing Farm Business Park, to "spill over" into the downtown to fund economic development projects there. In 2008, $195,966 was available for City projects.

Another important benefit of the TIF process is that the value (all or a portion) can be "sheltered" from the municipality's state valuation, which determines the amount of County Tax. It is also part of the formula in determining the amount of state revenue sharing, General Purpose Aid to Education, and the City of Bath's share of the funding of RSU 1.

PLANNING IMPLICATIONS OF THE FISCAL INVENTORY

1. The increase in valuation shows that the City of Bath's property value is growing. However, it is not growing as fast as the total municipal valuation in Sagadahoc County. This means that whereas Bath still pays the largest portion of the Sagadahoc County Tax, that portion is decreasing.

2. The City of Bath depends on the residential tax base to fund municipal services, even though BIW pays a large percentage of the total taxes. The City has few other industrial taxpayers and the commercial tax base is growing only slowly. This is a good reason to pursue new industrial and commercial development.

3. Tax-exempt properties—that is, properties that pay no property taxes—accounted for more than 16 percent of Bath's total valuation in 2006. Urban communities are where colleges, hospitals, churches, civic organizations, and even state and federal properties are located. These properties pay no taxes but still need many municipal services. There are significantly more tax-exempt properties in Bath and other
large urban municipalities than in small rural communities. Being aggressive in recruiting new and keeping existing commercial and industrial tax base to offset the substantial number of tax-exempt properties is critical.

4. A review of tax rates (i.e., equalized tax rates) shows that larger municipalities in the Bath Region and other Service Center communities find it necessary to have higher taxes than the smaller rural towns. The larger municipalities are also willing to levy taxes for additional public facilities and services that citizens need and want. The fiscal capacity of a community apparently is more related to a balance of need, willingness to pay, and desired quality of life than to other measures.

5. A significant percentage of Bath residents' taxes support the facilities and services of the Sagadahoc County government. This highlights the need for elected officials and other Bath residents to be as involved as possible in influencing Sagadahoc County Commissioners when they prepare the county budget.

6. Obtaining grant funding for projects in Bath has helped keep taxes down. Millions of dollars in grants (i.e., see the "Intergovernmental" column in the "Bath Revenue Sources, 1997 through 2007" table in this appendix) have been used in the last ten years for housing-improvement loans, façade-improvement loans, infrastructure upgrades, and other public improvements.

7. Total City expenditures significantly decreased in 2007. Time will tell (along with state revenue sharing, state support to education, and the county budget) if expenditures will continue to decrease.

8. Although the City of Bath has significant debt (i.e., more than $27 million), it is well below the legal debt limit. Borrowing money for projects allows residents who will benefit most from them to pay for the improvements over time as they are being used and enjoyed.

9. The City of Bath developed a CIP designed to identify capital needs in the next five years and to develop a strategy to pay for them. The

Appendix J Page 24
more that the CIP can be tied to land-use and other nonfinancial planning, the more successful all City planning will be.

10. The City's spending-limitation regulation allows no more yearly increase in spending than the CPI. It encourages each department to spend its entire budget, and it requires the City Council to artificially appropriate funds at the end of a fiscal year to increase the budget up to the ceiling to give the next year's budget room to grow if necessary. The rating agencies downgrade the City of Bath's bond rating due to this action. There should be a better way to control spending.

11. Conversely, when the City Council voted to override LD 1, the bond-rating agencies viewed this action favorably. There needs to be a better way statewide to address local property tax increases.

12. TIF is an economic-development tool that can be used to pay for public or private improvements associated with commercial or industrial growth. It also shelters some of the additional value from this growth so the City's tax liabilities for Sagadahoc County and local education, as well as the amount of state revenue sharing, are benefited.
APPENDIX K
REGIONAL COORDINATION INVENTORY

INTRODUCTION

The City of Bath is the Service Center for the towns of Georgetown, Arrowsic, Woolwich, Phippsburg, and West Bath. The City serves as the downtown and employment center for these communities. Throughout the Comprehensive Plan, we discuss Bath as compared to the Bath Region, including the other towns’ population, housing, employment, and other characteristics. We also included Brunswick and Topsham in the comparisons. We referred to this grouping of municipalities as the Bath Region. As shown, the smaller towns of Georgetown, Arrowsic, Woolwich, Phippsburg, and West Bath rely heavily on Bath for employment and retail and service needs. The larger towns of Brunswick and Topsham, however, are employment, retail, and service centers and do not rely as heavily on Bath. BIW, nonetheless, employs many residents of both Brunswick and Topsham.

In addition to being an informal service and employment center, the City of Bath has several partnership arrangements with various neighboring and nearby municipalities and is a member of other regional organizations and partnerships. The following table lists the various formal and informal regional partnerships as well as potential partnerships.

REGIONAL ACTIVITIES

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<tr>
<th>Regional Activities</th>
<th>Partners</th>
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<tr>
<td>Sagadahoc County</td>
<td>Bath, Arrowsic, Bowdoin, Bowdoinham, Georgetown, Phippsburg, Richmond, Topsham, and Woolwich</td>
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<td>Regional Planning</td>
<td>Midcoast Council for Business Development &amp; Planning (MCBDP) (Sagadahoc County municipalities, Brunswick, and Harpswell)</td>
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<tr>
<td>Regional Economic</td>
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<td>Development</td>
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<tr>
<td>Education</td>
<td>RSU 1 (Bath, Arrowsic, Woolwich, Phippsburg, and West Bath)</td>
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<td>Library Services</td>
<td>Patten Free Library (Bath, Georgetown, Arrowsic, Woolwich, Phippsburg, and West Bath)</td>
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<td>----------------------------------</td>
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<tr>
<td>Municipal General Assistance</td>
<td>Bath, West Bath, and Brunswick</td>
</tr>
<tr>
<td>Emergency Dispatch</td>
<td>Sagadahoc County</td>
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<td>State Drug Enforcement</td>
<td>Maine Drug Enforcement Agency (Maine Department of Public Safety)</td>
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<tr>
<td>Regional Drug Enforcement</td>
<td>Midcoast Drug Taskforce (primarily Bath, Sagadahoc and Lincoln Counties, and Rockland)</td>
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<td>Sagadahoc County</td>
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<td>Regional County Jail</td>
<td>Two Rivers Regional Jail (Sagadahoc and Lincoln Counties)</td>
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<td>Fire Suppression</td>
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<td>Community Recreation</td>
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<td>Bath Housing Authority (serves the housing needs in Bath, Georgetown, Arrowsic, Phippsburg, and West Bath)</td>
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<td>Public Drinking Water</td>
<td>Bath Water District (water supplied to Bath, Woolwich, West Bath, East Brunswick, and Wiscasset)</td>
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<td>Joint Purchasing of Various Commodities</td>
<td>MCBDP and Greater Portland Council of Governments</td>
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<td>Arts, Culture, and Heritage Advocacy, Education, Promotion, and Celebration</td>
<td>Five Rivers Arts Alliance (Sagadahoc County municipalities, Brunswick, and Harpswell)</td>
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<td>New Meadows Watershed Planning</td>
<td>Bath, Brunswick, Phippsburg, West Bath, and Harpswell</td>
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<tr>
<td>Land Preservation and Conservation</td>
<td>LKRLT (preserving land in Bath, Arrowsic, Georgetown, West Bath, Westport Island, and Woolwich)</td>
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<td>Open Space and Rural Natural-Resource Planning</td>
<td>Sagadahoc Region Rural Resources Initiative (Eastern Cumberland County and Central Sagadahoc County)</td>
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<tr>
<td>Regional Housing Opportunities</td>
<td>Midcoast Community Housing Coalition (Sagadahoc County municipalities, Harpswell, and Brunswick)</td>
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POTENTIAL REGIONAL ACTIVITIES

Municipalities can and do enter into other shared activities and agreements. Looking twenty years into the future, some of these may include the joint delivery of municipal recreation services, joint purchase of firefighting equipment, more coordinated firefighting (beyond mutual aid to one regional fire department), the purchase of public works equipment time when the equipment is not needed in Bath (e.g., graders, street sweepers, and catch-basin cleaners), shared wastewater treatment, regional animal-control services, regional codes enforcement, regional development review and planning, regional tax assessing, and regional municipal clerk and treasurer services.

PLANNING IMPLICATIONS OF THE REGIONAL COORDINATION INVENTORY

1. Many services—municipal, cultural, and nongovernmental—are shared in the Bath Region. This sharing provides more and better services and opportunities, as well as lower costs.

2. As was pointed out in Appendix J, Fiscal Inventory, a significant percentage of Bath residents’ taxes support the facilities and services of the Sagadahoc County government. This highlights the need for elected officials and other Bath residents to be as involved as possible in influencing Sagadahoc County Commissioners when they prepare the county budget.

3. As the cost to provide services increases and as new residents in the Bath Region towns demand additional services, municipalities will have to become more efficient. Doing so may reduce past concerns over the loss of local control when services are provided regionally and may encourage additional coordination.
APPENDIX L
BATH'S HISTORICAL AND GEOGRAPHICAL SETTING

BIBLIOGRAPHY


Many additional records in the History Room of Patten Free Library, such as Census Rolls, City Directories, Tax Records and the like were consulted in more general research of Bath history and, therefore, cannot help but play into this document.
APPENDIX M

City of Bath
Energy Inventory and Climate Action Plan

2007 Greenhouse Gas Emissions and Energy Use Inventory and Recommended Municipal and Community Actions

Presented to Bath City Council
August 6, 2008

Report Researched and Prepared by:
Erika Helgerson, City of Bath Community Relations Coordinator
Brooks Winner, Bowdoin College student and City of Bath/Bath Cool Communities Intern
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I. Executive Summary

Climate change and energy use have become extremely important issues worldwide. There is a solid scientific consensus that carbon dioxide and other greenhouse gases released into the atmosphere are having a profound effect on the earth’s climate, including rising sea levels, a decline in Arctic ice thickness, increasing levels of air pollution and general climate disruption. Scientists have also determined that energy consumption, specifically the burning of fossil fuels, like coal, oil, and gas, accounts for more than 80% of U.S. greenhouse gas emissions.

