

Chapter 9 - Economic Development

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Chapter 9 - Economic Development

Fostering economic development in the necklace of towns, hamlets, villages and cities along the Canal is a primary objective of the Canal Recreationway Plan. Chapters 6 through 8 describe Plan proposals that support this objective. Programs are recommended to conserve the existing resources of the Canal and for adapting the system to the needs of a new Canal Recreationway; and projects are included to assure the provision of regular and reliable services, intended to enhance the potential for increased boating, recreation, tourism and commerce. Taken together, these proposals to conserve, use and enhance the system will generate economic benefits to canalside communities, the Canal Corporation and the State.

In Chapter 5, economic development is defined as the creation of economic benefit, and the potential benefits of the Canal Recreationway Plan are summarized as follows:

- Economic benefits to local communities and the State as a result of canal visitation, tourism, and use of the system as a transportation artery. These benefits include new jobs, business creation, and augmented sales-tax receipts to the State and localities.
- Direct revenue to the Canal Corporation that will enhance the financial stability of the Canal System. Revenues include lease payments, tolls and other existing user fees. The potential for increased commercial shipping activity and the renegotiation of expired hydropower leases will also be contributing factors.
- While difficult to quantify, there will be general enhancement to the quality of life along the Canal which will come as a result of the recreation amenities and physical revitalization of canal communities. This in turn should induce new development for residential and commercial uses.

This chapter outlines the economic framework needed to achieve this potential and quantifies the likely benefits related to the implementation of the Canal Recreationway. It also describes a program to enhance economic opportunities related to the use of the Canal for commercial shipping, and the potential economic benefits related to hydroelectric power.

9.1 ECONOMIC DEVELOPMENT FRAMEWORK

Realizing the economic-development potential of the Canal depends on three key factors: (i) establishing investor confidence regarding the Canal's future; (ii) facilitating public/private partnerships; and (iii) capturing existing and new market demand.

Although it is recognized that initial public investment to preserve, enhance and market the Canal is required, the long-term economic benefits of the Plan will accrue largely as a result of investment by the private sector. Private ventures will create jobs, tax benefits and direct revenues for reinvestment in the Canal System. The recommended improvements described in other chapters of the Plan address prerequisites for attracting and leveraging private investment. These include: preservation of the canal experience, facilitating access to the system, expanded promotion, improved services, linkages to existing tourist attractions and enhancing boating and recreation. However, private-sector interest and investment will occur only if the future of the Canal is certain. This is true for commercial ventures of all types, whether the business provides tourism-oriented services or the shipment of goods. Businesses must be assured of the short- and long-term public commitment to infrastructure maintenance, dredging and operation of the system, and the program and projects contained in the Canal Recreationway Plan. This commitment is critical to elevating private-sector investor confidence.

Assuming its future certainty, canal development should present a myriad of opportunities for partnerships between the public and private

sectors. Facilitating these alliances is key to achieving economic benefits. The public sector's role in the revitalization of the Canal must be clearly articulated as a catalyst to increased utilization and growth, and the process for private-sector investment must be made easy. Facilitation can be achieved through sound planning and the provision of business-development expertise. While new private initiative is important, existing canal business participation should be encouraged and not jeopardized.

The third factor to achieving the full economic potential of the Canal is to take advantage of development trends that attract market demand. The challenge is to capture a large untapped demand from both existing and new markets. Tourism in New York is big business. It is second only to agriculture as the leading industry in the state. Capturing even a small percentage of this market can translate into major benefits, adding economic value to canalside communities. Additionally, while the commercial shipping industry has experienced a decline, a review of transportation trends nationally and world-wide suggests that the potential for commercial use of the system is as great now as ever before.

9.2 ECONOMIC DEVELOPMENT POTENTIAL

Economic benefits are dependent upon greater utilization of the Canal System. Augmented use will transform the canal corridor into a more attractive place to do business. Economic return will be generated as a result of greater landside and water-related spending by tourists and local canal visitors, and enhanced commercial and industrial activity. These activities will result in direct and indirect economic benefits including the creation of jobs, the generation of state and local tax revenues, incremental revenues related to existing canal tolls and fees, and induced off-canal development spawned as a result of implementing the Plan.

The market sources that hold the most promise for greater utilization of the Canal include:

- the existing markets in canal regions;
- the regional and state tourism market;
- the international tourist market, particularly a largely untapped Canadian market;
- the regional, state and national recreationalists and special-interest travelers market;
- local, regional and national boaters (all types); and
- the commercial shipping/maritime industry.

These markets and their potential are described more fully as a component of the Marketing Plan in Chapter 10. The following chart disaggregates these sources into illustrative categories and provides an indication of corresponding direct and indirect benefits.

**Table 9-1
Potential Benefits by Source**

Market Sources	Direct Revenues to Canal through Tolls and Leases	Indirect Sales-Tax Revenues to State and Municipalities	New Jobs	Induced Development resulting from Enhanced Canal
•Boating	✓	*	✓	—
•Trail Use	—	*	—	—
•Marinas	*	✓	✓	✓
•Retail	*	✓	✓	✓
•Lodging & Food Services	*	✓	✓	✓
•Recreation/Camping/ Cultural Activities	*	✓	*	✓
•Other Commercial & Residential Uses	*	✓	✓	✓
•Commercial Shipping	✓	—	✓	—
•Hydroelectric Power	✓	—	✓	—

Legend

(✓) Primary source

(*) Secondary or potential source

9.3 BENEFITS OF THE CANAL RECREATIONWAY

Potential economic-development benefits can be quantified in two broad categories – tourism-related benefits that will accrue to state and local government, and private enterprise; and benefits generated directly to the Canal Corporation. The value of these benefits have been calculated assuming the completion of projects recommended in the Canal Recreationway Plan, and are based on prior studies, demographic analysis and existing toll and fee structures.