Individuals, businesses and government agencies are becoming aware of the consequences of our decisions, not only due to the consequences of pollutants and gas emissions, but also because of rising prices associated with energy use. State and local governments throughout the nation and the world are reducing global warming pollutants through programs that provide economic and quality of life benefits such as reduced energy bills, green space preservation, air quality improvements, reduced traffic congestion, improved transportation choices, and economic development and job creation through energy conservation and new energy technologies. Many measures to reduce energy consumption also save money for the City government, its businesses, and its citizens.

This study was created for the City of Bath through collaboration with the Bath Cool Communities committee and Bowdoin College’s summer fellowship program. The study used a software program designed for greenhouse gas emissions inventory and gives Bath a 2007 baseline of emissions and energy use for the government and the community at large. With it, the researcher is able to determine what areas consume the most energy and emit the most greenhouse gases. The software can also help us determine the effectiveness of actions which reduce energy and emissions.

The Bath Government, Bath School System, businesses and individuals in the community have all taken steps to address energy use. The City of Bath has implemented a number of conservation measures over the years, and Bath Iron Works and the Bath Schools have both been recognized by the State of Maine for their commitment to reduce energy emissions and be more environmentally aware. As energy costs rise and concerns about global warming increase, many individuals are making personal changes to address energy issues. Explanations of many of these measures are listed in the Achievements section of this document.

This report gives the Bath Government and Bath Citizens information needed to take action and commit to reduce energy consumption and emissions. A commitment to reduce government energy use has the direct benefit of immediately reducing greenhouse gas emissions, and an indirect benefit of generating greater public awareness.
We would like to see the community commit to reducing overall emissions reduced by at least 2% each year, achieving a goal of at least 20% reduction from 2007 levels by the year 2018. We believe this is an achievable goal and that action is necessary in light of recent increases in energy costs across the board.

Many communities have signed the U.S. Mayor’s Agreement for Climate Protection. That agreement is based on reducing energy use to below 1990 levels by 2012 and has other specifications Bath might not be able to meet within the suggested timeframe. As an alternative to the U.S. Mayor’s Agreement, we have written a Resolution specific to Bath that highlights the steps we think Bath can take within this more accurate time frame. The text for this resolution is included in the appendix. We hope that the Bath City Council will sign this agreement and make energy reduction a priority.

Considering the inventory for the City of Bath, the following recommendations are made to help reduce future energy and emissions:

**Recommended Actions for the Bath City Government:**
- Reduce heating fuel use by undergoing energy audits for municipal buildings, insulating buildings and sealing air leaks, consider new high-efficiency boilers and HVAC systems.
- Reduce electricity use by replacing lights with high-efficiency bulbs and fixtures, installing automatic light switches in select areas, purchasing Energy Star-rated appliances and equipment, and educating employees on energy saving habits.
- Reduce vehicle fuel use by replacing the police fleet with hybrid or extremely fuel efficient vehicles, considering biodiesel possibilities, and enforcing “no idling” policies.
- Consider a cost-benefit analysis of alternative energy sources such as wind power, solar power, and harnessing landfill gas.
- Consider changing streetlight bulbs to LED bulbs to reduce energy use.
- Continue to mitigate emissions by continuing to create parks and trails, plant trees, enhance recycling options, and keeping the City a walkable community.
- Promote public education about energy and environmental issues.

**Recommended Actions for the Bath Community and Residents:**
- Reduce home energy use by insulating homes, investing in high-efficiency boilers and water heaters, setting more moderate air and water temperatures, replacing lights with high-efficiency bulbs and fixtures, purchasing Energy Star-rated appliances, and adjusting personal habits to turn off lights and appliances when not in use. Consider investing in alternative energy sources.
- Reduce electricity use by businesses and industry using many of the same methods listed above.
- Utilize alternative means of transportation such as City buses, biking, walking and carpooling to reduce gas and diesel use.
- Continue reducing household waste and increasing recycling.
• Educate others about energy consumption and greenhouse gas emissions, support programs that inform the public about energy options, and support services that assist citizens with acting on those decisions.

The City of Bath has the opportunity to be a leader in energy reduction and climate action. With the methods outlined in this document, we can maximize our energy efficiency and minimize the community’s emissions and costs.
I. Introduction

On August 1, 2007, Bath Cool Communities, a local citizens group, made a presentation to the Bath City Council about their growing climate and energy concerns. They asked the Council to sign the U.S. Mayor’s Climate Protection Agreement and charge citizens and municipal employees to work together to create a Climate Action Plan specific to Bath. The Council did not sign the agreement at that time, but asked the committee to work with City employees and the City Manager to create a Climate Action Plan for the City of Bath.

Over the course of the year, City of Bath employees worked with Cool Communities members to research and initiate strategies to help the municipal government become more energy efficient. In April, 2008, Cool Communities received a grant from the Sierra Club to help finance a Bowdoin College intern, Brooks Winner, who was charged with completing a greenhouse gas emissions inventory for Bath. He worked part time for 8 weeks through the summer and used a software program from ICLEI-Local Initiatives for Sustainability, formerly known as International Council for Local Environmental Initiatives (ICLEI) to input data about municipal, residential, and commercial energy use and analyze the city’s greenhouse gas emissions.

This report summarizes the greenhouse gas emissions data for the community for the baseline year 2007. Energy use and emissions were determined by entering data such average costs, payment information, and amount of energy used. Data was obtained through public utilities companies such as Central Maine Power and local fuel companies; City of Bath budgets and average household energy use and payments determined by utility companies; and U.S. Census data from the 2000 census. Some data was supplemented by regional averages provided by ICLEI and the State of Maine. The software computes this data into energy use and emissions and can create reports, charts, and graphs displaying the statistics. With this data, we can determine which areas create the most emissions and use the most energy.

The report also highlights recommended actions for the Bath Municipal Government, the Cool Communities Committee, and other partner organizations. The ICLEI software is able to estimate cost savings and emission reduction for a number of actions or “measures.” One can choose the issue; such as “building electricity,” a measure; such as “replace lighting with compact fluorescent lights,” include the number of lights changed, and the software will compute the average energy cost savings and emissions reduction for that measure. With this information, the City will be able to determine how changes might reduce the City’s emission levels and energy costs.

All recommendations made in the Action Plan section of this report are general measures communities can take. We hope that the City of Bath, Bath City Council, and community members will look into other possible changes to determine the best solutions for Bath. The City of Bath has the opportunity to be a leader in energy reduction and climate action. With the methods outlined in this document, we can maximize our energy efficiency and minimize the community’s emissions and energy costs.
III. Research Summary

Data for the greenhouse gas emissions inventory were gathered from several different sources at community and municipal government levels for the baseline year of 2007. The data collected were then entered into the Clean Air and Climate Protection (CACP) inventorying software provided by ICLEI. This software uses coefficients to calculate the total energy consumption in MMBtu (Million British thermal units) and greenhouse gas emissions in metric “tonnes” of equivalent carbon dioxide (eCO₂). Energy use information is plugged into the software, which then uses equations that calculate the average amount of eCO₂ produced by each different type of energy use. The software calculates emissions in tonnes of equivalent CO₂ because CO₂ is the most common greenhouse gas and it is standard to account for other greenhouse gases in terms of their effect on climate compared to CO₂.

The analysis portion of the survey is divided into the Community Analysis, which accounts for the total emissions of the entire city of Bath, and the Government Analysis, which accounts for only those emissions created by the Bath Municipal Government and Bath Public Schools. It is important to note that the emissions from the Government Analysis are also included in the total emissions for the community, quantified in the Community Analysis. Analyzing municipal emissions separately allows governments to identify ways in which they may play a leadership role in reducing energy use and greenhouse gas emissions in the community, and does not result in double counting emissions.

The baseline year of 2007 was used because this was the year for which the most complete and reliable energy use information was available. Future inventories and emissions studies will use this year as a reference to track reductions progress and set further goals.

Community Analysis

The CACP software used for this inventory breaks community emissions into six sectors: Residential, Commercial, Industrial, Transportation, Waste, and Other. Waste data for the community were entered in the Other sector of the software because ICLEI recently changed its protocol for calculating waste emissions. For the purposes of this report, however, I have included this data in the Waste sector.

Data collected for the Residential sector included Bath’s total electricity use in kilowatt hours (kWh), as provided by Central Maine Power (CMP), and heating fuel use in gallons calculated using statewide average consumption per household for Maine provided by the Energy Information Administration (EIA).

Total Residential Energy Consumption: 605,047 MMBtu
Total Equivalent CO₂ production: 50,071 tonnes

Data collected for the Commercial sector included the total electricity use provided by CMP and estimated heating fuel use calculated using the average energy intensity per
square foot provided by the EIA. Also included was the electricity use from unmetered street lights and area lights owned by commercial establishments and provided separately by CMP. Electricity use from city-owned streetlights is included in the Government Analysis.

Total Commercial Energy Consumption: 178,255 MMBtu
Total Equivalent CO₂ production: 17,588 tonnes

Data collected for the Industrial sector included total electricity use provided by CMP and heating fuel use calculated using the average energy intensity per square foot provided by the EIA.

Total Industrial Energy Consumption: 275,331 MMBtu
Total Equivalent CO₂ production: 32,005 tonnes

Data collected for the Transportation sector included the total vehicle-miles traveled within the city based on traffic survey estimates provided by the Maine Department of Transportation (MDOT). This includes travel by vehicles passing through the city, and does not include travel by Bath residents outside of the city.

Total Transportation Energy Consumption: 325,789 MMBtu
Total Equivalent CO₂ production: 25,272 tonnes

Data collected for the Waste Sector included the total amount of waste in tons contained in the Bath Landfill and the rate of methane recovery provided by the Public Works Department.

Total Waste Energy Consumption: N/A
Total Equivalent CO₂ production: 2,835 tonnes

**Government Analysis**

The CACP software breaks government emissions into seven sectors: Buildings, Vehicle Fleet, Employee Commute, Streetlights, Water/Sewage, Waste, and Other. These sectors are more specific to the operations of a municipal government and allow for a more detailed analysis that also includes energy costs. Waste data were entered in the Other sector of the software, but are included under the Waste sector for the purposes of this report.

Data collected for the Buildings sector included electricity and fuel costs from the 2008-2009 FY Budget for buildings owned and operated by the City of Bath. Data were provided by the Office of Finance.

Total Buildings Energy Consumption: 41,387 MMBtu
Total Equivalent CO₂ production: 3,417 tonnes
Total cost: $790,895
Data collected for the *Vehicle Fleet* sector included the gallons of gasoline and diesel fuel used by each City-owned vehicle and the cost of fuel in 2007. This information was provided by the Public Works Department, who maintains the municipal fuel storage.

- Total Vehicle Fleet Energy Consumption: 9,230 MMBtu
- Total Equivalent CO₂ production: 720 tonnes
- Total cost: $208,105

Data collected for the *Employee Commute* sector included the total yearly vehicle-miles traveled to and from work by city employees in each department as well as what type of vehicle they drove. School employees were not included in the commuting survey.

- Total Employee Commute Energy Consumption: 2,117 MMBtu
- Total Equivalent CO₂ production: 164 tonnes
- Total Cost: N/A

Data collected for the *Streetlights* sector included the total energy cost for the 650 lights owned by the city. This information was contained in the 2008-2009 FY Budget provided by the Office of Finance.

- Total Streetlights Energy Consumption: 3,739 MMBtu
- Total Equivalent CO₂ production: 455 tonnes
- Total cost: $109,273

Data collected for the *Water/Sewage* sector included the electricity and heating fuel cost at the Wastewater Treatment Plant and pumping stations contained in the 2008-2009 FY Budget provided by the Office of Finance. Energy use from the Bath Water District was not included in the government inventory because their operations are not controlled entirely by the City.

- Total Water/Sewage Energy Consumption: 7,100 MMBtu
- Total Equivalent CO₂ production: 817 tonnes
- Total Cost: $197,426

Because the landfill is owned and operated by the City, methane emissions from decaying waste were calculated in the Government Analysis, as well as the Community Analysis. Data collected for the *Waste* sector included the total amount of waste in tons contained in the Bath Landfill and the rate of methane recovery provided by the Public Works Department.

- Total Waste Energy Consumption: N/A
- Total Equivalent CO₂ production: 2,835 tonnes
- Total Cost: $259,823
IV. Data Results and Analysis

This section outlines the results of the inventory. Complete reports of all of the data compiled in the CACP software can be found in the appendixes section of this report. It is important to note that the data presented in this section are estimates and that the precision of these estimates is limited by the following deficiencies:

- In some instances, necessary data were not attainable for a variety of reasons, including the reluctance of organizations to disclose energy use information and the limited time available to conduct the inventory. Emissions of some greenhouse gases such as perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs) are difficult to calculate because the use of chemicals that release them is not well recorded.

- Some of the data collected for the inventory were only approximations, but estimations were made only when information was unavailable from primary sources. For example, the heating fuel consumption for the Commercial and Industrial sectors was estimated using the average fuel use per square foot of floor space for buildings in the Northeast because area heating fuel vendors were unable to provide that information. This average was attained from a study conducted in 2001 by the EIA. Because Maine’s heating needs may be different from those of other New England states, the estimate may be slightly inaccurate.

- The time periods for which the data were collected varied somewhat based on the availability of information. Though most data were compiled for the 2007 calendar year, some data were only available for the 2007-2008 fiscal year and some estimates were based on data from the 2000 census.

- Human error must always be taken into account when conducting an emissions inventory. There have been many instances when either researchers or sources of data have neglected to account for significant portions of energy use and emissions. For example, in Portland’s 2001 inventory, a significant portion of electricity use was not accounted for due to a CMP reporting error.

Despite these deficiencies and difficulties, every effort was made to obtain the most accurate data for each sector.

Community Emissions and Energy Use

The Community Analysis accounts for the emissions and energy use for the entire Bath community. This includes electricity and heating fuel use in residential, commercial, and industrial buildings, fuel use from transportation within the community, and direct methane emissions from solid waste.

In 2007, Bath emitted 127,772 metric tonnes of eCO₂ and consumed 1,284,423 MMBtu of energy. Emissions from the Bath municipal government are included in the Commercial sector of the community emissions analysis. A separate government inventory is conducted so that City administrators may have an idea of how much they
contribute to their community’s emissions and how they can provide assistance and leadership in reducing the community’s carbon footprint.

Though the Community Analysis provides a good idea of the city’s overall emissions, it is important to note that the data for the community is much less precise and is more difficult to acquire than information for the Government Analysis. Because the community inventory relies on estimation more than the government inventory, it may be less accurate. ICLEI inventory protocol is designed to calculate emissions to 95% accuracy and every effort was made by those conducting the inventory to comply with this protocol.

**Residential**
Bath residents emitted approximately 50,071 tonnes of eCO₂ during the 2007 calendar year. This was 39.2% of the total emissions from the city. The Residential sector also consumed 605,047 MMBtu of energy, 43.7% of overall consumption. Residential energy use was the largest single contributor to Bath’s overall community emissions.

The Comprehensive Plan estimates Bath’s 2007 population to be 8,702, a 564-person difference from the estimate of 9,266 in the 2000 census. Data from the 2000 census was used to calculate the heating fuel use for homes in Bath, which may have caused some overcalculations in the Residential sector’s emissions estimate. However, Bath’s housing stock is very old which may make the buildings more energy intensive than the average home, resulting in a possible underestimation of Bath’s residential heating fuel oil consumption. Also, slightly less than 400 homes in Bath were heating with propane gas in 2000. This is a significant portion of homes, but it is difficult to calculate emissions from propane heating because there is currently no standard for estimating propane use based on square footage of homes.

**Commercial**
Commercial businesses in Bath accounted for 17,588 tonnes of the community’s eCO₂ emissions, 13.8% of the total. Businesses also consumed 178,255 MMBtu of energy,
12.9% of total consumption. The municipal government’s emissions are contained in the Commercial sector and account for 48% of the total commercial emissions. There are many home businesses in Bath, which may mean that many smaller businesses are actually listed in the Residential sector.

**Industrial**

The emissions from the Industrial sector amounted to 32,005 tonnes of eCO₂, 25% of all community emissions. Industries also consumed 275,331 MMBtu of energy, 19.9% of total consumption. Bath Iron Works is the largest industrial facility in Bath and accounts for 95% of the square footage of the city’s industrial establishments. It can therefore be assumed that BIW produces the vast majority of the emissions from the industrial sector. They have already taken many steps, however, to reduce their environmental impact and their greenhouse gas emissions.

**Transportation**

Transportation within the city produced 25,272 tonnes of eCO₂ emissions in 2007. This was 19.8% of the total community emissions. Transportation also consumed 325,789 MMBtu of energy, 23.5% of total consumption. These figures account for the transportation within the city boundaries and do not include travel outside of Bath.

**Waste**

Methane gas released by decaying solid waste in the Bath Landfill produced 2,835 tonnes of eCO₂ emissions, 2.2% of the total community emissions. The Landfill currently flares about 85% of its landfill gas, reducing emissions significantly. If the gas were not captured and flared, the emissions from the landfill would be more than six times what they are currently.

**Government Emissions and Energy Use**

The Governmental Analysis accounts for the emissions and energy use from all operations of the municipal government. This includes electricity and heating fuel use in municipal buildings, gasoline and diesel fuel use by the vehicle fleet, fuel use from employee commuting, electricity for streetlights, electricity for water/sewage management, and direct methane emissions from solid waste. The city government generated a total of 8,408 metric tonnes of eCO₂ emissions, 6.6% of the total community emissions. The city also consumed 63,573 MMBtu of energy 4.6% of the total community consumption.
Buildings
Emissions from government buildings amounted to 3,417 tonnes of eCO₂ and accounted for approximately 40.6% of the total municipal output. Buildings used 41,387 MMBtu of energy, 65% of the total consumption. They were the largest source or carbon emissions for the municipal government. Within the buildings, heating fuel oil was the most significant source, accounting for 74% of building emissions, and electricity was also a substantial source of emissions, accounting for 24%. Emissions from kerosene and propane combined amounted to about 2%.

Energy use from the Buildings sector also cost the city approximately $790,895. This was almost four times as high as the cost of fueling the vehicle fleet, the next-most costly sector.

Bath schools were still under City management during the baseline year of 2007, and their emissions have been included in the Government Analysis. Bath school buildings were responsible for over 72% of the total building emissions and 29% of the total government emissions. It is important to note, however, that the transfer of management from the City to Regional School Unit 1 creates some problems for future emissions inventories, because emissions from school buildings will no longer be technically attributable to the municipal government. This will have to be taken into consideration the next time the city surveys its emissions.

Vehicle Fleet
Bath’s municipal vehicle fleet produced 720 tonnes of eCO₂ emissions, 8.6% of the total government emissions. The fleet consumed 9,230 MMBtu of energy, 15% of the total consumption. The biggest contributor of emissions was the Public Works Department, emitting 212 tonnes of eCO₂, 29% of all emissions from the vehicle fleet. Other significant contributors were the Bath School District (152 tonnes, 21%) and the Bath Police Department (115 tonnes, 16%).
Fuel from the vehicle fleet cost the City $208,105 in 2007.

The school department owns its own bus fleet, making the city responsible for those emissions, so emissions from the vehicle sector are higher than they would be if the city rented school buses as many other communities do.

**Employee Commute**
Employee commuting by municipal workers produced 164 tonnes of eCO₂, 1.9% of total emissions. Commuting also consumed 2,117 MMBtu of energy, 3.3% of total consumption. The average yearly commute for City employees was 2,937.5 miles and the average daily commuting distance was 6.8 miles, but about 46% of employees work 3 miles or less from where they work.

**Streetlights**
Streetlights owned by the City accounted for 455 tonnes of CO₂e, 5.4% of the total emissions. Powering the lights consumed 3,739 MMBtu of energy, 5.9% of total consumption, and cost the City $109,273.

**Water/Sewage**
Operating the Wastewater Treatment Plant and pumping stations resulted in 817 tonnes of CO₂e emissions, 9.7% of total emissions, and consumed 7,100 MMBtu of energy, 11.1% of total consumption. These numbers may be inflated due to the fact that the energy use calculations are based on cost figures from 2007, not actual energy use. After the emissions had already been calculated, it was pointed out that the City pays to operate the pumping stations assuming that they run at maximum capacity constantly because CMP must always produce the maximum amount of energy. In reality, the system often runs at far less than maximum capacity and reaches maximum capacity relatively infrequently, such as during heavy rain and snow melt. Therefore, the actual energy use and emissions from the station may be lower than calculated.