Tourism Benefits

Systemwide Tourism Benefits

The Canal currently captures very little of New York State's exceptionally large tourism market and its associated expenditures. If it were to increase its draw by even a small percentage and

attract visitation, the economic impact would be significant. Strategies to target the tourism market are presented in Chapter 10.

Total travel-related expenditures in 1993, including business and leisure spending, totaled \$21.3 billion, placing New York State fourth behind only California, Florida and Texas. For the 12-month period ending February 1994, travel trips to New York State totaled 108 million. Excluding New York City visitation, 60 million trips were for leisure or tourist purposes. Of these leisure trips, it is estimated that 45 percent, or 27 million trips, were to canal counties.

Travel and related tourism expenditures in New York State continue to be a strong element of the economy. Tourism trips increased by three percent over last year's levels and are expected to grow. The total state visitor-base origin is approximately 84 percent domestic, five percent Canadian, and eleven percent other international.

Leisure travelers in New York State (excluding New York City and business-related trips) stayed an average of 2.3 days per visit and spent an average of \$67 per day for transportation, food, retail, entertainment, lodging and other miscellaneous expenditures; or a total of nearly \$9.2 billion. Tourism spending in the 25 canal counties is estimated to total \$4.1 billion.

The methodology used to calculate the potential tourism benefits hinges on estimating the portion of the canal region's \$4.1 billion existing tourism and leisure spending that can reasonably be expected to be attracted to the Canal as a result of implementing the Plan's programs and projects. Tourism captured from this existing market would include visitors diverting from other attractions, as well as those extending a trip duration to include a visit to the Canal System. These benefits would likely occur during the early stages of redeveloping the Canal and are characterized as the "base-case" scenario.

In addition to the initial benefits attributable to an increased tourism capture rate, it is also expected that in the later phases of the Plan's implementation, the Canal's potential as a world-class destination will be realized and will begin to attract new tourism to New York State. These supplemental benefits are reflected as a component of the "growth-case" scenario.

The capture rate utilized to estimate direct and spin-off tourism benefits is derived from a survey of canal-area tourist attractions and their relationship to total county tourist/leisure visitors. As indicated in Table 9-2 below, existing canal attractions capture between 2.5 and 26 percent of county visitations. To be conservative, it is assumed that by the completion of the Plan's implementation, the Canal System could capture 2.5-percent of the annual existing tourism market in canal regions; or what would be considered the low end of the range.

Subsequent to the Plan's completion, it is assumed that the Canal will annually achieve a total 5 percent capture rate – maintaining its 2.5-percent share of the existing tourism market and building 2.5 percent in additional, net new

tourist visitation. While 5 percent is twice the initial capture rate, it is well within the range for existing canal attractions and is consistent with the tourism growth trends in New York State.

Table 9-2
Tourism Capture Rates For Canal Attractions
(% of 1994 County Visitation)

Attraction	County	Capture Rate
Women's Rights Museum	Seneca	2.5%
Herkimer Home	Herkimer	26.0%
Saratoga Battlefield	Saratoga	19.0%
Montezuma Wetlands Complex	Seneca	12.5%

In addition to attractions, visitation to canal-related special events was also reviewed. It was found that special events and festivals at or along the Canal attract a substantial number of visitors. For example, the Oswego Harborfest and the Tonawanda Canal Days each draw approximately 150,000 visitors. This further illustrates the Canal's ability to attract visitation.

Based on the capture-rate analysis, base- and growth-case tourism benefits were calculated and are summarized in Table 9-3. In summary, implementation of the Canal Recreationway Plan could result in the attraction of 1.3 million visitors annually, generating tourism expenditures of \$210 million and tax revenues in excess of \$15 million a year. Additional assumptions used to estimate these results are contained in Appendix A9-a.

**Table 9-3
Estimated Potential Economic Benefits
from Canal Tourism - Systemwide**

	Annual Visitors (1993)	Annual Tourist Expenditures	Annual State Sales Tax	Annual Local Sales Tax	Total Jobs Created
Existing Tourism/Leisure Travel					
•New York State (excluding NYC)	60 million	\$9.2 billion	\$368 million	\$322 million	120,000
•Canal regions	27 million	4.1 billion	169 million	143 million	53,300
•Base Case: 2.5% capture rate of existing tourism	675,000	104 million	4.2 million	3.6 million	1,350
•Growth Case: Additional 2.5% of new Canal tourism	1,350,000	\$210 million	\$8.2 million	\$7.3 million	2,700

**Table 9-4
Economic Job-Related Benefit Areas**

Expenditure Category	Economic Impact
<ul style="list-style-type: none"> • Transportation • Hotels and Lodging • Food • Retail/Shops • Other 	<ul style="list-style-type: none"> • Thruway, Tour Buses, Airports • Motels, Bed and Breakfast • Restaurants/Taverns • Wholesale, Retail for Tourists, Boats • Health Services, Entertainment, Cultural

Job creation related to enhanced tourism is projected to total 2,700. This figure is calculated based on the industry standard of 13 new permanent and part-time jobs created for each \$1 million of expenditures. The projected jobs will be established primarily in the hospitality sector and will have the greatest impact as indicated in Table 9-4.

expenditures of \$18.6 million will increase sales per square foot for existing retail sales outlets, supporting approximately 80,000 square feet. This may result in demand for new retail space.

Each of the expenditure categories will generate substantial revenues that will translate into jobs as exhibited in Table 9-5. These supplemental revenues will contribute significantly to enhancing existing businesses. For example, total lodging and room revenues of \$12.4 million will generate approximately 200,000 new room nights based on an average room rate of \$60 per night. Most of this new demand can be satisfied by existing supply; however, occupancy rates and revenues will increase. Alternatively, shopping

**Table 9-5
Typical Tourist Expenditures**

Expenditure Category	Average Daily Expenditure	Percent of Total	Annual Projected Canal Expenditures*	Total Jobs Created (five-year period)
• Transportation	\$19	28.4	\$29.5 million	384
• Food	16	23.9	24.8	323
• Shopping	12	17.9	18.6	242
• Entertainment	8	11.9	12.4	160
• Room*	8	11.9	12.4	160
• Miscellaneous	4	6.0	6.2	81
Totals	\$67		\$103.9 million	1,350

* Base Case: 675,000 visitors/tourists; 2.3-day average length of stay per visit
 Source: NYS Department of Economic Development; Arthur Andersen Compilation (1995)

Direct Benefits to the Canal Corporation

Payments made to the Canal Corporation by canal users are constitutionally required to be reinvested in the Canal and will enhance the system's financial stability. Direct revenues to the Canal Corporation will be generated from two primary sources – user fees in the form of canal tolls, and property-related fees for the use of canal-owned lands and facilities. Enhanced revenues from each of these existing sources are expected to result from greater utilization of the Canal due to the implementation of the Canal Recreationway Plan. The following sections describe the total revenue potential (existing and new) from each of these contributing sources.

Boating Trends and Canal Tolls

According to the NYS Department of Motor Vehicles, in 1994 220,000 boats were registered and used in canal counties. By comparison, there were only about 116,000 total canal lockages, resulting from the sale of less than 11,000 toll permits. While the actual number of boats using the system of locks is not presently available, it is safe to say that it represents only a small portion of the boating demand. While not all boats are suitable for canalizing, it is clear that there is substantial untapped demand.

As described more fully in Chapter 7, increased boating activity of all types is one of the most important objectives of the Plan. Enhanced boating will stimulate spending related to marine services, tourism, leisure and hospitality, and will augment direct toll revenues to the Canal Corporation.

There are currently four types of recreation-related boats cruising the canal waterways. (Commercial shipping is discussed separately later in this chapter.) These include: privately owned boats (local and transient), charter boats, excursion boats, and tour boats.

The toll structure implemented in 1995 for use of the locks includes separate fees schedules for recreational boats and recreation-related commercial vessels. With respect to recreational boating, tolls are graduated based on the length of the craft, and two types of passes are offered: a seasonal pass, and a permit that can be used for unlimited lockages over two consecutive days. The rates range from a \$5, two-day permit for the smallest class of boats, upward to \$100 for an unlimited seasonal pass for the largest class of vessels.

The remaining categories of boats are charged an annual fee as follows: \$300 for each charter boat;

\$10 per passenger capacity for excursion and tour boats without sleep-aboard facilities; and \$30 per passenger capacity for those with sleep-aboard facilities.

Utilizing this existing toll structure, and assuming the implementation of the plan elements, the projected trends and revenue implications for each of these activities is summarized as follows:

Privately Owned Boats

In 1994, total gross revenues generated from the existing toll structure yielded \$302,000; that was the first year that tolls were instituted after more than a century of prohibition, and canal lockages declined by more than 15 percent systemwide. Subsequently, the Canal Recreationway Commission recommended, and the Canal Corporation adopted, modifications to the toll structure to enhance use.

Historically, total lockages increased from 1984 to 1989, and then declined thereafter until 1992. However, the overall trend during this period was positive, averaging annual increases of 4.2 percent. The decrease in lockages between 1989 and 1992 was probably a result of a number of factors, most notably the impact of the national economic recession, the imposition of the federal luxury tax on boats, and reductions in the state budget which resulted in the curtailment of canal-related services.

In 1993 the Canal Corporation instituted a series of modest improvements including the expansion of the hours of operations and lock-site amenities such as the installation of picnic tables and grills. It is likely that these improvements contributed to the 3.2 percent increase in lockages over the prior year, which represented a turnaround in a declining trend.

The statistics regarding boats registered for use in canal counties is also encouraging. On average, over the past ten years, boater registrations have grown annually by about five percent.

Based on the experience resulting from the 1993 enhancements and the trend in boater registrations in canal counties, the assumption can be made that

the substantial boater improvements resulting from the implementation of the Canal Landings projects will reverse the decline experienced in 1994. It is expected that boaters, both new and existing, can be enticed by the provision of new services to utilize the locks at an increasing rate of four percent.

Under this scenario, a total of more than \$1.7 million in toll revenue would be generated over the initial five years of the Plan. This would equate to a return of lock usage to the level that existed prior to tolls, in addition to four percent growth in use over the five-year period.

Charter Boats

Despite their popularity in Europe, there are only ten charter boats on the NYS Canal System available for individuals or families to captain. This segment of boating has experienced progressive growth on the Canal in recent years, albeit small in numbers.

There are no comparable canal systems in this country with charter boating operations to enable a comparison of trends. Comparisons and conclusions in this study were drawn from the experience of the French canal system, and projections made based on this analysis.

For the total estimated French population of 55 million, there are approximately 2,300 canal hire boats (charter boats) or one boat for every 23,900 persons.

The single largest company offering charter-boat holidays initiated business on the French canals in 1970. Similar to the current circumstance on the NYS Canal System, the company started with four boats. Today, 25 years later, the company operates 400 boats, growing by an average of 16 boats a year.