**Waste**
Methane gas from decaying solid waste in the Bath Landfill produced 2,835 tonnes of CO₂e emissions, 33.7% of the total emissions. This percentage of emissions is very high because waste attributed to the municipal government includes all of the waste from the entire community of Bath. The City of Bath owns and operates the landfill and is therefore technically responsible for its emissions. Energy use from transporting waste and managing the landfill was not calculated, but haulage and tipping cost the city $259,823.
V. Achievements

The Bath Government, Bath School System, businesses and individuals in the community have all taken steps to address energy use. The City of Bath has implemented a number of conservation measures over the years and some departments have done significant building renovations with energy efficiency in mind. The Bath Schools and Bath Iron Works have both been recognized by the State of Maine for their commitment to reduce energy emissions and be more environmentally aware. As energy costs rise and concerns about global warming increase, many individuals are making personal changes to address energy issues. The following list is not complete, but gives an idea of the actions that have been accomplished.

**Government Achievements:**

**Buildings**
Most, but not all new equipment, computer, copier, and printer purchases have been Energy Star (high efficiency) appliances. City Hall has been replacing old light bulbs with new compact fluorescent (CFL) bulbs as the old bulbs burn out, and the City Hall bell tower is lit with LEDs (Light Emitting Diodes). Lights in the basement, bathrooms, and storage rooms were recently replaced with occupancy switches, which automatically turn out the light after a person leaves the room. The Fire Department recently installed a new super-efficient boiler, an energy efficient hot water heater, energy star appliances in the kitchen, and CFL lights in the garage. They also installed new windows, doors, and garage doors with good insulation, which complements the new heating system. The Public Works garage was also recently renovated, and now has additional insulation and new skylights to reduce electricity use. They have installed a propane heater in the landfill scale house to avoid use of electric heat.

**Vehicle Fleet**
Both the Public Works Department and the Police Department have addressed idling practices among employees and instituted “no idling” policies. The City has begun looking into alternative transportation choices, such as biodiesel for large trucks and hybrid vehicles for police cars.

**Waste**
City offices have made recycling a priority in the past five years. Many employees use both sides of paper for printing, notes, and scrap paper. All city offices have single stream recycling bins in each office. The Public Works department implemented a gas mitigation system at the landfill in the spring of 2008. They are currently collecting and burning the gases so that they are not released into the atmosphere. The City is also investigating whether it would be cost-effective to harness landfill gases for energy use.

**Other**
The City has changed all traffic lights to LED lights. In 2008, all Christmas lights in the trees downtown were changed to LED lights.
We are an extremely walkable city with maintained sidewalks and streets conducive to 
biking and other modes of transportation. We have been a “Tree City USA” since 1998, 
thanks to our active Forestry committee and City Arborist. This helps Bath maintain a 
large amount of green space including public parks, pocket parks, and expanses of 
undeveloped forest; much of which also has walking trails.

**Community Achievements:**

**Residential**
Our old housing stock has a major impact on emissions, and as energy costs rise, citizens 
have begun to turn to alternative heating and energy methods as well as renovating homes 
with good insulation. Many individuals have changed their habits to save energy.

Local organizations like Bath Cool Communities and a number of others groups, such as 
churches, have made concerted efforts to educate the public about energy use. Midcoast 
Maine Community Action Agency (formerly CED) has had a strong winterization 
program for many years, assisting low income people better insulate their homes.

**Waste**
The community has made a significant adjustment in their waste and recycling habits 
with single stream recycling and the Pay-As-You-Throw program. Bath has a fantastic 
curbside recycling program which takes about 30 different materials. Residents have 
doubled their recycling and significantly reduced their household trash. With so much 
trash being recycled, the stream of waste going into the landfill has been drastically 
reduced.

**Water/Sewer**
A quasi-municipal agency, Bath Water District has made substantial headway in energy 
efficiency. They have installed solar panels at water tank sites for their electricity needs 
and removed both from the grid; isolated “heat sink” areas at the treatment plant; and 
installed a “Time of Use” electric meter at the plant so they can shut down on high 
demand days. Bath Water District has also made changes to their office building, 
including installation of an energy efficient oil furnace and a programmable thermostat to 
automatically adjust temperatures. The Water District also recently replaced fogged 
windows with clear windows at their warehouse to reduce lighting needs.

**Schools**
The Bath Public Schools have completed their own greenhouse gas assessment and 
enacted a number of measures to reduce emissions and energy. Their Facilities Director 
has made significant upgrades to lighting and electrical systems, in particular the Bath 
Middle School gymnasium lights. The schools have made upgrades to boilers and 
heating systems, and reported a savings of 9,000 gallons of heating fuel after installing a 
new burner control system at the Bath Middle School. The schools have also instituted 
“no idling” practices for buses and other vehicles. Bath Schools have been recognized for 
their renovations by State of Maine agencies and worked closely with Efficiency Maine.
Industrial
BIW, which accounts for 95% of Bath’s Industrial Sector energy and emissions, has received the Governor’s Award for Environmental Excellence six times between 2000 and 2008 because of their strong commitment to prevent pollution and reduce their environmental footprint. BIW has instituted an Energy Conservation Plan which includes the following: a conservation awareness campaign, replacing lights with CFLs, repairing hoses and steam lines, regulation of steam system, installing a new air tank and air compressor, and replacing many of their constantly operating motors with efficient motors.

They have air quality control measures, including filtering devices on equipment that discharges into the atmosphere, use “low VOC paints” to reduce the amount of volatiles released into the environment, and use low-sulfur fuel on all boilers and rolling stock. Bath Iron Works also implements water quality control measures, including a “Storm Water Pollution Prevention Plan,” which installs control equipment in critical areas to treat storm water runoff before it reaches the river. There are routine inspections and double containment around all oil storage tanks. BIW recycles about 75% of their total solid waste and operates solvent distillation units, which reduce hazardous waste from the painting process.
VI. Action Plan – Next Steps

Through the greenhouse gas emissions inventory, we have been able to determine which areas produce the most emissions and consume the most energy. This section concentrates on issues and possible measures to address them, along with expected emissions reductions and general implementation cost for many of the solutions. We have divided this into government and community action plans. Greenhouse gas emissions from all of these areas can be greatly reduced by exchanging current standards with new technologies or promoting changes in habits.

In each area there may be some upfront costs, but most measures will see a fairly timely return and are likely to save money in the long-term. In the past several years, alternative energy technologies have become more financially available through federal and state assistance such as grants, loans, and incentives programs. As technologies are developed and manufactured for the general public, costs may become even more manageable.

Recommended Measures for Municipal Government

The Government Analysis showed several areas that the municipal government can improve upon. The largest emissions came from the following areas: high fuel use in the buildings, high electricity use in buildings and in the water pumping and sewage treatment process, and high gas and diesel use in the vehicle fleet. Each of these is also a financial issue, as the city has experienced a significant rise in prices for heating fuel, gas, and diesel over the past several years. Please note that the government analysis also includes Bath schools buildings, which were still under City managements for the baseline year of 2007, but are now run by Regional School Unit 1. The school system has already taken great steps to decrease their own energy use.

City of Bath Resolution

Public commitment has the direct benefit of immediate changes, with an indirect benefit of greater public awareness. The City of Bath has the opportunity to be a leader in energy reduction and climate action. With the methods outlined in this document, we can maximize our energy efficiency and minimize the community’s emissions and costs.

Many communities have signed the U.S. Mayor’s Agreement for Climate Protection. That agreement is based on reducing energy use to below 1990 levels by 2012 and has other specifications Bath might not be able to meet within the suggested timeframe. As an alternative to the U.S. Mayor’s Agreement, we have written a Resolution specific to Bath that highlights the steps we think Bath can take within this more accurate time frame. The text for this resolution is included in the appendix. We hope that the Bath City Council will sign this agreement and make energy reduction a priority.

Buildings: Fuel Use

Municipal buildings accounted for 40% of government emissions and 65% of government energy use. In the building analysis, 74% of that was from light fuel oil. Energy use from the buildings sector cost the city approximately $790,895.
There are several ways to address fuel use. The city could consider having a complete professional energy audit for each building. This would show the building’s “envelope” and identify areas of inefficiency that need to be renovated. The city would then make the necessary alterations to better insulate the building, including better wall and foundation insulation, replacing windows and doors, and sealing gaps. An audit would also address heating/cooling systems and assess whether changes can be made to increase efficiency. This might include a new highly efficient boiler system, insulating pipes, cleaning HVAC systems, or replacing air conditioners with another cooling method.

If energy efficiency in government buildings was improved by just 10% through the installation of double-paned windows and better insulation, the city could save almost $50,000 per year in heating fuel costs and reduce eCO₂ emissions by 120 tonnes, 1.4% of total government emissions.

**Buildings and Water Treatment: Electricity Use**

Electricity accounted for 24% of building emissions. Electricity used by the Water and Sewage systems added an additional 9.7% to the total government emissions. As noted in the Data section, actual emissions of the water and sewage process may be far less than calculated; however because of the high cost of running the system, it is still worth looking into alternative energy sources for this system.

One way to reduce building emissions is to replace all lighting with more efficient CFL bulbs, change fluorescent lighting to T-8 fixtures, and install automatic switches to turn off lights in uninhabited areas. The city has begun to do this as needed, but has not made a concerted effort to replace a large quantity of lights. Another way to reduce electricity use is to purchase all Energy Star appliances and equipment, including copiers, computers, printers, refrigerators, and more. It is also possible to eliminate any unnecessarily duplicated appliances and equipment by supporting resource sharing. Regardless of these changes, the City should increase employee awareness about energy use and advise all employees to follow energy saving guidelines such as turning off unneeded devices and lights.

Alternative energy sources are also a possibility. As technology becomes financially available, the City should consider solar, wind, and geothermal energy for municipal buildings and/or for the city at large. The water and sewage pumping stations and Wastewater Treatment Plant might greatly benefit from an alternative energy source for their daily processing and for stormwater needs.

Reducing the electricity use in municipal buildings by 10% through replacing old appliances with Energy Star-rated appliances, and changing lights to CFLs and high-efficiency T-8 fluorescents would save the city nearly $20,000 per year in electricity costs. This would also reduce the government’s eCO₂ emissions by 80 tonnes.
Municipal Vehicle Fleets
Bath’s municipal vehicle fleet produced 8.6% of the total government emissions and consumed 15% of the total energy. Fuel for the vehicle fleet cost the City $208,105 in 2007. This number includes school buses, not owned or maintained by the city.