Striking similarities between the French and New York State canal systems that have purportedly contributed to the success of the European operation include:

- the existence of an extensive, navigable, inland waterway system;

- a coordinated, public/private partnership program to market and promote canal use;
- substantial public and private sector investment in canal infrastructure;
- the existence of a large tourism market;
- an attractive and varied landscape through which the canal systems pass; and
- an expansive history and legacy.

With respect to fleet size, the French company under study maintained an optimum fleet at each originating location of between 30 to 40 boats. The fleet is comprised of boats of varying sizes, ranging from a small boat with two to four berths to a boat that sleeps eight to ten people.

Based on this comparison and the staged completion of the charter-boating elements of the Canal Harbor projects (including the Canal Harbor located in Syracuse that is being developed separately, and in advance of the proposals included in Chapter 8), the projection can be made that additional charter boats will be instituted by existing and new operators and will over a five-year period reach 100 boats, the size of three optimum fleets. Thereafter, the fleet would increase to 280 boats within 15 years. Under the existing toll structure, revenues related

to charter boating would total \$84,000 annually when the fleet is fully built up.

Excursion Boats and Tour Boats

In 1994, there was a total of 14 excursion and tour boats utilizing the Canal System. Toll revenues from these operations totaled about \$14,000. While expansion is planned by existing operators, it is difficult to accurately forecast growth in this sector of boating. The implementation of the Canal Landings, coupled with an enhanced program to promote the Canal System, will result in an increased demand for these services as the Canal becomes a vacation destination. It is assumed that growth will occur gradually over the life of the Plan, increasing the available fleet by ten boats during the first ten years, commensurate with the completion of the new Canal Harbors, and growing to a total of 30 boats after full implementation of the Plan. Operation of 30 tour and excursion boats would yield total revenues of approximately \$30,000.

Table 9.6 summarizes the estimated total direct revenues resulting from each type of boating activity. It should be noted that the existing toll structure and rates are assumed, and the estimates do not reflect inflationary escalation or future changes to the toll system that could result in enhanced revenues.

**Table 9-6
Potential Direct Revenues from Canal Tolls on Recreational Boats
(Five-Year Projections)**

Type	Years 1-5	Years 6-10	Years 11-15	Total
Recreational	\$1,700,000	\$2,100,000	\$2,500,000	\$6,300,000
Charter	31,500	63,000	84,000	178,500
Tour/Excursion	18,000	24,000	30,000	72,000
Total	\$1,749,500	\$2,187,000	\$2,614,000	\$6,550,500

**Table 9-7
Major Permit Uses on Canal Lands, 1994**

Use	Number of Permits	Percent of Total	Annual Fees	Percent
1. Beautification or Caretaker	302	8.6	\$22,000	2.5
2. Camps, docks, ramps	510	14.6	213,000	24.6
3. Docks, ramps and slips	632	18.1	59,000	6.8
4. Marinas	48	1.4	108,000	12.5
5. Underground utility	127	3.6	54,000	6.2
6. Underground pipelines	178	5.1	135,000	15.6
7. Recreation	111	3.2	31,000	3.6
8. Overhead utility	177	5.1	44,000	5.1
	2,085	60.0%	\$666,000	

Permitting and Leasing of Canal-Owned Property

There are two vehicles available to the Canal Corporation for administering and managing the use and occupancy of canal-owned lands and waters. Historically, the issuance of permits has been the primary instrument utilized. However, pursuant to a New York State Constitutional amendment that was approved by voters in 1991, and statutory provisions enacted in 1992, the Canal Corporation is authorized to enter into lease arrangements for a period not to exceed 40 years. Given the potential ramifications of the Canal Recreationway Plan with regard to land use, lease agreements have yet to be consummated, pending the adoption of the Plan.

Benefits from Canal Land Permits

Permits are issued to individuals and organizations, both public and private, for a variety of reasons: housing, vacation homes, recreational areas, boat-launching sites and moorings, swimming beaches and shoreline scenic vistas. Businesses also make use of the canal lands for factories, warehouses, powerhouses, storage areas, water-supply facilities and terminal areas. Municipalities also use shorelines for wastewater-treatment plants, water supply and other public uses.

Presently there are approximately 3,500 use and occupancy permits that have been issued for an

estimated 5,800 uses of canal lands and waters. Most fees are based on appraisal of fair market value; however, certain classes of permits are set at a flat fee, and in some instances fees are waived. Revenue derived from permits is approaching \$1 million a year.

Permits are issued for approximately 27 different categories of land use. The majority of permit fees are concentrated in eight dominant uses. More than 75 percent of revenues collected in 1994 were attributable to these uses, and more than a third are derived from two sources, camps and marinas. Table 9-7 highlights the major revenue-producing components currently under permit.

While it is expected that certain permittees will convert to lease arrangements, it is assumed for the purposes of this analysis that the number of permits will remain constant and that existing fee levels will continue.

However, the Canal Corporation is striving to improve the administration of the permit program to insure equity, fairness and an appropriate revenue stream. One question that has arisen is the matter of issuing canal permits for docks located in the Canal, but with no state land on adjoining shore. This situation occurs in canalized river sections, where state land may or may not have been acquired when the Barge Canal was built. An estimated 1,000 docks along the Canal are currently not under permit.

**Table 9-8
Potential Lease Revenues from Canal Landing Projects
and other Developable Parcels**

Type	Years 1-5	Years 6-10	Years 11-15	Total
Canal Harbors	\$1,550,000	\$3,565,000	\$5,135,000	\$10,250,000
Other Key Parcels	87,000	261,000	725,000	1,073,000
Total	\$1,637,000	\$3,826,000	\$5,860,000	\$11,323,000

In addition, there are a number of other types of uses such as utility and pipeline crossings that, while under permit, do not reflect current permit-fee rates. Finally, in other instances permits have not been updated to reflect current value.