As gas prices rise, so does the cost of maintaining a gas and diesel-run fleet. The city could consider hybrid options for police and fire cars and biodiesel for public works trucks, fire engines, and the two city buses. Hybrid cars would incur a cost, but the savings would be clear. Biodiesel requires some vehicle modification, causes slightly different wear-and-tear on parts and is currently more expensive to buy than regular diesel fuel. A switch to biodiesel may be a good option down the road when the technology develops further.

Replacing older vehicles with hybrids and instituting a strict “no-idling” policy for fleet vehicles are two cost-effective ways to save fuel and reduce emissions. The Ford Escape hybrid and the Toyota Prius are two possible options for fleet replacements. A study conducted by ICLEI found the payback on a switch from the Ford Crown Victoria to the Escape hybrid to be only about two years. This figure should be even less now that gasoline prices are have climbed to more than $4 per gallon. Switching 12 city vehicles to hybrids could save almost $25,000 dollars per year and reduce eCO₂ emissions by about 60 tonnes. The City could immediately replace some municipal vehicles with hybrids and replace the rest when the time comes to purchase new vehicles thereby spreading out the upfront costs and decreasing payback times.

Waste
Methane gas from decaying solid waste in the Bath Landfill produced 33.7% of the total emissions. In 2008, the City began burning landfill gases (including methane) so that they would not be released directly into the atmosphere. There is potential to harness landfill gases to create energy, and the city has begun to look into the costs and benefits of that system.

Streetlight Efficiency
Streetlights cost the City $109,273 per year and account for 5.4% of the total emissions and 5.9% of total consumption. Right now, the city has the most efficient bulbs CMP installs. We do have the choice to purchase and install LED streetlights, which are a good deal more efficient that the current CMP lights.

Replacing the current lights with LEDs seems to be one of the most cost-effective measures available. Over its ten-year life span an LED streetlight can save $1,111 compared to a normal streetlight. This means that each bulb has a payback period of about 3.3 years assuming that it costs $365 to install. This measure would also reduce CO₂e emissions by over 200 tonnes, 2.5% of total government emissions.

Employee Commute
The employee commute was only 3% of total energy use, 1.9% of city emissions, and is not a factor in city budgeting. It may be easy to reduce this number, since many city
employees live within 2-3 miles of their work place and could use other modes of transportation. The city could consider some form of incentive program to encourage staff to carpool, walk, or bike to work.

If city employees reduced their vehicle-miles traveled to work 30% by walking, biking, and carpooling they would reduce carbon emissions by 44 tonnes and could save almost $20,000 per year. This initiative would be a great measure for the municipal government to start with because there are virtually no upfront costs and it would save employees quite a bit of money.

**Recommended Measures for the Community**

Many of these recommendations to reduce community emissions and energy use must be taken by individuals. The City and other organizations should work together to share information with the public and to create education campaigns so that Bath residents are aware of their impact on the environment, the choices they have, and alternative options. Some issues, like transportation, can also be addressed by government-community partnerships. As more energy-related funding becomes available from state and federal sources, the City might serve as a conduit for loans, grants, services and information.

**Residential Heating and Electricity**

The residential sector accounts for 43.7% of city-wide energy consumption and 39.2% of the total emissions. This was the largest emitter of greenhouse gases. As fuel prices go up, more residents will struggles to afford home heating costs and meet basic needs. Increasing home heating efficiency is necessary from both economic and environmental perspectives. Residents can address their personal energy consumption in a number of ways. Most electrical energy use can be reduced by using CFL bulbs, energy star appliances, and by turning off lights and appliances when not in use. Home heating can be made more efficient with proper insulation, insulating windows and doors, using efficient boilers and keeping the home at a moderate temperature. Other remedies are super-efficient hot water heaters, insulating pipes, or investing in alternative energy sources such as solar panels.

Residents should have accessible information to help them decide who to contact and what to do to make their home more efficient. The City of Bath should support education campaigns with partner organizations so that residents learn how to reduce their energy use. To encourage citizens to reduce their energy consumption, the City could adopt a campaign similar to Keene, New Hampshire’s “10% Challenge.” This program provides residents with information about how to reduce their energy needs and recognizes those who succeed with awards. This approach could be an effective way to get citizens involved and excited about the city’s efforts to reduce carbon emissions and energy consumption. If 30% of Bath residents reduced their heating fuel and electricity by 10%, they would reduce community emissions by over 1,300 tonnes of eCO₂ and could save a total of over $500,000 in energy costs.
**Industrial and Commercial Electricity**
Together, industrial and commercial energy use amounts to 38.8% of all community emissions and 32.8% of all energy use. BIW has done much to reduce their emissions, although they still produce about a quarter of total community emissions.

Smaller businesses can also have an impact on emissions and energy use by following many of the same guidelines that homeowners to, and becoming as energy efficient as possible. Lighting is a large factor and is one that can be most easily remedied—it will reduce emissions as well as help them reduce their own overhead costs. Commercial entities should have access to resources that can assist them, and an education campaign geared toward businesses may be worthwhile.

If 30% of businesses reduced their energy use by 10%, they would reduce carbon emissions by over 500 tonnes of eCO₂ and could save $160,000 in energy costs. If Bath were to incorporate a “10% Challenge” or other campaign, businesses could also be involved.

**Transportation**
Transportation amounts to just under 20% of total emissions in Bath. This is another reduction that the City and partner organizations can address through a public education campaign to support alternative transportation.

Public transportation is available and should be encouraged. There are two city-run buses that have regular routes and schedules; yet despite promotions and free rides, the buses are underutilized. It would be beneficial to have a community campaign to persuade more people to ride. The City could also post the schedule in more places, and clearly define bus stops.

We are a relatively small city and most residents are within 2-3 miles of services and businesses. The City and partner organizations should promote our “walkability” and “bikeability.” The additional health benefits of walking/biking and reducing individuals’ vehicle costs can be stressed. The City could create a bike path or trail system and define those routes; they could also consider installing more bike racks around the city.

If Bath residents managed to reduce their vehicle-miles traveled by just 5% by walking more, biking instead of driving, and carpooling to work, they would reduce Bath’s eCO₂ emissions by nearly 900 tonnes and could save over $350,000 yearly.
VII. Final Conclusions

Climate change and energy use are important issues. Individuals, businesses and government agencies are becoming aware of the consequences of our decisions, not only due to the consequences of pollutants and gas emissions, but also because of rising prices associated with energy use.

This report gives the Bath Government and Bath Citizens information needed to take action and commit to reduce energy consumption and emissions. A commitment to reduce government energy use has the direct benefit of immediately reducing greenhouse gas emissions, and an indirect benefit of generating greater public awareness. All recommendations in the action plan section of this report are suggestions. We hope that the City of Bath, Bath City Council, and community members will consider a variety of possible changes to determine the best solutions for Bath.

In each area there may be some upfront costs, but most measures will see a fairly timely return and are likely to save money in the long-term. In the past several years, alternative energy technologies have become more financially available through federal and state assistance such as grants, loans, and incentives programs. As technologies are developed and manufactured for the general public, costs may become even more manageable.

Ultimately, we would like to see Bath’s overall emissions reduced by at least 2% each year, with the goal of reducing carbon emissions by at least 20% from 2007 levels by the year 2018. As an alternative to the standard U.S. Mayor’s Agreement, we have written a Resolution specific to Bath that highlights the steps we think Bath can take within this time frame. We hope that the Bath City Council will sign this agreement and make energy reduction a priority.

The City of Bath has the opportunity to be a leader in energy reduction and climate action. With the methods outlined in this document, we can maximize our energy efficiency and minimize the community’s emissions and costs.
VIII. Appendixes

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Community Charts and Graphs:
2007 Bath Community Emissions Chart
2007 Bath Community Energy Use Chart
2007 Bath Community Emissions Graph
2007 Bath Community Energy Use Graph

Government Charts and Graphs:
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2007 Bath Government Energy Use by Sector Chart
2007 Bath Government Emissions Graph
2007 Bath Government Energy Use by Sector Graph
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Community Greenhouse Gas Emissions in 2007 Indicators Report

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Residential: Energy Efficiency: Buildings: Ten Percent Challenge (30% participation)
Residential: Energy Efficiency: Residential Buildings: Ten Percent Challenge (50% participation)
Commercial: Energy Efficiency: Buildings: Ten Percent Challenge (30% participation)
Industrial: Absolute Emissions Reduction: BIW 5% emissions reduction by 2010
Transportation: Walking/Biking: Bath Bike Path/Bike Campaign
Building: Energy Efficiency: Buildings: Window Upgrades and Increased Insulation
Vehicle Fleet: Increase in Fuel Efficiency: Hybrid vehicles for Police and Fire
Employee Commute: Car/Van Pooling: Bath Municipal Carpooling
Streetlights: Energy Efficiency: Lamp and Ballast: LED Replacement
City of Bath Resolution
on Energy Conservation and Climate Protection

WHEREAS, A scientific consensus has arisen that carbon dioxide and other greenhouse gases released into the atmosphere will have a profound effect on the earth’s climate, including rising sea levels, decline in Arctic ice thickness, increasing levels of air pollution and general climate disruption; and,

WHEREAS, Energy consumption, specifically the burning of fossil fuels, e.g. coal, oil, and gas, accounts for more than 80% of the U.S. greenhouse gas emissions; and,

WHEREAS, State and local governments greatly influence their community’s energy usage by exercising key powers over land use, transportation, building construction, and waste management; and,

WHEREAS, State and local governments throughout the nation and the world are reducing global warming pollutants through programs that provide economic and quality of life benefits such as reduced energy bills, green space preservation, air quality improvements, reduced traffic congestion, improved transportation choices, and economic development and job creation through energy conservation and new energy technologies and saving money for the City government, its businesses, and its citizens;

NOW, THEREFORE, BE IT RESOLVED that the City of Bath pledges to take a leadership role to minimize the community’s energy costs and maximizing energy efficiency through the following measures:

1. Continue to periodically inventory the City’s use of all forms of energy through energy audits to identify improvements that will increase energy efficiency through retrofitting city facilities with energy efficient technologies;
2. Promote habit changes among our employees to reduce energy use and increase recycling in City facilities;
3. Consider land-use policies that preserve open space to maintain a compact urban community;
4. Continue to promote alternative transportation options including public transport and walking and bike trails;
5. Continue to explore the use of economically viable alternative energy sources, including the production of biofuels, methane recovery, and waste and biomass to energy technology;
6. Purchase only Energy Star and other energy efficient equipment and appliances for City use;
7. Consider requiring all City funded new construction and renovations meet the U.S. Green Building Council’s LEED certification program or the Maine State Housing Authority’s Green Building Standards;
8. Increase fuel efficiency of City vehicles through managing the size and composition of the City’s fleet, purchasing alternative energy vehicles when appropriate and available, and educating City drivers on operating the fleet to conserve fuel, including reduction of idling;
9. Continue to increase recycling rates and reduce waste;
10. Maintain and expand a healthy public tree population in the City;
11. Support community education programs to help inform the public about energy-related choices;
12. Set a target emissions reduction of 2% each year, with the goal of reducing carbon emissions by at least 20% by the year 2018.
Appendix 2: Charts and Graphs

2007 Bath Community Emissions

- Waste: 2%
- Transportation: 20%
- Industrial: 25%
- Commercial: 14%
- Residential: 39%

2007 Community Energy Use

- Transportation: 24%
- Industrial: 20%
- Commercial: 13%
- Residential: 43%
**2007 Bath Government Emissions**

- Buildings: 45%
- Waste: 26%
- Water & Sewage: 11%
- Streetlights: 6%
- Employee Commute: 2%
- Vehicle Fleet: 10%

**2007 Government Energy Use by Sector**

- Buildings: 65%
- Water & Sewage: 11%
- Streetlights: 6%
- Employee Commute: 3%
- Vehicle Fleet: 15%
### 2007 Building Emissions by Source

- **Propane**: 1%
- **Kerosene**: 1%
- **Light Fuel Oil**: 74%
- **Electricity**: 24%

### 2007 Vehicle Fleet Emissions by Department

- **Police**: 16%
- **Schools**: 21%
- **City Bus**: 10%
- **Public Works**: 29%
- **Fire**: 7%
- **Sewer**: 4%
- **Recreation**: 4%
- **Trolley**: 2%
- **Other**: 2%
- **Parks & Cemeteries**: 5%
## Appendix 3: Inventory Reports

### Bath

**Community Greenhouse Gas Emissions in 2007 Summary Report**

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This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
## Bath


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<th>Category</th>
<th>Equiv CO² (tonnes)</th>
<th>Equiv CO² (%)</th>
<th>Energy (MMBtu)</th>
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<td>41,387</td>
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<tr>
<td>Vehicle Fleet</td>
<td>720</td>
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<td>9,230</td>
</tr>
<tr>
<td>Employee Commute</td>
<td>164</td>
<td>1.9</td>
<td>2,117</td>
</tr>
<tr>
<td>Streetlights</td>
<td>455</td>
<td>5.4</td>
<td>3,739</td>
</tr>
<tr>
<td>Water/Sewage</td>
<td>817</td>
<td>9.7</td>
<td>7,100</td>
</tr>
<tr>
<td>Waste</td>
<td>0</td>
<td>0.0</td>
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<tr>
<td>Other</td>
<td>2,835</td>
<td>33.7</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>8,408</strong></td>
<td><strong>100.0</strong></td>
<td><strong>63,573</strong></td>
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</table>

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
### Community Greenhouse Gas Emissions in 2007
#### Report by Source

<table>
<thead>
<tr>
<th>Sector</th>
<th>Equiv CO $^2$ (tonnes)</th>
<th>Equiv CO $^2$ (%)</th>
<th>Energy (MMBtu)</th>
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<tr>
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<tr>
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<tr>
<td>Methane</td>
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<td><strong>Subtotal</strong></td>
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This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Report by Source

<table>
<thead>
<tr>
<th>Source</th>
<th>Equiv CO $^2$ (tonnes)</th>
<th>Equiv CO $^2$ (%)</th>
<th>Energy (MMBtu)</th>
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<tr>
<td><strong>Buildings Sector</strong></td>
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<td>Electricity</td>
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<td><strong>Subtotal</strong></td>
<td>3,417</td>
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<td>41,387</td>
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<tr>
<td><strong>Vehicle Fleet Sector</strong></td>
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<tr>
<td>Diesel</td>
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<tr>
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<td><strong>Streetlights Sector</strong></td>
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</tr>
<tr>
<td>Electricity</td>
<td>455</td>
<td>5.4</td>
<td>3,739</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>455</td>
<td>5.4</td>
<td>3,739</td>
</tr>
<tr>
<td><strong>Water/Sewage Sector</strong></td>
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<td></td>
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<td>Electricity</td>
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<td><strong>Other Sector</strong></td>
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<tr>
<td>Methane</td>
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<td>33.7</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
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<td>33.7</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8,408</td>
<td>100.0</td>
<td>63,573</td>
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Bath
Community Greenhouse Gas Emissions in 2007
Indicators Report

<table>
<thead>
<tr>
<th>Sector</th>
<th>Equiv CO² (tonnes)</th>
<th>Energy (MMBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath Aggregate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per household</td>
<td>12.4</td>
<td>149.7</td>
</tr>
<tr>
<td>Sector Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per capita</td>
<td>5.8</td>
<td>69.5</td>
</tr>
<tr>
<td>Per household</td>
<td>12.4</td>
<td>149.7</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath Aggregate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per 1000 sq. ft.</td>
<td>10.8</td>
<td>109.7</td>
</tr>
<tr>
<td>Per commercial establishment</td>
<td>33.4</td>
<td>339.1</td>
</tr>
<tr>
<td>Sector Average</td>
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</tr>
<tr>
<td>Per 1000 sq. ft.</td>
<td>10.8</td>
<td>109.7</td>
</tr>
<tr>
<td>Per capita</td>
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<td>20.5</td>
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<tr>
<td>Per commercial establishment</td>
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<td>339.1</td>
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<tr>
<td>Industrial</td>
<td></td>
<td></td>
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<tr>
<td>Bath Aggregate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per industrial establishment</td>
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<td>22,944.3</td>
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<tr>
<td>Sector Average</td>
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<tr>
<td>Per capita</td>
<td>3.7</td>
<td>31.6</td>
</tr>
<tr>
<td>Per industrial establishment</td>
<td>2,667.1</td>
<td>22,944.3</td>
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<td>Transportation</td>
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<tr>
<td>Sector Average</td>
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<tr>
<td>Per capita</td>
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<td>37.4</td>
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<tr>
<td>Other</td>
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<tr>
<td>Sector Average</td>
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</tr>
<tr>
<td>Per capita</td>
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Bath
Indicators Report

<table>
<thead>
<tr>
<th></th>
<th>Equiv CO₂ (tonnes)</th>
<th>Energy (MMBtu)</th>
<th>Cost ($)</th>
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<td><strong>Vehicle Fleet</strong></td>
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<td>City Buses</td>
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<tr>
<td>Per vehicle</td>
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<td>438.0</td>
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<td>0.3</td>
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<td>Animal Control</td>
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<td>Per vehicle</td>
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<tr>
<td>Per vehicle</td>
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<td>74.6</td>
<td>1,815.5</td>
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<td>Per vehicle</td>
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<td>Parks &amp; Cemeteries</td>
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<td>Per vehicle</td>
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<td>60.3</td>
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<td>Trolley</td>
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<tr>
<td>Per vehicle</td>
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<tr>
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<td>0.3</td>
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<tr>
<td><strong>Streetlights</strong></td>
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<tr>
<td>Bath Total</td>
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</tr>
<tr>
<td>Per streetlight</td>
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<td>5.8</td>
<td>168.1</td>
</tr>
<tr>
<td>Sector Average</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Per streetlight</td>
<td>0.7</td>
<td>5.8</td>
<td>168.1</td>
</tr>
<tr>
<td><strong>Waste</strong></td>
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<tr>
<td>Per employee</td>
<td>0.0</td>
<td></td>
<td>57,738.4</td>
</tr>
</tbody>
</table>

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## Bath

### Community Greenhouse Gas and Air Pollutant Reductions in 2018

#### Target Year Measures Listing

**Residential Sector**  
**Location of Measure:** Bath, Maine  
**Type of Measure:** Energy Efficiency: Buildings

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Affected Energy Source 1</th>
<th>Affected Energy Source 2 (Optional)</th>
<th>Energy Reduction (MMBtu)</th>
<th>Unit</th>
<th>Price per Unit ($)</th>
<th>Energy Reduction (MMBtu)</th>
<th>Unit</th>
<th>Ramp-In Factor</th>
<th>Energy Reduction (tonnes eCO2)</th>
<th>Year Implemented</th>
<th>Implementation Cost ($)</th>
<th>Payback Period (years)</th>
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<tbody>
<tr>
<td>Ten Percent Challenge (30% participation)</td>
<td>Electricity</td>
<td>Light Fuel Oil</td>
<td>2,941</td>
<td>Residential</td>
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<td>2010</td>
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*The emission reduction from this measure as a percentage of total reductions: 20.5%*

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,918</td>
<td>2,621</td>
<td>1,912</td>
<td>250</td>
<td>1,204</td>
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**Full Description of Measure**

Challenge citizens to increase home energy efficiency and reduce energy use (electricity and heating fuel) by 10%. Assuming heating fuel oil cost of July 2008 average $4.62/gal and projected average of 10.014 cents/kWh provided by Maine Public Utilities Commission report and assuming 30% participation (3% total reduction). Energy reduction calculations made according to total Residential energy consumption in MMBtu. Light fuel oil accounted for 71.2% of energy consumed by the Residential Sector and electricity accounted for 16.2%, so fuel use and electricity reductions were weighted according to those percentages. Propane use was not accounted for.