Uniform application of the current permit structure would result in incremental annual revenues of approximately \$600,000. Barring changes in the existing rate structure and assuming uniform application of the current permit structure, revenues over a five-year period would yield approximately \$7.3 million.

Benefits from the Leasing of Canal Land

One of the most important potential sources of new revenue for the Canal System is the leasing of canal land. As a general matter, lease revenues will primarily be derived from the development of commercial, industrial and other business ventures. Appendix A4 identifies canal-owned, key development sites with potential for leasing, including the Canal Landing projects, some of which also have potential for commercial activity.

For the purposes of analyzing the magnitude of direct-leasing benefits to be derived from the implementation of the Plan, prototypical projects were developed representative of the type of private development proposed in the concept plans for the Canal Harbor and Service Ports and Locks projects. These prototypes include mixed commercial development including retail, restaurant, boating related activities, and bed-and-breakfast establishments. Actual benefits, or revenues from leases, will be a function of the appraised value of the property, the specific type of use, the term of the lease, the revenues

generated by the use, and negotiation with lessees.

Table 9-8 summarizes prototypical revenues for leasing activities related to the Canal Harbor projects and other key development sites.

The following key assumptions were utilized in projecting potential lease revenues:

- *Canal Harbor Projects:* Consistent with the recommendations contained in Chapter 11, it is assumed that three Canal Harbor Projects (including the Syracuse Canal Harbor) will be completed during the first five years of implementation; three additional projects will be brought to fruition in the second five-year phase; and the remaining two Canal Harbors will be completed during the final phase of the Plan. Prototypical project elements have been assumed based on the Canal Harbor concepts described in Chapter 8.
- *Development at Other Key Locations:* As the Plan is implemented, boating and recreation increase, and the Canal Harbors begin to take shape, it is assumed that additional canal-related development will gradually occur and existing businesses will expand operations on canal-owned land. These opportunities include commercial shipping, small marinas and modest commercial development such as small restaurants or retail facilities, campgrounds, etc. It is assumed that 25 of the various Service Ports and Locks projects, key canal-owned land-development sites, and the many local projects identified in Appendix A7-b will be developed primarily in the latter two phases of the Plan's implementation.

- *Lease Prototypes:* Prototypes to estimate potential lease payments are based on existing real-estate market conditions in upstate New York for various types of uses including retail, restaurant, dockage and other commercial activities related to boating, bed and breakfast, and residential. Market conditions were adjusted in certain locations to account for areas that are economically disadvantaged. (See Appendix A9-a for leasing assumptions)

Canal Hydropower Leases

It is widely recognized that New York State is among the highest energy-cost states in the nation. United States Department of Energy figures in 1992 placed New York utilities in the top ten nationwide, ranked by average revenue per kilowatt hour to industry. Between 1988 and 1992, the average price that industry paid for electricity in New York increased from 107 percent of the national average in 1988 to 135 percent in 1992. This translated into a differential of some 3.86 cents per kilowatt hour above the national average of 7.06 cents per kilowatt hour.

The reasons for this differential are complex and contentious. Major utility companies blame New York's high taxes on the industry, high labor costs and mandated prices paid for surplus power from independent power producers. Independent power producers believe that they have brought competition, greater efficiency, superior cost performance and environmental benefits by using renewable energy sources.

What is clear is that the idea of competition in the utility business appears to be gathering inexorable momentum both nationally and in New York State. How this era of rapid change will eventually impact on the hydropower facilities on the Canal is impossible to predict. However, nearly all of the sites up for license renewal on the Canal System belong to major public utilities and are both low-cost facilities and environmentally sound.

The NYS Canal System is a significant generator of hydroelectric power in the state with 28 sites

generating some 174 megawatts (MW). Another 49 MW is currently being proposed for development either through expansion of capacity at existing sites or from new developments. All hydro sites are operated by commercial utilities and non-utility generators under 40-year licenses from the Federal Energy Regulatory Commission (FERC). Licensees are required to have an easement from the Canal Corporation prior to receiving a license from FERC to demonstrate to the Commission's satisfaction that the utility has effective control of the real-property assets necessary for power production during the period of the license.

During the period when the Canal System was operated by the State Department of Transportation, a variety of revenue arrangements were negotiated by the utilities and non-utility generators with several state agencies. As a result, seventeen hydro sites have licenses that were renewed or issued in the decade between 1981 and 1991 and will not be subject to any lease renegotiation by the Canal Corporation for several decades. Three sites were conveyed to utilities for lump-sum payments by the NYS Power Authority. The balance were conveyed for combinations of lump-sum or annual payments to either the NYS Department of Transportation or the NYS Office of General Services. For historic reasons, the state also does not have any control over seven sites on the system.

The fact that previous easements generated significant revenue for the state over the last fifteen years suggests that a planned program of hydroelectric easements focused on the sixteen sites that are now up for license renewal or development could generate significant revenue for the Canal Corporation. While it is also possible that new technology may make additional sites on the system commercially viable, an assessment of the potential for such technology is not part of the current study. It should be noted that a 1988 study of canal hydropower estimated that the maximum feasible capacity was 211 MW. In 1994, the total on line plus proposed expansion and development totaled 223 MW.

The dynamic transformation of the utility industry that currently appears to be under way adds a

measure of uncertainty in making any accurate projection of revenue to be derived from the available sites. Nevertheless, the primary focus of the Canal Recreationway Plan in relation to hydroelectric power should be to focus on the potential of the sixteen available sites and initiate a systematic effort to negotiate annual lease payments with the affected utilities extending over the life of the FERC licenses. Once negotiated, such revenues could then be programmed as a predictable revenue stream in support of the Canal Recreationway Plan.

The Canal Corporation has in fact initiated such a process and is working with an expert consultant in a coordinated effort to develop these licenses as an important revenue source. While actual realized revenue will be a function of specific license analysis, evaluation and negotiation, an estimate of annual revenue to be received from the sixteen sites can be calculated using standard industry formulas.

Assuming the Canal Corporation will be successful in negotiating leases on all sixteen sites over the next five years, and using a low/high estimate of the percentage of total revenue generated, the potential yield could range between \$2.9 million and \$5.1 million, or an average of \$4 million in annual revenue. The assumptions used to calculate these figures are included in Appendix A9-b.

Other than the prospect of contributing toward lower power rates for industrial users in the state, only limited economic development benefits can be anticipated from any projected growth of hydropower on the Canal. Some additional jobs may result from the new or expanded sites but they would be minimal given the high level of automation in the industry.

9.4 COMMERCIAL SHIPPING

An assessment of the future of commercial shipping on the NYS Canal System, based on a review of the trends in commercial traffic over recent decades, would conclude that the outlook for the future is bleak indeed. In just the last

decade, commercial tonnage has declined from some 600,000 tons in 1983, to 154,000 tons in 1993 and 67,000 tons in 1994.

The obvious question to ask at the outset is why bother spending money on the development of commercial shipping on the Canal System in the face of the clear trends of recent decades? The answer is that New York State – the tenth largest economy in the world – cannot afford not to reinvigorate this key waterway as part of its multi-modal transportation network.

Increasingly, this is an era when companies are focused as never before on driving down the cost of their transportation and logistics. If the state wishes to enable its ports, shippers and industries to remain competitive in the global marketplace, it cannot afford to neglect this strategic resource. This is especially true in view of the clear evidence that inland water transport (IWT) offers significant economies that have been demonstrated both elsewhere in the United States and abroad, especially in the European Community (E.C.). A multi-modal, cost-competitive, efficient transportation infrastructure has also emerged as a key incentive for businesses seeking to relocate.

A review of transportation trends nationally and world-wide suggests that the potential for commercial use of the system is as great or greater now than it ever was. The reality is that the NYS Canal System serves as a critical strategic link in an extraordinary inland waterway system that ties the New York and Canadian ports into the Great Lakes and the Atlantic. This IWT system is likely to become increasingly vital as truck and rail traffic run up against limits on acquiring new right of way, an increasingly congested network and environmental pressures. The trucking industry is experiencing escalating labor costs and a chronic shortage of drivers that also should contribute to making IWT increasingly attractive.

In the development of the Plan, it became evident that the decline in commercial traffic in recent decades has, in large part, reflected a lack of both national and state focus on ports and waterways generally and the intermodal infrastructure requirements necessary for them to be

commercially viable. In contrast to New York and the U.S. generally, IWT is the focus of major development efforts virtually everywhere in the world, from Europe to China.

A Maritime Heritage and a Global Perspective

In any effort to determine the future commercial role of the Canal System, it is valuable to reflect on the historical role that ports and waterways have played in the development of our nation and state. The U.S. is a maritime nation. This fact is at the heart of our economy and our strategic role in the world. New York is a maritime state. The maritime industry in New York State is today a \$14 billion industry. The economic transformation of the state into the Empire State and the extraordinary development of the Port of New York resulted primarily from a waterways development project – the Erie Canal.

Today, 95 percent of all goods shipped in the world travel by water. In the U.S., IWT is the least expensive transport mode, with costs averaging ten times lower than trucks and four times lower than rail. Even more interesting is the fact that U.S. IWT is also the least expensive among other well developed waterway systems in the world. The IWT cost in Europe per ton-mile averages five to ten times higher than in the U.S.

With that fact in mind, consider the following: In the U.S. and in New York there are virtually no container-on-barge operations. By contrast, there are twelve large barge companies with 60 vessels – mostly self propelled – operating between Rotterdam and Germany, carrying about 800,000 containers a year. A network of inland container terminals has been developed, and waterways operators aggressively seek to attract more general cargo for IWT. The share of river transport in the haulage of containers between Rotterdam (Europe's biggest container port) and Germany rose 35 percent in 1993, up from only five percent in 1978. The cost of shipping containers by water has fallen by 25 percent over the last ten years.

Inland Water Transport in the United States and the European Community - A Study in Contrasts

In many regions of the world, there is a renaissance underway in the development and utilization of national waterways. The E.C. experience is especially relevant, as its transportation planners have come to recognize that they must increasingly depend on IWT because of many of the same factors that are becoming increasingly evident in New York. These factors include:

- Increasing congestion of highway networks and severe limitations on the E.C.'s ability to expand road nets to meet growing demands. (In the U.S., virtually all federal funds allocated for road construction are for the renovation of the existing system.)
- The possibilities of integrating inland waterways with coastal ports for export/import and coastal traffic. Similar possibilities are obvious in New York State.
- The high capacity level of IWT and its environmental advantages. Similar advantages exist in New York.

The E.C. white paper on "The Future Development of the Common Transportation Policy" specifically includes inland waterways as a component in creating an optimum transportation system. In addition to modernizing existing waterways, the Europeans have undertaken major new developments to create a well-connected international waterway system. In 1992, the 2,200-mile-long Rhine-Main-Danube waterway was completed at a cost of \$2.5 billion. France has announced two major waterway projects: The Rhine-Rhone Canal of some 142 miles at a cost of \$3.3 billion, and the Seine-Nord Canal of 88 miles linking the Paris region with northern France, at a cost of \$1.7 billion.