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Bath
Community Greenhouse Gas and Air Pollutant
Reductions in 2018
Target Year Measures Listing

Residential Sector     Location of Measure: Bath, Maine
Type of Measure: Energy Efficiency: Buildings

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Affected Energy Source 1</th>
<th>Affected Energy Source 2 (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten Percent Challenge (50% participation)</td>
<td>Electricity</td>
<td>Light Fuel Oil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure Details</th>
<th>Affected Energy Source 2 (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Light Fuel Oil</td>
</tr>
<tr>
<td>Unit</td>
<td>Residential</td>
</tr>
<tr>
<td>Energy Reduction (MMBtu)</td>
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</tr>
<tr>
<td>Price per Unit (MMBtu)</td>
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</tr>
<tr>
<td>Ramp-In Factor</td>
<td>100%</td>
</tr>
<tr>
<td>Year Implemented</td>
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</tr>
<tr>
<td>Implementation Cost</td>
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<tr>
<td>Emission Reduction (tonnes eCO2)</td>
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</table>

The emission reduction from this measure as a percentage of total reductions: 34.2%

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,530</td>
<td>4,368</td>
<td>3,187</td>
<td>417</td>
<td>2,006</td>
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</tbody>
</table>

Full Description of Measure

Challenge citizens to increase home energy efficiency and reduce energy use (electricity and heating fuel) by 10%. Assuming heating fuel oil cost of July 2008 average $4.62/gal and projected average of 10.014 cents/kWh provided by Maine Public Utilities Commission report and assuming 50% participation (5% total reduction). Energy reduction calculations made according to total Residential energy consumption in MMBtu. Light fuel oil accounted for 71.2% of energy consumed by the Residential Sector and electricity accounted for 16.2%, so fuel use and electricity reductions were weighted according to those percentages. Propane use was not accounted for.

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Bath Community Greenhouse Gas and Air Pollutant Reductions in 2018 Target Year Measures Listing

Commercial Sector
Type of Measure: Energy Efficiency: Buildings
Location of Measure: Bath, Maine
Ten Percent Challenge (30% participation)

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Affected Energy Source 1</th>
<th>Affected Energy Source 2 (Optional)</th>
<th>Measure Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten Percent Challenge (30% participation)</td>
<td>Electricity</td>
<td>Light Fuel Oil</td>
<td>Commercial</td>
</tr>
<tr>
<td>Energy Reduction</td>
<td>2,717</td>
<td>Energy Reduction</td>
<td>2,631</td>
</tr>
<tr>
<td>Unit (MMBtu)</td>
<td></td>
<td>Unit (MMBtu)</td>
<td></td>
</tr>
<tr>
<td>Price per Unit</td>
<td>$29.34</td>
<td>Price per Unit (MMBtu)</td>
<td>$33.01</td>
</tr>
<tr>
<td>Ramp-In Factor</td>
<td>100%</td>
<td>Energy Reduction (MMBtu)</td>
<td>5,348</td>
</tr>
<tr>
<td>Year Implemented</td>
<td>2010</td>
<td>Emission Reduction (tonnes eCO2)</td>
<td>516</td>
</tr>
<tr>
<td>Implementation Cost</td>
<td>$0</td>
<td>Savings ($/year)</td>
<td>$166,559</td>
</tr>
<tr>
<td>Payback Period (years)</td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 8.1%

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,162</td>
<td>2,835</td>
<td>1,268</td>
<td>147</td>
<td>818</td>
</tr>
</tbody>
</table>

Full Description of Measure
Challenge all businesses to increase energy efficiency and reduce energy use (electricity and heating fuel) by 10%. Assuming heating fuel oil cost of July 2008 average $4.62/gal and projected average of 10.014 cents/kWh provided by Maine Public Utilities Commission report and assuming 30% participation (3% total reduction). Energy reduction calculations made according to total Residential energy consumption in MMBtu. Light fuel oil accounted for 49.2% of energy consumed by the Commercial Sector and electricity accounted for 50.8%, so fuel use and electricity reductions were weighted according to those percentages.

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI’s Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Bath

Community Greenhouse Gas and Air Pollutant Reductions in 2018
Target Year Measures Listing

<table>
<thead>
<tr>
<th>Industrial Sector</th>
<th>Location of Measure: Bath, Maine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Measure: Absolute Emissions Reduction</td>
<td></td>
</tr>
<tr>
<td>Measure Name</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emission Affected</th>
<th>Carbon Dioxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions Reduction</td>
<td>1,502 (tonnes CO2)</td>
</tr>
<tr>
<td>Unit</td>
<td>0 Unit</td>
</tr>
<tr>
<td>Price per Unit</td>
<td>$.00</td>
</tr>
<tr>
<td>Ramp-In Factor</td>
<td>100%</td>
</tr>
<tr>
<td>Year Implemented</td>
<td>2010</td>
</tr>
<tr>
<td>Implementation Cost</td>
<td>$0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Reduction (tonnes eCO2)</td>
<td>1,502</td>
</tr>
<tr>
<td>Energy Reduction (MMBtu)</td>
<td>0</td>
</tr>
<tr>
<td>Savings ($/year)</td>
<td>$0</td>
</tr>
<tr>
<td>Payback Period (years)</td>
<td>0</td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 23.5%

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Full Description of Measure

Bath Iron Works has pledged to reduce its greenhouse gas emissions by 5% from 2007 levels by 2010.

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI’s Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Bath
Community Greenhouse Gas and Air Pollutant Reductions in 2018
Target Year Measures Listing

<table>
<thead>
<tr>
<th>Transportation Sector</th>
<th>Location of Measure: Bath, Maine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Measure: Walking/Biking</td>
<td>Measure Name</td>
</tr>
<tr>
<td>Bath Bike Path/Bike Campaign</td>
<td>Bath Bike Path/Bike Campaign</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Fuel and Vehicle Type</td>
</tr>
<tr>
<td>Gasoline</td>
</tr>
<tr>
<td>Passenger Vehicle</td>
</tr>
<tr>
<td>Usage Before</td>
</tr>
<tr>
<td>1,792,651 (US gal)</td>
</tr>
<tr>
<td>Price per Unit</td>
</tr>
<tr>
<td>$4.00</td>
</tr>
<tr>
<td>Ramp-In Factor</td>
</tr>
<tr>
<td>100%</td>
</tr>
<tr>
<td>Year Implemented</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Implementation Cost</td>
</tr>
<tr>
<td>$0</td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 13.6%

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,611</td>
<td>264</td>
<td>56,458</td>
<td>5,319</td>
<td>82</td>
</tr>
</tbody>
</table>

Full Description of Measure
Build new bike paths around the city and encourage people to use them for biking to work, into town, etc. Assuming a 5% total reduction in community VMT and $4 per gallon for gasoline.

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Bath

Government Greenhouse Gas and Air Pollutant Reductions in 2018
Target Year Measures Listing

Buildings Sector
Location of Measure: Bath, Maine
Type of Measure: Energy Efficiency: Buildings

Measure Name
Window Upgrades and Increased Insulation

Measure Details

<table>
<thead>
<tr>
<th>Affected Energy Source 1</th>
<th>Affected Energy Source 2 (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Fuel Oil</td>
<td>Electricity</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Reduction</th>
<th>Unit</th>
<th>Energy Reduction</th>
<th>Unit</th>
<th>Price per Unit</th>
<th>Price per Unit</th>
<th>Ramp-In Factor</th>
<th>Year Implemented</th>
<th>Implementation Cost</th>
<th>Savings ($/year)</th>
<th>Payback Period (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12,041</td>
<td>(US gal)</td>
<td>0</td>
<td>(kWh)</td>
<td>$4.00</td>
<td>$.00</td>
<td>100%</td>
<td>2010</td>
<td>$0</td>
<td>$48,163</td>
<td>0</td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 23.9%
This emission reduction as a percentage of emission reductions required to meet target: 7.9%

<table>
<thead>
<tr>
<th>NOx Reduction</th>
<th>SOx Reduction</th>
<th>CO Reduction</th>
<th>VOC Reduction</th>
<th>PM10 Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>(lbs)</td>
<td>(lbs)</td>
<td>(lbs)</td>
<td>(lbs)</td>
<td>(lbs)</td>
</tr>
<tr>
<td>447</td>
<td>1,392</td>
<td>90</td>
<td>15</td>
<td>53</td>
</tr>
</tbody>
</table>

Full Description of Measure

Install energy efficient double-paned windows and better insulation for City Hall and other municipal buildings. Assuming 5% reduction in fuel use and 5% reduction in electricity use. Ramp-in schedule starting with 40% in 2010, then 30%, 20%, and 10% in the following years until it is completed in 2013. Assuming (very conseratively) a price of $3.00 per gallon for heating fuel. Electricity price is based on current price from CMP which will likely increase.

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI’s Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Bath
Government Greenhouse Gas and Air Pollutant Reductions in 2018
Target Year Measures Listing

Buildings Sector
Type of Measure: Energy Efficiency: Equipment and Lighting

Measure Name
Energy Star Appliance Replacement

Measure Details

<table>
<thead>
<tr>
<th>Affected Energy Source 1</th>
<th>Affected Energy Source 2 (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td></td>
</tr>
<tr>
<td>Energy Reduction</td>
<td>199,690 kWh</td>
</tr>
<tr>
<td>Unit (kWh)</td>
<td>Unit</td>
</tr>
<tr>
<td>Price per Unit</td>
<td>$.10</td>
</tr>
<tr>
<td>Ramp-In Factor</td>
<td>100%</td>
</tr>
<tr>
<td>Year Implemented</td>
<td>2009</td>
</tr>
<tr>
<td>Implementation Cost</td>
<td>$0</td>
</tr>
<tr>
<td>Energy Reduction (MMBtu)</td>
<td>682</td>
</tr>
<tr>
<td>Emission Reduction (tonnes eCO2)</td>
<td>80</td>
</tr>
<tr>
<td>Savings ($/year)</td>
<td>$19,917</td>
</tr>
<tr>
<td>Payback Period (years)</td>
<td>0</td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 15.1%
This emission reduction as a percentage of emission reductions required to meet target: 5.0%

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>117</td>
<td>166</td>
<td>283</td>
<td>31</td>
<td>184</td>
</tr>
</tbody>
</table>

Full Description of Measure
Replace appliances, computers, other equipment with Energy Star rated units when they are due to be replaced. Assuming minimum total energy savings of 10%.
Appendix M Page 45

Bath

Government Greenhouse Gas and Air Pollutant
Reductions in 2018
Target Year Measures Listing

Vehicle Fleet Sector: Location of Measure: Bath, Maine
Type of Measure: Increase in Fuel Efficiency