There are also important differences in perspective between the United States and Europe over waterway user charges. In Europe, these charges are limited to symbolic amounts, collected at the passage of navigation locks. The United States,

by contrast, collects significant funds in waterway user charges. Therefore, virtually all financing of maintenance, operation and construction of waterways in Europe comes from public funds.

In New York, canal tolls were removed during the period when canal commercial traffic went into decline. A constitutional amendment was required in 1991 to re-authorize them, and the 1994 operating season was the first full year tolls were collected. At present, there is no basis on which to predict whether it will be possible to generate more than nominal amounts of toll revenue from commercial traffic. For the purposes of this analysis, marginal increases in the number of shippers and the amount of toll revenue are assumed. Furthermore, the trend on the St. Lawrence Seaway, at least on the American side, is to remove all seaway tolls.

IWT also receives a much larger percentage of the infrastructure budgets in the E.C. than here in the U.S. The inland-waterway portion of the E.C. Trans-European Transportation Network budget is \$15.8 billion, or six percent of the total. In the United States, the inland waterways budget is about 0.7 percent or \$0.8 billion, out of a \$121 billion transportation infrastructure budget. This is nearly ten times lower than Germany or the Netherlands. In Germany, the waterways' share of total transportation expenditures for the next ten years will increase by 50 percent.

In New York, the only known state expenditures related to ports and waterways development are about \$51 million. That entire amount is being spent by the Canal Corporation in operating and upgrading the Canal System. There have been no state expenditures on port development since the 1983 transportation bond issue. By contrast, the state's Dedicated Transportation Fund that went into effect on April 1, 1993, will spend some \$21 billion on transportation needs through March 31, 1997. There is not one dollar identified in that program for ports or waterways. Further, no agency of state government is currently focused on ports and waterways policy or financing, nor is there any agency of state government currently capable under state law of providing any funds to any port or waterway project.

Europeans have also developed an intermodal system and introduced a wider array of vessel technologies than currently exist on U.S. or New York waterways. They include a variety of self-propelled and coastal vessels; whereas, in the U.S., IWT equipment consists exclusively of barges and push-tugs. In the E.C., the ratio between barges and self-propelled vessels is about 50:50. There is also increased utilization of self-propelled vessels of about 3,000 tons referred to as river/ocean vessels capable of crossing the North and Baltic Seas and calling on inland ports.

Historically, variants of such vessels were developed and operated on the Canal System and on the Great Lakes after the opening of the modern Barge Canal in 1918. The last of one class of such vessels, the cement hauler "Day Peckinpaugh," ceased operation on the Canal System after the 1994 season.

There are other important distinctions between the E.C. and U.S. IWT. Notwithstanding the low cost and high efficiency of U.S. IWT operators, the U.S. industry lacks diversity of services. IWT in the U.S. is virtually the only mode of transportation that is not involved in intermodal operations. Rail, trucking and ocean carriers are energetically involved in providing "door-to-door" services and creating effective alliances between the modes.

U.S. barge operators, with few exceptions, limit their services to within the waterway system, and most barge traffic consists of movements of bulk cargo from point to point. By contrast, other inland waterway systems show much greater diversity of services and more actively participate in intermodal operations. In the United States, the list of commodities moving by water is also relatively short: grain, coal, petroleum products, and construction materials. With the exception of grain, this has also been the experience on the Canal System.

Another important contrast between the European and American experience in IWT is the role of environmental regulation. In the E.C., environmental advantages are the major reasons

for the public and governments to favor traffic diversion from land to water. In several countries of the E.C., large trucks are banned from using the highways on weekends. In the United States, environmental regulations – especially as they relate to dredging and the movement of petroleum products – have had the effect of slowing down or preventing further development and greater utilization of inland waterways.

Positive Factors for the Future of Commercial Shipping

There are a variety of developments and indicators that suggest that the Canal System, functioning as part of an integrated New York ports-and-waterways system, can provide a commercially competitive transportation option. These factors include:

- The Canal System is in excellent operational condition, has dependable lock operations and a well-maintained, functioning infrastructure.
- In a highly significant accomplishment, the Canal Corporation has recently received a permit for a five-year dredging program from the NYS Department of Environmental Conservation and the U.S. Army Corps of Engineers. This will allow the dredging of some 90 percent or 3.5 million cubic yards of the 3.9 million cubic yards of silt it needs to remove.
- The Corporation believes that the five-year program will enable dredging to the published 14-foot depth in the most commercially viable section of the Canal, Waterford - Three Rivers - Oswego.
- As a result of a survey of some 2,000 New York companies and recent meetings with waterways operators, shippers, port operators and other transportation experts, there is clear enthusiasm for supporting initiatives to enhance commercial operations on the Canal.
- The Canal System is contiguous to, and in most cases parallel with, the NYS Thruway and other major roads, and many of its existing terminals have access to rail networks. It has the intrinsic potential to be

intermodal – a necessary capability for a transportation system in the 21st century.

- Costs to shippers and waterways operators of using the Canal is likely to remain nominal, in an effort to generate traffic while complying with the intent of the "Thruway 2000" legislation to generate revenue to support the operation of the Canal System. Current toll rates for shippers is a flat fee of \$750 a year, which generated approximately \$8,000 in revenue in 1994.
- There is clear and empirical evidence from the E.C. that, despite significantly higher costs than currently experienced on U.S. IWT, large intermodal inland waterway systems are commercially viable and can move a wide variety of bulk commodities and containerized cargo.
- Environmental considerations, significant increases in truck traffic on constrained road nets especially in the Northeast, and limitations on the rail network will inevitably generate increased interest in use of the waterways, as is now the case throughout the E.C.