Measure Name
Hybrid vehicles for Police and Fire

Measure Details
<table>
<thead>
<tr>
<th>Initial Fuel and Vehicle Type</th>
<th>Replacement Fuel and Vehicle Type</th>
<th>Unit</th>
<th>Use Before</th>
<th>Replacement Fuel and Vehicle Type</th>
<th>Price per Unit</th>
<th>Price per Unit</th>
<th>Ramp-In Factor</th>
<th>Year Implemented</th>
<th>Energy Reduction (MMBtu)</th>
<th>Emission Reduction (tonnes eCO2)</th>
<th>Implementation Cost</th>
<th>Savings ($/year)</th>
<th>Payback Period (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>Gasoline</td>
<td>Unit</td>
<td>13,488</td>
<td>Use After</td>
<td>7,480</td>
<td></td>
<td></td>
<td>2010</td>
<td>755</td>
<td>59</td>
<td>$36,000</td>
<td>$24,034</td>
<td>1.5</td>
</tr>
<tr>
<td>Passenger Vehicle</td>
<td>Auto - Sub-Compact/Compact</td>
<td>Unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SULEV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 11.1%
This emission reduction as a percentage of emission reductions required to meet target: 3.7%

Full Description of Measure

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
Bath
Government Greenhouse Gas and Air Pollutant
Reductions in 2018
Target Year Measures Listing

Employee Commute Sector: Bath Municipal Carpooling
Type of Measure: Car/Van Pooling
Location of Measure: Bath, Maine

<table>
<thead>
<tr>
<th>Measure Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath Municipal Carpooling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Fuel and Vehicle Type: Gasoline</td>
</tr>
<tr>
<td>Replacement Fuel and Vehicle Type: Gasoline</td>
</tr>
<tr>
<td>Passenger Vehicle Use Before: 276,977 (vehicle-miles)</td>
</tr>
<tr>
<td>Use After: 193,884 (vehicle-miles)</td>
</tr>
<tr>
<td>Price per Unit: $.22</td>
</tr>
<tr>
<td>Ramp-In Factor: 100%</td>
</tr>
<tr>
<td>Year Implemented: 2010</td>
</tr>
<tr>
<td>Implementation Cost: $0</td>
</tr>
<tr>
<td>Payback Period (years): 0</td>
</tr>
</tbody>
</table>

The emission reduction from this measure as a percentage of total reductions: 8.4%
This emission reduction as a percentage of emission reductions required to meet target: 2.8%

NOx Reduction: 183 (lbs)
SOx Reduction: 13 (lbs)
CO Reduction: 2,860 (lbs)
VOC Reduction: 269 (lbs)
PM10 Reduction: 4 (lbs)

Full Description of Measure
Carpooling program for Bath City Employees. Assuming that employees carpool with one other person and VMT decreasing by 30% and a conservative gasoline price of $4 per gallon.

This report has been generated for Bath, Maine using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.
LED Replacement

**Measure Details**

- **Affected Energy Source**: Electricity
- **Energy Reduction**: 547,788 kWh
- **Ramp-In Factor**: 100%
- **Year Implemented**: 2010
- **Implementation Cost**: $237,250
- **Energy Reduction (MMBtu)**: 1,870
- **Emission Reduction (tonnes eCO2)**: 219
- **Savings ($/year)**: $54,636
- **Payback Period (years)**: 4.3

*The emission reduction from this measure as a percentage of total reductions: 41.5% This emission reduction as a percentage of emission reductions required to meet target: 13.7%

### Air Pollutant Reductions

<table>
<thead>
<tr>
<th>NOx Reduction (lbs)</th>
<th>SOx Reduction (lbs)</th>
<th>CO Reduction (lbs)</th>
<th>VOC Reduction (lbs)</th>
<th>PM10 Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>320</td>
<td>455</td>
<td>775</td>
<td>85</td>
<td>506</td>
</tr>
</tbody>
</table>

**Full Description of Measure**

Replace current street lights with LEDs at a rate of 20% per year. Assuming implementation cost of $237,250 ($365/bulb).
Lands in Conservation
City of Bath Comprehensive Plan

Map prepared by Bath Planning Office on 3/23/2009

See also the table in the Natural Resources Inventory
Constraints to Development
City of Bath Comprehensive Plan

Map prepared by Spatial Alternatives
March 2009

Level of Constraint
- Low
- Moderate
- Severe

Sources: Data includes Slope, Soils Drainage, Prime Farmland Soils, Flood Plains, Wetlands, Shoreland Zoning, and various Habitat data.
Data were ranked and added together where overlap occurred.
Severe constraint signifies areas with the highest values.
- Slope data generated from 10 m DEMs provided by MeGIS
- Drainage and Farmland Soils from USDA NRCS Soils Survey.
- Flood data from FEMA FIRM Maps
- Wetlands from National Wetland Inventory
- Shoreland, RP, and NRPO Zoning from City of Bath
- Habitat data from Beginning with Habitat, MENAP and others
High Crash Locations
City of Bath Comprehensive Plan
Number of Crashes 2002 - 2006, Source: Maine DOT

Map prepared by Bath Planning Office on 3/23/2009

Also see Transportation Inventory
Public Facilities
City of Bath Comprehensive Plan

Map prepared by Bath Planning Office on 3/23/2009

Legend
Markers
TYPE
- Cemetery
- Cemetery Div. Office
- City Hall
- Community Center at Lambert Park
- Customs House
- Fire Station
- Land Fill
- Library
- Midcoast Center for Higher Education
- Parks
- Police Station
- Public Boat Launch
- Public Works Garage
- Pump Station
- Railroad Station
- Recreation Dept
- School
- Sewage Treatment Plant

See downtown above

Washington St
Centre St
Commercial St
Downtown Public Facilities
Comments on the Draft Comprehensive Plan and the Planning Board’s Responses

March 18, 2009

1. Comment: The City should concentrate on: Development of a river walk starting from the train station and running up to the Coal Pocket; Development of a cruise ship-friendly dock; and Development of facilities that would attract high end mega yachts. (From the Public meeting 3/10/09)

Planning Board’s response: Very good suggestion and many of these items are presently being pursued. Appendix H talks about costs of pier improvements for larger vessels. And this is included in the Capital Improvements Plan. Appendix G talks about the importance of trails and pathways and mentions the present effort taking place to develop a concept plan for a pathway along the river in the downtown.

2. Comment: Although there are several references throughout the document about philanthropic gifts, it would be nice to see a statement that notes the importance of philanthropy not only for the economic impact but how the contributions improve the quality of life in a community. The donors include businesses, corporations, foundations, individuals and organizations like the United Way. The entities supported include arts and cultural events, educational programs and opportunities, historic preservation, human resource services, new technology and the religious community to name a few. Encouraging philanthropy benefits the community! (e-mailed from a Bath resident)

Planning Board’s response: A very correct statement. Appendix C discusses the important non-governmental organizations in Bath. And Chapter 4 includes an Issue Statement that highlights the importance of these organizations to our cultural enjoyment and to our economy. We hope that this will lead residents to support these organizations.

3. Comment: As a former resident of Bath (and with family still in the area), I would like to tell you how impressed I am with the city and its changes (this website, "the plan" in the Times Record). It seems as though you have all of the bases covered. I would like to add three thoughts to this
process because of the fact that I love this city so much and want to see you improve even more.

1-(I'm not sure if you have this or not) A teen center; A place (possibly established by the rec. department) that would allow high school students a place to go on the weekends. Pool, darts, ping pong, etc... could be offered.

2-A place (possibly connected to the center) where rock and jazz musicians can perform. I am a musician and the venues to rehearse and play were somewhat limited.

3-A BIG industry (dealing with computers) besides BIW for college students graduating can go and find a job.

I mention these things because if there had been these options when I was growing up, I would probably still be there.

I hope these thoughts help. (e-mailed from a Bath resident)

Planning Board's response: Responding to the last part of this comment first; Appendix B discusses the importance of diversifying the City's economy. Chapter 4 sets out Actions that should be taken to do this. Chapter 5 discusses the importance of the City's economic advantage provided by the Kennebec River and encourages proper use of the working waterfront areas for job creation.

Appendix H inventories all the activities that the Recreation Department offers to teens as well as residents of other age groups. It does mention that the Recreation Department should be aware of the changing needs of all citizens. The Planning Board, however, believes that meeting the needs of musicians to practice and perform is best met by the performing arts organizations in Bath or by the private sector; not by the City.

4. Comment: I wanted to pass along a couple of comments regarding the draft of the City of Bath Comprehensive Plan that was recently previewed for public comment, that was the purpose of my call to you last week. First, I would note it was with some disappointment to read in the Times Record and the Plan itself that Bath is preparing an economic development plan that includes "contingency planning for the future possibility of BIW shrinking or closing." That is certainly not the message we are sending to our employees nor is it part of BIW's plan.
While BIW has no objection to the concept of desiring economic diversity, planning for negative events or worse case scenarios, what is the basis for planning for closure? It certainly does not come from any communication that BIW has provided to the City of which I am aware. It would at least seem more balanced to also include a statement that Bath should plan for BIW's continued operations/future growth and support planning/economic development efforts with that goal in mind. I have reviewed the Comp Plan and cannot locate any statement which addresses that as a goal.

A couple of other points worth mentioning are the repeated characterizations of BIW as "Maine's largest private employer" which I do not believe to be accurate. Although the actual data on that point should be sought from the Maine Dept of Labor, MaineBiz has listed Hannaford, LL Bean and WalMart as having more active employees than BIW. The current employment level for BIW is erroneously listed in the Comp Plan at 5100 and it currently stands at 5654. (e-mailed from BIW)

Planning Board's response: Not planning for the possibility that a community's largest employer might downsize or even close seems to be irresponsible. There are many instances nationwide of textile mills closing in a weekend, of mines shutting down over night, and of paper mills closing with very little notice. Preparing for such economic catastrophes is a proper part of any city planning, just as is planning for a hurricane by a community on the Florida coast. It doesn't mean that that community wants the hurricane or is giving the public the wrong message by preparing for it. Perhaps the Issue Statement could, however, reinforce the unstated desire of the community that Bath Iron Works continue to be in Bath, continue to prosper, and continue to employ many workers from Bath and the region.

The second part of this comment is very good information and the Plan will be corrected with this data.