Factors Inhibiting Commercial Shipping

Several important considerations serve to inhibit the development of commercial shipping.

- There are two operational impediments that cannot be completely overcome: the seasonal nature of the canal operation, which normally allows operation for some 210 days of the year; and second, limitations on the size of locks (300 ft. x 45 ft.), depth of channel (12 - 14 ft.) and air draft – the distance between mean high water and bridges (15 - 20 ft.). While it is believed that some of the equipment currently in use in the E.C. could function on or could be adapted to the main section of the Canal System, this needs to be the subject of a separate technical study.
- The Canal System is not yet integrated into the state or regional transportation planning system, and there is no coherent statewide planning relating to the development of New

York's ports and waterways infrastructure. The Canal Corporation should play an important leadership role in fostering such an effort.

- There is a lack of private investment in the kinds of vessel technology that enables the E.C. IWT to operate as extensively and flexibly as it does. The Canal Corporation should work closely with the waterways operators to foster the development of viable commercial ventures that might enable such vessels and the necessary supporting infrastructure to be introduced into the U.S..
- It is highly likely that with all the pressures on its resources, the Thruway/Canal Corporation alone will not be able to provide the level of financing that may be required for the extensive development of commercial shipping. An effort should be made on the part of the Canal Corporation to seek broader support from state or federal appropriated funds and partnerships with the private sector.

Commercial Shipping Goals

The primary objective in redeveloping the Canal's commercial shipping capabilities should be to provide a commercially competitive water-transportation system that will offer New York State shippers a viable option for intermodal IWT so as to enable them to compete more effectively in world and domestic markets. In the process, the growth of canal commercial traffic will contribute to the development of important segments of the port system and the shipping industry. It will also contribute some modest revenue to the Canal Corporation.

To accomplish these objectives, the following five commercial shipping strategies are recommended:

1. *Implement the dredging program expeditiously* so as to clear the Waterford - Three Rivers - Oswego section of the Canal as an immediate priority. All potential waterways users - from shippers to the waterways operators - are united in the view that a reliable and consistent depth, definitively and widely communicated, is the absolute requirement for a revitalized commercial

system. It is also necessary for large off-shore recreational vessels and sailboats that routinely transit the Canal. It is often overlooked that the Canal serves a vital function as a segment of the federal inland waterway system from New York Harbor to Canada.

2. *Develop a comprehensive, high-quality communications and marketing program - "The Canal Commercial Marketing Plan" - to market the Canal System in cooperation with the state's major ports. This plan should include a section focused on developing increased commerce with Canada--the eighth largest economy in the world.*
3. *The Canal Corporation should play a leadership role in fostering the development of a unified marketing plan at the state level that incorporates the major ports and waterways of the state. The Canal Commercial Marketing Plan would be a component of such a statewide effort. One excellent model is the "Great Waterway" marketing concept of the ports and waterways of the Snake River System in the state of Washington.*
4. *Working closely with the Metropolitan Planning Organizations, develop a comprehensive perspective on future trends in truck and rail growth over the coming decade to guide the preparation of the commercial marketing plan and to enhance future marketing and intermodal opportunities. Such planning should include an assessment of the emergence of logistics and distribution centers as a new and increasingly significant element in the transportation business and their potential for economic development on both the Canal System and the Thruway.*
5. *Working with industry representatives, determine what appropriate role(s) the Canal Corporation might play in providing certain "clearinghouse" functions between shippers, waterways operators and the ports. This might include such functions as maintaining a current list of companies and equipment capable of operating on the system or circularizing requests for proposals between operators and shippers.*

**Table 9-9
Direct Revenues to the Canal Corporation
(Five-Year Projections)**

Revenue Source	Years 1-5	Years 6-10	Years 11-15	Total
Boating Tolls	\$1,749,500	\$2,187,000	\$2,614,000	\$6,550,500
Property Permits	7,325,000	7,325,000	7,325,000	21,975,000
Property Leases	1,642,000	3,826,000	5,860,000	11,328,000
Hydro Leases	4,000,000	20,000,000	20,000,000	44,000,000
Commercial Shipping	41,875	56,250	75,000	173,125
Total	\$14,758,375	\$33,394,250	\$35,874,000	\$84,026,625

9.5 SUMMARY OF DIRECT REVENUES TO THE CANAL

Table 9-9 summarizes the potential direct revenues to the Canal Corporation from existing recreational tolls, permit fees, lease payments, hydroelectric leases, and commercial shipping tolls.

- \$210 million in annual tourism expenditures related to canal visitation;
- \$8.2 million a year in state sales-tax receipts;
- \$7.3 million a year in local sales-tax receipts;
- the creation of 2,700 jobs; and
- \$84 million over a 15-year period in direct revenues to the Canal Corporation.

9.6 CONCLUSIONS: ECONOMIC BENEFITS

The implementation of the Canal Recreationway Plan will spawn substantial economic benefits. The primary benefits of the Plan will be related to expenditures by tourists and the resulting generation of economic spin-off. The economic analysis demonstrates that the redevelopment of the Canal System can again create unparalleled economic opportunities, serving as a catalyst for economic growth, community revitalization and job creation.

Moreover, the analysis suggests that the benefits of the Plan are substantial and lend support and justification to the investment of governmental and private resources. These benefits can be summarized as follows:

- 1.3 million annual visitors to the Canal System;